

UNITED STATES DEPARTMENT OF LABOR

WASHINGTON, D. C.

BEST AVAILABLE COPY

Re the letter of:

DOBBIE HEARING

REVIEW OF THE EXPOSURE TO ASBESTOS DUST,
PROPOSED REGULATIONS

Conference Room B
Interdepartmental Auditorium
12th & Constitution Ave., N. W.
Washington, D. C.
Tuesday, March 14, 1972

The above-entitled matter came on for prehearing
conference, pursuant to notice, at 10 o'clock a.m., Tuesday,
March 14, 1972.

Present:

WILLIAM R. GONZALES, Hearing Examiner

Also Present:

J. GONZALES, Esq.,
Office of Solicitor, OSHA

J. J. GONZALES, Director,
Office of Standards, OSHA

**PLAINTIFF'S
EXHIBIT**

GF-803

PROCEEDINGS

PLANNED CONFERENCES: I think many of you have already made requests that we have been able to accommodate on the flexibility of your appearances.

My name is Arthur H. Goldberg. I am a Hearing Examiner in the Office of Hearing Examiners, United States Department of Labor, and I have been designated to conduct this hearing for the purposes of rule making by the Secretary of Labor under the Occupational Safety and Health Act.

We will have a conference this morning in which we will attempt to lay down some of the ground rules and take and act upon applications, if there are any, for the changing of the time of appearance for the presentation of oral testimony.

First let me say that under the announcement which was published in the Federal Register on January 12, 1972, the hearing was scheduled at 10:00 a.m. this morning, and I also call your attention to Title 29, Labor, published in Volume 36, No. 170, of the Federal Register, which provides that the rule making hearings shall be informal and legislative in nature. The rules also provide that there is an opportunity for cross-examination on essential matters.

Now we have a very long agenda of persons who wish to appear and I will afford the opportunity for cross-examination of essential points, but I ask you if such occasion arises to ask yourself several times whether it is really

essential that cross-examination take place.

Another point has developed in the course of this morning's preconference discussions, and that is that a number of the parties who are appearing here intend to read into the record statements which are already in writing.

Now, you were asked to appear this morning with sufficient copies of any statements which you wish to place in the record so that they could be distributed to other persons. The purpose of that was to cut down on cross-examination and it also affords another opportunity for shortening this hearing.

There is really no point in reading a written document into the record if that written document can be presented as a part of the record, so I ask any of those who are here who have already been afforded time on the schedule who intend to read a document into the record that they seriously consider the alternative of offering that at the opening of the hearing as an exhibit which will be made part of the record and which will be afforded the same weight in the deliberations which go into the making of the rule on the asbestos abatement as oral testimony will be afforded.

Mr. DeGregorio, are there any matters you wish to present at this time?

MR. DE GREGORIO: Mr. Examiner, perhaps it may be a good idea to say that we anticipate the hearing to proceed more

as follows: This afternoon I assume the Hearing Examiner will have some opening remarks, then Mr. Scannell, Director of the Office of Standards, will have some opening remarks and will introduce certain exhibits, or would offer for the record certain exhibits which I hope should need no explanation because they are mostly Xerox copies or other kind of copies of documents which are in the possession of most, I hope, of the participants, and then I may say that the exhibits consist mostly of copies of the petition for the promulgation of a temporary emergency standards, copies of temporary emergency standards, copies of the notice of this proceeding, copies of the NIOSH criteria, copies of the recommendations of the Advisory Committee appointed in connection with this proceeding, and some of the copies of documents which, I repeat, should not be controversial. And after that I hope that we are ready to begin the presentations by interested persons.

EXAMINER GOLDBERG: Fine.

Now, exhibits will be marked by number in the order of their receipt and at this point I would say to Mr. Scannell that you may mark your exhibits, because they will be the first ones coming in.

I would think, however, that it might be well to start your numbering with 2, and we will make a copy of the notice of this hearing published in the Federal Register as

1 Exhibit 1.

2 Mr. DeGregorio, could you get me two copies of that
3 for that purpose?

4 MR. DE GREGORIO: Yes, sir.

5 EXAMINER GOLDBERG: All exhibits will be received
6 in duplicate.

7 Now, at this point I have before me a tentative list
8 of the order of appearance which conforms to the notification
9 which you received in letters from me as to the time that you
10 would appear.

11 Certain changes have already been made and I will go
12 through the list as I have it now. If you are here when your
13 name is called and you wish a change to be made, please rise
14 at that time, identify yourself and tell us what the change is.
15 If you are not here, I will assume that you are agreeable with
16 the schedule.

17 Mr. Scannell will go on first. There will then be
18 a short presentation by a Mr. Daniel Mackiborki. This will
19 be followed by Dr. Nicholson.

20 We then have scheduled a Mr. Taylor, who I under-
21 stand represents the American Federation of Labor Congress of
22 Industrial Organizations. Mr. Taylor has requested that he go
23 on later in the week. And Mr. Neumann, who is scheduled for
24 Friday afternoon, has requested the opportunity to go on this
25 afternoon.

1 Mr. Neumann, I will switch you at this time with Mr.
2 Taylor and you will go on this afternoon following Dr. Nichol-
3 son's presentation.

4 MR. NEUMANN: Thank you very much.

5 EXAMINER GOLDBERG: Mr. Neumann will be followed by
6 Dr. Wolfe, and that will conclude the witnesses appearing this
7 afternoon.

8 For tomorrow morning, Mr. Gross will be the opening
9 witness.

10 Sir?

11 MR. WODKA: Do you have Mr. Mazzocchi scheduled for
12 this afternoon?

13 MR. DE GREGORIO: This morning it appeared there was
14 a notice of appearance sent to us which apparently was mis-
15 placed and I tentatively agreed, subject to the approval that
16 there is time this afternoon for their presentation, and I cer-
17 tainly agree that they should have their presentation this
18 afternoon if there is time.

19 EXAMINER GOLDBERG: Who is the gentleman who will
20 appear?

21 MR. WODKA: Mr. Mazzocchi, M-a-z-z-o-c-c-h-i.

22 EXAMINER GOLDBERG: Mr. Mazzocchi will come on then
23 following Dr. Wolfe this afternoon.

24 MR. WODKA: Thank you.

25 EXAMINER GOLDBERG: We go back to tomorrow morning.

1 We will start at 9:00 a.m. tomorrow morning. The first witness
2 will be Mr. Gross. He will be followed by Dr. Cooper and Mr.
3 Holaday, Mr. Holmes and Mr. Fay.

4 MR. ROYER: Mr. Fay has agreed to switch places
5 with Mr. Sheckler and Mr. Royer, who are on tomorrow afternoon.
6 Would you please make that switch?

7 EXAMINER GOLDBERG: Yes, the change has been made.

8 Now it is possible to put another witness on tomor-
9 row because Mr. Gross informs me that rather than the hour he
10 has been allocated he will require only a maximum of twenty
11 minutes.

12 Is there anyone who is scheduled for later who
13 wishes to go on tomorrow morning instead?

14 MR. SUMWALT: Mr. Examiner, my name is Sumwalt and
15 I was scheduled originally, I believe, Friday the 17th. As
16 much as I would enjoy sitting here and listening to the
17 comments, I would prefer to come on as soon as you can find
18 an opening.

19 EXAMINER GOLDBERG: How much time will you require?

20 MR. SUMWALT: May I ask you a question?

21 EXAMINER GOLDBERG: Certainly.

22 MR. SUMWALT: I am a little confused and I hope
23 possibly you can help me out. I would like to abide your
24 recommendation and seriously consider it. We have already
25 submitted our testimony to the Office of the Secretary and if

not insist in running this thing smoothly, we would seriously consider not appearing. Those that I represent have done that and I should like to ascertain what is the topics that we would be permitted to testify on.

I am under the impression that the only document is that which appeared in the Federal Register, which appeared in the Federal Register on January 12 as a proposed set of rule making upon which we made our comments.

Since that time, however, and Mr. Attorney there mentioned a recent age you state that comments would be accepted. If I understand you correctly, on the criteria which, also the recommendations of the Advisory Committee to the Secretary, all of which I was under the impression until this morning we had no right to comment on since it has not been published.

My question therefore, Mr. Examiner, is will we be permitted to comment upon the recommendations of the Advisory Committee to the Secretary?

EXAMINER GOLDBERG: Mr. DeGregorio, can you help us with that?

MR. DE GREGORIO: Mr. Examiner, this proceeding was initiated by the publication of an Interim Emergency Standard, following that a notice of some proposed rules. Following publication of the Notice, we did have recommendations of the Advisory Committee and we also did have or did receive

...written comments in connection with the proposed rules as published on January 12, 1972.

In a way, to be technical about it, the recommendations of the Advisory Committee and the NIOSH package also, and the written comments were all with regard to the proposed rules.

Some people suggested a change one way or the other, but I have no intention to be technical and I have no objection to any views or any comments being expressed on the recommendations of the Advisory Committee or on the recommendations of those or of the written presentations of other interested persons.

Does that answer your question?

MR. GUMWALT: Yes it does, sir.

Then, Mr. Examiner, I would appreciate getting on as early tomorrow as I can.

EXAMINER GOLDBERG: Now we will get back to my question: How much time will you be taking?

MR. SUPERINT: Fifteen minutes.

EXAMINER GOLDBERG: Mr. Sumwalt, I am putting you on
as the last witness for tomorrow morning.

MR. SUMMERS: Thank you, sir.

ERDMAN GOLDBERG: We now get to tomorrow afternoon, March 18. I have first Mr. Brooks.

Yes, sir.

1 MR. SWETONIC: I am Mr. Swetonic, who is appearing
2 with Mr. Fay. I would just mention that Dr. Wild who is on
3 this list will not appear to testify. He is the third repre-
4 sentative of the Asbestos Information Association.

5 EXAMINER GOLDBERG: Does Dr. Wild appear on the list
6 you gave me, Mr. DeGregorio?

7 MR. DE GREGORIO: I do not see the name.

8 May I ask who signed the Notice of Appearance?

9 MR. SWETONIC: Mr. Fay.

10 MR. DE GREGORIO: Mr. Fay is on the Notice. It is
11 in the morning, the last person.

12 EXAMINER GOLDBERG: We already made a switch for
13 Mr. Fay.

14 MR. SWETONIC: All right, no problem.

15 EXAMINER GOLDBERG: To get back to the afternoon of
16 March 15, tomorrow, first Mr. Brooks.

17 MR. BROOKS: The witness will be Dr. Lain Tetrick;
18 Dr. Lain Tetrick, M.D.

19 Would it be possible as you see that docket to move
20 Dr. Tetrick earlier? I think he will take not more than 15
21 minutes.

22 EXAMINER GOLDBERG: He will be the first one on
23 tomorrow afternoon right after lunch.

24 MR. BROOKS: Do you see any other opportunities at
25 this time?

1 EXAMINER GOLDBERG: No, I do not. However, if Dr.
2 Tetrick is in the hearing room tomorrow morning and some time
3 should develop, I would be happy to put him on.

4 Second tomorrow afternoon, Mr. Marsh.

5 MR. MARSH: Yes, sir. That is satisfactory with us.

6 EXAMINER GOLDBERG: That was a pleasant word, sir.
7 Thank you.

8 Tomorrow afternoon, Mr. Fay, Mr. Padden.

9 MR. PADDEN: Mr. Examiner, my comments are in writing
10 and can be submitted for the record.

11 EXAMINER GOLDBERG: Why don't you do that at the
12 opening of the hearing this afternoon?

13 We have Mr. Fay, Mr. Padden will not testify, and we
14 have a Mr. Leonard, a Mr. Luxon, L-u-x-o-n --

15 MR. SCANNELL: Mr. Goldberg, Mr. Luxon is from the
16 United Kingdom and we have not heard as to when he will arrive
17 in the United States, if in fact he will at all.

18 EXAMINER GOLDBERG: All right, thank you.

19 We will hold that time for him for tomorrow after-
20 noon. If he does not appear, he does not appear.

21 And finally for tomorrow afternoon, I have Mr.
22 Rawlings of Union Carbide.

23 MR. JOHNSON: Would it be at all possible to have
24 that 15 minutes on Thursday, sir?

25 EXAMINER GOLDBERG: You are?

1 MR. JOHNSON: I am Mr. Johnson, and I work with Mr.
2 Rawlings.

3 EXAMINER GOLDBERG: You would rather switch to
4 Thursday from tomorrow afternoon?

5 MR. JOHNSON: Yes sir, anytime at all.

6 EXAMINER GOLDBERG: Let's go through Thursday and
7 see how it develops and remind me if I forget.

8 We now go to Thursday morning, March 16. First we
9 have Mr. Pundsack.

10 MR. PUNDSACK: Mr. Examiner, I am Mr. Pundsack. We
11 have a group of witnesses who are scheduled to appear on Thurs-
12 day and I wonder if I might have your permission to have those
13 witnesses appear in the following order: J. P. Jobe, J-o-b-e;
14 Dr. G. W. Wright, W-r-i-g-h-t; Dr. J. C. MacDonald, M-a-c-
15 D-o-n-a-l-d; Dr. T. H. Davison, D-a-v-i-s-o-n; Mr. E. M.
16 Fenner, F-e-n-n-e-r; myself, F. L. Pundsack, P-u-n-d-s-a-c-k;
17 and Mr. H. B. Moreno, M-o-r-e-n-o.

18 I think the names of all of these were submitted in
19 my correspondence with your office.

20 EXAMINER GOLDBERG: What will be the total time that
21 these seven people will take?

22 MR. PUNDSACK: These seven people will complete
23 their testimony in two hours and fifteen minutes.

24 EXAMINER GOLDBERG: Will each of them testify as to
25 different matters, or will it be of a cumulative nature?

1 MR. PUNDSACK: They will testify to different matters,
2 but the testimony flows together as a whole.

3 EXAMINER GOLDBERG: Well, we are not going to upset
4 your scenario.

5 MR. MARSH: Sir, I am John Marsh. I didn't realize
6 you wanted the names of the persons who would testify.

7 EXAMINER GOLDBERG: That is not necessary, sir. You
8 have your time and your time of appearance, and we have you
9 down for approximately one-half hour.

10 MR. MARSH: Yes, sir.

11 EXAMINER GOLDBERG: Following Mr. Pundsack and those
12 who will accompany him, I have Mr. Samuels for Thursday morning.
13 Mr. Samuels.

14 MR. SAMUELS: I would like to request I be heard
15 later in the week, if I may. I have been called to Richmond,
16 Virginia. If necessary, I will appear at that time, but I
17 would appreciate that courtesy.

18 EXAMINER GOLDBERG: You are on for an hour?

19 MR. SAMUELS: Yes.

20 EXAMINER GOLDBERG: Do you need an hour?

21 MR. SAMUELS: Well, I would be willing to turn in 15
22 minutes.

23 EXAMINER GOLDBERG: Are there any persons here who
24 have been notified that they are on for Friday afternoon who
25 wish to switch to Thursday morning?

1 I see a hand. Step forward, sir.

2 MR. SCHINNERER: My name is Albert D. Schinnerer,
3 from the Western States Occupational Health Plan. I am sched-
4 uled for Friday afternoon, I think, along with Frank Caleyory.
5 I don't believe Frank is here.

6 Ed Story, are you taking his place?

7 MR. STORY: Yes, I am, and I would like to go on at
8 the same time you do, if possible.

9 MR. SCHINNERER: So there will be two of us.
10 I have ten minutes.

11 MR. STORY: Five is sufficient for me.

12 MR. SCHINNERER: It would be 15 minutes for the
13 Asbestos Workers, Western States Occupational Health Plan.

14 EXAMINER GOLDBERG: We will put you in tomorrow
15 morning, then, following Mr. Pundsack, if that is agreeable.

16 MR. PUNDSACK: That would be Thursday morning, I
17 believe.

18 EXAMINER GOLDBERG: You are right, Thursday morning.
19 Just let me make this change.

20 MR. SCHINNERER: Mr. Story's name is S-t-o-r-y, and
21 my name is S-c-h-i-n-n-e-r-e-r.

22 EXAMINER GOLDBERG: All right, I am taking you off
23 of Friday afternoon.

24 MR. NICHOLSON: I am Dr. Nicholson. A colleague of
25 mine, Dr. Kinsley Kay, had at the end of his brief which was

1 submitted in a written statement requested time. It was not a
2 separate letter and was overlooked, and he did not receive a
3 notification but he would like very much to appear and if it
4 were possible at this time, if that would be quite satisfac-
5 tory.

6 EXAMINER GOLDBERG: Do you have any idea how much
7 time he wants?

8 MR. NICHOLSON: Perhaps twenty to thirty minutes at
9 the most.

10 EXAMINER GOLDBERG: All right, we will put him in
11 then Thursday morning.

12 What is his full name?

13 MR. NICHOLSON: Dr. Kinsley Kay, K-a-y.

14 EXAMINER GOLDBERG: We will put him in for thirty
15 minutes.

16 Mr. Samuels, if you will spend the time between now
17 and Friday afternoon cutting it down to about a half hour, we
18 will put you in Friday afternoon.

19 MR. SAMUELS: I will attempt to do so. Thank you.

20 EXAMINER GOLDBERG: And the final witness for Thurs-
21 day morning is a Dr. Cooper.

22 Is he here?

23 DR. COOPER: I have already been changed to tomorrow
24 morning, sir.

25 EXAMINER GOLDBERG: All right, Dr. Cooper.

1 We have more time now for Thursday morning, if any-
2 one wishes to switch.

3 Take the mike, sir.

4 MR. JOHNSON: You asked I remind you about Mr.
5 Rawlings from Wednesday to Thursday. Would this be a possi-
6 bility, sir?

7 EXAMINER GOLDBERG: All right, we will put Mr.
8 Rawlings in Thursday morning.

9 We now get to Thursday afternoon, March 16. I have
10 Mr. Bratt.

11 MR. BRATT: Satisfactory.

12 EXAMINER GOLDBERG: Thank you.

13 Mr. Roberts.

14 MR. BRATT: Mr. Examiner, I think that is Dr.
15 Roberts.

16 EXAMINER GOLDBERG: All right, sir.

17 DR. VANIG: I am Dr. Vanig, who was hoping to get on
18 today unless Dr. Roberts could be here. I will try to find him
19 and see if he still would like to hold this or if he wants to
20 switch his testimony for the record. I will let you know as
21 soon as possible. Otherwise it is satisfactory.

22 EXAMINER GOLDBERG: Thank you.

23 Third, we have Mr. Leaman of Certinteed.

24 Four, we have Mr. Weiner and Mr. J. G. Hall.

25 MR. HALL: That is just Mr. J. G. Hall.

1 EXAMINER GOLDBERG: All right.

2 Five, we have a Mr. Rainey.

3 MR. RAINEY: That will be fine, sir.

4 EXAMINER GOLDBERG: And sixth, for Thursday after-
5 noon, we have Dr. Merrill.

6 DR. DISABO: For Mr. Merrill would you use Dr.
7 Disabo, D-i-s-a-b-o?

8 EXAMINER GOLDBERG: Fine. That will be Thursday
9 afternoon.

10 Friday morning, Mr. Walls.

11 MR. WALLS: I would take a half hour, sir.

12 EXAMINER GOLDBERG: Mr. Knauber.

13 Mr. Holaday.

14 MR. HOLADAY: I have been changed to tomorrow morn-
15 ing. Dr. Cooper and I are occupying the slot allotted to Dr.
16 Nichols.

17 EXAMINER GOLDBERG: All right, fine. We are taking
18 you off of Friday morning.

19 Four, I have Armstrong Cord.

20 MR. BIBRI: I am L. J. Bibri, B-i-b-r-i. Friday
21 morning is O.K.

22 EXAMINER GOLDBERG: All right, sir. We have you
23 down for 20 minutes. Is that satisfactory?

24 MR. BIBRI: Yes, sir.

25 EXAMINER GOLDBERG: Now, with Mr. Holaday switched,

1 if there are people who have not been called or who know they
2 are on for Friday afternoon who want to catch an earlier plane
3 or Friday, we can accommodate you.

4 Let me read off what I have for Friday afternoon:

5 Messrs. Beasley and Weiner, Mr. Kusmuk, Mr. Lavalette,
6 Mr. Taylor, Mr. Whittaker, Mr. Samuels, and Mr. Perkel.

7 Sir?

8 MR. KILLIAN: Mr. Examiner, I am Ed Killian. I had
9 notification from your office of being granted time to appear.
10 I haven't heard my name and I would like, if possible, to be
11 scheduled for Thursday afternoon.

12 EXAMINER GOLDBERG: How much time will you need, Mr.
13 Killian?

14 MR. KILLIAN: Approximately 15 minutes.

15 EXAMINER GOLDBERG: I will tell you what I will do,
16 Mr. Killian.

17 Looking at the schedule, it would appear that we can-
18 not get you on Thursday. My guess is we will be able to do so.
19 I will put you down for Friday. Be here on Thursday and if
20 we can get you on we will do it. All right?

21 MR. KILLIAN: Fine. Thank you.

22 EXAMINER GOLDBERG: That seems to be the schedule,
23 ladies and gentlemen, as you have heard it.

24 At this time I would ask those who have prepared
25 statements, with sufficient copies to be exchanged, to place

them on this table so that others can come by and pick them up, retaining two copies to present as formal exhibits.

SHORT

MR. WALES: Mr. Examiner, would this be the proper time to ask some procedural questions?

EXAMINER GOLDBERG: What, sir?

MR. WALES: Would this be the proper time to ask some procedural questions?

I am Bradley Walls and represent the Asbestos Information Association. We have a number of questions asking for rulings from you, and I preface them by saying that in light of the number of witnesses we concur with you that cross-examination might delay the hearings beyond our endurance and possibly yours, and that if clarifying questions be required that they best come from you, sir.

Secondly, we would like your ruling on your position with regard to physical evidence, either living or photographic. We would prefer it not be presented inasmuch as we do not think it would be helpful to this hearing.

EXAMINER GOLDBERG: May I ask what do you mean by living evidence?

MR. WALES: Either basket cases or x-rays.

EXAMINER GOLDBERG: The only thing I can say now is it would have to come in in duplicate.

MR. WALES: Thank you, sir. We will accept that.

1 The next question for a ruling, sir, is with refer-
2 ence to photographs taken during the hearing. Are you opposed
3 to such photographs taken by the press during the course of
4 this hearing?

5 EXAMINER GOLDBERG: I would prefer they not be
6 taken. The flash bulbs and photographic equipment is discon-
7 venient and does not add anything to the hearing.

8 MR. WALLS: Thank you very much, sir.

9 Now with reference to your discretion on maintaining
10 the records open after the hearings, I understand that some
11 work is being done by scientists which we hope will be finished
12 within two or three weeks, and we would like to ask your per-
13 mission now for an indication of your discretion to leave the
14 record open for three weeks after these hearings are finished.

15 EXAMINER GOLDBERG: Do I hear any position on that
16 application?

17 MR. DE GREGORIO: Mr. Examiner, I am agreeable to
18 keeping the record open for a stated time, but I would hope
19 that Mr. Walls would present whatever he has to present in
20 two weeks. The time is short, as you know.

21 Is it possible?

22 MR. WALLS: We shall try, sir.

23 EXAMINER GOLDBERG: I would prefer, Mr. Walls, to
24 make my ruling on holding the record open for briefs and addi-
25 tional evidence and submissions at the close of the hearing

when to have a better idea of how much and how many people want
to have the record held open.

At this time I am only prepared to permit ten days.

MR. WALLS: I understand, sir. I think by the week-
end we will have a better idea as to when these additional
documents will be ready.

EXAMINER GOLDBERG: So I suggest you make your appli-
cation at the close of the hearing.

Anything further?

I see a hand.

MR. GROSS: My name is Mr. Gross and my presentation
is tomorrow morning.

In answer to the gentleman that just spoke, by a
coincidence I do intend to present physical evidence.

Now, I do not have any gentleman here present who I
want to call but, however, I do intend and I would like a
minute at this time to present in evidence testimony taken in
cases in which these particular people have testified, and of
course these particular depositions would state the condition
that the gentleman has and how it was obtained and the gentle-
man was subject to cross-examination and rather than produce
a living body, I do intend, if there is no objection, to
produce testimony by way of depositions regarding certain
individuals afflicted with asbestosis.

I would ask, to save time, if there is objection to

10 This, what maybe other gentlemen have that particular problem.

11 EXAMINER GOLDBERG: Let me ask you this, Mr. Gross.

12 Does this constitute pages from a transcript of a trial?

13 MR. GROSS: I would say this, sir. This constitutes
14 transcripts regarding the compensation hearing in my particular
15 jurisdiction and the purpose of the deposition, quite frankly,
16 would be to preserve the testimony of the individual because of
17 his inability to come to court.

18 EXAMINER GOLDBERG: And those depositions were intro-
19 duced in evidence in other tribunals?

20 MR. GROSS: Yes, sir. The particular depositions I
21 refer to were introduced into court proceedings in the State
22 of New Jersey, the Workmen's Compensation Division of the State
23 of New Jersey.

24 EXAMINER GOLDBERG: Did those proceedings go to a
25 final decision?

26 MR. GROSS: Yes, they did.

27 EXAMINER GOLDBERG: Are they reported decisions?

28 MR. GROSS: They are not reported, no, sir. They
29 just came here at the particular tribunal and the judge ruled
30 on the particular case, but outside of his particular ruling
31 there would be no report of this decision. However, a judgment
32 was entered in the particular hearing.

33 EXAMINER GOLDBERG: It is a judgment of record of
34 the State of New Jersey?

MR. GROSS: Yes, sir.

ENGINEER GORDON: Are there any positions on this?

MR. WALLS: May it please you, sir, I think at this time the reading into the record of very dramatic and possibly dramatic testimony wouldn't add particularly to these hearings. If anything, it would make them a circus.

MR. GROSS: If Your Honor please, it is not my position to read into the record; it is just my position to place into the record the depositions of this particular individual. I feel that the Government should have an opportunity to see the overall picture. We are dealing with individuals. I feel each individual is part of this particular proceeding, and that is my position.

MR. SHECKLER: Mr. Chairman, my name is Clifford Sheckler, representing the National Insulation Contractors, National Insulation Manufacturers.

I think each one of us in this room recognizes the fact that there are cases of disease as a result of accumulation of asbestos dust asbestosis. I see no purpose for introducing statutory Workmen's Compensation evidence from the State of New Jersey, which was probably not on appeal to any of the higher courts but a decision by a judge of the Workmen's Compensation, into this record.

I agree with Mr. Bradley Walls. I see nothing to be gained by such a thing, one; and, two, I see no purpose of

bringing a State Workmen's Compensation Statutory hearing
requirements into this public hearing.

EXAMINER GOLDBERG: Any other comments?

MR. NIEL: My name is Niel, United Papermakers and
Paperworkers Union.

United Papermakers and Paperworkers would like to
express our indignity of Mr. Walls' characterization of those
who may suffer the effects of asbestos dust disease as basket
cases. Using his terminology, we have a basket case we would
like to present to you sometime today.

EXAMINER GOLDBERG: We will hear all witnesses who
are presented, sir.

Does the Solicitor's Office have a position on this
offer of evidence, Mr. DeGregorio?

MR. DE GREGORIO: I am sorry, I was consulting with
my colleague here. Would you repeat the question, please?

EXAMINER GOLDBERG: Do you have a position on Mr.
Gross' request for a ruling?

MR. DE GREGORIO: Sir, my only position is that if
the depositions or whatever other comments or views being
questioned, if they are relevant to any issue raised by the
Notice, I would have no objection.

EXAMINER GOLDBERG: Do you intend to make those part
of a written presentation, Mr. Gross?

MR. GROSS: Actually my intentions are a brief

1 introduction as to my experiences in regard to this particular
2 field and to introduce, without comment, the depositions which
3 are actual testimony of an afflicted person.

4 I don't intend to comment on the depositions or offer
5 anything regarding those in the hearing. I feel that the
6 purpose of the deposition is to bring before this body the
7 actual testimony, the actual facts of an individual, and quite
8 frankly that is the reason we are all here, is to protect
9 members of our working force, and they themselves should have
10 a say in this proceeding.

11 I thought, quite frankly, at one time, of bringing
12 someone here, but I thought that not appropriate. In lieu of
13 that, it is my intention to introduce a deposition without,
14 as I say, any editorializing on my part.

15 It has nothing to do, or the decision in the case
16 will not be made part of the record. The purpose is to pre-
17 sent the facts as this man stated in the deposition.

18 EXAMINER GOLDBERG: Anything further on this?

19 (No response)

20 EXAMINER GOLDBERG: I will receive the depositions
21 offered under the conditions stated by Mr. Gross.

22 MR. GROSS: Thank you, sir.

23 EXAMINER GOLDBERG: Anything further?

24 (No response)

25 EXAMINER GOLDBERG: It is now 10:45. Unless there

1 is objection, we will convene at 12:30 for the formal opening
2 of the hearing and receipt of evidence.

3 So ordered.

4 (Whereupon, at 10:45 o'clock a.m., the prehearing
5 conference was adjourned, the hearing to convene at 12:30
6 o'clock p.m., the same day.)

7 * * *

John O'Neill

OFFICIAL REPORT OF PROCEEDINGS

before the

Occupational Safety and Health Administration

of the

U. S. DEPARTMENT OF LABOR

Docket No.

In the matter of

STANDARD FOR EXPOSURE TO ASBESTOS DUST,
PROPOSED RULE MAKING

PUBLIC HEARING

FILE COPY

Place: Washington, D.C.

Date: March 14, 1972

Pages 27 through 103

HOOVER REPORTING COMPANY, INC.

Official Reporters

Washington, D. C.

546-6666

1 UNITED STATES DEPARTMENT OF LABOR

2
3 WASHINGTON, D. C.4 -----x
5 In the Matter of: :6 STANDARD FOR EXPOSURE TO ASBESTOS DUST, :
7 PROPOSED RULE MAKING :
8 -----x

PUBLIC HEARING

9 Conference Room B
10 Interdepartmental Auditorium
11 12th & Constitution Ave., N. W.
12 Washington, D. C.
13 Tuesday, March 14, 197214 The above-entitled matter came on for hearing, pur-
15 suant to prehearing conference, at 12:30 o'clock p.m., Tuesday,
16 March 14, 1972.

17 BEFORE:

18 ARTHUR M. GOLDBERG, Hearing Examiner

19 APPEARANCES:

20 N. DeGREGORIO, Esq.
21 Office of Solicitor, OSHA22 G. F. SCANNELL, Director,
23 Office of Standards, OSHA
24
25

C O N T E N T S

	<u>STATEMENT OF:</u>	<u>PAGE</u>
2		
3	Gerald F. Scannell	32
4	Acting Director, Office of Standards, OSHA, U. S. Department of Labor	
5	Dr. Lain Tetrick	
6	on behalf of American Iron & Steel Institute (Marked as Exhibit No. 19, at page 37)	
7	David A. Padden	
8	on behalf of United Auto Workers (Marked as Exhibit No. 20, at page 38)	
9	Jim Corbin	
10	on behalf of 3M Company, Occupational Protection Products Division (Marked as Exhibit 21, at page 38)	
11		
12	Daniel Mackiborki	39
	of Manville, New Jersey	
13	Dr. Maxwell Borow	
	on behalf of Daniel Mackiborki	40
14		
15	Dr. William Nicholson,	
16	Assistant Professor, Community Medicine, Mount Sinai School of Medicine, City University of New York	43
17	Charles Neumann	
18	Senior Vice President Kentile Floors, Incorporated	67
19	Sidney Wolfe, M.D.	
20	Health Research Group, Washington, D. C.	72
21	Anthony Mazzocchi	
22	Citizenship-Legislative Director, Oil, Chemical and Atomic Workers International Union, AFL-CIO	79
23	David R. Lavalette	
24	representing Shipbuilders Council of America	88
25	Ernest C. Bratt	
	General Manager - Asbestos, of H. K. Porter Company, Inc., of Pittsburgh	93

STATEMENT OF: (Continued)

PAGE

Alex Kuzmuk
representing the Asbestos Textile Institute

97

E X H I B I T S

NUMBER

IDENTIFIED

RECEIVED

Government's No. 1

33

33

OSHA Nos. 2 through 17

36

36

PUBLIC:

No. 18

37

39

No. 19

37

39

No. 20

38

39

No. 21

38

39

P R O C E E D I N G S

EXAMINER GOLDBERG: There being no reason not to do so, we will at this point go on the record.

The hearing will be in order.

This is a formal hearing for the purposes of rule making by the Secretary of Labor for the asbestos industry, pursuant to Notice published in the Federal Register under date of January 12, 1972, Federal Register Volume 37, No. 7, Page 446 and following pages.

The Hearing Examiner conducting this hearing is Arthur M. Goldberg, by designation of the Chief Hearing Examiner, Office of Hearing Examiners, United States Department of Labor.

The conduct of this rule making hearing will be controlled by the Rules of Procedure for Promulgating, Modifying or Revoking Occupational Safety or Health Standards, published in the Federal Register under date of September 1, 1971, Volume 36, No. 170.

If anyone here has not read the rules and regulations, I advise them to do so. I am not going to do so at this time.

The nature of this hearing is legislative. All interested parties have been afforded an opportunity under the notice published on January 12, 1972, to request the opportunity to appear and offer evidence, documentary or oral.

All requests which were received have been honored.

1 Pursuant to the conference this morning, a schedule of appear-
2 ances has been arranged.

3 Under the rules, as I stated this morning, there is
4 the opportunity at the discretion of the Hearing Examiner for
5 cross-examination. I again request that cross-examination be
6 limited to essential points.

7 I call your attention to the fact that the reporter
8 makes the only official record of these proceedings, that all
9 comments spoken within the hearing room will be recorded by
10 the reporter, that requests to go off the record are to be
11 directed to the Hearing Examiner, and we will not go off the
12 record unless and until the Hearing Examiner so directs.

13 I will not advise you as to the proper rules of
14 decorum, because you are all mature individuals who are well
15 aware of the decorum which should be followed in the conduct
16 of such a hearing, but should, if at any time it appears that
17 they slip somebody's mind, I will call them to your attention.

18 At this time, if there are no preliminary matters--
19 Mr. DeGregorio?

20 MR. DE GREGORIO: Mr. Examiner, I have a preliminary
21 question just for clarification.

22 Did I understand you correctly to say that this
23 hearing is formal? I thought we agreed this morning that it
24 would be legislative and informal. I don't know if I under-
25 stood correctly.

1 EXAMINER GOLDBERG: It is legislative but formal in
2 the sense that it leads to a promulgation of a formal rule.

3 MR. DE GREGORIO: Thank you very much.

4 EXAMINER GOLDBERG: Anything else?

5 (No response)

6 EXAMINER GOLDBERG: Then at this time, pursuant to
7 the schedule, Mr. Scannell, it is your turn.

8 STATEMENT OF GERALD F. SCANNELL
9 ACTING DIRECTOR OF THE OFFICE OF STANDARDS,
10 OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION
11 U. S. DEPARTMENT OF LABOR

12 - - -

13 MR. SCANNELL: Mr. Goldberg, my name is Gerald
14 Scannell, Acting Director of the Office of Standards, Occupa-
15 tional Safety and Health Administration, U. S. Department of
16 Labor.

17 On behalf of the Department of Labor, I would like
18 to enter into the record a number of exhibits. They are all
19 in chronological order with the exception of Exhibit No. 1,
20 which we agreed this morning would be the January 12 Notice
21 of Proposed Rule Making for Standards for Exposure to Asbestos
22 Corp.

23 EXAMINER GOLDBERG: Thank you for calling that to
24 my attention.

25 If I may interrupt you at this time, we will mark
26 as Ex. 1 in evidence as Exhibit No. 1, the Notice of Pro-
27 posed Rule Making published in the Federal Register of

1 January 12, 1972.

2 (Government Exhibit No. 1 was
3 marked for identification and
4 received in evidence.)

5 MR. SCANNELL: We do have duplicate copies.

6 Exhibit No. 2 is a letter dated November 4, 1971,
7 from Mr. George H. R. Taylor, Executive Secretary, AFofL-CIO
8 Standing Committee on Safety and Occupational and Health Stand-
9 ards on behalf of the AFL-CIO, requesting that the United States
10 Department of Labor promulgate emergency standards governing
11 the industrial use of asbestos. Supporting statements were
12 submitted with Mr. Taylor's letter.

13 Exhibit No. 3 is a letter from the Assistant Secretary
14 of Labor, OSHA, dated November 10, 1971, to the Director,
15 National Institute for Occupational Safety and Health, Depart-
16 ment of Health, Education and Welfare, and enclosing a copy of
17 Mr. Taylor's letter of request and requesting their recommenda-
18 tions on the proposed TLV of five fibers per milliliter, reflect-
19 ing the 1971 ACGIH recommendations.

20 Our Exhibit 4 is a letter from the Director of the
21 National Institute for Occupational Safety and Health to the
22 Assistant Secretary, Mr. Guenther, responding to the Assistant
23 Secretary's request for information.

24 Exhibit No. 5, on December 7, 1971, the Occupational
25 Safety and Health Administration published an emergency standard

for exposure to asbestos in the Federal Register, Volume 36, No. 235, Pages 23207 through 23209.

Exhibit 6 is a notice in the Federal Register dated January 11, Standard for Exposure to Asbestos Dust in the Ship Repairing, Shipbuilding, Shipbreaking and Longshoring.

Exhibit No. 7, a notice in the Federal Register dated February 25, the National Institute for Occupational Safety and Health has filed with the Secretary of Labor, quote, "Criteria for a Recommended Standard on Occupational Exposure to Asbestos."

Exhibit No. 8 is the criteria package just mentioned in Exhibit No. 7.

Incidentally, Dr. Charles H. Powell, the Assistant Director of NIOSH, is here today in the event that there might be a possible question on the criteria package.

Exhibit No. 9 is the notice of a meeting on February 26 of the Advisory Committee on Asbestos Standards.

Exhibit No. 10, dated February 25, is the report from the Asbestos Advisory Committee of recommendations, with an accompanying letter from Edwin C. Hyatt, Chairman of the Committee.

Mr. Hyatt is also here this afternoon in the event there are possible questions on the recommendations from the Advisory Committee.

Exhibit No. 11 is a letter from Isaac Weaver, dated

February 25, 1972. Mr. Weaver is a member of the Advisory Committee on Asbestos Dust. Mr. Weaver's letter concerns the dissenting vote on the previously mentioned Exhibit No. 10.

Exhibit 11-A is a letter from Mr. Guenther, the Assistant Secretary of Labor for OSHA, to Mr. Weaver, acknowledging his receipt of Mr. Weaver's dissenting opinion on the recommendations of the Advisory Committee.

Mr. Examiner, the Department of Labor has received the transcript of the various meetings, the five meetings of the Asbestos Advisory Committee, and they are Exhibits 12, 13, 14, 15 and 16. We would also like to enter those for the record, sir.

We would like to enter into the record Exhibit 17 as a package. It contains the originals of all comments on proposed standards for exposure to asbestos dust as received in the Office of Standards.

Mr. Examiner, our position is to take into consideration at the end of the hearing all evidence that you have accepted at this hearing and then consider the proposed rule in light of this evidence that is received prior to promulgating a final rule on asbestos dust.

Thank you.

EXAMINER GOLDBERG: Are there any objections to the receipt of Exhibits 2 through 17?

(No response)

1 EXAMINER GOLDBERG: There being none, Exhibits 2
2 through 17, as identified by Mr. Scannell, are received in
3 evidence.

4
5 (OSHA Exhibit Nos. 2 thru 17 previ-
6 ously marked for identification
7 were received in evidence.)

8 EXAMINER GOLDBERG: All exhibits received will remain
9 in the custody of the reporter until the close of the hearing
10 and may be examined by arrangements with the reporter.

11 Mr. Scannell, does this conclude your statement?

12 MR. SCANNELL: Yes, sir, it does.

13 EXAMINER GOLDBERG: Does anyone wish anything further
14 of Mr. Scannell before he is excused?

15 (No response)

16 EXAMINER GOLDBERG: The next witness I have scheduled
17 is Mr. Daniel Mackiborki. Is he present?

18 (No response)

19 EXAMINER GOLDBERG: Is Mr. Samuels present?

20 SIR.

21 MR. LAVALETTE: Sir, point of order.

22 Is my understanding we are going to enter evidence at
23 this time?

24 EXAMINER GOLDBERG: Yes, you are correct.

25 At this time if there are any parties who wish to
26 present their testimony in the form of written documents,

1 written statements rather than by reading them into the
2 record, I will recognize them for that purpose and receive
3 such statements.

4 MR. LAVALETTE: Yes, sir.

5 My name is David Lavalette, and I would like to
6 enter written statements into the record on behalf of the
7 Shipbuilders Council of America.

8 EXAMINER GOLDBERG: Mr. Lavalette's statement for
9 the Shipbuilders Council of America is marked Exhibit 18.

10 (The document above referred
11 to was marked as Exhibit No.
12 18 for identification.)

13 MR. BROOKS: Mr. Goldberg, I am Wayne Brooks, Ameri-
14 can Iron and Steel Institute. I would like to submit the
15 written testimony of Dr. Lain Tetrick, who was scheduled to
16 testify tomorrow afternoon.

17 EXAMINER GOLDBERG: Dr. Tetrick's testimony will be
18 marked Exhibit 19.

19 (The document above referred
20 to was marked as Exhibit No.
21 19 for identification.)

22 MR. BROOKS: May I make one further short statement?

23 Dr. Tetrick's testimony will be or will have been
24 cumulative of that which will be offered by Mr. Norman Roberts,
25 which Dr. Tetrick is familiar with, and we would like to

1 associate Dr. Tetrick's point of view with that which will be
2 expressed by Dr. Roberts.

3 I am handing counsel copies of the testimony.

4 EXAMINER GOLDBERG: Does anyone wish to submit at
5 this time?

6 MR. PADDEN: David A. Padden, United Auto Workers,
7 and I would like to submit a statement for United Auto Workers.

8 EXAMINER GOLDBERG: Mr. Padden's statement will be
9 marked Exhibit 20.

10 (The document above referred to
11 was marked as Exhibit No. 20
12 for identification.)

13 MR. CORBIN: Mr. Goldberg, my name is Jim Corbin.
14 I would like to enter a statement on behalf of the 3M Company,
15 Occupational Protection Products Division.

16 EXAMINER GOLDBERG: The statement for the 3M Company
17 will be marked Exhibit 21.

18 (The document above referred to
19 was marked as Exhibit No. 21
20 for identification.)

21 EXAMINER GOLDBERG: Does anyone else at this time
22 wish to submit written statements in lieu of testimony?

23 (No response)

24 EXAMINER GOLDBERG: Exhibits 18 through 21 are
25 received in evidence.

(The documents previously identified as Exhibit Nos. 16 thru 21 were received in evidence.)

EXAMINER GOLDBERG: At this time I will ask if Mr. Mackiborki is in the hearing room.

(No response)

EXAMINER GOLDBERG: Off the record.

(Discussion off the record)

EXAMINER GOLDBERG: On the record.

We will pass Mr. Mackiborki's appearance at this time.

MR. MACKIBORKI: I am right here, sir. I am Daniel Mackiborki.

EXAMINER GOLDBERG: Will you identify yourself?

MR. MACKIBORKI: I am Daniel Mackiborki, of Manville, New Jersey.

EXAMINER GOLDBERG: You are here to offer testimony?

MR. MACKIBORKI: That is correct.

EXAMINER GOLDBERG: Proceed, sir.

STATEMENT OF DANIEL MACKIBORKI
OF MANVILLE, NEW JERSEY

MR. MACKIBORKI: What do you want me to start at? I worked for Johns-Manville, starting in '41. I worked mostly on aramid pipe, making cement asbestos products. I worked on the same job for about 20 or 22 years, and over the years the company gave me examinations, physicals. The last one I had

1 was on December 11, '71, and on January 20 of this year I went
2 to my own doctor and he sent me into the hospital, and after
3 eight days of extensive tests and x-rays he made an exploratory
4 and found out I had an abdominal mesothelioma.

5 If there is any further information you would like
6 me to --

7 EXAMINER GOLDBERG: There are two gentlemen that have
8 joined Mr. Mackiborki at the witness table.

9 Identify yourselves, please.

10 DR. BOROW: Dr. Maxwell Borow.

11 MR. NEAL: My name is Cory Neal, representing the
12 United Papermakers and Paper Workers Local. I joined in asking
13 Dr. Borow and Mr. Mackiborki to come here today.

14 EXAMINER GOLDBERG: Do you wish to elicit any testi-
15 mony from Mr. Mackiborki, Mr. Neal?

16 MR. NEAL: I think perhaps Dr. Borow might want to
17 talk briefly about his case and an expression of concern as to
18 Mr. Mackiborki's health problem.

19 EXAMINER GOLDBERG: Dr. Borow.

20 Would you use the mike, please, sir?

21 STATEMENT OF DR. MAXWELL BOROW
22 ON BEHALF OF DANIEL MACKIBORKI

23 DR. BOROW: This has been of very great concern to us
24 in the medical profession in the New Jersey area. We first
25 became aware of the condition of Mr. Mackiborki as to this

1 very rare malignancy. It is so rare that textbooks even today
2 describe it as being almost an nonexistent malignancy. It is a
3 pathological curiosity when one finds it, and I would daresay
4 at least 95 percent or more doctors of this country never even
5 have seen it, much less perhaps heard of it, and yet we now
6 have a series of about 52 patients with this condition.

7 All these patients have pulmonary asbestosis and
8 this has been true throughout the world, but other series have
9 been reported in Russia, South Africa, and it also has been
10 reported in people who have not particularly worked in the
11 industry but are working with asbestos products, such as the
12 pipefitters that use asbestos to line the pipe, so it is a
13 very definite hazard.

14 Mr. Mackiborki's situation is a very rare malignancy.
15 However, you also have greatly increased incidents of other
16 malignancy with people with pulmonary asbestosis. The inci-
17 dence of gastrointestinal cancer, lung cancer, is very exces-
18 sive compared to the average population.

19 I think the problem goes further in that there is
20 an environmental exposure with this problem too. Two of our
21 patients never worked with Johns-Manville but lived in the com-
22 munity, and one woman, the only exposure we could find was
23 wherein she used to launder her husband's clothes. He would
24 bring his work clothes home with asbestos on it and she would
25 launder these clothes. This was during the late '40s and then

1 she came down with this condition.

2 The other woman played in the backyard of the
3 industrial plant where asbestos was processed, and this is
4 where she got the exposure.

5 Another series, also of environmental exposure.
6 This emergency never occurs until they have had the asbestos
7 exposure for twenty or more years, usually between twenty and
8 thirty years, and then the malignancy appears.

9 EXAMINER GOLDBERG: Would you give your full name
10 and any material as to your professional standards for the
11 record?

12 DR. BOROW: Maxwell Borow, B-o-r-o-w. I am a
13 surgeon, specializing in chest surgery, practicing in Bound
14 Brook, New Jersey, and New Brunswick, New Jersey.

15 EXAMINER GOLDBERG: Thank you.

16 Do the witnesses have anything further to offer?

17 MR. NEAL: On behalf of the United Papermakers and
18 Paper Workers, we would like to join with the Industrial
19 Union, Department of AFL-CIO in urging the Secretary of the
20 Department of Labor to adopt as quickly as possible the
21 standards.

22 DR. BOROW: May I make one more comment, and that
23 is that one of the asbestos effects we have noted is that
24 there has been very poor correlation with the amount of pul-
25 monary asbestosis present and the occurrence of the malignancy.

1 Mr. Mackiborki is a patient who showed no signs of
2 pulmonary asbestosis on his chest x-rays or any other test that
3 we had done to the present time, and I am sure he has it in
4 his lungs.

5 This has been our experience with other people too,
6 that we have had no clinical evidence of this until later on
7 when one is examined, and Mr. Mackiborki knows his situation
8 completely. This is a fatal disease. There has been really
9 no treatment for it.

10 When these people are examined later for autopsy,
11 there are the asbestos fibers in the lungs, so I think the big
12 question in everybody's mind is what is meant by, or how much
13 exposure do you have to have before you are subject to this
14 problem? Apparently it doesn't require very much.

15 EXAMINER GOLDBERG: Anything further?

16 May these witnesses be released?

17 (No response)

18 EXAMINER GOLDBERG: Thank you, gentlemen.

19 Dr. Nicholson.

20 Would you identify yourself, please?

21 STATEMENT OF DR. WILLIAM NICHOLSON,
22 ASSISTANT PROFESSOR, COMMUNITY MEDICINE, MOUNT
23 SINAI SCHOOL OF MEDICINE, CITY UNIVERSITY OF
24 NEW YORK

25 DR. NICHOLSON: Yes. I am Dr. William Nicholson,
Assistant Professor, Community Medicine, Mount Sinai School

1 of Medicine, City University of New York. I work in the
2 Environmental Science Laboratory, which is directed by Dr.
3 Irving J. Selikoff of that institution.

4 My background while at that laboratory for the past
5 three years has been concerned with the assessment of the
6 environmental exposure of the work environment of the asbestos
7 workers who apply the insulation in pipes to boilers and other
8 hot and cold type equipment.

9 In addition, I have been engaged in two epidemiologi-
10 cal studies relating to the incidence of asbestos disease and
11 have conducted two environmental surveys of asbestos air pollu-
12 tion in New York City and in other cities throughout the United
13 States in conjunction with the National Air Pollution Control
14 Administration, the New York City Department of Air Resources.

15 Unfortunately, Dr. Selikoff was unable to come to
16 this hearing today. My remarks will cover the essence of his
17 testimony and my own, which was to have been presented tomorrow.

18 In each case a brief has been submitted, which I
19 believe is part of the record at this time. A brief was submit-
20 ted prior to the required date, which does not require any
21 further submissions at this time. Is that correct?

22 EXAMINER GOLDBERG: Yes, sir.

23 DR. NICHOLSON: Let me first speak to the health
24 experience of one group of asbestos workers that has been
25 studied by Dr. Selikoff since the early '60s. He identified

1 every member of the International Association of Heat and Frost
2 Workers on January 1, 1943. There were 632 members of the
3 Union in the New York and New Jersey Locals at that time.
4 Since then, 425 have died, to June 30, 1971, 425 of the 632
5 active members of the Union in 1943.

6 When one looks at the cause of death of this group
7 of workers, it becomes clear that their occupational experience
8 has been a tragedy. One in five has died of lung cancer, one
9 in ten of gastrointestinal cancer, nearly one in ten of meso-
10 thelioma, the disease you just heard about from Dr. Borow.
11 This disease is so rare it is almost nonexistent in the general
12 population. One in ten died of other cancer, and almost one
13 in ten of asbestosis.

14 In summary, nearly forty percent of the deaths of
15 this group of workers can be directly attributed to their
16 occupational exposure to asbestos.

17 When one looks and considers the criteria for setting
18 asbestos standards and one looks to the past standards that
19 have been set, they are totally inadequate as a reference from
20 the point of view of setting the current standard. In particu-
21 lar, I refer to the fact that both the United States and the
22 British Standards were set with the consideration of protect-
23 ing only against asbestosis. That was specified in the stand-
24 ards, in both the United States and British cases, and this
25 was because there was more clinical evidence on which they

1 could base the judgment. In it was data with respect to the
2 levels to prevent against incidence of cancer.

3 When we look at this group of workers whose experi-
4 ence I have just described, 75 percent of their occupationally
5 associated deaths are from cancer and only 25 percent from
6 asbestosis, so that is the real problem that must be faced in
7 the setting of occupational standards for asbestos.

8 Unfortunately the epidemiological studies that bear
9 upon this question are limited. The number of people studied
10 and the various studies has been small and the number or
11 periods of observation has been limited and, in particular,
12 with respect to exposures at low levels.

13 We know it is catastrophic at higher levels, but
14 there is no significant substantive evidence that would indi-
15 cate what is a safe level of asbestos exposure that could
16 prevent the incidence of cancer.

17 This lack of a valid assessment of the biological
18 variables is compounded by the inadequacy of the measurement
19 techniques to assess the dust levels to which workers have
20 been exposed.

21 This has been an unavoidable circumstance that dust
22 measurements were made using the best equipment available at
23 the time, but in actual fact it gives a very poor assessment
24 of the dust level that a worker experiences.

25 Let me be specific with respect to some tests we

1 have made in the asbestos insulation industry. The criteria
2 for measurement that is being proposed is one in which all
3 fibers longer than 5 microns are counted in an optical micro-
4 scope.

5 There is a validity to this description because that
6 is some equipment that is relatively available to state depart-
7 ment of health and to the Department of Labor, although at
8 this time I would suggest that only a few departments of health
9 in the states do have such equipment.

10 Nevertheless when one looks at the total dust
11 environment of these workers and looks for fibers that fall
12 outside the scope of the criteria of being larger than 5 mi-
13 crons, there are many more additional sub-microscopic fibers.
14 In particular, it is not uncommon to see more than 100 times
15 the number of sub-microscopic fibers as are counted.

16 This would not be a problem were the ratio constant.
17 We could recognize that with the optical microscopy we are
18 simply looking at the tip of an iceberg, but what in fact we
19 are doing is looking at a tip of an iceberg that has different
20 densities.

21 In some asbestos exposures it is not uncommon to
22 find one fiber in 250 being larger than 5 microns; that is
23 99.6 percent smaller, and not counted according to the stand-
24 ard. In other exposures the number counted can be as high as
25 30 percent, so you have a range over 100 times in the fraction

1 that are counted by the optical microscopic technique.

2 This range occurs when one considers the variety of
3 asbestos that is presently used, going from cretine to
4 tridymite. When one is concerned solely with cretine, the
5 mineral used predominantly in American industry, it counts for
6 over 90 percent of production and use in the United States.

7 When using cretine the range in the ratio between
8 the observable, optically observable fibers longer than five
9 microns to the total number of fibers seen with the electro-
10 microscopy, can be as much as ten times, so in actual fact
11 what we are doing is attempting to assess environmental
12 exposure with inadequate physical measurements, although prob-
13 ably the best that can be done in this time.

14 I am not trying to make the suggestion that only
15 monitoring be done with electro-microscopy; I am making the
16 point that it is a very subjective measurement that is being
17 used. We are using an inadequate physical measurement to
18 assess an exposure that would have an ill-defined biological
19 effect, so that all these uncertainties dictate that consid-
20 erable prudence and safety factors be put into the considera-
21 tion of an asbestos standard.

22 Associated with the problems of these physical
23 measurements I have described is the problem that even those
24 that are somewhat inadequate, they are not done. The capa-
25 bility of state and federal monitoring officials at this time

1 to assess the work environment of all men using asbestos is
2 too limited to hope that they can be present when the various
3 dust levels might be exceeded and the threshold limit now you
4 have violated.

5 The president of the International Union of the
6 Asbestos Workers sent a questionnaire to each of the 18,000
7 members of his union. Over 10,000 replies have come in to
8 this time. I have a group of them from one union. This hap-
9 pens to be the replies from Local No. 1 in Missouri. The
10 results of that survey are as follows:

11 Of all of the replies, and assuming that each worker
12 worked 200 days during the year, which is a conservative esti-
13 mate, particularly when they work a longer time, but using
14 that figure to represent the work experience of those men
15 replying to this questionnaire, when one considers commercial
16 and industrial construction, the replies represented 3,089,200
17 man-days of work, or man-days of observation.

18 During this time there were 87 dust counts seen
19 throughout the United States; that is, there was one dust
20 count seen for every 35,500 man-days of work.

21 In shipyards the experience was somewhat better
22 because the requirements were there be on-site hygienists,
23 which exist in that particular aspect of the construction.
24 There were 591,000 man-days of observation in shipyard locals,
25 and these locals saw 123 dust counts, which would represent

1 one dust count in 17,500 man-days of work.

2 So what we are faced with is the problem that what-
3 ever standard is set, it cannot be expected to be measured on
4 a routine basis. We cannot rely on an inspector being there
5 when perhaps a special limit is violated, so that the whole
6 issue of monitoring must be viewed in this light, that this
7 cannot be the substantive criteria to determine whether a
8 worker is exposed to asbestos or is removed from that exposure.
9 He cannot wait for the dust count to be made.

10 The alternative is that procedural standards should
11 be applied, such that asbestos cannot be used unless certain
12 criteria are established, unless plastic bags are used for the
13 mixing of cement, and there are three of these in the pro-
14 posed standards of the NIOSH document.

15 At this time there are three such performance stand-
16 ards in the emergency standards and they are valid performance
17 standards, the mixing of cement in containers, the use of
18 vacuum cleaners, the requirement that dust collectors be on-
19 site.

20 You can go through a large number of these, and
21 indeed you can specify the work procedures of insulation work-
22 ers in such a manner that they can be assured if those work
23 procedures are followed their work environment can be safe,
24 and this is the way that one should proceed to implement the
25 concern of all of us that the asbestos workers have a work

1 environment that will not produce disease.

2 I will not continue too long on the issue of the vari-
3 ous performance standards because Mr. Holaday from the Labora-
4 tory will deal with that issue in detail, but the background
5 for the need of that type of standard lies in the fact that
6 we are dealing with the method of measurement that is really
7 very limited in scope and that the physical difficulty of
8 continuously monitoring precludes an effective control when
9 using a numerical standard.

10 One of the problems, additionally, or one of the
11 problems has been that many of the exposures of insulation
12 workers in particular occurred in very short peaks, that is,
13 in the past the dumping of a bag of cement could give rise to
14 dust levels of the order of fifty or perhaps one hundred
15 fibers per milliliter.

16 Many of these peaks undoubtedly occurred in the
17 various manufacturing operations. The occurrence of these
18 peaks of course is variable, and to even have a ceiling limit
19 that must not be violated but could be approached for a short
20 period of time would be hazardous in that again he would not
21 be able to monitor during the time that such peak exposures
22 occurred. He would virtually need an industrial hygienist on
23 every site watching every operation.

24 With respect to a numerical standard, which of course
25 is necessary if one wishes to devise procedural standards, you

1 need a reference point to refer to to determine the adequacy
2 of control measures that you have implemented. You devise a
3 dust collector for a saw and you see indeed if you can achieve
4 what you hope will be an adequate level.

5 We recognize the inadequacy of counting five fibers
6 per milliliter greater than five microns in length, but
7 recognize also that that is the only criteria we have at this
8 time that has an extensive body of data associated with it.
9 There is evidence that two fibers per Mppcf, which is discussed
10 as a standard, will be inadequate for the prevention of asbes-
11 tosis disease.

12 I would like to refer back to measurements made in
13 the environment of the asbestos workers, the health experience
14 which I have already given you and which is a disaster. If
15 one measures the various dust levels experienced by these men,
16 one finds a range of exposures from virtually nothing, one
17 fiber per ml up to one hundred fibers/ml that can occur during
18 the removal of insulation or the spraying of asbestos.

19 But if one considers their common jobs and looks at
20 the average exposure of these workers during the operations
21 that they are engaged in most of the time, one finds that
22 their average exposure from measurements made in the insula-
23 tion industry in the hygiene research program at Mount Sinai
24 that the average exposure of these workers is around five or
25 six fibers/ml when they are working with asbestos.

1 Even when they are mixing asbestos cement, which is
2 mixing and applying asbestos cement, when the mixing operation
3 itself takes place, the average level over the entire period
4 of time when it is mixed and applied can be under five fibers/
5 ml.

6 When one is cutting insulation and applying it to
7 pipes and boilers, it can exceed five fibers/ml, but it rarely
8 would exceed 10 fibers/ml on a long term average. Again,
9 cutting asbestos logs, the average that you have was 7.6
10 fibers/ml, but if one takes into account the fraction of time
11 that these workers spend in these different operations when
12 using asbestos, the average that our laboratory found was
13 about six fibers/ml.

14 This is in accordance with data which appears in the
15 criteria document as taken on the West Coast by Dr. Cooper's
16 group that had an average of 4.2 fibers/ml for the same type
17 of operation in commercial work, and something about nine for
18 shipyard exposure for the confined spaces may give rise to
19 higher dust levels.

20 The point I am making is that an extremely serious
21 health hazard has been documented at levels of approximately
22 that of the current emergency standard, and these levels were
23 obtained during the time when they were only working with
24 asbestos.

25 In full fact, these workers spend less than half

1 their time with asbestos material. They are using fiberglass,
2 various other plastics, and their exposure to asbestos accounts
3 for the minority of their job operations in time. So that one
4 can say that their exposure right now is approximately three
5 fibers per ml on a long term average, without yet implementing
6 the various control measures that are possible in that
7 industry and that if you should reduce their exposures in some
8 cases by a factor of ten, so that that industry serves as an
9 example where their exposures can get well below a level of
10 two fibers per ml and it can be done without serious economic
11 hardship, the cost of dust collectors and cost of plastic bags
12 is very small in comparison with the total cost of various
13 insulation construction jobs.

14 I would like to make two brief comments on the
15 standard as it appears in the document by NIOSH, and one is
16 with reference to medical records.

17 The concern for workers' health as evidenced by the
18 requirement that you need medical examination is commendable
19 and should be implemented, but one important aspect of that
20 should be the confidentiality of the individual records
21 obtained on each individual, that is, they should not be
22 released on an individual basis to any employer, because the
23 problem of a worker who experiences or whose job requires he
24 work for different contractors, for example in insulation
25 work, that man could have his employment jeopardized if the

1 contractor knew whether he did or did not have serious asbes-
2 tosis disease.

3 Statistical data made aware to industry is quite
4 valid, but in no case should there be available to either the
5 union or the industry specific medical data on an individual.
6 The man himself should know, his doctor, if he wishes it,
7 should know. The material can be maintained by the Federal
8 Government, or should be maintained by the Federal Government
9 in a manner that this confidentiality is maintained.

10 I would also like to make one comment with respect
11 to what is probably the most serious issue, and that is the
12 section apprising employees of hazards from asbestos where
13 material containing less than five fibers per ml of asbestos
14 is somewhat ignored.

15 In many circumstances asbestos materials are used
16 in the manufacture or production of material, some plastics,
17 for example; anti-freeze compounds use asbestos to stop leaks.
18 The total amount of asbestos is a fraction of a percent, and
19 workers in that environment could experience extremely high
20 exposures and the final produce should not be the criteria on
21 which one should either assess the existence of a problem or
22 apprise workers of the hazards of asbestos.

23 One should have all workers that may be exposed to
24 substances in any significant quantities made aware of the danger
25 and the Full Act itself applied to those workers.

1 I have one additional comment with respect to the
2 desirability of procedural standards, and that comes about
3 from the many indirect occupational exposures that obtain,
4 particularly in the construction industry, where you could have
5 an asbestos worker monitored and have it determined that his
6 exposure exceeds the threshold limit value and he is thus
7 required to wear a respirator.

8 In that case, he would be protected but the man or
9 the welder down the line, the electrician on the floor below
10 may not have the same protection afforded to him, and his
11 exposure can indeed be significant.

12 If one can implement procedures that will control
13 dust to the maximum extent possible at the source, both the
14 direct occupational exposures and the indirect ones will be
15 taken care of in the most desirable way for the workers them-
16 selves.

17 On the question of the feasibility of implementing
18 controls that would bring dust levels down to at least two
19 fibers per ml and, hopefully, to levels much less than that,
20 they are certainly feasible in the construction industry if
21 one recognizes that respirators should be worn for a small
22 portion of the work.

23 Certainly the removal of insulation material, old
24 insulation material or the spraying of asbestos, which perhaps
25 may no longer be done at all, but in those circumstances

1 survivor respirators are of course necessary and would be used
2 during a very, very small portion of the worker's time.

3 These are unusual type of activities and an average
4 asbestos worker would not be engaged in them for more than a
5 few percent of his time.

6 At this time I do not know procedures that could be
7 implemented that would reduce the exposure level of an asbestos
8 worker during the process of applying asbestos blocks. Often
9 the dust generated as pieces are put together would give rise
10 to levels that could be five fibers per ml or perhaps higher
11 for very short periods of time.

12 The average that we have measured in such circum-
13 stances ranges from about five fibers per ml to about ten,
14 depending upon ventilation conditions. But the time that an
15 asbestos worker spends in that particular operation is a
16 small fraction of his time spent while working with asbestos,
17 and it is a small fraction of his total time on the job, per-
18 haps ten or fifteen percent.

19 I would suggest that it should be recognized that
20 appropriate respiratory protection be mandatory during that
21 operation and during the few operations where control measures
22 at the source cannot be applied.

23 In this way procedure controls in the insulation
24 industry could be implemented with the minimum of dust and
25 could assure an effective workplace for the workman.

1 When one goes to factory operations the issue of
2 control is even more mandatory because here you have in-place
3 fixed operations in which the application of dust control
4 equipment can be applied on a stationary basis and you are not
5 concerned with the tremendous mobility of an insulation worker.
6 Yearly cost is indeterminate. I do not know what it is in my
7 own mind, but one must recognize the Occupational Safety and
8 Health Act does not consider the cost of implementation of
9 health equipment or safety equipment, environmental control
10 measures.

11 The Occupational Safety and Health Act under which
12 this standard is being promulgated puts forth the criteria
13 that a workman should be able to work at his job throughout
14 his life without impairment to health.

15 That is all I have to say at this time.

16 EXAMINER GOLDBERG: Thank you, Doctor.

17 Does Mr. Holaday follow you?

18 DR. NICHOLSON: Mr. Holaday will be speaking tomor-
19 row.

20 EXAMINER GOLDBERG: May we release Dr. Nicholson?

21 DR. HERMAN: May I ask a question, please, sir?

22 EXAMINER GOLDBERG: Come to the microphone, please.

23 DR. HERMAN: I am Dr. Herman from the Research
24 Council in England. I don't want to anticipate my testimony
25 tomorrow morning but I would like to ask Dr. Nicholson, if I

may, one or two questions about his testimony.

In the first case he gave the rather awful statistics, as he said, about the incidence of disease among asbestos workers. Now I am not a medical doctor and I wouldn't quarrel with the medical evidence, but neither is Dr. Nicholson a medical doctor, so I feel I can ask him this.

There is one point he has not mentioned at all, the effect of smoking on those statistics. If he counts the statistics among that particular group of workers, then the effect of smoking is overwhelming.

We believe that as far as lung cancer is concerned, lung cancer is developed as a direct result of asbestosis.

EXAMINER GOLDBERG: Sir, you are giving testimony, not asking a question. If you wish to ask Dr. Nicholson whether the incidence of smoking among the sample was taken into account, you may do so, but save your testimony for your appearance on the stand.

DR. HERMAN: I ask that question.

DR. NICHOLSON: Yes, indeed, smoking has a direct influence on the incidence of lung cancer. The data obtained by Dr. Selikoff from that same group of workers is as follows:

The group of workers totaling 370 in 1962, the information he obtained by direct interview on the smoking habits of those workers, the risk of dying of lung cancer was found to be 30 times that of a nonsmoker, non-asbestos worker.

1 If one considers that the risk of dying of lung
2 cancer might be increased ten or twenty times in the smoking
3 population, in the heavy smoking population, and very scanty
4 data indicates that the risk increases with work with
5 asbestos, but certainly not to the degree of ninety times.
6 It might be perhaps -- well, I can only say it has increased
7 and probably does not exceed the risk due to smoking. The
8 two together, acting in concert, would produce an effect far
9 greater than the one alone, and indeed lung cancer is associ-
10 ated with smoking and if you could find workers who did not
11 smoke, that would be desirable.

12 I don't know if the criteria that -- I don't know if
13 it is appropriate to write a standard in which the smoking
14 habits of a worker are specified. But even if it were, that
15 would take care of only the problem of the deaths due to
16 lung cancer.

17 From the similar data it was found there was no
18 association with smoking and the incidence of Mesothelioma
19 and no association with smoking and increased incidence of
20 gastrointestinal cancer. Gastrointestinal cancers in these
21 workers increased by three times over that of the normal
22 population.

23 DR. HERMAN: Thank you.

24 MR. SHECKLER: Dr. Nicholson, I am Mr. Sheckler,
25 National Insulation Manufacturers and Contractors Association.

1 Dr. Nicholson, would you kindly answer when were your
2 industrial hygiene engineering evaluations made, the approxi-
3 mate year?

4 DR. NICHOLSON: They were made subsequent to 1969,
5 during 1969 through recent months.

6 MR. SPECKLER: How were they made?

7 DR. NICHOLSON: They were made using the standard
8 technique as specified in the criteria document.

9 MR. SHECKLER: When were the epidemiological study
10 information or physical examinations made?

11 DR. NICHOLSON: The epidemiological study to which I
12 referred is an ongoing study and has been done with the help
13 of experienced workers from 1943 onward. As they reached 20
14 years of exposure, the information was brought forward.

15 MR. SHECKLER: Did you make any industrial hygienic
16 studies from 1940 to 1945?

17 DR. NICHOLSON: No, I did not. However, workers in
18 the recent years were questioned as to the changes in work
19 practice that took place during that time. Some changes have
20 taken place.

21 There has been a reduction in the use of asbestos.
22 Fiberglass was substituted, whereas in the past asbestos was
23 used, or perhaps cork, so that during the period of time from
24 the experience of these workers the total time they spent with
25 asbestos has decreased, perhaps a decrease from 75 to 80 per

1 cent. to the 45 or 50 percent that is now present.

2 Additionally, there has been some changes made in
3 the composition of the materials themselves. In some cases
4 the asbestos content has been reduced. The procedures that
5 the men used have changed little in that period of time.

6 The method of mixing cement either in a bucket or
7 open tub was the same in '69 as in the '40s. The cutting of
8 logs with handsaws, the application of it to boilers and pipes
9 did not change during that period of time.

10 If one went back in past years and attempted to
11 assess the exposure, it is difficult to obtain an exposure
12 that would be much different or would exceed that of today
13 by more than a factor of two.

14 MR. SHECKLER: You are saying, then, that the actual
15 work methods remained the same?

16 DR. NICHOLSON: Roughly the same.

17 MR. SHECKLER: The introduction of new materials
18 did make a very drastic change?

19 DR. NICHOLSON: I didn't say it would make a drastic
20 change.

21 MR. SHECKLER: Would you agree you used as much
22 fibrous glass during World War II as you do today?

23 DR. NICHOLSON: No, I wouldn't. What I am question-
24 ing is the adjective, a factor that changed two times in the
25 amount of fiber asbestos is not a drastic change.

1 The figures I gave with respect to levels measured
2 were levels measured during the use of asbestos, and those
3 levels today are roughly around a factor of five. You could
4 perhaps extrapolate on the basis of the material changes, that
5 it could have been twice as high in earlier years. It would be
6 very difficult to get levels that would be dramatically differ-
7 ent, and when you have to go from such a bad experience to one
8 where workers suffer no harm, one has to take more than just
9 little steps in that direction. You have to go and make it a
10 major change in the work environment of these people.

11 MR. SHECKLER: Would you say it can readily be said
12 there were no scientific measurements of these levels during
13 World War II or before or immediately subsequent to it?

14 DR. NICHOLSON: That is correct.

15 EXAMINER GOLDBERG: Anything further of this witness?

16 Mr. Lavalette.

17 MR. LAVALETTE: I am Mr. Lavalette, representing the
18 Shipbuilders.

19 Dr. Nicholson, you advocated the confidentiality of
20 medical records. I would just ask if you have considered in
21 arriving at this advocacy, have you considered the possibility
22 that by so doing the employers are put at a disadvantage, that
23 is, he has a burden and responsibility to assign people to
24 work for which they are qualified, based upon, among other
25 things, their physical condition, and in our industry it is

common practice if a person has a history of chronic respiratory affliction to assign him to nonconfined areas and so forth. Without the medical records this sometimes is difficult.

DR. NICHOLSON: I recognize the problem you raise. I must honestly say I am not too clear myself about the solution to it. Perhaps it can be done on the basis of a recommendation that the workers be assigned to less duty areas.

The issue in part really should not be that workers who are impaired must have special jobs but what we must have are jobs in which no one will be at risk, either those that have had some impairment of their lung function or those that are entering the trade.

We want a workplace healthy for everyone, but I recognize there is a very large group of workers now so impaired. The main point is that criteria should be established in which the workers themselves, that their problem should be considered, that is, they should not be put out of a job by virtue of a potential impairment due to asbestos disease.

It is a very complicated problem and bears upon some of the compensation laws, where in the insulation industry the last manufacturer, the last insulation contractor is assessed if the man gets compensation when in fact the man's exposure could come from many, many contractors and it just happens he

1 is working for that man.

2 The problem is with such laws there is a tendency to
3 abandon people who have a serious risk, and that is wrong. My
4 plea is that considering all of the problems, one should
5 arrive at a situation where the worker is not required to lose
6 his job because of his impairment where he can perform func-
7 tional work.

8 EXAMINER GOLDBERG: Anything further?

9 MR. DE GREGORIO: May I have some questions, please?

10 Doctor, did I understand you to say there is no
11 problem in connection with asbestos spraying?

12 DR. NICHOLSON: No. I said the problem -- I said
13 there might not be one because it might be a procedure that
14 would not be used in the future.

15 Certain regulatory agencies, certain state agencies
16 have banned it already. I am not sure there is a ban of the
17 spraying of asbestos in any federal legislation. I know the
18 spraying for pipe-proofing purposes has been virtually banned
19 in the country.

20 MR. DE GREGORIO: Can you name some jurisdictions
21 that have banned asbestos spraying?

22 DR. NICHOLSON: Jurisdictions which have abandoned
23 the spraying of asbestos for fireproofing purposes include
24 New York City, Illinois, Philadelphia, Boston.

25 This is a practice that has been engaged in by

1 plasterer union members to apply insulation materials to the
2 steelwork to assure there be a fire rating that would allow
3 the building to remain and the structural integrity under the
4 worst fire possible. There are alternative asbestos for this
5 purpose.

6 The second use of spray asbestos is to apply insula-
7 tion, particularly to turbines where you want to get a uniform
8 insulation layer that is better achieved by spraying than by
9 applying insulation blocks.

10 It can be done by applying insulation block. The
11 operation of spraying is such a mess and in practice we have
12 found that its control has been inadequate when attempted,
13 and environmental contamination has universally been serious,
14 and consideration should be made that that practice be banned
15 in all circumstances since alternatives are possible.

16 The situation with respect to the workers applying
17 it can be controlled in the sense that air supply respirators
18 will produce an air quality that would suffice, that is, air
19 supply respirators can afford protection not to 100 percent
20 but in environments with five fibers/ml the air would be no
21 greater contaminated than by one fiber/ml.

22 If it is used, the worker can be protected, but a
23 problem arises from environmental contamination of such a
24 procedure.

25 MR. DE-GREGORIO: Thank you very much.

1 EXAMINER GOLDBERG: May this witness be excused?

2 (No response)

3 EXAMINER GOLDBERG: Thank you, Dr. Nicholson.

4 Mr. Neumann.

5 STATEMENT OF CHARLES NEUMANN

6 SENIOR VICE PRESIDENT

7 KENTILE FLOORS, INCORPORATED

8 MR. NEUMANN: My name is Charles Neumann. I am
9 Senior Vice President of Kentile Floors, Incorporated, manu-
10 facturers of resilient floor tiles. I have been actively
11 engaged in this field for the past fifty years.

12 Kentile Floors, gentlemen, appreciates the oppor-
13 tunity to participate in these hearings on standards for
14 exposure to asbestos dust.

15 I hope that my testimony will be helpful towards the
16 goal of achieving a practical permanent standard on asbestos
17 dust.

18 Kentile Floors has three plants across the country,
19 in which asbestos fibers are used in the manufacturing process.
20 Employees' safety and health have always been a foremost con-
21 sideration in our management policies. There is no alterna-
22 tive to this for a responsible member of a business community.

23 Our concern regarding the asbestos standard is
24 probably common with all other asbestos users, and that is
25 the fear that unduly strict recommendations for use in

1 formulating the permanent asbestos standard will create cost
2 demands on many companies of an unsupportable magnitude. This
3 will seriously affect their ability to continue to operate.

4 I wish to comment briefly on some of the recommenda-
5 tions of the Advisory Committee. Our engineering and safety
6 departments advise me that compliance with a standard specify-
7 ing five asbestos fibers per milliliter of air is feasible.
8 In order to accomplish the 5 ml level, the cost to our company
9 is estimated to be \$225,000.

10 Although the reduction of asbestos dust to so low a
11 level is stringent and costly, we feel it can be attained and
12 we feel we can absorb the expenditure involved. On the other
13 hand, if the maximum airborne dust level were to be reduced
14 to 2 fibers of asbestos per milliliter of air, as was pro-
15 posed, the preliminary judgment of our people is that the cost
16 would skyrocket to over one million dollars.

17 An expenditure of this magnitude, followed by all
18 of the other added and continuing costs which will surely be
19 imposed by the standard, would very likely result in bringing
20 about an economic situation that would prompt serious consid-
21 eration of discontinuing operation.

22 Therefore, unless ample medical evidence of a con-
23 clusive nature is available to show that the five fiber level
24 creates an undue health hazard, Kentile Floors requests that
25 in the interest of reality and practicality that the five

1 fiber level not be rejected for some lower limit.

2 Now, after the reduction of the dust level to five
3 fibers, we concur that diligent monitoring is essential to
4 insure continuous compliance.

5 Taking into account the low five fiber level, plus
6 the availability and use of adequate respirators, we request
7 that careful consideration be given to the scope and to the
8 frequency of medical examinations.

9 Certainly we wish to protect the health of our
10 employees, but we must guard against overprotection, overpro-
11 tection that saddles us with heavy financial burdens.

12 We agree that cleanup of asbestos dust should be
13 performed by vacuum cleaners or wet methods. We take exception,
14 however, to the proposal that requires asbestos scrap and
15 waste be containerized.

16 Resilient floor tile scrap and waste contains
17 asbestos fibers surrounded by resins and plastic findings.
18 There are no asbestos fibers emitted from such materials.
19 Hence the need here for a more precise definition of waste and
20 scrap.

21 It would not be reasonable to require resilient tile
22 scrap and waste to be containerized. The cost involved would
23 be overburdening and would serve no useful purpose. Waste
24 should be defined to include any materials containing loose
25 asbestos dust.

1 Our final concern, gentlemen, is with the signs and
2 labels involved. The wording on the required signs in certain
3 plant areas, as required in Federal Register Volume 37, No. 7,
4 January 12, '72, and in the recommendations of the Advisory
5 Committee, might be appropriate in those areas where heavy
6 concentrations of asbestos dust have many times the five fiber
7 level.

8 The wording is completely unjustified where compli-
9 ance with the five fiber level has been obtained and where
10 controls and monitoring exist. The unnecessarily grave impli-
11 cations that the signs can convey can only result in employment
12 discouragement, excessive demands, difficult attitudes and
13 lowering of morale.

14 We have had signs posted for years in the mixing
15 areas reminding and instructing our employees to wear their
16 respirators. These signs have performed their function well
17 without unwarranted alarming and shocking forebodings.

18 Regarding the warning labels on packages of finished
19 products containing more than five percent asbestos, we feel
20 that the recommendation in its present form must be revised to
21 perhaps require a warning label only on those finished pro-
22 ducts which when handled, installed or used emit a level of
23 dust that is hazardous.

24 Resilient floor tiles contain asbestos that is
25 encapsulated, bound, locked in, trapped in a tough binding

1 material. The level of dust emitted in opening a box of tile,
2 installing them and using them will very definitely be almost
3 unmeasurable. A warning label on boxes of resilient tile will
4 eliminate them from the competitive market. It is not fair
5 to destroy a product with a label that accuses it of doing
6 something it is not doing.

7 I believe without reservation that the resilient tile
8 manufacturers could not endure the adverse effects of the pro-
9 posed warning label on their packages.

10 We also have a matter of imported tiles from other
11 countries which are entering this country rather fast. Spe-
12 cifically, we object on labels to the words "Danger," "Asbes-
13 tosis," and "Cancer," on these proposed signs and labels.

14 In conclusion, Kentile again respectfully urges that
15 the requirements in the permanent standard on asbestos dust be
16 of such a nature as to be economically and technically practi-
17 cal.

18 We also recommend that more time be allotted to all
19 parties concerned for further study of this problem, since
20 the livelihood of tens of thousands of U. S. citizens depend
21 on it.

22 Thank you very much.

23 EXAMINER GOLDBERG: May Mr. Neumann be excused?

24 (No response).

25 EXAMINER GOLDBERG: Thank you, Mr. Neumann.

1 Dr. Wolfe.

2 STATEMENT BY SIDNEY WOLFE M.D.

3 HEALTH RESEARCH GROUP, WASHINGTON, D. C.

4 DR. WOLFE: I am Dr. Sidney Wolfe, a physician with
5 Ralph Nader's Health Research Group. My clinical training is
6 in internal medicine and I was on the staff of the National
7 Institutes of Health doing medical research for five years.

8 A major part of the focus of our Health Research
9 Group in Washington is in occupational health.

10 I would just like to make a couple of comments first
11 about some remarks made this morning when it was requested
12 that a worker be presented as part of the testimony. A gentle-
13 man from industry made a statement that this would turn the
14 hearings into sort of a circus and mentioned the word "basket
15 case" presentation, and the thing that that brought to mind was
16 really the only issue that is supposed to be dealt with at
17 these hearings is health of workers, although we are interested
18 in at least hearing what some of the economic considerations
19 are, they should really have no role and the decision making
20 has really to do with is it healthy or thought healthy, and
21 along the lines with whether or not the conditions in asbestos
22 factories or within five miles of them, since we know people
23 have gotten diseased who don't even work in factories, whether
24 these conditions are healthy or not is augmented by the
25 presence of people who have gotten the disease.

1 I think in a sense it would be a circus if we did not
2 have that kind of input into these hearings, because I think
3 the distance from the real problems of Mesothelioma, which is
4 almost uniformly fatal disease of asbestosis, of lung cancer,
5 the distance in which many people here sit in a sense protects
6 them from the reality, and I think until they are made quite
7 clearly aware of what it means to get these diseases, unneces-
8 sary diseases, that that would be a disservice.

9 If workers were guinea pigs and asbestos was a food
10 additive, the Delaney Clause of the Food and Drug Act would
11 have mandated the elimination of this carcinogenic dust from
12 the environment long ago.

13 However, in 1972, twelve years after the publication
14 of Dr. C. Wagner's data showing the relationship between
15 asbestos exposure and Mesothelioma -- cancer of the lung
16 linings -- in humans, and at a time when there are now hundreds
17 of cases of this cancer in workers exposed to asbestos, the
18 slaughter continues.

19 The question thus arises, how much longer, in the
20 face of a massive, ever-increasing amount of evidence linking
21 asbestosis, lung cancer and Mesothelioma to asbestos exposure,
22 will workers (and non-workers with "incidental" exposure)
23 continue to be used as though they were guinea pigs.

24 In a recent report, the U.S. Environmental Protection
25 Agency stated that, "A safe exposure level to asbestos has not

1 been established." (Background information - Proposed National
2 Emission Standards for Hazardous Air Pollutants, E.P.A.,
3 December, 1971.) This statement is the inevitable conclusion
4 of a series of studies over the past decade, some of which
5 will be presented at this hearing by others, each showing the
6 capability of lower and lower levels of asbestos fibers to
7 cause disease.

8 A situation is thus present in which there is no safe
9 level of exposure yet established, data exists suggesting that
10 asbestosis can develop at levels under 2 fibers/cc, and the
11 level of exposure causal to Mesothelioma is even less than that
12 which causes asbestosis.

13 Under these circumstances regulations which do not
14 propose to ultimately reduce the fiber count to zero fail to
15 comply with the 1970 Occupational Health and Safety Act which
16 assures that "no employee will suffer diminished health, func-
17 tional capacity, or life expectancy as a result of his work
18 experience."

19 In this light, the proposed regulations should be
20 revised in accordance with the goal of gradually reducing the
21 fiber count to zero fibers per cubic centimeter. We concur
22 with the Oil, Chemical and Atomic Workers' Union proposal to
23 accomplish this in three years. What can be done now?

24 According to Dr. Joseph Wagoner, Director of the
25 Division of Field Studies and Clinical Investigations of NIOSH,

1 the only two factor for setting standards are (1) is the sub-
2 stance hazardous, and (2) is it technically feasible to achieve
3 reduction to a given level of exposure.

4 The NIOSH criteria document on asbestos clearly shows
5 the ability of industry to reduce the 8-hour weighted exposure
6 to below 2 fibers/cc. If one or two plants can achieve this
7 goal, there is no technical reason why all others cannot do the
8 same. We agree with labor that this should be accomplished in
9 six months rather than two years.

10 We are presently realizing that setting emission
11 standards for air pollutants based on total weight or particle
12 count without regard for respirable fraction is inadequate.

13 Similarly, it is not difficult to see how fibers
14 shorter than 5 micra or fibrils may also be implicated as a
15 cause of disease. As this new information becomes available,
16 it should promptly be converted into regulations.

17 While generally supporting the NIOSH recommendations
18 for improving the asbestos regulations, several further addi-
19 tions can be made:

20 MONITORING:

21 A) It is not clear why requests for variance from
22 proposed monitoring standards should ever be granted. This is
23 again an area in which technical feasibility exists and
24 economic considerations, although healthier for the company's
25 owners, should not be allowed to decrease workers' health.

1 B) Since workers' health and life is at stake,
2 regulations should be strengthened in the direction of maxi-
3 mizing their involvement in the monitoring process. This can
4 include, but not be limited to,

- 5 1) allowing workers to wear personal monitors,
- 6 2) allowing workers to observe each step of
7 the monitoring process without having pay deducted
8 (as has occurred in a recent case of a worker
9 participating in a Department of Labor plant
10 inspection), and
11 3) to require routine posting of asbestos
12 levels in all parts of the plant.

13 C) Routine monitoring of multiple locations in
14 plants should be performed at least four times a year.
15 - - -

16 For the many workers whose asbestosis has progressed
17 to cardiac involvement, the concept of requiring the use of
18 respirators in air with asbestos in excess of allowable levels
19 may not be a healthy one. The difficulty in breathing which
20 many of these affected workers have may be further compromised
21 by the resistance imposed by some respirators.

22 These workers should be allowed, with equal pay,
23 to work temporarily in another part of the plant until compli-
24 ance with the standard is achieved.

25 Medical records should not be used to pose the

1 impossible alternative of poverty or disease to workers. Thus
2 access to these records should be controlled by workers not
3 management lest they be arbitrarily used to fire or demote
4 workers because they show evidence of disease.

5 In view of much evidence that the latency period for
6 developing asbestos-induced cancer can be much longer than
7 twenty years, the requirement for keeping monitoring and medi-
8 cal records should be extended to the life of the worker.

9 NIOSH is to be commended for the thoroughness of the
10 criteria document on asbestos. In a certain sense, however,
11 it is two documents rather than one. The bulk of the study
12 reviews data on the hazards of asbestos which would support the
13 idea of reducing exposure to zero. The recommendations, how-
14 ever, fall short of this. It can only be speculated that this
15 discrepancy is the result of pressure applied by industry via
16 the Department of Labor.

17 We hope that the elimination of the killing and
18 crippling hazards of asbestos marks the beginning of a long
19 struggle to give higher priority to the life and health of the
20 American worker.

21 Thank you.

22 EXAMINER GOLDBERG: May Dr. Wolfe be excused?

23 (No response)

24 EXAMINER GOLDBERG: Thank you, Dr. Wolfe.

25 MR. EARL: Excuse me, I have a question.

I believe you support the concept of the confidentiality of the medical records. However, you suggested that some workers cannot wear respirators and the employer should be required to move them elsewhere at no reduction in pay until the engineering controls are implemented and the standard is reached.

Now I have a question on how the employer could know if you had to move the worker? Would you rely then on the worker's telling the employer that he has problems in the pulmonary area and cannot wear the respirator and therefore he should be moved?

DR. WOLFE: The critical factor is that the control be by the union so these arbitrary things can't happen. In suggesting such a worker be removed to another part of the plant with equal pay, one is building a procedure whereby an arbitrary action would not happen.

Let's assume the worker's doctor, who is given permission to see the records, is told that this worker is working in a part of the plant which you would know from the monitoring was hazardous to that worker, so he could then request his physician inform the company that he in fact has a disease which should mandate against his working in that area.

Your point is obviously it might work to the worker's disadvantage, but I think that could be gotten around.

MR. EARLE: That is what we are interested in

1 learning.

2 EXAMINER GOLDBERG: Thank you, Dr. Wolfe.

3 At this point I propose to take a ten-minute recess
4 but before I do so, however, I note from my schedule for today
5 that there is only one further witness scheduled, the repre-
6 sentative of the Oil, Chemical and Atomic Workers.

7 If there is anyone here scheduled for a session to
8 follow who would like to come on this afternoon, please see
9 me during the recess.

10 We will stand in recess for ten minutes.

11 (Whereupon, a short recess was taken.)

12 EXAMINER GOLDBERG: On the record.

13 Mr. Mazzocchi.

14 STATEMENT OF ANTHONY MAZZOCCHI

15 CITIZENSHIP-LEGISLATIVE DIRECTOR

16 OIL, CHEMICAL AND ATOMIC WORKERS INTERNATIONAL UNION

17 MR. MAZZOCCHI: My name is Anthony Mazzocchi, Citi-
18 zenship-Legislative Director, Oil, Chemical and Atomic Workers
19 International Union, AFL-CIO.

20 The gentleman to my left is Steven Wodka, Legisla-
21 tive Aide.

22 The proposed Labor Department Standard for Exposure
23 to Asbestos Dust is a very sad document. It serves to confirm
24 what many members of our International Union already fear:
25 that the Administration is frivolous with the health and

1 rights of working people.

2 Only an administrative agency harboring that kind of
3 attitude could propose a standard, as OSHA did on January 12th,
4 which would:

- 5 1) foster the continued industrial incidence of
6 asbestos disease,
- 7 2) set up an enforcement procedure that would fail
8 to even police its own permissive proposed
9 standard, and
- 10 3) deny workers certain rights that had already
11 been granted to them by Congress.

12 Our brief testimony today will attempt to point out
13 these deficiencies. We will also go on to list a program that
14 would truly serve to protect a worker from the asbestos disease.

15 First of all, there is more asbestos in the work-
16 place than one is usually led to believe. The often quoted
17 Labor Department figure of 200,000 isn't conservative, it is
18 ridiculous.

19 In our International Union, where we represent
20 175,000 workers in the oil, chemical and atomic energy indus-
21 tries, almost every shop and plant uses asbestos in one form
22 or another.

23 The oil refining industry and chemical process
24 industry use massive amounts of heat. These plants operate
25 on a continual flow basis and maintenance work is conducted

1 around the clock. Asbestos insulation is always being ripped
2 out as units are repaired. With the maintenance completed,
3 the asbestos is reapplied and the unit goes back on stream.

4 In a major oil refinery on the East Coast, Mobil
5 Oil in Paulsboro, New Jersey, asbestos has captured our concern
6 as the single most serious industrial health hazard in that
7 facility. We had 19 workers in that refinery, who handle
8 asbestos, examined by Dr. Irving Selikoff of Mount Sinai
9 School of Environmental Medicine. Dr. Selikoff's tests
10 revealed a very serious occupational health problem due to
11 their exposure to asbestos.

12 Now our concern is that 200 to 300 other workers,
13 pipefitters, boilermakers, welders, bricklayers and others,
14 who work in and around where the insulators are, may also have
15 been overexposed.

16 Asbestos also turns up in the most unexpected situa-
17 tions. I was touring a plant in Northern New Jersey where
18 Prestone anti-freeze is made. At one point in the tour I
19 caught a completely unprotected worker dumping asbestos into
20 a vat of anti-freeze. He told me that asbestos is what gives
21 Prestone its anti-leak qualities.

22 If that was the unexpected situation, then what has
23 been our experience in a primary asbestos plant, like one which
24 manufactures asbestos insulation products?

25 Up until recently, OCAW represented the workers at

1 the Pittsburgh Corning Corporation plant in Tyler, Texas.
2 This plant is the sister to the Union Asbestos and Rubber Com-
3 pany plant in Paterson, New Jersey, where Dr. Selikoff con-
4 ducted his now famous mortality study among asbestos workers.
5 In fact, the Tyler plant was originally started up by UNARCO
6 before it was bought out in 1962 by Pittsburgh Corning, a
7 joint venture of FPG Industries and Corning Glass.

8 At the Paterson plant, Dr. Selikoff found that total
9 deaths were more than twice as anticipated. Where no deaths
10 due to asbestos were expected, 14 occurred. Where 2.4 deaths
11 due to lung cancer were anticipated, 25 occurred. There were
12 also excessive number of deaths due to cancer of the stomach,
13 colon, and rectum.

14 And now at the Tyler plant, the National Institute
15 for Occupational Safety and Health has already found that 7
16 out of 18 workers with 10 or more years of employment meet at
17 least three of four criteria for asbestosis. Worse yet, HEW
18 studies on the plant dating back to 1967 have found grossly
19 excessive levels of asbestos dust throughout the plant. While
20 the plant may only have employed 60 people at its peak, the
21 turnover was so bad that 1500 people had worked in that plant
22 for varying periods of time from 1954 to 1972. The story of
23 Tyler is sadly filled with episodes of corporate indifference
24 and governmental secrecy.

25 With this kind of experience, the OCAW recommends

the following concepts for a truly meaningful asbestos standard.

First, all exposures must ultimately be reduced to zero. With asbestos, we are dealing with a substance that causes cancer in very small quantities. While a no-effect level for the cancer may exist, it has not yet been found.

To achieve zero exposure, performance standards must be enforced. And as any industrial hygienist will testify, performance standards are the easiest to keep enforced. For example, take an enclosed asbestos cutting operation with the properly engineered, calibrated and tested dust collection - ventilation system. There is no need for reliance on monitoring. If the ventilator breaks down, the worker and the foreman immediately know the job is unsafe and the work stops until the situation is corrected.

If the people in this situation had to wait for monitoring data, it may be days or weeks before the crucial decision is made. In the meantime, the workers are overexposed. Furthermore, no continuous monitoring equipment, like is currently available for carbon monoxide, has been developed for asbestos. For in the near future will there be enough people properly trained to count asbestos fibers through a microscope.

Monitoring should not be abandoned, but it is not the answer to controlling industrial exposure to asbestos. Manufacturing, maintenance, and other industrial and

1 construction processes using asbestos must be re-engineered
2 so that they perform at zero exposure. We propose that
3 industry be put on notice, as soon as possible, that within
4 six months of the effective date of this standard, no worker
5 shall be exposed to more than 2 fibers; within two years, one
6 fiber; and within three years of June 1972, zero exposure
7 shall be the law.

8
9 The authorization to allow an employer to come into
10 compliance through the use of respirators should be developed
11 into a permit system. Respirators should only be authorized
12 where the employer has a definite abatement plan to reduce the
13 exposure through engineering means. The other situation where
14 respirators would be allowed is where there is no feasibility
15 facility in the state of the art for controlling the dust.

16 The permit system would operate through the variance
17 procedures of the Act. The employer would be required to
18 prove his case. Engineers from OSHA, NIOSH, or the Union
19 would visit the site of the variance request to make their
20 own studies of the situation.

21 When respirators are authorized, they shall be pro-
22 vided by the employer at his cost and shall be of the type that
23 put the least strain on the heart and lungs of the worker for
24 that range of dust exposure. Of course, respiratory protec-
25 tion should be worn while the variance request is pending.

26 Until the concept of zero exposure is firmly

1 entrenched in an industrial facility, monitoring of exposure
2 to asbestos dust, as continuous as possible, is necessary.
3 Monitoring equipment and methods must be acceptable to employers
4 Furthermore, as provided by Section 8 of OSHA but denied in
5 the proposed standard, workers shall have the right to observe
6 such monitoring and their access to the monitoring records
7 without hindrance shall be guaranteed.

8 The OSHA proposed standard on medical examinations
9 truly allows the fox to guard the chickens. The medical com-
10 munity, like many other professional groups in this country,
11 has physicians that industry can rely on to deny valid occu-
12 pational disease claims of workers. Therefore we recommend
13 that workers be allowed to have annual physical examinations
14 performed on them by the doctor of their choice but at the
15 employer's expense.

16 Furthermore, the records of this examination should
17 not be sent to the employer but to a central record-keeping
18 facility at NIOSH which will keep these records intact and
19 confidential.

20 NIOSH would then send each employer an annual statisti-
21 cal summary on the examinations of all his employees. It has
22 been our experience in case after case that as soon as manage-
23 ment finds out how badly they have injured the health of a
24 worker, management also does its best to get rid of the worker.
25 That these records need to be kept intact for at least forty

years and be held confidential.

We also call your attention to the need for separate lunchrooms, for shower facilities, and for protective clothing as outlined in our previously submitted comments.

Lastly, in all instances where employees are given the opportunity to participate in any of these processes, like appealing at variance hearings or observing monitoring, they shall be compensated at their regular rates by the employer for any lost time.

If we are to make this law work, we must recognize the economic realities of working people. A worker should not have to subsidize the employer's obligation of providing a safe and healthy workplace for his employees.

And furthermore, any regulations finally adopted on asbestos should be written in clear, concise language. The easiest way to frustrate a worker's rights is to write regulations in complex language so that a lawyer or an experienced union staff is required everytime these rights need to be exercised.

I would point out that over 70 percent of the American work force of course is unorganized and have to rely upon their own devices to interpret any regulation that would be issued.

If we do anything less than what I have outlined above, the standard must be called a failure. A deficient

1 standard of protection from asbestos, in reality, legislates
2 sickness and an early death for thousands of people.

3 Faced with this prospect, I would seek no new rule at
4 all, rather than be held responsible for the cases of asbestos
5 disease that would surface thirty years hence.

6 I, for one, will not be swayed by the position that
7 "let's get what we can this year. We'll improve it the next
8 time around." For asbestos, unlike most other industrial dis-
9 ease agents, the research has been done, and the data is in.
10 We know what it can do.

11 Therefore, there is no excuse to disregard the
12 Congressional mandate "that no employee will suffer diminished
13 healthy, functional capacity, or life expectancy as a result of
14 his work experience." (OSHA Sec. 2(b)(7))

15 The Oil, Chemical and Atomic Workers International
16 Union wants a meaningful asbestos standard. We do not want a
17 standard that will be a diversion and a drain on our already
18 thin resources. When dealing with matters of life and death,
19 the giving of false security is the most despicable act.

20 EXAMINER GOLDBERG: May this witness be excused?

21 (No response)

22 EXAMINER GOLDBERG: Thank you, sir.

23 We have now exhausted the list of witnesses who were
24 scheduled pursuant to the prehearing conference to appear today.

25 Two witnesses scheduled for later sessions have asked

1 to go on and they are Mr. Lavalette and Mr. Bratt.

2 We will have time after their appearances for addi-
3 tional witnesses today, and I will entertain any requests to
4 appear today.

5 Mr. Lavalette.

6 STATEMENT OF DAVID R. LAVALETTE
7 REPRESENTING THE SHIPBUILDERS COUNCIL

8 MR. LAVALETTE: Mr. Examiner, ladies and gentlemen,
9 my name is David Lavalette, and I represent the Shipbuilders
10 Council of America. The Shipbuilders Council is the national
11 trade association for the shipbuilding and ship repair indus-
12 try.

13 By way of background, after completing graduate
14 studies in industrial hygiene and health physics, I studied
15 twelve years of shipyard environments and have responsibility
16 in those areas, and I might say parenthetically during that
17 time I have seen dramatic changes, all of which have led to
18 lessening of the exposure of potential hazards of asbestos to
19 the work force.

20 We appreciate the opportunity to comment on the pro-
21 posed standards. Although we understand, and are in agreement
22 with, the intent of the subject proposed rule making, we feel
23 that as presently drafted, the proposal requires clarification
24 and is not practicable.

25 Specific sections where a need for change is

indicated are discussed, and changes are proposed which would eliminate ambiguity, render implementation practicable, and assure attainment of the objective.

Paragraph 1910.93e states: "Warning signs shall be provided and displayed at each location where asbestos dust hazards are present. Signs shall be posted at least 50 feet in each direction from the location where the hazard is present and at intervals of not more than 100 feet along each edge of the area where the hazard is present."

This requirement would present no problem for fixed shore side facilities such as pipe covering fabrication shops, although there appears to be no necessity for posting such areas except on access doors, provided good ventilation control is maintained.

However, this requirement would impose a hardship aboard ship. It could effectively close down a complete ship under construction or repair during pipe covering or boiler bricking operations.

As stated, the proposal would require either the posting of a complete vessel or constant moving of signs as work locations change throughout the ship. The purpose of the signs is obviously to warn employees of the existence of a potential hazard in the general area of operations producing airborne asbestos dust, and hence prevent their exposure.

The key words in the proposed paragraph are "where

1 asbestos dust hazards are present." Since "dust hazards" are
2 not defined, we assume that dust hazards are deemed to exist
3 when the concentrations specified in Paragraph 1910.93a are
4 exceeded.

5 In order to clarify this and obviate the necessity
6 for signs when levels as specified in Paragraph 1910.93a are
7 not exceeded, we propose the following addition to section
8 1910.93a:

9 "Signs are not required in areas where the environ-
10 mental sampling as conducted in accordance with
11 Paragraph 1910.93f indicates that levels specified
12 in Paragraph 1910.93a are not exceeded."

13 Paragraph 1910.93f states in part:

14 (f) Monitoring - (1) Personal. "Employees engaged
15 in the particular operations or using the particular tools
16 specified in paragraph (d) of this section, or exposed to con-
17 centrations of asbestos dust in excess of the limits specified
18 in paragraph (c) (3) of this section shall be monitored in
19 accordance with this paragraph."

20 (iv) Sampling frequency - "Sampling periods shall
21 be of such number and pattern as to represent accurately the
22 exposure of the employees over their working period."

23 (2) Environmental. "Environmental monitoring shall
24 be conducted in all areas in which employees are exposed to
25 concentrations of asbestos dust in excess of the limits

specified in paragraph (a) of this section."

(iv) Sampling frequency. "Sampling periods shall be of such number and pattern as to represent accurately the exposure of the employees over their working period."

Although not specifically stated, there is an implication that sampling will be required daily for all individuals and environments exposed to asbestos dust. At least the standard could be so interpreted in the absence of more specific language.

We feel that representative sampling for all types of operations should suffice to prove the personal and environmental exposure levels, and serve as a basis for prescribing the need for engineering controls and/or protective equipment as appropriate.

Virtually all shipbuilding and ship repair operations are repetitive and similar operations are not likely to produce exposures which vary significantly from day to day provided proper control measures are imposed.

We therefore propose the addition of the following statement to Paragraph 1910.93f:

"Where dust producing operations are repetitive in nature, it is sufficient to perform and document sampling for each typical type of operation, and consider such results as accurately reflecting employee exposures over their working period."

1 Sampling is required whenever operations, materials,
2 or control measures change in such a manner as to
3 create potential exposures which differ signifi-
4 cantly from such typical operations. Sampling of
5 typical operations shall be repeated at least
6 annually to verify prior results."

7 We feel that adoption of the proposed rule making
8 would seriously and unjustifiably impact shipbuilding and ship
9 repair operations. We feel that the changes we are proposing
10 would result in protection of the employees and the environment
11 equal to or better than the proposed rule making.

12 We feel that the addition of a quantitative defini-
13 tion of "dust hazard" as suggested will encourage users to
14 employ engineering controls at the source of emissions, thus
15 minimizing the need for signs by reducing atmospheric concen-
16 trations of asbestos dust in surrounding areas.

17 We believe that the suggested addition regarding
18 sampling frequency will minimize confusion, and is consistent
19 with good industrial hygiene and engineering practice.

20 Thank you.

21 EXAMINER GOLDBERG: May Mr. Lavalette be excused?

22 (No response)

23 EXAMINER GOLDBERG: Thank you, Mr. Lavalette.

24 Mr. Bratt.

1 STATEMENT OF ERNEST C. BRATT
2 GENERAL MANAGER - ASBESTOS OF
3 H. K. PORTER COMPANY, INC.

4 MR. BRATT: Mr. Examiner, I am Ernest C. Bratt,
5 General Manager - Asbestos of H. K. Porter Company, Inc., of
6 Pittsburgh.

7 In its Thermoid Division, Porter operates two plants,
8 one in Kentucky and one in Indiana, engaged in manufacture of
9 friction products, including brake blocks and clutch facings.

10 It also has a plant in North Carolina, and one in
11 South Carolina, making Asbestos Textile products.

12 In addition, a Porter subsidiary, Pacific Asbestos,
13 mines the minerals in California.

14 We are, therefore, vitally concerned with any stand-
15 ard proposal for the regulation of exposure to asbestos dust.

16 The Emergency Standard, promulgated on December 7th,
17 1971, reduced the exposure of employees from 12 fibers to 5
18 fibers greater than 5 microns per milliliter, a sizable reduc-
19 tion. Because the ACGIH notice of intended change has indi-
20 cated this level would probably be adopted, we have been dili-
21 gently working to reduce our dust counts to that level.

22 We have in our two textile plants, complete recircu-
23 lation of air, emitting nothing to atmosphere. Inside we
24 have employed the best techniques available to hood our
25 machines, exhaust and filter the air.

1 Nevertheless, compliance with a standard of 5 fibers
2 in all areas has been difficult to obtain. A survey of the
3 problems at our North Carolina plant has indicated an addi-
4 tional expense of \$500,000 to try to reach 5 fibers.

5 I say "try" because I know of no available engineer-
6 ing that can or will guarantee meeting the standard. The best
7 we can do is spend the money and then test the results -- and
8 now we have a proposed standard of 2 fibers per milliliter
9 recommended by the Advisory Committee on Asbestos Dust.

10 What expense will be involved in meeting such a
11 standard has not even been estimated by us. Porter's four
12 plants may be facing an expenditure of \$2,000,000 to meet 5
13 fibers -- to meet two fibers may not be economically feasible.

14 We believe the medical evidence to date does not
15 warrant a standard of two fibers. In the interest of our
16 employees health, we will support a 5 fiber standard, believing
17 that any change below that should be the result of further
18 study and more conclusive evidence.

19 To return to the economics for a moment, I would like
20 to cite our recent past experience. In 1970, Porter operated
21 two additional plants in its textile group, one in Missouri
22 and a second in North Carolina.

23 In light of the ACGIH notice of intended change, we
24 examined all our plants and determined that Davidson, North
25 Carolina, and St. Louis, Missouri, should be closed since

1 neither had adequate controls and the cost of bringing them
2 into compliance was judged to be excessive.

3 It was not an easy decision since both plants were
4 profitable and both had loyal work forces which would be dis-
5 placed. Our South Carolina location was the newest, and the
6 available money was allocated to that plant so that one
7 expenditure could be made, not three.

8 Over three quarters of a million dollars has been
9 spent there in installing air and dust systems. Despite that
10 expenditure, we are still faced with additional expenditures
11 to meet 5 fibers. We have not even calculated 2.

12 Needless to say, the impact on earnings has been
13 severe. Up to this point, we have been discussing capital
14 expenditures and engineering services. There are a great many
15 other requirements that will add to cost -- day after day --
16 year after year.

17 There is the requirements for vacuuming all waste.
18 This will add \$10,000 minimum to the capital expense but the
19 manpower increase needed to operate the cleaners will add at
20 least \$50,000 per year to our operating costs.

21 Other costs, such as respirators, medical examina-
22 tions, record keeping, waste disposal, labeling, we have not
23 estimated. We know it will be considerable.

24 Against these increased costs is the pressure of the
25 market place where we can find our customers turning to

1 alternative products except in those places where the unique
2 properties of the asbestos make it irreplaceable. This is
3 Porter's problem but the other side of the coin reflects in
4 less jobs, lower income.

5 Our textile operations purchase over 5 million dol-
6 lars of raw materials, our payrolls are in excess of \$1,500,000
7 and our local taxes over \$50,000. Our economic impact from
8 those two plants alone is considerable.

9 I have addressed myself to the economic aspects of
10 this standard, leaving medical arguments to the experts. We
11 want to and intend to remain in business. We hope the impact
12 of this standard on the industry's economics will be given due
13 consideration.

14 To summarize, my company is opposed to the standard
15 as proposed in the following areas.

16 1. Allowable concentration: We believe 5 fibers
17 to be a reasonable standard and that existing data does not
18 warrant a reduction to 2.

19 2. Personal Protection: We accept the respirator
20 requirements but believe the proposed use of protective
21 clothing at a level 10 times the limit is far too stringent
22 and unnecessary.

23 3. Warning label and signs: Using the word "Danger"
24 is unnecessarily alarming and not warranted. The words
25 "Warning" or "Caution" would be preferable.

1 Thank you.

2 EXAMINER GOLDBERG: May Mr. Bratt be excused?

3 (No response)

4 EXAMINER GOLDBERG: Thank you, Mr. Bratt.

5 Does anyone scheduled to appear at a later time
6 desire to appear at this time instead?

7 MR. KUZMUK: I am Alex Kuzmuk, representing the
8 Asbestos Textile Institute, and I would like to make a pre-
9 sentation at this time.

10 EXAMINER GOLDBERG: When are you scheduled to go on,
11 sir?

12 MR. KUZMUK: Friday, sir.

13 EXAMINER GOLDBERG: Step forward, sir, and take the
14 stand.

15 STATEMENT OF ALEX KUZMUK

16 REPRESENTING THE ASBESTOS TEXTILE INSTITUTE

17 MR. KUZMUK: Mr. Chairman, my name is Alex Kuzmuk.
18 I am a member of the Board of Governors of the Asbestos
19 Textile Institute.

20 I am here today to officially represent and state
21 the position of the Asbestos Textile Institute and its member
22 companies. We are in opposition to the proposed asbestos
23 dose standards as published in the Federal Register, January
24 12, 1972. We are also opposed to recommendations proposed
25 in the NIOSH criteria package, and by the Asbestos Advisory

1 Committee.

2 The asbestos textile industry, which this associa-
3 tion represents, includes over 4,000 job opportunities in
4 manufacturing, plus approximately 35,000 job opportunities in
5 related product fabrication and sales.

6 The gross business volume for manufacturing alone
7 is over \$50 million per year. The gross volume for related
8 fabrication and sales is, therefore, many times this amount.
9 Although this is not the largest segment of the asbestos
10 industry, it is a very important one. Our product lines
11 include the manufacture of safety garments, insulations,
12 clutch facings, brake linings, paper dryer felts, mechanical
13 packings and gaskets, laminated plastics, and many other com-
14 modities essential to today's technological progress.

15 In many instances, there are no known substitutes
16 for asbestos textile materials.

17 Subsequent to the enactment of the Occupational
18 Safety and Health Act, the threshold limit value for asbestos
19 dust was reduced from 5 million particles per cubic foot of
20 air to 12 fibres per milliliter, 5 microns or greater in
21 length.

22 We, in the asbestos textile industry, made every
23 possible effort to meet the 12 fiber threshold limit value by
24 re-engineering dust hoods and dust collection equipment on
25 cards, spinners, looms, and many other types of equipment.

1
2 In addition, many of us initiated wet weaving and
3 made extensive additional changes in processes and materials.

4 When the further reduction to the threshold limit
5 value for asbestos dust was published on December 7, 1971, we
6 began all over again to study plans for revising equipment,
7 processes, and materials, for which we had just spend thousands
8 of dollars to install to meet the 12-fiber level. Many of us
9 have not, and cannot, reduce our dust levels to the emergency
10 and proposed 5 fiber threshold limit value.

11 If engineering to a 5 fiber level were feasible on
12 the complex types of machinery and equipment used in the tex-
13 tile industry, the cost of implementation would make it
14 extremely doubtful that this industry could survive economi-
15 cally. We are presently being pressed to the wall by our
16 competitors. The cost of a program to meet the proposed
17 asbestos dust standards could be the determining factor for
18 removing American-made asbestos textiles from the market place.

19 The competition to which I refer will not be
20 required to make extensive capital investments to change pro-
21 cesses, provide protective clothing, provide medical examina-
22 tions, and monitoring. This competition is primarily from
23 foreign imports.

24 I, therefore, take this opportunity to ask this
25 Federal agency whether it will take the responsibility of recom-
mending equitable tariffs to prevent this economic disaster, if

1 the proposed Asbestos Dust Standards become effective?

2 Beyond the proposed asbestos dust standards published
3 in the January 12, 1972, Federal Register, there are recom-
4 mendations by the National Institute of Occupational Safety
5 and Health, and the Asbestos Advisory Committee.

6 These recommend further reduction of the asbestos
7 dust threshold limit value to 2 fibers per milliliter, plus
8 many additional requirements concerning respirator equipment,
9 protective clothing, monitoring, and others.

10 With the problems we are encountering in attempting
11 to reach the present Emergency Asbestos Standard, it is unreal-
12 istic to even consider the feasibility of a 2 fiber standard.

13 I would like to point out that Mr. Clifford L.
14 Sheckler, Chairman of the Asbestos Textile Institute Environ-
15 mental Health Committee, took the initiative in 1964 to request
16 Dr. Lewis Cralley of the United States Public Health Service
17 to conduct an epidemiological study of our asbestos textile
18 industry.

19 We recognized then that a potential health problem
20 existed and, therefore, we wanted expert advice and assistance
21 to help us solve it. We have neither received the advice nor
22 the assistance which we had hoped for.

23 We opened our plants to the United States Public
24 Health Service personnel for environmental studies, review of
25 our records, and physical examinations of our people. Our

1 member companies urged employee participation in the study,
2 and a substantial representative group of workers were involved.
3 We continually requested the United States Public Health Ser-
4 vice to increase their efforts and provide interim progress
5 reports.

6 The Public Health Service Asbestos Study of which I
7 speak has not been completed. A recent report, which is a
8 primary factor in the recommendations by NIOSH and the Advisory
9 Committee, was based on this incomplete study. The informa-
10 tion provided in the report was based on opinion and specula-
11 tion, rather than fact.

12 Had the United States Public Health Service Asbestos
13 Epidemiological Study been completed as continually requested
14 by the Asbestos Textile Institute, we might now be in a posi-
15 tion of having factual information as to what the safe
16 threshold limit for asbestos dust really should be.

17 One factor is pertinent to this point. The asbestos
18 related disease involvement in the asbestos textile industry
19 is being related to asbestos dust exposure levels as they
20 presently exist rather than at the time the disease was incur-
21 red 25 to 30 years ago. Such a comparison is invalid. All of
22 the past monitoring for asbestos dust in American textile
23 plants has been done using the impinger method for sampling.

24 Today's proposed standards are based on a fiber level
25 using the Millipore filter method for sampling. There is no

1 accurate correlation of impinger counts versus Milapore filter
2 counts established to date. There has been some work done by
3 the United States Public Health Service, but the results are
4 incomplete.

5 This is but one area that demonstrates the need for
6 further health research studies and evaluations before unneces-
7 sarily creating an unrealistic standard that can be the demise
8 of this industry and its related job opportunities.

9 We respectfully urge the Secretary of Labor to: (1)
10 Reconsider the establishment of asbestos standards; (2) rein-
11 state the threshold limit value for asbestos dust at 12 fibers
12 per milliliter, 5 microns or greater in length for an interim
13 period pending a comprehensive epidemiological study of the
14 entire asbestos industry in the United States.

15 I would like to point out that many comparisons have
16 been made between the British and United States asbestos
17 textile industry concerning health problems. The vast differ-
18 ences in materials, equipment and processes make such compari-
19 sons unrealistic.

20 (3) Provide for representation of the Asbestos
21 Textile Institute on future advisory and study committees.

22 I would also like to point out that while many
23 detailed requirements are included in the proposed standard,
24 we are absolutely mute on the very important medically substan-
25 tiated problem of cigarette smoking as associated with

1 exposure to asbestos fiber.

2 We, of the Asbestos Textile Industry, have the
3 greatest desire to prevent injury to our employees. We believe
4 this can be accomplished without destroying the asbestos tex-
5 tile industry.

6 Thank you.

7 EXAMINER GOLDBERG: May Mr. Kuzmuk be excused?

8 (No response)

9 EXAMINER GOLDBERG: Thank you, sir.

10 Does anyone wish to appear at this time who was
11 scheduled to later appearance?

12 (No response)

13 EXAMINER GOLDBERG: If not, we stand in recess until
14 9:00 a.m., tomorrow morning in this room.

15 (Whereupon, the hearing in the above-entitled
16 matter was recessed, to reconvene at 9:00 a.m., Wednesday,
17 March 15, 1972.)

18 * * *

OFFICIAL REPORT OF PROCEEDINGS

before the

of the

U. S. DEPARTMENT OF LABOR

Docket No.

In the matter of

STANDARD FOR EXPOSURE TO ASBESTOS DUST,
PROPOSED RULE MAKING

PUBLIC HEARING

Place: Washington, D.C.

Date: March 15, 1972

Pages 104 through 220

HOOVER REPORTING COMPANY, INC.

Official Reporters

Washington, D. C.

546-6666

1 UNITED STATES DEPARTMENT OF LABOR

2 - - -
3 OCCUPATIONAL SAFETY AND HEALTH
4 ADMINISTRATION HEARINGS ON STANDARD
5 FOR EXPOSURE TO ASBESTOS DUST

6 Conference Room B
7 Department of Labor
8 Washington, D. C.

9 Monday, March 15, 1972

10 The hearing on occupational safety and health
11 standards for exposure to asbestos dust reconvened at
12 9:00 a.m., Arthur H. Goldberg, presiding.
13
14
15
16
17
18
19
20
21
22
23
24
25

C O N T E N T S

WITNESSES:

	<u>PAGE</u>
Alvin Gross	104
W. Clark Cooper	113
Duncan A. Holaday	128
Stephen Holmes	142
Clifford L. Sheokler	172-B
J. Spencer Royer	170-L
Charles Zumwalt	170-P
Albert H. Fay	171
Matthew M. Swetonic	178
Isaac H. Weaver	193
John H. Marsh	198
Joseph Leonard	202
John L. Rainey	209
Albert D. Schinner	212
Eddie Story	216

E X H I B I T S

NUMBERS:

IDENTIFIED

RECEIVED

22	106	107
23	106	106
24 thru 35		155
25 thru 35	150	151
36-A	170-A	170-A
36-B	170-A	170-A
37	170-B	170-B
38 and 39	178	178
40	192	192

- - -

BEST AVAILABLE COPY 104

PROCEEDINGS

EXAMINER GOLDBERG: Good morning. The hearing will be in order.

I have the following schedule for this morning: Mr. Gross, Dr. Cooper and Holaday, Mr. Holmes, Mr. Sheekler, and Mr. Daniels.

Mr. Gross, may you kindly?

Mr. Gross: Mr. Hearing Examiner, what I had planned to do this morning had been taken off yesterday. Rather than being late, I would like at this time to state a few things.

First of all, I will introduce myself. I am Alvin Gross, a practicing attorney in the City of Garden, New Jersey.

I became acquainted with asbestos just recently when I was called as a witness employed in the asbestos industry. As a result of this case, I was exposed to the problems of asbestosis, silicosis and related respiratory problems.

As a result of this case, I was interested in respiratory problems. As a result of this case, I was interested in respiratory problems. As a result of this case, I was interested in respiratory problems.

As a result of this case, I was interested in respiratory problems. As a result of this case, I was interested in respiratory problems. As a result of this case, I was interested in respiratory problems.

1 been changed.

2 The gentlemen whom I came in contact with who were af-
3 flicted with pulmonary problems from the exposure had similar
4 problems as these young children, and so I suppose that is one
5 reason why I have been interested in this particular field. And
6 as I said it safe to say that I just represent two employees.
7 That is all I can say.

8 I would like to make two points: one, there was a
9 great deal of thought yesterday regarding the economic problems.
10 They had to do with the economic problems of the asbestos in-
11 dustry, the problems of, say, what would come about if the
12 standards were set in such a way that they would have to change
13 the plans.

14 There was nothing said about the economic problems of
15 the individual who suffers from the pulmonary problems assoc-
16 iated with asbestos industry. I have been closely associ-
17 ated with these patients, not only in their being economic

18 problems, but also in their being physical and who may
19 be unable to work at all, but, of course, the economic prob-
20 lems of his family and wife, too, if his life becomes shortened
21 then of course, the economic problems of his dependents. We
22 should look at both sides and realize that there is a two-fold
23 economic problem.

24 Secondly, and my last point, there was a great deal of
25 thought yesterday about products, but we must never forget

1 that the man involved, the human being, is not a problem. So
2 we must balance the products against the living person.

3 I would like to introduce into these proceedings a
4 deposition that was taken in my office by myself in the presence
5 of attorneys representing various insurance companies who are
6 my opponents. The deposition is some 69 pages, and it is a
7 complete deposition that was taken that particular day, which
8 contains the testimony of a particular client of ours - -
9 questions I asked and, of course, the answers thereto.

10 I would also like to introduce with this particular
11 deposition the examining internalist's report, Dr. Rachmel
12 Cherner, who is a physician in Philadelphia, Pennsylvania.
13 It will be noted that this particular report was marked into
14 evidence in this particular matter, and so I will represent
15 that the deposition which I will introduce has also been marked
16 into evidence in this particular matter as the medical reports
17 which I intend to introduce. They also have been marked into
18 evidence before the Honorable Robert Paige.

19 I thank you. That is all I have.

20 EXAMINER (MURPHY): The deposition referred to by
21 Mr. Gross will be marked Exhibit No. 22. The medical report
22 will be marked Exhibit No. 23. Are there any objections?

23 (The documents referred to were
24 marked Exhibits No. 22 and No. 23
25 for identification.)

1 MR. SHECKLER: I'd like to ask Mr. Gross if the med-
2 ical report he is introducing into evidence contains informa-
3 tion about the Petitioner in the Respondent's medical exam-
4 ination?

5 MR. GROSS: It really doesn't. I do believe I have a
6 duty to present the Respondent's side.

7 MR. SHECKLER: You will introduce both medical reports?

8 MR. GROSS: I do not have same available, but I can
9 obtain same.

10 (Discussion off the record.)

11 EXAMINER GOLDBERG: Mr. Sheckler, I will receive
12 Exhibit No. 22 into evidence, the same being the deposition.

13 (The document referred to, here-
14 before marked Exhibit No. 22 for
15 identification, was received in
16 evidence.)

17 EXAMINER: As to the Exhibit No. 23, the medical report
18 offered by Mr. Gross, I will keep the record open for five days
19 after the close of the hearing for receipt of the medical report
20 offered by the Respondent in the proceeding that Mr. Gross has
21 testified about. If that Respondent's medical report is re-
22 ceived within five days after the close of the hearing I will
23 receive both that and the medical report which Mr. Gross has
24 offered. If the other medical report is not received within
25 five days of the close of hearing, the medical report offered

1 by Mr. Gross today will go into the rejected Exhibit file.

2 MR. SHECKLER: May I also ask Mr. Gross other questions?

3 EXAMINER GOLDBERG: It is the only opportunity you are
4 going to get to examine Mr. Gross, so if you feel you should
5 go right ahead.

6 MR. SHECKLER: Other than the moral aspect of this case,
7 you approach the subject of the economics of industry versus the
8 economics. Again, aside from the moral aspects of this case,
9 would you mind telling me what the rate in New Jersey is for
10 permanent total disability?

11 MR. GROSS: The rate in the State of New Jersey varies
12 from year to year. We have an excellent law that allows it
13 to vary depending upon the Cost of Living Index. The rate
14 right now, as of January 1, 1972, I believe, is \$95 a week.

15 MR. SHECKLER: It depends on wages?

16 MR. GROSS: Two-thirds of your wages up to a maximum
17 of \$95 a week.

18 MR. SHECKLER: In the State of New Jersey is it not a
19 fact that the Workmen's Compensation Statute makes provision
20 for payment for life to the widow after the death of the
21 injured under the Statute at the same rate?

22 MR. GROSS: No, that is incorrect. The rate in the
23 State of New Jersey regarding a widow is that she is entitled
24 to 50% of her husband's earnings up to the \$95 figure, whereas
25 the individual person who is injured would be entitled to two-

1 thirds.

2 However, of course, there is some exception to this
3 particular rate, and the exception would be if she remarried
4 or she worked herself. There are certain other refinements;
5 but basically she would be entitled to 550 weeks at the 50%
6 rate of her husband, up to a maximum of \$95.

7 However, it should be understood that the rate that
8 applies is the rate in effect at the time of the last exposure.
9 As I said, there is a sliding scale. This year it is \$95.
10 Last year it was \$91, and so on.

11 MR. SHEETTER: Is it a fact that the widow does receive
12 benefits for life, not 550 weeks?

13 MR. GROSS: If she does not attain equal employment and
14 does not remarry, then she will obtain payments for life. The
15 Order is entered for 550 weeks. If there is no remarriage,
16 then it is correct she will get lifetime benefits.

17 EXAMINER GOLDBERG: Is there anything further of
18 this witness?

19 Q. PROSECUTOR: Mr. Gross, are you familiar with
20 Workers' Compensation cases involving diseases, alleged or
21 supposed, or believed to be related to asbestosis?

22 MR. GROSS: Yes, sir, I participated in two such cases
23 very recently.

24 MR. DEGRECOMO: Are you familiar with the industry, or,
25 more specifically, the levels of exposure to which these persons

1 you represented were exposed?

2 MR. GROSS: Yes, sir. I really can't say the exact
3 levels, but in tests made of the particular plant I personally
4 went through the plant, so I don't have the statistics with me,
5 but I did know that information.

6 MR. DEGREGONO: But you don't remember now?

7 MR. GROSS: No, I don't remember the findings obtained
8 as the result of engineering studies.

9 MR. DEGREGONO: These two cases, were they prosecuted
10 in final judgment?

11 MR. GROSS: Yes, a final judgment was entered by the
12 Honorable Robert Paige in the Workman's Compensation Court in
13 the City of Camden.

14 MR. DEGREGONO: Was an issue in the two cases whether
15 the disease was related to the occupational exposure of asbestos?

16 MR. GROSS: Yes. The judgment in both cases, one
17 individual was found to be permanently and totally disabled.
18 He will receive those benefits provided by the New Jersey
19 Workman's Compensation Law, which would be for the rest of his
20 life. In the other case the judgment was that the particular
21 individual was partially totally disabled, and my recollection
22 is that he was adjudged to be 423 of the permanent total, which
23 would entitle him to a rate based upon a \$40 a week rate for
24 approximately some \$12,000.

25 MR. DEGREGONO: Can you identify the disease involved

1 in the two cases, the illness?

2 MR. GROSS: I can say this to you, the particular dis-
3 ease that was found having to do with the particular person
4 which I introduced the depositions are mentioned completely in
5 the physician's report. I can read that off, and probably it
6 would be the easiest way. All I can say to you is that both of
7 these gentlemen were exposed to asbestos and the plant that made
8 gaskets, and in doing this type of work it was necessary each
9 morning for each individual who, frankly, did the same job, to
10 cut asbestos and place the strippings of the cut asbestos in
11 such a way, around a steel base making these gaskets.

12 I toured the plant. I am familiar with the operations.
13 I can only tell you that the diagnoses as made by the internist,
14 Dr. Gordon, was basically that the asbestos either precipitated,
15 suggested, or brought about the respiratory problems that the
16 two gentlemen suffered from.

17 It is my understanding that it is quite difficult to
18 say in all cases to make a definitive diagnosis of asbestos
19 without a biopsy, and unfortunately maybe an autopsy, because
20 the doctors usually look for particles of asbestos in the lungs.
21 So at this particular time, as a result of the testing done,
22 both of these gentlemen were in various hospitals, so findings
23 and diagnoses -- not a positive diagnosis, but probable --
24 that irritation by occupation brought about.

25 MR. WATKINS: How long were the two patients engaged

1 in the occupations?

2 MR. GROSS: They were both engaged from fifteen to
3 seventeen years in the same occupation, doing the same job.

4 MR. DEGREGONO: I would suggest that inasmuch as New
5 Jersey cases are of public record that our record here show
6 the names of the cases to which Mr. Goldberg does refer, so
7 that if, and I am sure we are all interested in the potential
8 exposure of these people, we so choose, we can look back upon
9 these cases and trace whether or what the exposure level and
10 the exposure, continuous, might have been.

11 EXAMINER GOLDBERG: Mr. Gross, do you happen to know
12 the names and citations?

13 A. GROSS: The two cases involved a Mr. John Swift
14 versus Florida's Basket Company. The number is No. X-4231.
15 The other matter is a matter of Maurice (Stylen) versus the
16 same company. I do not have the claim number, but I believe
17 it would be quite similar to the number I recited. I can
18 supply that information when I send the medical report to
19 this hearing.

20 EXAMINER GOLDBERG: Is there anything further of this
21 witness?

22 (No response.)

23 EXAMINER GOLDBERG: Thank you, Mr. Gross.

24 (Witness dismissed.)

1 EXAMINER GOLDBERG: Drs. Cooper and Holaday.

2 DR. COOPER: Mr. Examiner, I am Dr. W. Clark Cooper,
3 School of Public Health, University of California, a Member
4 of the Consulting firm of Tabershaw-Cooper Associates, Berkeley,
5 California.

6 I welcome this opportunity to speak in favor of effective
7 standards to reduce occupational exposures to asbestos.
8 I am a physician certified in Internal Medicine and Occupational
9 Medicine and am Professor of Occupational Health in Residence
10 in the School of Public Health of the University of California
11 in Berkeley.

12 Before joining the University, I was in the Division of
13 Occupational Health of the U. S. Public Health Service, and
14 retired in 1953 while Chief of that Division. Today, however, I
15 am not representing either the University or the Public Health
16 Service, but am speaking as an occupational physician who has
17 been closely concerned for several years with the health problems
18 of the insulating trade. I also speak as Medical Advisor to,
19 and the designated representative of, the Western States Asbestos
20 Health Plan. This is a cooperative program, now in its 4th
21 year, supported by insulation workers and insulation contractors
22 in thirteen western states, aimed at preventing disease
23 and disability resulting from asbestos and other hazards of
24 that trade.

25 I think there is general agreement about the harmful

1 effects of asbestos, which can cause fibrosis of the lungs
2 (asbestosis), and is associated with a high risk of lung cancer
3 and other tumors. I see nothing wrong in our being reminded
4 that we are dealing with a very serious human problem, but I
5 think that most, if not all, of us, in this room can accept
6 that these do occur.

7 When we review the evidence relating concentrations of
8 airborne asbestos and effects on man, however, we reach a zone of
9 great uncertainty below average concentrations of about 10
10 fibers/cc. It has been shown that controls that drop the
11 average below five fibers/cc will prevent asbestosis, but we
12 are not sure about the tumors. As has been said so often,
13 the asbestos-related tumors we see today resulted from expo-
14 sures 20, 30, 40, or even 50 years ago. No one was measuring
15 fibers in the air at that time. There is no magic number to
16 designate safe and unsafe exposures. There is no way one can
17 statistically establish statistics to get such a number. There
18 are too many variables to consider for us to come back over all
19 these years and reestablish the decisive number. There are
20 many kinds of asbestos, of varying fiber sizes, which
21 undoubtedly interact with one or more poorly-defined co-
22 factors that are probably essential in the initiation or pro-
23 motion of tumors. Add individual variations, and one can
24 easily see how hard it can be to define the importance of aver-
25 age and peak doses and the time and duration of their occurrence.

1 Raw data are uncertain, and to extrapolate from them to a zone of
2 presumed no-effect is impossible. For the same reasons, it is
3 risky to translate experiences in one industry to another.

4 Since a number of some kind seems administratively
5 required, an average of 2 fibers/cc is a prudent choice for an
6 eight-hour limit, based upon a margin of safety as compared with
7 levels that we know produce effects.

8 As I wrote NIOSH in December, 1971, first, reducing
9 asbestos exposures will come from changing materials, equipment,
10 and work practices, with periodic check of performance, and
11 not by constant air monitoring. The numbers in the standard
12 should be guides to engineering design and to practices that
13 need changing, as well as showing those operations where
14 respiratory protection will be required. It would be unwise
15 and impractical to use single counts as the basis either for
16 the standard or for choosing the type of respiratory protection
17 to be used.

18 I should stress, also, that when we monitor by light
19 field methods counting fibers 5 μ in length, it is not like
20 sampling for carbon monoxide or benzol vapor. We cannot be
21 sure we are measuring what is biologically important in a given
22 environment. This should give us humility in interpreting data,
23 setting standards, and ultimately in enforcing them. In other
24 words, I agree wholeheartedly with those who recommend that we
25 think in terms of performance standards.

1 My support of a 2 fiber/cc average is predicated upon
2 there being a two-year period before compliance is mandatory.
3 In the insulating trade our studies indicate insuperable diffi-
4 culties in reaching the standard, fairly soon, based on a
5 10 fiber/cc peak, although some operations will require regu-
6 latory protection. Changes in materials and work practices are ✓
7 already well advanced. Because there are far more difficult
8 problems in connection with other uses of asbestos, time should
9 be given to work out solutions. I see no basis for concern,
10 on medical grounds, for the continuation of a 5 fiber/cc stand-
11 ard for two more years, particularly if a 10 fiber/cc peak is
12 observed. I predict no detectable long-term effects.

13 There is a difference between five and two over this
14 period of time. It is important that the two-year period be
15 characterized by the feasibility of meeting the standards. This
16 is already underway in the West. During this two-year period
17 advances in respiratory design are essential to meet all the
18 requirements of the standard or be available when needed.

19 I would like now to turn to the program of medical sur-
20 veillance. It should be stressed that physical examination
21 plays a secondary role in preventing asbestosis and practically
22 no role in preventing malignancies except that they may provide
23 opportunities to reinforce commendations on work practices and
24 smoking habits. Until surveillance aimed at detecting acute
25 or reversible effects. We are observing in the asbestos worker,
the end result of exposures that occurred or began many years

1 ago. Medical examinations can play an important role in miti-
2 gating the effects of these past exposures, but only if the
3 results are applied by physicians or others with knowledge of
4 the patterns of asbestos-related disease and with consideration
5 of each worker as an unique individual.

6 We have been supervising or conducting the examination
7 of insulation workers in California, Washington, and Oregon
8 during the past three years. I am sure that without careful
9 planning it will be impossible to carry out a nation-wide program
10 of compulsory examinations equitably. There are too many
11 serious questions to be answered for such a nation-wide program
12 to be initiated hastily.

13 What are some of these questions that concern us?
14 First, who will be required to have the examination? We know
15 there are indirect occupational exposures to asbestos, which
16 hopefully will be lessened by standards which reduce dissem-
17 ination of dust. There should be some provision in the regu-
18 lations to exclude from examination those whose exposures are
19 below some arbitrary level. Because there is asbestos in nearly
20 any air sample one collects anywhere in the United States,
21 someone cannot say, "When asbestos is in the air you must do
22 this." This would include everybody, so somewhere, adminis-
23 tratively, this problem of who is required to have the exam-
24 ination has to be settled.

25 Secondly, will examinations be compulsory - i. e., a
condition of employment? If the answer is yes, then some

1 realistic plan relating to employability of individuals with
2 changes in their chest films who are still able to work. There
3 are many men with positive chest films and no evident physical
4 impairment. They should be permitted to continue work under
5 conditions of the new standard, even the current temporary one.

6 If the answer is no, much of the advantage of writing
7 a provision like this in the regulations and the standard be-
8 comes weighted against the employer, so that once one decides
9 it is compulsory there are safeguards that have to be created.

10 Related to the above is the question of successive em-
11 ployers. In the insulation trade, union membership defines
12 the work force, not the employer. There can be multiple
13 employers for the space of a few months. A mechanism for re-
14 ducing the number of examinations and certifying physical eli-
15 gibility is essential.

16 Furthermore, many industries have on-going physical
17 examination programs. Will they be required to support par-
18 allel programs outside?

19 Fourth, the matter of who gets information on physical
20 status is of vital importance. In the present state of Work-
21 men's Compensation laws, and without guidance as to employa-
22 bility, I appreciate fully the great concern of our confident-
23 ials. It is wholly in the medical tradition.

24 Nevertheless, I do not see how employers can protect
25 their employees or wisely utilize their skills without knowledge

1 of their physical condition. We must devise mechanisms to
2 impart information to employers on such matters as levels of
3 Xray change and pulmonary functions. Statistics of groups of
4 people are important, but in the final analysis it is each
5 individual, himself, who must be considered in terms of his
6 work.

7 The route by which information reaches the workmen is
8 important. A form letter from a governmental agency advising
9 a man of his Xray classification does not solve problems. It
10 often is only the beginning of a new set of problems. I think
11 the workman, himself, should have some part in decisions re-
12 lating to his life, and he must have the informed advisors
13 who can discuss realistically with him the alternatives in a
14 given situation.

15 Inextricably involved in the solution of some of the
16 problems I have mentioned above is the present state of our
17 workers' Compensation laws, which were not designed to meet the
18 problems associated with the delayed and non-specific effects
19 of a substance such as we are talking about. It is utterly
20 unrealistic to hold a permanent employer responsible for the
21 results of exposure, and it can only work in the long run to
22 reduce the opportunities for employment of those individuals
23 who, unfortunately, show the effects of past exposure.

24 Since the answers to the above questions, industry to
25 industry and state to state, they cannot be answered quickly or

1 easily. Therefore, I respectfully ask we stand back from the
2 matter of compulsory physical examination while we think it
3 through. It is not a severe emergency issue any more so than
4 the basic standards. There should be provision in the regu-
5 lation that will go into effect two years from now.

6 In the meantime we can look for answers to the questions
7 that I have just raised. I think that some of these will re-
8 quire negotiations involving labor and management, the partic-
9 ipation of occupational physicians, and others. I think that
10 under the aegis of the NIOSH or OSHA there must be careful con-
11 sideration of how we can handle this generic question for which
12 the asbestos standard will be the prototype.

13 The content of the required examination should be min-
14 imal, including only elements that are pertinent and of proven
15 benefit in diagnosing asbestos-related disease and ability to
16 work with or without respirators. For instance, sputum cytologic
17 smears should not be mandatory. It is too soon to assume that
18 the finding of atypical cells will be of practical value in
19 preventing or controlling asbestos-related lung cancer. There
20 should be systematic research to evaluate this method of manage-
21 ment. With our present knowledge, it would be unfortunate if
22 sputum cytology were used as a device to deny men employment
23 without more assurance of its positive benefits.

24 In the area served by the Western States Asbestos Health
25 Plan we are about to evaluate our experience in physical exam-

1 inations during the past three years to determine the impact
2 of various criteria upon employability and respirator use.
3 Information of this kind is necessary before a physical exam-
4 ination program is made fully operative.

5 In summary, I support a rigorous standard to minimize
6 occupational exposures to asbestos and believe that changes in
7 work practices to meet a 10 fiber/cc ceiling and a 2 fiber/cc
8 average 8 hour limit will eliminate asbestosis and practically
9 eliminate asbestos-related malignancies. A two-year period for
10 implementation, during which feasibility is actively studied,
11 is essential and will not be hazardous. Any program of compul-
12 sory medical surveillance will require major modifications
13 before it can be made operational in a manner fair to both
14 employer and employee. In the meantime, voluntary programs
15 should be carried out to determine the best methods to be used
16 in a compulsory program.

17 EXAMINER GOLDBERG: May Dr. Cooper be excused?

18 MR. DESFREGONO: Did you say that some groups have now
19 currently some problems of medical surveillance?

20 DR. COOPER: Yes, but it is a voluntary program.

21 MR. DESFREGONO: Would you describe the characteristics
22 of the program? Who gives the examinations? Who keeps the
23 records? Who gets the information?

24 DR. COOPER: The program's general policies are under
25 a Board of Trustees representing both contractors and union

1 members who administer a fund called the Western States As-
2 bestos Health Plan, which reports in general terms to these
3 trustees. The actual physical examinations are financed out
4 of the Health and Welfare funds of each local area, which have
5 been negotiated in each area between the local union and the
6 contractors in that area, and the physical examinations are
7 carried out by a clinic or a group in each area that we have
8 selected as the one that we think should carry out the physi-
9 cal examination. The duplicate chest films and summaries of
10 these examinations, with the approval of each individual who
11 is examined, are sent to us in Berkeley, so we have on file
12 films and physical findings on individual employees. The
13 results of these are made available to the employee and to his
14 personal physician, and we advise him in general terms of X-ray
15 evidence that is indicative of asbestosis. We respond to
16 employees if they request this information. This is a volun-
17 tary program. Probably less than half of the individuals in
18 any area have taken advantage of this.

19 That is the general nature of the program, so we regard
20 ourselves as neutral in terms of the adversary relationship
21 which often arises, but we have found that the contractors who
22 are participating in this program have shown as much concern
23 for the health of the employees have.

24 It is not exactly a prototype of what might be done,
25 but I think it would be a step in that direction, though. This

1 is because, as I have said before, union membership defines the
2 work force here. We have not done any such thing as saying
3 this man is eligible or not eligible. We have no right to
4 do this, really.

5 MR. EARLE: You indicated that the insulating industry -
6 I wonder which part, the manufacturing or application?

7 DR. COOPER: This is the application.

8 MR. EARLE: You indicated it would be possible for
9 controls in the work procedure to reach the 2 fibre level
10 soon - - or were you speaking to the 5 fibre?

11 DR. COOPER: I think the 2-5 we can do it.

12 MR. EARLE: Could you be more specific as to why this
13 particular industry can and perhaps some others, as you sug-
14 gested, cannot?

15 DR. COOPER: I think one reason is because we can de-
16 fine rather clearly a number of situations where there are deep
17 and hidden concentrations of dust. I think the next witness
18 will probably be speaking to some of these questions.

19 Secondly, an important reason is that there are substi-
20 tute materials that do not contain asbestos, and while this
21 is obviously not applicable to other problem areas, it is a
22 combination of substitution and definable peak periods rather
23 than long extending operations.

24 MR. EARLE: Then these long periods of exposure would
25 generally be in the manufacturing?

1 DR. COOPER: I know less about that. From the obser-
2 vations that I have made, the answer to that is yes.

3 MR. EARLE: On the compulsory nature of the medical
4 examinations are you suggesting, then, that we delay for two
5 years the compulsory examinations specifically?

6 DR. COOPER: Definitely.

7 MR. EARLE: And what do you suggest during this per-
8 iod, that the standard be a recommended examination?

9 DR. COOPER: I would put in there that it is going to
10 be compulsory some day in the future and force people to face
11 up to the problem.

12 MR. EARLE: You indicated generally that it would be
13 a limited examination of the sputum tests. What specifically
14 would you do?

15 DR. COOPER: A pulmonary function test and a history
16 as to shortness of breath. Clubbing of fingers would be the
17 next thing. I think that they would be of interest but not
18 essential.

19 MR. EARLE: You state that these examinations, at least
20 to the extent we can perform them today, are not very helpful
21 in determining the existence of malignancy.

22 DR. COOPER: No, they are not. We have never detected
23 any malignancy.

24 MR. EARLE: You indicated 5 fibers, in your opinion,
25 would be permissible for the next two years in terms of expos-

1 ure levels, generally, and then to the 2. Isn't this inconsis-
2 tent with your earlier statements concerning the unknown
3 factors, especially in regard to malignancies? Can you explain
4 this?

5 DR. COOPER: I think just because it is unknown does
6 not necessarily mean you go lower. I said that the fact that
7 we don't know does not necessarily mean you go to zero. I
8 said the fact we do not know where the cut-off is - - I think
9 honest people can differ as to where the cut-off point should
10 be.

11 MR. SCANNELL: Dr. Cooper, did you say that 5 fibers,
12 you felt, was safe for preventing asbestosis, but not other
13 relating illnesses?

14 DR. COOPER: I said that I am very uncertain as to the
15 fact. I would not feel secure over a lifetime of 5 fibers
16 with all types of exposures.

17 I think there is some evidence from the British textile
18 industry and there is evidence from the (Pricertown) mines of
19 Quebec that would indicate that when you get 2-5 fibers we
20 are probably getting down in the zone where there is a great
21 reduction of malignancies, but I would not feel comfortable
22 with the 5 fibers.

23 MR. SCANNELL: For asl stosis?

24 DR. COOPER: As far as asbestosis, I would be. It
25 is because of the tumor problem that I wouldn't be, therefore

1 I believe in putting some margin in there even though I am not
2 sure what that margin should be.

3 MR. SABURRIN: Mr. Examiner, I am Ivan Saburrin, and
4 I am an observer, not a participant. I graduated in law at
5 McGill, in Canada.

6 Dr. Cooper, I have great respect for you. I must admit
7 that as Mr. Earle just pointed out, it seems to me that I am
8 a little bit in the fog. I know we are all aiming at 2, for
9 zero, if possible, but are you insinuating that you prefer 2
10 to 5, but nevertheless under the circumstances now prevailing
11 5 would be acceptable for the next two years or so?

12 DR. COOPER: Yes.

13 EXAMINER GOLDBERG: Mr. DeGregono, do you want to ask
14 questions?

15 MR. DEGREGONO: Yes, Please.

16 Dr. Cooper, you mentioned a couple of studies which
17 suggest, to your judgment, that a 5 fiber standard is accept-
18 able with respect to both asbestosis and cancer, or just one
19 or the other?

20 DR. COOPER: I think you will probably be hearing
21 more details with regard to those studies later in these hear-
22 ings, since the individuals who actually participated and
23 carried out those studies will be here. So I cannot answer
24 in detail, but the conclusions drawn by those who carried out
25 the study are that at least in the mining of Chrysotile as-

1 bestos that a standard which prevents asbestosis will also
2 prevent any increase in tumors.

3 But this is a situation, as I pointed out, where both
4 fiber size and the presence of co-factors is different from
5 those that might prevail in other situations. Therefore, if
6 one accepts the study -- and I do think it is an excellent
7 piece of epidemiological research, it is still not safe to
8 extrapolate from that.

9 The second study is an on-going study of the effects
10 of controls in the British textile industry, and here, again,
11 the conclusion was that controls designed to control asbestosis
12 did, in fact, prevent tumor. Those were the only two studies
13 that I know of that are directly pertinent here. I am not
14 prepared to utilize those two sets of results to narrow my
15 margin of safety, which I think is fairly close already.

16 A VOICE: Doctor, in these medical surveys in the West,
17 was the data compiled just medically, or is there a record of
18 these volunteers as to the projects on which they were working
19 and also the materials they were using?

20 DR. COOPER: We have this type of information on sever-
21 al hundred of them which has reinforced my conviction that it
22 is impossible to reconstruct over the lifetime of that work.
23 We have worked with dozens of contractors. We have paid par-
24 ticular attention to determining the duration of a man's work
25 experience in the yards. We feel this has posed in the past

1 some striking risks.

2 Unfortunately for purposes of trying to determine it,
3 we found that most of the old-timers in our area had that ex-
4 perience, so we do not have many who do not. We have tried
5 to do this, and we are continuing to do it; and we also have a
6 great deal of information on levels of industry in connection
7 with various operations, but it is very, very difficult to
8 relate these causes because of the complexity of that situation.

9 A VOICE: Has there been field monitoring with these
10 volunteers as to it?

11 DR. COOPER: Some of them, yes. But this has not been
12 a consistent or systematic program. Some of these people have
13 been individuals on whom we put monitoring devices in connect-
14 ion with trying to determine the dust concentrations in con-
15 nection with certain operations. But these were never intended
16 to relate that particular monitoring with what we see in that
17 particular man, because we don't think that monitoring today
18 has anything to do with it.

19 Thank you.

20 EXAMINER GEDBERG: Thank you, Dr. Cooper.

21 Dr. Holaday?

22 DR. HOLADAY: Dr. Hearing Examiner, I am Duncan A.
23 Holaday, Research Associate Professor at the Mt. Sinai School
24 of Medicine in the Environmental Sciences Laboratory. Before
25 going with Mt. Sinai, I was with the Division of Occupational

1 Health, U. S. Public Health Service, for some twenty-five years.
2 I retired in 1968 as Deputy Chief of the program. So my ex-
3 perience has been entirely in the field of industrial hygiene.
4 My training is as an industrial hygiene engineer.

5 I am here this morning to discuss the primary means of
6 reducing exposure of asbestos containing dust. In my opinion
7 this is an exceedingly important point, because no matter
8 what standard is adopted by the regulation, unless it is adhered
9 to and dust concentrations are reduced this is merely writing
10 on the sand, a gesture towards nobility.

11 So we get down to what then is the most effective way
12 to use the time and the people that are available for control.
13 there is
14 We must recognize that/no one with all the time there is or
15 people there are for any particular problem. You must dis-
16 tribute your efforts in the manner that is at least rationally
17 designed to be most effective.

18 Several other people before me, including Dr. Cooper,
19 this morning, have spoken to the use of procedural or - - the
20 other term - - performance standards. No one has really de-
21 fined it. I have my own definition for whatever it is worth.

22 In my terminology, procedural standards are regulations
23 which require the use of specified types of equipment, methods
24 of material treatment, methods of material handling, waste
25 disposal, housekeeping rules, and all those other procedures
which are designed to reduce production of dust, and after it

1 is reduced to reduce dispersion of dust into the work atmos-
2 phere. This, I think, is rather obvious.

3 These are standard procedures that have been used in
4 industry for many centuries, long before anybody knew how to
5 conduct an air sampling program, and the only methods of con-
6 trol were specified that work should be done and certain pro-
7 cedures used to reduce dust.

8 So they have a long and honorable history. As has been
9 mentioned before, it is much easier to look at an operation and
10 see whether there is exhaust ventilation on a bandsaw. If
11 there is, is it turned on? -- rather than to hang around and
12 take air samples to see what kind of an atmospheric concen-
13 tration exists. This is all stating the obvious.

14 Again, it is very possible to get off on a monitoring
15 binge where you take a great number of air samples and merely
16 result in piling clips of paper up in a drawer somewhere for
17 further examination. The air sampling is necessary to isolate
18 your source of dust dispersion and your source of contamin-
19 ation, to check the usefulness of the controls that have been
20 designed to see they are accomplishing this purpose.

21 This, then, is the main value of such a process that
22 must be practiced. The rest of the time, then, that might
23 be spent in taking samples and in laboratory time accomplishing
24 this is, in my opinion, much better devoted to maintenance of
25 your dust control equipment.

1 It has been my experience over the years that when I
2 went into an operation where you did have dust control equip-
3 ment and got it straightened out so it was working, that as I
4 walked out the door the equipment started to deteriorate behind
5 me and it did not improve until someone who would straighten
6 them out came again.

7 I would very much like to see specifications in the
8 regulations which probably would apply more to production oper-
9 ation and insulation workers, but definite specifications re-
10 quiring routine inspection and maintenance of all dust control
11 equipment, as often as once a week, if required. Experience
12 will show how this needs to be done.

13 Again, with your procedure standards, one can define
14 employer responsibility and employee responsibility. The em-
15 ployer obviously is responsible for supplying proper control
16 equipment, proper materials, and the rules of operation. It
17 is then up to the employee to see that they are used. We must
18 remember, especially in something like the construction in-
19 dustry, that the worker's fate is in some measure dependent upon
20 the man working. If he is a shifty soul and will take the
21 block of concrete insulation and dump it out and carefully shake
22 it to make sure he gets out the last bit of material, or to
23 get the last two pieces out of a bag, some of which will go
24 into the bag and others not float through the air - - this type
25 of thing can make a very serious exposure.

1 It is these kinds of simple things that are the em-
2 ployee's simple responsibility to live up to - - the matter of
3 spreading a drop-cloth underneath his area of work, to make
4 sure his area is cleaned up so that that contamination does not
5 stay there on the floor to be redistributed, settled on the
6 walls, go back to the floor and make a continuing source of
7 hazard, which is what will occur without these procedures.

8 Now, again, not to belabor the point, but I think
9 Dr. Nicholson brought out yesterday in the little questionnaires
10 on which he reported, the information shows the complete in-
11 feasibility of ever expecting adequate monitoring to be done.
12 One air sample for every 7,000 days in the shipyard, you might
13 improve that to 9,000 days, but let's not be unrealistic. You
14 cannot go on that line at all if we expect to get real health
15 protection.

16 Now, in an effort to do something about this, sometime
17 ago an ad hoc committee was formed to devise a manual of
18 recommended practices for shipyards. This was a cooperative
19 effort between the asbestos workers' union, the Shipbuilders of
20 America, the U. S. Navy, the Insulation Contractors Association,
21 and Mt. Sinai, and we did develop such a manual, which has not
22 as yet been published but is in final form. There is abso-
23 lutely nothing in that manual, no procedure is recommended,
24 that has not been used in some shipyard or other throughout
25 the United States.

1 None of them are used in all shipyards. This is the
2 type of thing which in my opinion is vitally necessary, and I
3 very strongly urge that the statement in the Advisory Committee's
4 recommendation that a series of manuals or a manual be produced
5 to give these guidelines to industry - - that these recommend-
6 ations be coordinated and carried out promptly.

7 I have a few comments on the recommendations of the
8 Committee. One is on respirators. Here, again, I think the
9 subject deserves a manual, a relatively short one, some helpful
10 hints on how to select and use respirators.

11 We must recognize that the guidelines such as the
12 American National Standards are addressed to situations where
13 you have a safety professional or an industrial hygienist who
14 can understand what he is reading and who is familiar with the
15 subject, who knows that he should determine what level of con-
16 tamination people are exposed to when he selects respirators.

17 Again, it is unrealistic to expect in industries where
18 asbestos is used - - and they are many-fold - - that we can an-
19 ticipate having this type of guidance available, either from
20 company sources, union sources, or official agencies. We
21 need something that will specify and spell out the informant,
22 the individual contractors, or the union's health and safety
23 committee.

24 I cannot understand the reason for differences in pro-
25 tection factors allowed on the valve versus the single-use valve

1 respirators. I would like to see the data on which that was
2 based. Offhand, one would think I could take a valveless
3 respirator and put a valve in it and then have something twice
4 as effective. I am sure this is not what was in the Committee's
5 mind. It needs some explanation. This is, again, not critical
6 at this moment in time, but is something to which attention
7 should be given quite promptly.

8 I am quite disturbed about the recommendation on pro-
9 tective clothing. In my opinion "protective" is a complete
10 misnomer in this context. The protective clothing here does
11 not protect the workers any more than ordinary street clothes.
12 It is not there and not used to protect the man. It is there
13 to keep contamination from walking off the job into the locker-
14 room or into the lobby or into his house. There is no other
15 excuse for it.

16 You set a level above which you must wear protective
17 clothing and below which you don't need to. It sounds a little
18 reasonable, but it isn't. If a man furnishes his own work
19 clothes, he is not going to take those home and have them
20 laundered every day. By the time he has worn them in concen-
21 tration of one, two, or three times the threshold levels or
22 anything from one week to six weeks, he will carry out about
23 the same load of contamination as if he had worn them one day
24 at a concentration of a hundred times.

25 I am making a point of this, because otherwise we are

1 going to have something in the regulation which we think is
2 doing some good and really isn't accomplishing anything: that
3 is, you are still going to let contamination get on the job.

4 Now, if that is what you are interested in, look at
5 it again and see what provisions can be written in to protect
6 other people in the lockerroom or the household or the laundry,
7 which may be unfortunate enough to get these clothes. You
8 might even have a contract and get quite a few of them regularly
9 every day.

10 In summary, I think the few recommendations on proced-
11 ure standards in the criteria document and in the recommend-
12 ations of the Advisory Committee are quite good. There are
13 those that have demonstrated they can accomplish their purpose.
14 I would like to see those in. I would like to see many more.

15 I agree with the Committee's report that they did not
16 have time to write these manuals. This is a long, tiresome
17 job and has to be worked out by people in the industry - - the
18 workmen, the foreman, the industrial hygiene engineer, the
19 safety officer - - who know what is possible and who can be
20 aided as the effectiveness of these procedures that are estab-
21 lished.

22 I would like to see a manual or a series of manuals
23 on the subject of air sampling, for example. How do you do it?
24 What the method? What is the pattern? What determines
25 why you take a sample here at this time, rather than down

1 over there? It is possible to get more information out of
2 samplings taken in one way than in another.

3 Again, after some thirty years now in the business, I
4 have a certain degree of skepticism of the results of air
5 sample importance unless I know exactly how they were taken.
6 Applying and removing insulation, certainly, is a fertile field
7 for writing a manual of recommended procedures. It is aston-
8 ishing how much good can be accomplished by some very simple
9 advises and simple changes in methods of material-handling.

10 The mere procedure of dipping the block of pipe in
11 a fifty-gallon drum of water and putting it in a plastic bag
12 until it is used a week or two later has been found by the
13 Puget Naval Shipyard to reduce dispersion by fifty percent or
14 more. This is the type of thing I am talking about.

15 Other asbestos-containing products are topics about
16 which I am unfamiliar, but certainly it could stand a series
17 of recommendations there. Respirators definitely need a few
18 words or words on selection, care, use, and all that.

19 Housekeeping and waste disposal, at least to the point
20 where you get it outside the plant under proper control, again
21 is a subject for thought and necessary amending, because con-
22 tamination or waste that is not contained inside the plant
23 merely is a continuing source of contamination and exposure to
24 everyone else.

25 In summary, these few remarks of mine are merely in-

1 tended to point out that there is a lot of information avail-
2 able to accomplish quite a bit towards reducing exposure of
3 our workmen in the asbestos industry. This is not information
4 that has to be strained out and considered. It is available
5 now.

6 The zero exposure, of course, is impossible of attain-
7 ment, but if we use the information we now have we can reduce
8 all our workmen's exposure quite substantiatly.

9 Thank you.

10 MR. SHECKLER: In addition to the very excellent rec-
11 comendation which you have made, would it be your opinion that
12 to supplement what you suggested a total epidemiological study
13 of the entire industry should be started and completed just as
14 quickly as possible?

15 DR. HOLADAY: I put my stethoscope away long years ago,
16 Mr. Sheckler. I won't recommend epidemiology if they won't
17 recommend dust control systems. Just offhand I'd say what you
18 are proposing really is a rather enormous chore. I will toss
19 this one over to the epidemiologists to see which piece or parts
20 they might select. I, personally, do not think we need any
21 more studies of people with high exposures. What we need to
22 find are cohorts of people with low exposures and look at that.

23 MR. DEGRESONO: Dr. Holaday, I take it that you prefer
24 to control the source of dispersion rather than protect the
25 employees from dispersion.

1 DR. HOLADAY: Obviously, it is much more satisfactory
2 in the first place not to produce the dust, and in the second
3 place to catch it before it gets out in the air, and in the
4 third place if these methods fail, protect the individual.
5 That would be my chosen method of operation.

6 MR. DEGRECONO: Is it possible to control the source of
7 dispersion down to a 2 fiber standard, a 2 fiber concentration,
8 by a combination of engineering controls and work practices?

9 DR. HOLADAY: What situations?

10 MR. DEGRECONO: Any situations.

11 DR. HOLADAY: It would be quite possible in what is and
12 can be a very dusty operation - - mixing mortar. It is quite
13 possible to control that by obtaining the mortar in small plas-
14 tic bags which have a spout to which you can add some water
15 and get it moistened before you open the bag. That does it
16 right there. This is available.

17 MR. DEGRECONO: Two kinds of operation have been
18 mentioned. One is the fixed operation prevailing, I suppose,
19 in manufacturing plants.

20 DR. HOLADAY: Yes.

21 MR. DEGRECONO: The other is the insulation operations
22 or operations on construction. Calling your attention first
23 to the fixed operations with materials involving asbestos, what
24 kind of engineering controls do you think are possible to keep
25 down the generation of asbestos fibers in this fixed operation?

1 DR. HOLADAY: I have no answer for you that would
2 cover everything, because we have, as we pointed out, a wide
3 variety of materials which use asbestos all the way from some-
4 thing like making pipes down to textiles. The problem will be
5 in a different order of magnitude in those operations. I am
6 not at all familiar with them, and would be talking from ignor-
7 ance there, but I would just consider that there are complete-
8 ly different and more troublesome problems in, say, textiles.

9 Again, I would have to look at them. I think we have
10 people in this room who have experience, actually, in those
11 plants who could be more responsive to your question.

12 Now, on the matter of power tools, yes, it is perfectly
13 possible to control production of dust in such operations,
14 cutting and grinding to where you do not put out in the air
15 anything approaching your two fibers per cc, as you can really
16 capture essentially all the dust right at the point of the dis-
17 persion. I agree it is not done. Much of the equipment is
18 faulty.

19 MR. DEGRESCONO: What kind of controls would you use?

20 DR. HOLADAY: Local exhaust ventilation. In other words,
21 catch the dust right at the point of the dispersion by picking
22 it up with a stream of air taken into an air-cleaning device.

23 MR. DEGRESCONO: Are these systems available?

24 DR. HOLADAY: Yes.

25 MR. DEGRESCONO: In the United States?

1 DR. HOLADAY: There are pictures of them in the Manual.

2 MR. DEGREGONO: Do you know if they are very expensive?

3 DR. HOLADAY: I would think the most expensive job for
4 a bandsaw, which is used in a fabrication shop or could be
5 carried out on portables, this would run you, between the dust
6 control system on the saw and the bag-house for cleaning it up,
7 about \$1200. Now, you could get by for about \$600 with some-
8 thing that will do probably just about as well.

9 MR. DEGREGONO: What would be the life expectancy?

10 DR. HOLADAY: The \$1200 one is going to be around a
11 great many years. It is really overly-designed. It is port-
12 able. You can pick it up in a cherry-picker and get it in a
13 pickup truck.

14 MR. DEGREGONO: I think you mentioned something of a
15 special problem, the weaving of textiles. Is there any kind
16 of technical controls for that kind of problem? I haven't
17 been in an asbestos textile plant. My experience is circum-
18 scribed.

19 MR. EARLE: You mentioned this Manual in final form,
20 but not published at this time. Will this be available in the
21 next week or two?

22 DR. HOLADAY: Copies are available right now; that is,
23 an individual copy is available.

24 MR. EARLE: Could you make one available for inclusion
25 in our records, perhaps?

1 DR. HOLADAY. (Positive indication.)

2 MR. EARLE: All right, now with respect to the question
3 from the audience, you indicated that more studies are needed
4 for high exposure level employees. What is your definition?

5 DR. HOLADAY: Somebody who works in 10 f/cc, or better,
6 for a good many years.

7 MR. EARLE: Ten or above. It is the 5 and 2 that
8 we need?

9 DR. HOLADAY: The concentrations, of course, of
10 interest are the ones we are talking about, the 5 fiber per cc
11 and the 2 fiber per cc levels.

12 MR. EARLE: You also indicated you specifically
13 disagreed with certain of the Advisory Committee recommendations
14 and you dealt with those in some detail, and then you general-
15 ly stated that you would agree with many of the provisions.
16 Could you briefly describe some of those key provisions?

17 DR. HOLADAY: The key provisions I agree with are,
18 in the first place, establishment of a standard of five fibers
19 per cc and then a 100-year period for getting down to the two
20 fiber per cc. This does not seem to be an unreasonably long
21 period of time to me; and then the provisions requiring some
22 monitoring. I know that this will horrify some people who are
23 not used to having to do air-monitoring to see what conditions
24 are in their plants. This would not be any problem at all to
25 certain other American industries. The requirements here, I

1 believe, are that every year if you are in compliance around
2 the standard of five and routine sample once a year, quarterly
3 if you are in trouble; completely extraneously to put out your
4 Bureau of Mines inquiries for the uranium operators to sample
5 the place once a week. So while things may seem horrifying
6 when you start out, again we should put this in the context of
7 what is done elsewhere.

8 MR. FARLE: Thank you.

9 EXAMINER GOLDBERG: Do you have a question.

10 MR. SABURIN: Mr. Holaday, might I ask you if
11 I am right in construing your version as follows: that you seem
12 to stress from the beginning of your delivery that it is not
13 so much possibly the 2 or the 5 that is of paramount importance;
14 it is, rather, the methodology, the frequent inspections. You
15 use the word housecleaning when properly done. I would say,
16 rather, for instance, the policing that should take place just
17 as if a person has windows and does not open them, does not
18 ventilate his room -- well, he is not doing the right thing.

19 It is, then, the constant surveillance, policing,
20 that is important. You gave an example of the shipyards. You
21 said no shipyard is alike. They all have their own subjective
22 discipline. Am I right?

23 DR. HOLADAY: You are right, and you must understand
24 that I am addressing my remarks primarily to the field with
25 which I am really familiar, which is the insulation work and,

1 again, I am stressing the use of dust-control equipment, be-
2 cause if it is properly designed, again not talking about
3 textile weaving with which I am unfamiliar, you won't just catch
4 everything until you get down to 2 to 5 cc. If it is well-
5 designed, the level will be well below 2 fibers per cc. In
6 other words, an industrial hygiene engineer or ventilation
7 engineer doesn't design the equipment saying, "If I design
8 it this way I will just get under it." Your idea is to give
9 yourself some elbow room.

10 EXAMINER GOLDBERG: We will take a ten-minute recess.

11 (Recess.)

12 EXAMINER GOLDBERG: Dr. Holmes?

13 DR. HOLMES: My name is Stephen Holmes. I am a Bachelor
14 of Science of the University of London, a Doctor of Philosophy
15 of the University of Edinburgh and a Fellow of the U. K.
16 Institute of Physics. I have been concerned with environ-
17 mental problems in the U. K. asbestos industry for more than
18 25 years and have been Secretary of the Asbestosis Research
19 Council since 1959.

20 I welcome the opportunity to appear at this hearing and I
21 propose in my testimony to deal primarily with the British
22 experience in the development and application of occupational
23 asbestos health standards. In preparing my statement, I have
24 had the advantage of studying the Criteria Document "Recommend-
25 ations for an Occupational Exposure Standard for Asbestos",

1 prepared by the National Institute for Occupational Safety and
2 Health.

3 Asbestos manufacturers and users in the United Kingdom
4 are subject to the Asbestos Regulations, 1969, which came into
5 force in May, 1970. The important feature of these Regulations
6 is the absence of any specific standards of dust concentration.
7 This point is dealt with instead by the inclusion of the follow-
8 ing sentence:

9 "References in these Regulations to asbestos dust shall
10 be taken to be references to dust consisting of or containing
11 asbestos to such an extent as is liable to cause danger to the
12 health of employed persons".

13 I was personally involved in the discussions which took
14 place during the drafting of the Regulations, and I know that
15 specific dust levels were omitted because such a course was
16 contrary to existing U. K. practice and because it was consid-
17 ered that there might be insufficient precise epidemiological
18 evidence on which to base a hygiene standard for asbestos ex-
19 posure which could be included in a legal document. It was
20 felt that any such standard might, in the light of advancing
21 knowledge, have to be altered in the course of a few years.

22 Having reached this decision, H. M. Factory Inspectorate
23 published in March, 1970, their Technical Data Note 13 entitled
24 "Standards for Asbestos Dust Concentration for Use with the
25 Asbestos Regulations 1969". They define the purpose of the

document in the following terms:

"In this note guidance is given on how H. M. Inspectors of Factories will interpret the expression 'dust consisting of or containing asbestos to such an extent is as liable to cause danger to the health of employed persons' and how the measurements may be made. It is emphasized that these notes have been prepared for the guidance of H. M. Inspectors, since only the Courts can give binding decisions in these matters. It is important to bear in mind that these standards are provisional and may have to be revised from time to time".

Their recommendations then follow, but, in order to understand how they were arrived at, we have to refer to the report entitled "Hygiene Standards for Chrysotile Asbestos", published by the British Occupational Hygiene Society in 1968. This report was the work of the Society's Sub-Committee on Asbestos which included representatives from the then Ministry of Labour (Factory Inspectorate), the Medical Research Council, and the Asbestos Research Council.

The Sub-Committee accepted the idea of disease being related to an integrated exposure to dust, measured as a product of concentration and time. Using information supplied by the asbestos industry and statistically analyzed by the Medical Research Council, it recommended a maximum accumulated exposure of 150 fibre-years/m³. The standard applied only to asbestosis and was designed to ensure that not more than 1% of those

1 exposed would exhibit the first signs of the disease. The
2 criterion adopted for this was the presence of persistent basal
3 rales. If X-ray changes had been used (employing the tech-
4 niques available at the time), then the standard would have
5 been slightly less stringent. It was realized from the begin-
6 ning that the standard had certain limitations. The information
7 on which it was based was scanty and was drawn from a textile
8 plant, where dust concentrations did not fluctuate widely. That
9 it might be unwise to apply it to situations experiencing high
10 peaks of concentration was recognized, and it was recommended
11 that the time/concentration concept should not be used above
12 10 fibres/cm³, because too little was known about the effects
13 of high concentrations for short periods of time, which might
14 interfere with the normal lung clearance mechanisms. Further-
15 more, it was based on exposure to chrysotile asbestos only, and
16 doubts would inevitably arise in applying it to other types. It
17 should be regarded as a first attempt to establish the dose-
18 response relationship for asbestosis from the U. K. experience
19 and some of the problems associated with it have become increas-
20 ingly concerned with the authority with which it has become
21 invested in the international field.

22 In making their recommendations in Technical Data Note 13
23 the Factory Inspectorate have been aware of the limitations of
24 the standard. Taking into account the extreme case where a
25 person might possibly be occupationally exposed for 50 years,

3

1 they have proposed 2 fibres/cm³ (measured over a ten minute-
2 sampling period) as the limit below which the substantive
3 clauses of the Regulations will not apply. At the other end of
4 the scale, concentrations above 12 fibres/cm³ (changed from
5 10 to 12 to come into line with the ACGIH standard of 12 fibres/
6 cm³ recommended at the time in the United States) will call
7 for action to reduce the level by improved dust control or,
8 failing that, to provide personal protection for the worker.
9 Levels between 2 and 12 fibres/cm³ will be assessed by means
10 of a four-hour continuous or time-weighted average sample, and
11 the extent to which the standard of control will require to be
12 improved will depend upon the amount by which it exceeds
13 2 fibres/cm³ and the duration of exposure. There is no doubt
14 that the Factory Inspectorate regard the 2 fibre/cm³ limit as
15 a goal to be aimed at eventually, rather than a standard to be
16 rigidly enforced now, and it is not thought likely that further
17 improvements will be called for at present if the level is
18 set at 2 fibres/cm³, bearing in mind the difficulties and un-
19 certainties involved in the measurement of dust concentrations
20 at these levels. Any action taken by them so far has tended to
21 concentrate on situations substantially above 12 fibres/cm³,
22 and this they obviously regard as the first priority, before
23 moving into what might be called the "grey area" between 2
24 and 12. They are operating the same standards for amosite and
25 fibrous anthophyllite as for chrysotile, but for crocidolite

1 have called for full protection unless the level can be main-
2 tained below a peak value of 0.2 fibres/cm³. The distinction
3 has been drawn because crocidolite is generally regarded in the
4 U. K. as being the type of asbestos most closely associated
5 with mesothelioma. Even so, unlike the standard for asbestosis,
6 there is no epidemiological evidence to support the chosen
7 figure. In making their assessments, the Factory Inspectorate
8 intend in all cases to use samples collected in the immediate
9 breathing zone of the worker.

10 If the B.O.H.S. Standard is to be considered in establish-
11 ing a permanent asbestos dust standard in the United States,
12 then it must be remembered that the B.O.H.S. recommendation
13 is that the integrated exposure figure of 100 fibre-years/cm³
14 concentration limit which is a figure derived from the Standard
15 assuming a fifty-year continuous occupational exposure. Such
16 a length of exposure will only rarely be encountered in the
17 U. K., and it is understood that it would be regarded as completely
18 unrealistic in the United States, where a shorter period in the
19 industry is usual for asbestos workers. A change from fifty
20 years to thirty years will raise the limit from 2 to over 3,
21 and if one takes into account the uncertainties inherent in the
22 B.O.H.S. standard, then a figure of 4 or 5 fibres/cm³ might
23 not be such an unreasonable figure to adopt until more epidem-
24 iological evidence is available. This is being collected in
25 the U. K., but it will be some considerable time before the

1 picture emerges.

2 The manufacturing side of the asbestos industry in the
3 U. K. was first subject to regulations in 1933 (The Asbestos
4 Industry Regulations, 1931). From that time there has been a
5 continuous program of dust control, and we have seen the rate
6 of incidence of asbestosis drop dramatically and along with it
7 its associated lung cancer. In one factory, the incidence of
8 asbestosis among long-service workers fell from over 80% in
9 1929 to 2% in 1957, and the incidence of lung cancer among the
10 factory workers is now no greater than in the general population.
11 This has been achieved without any officially approved dust
12 standards, and today there are some areas which we would regard
13 as satisfactory where time-weighted average dust levels are
14 still higher to a limited degree than the Factory Inspectorate's
15 ultimate goal of 2 fibres/cm³. It is my view that a sizeable
16 part of the health problem facing the asbestos industry today
17 is due to the effect of peaks of very high dust concentration,
18 albeit only for short periods, attending uncontrolled operations,
19 such as are encountered in the insulation industry. A
20 standard which removes the worker from the effect of such peaks
21 is probably more important than one which imposes unreasonably
22 strict average levels.

23 Taking everything into account, I would suggest that
24 a standard designed to control (or eliminate) short-time peaks
25 above 10 or 12 fibres/cm³ with an average time-weighted figure

1 of 4 or 5 fibres/cm³ (given existing working practices) would
2 in the present state of knowledge be worthy of consideration
3 as the Standard for Asbestos Exposure in the United States.

4 (Discussion off the record.)

5 DR. HOLMES: All these epidemiological studies done
6 in the past, where the smoking habits of the subjects have not
7 been taken into account, give an exaggerated figure of the
8 asbestos-related disease, and this is why I asked the question
9 of Dr. Nicholson in his testimony yesterday when he ignored
10 the smoking implication in his workers.

11 Before I close, Mr. Examiner, I would just like to
12 say a few words concerning Mr. Duncan Holaday's presentation. I
13 heartily agree with his idea that a manual or manuals should be
14 provided for people working with asbestos. We in the Asbestos
15 Research Council in England have produced a whole set of manuals
16 covering all the different types of handling of asbestos and
17 asbestos products. We have nine of these manuals here, and we
18 also have a code of practice for the disposal of asbestos
19 waste. I would just go another point which Duncan Holaday
20 says, we have a technical note on the measurement of airborne
21 dust and a book on dust sampling procedures which he
22 thinks is more important, so that people should be advised how
23 to take dust samples.

24 If you wish, Mr. Examiner, I would be quite happy to
25 leave these as part of the evidence.

1 EXAMINER GOLDBERG: You have only one copy of each?

2 DR. HOLMES: With me, I am afraid I have, yes, sir.

3 We could send more, if required.

4 EXAMINER GOLDBERG: We would appreciate receiving
5 another copy of each so we can have duplicates.

6 I will make these as they appear for receipt into
7 evidence:

8 Control and Safety Guide Number 1 will be Exhibit
9 No. 24.

10 Guide Number 2 will be Exhibit No. 25.

11 Guide Number 3 will be Exhibit No. 26.

12 Guide Number 4 will be Exhibit No. 27.

13 Guide No. 5 will be Exhibit No. 28.

14 Guide Number 6 will be Exhibit No. 29.

15 Guide Number 7 will be Exhibit No. 30.

16 Guide Number 8 will be Exhibit No. 31.

17 Guide Number 9 will be Exhibit No. 32.

18 Asbestos Research Council Recommended Code of Practice
19 for the Handling and Disposal of Asbestos Waste Material will
20 be Exhibit No. 33.

21 Technical Note Number One, the Measurement of Air-
22 borne Asbestos Dust by the Membrane Filter Method will be
23 Exhibit No. 34.

24 Technical Note Number 2, Dust Sampling Procedures for
25 Use with the Asbestos Regulations, 1969, will be Exhibit No. 35.

(The documents referred to, identified As Exhibits No. 25 through No. 35, were received into evidence.)

EXAMINER GOLDBERG: Dr. Holmes, I would appreciate your sending duplicates of these by airmail immediately upon your return to the United Kingdom.

DR. HOLMES: I understand, Mr. Examiner, there are certain guides and codes which have been published by organizations in the United States. I don't say these are the only ones available.

EXAMINER GOLDBERG: We appreciate your putting these in. Are there any questions?

MR. SARUBBIN: Dr. Holmes, you are aware, I am sure, of the complication of the information submitted in connection with criteria, with a recommended standard for exposure to asbestos.

DR. HOLMES: Yes, sir.

MR. SARUBBIN: I was struck by the fact that it is stated on Page 10 that the development of standards for asbestos dust in Great Britain and the evaluation made by the British Occupational Hygiene Society on Hygiene Standards for Asbestos has given great weight to the development of this asbestos standard.

This is followed by, in conclusion, that the portion dealing with the summary for a recommended basis on Page 517,

1 he recommended - - the standard recommended in this document
2 is similar to the standard adopted by Her Majesty's Factory
3 Inspectorate in 1969 is more stringent than the recent United
4 States Emergency Standard.

5 My point is - - -

6 EXAMINER GOLDBERG: Sir, you are supposed to be asking
7 questions. If you wish to testify, we will put you on.

8 MR. SABURRIN: To put my question and make it as
9 short as I would like it to be, is this 2/cc fibre submitted
10 here anything similar to what is enforced in Great Britain?

11 DR. HOLMES: The situation, as I pointed out in my
12 testimony, is that in Great Britain we consider it two, and
13 the Factory Inspectorate concur the two-fibre limit to be some-
14 thing to be aimed at. British industry has been working con-
15 sistently to reduce dust levels to get somewhere near this goal.
16 We have certainly not reached 2/cc in the general field of
17 in-plant and out-of-plant asbestos work in the United Kingdom.
18 So the situation is, of course, some jobs are fairly easy to
19 control, because the manipulation of the asbestos is not
20 violent, and therefore there is not a lot of emission of dust.

21 Some asbestos processes use high quality asbestos
22 fibre which is comparatively dust-free; others use lower grades
23 of fibre which is more dusty, and it is certainly not true
24 here in the textile side of industry that all operations in the
25 textile industry dust can be controlled in the present state of

1 knowledge down to 2/cc. We are not expected to be getting there
2 yet.

3 In the present state of knowledge certain textile
4 operations - - the carding, spinning, etc. - - do not get down
5 to 2/cc, generally. Certain very high-quality operations may
6 well do it, but the general situation is that we are not yet,
7 throughout the British industry, achieving the 2/cc ultimate
8 goal.

9 MR. SAMURKIN: Must I understand, therefore, that the
10 2/cc are tantamount to characterizing, when you please, your
11 factories, and that each case is just upon its own merits?

12 DR. HOLMES: That is true. I have referred to what
13 we regard as the "gray area" between 12 and 2. I think
14 Dr. Cooper referred to that. The situation is confused below
15 10. The way the Factory Inspectorate are looking at this is
16 that they will look at the operation and they will decide
17 whether it is a truly continuous operation, whether the worker
18 is exposed continuously, and whether the worker is exposed
19 continuously or not bearing in mind that they have this concept
20 of a total exposure which is a multiplication and concentration
21 in time. They will decide what action is to be taken.

22 Quite a number of jobs, I am sure, are not done for
23 a full working week. A man is not exposed to this concentra-
24 tion all the time, so relaxation will be allowed.

25 MR. SAMURKIN: It is said that 10 or 14 - - -

1 DR. HOLMES: Is a situation is above 12, substanti-
2 ally above 12, again the Courts would have to decide what was
3 the substantial figure above 12. If it was, even for short
4 periods of time, then the full rigor of the British regulations
5 will apply, and that is personal protection; and by personal
6 protection I mean protective clothing, which I will agree with
7 Holaday does not protect the man. It protects his out-door
8 clothes and therefore his dependents when he goes home.

9 But personal protection in the United Kingdom includes
10 respirators. In situations where this is being found reppir-
11 atory protection is recommended while dust-control measures are
12 being taken. They insist dust-control measures should be
13 taken so, if at all possible, situations should come down below
14 12. That is the situation which is existing at the present
15 time.

16 As I said, up to now our own Factory Inspectorate has
17 interpreted in this area, but they have accepted the situation
18 and our recommendations above this, albeit for short periods,
19 could still be temporary and not subject to the 100/cc standard.

20 MR. HARRISON: Was this the British Occupational
21 Hygiene Society which has evolved these standards?

22 DR. HOLMES: The British Occupational Hygiene Society
23 is a professional body to which a lot of industrial medical
24 officers belong, and, of course, also the industrial hygienists.
25 It publishes a highly-regarded International Journal, and it

1 establishes committees to look into hygiene standards for var-
2 ious toxic materials.

3 MR. SABURRIN: It is the common heart of the ACCIH?

4 DR. HOLMES: Yes, and works very closely with it.

5 MR. SABURRIN: Thank you, Doctor.

6 EXAMINER GOLDBERG: Before I call on Dr. Cooper,
7 Exhibits 24 through 35 are received.

8 (The documents referred to, hereto-
9 fore marked for identification as
10 Exhibits No. 24 through No. 35,
11 are received in evidence.)

12 EXAMINER GOLDBERG: Dr. Cooper.

13 DR. COOPER: Dr. Holmes, I would like to ask two
14 questions, the first one relating to the 100/cc fibre concept,
15 which, as you said, was the heart of the proposed recommendations
16 here.

17 First, is it not true that this was derived out of
18 studies relating to asbestosis?

19 DR. HOLMES: Yes.

20 DR. COOPER: And may not be applicable to malignan-
21 cies? Do you have any epidemiological studies which would
22 make possible a comparison between, shall we say, 25/cc for
23 four years, early in life, with 2/cc over fifty years?

24 About the second question, is there not some work
25 of Dr. Newhouse that seems to pertain to this question of

1 relating to this exposure, deriving in response in terms of
 2 asbestosis and malignancies? You stated that you do not feel
 3 that malignancies not associated with asbestosis were found
 4 that you could attribute to asbestos.

5 Now, the questions that arise here are, first, on
 6 what criteria is the diagnosis based? Are we requiring X-ray
 7 evidence or pathological evidence, which can be quite differ-
 8 ent?

9 Secondly, is there epidemiologic evidence which does
 10 support this position that there is no excess of malignancies
 11 in individuals who do not have asbestosis?

12 MR. HENNING: Taking the first question, you asked
 13 about the effect of, say, high exposures, particularly early
 14 in life. There are two points there. We have said throughout
 15 that we produced the chest reports, we were not prepared to carry
 16 this total exposure idea beyond 10 f/cc for ten years. We
 17 would say that the 25/cc for the five years was equally as
 18 safe as 10 f/cc for ten.

19 The Newhouse report, to which you refer, was a study
 20 which Dr. Newhouse, of the London School of Hygiene, did in
 21 a factory in asbestos plant in the U. K., where he showed
 22 that the excess of malignancy among the workers was only
 23 evidence in those workers who had had high exposures, even for
 24 short periods. In the people who had had low exposure over
 25 a longer period had probably accumulated a larger dose,

1 that there was no excess of malignancy in that situation.
2 There weren't any precise measurements, which was the only
3 difficulty in that study.

4 The second point is that this question of cancer,
5 lung cancer, is that the U. K. idea that lung cancer arises
6 from asbestosis - - and there is no doubt about it - - that the
7 U. K. steadily over the years is the number of people with
8 asbestosis who eventually develop lung cancer has remained
9 steady at about 50%. About 50% of them develop lung cancer.
10 But on studies which were done in the same plant where the
11 BOSE standard was derived, which have been published over the
12 years, the first one was published by (Sy Richardson) in 1955,
13 where he showed there was a high level of lung cancer among
14 people exposed in this textile factory before the 1931 regu-
15 lations - - completely uncontrolled exposure - - then the lung
16 cancer rate was about 12 to 15 times as much as the regular
17 population.

18 The last study was in 1969 when the paper was pub-
19 lished in the Annals of the British Occupational Hygiene
20 Society by (Mr. Richard Ash). It bears out the view that where
21 the asbestosis rate can be brought down by dust control - - and
22 we have - - where the asbestosis level can be brought down by
23 dust control, then the lung cancer level drops as well. If
24 lung cancer is not increased in people without asbestosis,
25 then we believe that cigarette smoking is the cause.

1 MR. SHECKLER: One question: you testified that your
2 goal is to achieve two fibres. Would you clarify for me the
3 differentiation between the two-fibre goal, which you are
4 attempting to achieve, and a two-fibre level on an eight-hour-
5 time-weighted average basis, because I believe with your 100
6 years - - -

7 DR. HOLMES: As I said in the beginning of my pre-
8 sentation, these are recommendations by the Factory Inspectorate,
9 and they are really guidelines for the factory owner interpre-
10 ting the dust level. There is no statutory requirement in the
11 U. S. that everything has been brought down to 2f/cc. The
12 way the Factory Inspectorate have looked at it, they have said
13 that if you want to assess a situation you take a ten-minute
14 sample. If that sample turns out below 2 f/cc, then the
15 asbestos regulations or substantive clauses therefore - -
16 that is, the provision of exhaust ventilation - - above 12
17 for a ten-minute sample is above 12, they allow you to repeat
18 it and if that is above 12, then the full vigor of the regu-
19 lation is applied. Between 2 and 12 you follow up the ten-
20 minute sample with a four-hour time-weighted sample.

21 In the regulations have been given by the Factory
22 Inspectorate is that gray area between the 2 and 12. The
23 Factory Inspectorate is a little worried about this. They prefer
24 to have a little gray area in between, because they are not
25 sure of this situation which Dr. Cooper pointed out. Below 10

1 the situation is quite confused.

2 MR. POWELL: Mr. Holmes, I would like some clarifi-
3 cation on your statement. As you know, we have looked afar
4 at the work that has been done in Great Britain with a great
5 deal of evaluation and interest. As I understand your state-
6 ment this morning, and I would like to ask if this is true,
7 that what you have said is that you recognize that the 100-
8 fibre years, when you have many variances in level, becomes
9 quite somewhat questionable and it is really kind of a guide-
10 line to work on, and that this is designed primarily, as you saw
11 it in Great Britain, to protect all but one percent, or ninety
12 percent of the working population from asbestosis.

13 DR. HOLMES: That is correct.

14 MR. POWELL: This did not consider (amosite and
15 anthophyllite)?

16 DR. HOLMES: Yes.

17 MR. POWELL: With this in mind and with your state-
18 ment this morning that you really do not control down to
19 100 fibres, or against four or ten or twelve, could you give us
20 some idea of what percentage of workers you think you are pro-
21 tecting under those circumstances -- say, 4 and 10?

22 DR. HOLMES: I don't think I could give you any pre-
23 cise information here. We recognize there about 50,000 as-
24 bestos workers in the U. S., but most of these workers are not
25 employed in plants. The 1150 regulations apply to anybody. In

1 fact, I could quote what it says: these regulations applied to
2 every process involving asbestos or any article composed wholly
3 or partly of asbestos, except a process in connection with which
4 a dust cannot be given off.

5 Well, this, of course, means that these regulations
6 are applying to all sorts of persons in the U. K. who have
7 never been subject to regulations before. The actual in-plant
8 number of people is quite a small proportion of the total num-
9 ber of people who have been and are still being exposed to
10 asbestos.

11 Therefore, I can only confine my remarks, really, to
12 in-plant situations, because these people outside have not been
13 monitored. A lot of them, particularly in the insulation in-
14 dustry, are itinerant, and we have got no idea what sort of
15 exposures these people have had; but in plant situations I
16 would say that by and large not more than -- it is very diffi-
17 cult for us to put a figure on it, because it will go into the
18 record. Only a fairly small proportion of people exposed in
19 asbestos plants are down.

20 MR. POWELL: I recognize the difficulty. It must be
21 somewhat higher than the one -- that you must not be protect-
22 ing down to one percent.

23 DR. HOMES: The one percent situation is that there
24 is one thing that we can't take into account, because there are
25 immunology factors coming in, so the doctors are telling me,

1 and not every worker is equally susceptible to asbestos dis-
2 ease. This is something which we are working on.

3 If I could quote from the Hygiene Standard, "as
4 long as there is any airborne (crocidolite) dust in the work
5 environment, there may be small risk to help. It should be
6 realized, nevertheless, that exposure to certain limits can be
7 tolerated for a lifetime without incurring undue risks. The
8 Committee believes that a proper and reasonable objective to be
9 to reduce the risk of contracting asbestosis to one percent of
10 those who have a lifetime exposure to the dust. But 'asbestosis'
11 the Committee means the earlier demonstrable effect on the lung
12 due to asbestosis.

13 MR. POWELL: You mentioned today that after you went
14 through the same calculations that we did, somewhere around
15 1 to 5 fibres per cc would probably be about right, the dur-
16 ation of the work experience in the U. S., which is probably
17 somewhere between 30% and 35%, this would then weight out to
18 the same level of two protections against asbestosis in the U. K.
19 Then you went on to recommend that we probably should go to
20 here. I was a little puzzled as to when you equated it only
21 to asbestos to three and didn't - I understand the lung
22 cancer, why you went higher rather than going lower.

23 DR. HODGES. What I was getting at was this, that the
24 level of 2 f/cc was set as a goal. We, within the industry, are
25 confident that if we get down to 4 - - and when I say get down
to 4, it might fluctuate because of the uncertainty of measure-
ment at those low levels - - I believe in these situations

1 where I know the people who have been working in this area for
2 a long time without any asbestosis disease, then for the
3 U. S. situations where it is admitted that the average length
4 of time of exposure is certainly less than fifty years, which
5 is what ours has based on, therefore I would say in a three-
6 plus and then a little bit for fluctuations, four.

7 MR. POWELL. Would you consider this five that you are
8 suggesting would be adequate to amosite and (prosyllitite),
9 as well as crocidolite?

10 DR. HOLMES: The British standard was devised for
11 chrysotile. The same Committee has been considering two things
12 since that time. This was in 1968. The Committee is continuing
13 to work and is looking at possible revision of the crocidolite
14 standard and, secondly, looking at the evidence to see whether
15 we could derive a separate standard for amosite.

16 Taking the first one, we decided in the meeting in
17 January of this year that there was no more evidence on the
18 crocidolite to suggest that we should alter our use from what
19 we had in 1968. Therefore, the 100 f/cc stands. We also con-
20 cluded there was not enough evidence on amosite to promulgate
21 separate standards, and there, as the Factory Inspectorate had
22 done, we recommended that for the time being the standard for
23 amosite should be the same as for anthophyllite. We have
24 also believed in the U. K. that when you get down to control and
25 exposure that crocidolite is by far the most dangerous form
of asbestos, and the Committee of the British Occupational

1 Occupational Hygiene Society is not considering crocidolite
2 at all, because it has effectively disappeared from the U. K.
3 scene.

4 This was done partly by the limitation of the .2
5 figure. That made the processing of crocidolite just not pos-
6 sible. There were no imports of crocidolite into the U. K.
7 since 1971.

8 Thank you.

9 MR. DEGREGONO: Did British regulation require the
10 control of asbestos dust?

11 DR. HOLMES: Yes.

12 MR. DEGREGONO: When you mentioned numbers 2 through
13 12, these numbers represent measures of what, dust or fibres?

14 DR. HOLMES: In the British regulations we refer to
15 asbestos dust. I agree with that. But there is no figure in
16 the regulations except that, and then we come to the document
17 "Technical Data Note 13", in which it says "dust consisting of
18 or containing asbestos to such an extent as is liable to cause
19 danger to the health of employed persons' and how the measure-
20 ments may be made."

21 It then goes on to recommend fibre measurements.

22 MR. DEGREGONO: So indirectly, via the reference,
23 we get, really, to a control of asbestos fibres.

24 DR. HOLMES: Fibres above 5 microns. That is the way
25 the dust clause in the regulations is being interpreted by the

1 Factory Inspectorate.

2 MR. DEGREGONO: So when you mention 2 and 12 levels

3 DR. HOLMES: Longer than five microns.

4 MR. DEGREGONO: You also mentioned that during the
5 inspection procedure an inspector may take a sample, and if it
6 seems to be excessive, ~~12~~ 12 fibres, then he takes addi-
7 tional samples for a four-hour period.

8 MR. HOLMES: If his two-minute sample is between 2
9 and 12, then he takes the two sample, but takes it over four
10 hours, either continuous or time-weighted.

11 MR. DEGREGONO: What does he do with that sample?

12 DR. HOLMES: I would like to know the official
13 procedure.

14 When a worker's concentration of asbestos dust
15 is found to be in excess of 2 fibres/cc or more the
16 worker will require the stand-
17 ardized test to determine the amount by
18 which he is in excess of the exposure.
19 This will be a more difficult and costly more
20 complicated test. I have already seen some of their
21 equipment. It is a high flow situation above 12, and
22 we have never seen it tested like they are going to apply
23 this part. I think it has now this will be applied.

24 MR. HOLMES: It is correct that the British
25 Occupational Hygiene Society has recommended a standard of 2

1 fibres?

2 DR. HOLMES: They recommend a standard of 100 fibre
3 years per cubic centimeter as the total integrated exposure,
4 and if one assumes that man can be occupationally exposed for
5 fifty years, it comes down to 2. If occupationally exposed
6 only for ten years, then this standard could be 10 and not 2.
7 It is a question of dividing into 100. This is the point that
8 I want to make most carefully, that the 2 f/cc figure, which is
9 being bandied around the world, is derived from this standard
10 but based on 50 years exposure.

11 If not, then the standard needn't be down to 2. It
12 can be something higher in proportion, provided you don't take
13 it beyond the extrapolation limit, beyond 10. I would not say
14 that 20 fibres/cc for five years was necessarily as safe as
15 10 fibres/cc for ten years.

16 We do believe, and I think medical opinion generally
17 believes, that the effective peaks, which is probably the most
18 dangerous situation. And if you can eliminate the effective
19 peaks...

20 MR. DECEDEGONO: That sounds strange to me, because
21 you were saying that the peaks are more crucial than the long
22 term exposure, and yet apparently the recommended standard is
23 in terms of 50 years of exposure, regardless of peaks.

24 DR. HOLMES: Fifty years of exposure. The average
25 exposure over 50 years is to be 2. That is what the standard

1 recommends. That brings you your 100. That average exposure
2 might be 2, but if it is an uncontrolled one where there are
3 high exposures and low exposures and the average might be right
4 down, the Factory Inspectorate is going to come in one day and
5 cut you under peak, and if the peak is above 12 then the full
6 protection of the regulations are enforced. So we do guard
7 against the peaks.

8 MR. DEGREGONO: You do use fibres?

9 DR. HOLMES: For anything beyond 12, for however
10 short a time, they will require full respiratory protection
11 until the situation can be improved.

12 In the British regulations the provision of dust
13 control and personal protection are not alternatives. Dust
14 control is called for in all situations, and it is only when dust
15 control has been carried to its practical limit and the situ-
16 ation is still not under control that personal protection is
17 turned to as a last resort. The British principle is protect
18 the job first, and it is only when you fail to effectively
19 protect the job do you turn to protect the money.

20 MR. DEGREGONO: What is the lifetime exposure in
21 Great Britain for a working man?

22 DR. HOLMES: Well, there are quite a lot of people
23 who have been exposed for their whole working life to levels
24 of four and five and six, and no asbestosis.

25 MR. DEGREGONO: How long was that working life?

1 DR. HOLMES: That would be thirty to forty years.

2 MR. EARLE: I did understand you, you are not em-
3 ployed by the British Government?

4 DR. HOLMES: No. Perhaps I ought to make my own
5 position quite clear. I am employed by the asbestos industry,
6 because the Asbestosis Research is an asbestos council formed
7 in 1957 by the three large asbestos manufacturers in the U. K.
8 to pool their resources and sponsor research into medical and
9 biological researches into the causes and prevention of as-
10 bestos disease. Shortly after it was formed, I became the
11 Secretary of the Council. We administer funds and sponsor
12 research in various universities for medical and biological
13 research continually into the causation and prevention of
14 asbestos diseases.

15 We also pool our information on dust control between
16 the member companies, and I might say that since we first
17 started we have about nine associate members, both at home and
18 overseas, including the United States and Canada. We sponsor
19 this research. When the new regulations came along we were
20 accepted by the Ministry of Labor as the spokesman for the
21 British asbestos industry. We were invited to discussions
22 from the first breath of these regulations. When the first
23 Letter of Intent appeared in 1966 we were invited to comment.
24 From that time until the regulations became law we were in
25 constant touch with the Government on these regulations in the

1 control and safety guides which I have submitted. They were
2 drawn up by the Asbestosis Research Council, but they have all
3 had the approval of the British Government in the form of the
4 Factory Inspectorate. The one on Disposal of Waste was a
5 joint document with our Minister of Housing and Local Govern-
6 ment, who was responsible for the waste disposal - - what we
7 call refuse types. They collaborated with us in this. We
8 have always cooperated very closely with the Government. There
9 has been mutual trust.

10 MR. FARBE: In describing the British situation you
11 made reference at times to recommendations, guidelines, regu-
12 lations. I don't know how familiar you are with the William
13 Steiger Health Act we are working under here.

14 If we were to set as a standard a 5 fibre level and
15 make it mandatory we could, in inspecting a plant, give a
16 citation with proposed penalty to an employer and an abatement
17 period for him to correct the situation, which would be con-
18 tested. What I am a little bit hazy on is you indicated the
19 full force of the British regulations would apply if there
20 was more than a 12 fibre count. What is the mechanism? Do
21 your inspectors issue citations? Just what is the enforcement
22 mechanism?

23 DR. VOYLES: There has been very little of this. I
24 have very few cases in mind. The enforcement mechanism is
25 that a plant or a situation in a plant would be inspected. The

1 Factory Inspectorate would call in the Chemical Branch who are
2 responsible for dust sampling. The local Inspector can only
3 call in to the Chemical Branch. He can't do it. It is con-
4 sidered to be a technical job.

5 There are industrial hygienists. They will come and
6 they will take dust samples. That procedure, from the little
7 I have found in the U. K., is that they would find a situation
8 and if it was substantially above 12 and confirmed, they will
9 tell these people that something must be done; that they must
10 install or improve your industrial control mechanism. "We
11 will give you so many months to do this, and in the meantime if
12 you wish to continue operating this process at this level, then
13 you must protect the people involved."

14 They return to check to see that they are effective.

15 MR. FARLE: Do they have the authority to close down
16 the operation?

17 DR. HOLMES: They would be taken to Court and probably
18 there would be a fine.

19 MR. FARLE: But below 12?

20 DR. HOLMES: Below 12 they have not indicated what
21 action they are prepared to take.

22 MR. FARLE: To your knowledge they have not taken
23 anyone to Court?

24 DR. HOLMES: No.

25 MR. SABURREN: Inasmuch as you did distinguish,

1 Dr. Holmes, as to the formation and by whom it had been org-
2 anized the Asbestosis Research Council, I should like you to
3 tell us if the British Occupational Hygiene Society is a gov-
4 ernmental body.

5 DR. HOLMES: No, it is not. It is a body which is
6 similar - - well, it is a professional scientific body.

7 MR. SAHRRIN: Independent from the industry?

8 DR. HOLMES: Yes, it is a society to which occu-
9 pational hygienists belong, just as a physicist would belong
10 to the Institute of Physics. It is my professional associa-
11 tion. It is not a governing party. It is a professional
12 society like the American Physicists Society and the American
13 Chemical Society.

14 MR. EARLE: I wonder if the labor unions employ
15 hygienists and if they have any membership in your society.

16 DR. HOLMES: They have an official research body.
17 They are employing medical people. Dr. Newhouse works for
18 them. Professor Schilling is the Director, and they do in-
19 dustrial medical research.

20 MR. EARLE: Are they members of your Society?

21 DR. HOLMES: All of these people are members of the
22 Occupational Hygiene Society, and when the regulations were
23 being promulgated they were consulted, just as we were from the
24 industrial side.

25 (Discussion off the record.)

1 DR. HOLADAY: I would like to be called to present
2 as an exhibit the Manual of Recommended Practices for Handling
3 Installation Materials in Shipbuilding.

4 EXAMINER GOLDBERG: For purposes of presenting the
5 Exhibit you may resume the stand.

6 Mr. Holaday, you have handed me a group of papers
7 and an envelop. What is this?

8 DR. HOLADAY: Those papers constitute a final draft
9 of a Manual for Recommended Practices for Handling Insulation
10 Materials in Shipbuilding. The package consists of the pic-
11 tures of the procedures and equipment which are described in
12 the Manual.

13 EXAMINER GOLDBERG: We will mark the textual material
14 Exhibit 36A and the envelope of photographs 36B, and you will
15 make arrangements to supply us with a second copy of this within
16 five days within the close of hearing.

17 DR. HOLADAY: Yes, sir.

18 EXAMINER GOLDBERG: Exhibits No. 36A and No. 36B
19 are received.

20 (The documents referred were marked
21 for identification as Exhibits 36A
22 and 36B, and received in evidence.)

23 EXAMINER GOLDBERG: Dr. Cooper, you have had your
24 chance on the stand.

25 DR. COOPER: I would like to introduce in evidence - - -

1 EXAMINER GOLDBERG: All right, sir. We will mark
2 as Exhibit No. 37 Western States Asbestos Health Plan, and
3 as marked Exhibit No. 37 is received.

4 (The document referred to was marked
5 for identification as Exhibit
6 No. 37 and received in evidence.)

7 EXAMINER GOLDBERG: Do we have any more second
8 thoughts before we call the next witness?

9 Mr. Sheckler and Mr. Royer, are you appearing togeth-
10 er?

11 MR. SEUCKER: Yes, Mr. Examiner.

12 I am Clifford L. Sheckler, Chairman of the Safety
13 and Health Committee, National Insulation Manufacturers Assoc-
14 iation. I am appearing before you today, along with Mr. Spence
15 Royer, representing the National Insulation Manufacturers
16 Association and the National Insulation Contractors Assoc-
17 iation.

18 The membership of both Associations wish to express
19 opposition to the proposed standard for asbestos dust as pub-
20 lished in the Federal Register, Wednesday, January 12, 1972.
21 Also, we wish to express our opposition to the recommendations
22 of the Advisory Committee on asbestos dust and the National
23 Institute for Occupational Safety and Health criteria document.

24 The National Insulation Manufacturers Association
25 represents the manufacturers of Thermal Insulation products in

1 the United States. The National Insulation Contractors
2 Association represents the major Thermal Mechanical Insulation
3 Contractors engaged in both the construction and shipbuilding
4 industries throughout the United States.

5 Our comments will be directed specifically to the
6 application of asbestos containing insulation products and not
7 to the manufacturing of such products.

8 The construction and shipbuilding work currently
9 underway by our Thermal Mechanical Insulation Industry is being
10 done under both government and private contracts. Federally
11 funded contracts involve office buildings, hospitals, schools,
12 libraries, missile facilities, defense projects, dams, airport
13 facilities, rapid transit systems, low rent housing, military
14 housing, air and water pollution projects, shipbuilding and ship
15 repairing for the U. S. Navy - Coast Guard - Merchant Marine
16 and War.

17 Private funded contracts include office buildings,
18 hotels, theaters, universities, power generating plants, chemical
19 plants, other forms of industrial plants, housing, University
20 buildings, hospitals, and others.

21 We, in the Thermal Mechanical Insulation construction
22 industry, excluding the manufacturing of insulation products,
23 and considering only the installation of this material, directly
24 involve approximately 40,000 job opportunities in the United
25 States.

1 This industry represents an approximate \$700 million
2 gross volume of business annually.

3 Our industry is comprised of over 1000 contractors.
4 Most of these contractors are small businessmen spread through-
5 out the United States. Mr. Royer, who is here with me today,
6 is one of the small businessmen who will present you with his
7 views.

8 Our opposition to the asbestos dust standards are
9 based on the fact that they are neither reasonable, practical,
10 feasible, or economically sound. Much of the information for
11 establishing the proposed asbestos dust standards, the NIOSH
12 criteria package, and the Advisory Committee's recommendations
13 was gathered from experience in this Thermal Mechanical Insu-
14 lation Industry.

15 Let us review the course of events concerning the
16 threshold limit value for asbestos dust over the past few
17 years. In 1970 the American Conference of Governmental In-
18 dustrial Hygienists Threshold Limit Value for Asbestos Dust
19 was published at 5 million particles per cubic foot of air as
20 measured with the impinger method. We were able to work with
21 this standard. At that time the majority of State Departments
22 of Labor and Health maintained the same Asbestos Threshold
23 Limit Value. In December, 1970, the Occupational Safety and
24 Health Act became law. In 1971, the first set of safety and
25 health standards became effective. The threshold limit value

1 for asbestos dust then became 12 fibres per milliliter
2 greater than 5 microns in length as measured by the membrane
3 filter. This industry did not question the reduction of the
4 threshold limit value from 5 million particles per cubic foot
5 to 12 fibres per milliliter, and the complete change of the
6 method for monitoring asbestos dust, instead, we immediately
7 went to work by introducing new methods, equipment, and mater-
8 ials, to reduce dust levels to within the 12 fibre limit.

9 On December 7, 1971, Emergency Asbestos Dust Stand-
10 ards were published in the Federal Register again reducing the
11 Threshold Limit Value for Asbestos Dust from 12 fibres per
12 milliliter greater than 5 microns in length to 5 fibres per
13 milliliter greater than 5 microns in length. On January 12,
14 1972, the proposed asbestos dust regulations, with a Threshold
15 Limit Value of 5 fibres, was published in the Federal Register.
16 Thus far, in conjunction with these proposed regulations, both
17 NIOSH and the Asbestos Advisory Committee have made recommend-
18 ations for further reduction of the Threshold Limit Value for
19 asbestos dust to 2 fibres per milliliter greater than 5 microns
20 in length. You now have a picture of the inconsistency and
21 uncertainty involved in the establishment of an Asbestos Dust
22 Standard.

23 From 1970 to date, a period of just over two years,
24 the Threshold Limit Value for asbestos dust has been changed
25 from 5 MPPCF to 12 fibres, then to 5 fibres, with a current

1 recommendation for a 2 fibre level. With each of these Thresh-
2 old Limit Value changes there have been many other related re-
3 quirement changes that add to the total confusion, such as
4 respiratory equipment, dust collection, vacuum cleaning equip-
5 ment, and others. The change from 5 MPPCF to 12 fibres has
6 been a costly one. Our industry has, with some difficulty,
7 absorbed this cost. We frankly cannot meet the 5 fibre Emer-
8 gency Asbestos Standard as currently effective, nor can we ab-
9 sorb the cost of the Emergency or Proposed Asbestos Standard
10 and its related provisions. It is needless to say, therefore,
11 that to achieve a 2 fibre standard as recommended by the NIOSH
12 Criteria Package and the Asbestos Advisory Committee, is neither
13 practical, feasible, or economically possible.

14 Let's carefully examine the reasoning for the errat-
15 ic revisions of the Asbestos Threshold Limit Value since 1970.
16 As I have already told you, much of the information which con-
17 tributed to these revisions was gathered from our Thermal
18 Insulation construction industry. At its best, this information
19 is scanty, inconsistent, incomplete and inaccurate. First of
20 all, I told you that at the change of Threshold Limit Value
21 from 5 MPPCF to 5 fibres per milliliter there was also a change
22 in the method for monitoring asbestos dust from the standard
23 or midget impinger to the membrane filter. There is absolute-
24 ly no method for correlation between the asbestos dust counts
25 determined by monitoring with the impinger as compared to the

1 membrane filter. It is, therefore, impossible to compare the
2 exposure levels in terms of numbers of fibres per milliliter
3 greater than 5 microns in length with numbers of particles
4 of total dust when using the impinger method. It must be recog-
5 nized that the impinger method included particulate matter
6 other than asbestos fibre.

7 Physical examinations on a part of the work force
8 installing Thermal insulation materials have been conducted.
9 The disease involvement determined by these physical examin-
10 ations has been related to the present day asbestos fibre
11 exposure as monitored by the millipore filter method. These
12 factors cannot be compared or related. Also, based on sup-
13 position and assumption, it was concluded that the exposure
14 levels of men working in construction and shipbuilding before,
15 during, and subsequent to World War II were at the same levels
16 of exposure as is a worker engaged in similar activities today.
17 This hypothesis is not true. The types of materials have
18 changed, the percentage of asbestos contained in thermal insu-
19 lation products has been reduced, the method of installation
20 has changed, and fabrication equipment has changed. Each of
21 these changes since the early 1940's has contributed in the
22 reduction of dust levels. It is, therefore, illogical to com-
23 pare disease occurrences which resulted from exposure from
24 20-30 years ago with dust levels monitored on construction
25 sites within the last several years. It is also illogical to

1 compare our American industry with that of foreign countries.

2 As I said, we have withstood the change from 5 million
3 particles per cubic foot of air to 12 fibres based on insuffic-
4 ient information gathered from small segments of the industry.
5 Although there was no further input of pertinent information,
6 again, based on supposition and assumption, the level was then
7 reduced from 12 fibres to 5 fibres. Now, still based on sup-
8 position and assumption, with no further information available,
9 both NIOSH and the Asbestos Advisory Committee are recommending
10 a reduction to 2 fibres. While these reductions in the Thresh-
11 old Limit Value have been readily forthcoming, the proposed
12 regulations, NIOSH Criteria Package, and the Asbestos Advisory
13 Committee recommendations are completely void of any references
14 to prohibiting or restricting workers who are habitual cigarette
15 smokers from working with products containing asbestos fibre.
16 The same studies, upon which much of the emphasis has been
17 placed concerning the reduction of the Threshold Limit Value,
18 also demonstrate drastic effects of cigarette smoking when
19 associated with the pulmonary disease, Asbestosis.

20 As I told you, we have not achieved the level of 5
21 fibres. We are making a decided effort to do this. We have
22 problems unique to the construction industry in attempting to
23 comply with the proposed asbestos standards. I am not at this
24 time going to review all of the minute problems involved in the
25 application of these standards; instead, I am going to speak

1 to the economics of achieving this proposed standard of 5
2 fibres per milliliter 5 microns and greater in length, as
3 published in the Federal Register January 12, 1972. We feel,
4 with the economic impact that this regulation will have on the
5 Federal Office of Budget Management, other Federal agencies,
6 including the Armed Services, and on private enterprise, it is
7 worthy of very careful consideration by the Federal Department
8 of Labor.

9 We brought together a number of the foremost contract-
10 ors in the Thermal Mechanical Insulation Industry, and together
11 we evaluated the cost of complying with the proposed asbestos
12 regulation. This was accomplished by breaking down the regu-
13 lation into each of its requirements and computing them indiv-
14 idually. The requirements were computed individually, included
15 monitoring, based on purchasing the monitoring equipment and
16 having the samples analyzed at a private laboratory; respira-
17 tors of the diaphragm type; physical examinations; dust
18 collection and vacuum cleaning equipment; warning signs; pro-
19 tective clothing; and work placement. As a base we used a
20 100-man contracting unit with 25% of the unit working with
21 asbestos-containing products. We computed off-job time and
22 lost time productivity at an average construction worker's
23 rate. The total cost for implementing a program to comply
24 with the proposed Asbestos Dust Regulations as published in
25 the January 12, 1972 Federal Register for a 100-man construct-

1 ion unit, 25% of which worked with asbestos-containing mater-
2 ials, is \$795,375.00 direct expenses per year - - \$27,740.00
3 administrative expenses per year and \$16,700.00 of capital
4 expenses; therefore, a total for the 100-man unit, with 25%
5 engaged in work with asbestos-containing products, amounts to
6 \$839,815.00 increased construction expense for the purpose of
7 complying with the proposed Asbestos Dust Regulation. This
8 represents an increased labor cost of 168% that must be passed
9 on to the customer in order for a contractor to survive. The
10 customer, in many instances, is the Federal Government and the
11 Office of Budget Management. Considering the inadequacy of
12 medical and scientific research information concerning safe
13 exposure levels of asbestos dust, and also considering the
14 supposition and assumption on which the proposed Threshold
15 Limit Value is based, it is difficult to imagine a justifica-
16 tion for the economic stress this regulation will place upon
17 the construction industry, Federal Government, and private
18 enterprise.

19 We respectfully urge the Secretary of Labor to:

20 1. Reinstate the Threshold Limit Value for Asbestos
21 Dust at 12 fibres per milliliter 5 microns or greater in
22 length, for an interim period.

23 2. To initiate a comprehensive epidemiological study
24 of the entire asbestos industry as it exists in the United
25 States; and to determine not only the effects of asbestos but

1 also asbestos associated with other airborne contaminants
2 and cigarette smoking.

3 3. To provide adequate lead time prior to the ef-
4 fective date of reduction of any Threshold Limit Value in order
5 that the construction industry, operating on fixed contracts,
6 can cope economically with the increased costs that such a re-
7 duction will create.

8 4. To provide definitive information concerning the
9 specific requirements of the regulations.

10 5. Provide our trade associations with representa-
11 tion on Future Study and Advisory Committees.

12 We, representing the construction industry, have been
13 moving forward to provide safety and health information and
14 implement safer working conditions. We intend to continue and
15 accelerate this program. It is our desire to provide every
16 possible protection for our people.

17 Thank you for the opportunity of appearing at this
18 public hearing today.

19 I might add that the two trade associations I am repre-
20 senting here today made two requests for representation on the
21 Advisory Committee, both of which were rejected. We, repre-
22 senting the construction industry, agree with Dr. Cooper's
23 statement that there is a serious problem there. We have been
24 moving forward to provide and enact voluntary safety and
25 health procedural standards and implement safer working con-

1 ditions. We have produced manuals. We have produced recently
2 a Letter of Compliance and recommended procedures for compli-
3 ance with the Emergency Standards. We have held meetings of
4 all thermal mechanical association contractors throughout the
5 country for two consecutive years solely on this point. We
6 intend to continue and to accelerate this program.

7 It is our desire, as it is your desire, to provide
8 every possible protection for our people; but let us not do it
9 at the expense of the job opportunities of small businessmen
10 and the economic impact on this industry.

11 Again, I wish to thank you very much for the oppor-
12 tunity of appearing here before you today.

13 EXAMINER CONDBERG: Mr. Royer?

14 MR. ROYER: Mr. Goldberg and members of the Advisory
15 Committee on Asbestos Standards, my name is J. Spencer Royer,
16 and I am here to represent the National Insulation Contractors
17 Association and approximately 1,000 small insulation contract-
18 ors and fabricators around the country. I am President of the
19 Young Sales Corporation with headquarters in St. Louis, Mis-
20 souri. My company engages in the fabrication and application
21 of thermal insulation and other materials which contain as-
22 bestos fiber. This includes hot and cold piping, equipment
23 and duct work in commercial and industrial buildings, power
24 plants, chemical plants, oil refineries, ships and a wide
25 range of projects funded by the Federal Government. I'm

1 no neophyte in this business, having been in it for 27 years.
2 I am close to my employees. I know most of them by their first
3 names. I am definitely interested in their health and welfare.

4 The statement has been made here that all risk in
5 handling asbestos-containing material should be removed and
6 the tolerance of air-laid fibers reduced to zero. The Advisory
7 Committee has recommended a maximum of 2 fibers per milliliter
8 of air. I am not sure I know exactly what that means as a
9 contractor, but from the description I doubt seriously that it
10 can be reached.

11 In fact, I say to you that to accomplish these goals
12 on a construction job is impossible, and if this becomes the
13 law either we will be out of business as contractors, or some
14 other substitute materials must be found by the manufacturers
15 to take the place of the asbestos.

16 Let me present a picture to you gentlemen which I'm
17 sure you haven't considered.

18 Insulation contracting in the United States is ap-
19 proximately a \$700,000,000 per year business; however, the
20 average contractor is a small businessman with annual sales of
21 approximately \$700,000. Net profit after taxes averages 2%
22 of the sales, or \$14,000 per contractor per year.

23 Using figures developed by a number of other contrac-
24 tors from various parts of the country and myself, we computed
25 that the additional cost resulting from the proposed asbestos

1 dust standards will amount to \$134,000 per average-sized con-
2 tractor per year, or more than 10 times his net earnings.

3 It is obvious to me that unless the proposed Standard
4 is modified in a major way or the cost is passed on to the
5 customer which, in many cases is a Federally funded project, it
6 will be impossible for the small insulation contractor to sur-
7 vive.

8 You must be made aware, also, that every contractor
9 has a backlog of uncompleted work at a fixed price with specif-
10 ic material and specifications. It will be impossible, in most
11 instances, to pass this added cost on to the customer, since
12 these contracts were consummated prior to publication of the
13 proposed regulation.

14 I had intended to go into the breakdown of the differ-
15 ent items, but just briefly we broke down, item by item your
16 proposed regulation:

- 17 1. Monitoring
- 18 2. Physical examinations
- 19 3. Worker placement
- 20 4. Respirators
- 21 5. Dust collectors,
- 22 6. Vacuum cleaning
- 23 7. Warning signs
- 24 8. Protective clothing

25 By using these, item by item, we computed what it

1 would cost the average contractor. As best we can find out,
2 he employs somewhere between sixteen and twenty men. So you
3 can see that each contractor has a small contingent of the
4 overall business.

5 One item in particular is the monitoring. We based
6 our projected cost on approximately one sampling unit for each
7 three men employed. We estimated laboratory expense on the
8 basis of two samples per day per employee. In addition, we
9 included administration expense to perform the monitoring, take
10 samples to the laboratory and handle the respirator program.

11 This may sound ridiculous, but because of the mobility
12 and the geography involved in the construction job -- it
13 isn't like a plant where you can monitor locations day after
14 day without any problems and establish what the limits are
15 there. You have to follow this man around, because he is moving
16 all over the project.

17 In addition, we included administration expense to
18 perform the monitoring.

19 By the way, at the moment we know of only two private
20 labs in the United States that are equipped and competent to
21 perform the analysis of the samples.

22 The time that will be lost on the job, both in exe-
23 cuting the tests and in trying to carry out the stipulations
24 of the regulation as proposed is staggering. We estimate our
25 labor cost for materials will be increased 168%.

1 The main issue, so far as the contractor is concerned,
2 is how he will be able to pay these additional costs and still
3 remain in business. In my opinion, many of them won't be able
4 to absorb it.

5 We urge you to reconsider the proposed Asbestos Dust
6 Standard as published in the Federal Register on January 12,
7 1972.

8 We, as contractors, are just as interested as you in
9 seeing that our employees work under safe conditions, but we
10 request that further investigation and evaluation be made to
11 initiate more practical standards that will provide protection
12 to our people but that will not put us out of business.

13 Thank you.

14 (Discussion off the record.)

15 EXAMINER GOLD BERG: Mr. Zumwalt?

16 Mr. ZUMWALT: Mr. Examiner, my name is Charles
17 Zumwalt, and I am the Secretary-Treasurer of the Industrial
18 Safety Equipment Association. This is the trade association of
19 the principle manufacturers of all forms of personal protective
20 equipment except shoes. Included among our members are the man-
21 ufacturers of protective devices on whose behalf I speak to you
22 today. We have previously submitted our comments in writing
23 pertaining to the proposal containing the Federal Register
24 of January 12. Presumably they will be entered into the record,
25 and I have given copies to the stenotype recorder for her use.

1 With your permission I shall restrain from restating
2 these comments now. More importantly, however, I should like to
3 address our members' comments to the more formal presentations
4 which form the report of the Advisory Committee and signifi-
5 cantly enlarge upon the January 12 concept. The report by our
6 respiratory manufacturers does not warrant our comment as
7 experts upon any facets of the Committee's reports except their
8 recommendations contained in 1910.93, Paragraph NC, Respiratory
9 Protective Devices. We would like to underscore the preamble
10 paragraph approved (36CFR-11) shall be selected.

11 The statements shown in sub-parts (4), (5), and
12 (7) are sound in our opinion, and we do not fault their test.

13 Sub-parts (2) and (3), which treat e in
14 concentrations of five times the limit in two and ten times
15 the limit (3) are, in our considered opinion, arbitrary.

16 We submit this document states identical performance
17 criteria for both valveless and valve disposal-type dust
18 respiratory devices. Why, then, the express limitations of
19 five times the limit and ten times the limit for two types
20 required to meet identical performance? This is specific opinion,
21 in our judgment, and not facts.

22 We recommend and state that until different criteria
23 are to be met for valveless versus valve devices, the selection
24 must be on a goal or no-goal basis, with a concentration limit
25 decided upon.

1 This Sub-paragraph (6) we do not argue against the
2 type set positive pressure respiratory as protection for con-
3 centration exceeding 500 times the limit. We do dispute limit-
4 ation to only continuous flow-types. There are many industrial
5 applications where the distance from sources of respirable air
6 exceed the present limitation of 250 feet of hose and the
7 proposed 300 feet of hose. This is particularly true in work
8 situations in confined spaces such as holds of ships and the
9 like. Such situations often preclude the use of compressors and
10 require tank systems as the source of respirable air.

11 Unless demand-type airline respirators are utilized in
12 such tank systems, workers run the risk of exhausting tank
13 contents prematurely and without adequate safeguards due to the
14 waste of aeronaute continuous flow-type system. Inasmuch as
15 positive pressure is maintained in the facepiece at all times,
16 use of equipment acts to serve the exhaustible supply.

17 We suggest appropriate rewording.

18 As a final word, we stress the need for the asbestos
19 standards to recognize self-contained breathing apparatus, both
20 open and closed circuit types, as an allowable form of protect-
21 ive device in all concentration.

22 In closing, we applaud the drafters of the recommend-
23 ations contained in the Advisory Committee's Report. Such
24 suggestions as we have made are born of the desire to see the
25 fulfillment of their primary objectives.

1 We offer that the future success of any Advisory
2 Committee dealing with respiratory devices in general or spec-
3 ific reference could well benefit from the input of the con-
4 siderable expertise of the manufacturers.

5 EXAMINER GOLDBERG: Thank you, Mr. Zumwalt.

6 For this afternoon it would appear there will be only
7 three witnesses. Accordingly, if there are those here scheduled
8 to appear tomorrow or Friday who would want to go on after the
9 three witnesses, then I will consider you this afternoon.

10 We will stand in recess until two o'clock.

11 (Whereupon, at 12:45 the hearing was recessed, to
12 reconvene at 2:00 p.m., this same day.)
13
14
15
16
17
18
19
20
21
22
23
24
25

AFTERNOON SESSION

(2:00 p.m.)

EXAMINER GOLDBERG: On the record.

Mr. Fay and Mr. Swetonic -- excuse me, is
Doctor Tetrick in the room?

All right, Mr. Fay and Mr. Swetonic.

MR. FAY: My name is Albert H. Fay. I am Vice
President of the Gold Bond Building Products Division of the
National Gypsum Company in Buffalo, New York. I am appearing
here today in my capacity as president of the Asbestos
Information Association of North America, located in New York
City. The Asbestos Information Association is comprised of
twelve of the nation's largest miners, manufacturers and
importers of asbestos and asbestos-containing products. The
member companies of the association are listed on a fact
sheet, which I will submit with my testimony.

As an introduction to industry testimony that will
follow, I would like to briefly sketch for you a general
picture of the size and scope of the asbestos industry in the
United States, the types of products produced, the number of
people employed, and other factors that will help position the
asbestos manufacturing industry in the economic and social
structure of this country.

I should mentioned before proceeding that the
majority of the data that I present refers only to the

1 manufacturing side of the industry, and does not include
2 detailed information on industry using finished asbestos
3 products, such as the construction industry or the insulation
4 application and removal trades.

5 Asbestos is the generic name given to a group of
6 inorganic hydrated silicate minerals that have one common
7 attribute, namely, the ability to be separated into relatively
8 soft, silky fibers. The three most commonly used varieties
9 of asbestos are chrysotile, crocidolite, or blue fiber and
10 amosite.

11 It is important to note that chrysotile accounts for
12 more than 98% of the total annual United States consumption
13 of asbestos. In the past, crocidolite and amosite were used
14 far more extensively in the United States than they are today.
15 The leading producers of chrysotile fiber are Canada and the
16 Soviet Union, with smaller deposits being found in South
17 Africa, Rhodesia, China, the United States and Italy.

18 Crocidolite and amosite are mined almost exclusively
19 in South Africa.

20 The total annual world production of asbestos is
21 around 4 million tons, with Canadian production accounting for
22 about 30% of the total, and the United States about 3%.

23 The properties of asbestos that give it commercial
24 value are its fibrous structure, the great tensile strength
25 of the fibers and its resistance to high temperatures and to

1 certain types of chemical action.

2 As a fireproofing material, asbestos has over the
3 years saved untold lives and many billions of dollars in
4 property damage. It is used in products ranging from
5 asbestos-cement shingles, panels and siding to fireproof
6 clothing, insulations, floor tile and friction materials.
7 It has been estimated that some 3 thousand different products
8 in daily use around the world contain asbestos. Most of these
9 products, even though the percentage of asbestos in them may
10 be small, cannot adequately perform their function without
11 one or more of the unique properties that asbestos imparts.
12 For most of these products, no adequate substitute for
13 asbestos is available today.

14 It would take me an hour to enumerate for you the
15 major uses of asbestos fiber. Instead, I am submitting with
16 my testimony a listing from The Asbestos Fact Book, a publi-
17 cation of Asbestos Magazine, of some of the primary uses of
18 asbestos in our modern society. I think it will become quite
19 clear after reading this list why asbestos has often been
20 called the indispensable mineral.

21 In the United States, the consumption of raw
22 asbestos fiber over the past decade has remained fairly
23 stable at an average of approximately 775,000 tons per year,
24 with an estimated value of \$90 million. Of this annual total,
25 approximately 125,000 tons valued at \$10.5 million is produced

domestically, the rest being imported, primarily from Canada.

Based on Bureau of the Census manufacturing statistics and other data, the estimated value of asbestos-containing products manufactured in the United States last year was roughly \$1 billion. Only around \$35 million worth of fiber and products were exported, the rest being consumed domestically.

These products were made in well over 500 different manufacturing facilities, both large and small, throughout the United States, with a work force of at least 50,000 employees, and a payroll approaching \$½ billion.

It should be remembered that these employment and sales figures refer only to companies and industries in which asbestos fiber is converted into finished products. In most cases, these products are not sold directly to ultimate consumer, but are used in the manufacture of other products, such as automobiles, electrical appliances and fireproof clothing. In other instances, the finished asbestos-containing products pass through a dealer or distributor to an applicator or some other craftsman who installs them. This is obviously the case in the construction industry.

Thus, products containing asbestos fiber may pass through three or four levels of trade or manufacture before they are purchased by the ultimate consumer.

For this reason, it is quite difficult to accurately

1 judge the total economic value of the asbestos industry to
2 the nation. We firmly believe, however, that the Arthur D.
3 Little Company economic study now under way, will show it to
4 be substantial. For example, it has been estimated that the
5 insulation trades alone involve 40,000 men who spend at least
6 a quarter of their time working with asbestos-containing
7 products. Other employees whose livelihood depends at least
8 to some extent on the use of asbestos-containing products
9 include other types of construction workers; siding, roofing
10 and tile installers, pipe layers, salesmen, distributors and
11 dealers in asbestos products. It is impossible to calculate
12 the total income derived by these workers from the use or
13 sale of asbestos-containing products, but it is certainly in
14 the hundreds of millions of dollars.

15 If one adds in the value of services, machinery,
16 raw materials and other commodities purchased by the asbestos
17 manufacturing industry each year for use in the production or
18 shipment of finished asbestos products, the total economic
19 contribution of the industry to the nation's economy would
20 reach, perhaps, \$3 billion, and would involve, to some degree,
21 the livelihood of at least half a million wage earners and
22 their families. We believe the economic and social contribu-
23 tion of the asbestos industry to the nation is substantial.

24 In addition to the many and varied lifesaving
25 uses of asbestos, they play an important role in our modern

1 technological society. For these reasons, the establishment
2 of reasonable and feasible occupational health standards for
3 asbestos is a matter of great importance, not only to the men
4 whose health we are trying to protect, but also to the industry
5 and to the country as a whole.

6
7 Our industry is cooperating fully with the Arthur D.
8 Little Company in the economic study they have been retained
9 to make by OSHA. We are all working hard to develop precise
10 figures as to the potential economic effect of the proposed
11 regulations on our industry. To date, we have been able to
12 make only rough estimates. In general, they show a cost to
13 the industry of approximately \$200 million in new equipment
14 to comply with the proposed standard of two fibers per cubic
15 centimeter in those sections of the industry where we believe
16 a two-fiber standard is technologically feasible. The
17 proposed regulations would also produce a loss in sales of
18 at least \$400 million because of the labeling requirements
19 and the shut down of operations where two fibers is techno-
20 logically unfeasible. A number of companies have already
21 indicated that they do not believe a two-fiber standard is
22 feasible in many operations, and that if such a standard is
23 promulgated, they will close down those operations immediately
24 rather than spend millions of dollars in a vain attempt to
25 achieve the unachievable. The loss of jobs will be sub-
stantial.

1 Yesterday, there was a statement made here that if
2 one plant can meet the standards, then all can. This is not
3 true. There are vast differences in the various manufacturing
4 industries and the dissimilarity makes it impossible for one
5 to duplicate the other.

6 One other point. Yesterday, it was stated that
7 smoking substantially increases the risk of disease. Since
8 we are all concerned about the health of those associated
9 with this business, we would like to recommend that the
10 proposed standard should prohibit smoking during working hours
11 on the job and that the warning signs required to be posted
12 should prominently display "no smoking." Precedents for this
13 exist in regulations at the Department of Interior, for
14 example, in uranium mines.

15 In closing, it is our hope that OSHA will take all
16 of these considerations into mind in developing the standards.
17 If this is not done, it could well spell the demise of at
18 least half of the asbestos industry in the United States and
19 in time, perhaps, all of it.

20 Thank you, Mr. Goldberg.

21 I want to submit two exhibits. This exhibit is a
22 list of the members of the Asbestos Association of North
23 America.

24 EXAMINER GOLDBERG: The list of members of the
25 Asbestos Association will be Exhibit 3b.

(The document above referred to was marked as Exhibit No. 38 for identification.)

EXAMINER GOLDBERG: All right.

MR. FAY: And the second one is the Asbestos Fact Sheet concerning the uses of asbestos and asbestos products.

EXAMINER GOLDBERG: That will be Exhibit 39.

(The document above referred to was marked as Exhibit No. 39 for identification.)

EXAMINER GOLDBERG: Thank you.

Exhibits 38 and 39 are received.

(The documents previously identified as Exhibits Nos. 38 and 39 were received in evidence.)

EXAMINER GOLDBERG: Introduce yourself.

MR. SWETONIC: My name is Matthew M. Swetonic, and I am Executive Secretary of the Asbestos Information Association of North America and also manager of special projects in the Public Affairs Section for the Johns-Manville Corporation.

Mr. Fay has already described the association, and identified the companies which it represents. We are basically an information disseminating organization and the facts or opinions contained in my presentation are supported in the

1 medical literature or constitute the professional opinion of
2 medical and technical experts available to the industry as
3 consultants.

4 The asbestos industry has recognized for many years
5 that there are occupational health hazards associated with
6 the excessive inhalation of asbestos dust. Recognizing its
7 obligation to protect its workers, the industry has over the
8 years invested many millions of dollars in sophisticated and
9 highly efficient equipment to reduce asbestos dust levels in
10 the work places generally accepted safe limits. Some \$100
11 million has been invested for this purpose in the past decade
12 alone. I just might point out in reference to some of the
13 testimony that was given this morning that almost exclusively
14 this equipment was designed to prevent exposure at the source,
15 dust collection equipment of the type that was described for you
16 in the insulation trade but on a much, much larger scale --
17 again not protecting the worker, but protecting him from the
18 dust before it ever gets to him.

19 The general position within the industry is that we
20 would never like to see a man ever have to wear a respirator,
21 for example. The source is the place to stop exposure.

22 Over the years, acceptable safe limits for asbestos
23 exposure has been lowered a number of times by various bodies,
24 including NCGIH and others. The industry has worked hard to
25 meet each of these lowered limits. Now, however, the industry

1 is being faced with the possibility of yet another decrease
2 in the acceptable limits for asbestos exposure. In the past,
3 each new standard was accepted by the industry because the
4 developing medical evidence indicated that new lower limits
5 might indeed be necessary. This is certainly not the case
6 with the two-fiber standard proposed by the National Institute
7 of Occupational Safety and Health. The medical brief pre-
8 pared by NIOSH in support of the two-fiber limit, in our
9 opinion, falls far short of establishing the necessity of such
10 a standard.

11 The criteria document, in fact, states quite
12 clearly on page D-10 that "the number of studies that have
13 collected both environmental and medical data and with a
14 significant number of exposed workers is not sufficient to
15 establish a meaningful standard based upon firm scientific
16 data."

17 If this is true, then the question must be asked:
18 upon what data shall a standard be based? If we are going to
19 base our standard upon what others have done, which is the
20 basic approach that NIOSH had taken, then we are running
21 around in circles, because if specific data is not available
22 to us today, then it could not possibly have been available
23 to others when they developed their standards in the past.

24 The simple truth is that no one, NIOSH included,
25 knows for sure what a safe occupational standard should be.

1 There is general agreement among the professionals studying the
2 problem that it should probably be lower than 12 fibers per
3 cc, but how much lower is a question that has not been
4 answered to everyone's satisfaction. The main reason for this
5 is that the disease we are seeing today is the result of
6 conditions that existed 20 or 30 or 40 years ago, at a time
7 when today's highly sophisticated dust collection equipment
8 was not readily available and when both the industry and the
9 medical profession knew relatively little about the hazards
10 of asbestos dust.

11 This point has been made repeatedly by the doctors
12 testifying before this hearing.

13 We simply do not know for sure what the dust levels
14 were in those days, but there is every indication that they
15 were enormously higher than they are today. For this reason,
16 as many doctors have pointed out, we must be very careful
17 about looking at today's conditions and today's disease and
18 trying to draw a parallel between the two. Such a parallel
19 does not exist, and this can lead to some very erroneous
20 conclusions.

21 Let me give you an example.

22 It has been reported by some researchers studying
23 the insulation trades in this country that the dust con-
24 ditions that exist today on insulation job sites and in ship-
25 yards are exactly the same as existed in the past. This has

1 led to a calculation that the very high death rate found
2 among these men is directly attributable to levels of around
3 three fibers per cc. The evidence is substantial that this
4 calculation is inaccurate.

5 I am submitting with my testimony a paper which
6 describes the decreasing asbestos content of insulations used
7 in the trades over the past 30 to 40 years. You will recall
8 that this basic question about the levels of exposure in the
9 past among these people was brought up yesterday by
10 Dr. Nicholson and under question by Mr. Sheckler. The basic
11 document which substantiates the conclusion that the levels
12 are considerably different, although we don't know what they
13 were 40 years ago, but we do know they were much higher, is
14 contained in this paper which I have here entitled, "Changing
15 Concepts of Insulation Material."

16 I will not go into the details of what is contained
17 in this paper, except to submit it.

18 For example, I submit this paper not to discredit
19 any researcher's work. Obviously, I am not in a position to
20 do that, but merely to point out as others have done, the
21 enormous difficulty one encounters in trying to establish
22 meaningful numerical standards.

23 In addition, as Dr. Holmes pointed out in his
24 testimony, the evidence seems to indicate that more importance
25 should be given to peak exposures in evaluating disease

1 potential than to time weighted averages.

2 For example, in the tearout of old insulations
3 aboard ship, the British have counted levels as high as
4 3800 fibers per cc, with a mean ranging between 159 fibers
5 per cc and 353 fibers per cc. Today, of course, men performing
6 this work are protected by air supply respirators. Thirty
7 years ago, when they received exposures that led to their
8 present disease, they were not so protected.

9 The doctors are generally agreed that the lung's
10 ability to cleanse itself of accumulated dust would be
11 seriously reduced at such high levels, yet a time-weighted
12 average for a 40-hour week might show a relatively low level.

13 In the spraying industry, counts as high as 1500
14 fibers per cc have been recorded. Yet, considering the time
15 spent on preparation of the equipment and other non-spraying
16 tasks, the time-weighted average for these workers might come
17 out to be reasonably moderate.

18 Thus, in the opinion of most experts, time-weighted
19 averages can be very misleading if the men are periodically
20 exposed to fiber levels so high that the lung's cleansing
21 mechanism fails considerably in its ability to rid the lung
22 of accumulated fiber. If, as the experts have told us, the
23 lungs can remove 99% of all inhaled particles, including
24 asbestos fiber, then a reduction in the cleansing function of
25 even a few percent will increase the amount of fiber retained

1 by that many magnitude.

2 In addition to these reasons, there are excellent
3 technological and economic reasons for not promulgating too
4 strict a time-weighted average, and instead placing more
5 attention on eliminating the high peak exposures. The industry
6 is in the process of trying to develop accurate data with re-
7 gard to economic impact.

8 Mr. Fay referred to this in his presentation.

9 We are working hard on this problem with OSHA,
10 Bureau of Standards, and with Arthur D. Little. While it
11 will be some weeks before final figures will be available,
12 early estimates indicate that the cost to the industry of
13 meeting a two-fiber standard, in those sections of the industry
14 where such a standard is feasible, would be in the vicinity
15 of \$200 million.

16 In recommending a standard of two fibers per cc,
17 the erroneous assumption has been made that today's tech-
18 nology is capable of lowering the levels in each and every
19 asbestos operation to two fibers. Past experience would
20 indicate that in a sizable number of operations it will be
21 impossible to reduce the levels to two fibers, no matter how
22 much money is spent.

23 In these cases, the operations obviously would have
24 to be shut down and the men thrown out of work. We have only
25 a very rough idea at this time how large a segment of the

1 manufacturing industry would be affected in this manner, but
2 an estimate of perhaps 15 to 20% seems reasonable.

3 Applied to the sales of a billion dollars, this
4 would obviously work out in the range of \$150 to \$200 million.

5 In addition, there will no doubt be cases where the
6 technology is available to reduce levels to two fibers, but
7 where the cost involved would make a particular product line
8 either no longer profitable or no longer competitive on the
9 open market against non-asbestos containing products of the
10 same type.

11 In these cases, the plant or manufacturing operation
12 would also be shut down. This particular type of situation
13 would also exist at a five-fiber level hopefully in not as
14 many cases.

15 Trying to put a handle on the potential number of
16 lost jobs is extremely difficult. Many small manufacturing
17 operations will undoubtedly go under, but it is nearly
18 impossible to determine the total number of men we are
19 talking about. Perhaps 15 to 30 thousand is about as close
20 as we can come at this time. This would not be just in
21 manufacturing but would be a consideration of the insulation
22 trades and other groups as well.

23 The figures I have just mentioned may not seem large
24 when compared to what the steel or automobile industries would
25 have to pay in similar circumstances, but the asbestos industry

1 in this country is much smaller, and \$200 million in equip-
2 ment, another \$200 million or more in eliminating product lines
3 due to an inability to meet the two-fiber standard, and 20
4 or 25 thousand lost jobs is an enormous chunk of this industry.
5 For this reason, it is vital that OSHA give considerable
6 thought before promulgating a standard that even the experts
7 agree is not based on solid scientific evidence.

8 Of additional enormous potential financial impact on
9 the industry is the labeling requirement as contained in the
10 final recommendations of the OSHA Advisory Committee. It
11 would require the placing of a warning label on each and every
12 product containing more than 5% asbestos by weight. This
13 label which contains the words: "Do not breath dust -- may
14 cause asbestosis and cancer."

15 Such a label would surely spell the demise of a
16 number of major product lines of the industry, including vinyl-
17 asbestos floor tile, asbestos-pipe, and any other product
18 that is sold directly to the consumer market. In addition,
19 there is no doubt that our competitors will attempt to take
20 advantage of the situation by encouraging the public to avoid
21 asbestos-containing products because of the potential health
22 hazards implied in the warning label, even though to the
23 customer no such hazard exists.

24 I would question whether such a label is, in fact,
25 necessary or called for in the majority of asbestos-containing

1 products. Everyone in the industry and in the medical and
2 scientific profession who has dealt with the asbestos health
3 problem over the years is familiar with the concept of locked-
4 in and non-locked-in products. A locked-in product is one in
5 which the asbestos is bound into the product with cement,
6 asphalt, plastic or some other binder which prevents the
7 escape of free fiber in use.

8 Examples of locked in products would be asbestos
9 cement products and floor tile. Non-locked-in products would
10 be those in which the fiber is loosely bound and which release
11 fiber during handling or application. Most asbestos-containing
12 insulations would fall into this category, as would fire-
13 proofing sprays and insulating cements.

14 I should mention that while there is no labeling
15 requirement under any Federal statute for insulation products
16 at the present time, I believe the majority of the companies
17 in the industry voluntarily have a warning label on most
18 insulations which they consider potentially hazardous in use.
19 The same applies to a lot of bag asbestos cement products and
20 fiber shipments. This was a voluntary action on the part of
21 many of the companies in the industry.

22 The fact of the matter is that the percent of
23 content of fiber in a product has absolutely nothing to do with
24 its ability to create a health problem. An insulation con-
25 taining 7% asbestos fiber requires very careful handling,

1 while an asbestos cement sheet with 15% asbestos requires
2 essentially none.

3 For this reason, it is only logical that the
4 Advisory Committee recommended labeling system be discarded
5 in favor of a system which only requires labeling on those
6 products which readily release asbestos fiber in a hazardous
7 quantity during handling or application.

8 With regard to the monitoring requirements of the
9 proposed regulations, I would only like to point out that
10 there are probably no more than three dozen trained industrial
11 hygienists in the entire country available to industry to
12 sample and analyze asbestos dust concentrations. OSHA should
13 appreciate this problem because of its own difficulties in
14 finding qualified industrial hygienists. Men can be trained
15 to do this job, but it is going to take much more time than
16 is permitted under the law.

17 I might also point out that the dust monitoring
18 system as required in the regulations will cost the manu-
19 facturing industry alone between \$3 and \$5 million per year,
20 not an exorbitant sum when viewed by itself, but one that
21 adds to an already heavy financial burden on the industry.

22 As my final point, I would like to discuss for a
23 minute the medical aspects of the Advisory Committee recom-
24 mendations. The recommendations state that the medical
25 surveillance program shall be carried out by physicians

1 selected by the employee, and that the medical records will
2 be available only to HEW and DOL physicians and "medical
3 consultants and physicians designated and authorized by the
4 employee."

5 You will note this employer is by omission pro-
6 hibited from seeing an employee's medical record, even though
7 the employer is responsible under the law for the medical
8 condition of his employees.

9 Under Section (c) (7) of the Advisory Committee
10 recommendations, an employer is required to make sure that
11 no employee "should be assigned to tasks requiring use of
12 respirators if his most recent medical examination indicates"
13 and then the section goes on to the certain medical criteria.

14 How can an employer obey the section of the
15 regulations if he is prohibited from seeing an employee's
16 medical records by another section of the regulation? This
17 is completely illogical and is obviously reflective of the
18 haste with which the advisory committee was required to
19 perform its duty.

20 In addition, how could an employer conduct a pre-
21 ventive medicine program in his plant if he cannot perform
22 examinations, note changes in medical conditions, and counsel
23 employees? These programs are in existence in essentially
24 all manufacturing companies in the asbestos industry. And I
25 might point out that not only are employees counseled on

1 possible occupational health problems, but on the general
2 overall health condition as well.

3 We have heard the arguments from certain unions,
4 not necessarily here, but from others, that it should be solely
5 up to the employee to decide whether or not he is willing to
6 work under the existing conditions, whatever they may be.
7 This simply does not make good sense, because it is still the
8 responsibility of the employer to safeguard the health of
9 his employees. Where the responsibility lies is where the
10 implementation of the medical surveillance program should be
11 centered, and no place else.

12 It should also be pointed out that a system of the
13 type proposed in the recommendations would effectively present
14 future etidemiological studies of the asbestos industry,
15 except on a very limited or local scale. The medical records
16 vital to such studies would be distributed among thousands of
17 doctors all across the country, and retrieval would be virtu-
18 ally impossible.

19 In conclusion, I would like to summarize very briefly
20 the various points I have attempted to bring out in my pre-
21 sentation.

22 One. The medical evidence for establishing a
23 meaningful time-weighted average is unavailable at this time.

24 Two. Most experts agree that the brief, massive
25 doses of asbestos fiber are probably more important in the

1 causation of the disease than continuing, long-term, low or
2 moderate exposure. This is not to preclude that low exposure
3 over an enormous period of time are not to be considered at
4 all, but that the one is more important than the other.

5 Three. If OSHA promulgates a time-weighted average
6 lower than five, the economic impact on the industry will be
7 enormous. In addition, many asbestos-containing products will
8 probably disappear from the marketplace and thousands of jobs
9 will be eliminated.

10 Four. A labeling requirement of the type recommended
11 by the OSHA Advisory Committee will result in the unnecessary
12 loss of hundreds of millions of dollars in sales each year.
13 Entire segments of the industry will be destroyed, with
14 resultant large-scale unemployment.

15 Five. The dust monitoring program recommended by
16 OSHA is impractical at this time because of the lack of
17 trained personnel.

18 Six. The medical surveillance recommendation of
19 the Advisory Committee is illogical and unworkable.

20 There are, of course, other sections of the proposed
21 regulations that will create difficulties in addition to those
22 that I have discussed and these will be mentioned by separate
23 testifiers. However, I believe that the points that I have
24 covered are the most important, at least to the manufacturing
25 side of the industry.

1 OSHA has a tremendous responsibility in the
2 establishing of occupational health standards on asbestos.
3 Not only must the workers be protected, but the continued
4 availability of asbestos-containing products to our society
5 must be assured. To promulgate unnecessarily strict or
6 impractical standards that would destroy entire segments of
7 the asbestos industry would be a serious mistake.

8 EXAMINER GOLDBERG: Do you wish to introduce your
9 document?

10 MR. SWETONIC: I have two of them.

11 EXAMINER GOLDBERG: Document entitled, "Change
12 in Time Period of Insulation Materials," will be marked
13 Exhibit 40 and is received in evidence.

14 (The document above referred to was
15 marked Exhibit No. 40 for identi-
16 fication and received in evidence.)

17 EXAMINER GOLDBERG: May these gentlemen be excused?
18 Thank you, gentlemen.

19 MR. MARSH: Gentlemen, my name is John H. Marsh.
20 I am Director of Planning for Raybestos-Manhattan, Inc.

21 Prior to my remarks which will be directed toward
22 the economic impact of the proposed regulations, I should like
23 to have Mr. Isaac H. Weaver speak on the technical feasibility
24 of reaching the proposed standard and comment on certain other
25 aspects of the proposed regulations.

1 EXAMINER GOLDBERG: Mr. Weaver.

2 MR. WEAVER: My name is Isaac H. Weaver. I am
3 Corporate Director of Environmental Control for Raybestos-
4 Manhattan, Incorporated. I have been engaged in this capacity
5 for the past two years, prior to which I was employed in
6 various engineering and technical management capacities for
7 approximately 25 years, all but two of which were in the
8 employ of Raybestos-Manhattan.

9 Prior to my initial employment with Raybestos-
10 Manhattan in 1946, the occupational hazard of asbestos dust
11 exposure had been recognized and extensive engineering con-
12 trols had been implemented to reduce worker exposure and to
13 cope with the problem to the extent that was feasible with
14 then existing technology. Scientists at Raybestos-Manhattan
15 adopted a progressive, positive attitude toward optimum
16 degree of control with the goal of achieving maximum feasible
17 reduction of airborne dust concentrations.

18 Much original engineering design and dust control
19 development was accomplished at our Manheim, Pennsylvania, and
20 Charleston, South Carolina, asbestos textile plants during the
21 late '30's and early '40's. Some of this was in conjunction
22 with various Government agencies, as well as the foremost
23 industrial hygiene consultants of the time.

24 While much has been done to reduce exposure of
25 our employees to airborne asbestos fiber in our plants and in

1 the plants of many other asbestos product manufacturers, much
2 remains to be done to further improve the situation. However,
3 our experiences in our investigation of the experiences of
4 others who have been wrestling with the problems of achieving
5 ever more airborne fiber concentration levels in asbestos
6 processing operations during the past several years has led
7 to grave doubt in my mind regarding the feasibility of con-
8 sistently attaining levels of less than 5 or 6 fibers per
9 cubic centimeter in many critical operations.

10 To place this problem in proper perspective requires
11 that one accept the precept that an engineering control approach
12 to environmental improvement in the workplace normally is
13 undertaken with the goal of zero exposure or zero dust
14 emissions. We never have designed an engineering control
15 system with the idea of achieving a 5 million particle per
16 cubic foot level, a 2 million particle per cubic foot level,
17 or a 5-fiber per cubic centimeter level. Our goal always
18 has been to achieve zero exposure and that always will remain
19 the goal.

20 During recent proceedings concerning the setting
21 of standards for occupational exposure to asbestos fiber, I
22 was very much disturbed by apparent misinterpretations of
23 British asbestos control standards and enforcement practices
24 and by what appears to be disregard or lack of knowledge
25 regarding technical feasibility for attaining such standards.

1 British medical, governmental and industrial
2 authorities have established an admirable goal of maintaining
3 all asbestos operations below an airborne concentration of
4 two fibers per cubic centimeter. However, it is my impression
5 and belief, as confirmed by Dr. Holmes this morning, that
6 they have many critical operations where this level is not
7 being maintained, in spite of expensive and sophisticated
8 environmental controls and strict work practices that they
9 have maintained and improved upon as rapidly as advances in
10 technical feasibility have permitted.

11 I recommend that the American asbestos industry
12 take full advantage of available British technology wherever
13 possible to improve our occupational environmental control
14 of asbestos hazards, but I think it is equally important to
15 give full consideration to British experience and knowledge
16 concerning what they have found to be feasible regarding
17 standards and their enforcement. We do not believe it is
18 technically feasible to achieve a level of two fibers per
19 cubic centimeter in all of our operations, either now or
20 within the foreseeable future.

21 With respect to the measurement of airborne asbestos
22 fiber concentrations, I seriously question the reliability of
23 the membrane filter method, particularly at levels below 5
24 fibers per cc.

25 At the present time, there are very few technicians

1 in this country who are trained or who have the experience
2 and ability to perform the tedious and time-consuming
3 microscopic analysis that is an inherent requirement of the
4 membrane filter method. Furthermore, Raybestos-Manhattan's
5 experience with this procedure, even when using trained and
6 experienced microscopists, have not bolstered our confidence
7 in the potential reliability of the basic method.

8 While we and others often have deplored the
9 many shortcomings of the membrane filter monitoring method,
10 we always seem to come back to the conclusion that, while it
11 is a poor tool for anyone to work with, still it is the best
12 we have at the present time. In any event, I remain extremely
13 dubious regarding the feasibility of effective monitoring by
14 industry or by Government enforcement personnel by means of
15 the membrane filter method at its present stage of development.

16 Regarding the question of the medical and health
17 aspects of the problem, we have reviewed hundreds of medical,
18 scientific and industrial hygiene studies relating to asbestos
19 health hazards and their control, and have reached the firm
20 conclusion that no conclusive evidence exists on which to
21 establish need for a threshold limit value lower than 5 fibers
22 per cc greater than 5 microns in length on a time-weighted
23 average basis. This appears to be especially the case in
24 regard to chrysotile asbestos, which accounts for the great
25 majority of both industrial and environmental exposures.

1 The difficulty or impossibility of maintaining
2 reliable controls at levels lower than 5 fibers per cubic
3 centimeter, coupled with the lack of scientific fact to
4 justify the need for a lower standard, leaves me to recommend
5 the adoption of the presently proposed permanent standard of
6 5 fibers per cubic centimeter, as determined by the membrane
7 filter method or by whatever improved monitoring method may
8 be forthcoming.

9 I believe this recommendation coincides with that
10 of the American Congress of Governmental Industrial Hygienists
11 and a number of eminently qualified medical and scientific
12 authorities who have devoted a great amount of effort to study
13 and evaluation of this subject.

14 I appreciate this opportunity to testify regarding
15 the proposed asbestos standards, and I endorse enthusiastically
16 the concept of uniformly applied and enforced occupational
17 safety and health standards based on sound factual data
18 obtained through all available sources of pertinent input.
19 Unfortunately, I am convinced that the timeframe within which
20 the presently proposed standards, criteria, and recommendations
21 were prepared was grossly inadequate to permit full and proper
22 analysis and consideration of all available data by the parties
23 who participated in the decision-making.

24 I feel sure that if more time had been allowed for
25 study and review of available medical and scientific information

1 by NIOSH and the Department of Labor standard-setting personnel
2 and for more extensive deliberation by the Advisory Committee
3 on Asbestos Dust, far more extensive and appropriate criteria
4 and recommendations would now be available as a basis for
5 setting a safe, fair and enforceable standard.

6 That is the end of my remarks.

7 MR. MARSH: Raybestos-Manhattan employs 6500
8 people. Approximately 80% of these are engaged in the manu-
9 facture and distribution of asbestos-containing products,
10 including friction materials, asbestos textiles, packings
11 and asbestos reinforced plastic.

12 I wish first to comment on the emergency standard
13 of 5 fibers per cubic centimeter established on December 7,
14 1971, and the proposed standard for exposure to asbestos
15 dust published in the Federal Register on January 12, 1972.
16 As Mr. Weaver has indicated, we believe it is technically
17 feasible to achieve the 5-fiber level in most of our operations.
18 It cannot, however, be accomplished immediately. Up to two
19 years time and the expenditure of millions of dollars will
20 be required.

21 Since the imposition of the emergency standards on
22 December 7, we have been studying all operations to determine
23 where immediate compliance is possible and where engineering
24 studies, additional dust control equipment, or changes in
25 manufacturing procedures are necessary to achieve the standard.

1 It is now clear that in order to comply with the
2 5-fiber standard certain products must be discontinued, as
3 it will not be economically feasible to produce them, at least
4 in this country.

5 In addition to the discontinuance of certain
6 products and consequent loss of jobs, the standard of 5 fibers
7 per cc will result in higher manufacturing costs. Many
8 products produced by Raybestos-Manhattan and the industry
9 will be increasingly vulnerable to foreign competition. Our
10 company has already been forced to lay off textile workers
11 and we are concerned about the prospects of additional lay-
12 off's and loss of business due to lower priced foreign imports.

13 According to figures from the United States Depart-
14 ment of Commerce, imports of asbestos textiles, of the type
15 manufactured by Raybestos-Manhattan, more than doubled between
16 1969 and 1971, and imports of other asbestos products, of the
17 type manufactured by Raybestos-Manhattan, increased nearly
18 50%. Higher costs for United States manufacturers will surely
19 accelerate this trend and encourage the flight of American
20 capital and the loss of American jobs.

21 On the subject of labeling, we believe a cautionary
22 label is appropriate in some instances, but feel that a
23 blanket requirement that all finished products containing
24 5 or more percent by weight of asbestos be labeled as proposed
25 in the Advisory Committee report is not warranted. To our

1 knowledge, no evidence has been presented to indicate that
2 any harmful effect has resulted from the normal use of
3 thousands of essential asbestos-containing products.

4 The National Academy of Sciences, in its report on
5 the biological effect of atmospheric pollutants, states:
6 "Asbestos has become almost indispensable in modern technology."
7 Nowhere is this fact more evident than in the area of safety.

8 Safety products manufactured from some materials
9 produced by Raybestos-Manhattan range from the common
10 theater fire curtain to sophisticated heat barriers surround-
11 ing the engines of the Saturn boosters. The hoods, coats,
12 trousers, aprons and mits that protect steel workers from
13 the heat and splash of molten metal are made of asbestos
14 cloth. Firefighting and rescue teams are protected against
15 incineration by specially constructed garments of asbestos
16 cloth. Woven asbestos cloth and tape around hot piping
17 aboard ships, or in industrial plants, protect operating
18 personnel from harm. Similar asbestos tapes guard electrical
19 cables to prevent accidents.

20 The safe operation and control of the nation's
21 industrial machinery, construction equipment, agricultural
22 implements, and mining apparatus as well as the millions of
23 cars, trucks and buses on our highways are dependent on the
24 asbestos composites that are used in the braking and power
25 transmission systems with which all of these present day

1 necessities are equipped.

2 Packings of asbestos composites are used to seal
3 the countless dials that control all water, gas, and steam
4 lines in industrial manufacturing processes. Gasketing of
5 asbestos effectively seals internal combustion engines and
6 exhaust systems.

7 These are just a few of the many uses to which
8 asbestos is put to protect life and property.

9 We believe the labeling provisions for finished
10 products contained in the Advisory Committee's recommendations
11 are unnecessary because of the absence of any health hazard
12 associated with their normal use. Furthermore, such labeling
13 is likely to encourage the use of substitute materials which
14 may not have the superior performance characteristics of
15 asbestos products and may be less safe. To quote again from
16 the statement of the National Academy of Sciences: "Asbestos
17 is too important in our technology and economy for its
18 essential use to be stopped."

19 Finally, we wish to comment on the recommendation
20 of the Advisory Committee on Asbestos Dust that a level of
21 two fibers per cubic centimeter be imposed in two years. As
22 Mr. Weaver has indicated, we do not possess the technical
23 knowledge to achieve this level at many critical operations;
24 therefore, it is useless to speculate on the economic con-
25 sequences of the establishment of such a standard.

1 We understand the dilemma in which OSHA is placed
2 by the imposition, by law, of an arbitrary and altogether
3 too short time span in which to develop enforceable standards
4 which will protect the employee and his job. We sincerely
5 urge that some way be found to provide adequate time to fully
6 consider the technical feasibility of the proposed regulations,
7 and the opinions of expert and experienced medical and
8 scientific authorities, who are not convinced that such
9 regulations are justified on the basis of the available
10 evidence.

11 It would indeed be a tragedy if restrictions were
12 placed on the industry which are not needed to protect the
13 health of the worker or the user of the products, but which
14 would result in the loss of jobs and the elimination of
15 many thousands of asbestos-containing products that protect
16 and save lives. Thank you.

17 EXAMINER GOLDBERG: May the gentleman be excused?

18 MR. LEONARD: My name is Joseph Leonard, Safety
19 Director of the International Longshoremen's Association
20 and various other subcommittees of occupational safety and
21 health, a member of the New York Central Labor Council,
22 AFL-CIO, subchairman on occupational safety. I am a member
23 of the National Safety Conference on Labor Occupational Safety.
24 I am a member of the impartial committee of labor and occupa-
25 tional safety which takes in over 10 million men. On our

1 On our committee, we have one doctor, three
2 industrial hygienists and six safety directors.

3 Gentlemen, my job is transportation. We work on
4 the waterfront. We are the innocent bystanders. We have
5 handled this stuff for years. It is a dust -- bad break in
6 the hold of the ship, break in the docks, break in the ware-
7 house. We have no protection. We are not concerned with
8 that. We have made an inspection of our new operations --
9 where this stuff is blowing up on the ceilings. Our people
10 work all day. They don't have the false ceiling, just leave
11 it there. Put in blocks of maybe 12, 24 by 32. This asbestos
12 is laying up there. In our instructions, which runs about
13 100 foot, we inspect the containers that leave the area.
14 Asbestos is blowing up there. Yesterday, I picked up a couple
15 of handfuls. The men claim it is coming down.

16 We are in a different profession than other people.
17 We too have men in the asbestos union on the waterfront
18 who do repair jobs for many years. The burlap bags, just as
19 I said before, on the waterfront, when we have cancer beams
20 an occupational disease would put everybody out of business
21 in this country. They resell them bags on coffee, and when
22 the coffee warehouse people got sick, they couldn't find out
23 because they sold the bags. They said they too would be out
24 of business. But we handled it our way, when we couldn't get
25 no help, we went to the department for 5-ply bags and

1 couldn't get it. The Coast Guard gave it to us. They put
2 on all kinds of restrictions -- shower baths, all kinds of
3 new equipment for safety. They couldn't afford it. So we
4 did the next best thing. We stopped it from coming into the
5 country.

6 Maybe we will have to stop the asbestos from coming
7 into this country, if this is the sight of the union people.

8 I, too, was an asbestos worker many years ago. So
9 was my cousin who died, so was my other young cousin now who
10 is disabled, one of my nephews who was an asbestos member.
11 My family was in the asbestos union for 60 years. I've seen
12 these people. They told us years ago it was emphysema or
13 something else, it wasn't cancer. We notice now by traveling
14 through the country -- they didn't tell you here what the
15 cost of a man's life is. They tell you what it cost to
16 improve conditions at this stage of the game, when we can put
17 a man up in the sky and do everything else in this country and
18 we can't improve the asbestos after all these years. I, too,
19 was an apprentice in the asbestos union many years ago. And
20 for the people here, I will tell them where I worked. I
21 worked in Grand Central between the ceiling with my cousin,
22 who was an expert with Armstrong. I worked on the asbestos
23 on the trains. I worked on the movie house in Brooklyn on
24 the side where we had pitch. I had to carry the pitch up
25 two flights of stairs to the man who was putting the caulking

1 on the outside of these here containers. We worked in the
2 shell of the ceiling, dusty and filthy.

3 I worked at Mount Sinai Hospital as an apprentice,
4 but I am glad to say many years later we never thought this
5 would be the place that would help our people.

6 We went back here a year ago with Dr. Solokoff and
7 we learned plenty. We saw pictures of lungs. This was never
8 a cost item, only to the poor worker. My last job was in
9 a powerhouse on the East River, where I had to go down to
10 the truck and carry up the old bags years ago. Looked like
11 Santa Claus or Snow White, and carry up the pipes, carry up
12 the pieces of board that we put around the high tension steam.
13 The mechanics can get off those. If we had to saw a piece,
14 we sawed it. We had to mix the cement and carry it by
15 buckets. When I went to my doctor, he told me to quit the
16 job because my nose was blowing up every night, I couldn't
17 hardly speak sometimes. I went back on longshoreman work on
18 the docks where I belong.

19 We know about asbestos. My family was in asbestos.

20 I have been coming down here for 20 years to all
21 these hearings, representing the unions and my own union. We
22 hear all the stuff about threshold limits. We got it for 10
23 years. What happened? We have still got it.

24 We are in a different world now. We are supposed to
25 be an automated world, better living for our people, everybody.

1 When Rachel Carson started this, they killed the
2 poor woman because she came to Washington and talked about
3 the environment. Like anybody else that comes down here and
4 fights for the right of the working man, they never tell you
5 the cost of the poor man whose kids have to go to college and
6 At the age of 40 he is knocked out by industrial or occupational
7 disease. They don't tell you that, the cost of the man's
8 wife running to see him in the hospital, watching him die.
9 These are the things we have. If it is so dangerous as
10 everybody claims, when they see Silent Spring -- when we were
11 on the advisory committee in our State Department of Labor,
12 Bureau of Labor Standards, United States Public Health Service
13 put a book out and they said -- I will have it here in a
14 second -- they put this out (indicating). They talked about
15 asbestos in there. They talk about everything else.

16 In Montreal they made a study in the docks, an
17 investigation in 1962 and they claim then the longshoremen
18 in asbestos, cotton, metal and many other chemicals, that
19 these people handle -- this is nothing new in occupational
20 diseases.

21 In the year 1713 a great scientist decided the
22 effects of dust did serious damage to a lung, which caused
23 shortness of breath. Nothing was done until 1930. All the
24 great science we have got in this country, and all the great
25 things we can do, we can build these buildings with no air

1 in them, close windows -- we can leave asbestos up in the
2 ceiling without building rooms; we can do all these things,
3 but we can't get asbestos so that people won't die.

4 I say forget all this. Let them make the asbestos
5 safe for the men to work in. That is the easiest way. If
6 everybody is claiming this all over the world about asbestos,
7 there must be something wrong. Either we in the union are
8 wrong or the management, but the cost -- I have heard that for
9 20 years. I heard about people put out of business. In my
10 own union we went automated. Tell me they can't stay in
11 business. Still we have an annual wage for the men. The men
12 don't have to work, the men retire sick, retire at the age
13 of 40 with \$312. We have records. Why is all this stuff that
14 men are being put out of business or some other company is
15 going to get the work? This is a lot of baloney. Subway
16 workers, talking about the brakes and the steel dust -- there
17 is no problem about that. There is in here pictures of the
18 asbestos workers in a factory (indicating). You couldn't even
19 see the sky. This was put out by the Department of Labor
20 about 4 years ago. Gentlemen, I say if two is too low, then
21 accept none. Industrial hygienists are the American threshold
22 limit people -- nobody has ever made a study. It is all
23 right to sit in your office in your high chair and discuss
24 these problems, but who has ever made a study where the
25 working man is? Nobody. Or the companies neither. They come

1 here and say this, they will sit in the high ivory office and
2 tell us what is wrong, what the unions are doing wrong. I
3 visit buildings all over this country. My job takes me all
4 around the country. I am very friendly with the construction
5 unions. I visited a building the other day, three stories,
6 subcellar. Went down to see the other fellows I know in the
7 pipes. Dust this high (indicating) up and down the steps.
8 Talking about taking a reading on asbestos! We are not talking
9 about the other minerals that are there.

10 Gentlemen, I hope that you people go back and
11 recommend if this is so dangerous then we don't need it.
12 Let them get something to do it. They can do it with all the
13 technical people we have in this country. It is a shame that
14 a man's life has to be shortened just for a profit. That is
15 all it is. Our Government is just as wrong as the unions
16 for not moving on this long before. Young men like
17 Dr. Sholokoff that got this business moving. He is a good
18 man. I am asking you now, we are going to stand up and prove
19 it. If the company and the industry says this is so, then
20 let them go down to the work site, with an advisory committee,
21 not only here. There is a lot of industry mixed in here.
22 There is transportation. This fellow was talking about
23 clothing. There is a fellow who is a contractor. They are
24 all mixed into this thing. One is pulling for the other one.
25 He doesn't care about the little poor guy working for him.

1 Gentlemen, in closing, I want to thank you for
2 giving me this few minutes.

3 EXAMINER GOLDBERG: Thank you, Mr. Leonard.

4 May Mr. Leonard be excused?

5 Is Mr. Luxon here?

6 We have not exhausted the list of witnesses
7 scheduled for this afternoon. I believe, Mr. Rainey, you
8 wanted to go on this afternoon.

9 MR. RAINY: Yes, sir.

10 EXAMINER GOLDBERG: Why don't you step up here.

11 MR. RAINY: My name is John L. Rainey and I am
12 President of American Asbestos Textile Corporation.

13 The proposed limit of two fibers cc, time-weighted
14 average is impossible to meet in most of our operations with
15 existing technology under any circumstances. It can be
16 achieved in only a few isolated cases such as wet weaving or
17 in small units that can be almost completely enclosed and
18 fitted with local exhaust ventilation. The cost of attempting
19 to reach such a low limit would be astronomical and entirely
20 unrealistic. The textile industry is a low profit business
21 and competition from foreign sources make it impossible to
22 increase prices. The added expense would definitely force
23 us out of business and would entail the loss of hundreds of
24 jobs.

25 We have seen no definite proof or data to substantiate

1 a TLV of two. If a TLV of two becomes law, and two years
2 from now after considerable research it is found that a safe
3 limit would have been 12, it is too late. The plants have
4 been closed and the workers are without employment, and once
5 again we have helped our foreign competition.

6 To meet the 5 fibers cc TWA limit in all operations
7 in our three plants will require the expenditure of an
8 estimated \$800,000 over a period of about three years. We
9 believe we can achieve this goal.

10 In the manufacture of textiles, it is more dif-
11 ficult to control airborne asbestos dust than in the manu-
12 facture of many other products and therefore should be
13 treated separately. Some of the reasons are as follows:

14 There are many separate operations involved between
15 the asbestos fiber and the numerous end products.

16 The stocks, lax, roving, yarn, waste, etcetera,
17 must be transported manually from one machine to the next.

18 Most machines are very complicated and costly. Some
19 could be improved by redesign, but only at a prohibitive
20 expense. In this respect, there is a great difference between
21 a modern plant and a very old one.

22 Many machines have been partially enclosed and
23 provided with effective exhaust systems, but very few can be
24 totally enclosed because the operator must have ready access
25 to the roving, yarn, etcetera to mend brakes. For an efficient

???

1 operation, access must be had quickly and frequently.

2 Important progress in improving enclosures is being made on
3 a continuing schedule.

4 Most steps in the manufacturing must be essentially
5 dry but moisture, lubricants, antistatic agents and other
6 additives are being used increasingly as far as is possible.

7 We are doing everything within reason and at great
8 expense in both dollars and losses in production to reduce
9 emissions. Important progress has been and is being made,
10 but we need time to experiment and develop new ideas. The
11 technology to solve our problems completely and quickly
12 does not exist at this time. Constant effort and improvement
13 should be acceptable. In the meantime, we are providing our
14 employees with adequate protective devices. Regarding
15 respiratory protective devices when fiber concentrations
16 exceed the limit, it should be sufficient to furnish respirators
17 without a variance. To obtain a variance would be costly and
18 time consuming. We feel that standards should be set for
19 industry, but they should be technically feasible, economically
20 feasible and realistic.

21 Thank you for giving me this opportunity to make
22 this statement.

23 EXAMINER GOLDBERG: May Mr. Rainey be excused?

24 Thank you, Mr. Rainey.

25 I believe there was someone else who approached me

1 with a request to appear today.

2 MR. SCHINNER: Mr. Storey and I --

3 EXAMINER GOLDBERG: Would you gentlemen both step
4 up?

5 MR. SCHINNER: Mr. Examiner, ladies and gentlemen:
6 I am Albert D. Schinner of Portland, Oregon, and am an
7 employer trustee of the asbestos workers Western States
8 occupational health plan. This occupational health plan is
9 operated for the benefit of our construction employees in
10 the Western United States, and specifically includes all of
11 the 12 most western of the Continental States. Our plan was
12 funded in 1967, and on June 8, 1967, the trustees resolved
13 to begin working with Doctors Cooper and Irving Tabershaw of
14 the School of Public Health at the University of California
15 for the purpose of minimizing asbestos and other related
16 problems in our construction industry. Our contractual
17 consultant service now operates under the name of Tabershaw-
18 Cooper Associates and is well recognized in the occupational
19 health field. I give this history so you will know we
20 represent 5 years of demonstrated concern about occupational
21 health and are not novices on the subject of asbestos.

22 At this time, I want to point out that the common
23 title of asbestos worker is a misnomer when applied to the
24 construction industry insulator and has been so for some years.
25 Materials that are involved in much of the applied work today

1 doesn't contain asbestos. Therefore, we generally don't
2 have the situation where the worker is continuously exposed
3 to asbestos-bearing products week after week or year after
4 year.

5 In a 1968 paper prepared for the Second International
6 Conference on the Biological Effects of Asbestos at Dresden,
7 Germany, Doctor Clark Cooper and Leroy Balser made a then
8 current estimate on their observation of the insulators'
9 time spent on work involving the use of asbestos-bearing
10 material and placed it at 45%. That study is four years old.

11 Now we use asbestos-free cement, and this may be
12 contradictory to what some others have said, but that is the
13 case. We use an asbestos-free spray material, just to name
14 two subsequent material changes.

15 With respect to the proposed standard 1910.93
16 for exposure to asbestos dust, I have great concern for the
17 practical implementation of this standard in our construction
18 industry. In construction, an employer often has a few
19 people here and a few people there, and you can multiply this
20 for the number of jobs he is currently doing generally over
21 a large geographical territory. To monitor each of these
22 jobs where some asbestos-bearing product is specified for
23 installation at the proper time, is likely an impossible task
24 for any of our contractors.

25 I want to go a step further to say that it is

1 unrealistic to expect that individual construction employers
2 have the monitoring expertise required and further many don't
3 even have the resources to acquire it.

4 Tabershaw-Cooper Associates has surveyed in the
5 field a number of jobs in the western States jurisdiction
6 and have monitored for asbestos dust the various activities
7 that the employee performs when he handles asbestos-bearing
8 products. From this, they have been able to make some con-
9 clusions on what could be a hazardous activity and what is
10 not a hazardous activity in the course of a day's work. From
11 these studies there have been promulgated some guidelines
12 for good work practices in the insulation contracting industry.

13 It is my suggestion that study be given to these,
14 including construction industry inputs to arrive at con-
15 struction industry controls for asbestos dust, rather than
16 the proposed five-fiber 8-hour time-weighted average. I offer
17 my observation that the asbestos dust problem today is not
18 what it was 30 or 25 years ago, and in construction the cases
19 that we have seen are those that occurred at that time. Given
20 a proper amount of time for implementation, I am sure the
21 industry can do even better.

22 Now I want to make some comments upon a couple of
23 items in the proposed standard. Under Paragraph D, particular
24 operations and products, there is a subparagraph 6 that states
25 asbestos dust shall be removed only by vacuum cleaning. I

1 think this wording is unnecessarily restrictive and un-
2 imaginative because there can be improvements in methods.
3 Wet cleaning methods should be authorized, plus an allowance
4 for other efficient techniques that may be developed in the
5 future.

6 We have talked about Paragraph E, warning signs.
7 I construe this section as applying at the time respirator
8 use is mandatory. When operations are not of a hazardous
9 nature, in my mind Paragraph E would not be applicable, and
10 there again, I am sure it is a matter of interpretation.

11 In Paragraph G, medical examinations, and
12 Paragraph H on records causes no concern. I should like to
13 advise that for employers in the western States there is, by
14 agreement between the Western Insulation Contractors
15 Association and the Western States Conference of Asbestos
16 Workers, a provision for funding medical examinations for
17 lung disease surveillance in each local area in accordance
18 with specifications set forth by the trustees of the Western
19 States Occupational Health Plan. This program has been set
20 up at local clinics by Tabershaw-Cooper Associates and they
21 are prepared to continue this program and set the appropriate
22 standards of the examination and the frequency that will
23 provide for the workers' health.

24 I believe the above arrangement does meet the
25 objectives of this part of the standard. If not, I think it

1 is necessary to revise the wording for the construction
2 industry so that it will. Just one example. NIOSH recom-
3 mends that preplacement and termination medical examination
4 be required for every term of employment of asbestos-exposed
5 workers. In construction, as the workload shifts from one
6 employer to another in an area or from one area to another,
7 it is not uncommon for a worker in the labor pool to have a
8 half dozen terms of employment in a single year. It isn't
9 likely, but if each were asbestos-exposed, that would amount
10 to 12 examinations for one individual.

11 My last comment is in respect to Standard 1910.12,
12 construction work, which is not presently proposed to be
13 amended. My request is, however, that if the proposed
14 standard, or if the NIOSH review committee and/or the
15 Advisory Committee on Asbestos Dust recommendations are
16 adopted, that Section 1910.12 be revoked or construction
17 appropriate standards be separately set forth construction
18 industry in Part 1518. A similar request would be made for
19 separate standards for work to be done on ships, and other
20 speakers have made reference already to the special problems.

21 EXAMINER GOLDBERG: Thank you, sir.

22 MR. STORY.

23 MR. STORY: I am Eddie Story and represent the
24 employee side of the trust of the Western States Conference
25 of Occupational Health Plan. I am also the first vice

1 president of the Western States Conference of Asbestos
2 Workers and a business representative to the Asbestos Workers
3 Local 16, San Francisco, and I have worked with Doctors
4 Cooper and Tabershaw in the construction -- when they started
5 the program of investigation of asbestos dust in the industry
6 of the asbestos workers.

7 Over the period of time that I have worked, and as
8 has been brought out in these meetings the need of control --
9 I think we will all readily agree that there is some need of
10 control, and being involved with the worker and understanding
11 some of the problems of asbestosis and causes, the effect,
12 and the ultimate death of asbestosis and cancer, I had
13 numerous cases in my own personal file, of people closely
14 related to me, so I know there is a problem here. I realize
15 the need of controls and I think we should put emphasis in
16 this direction. Of course, working around construction
17 sites, some of the plan that is implemented, so far as controls
18 on asbestos dust, would not be feasible on construction sites.
19 I think that the controls would have to be brought about by
20 work practices in a manual or worksheet checklist, what have
21 you, and also an educational system set up for the workers
22 involved.

23 I find that more workers are more conscious of the
24 need to protect their lives than we might realize or has been
25 brought out in these hearings. But the problem is that the

1 worker is not necessarily sure in which direction he should
2 go as far as protection is concerned, and I bring out a prime
3 example of some of the problems of getting a correct, proper
4 type mask to be used while working around asbestos dust, or
5 other harmful dust.

6 We have just recently come out with a proposed mask
7 that we could recommend, and I would like to say that our
8 employers on the Western States Conference level have been
9 making every effort to get a mask that they can put on the
10 worker to control some of these hazardous effects. So I feel
11 that this is just one thing that we should really concentrate
12 on as far as setting up a practice of control, of educating
13 the individual of what he must do to protect himself against
14 certain particular cases. Of course, again, I bring out that
15 some of the problems that are facing construction sites, you
16 can't necessarily properly examine a dust factor because it
17 changes from day to day. It depends on the nature of the job,
18 where the individual may be working. The dust factor could
19 be much greater in one particular part of a job-site, and I
20 point out a prime example, a powerhouse in a closed-in area --
21 you will find that the dust factor will be much greater. Yet
22 in an open space, it will be relatively unnoticeable. Yet,
23 again, it could be at some time if there is a gust of wind,
24 a man could breath a great deal of asbestos dust into his
25 lungs.

1 I do feel as being practiced and brought out by
2 Mr. Al Schinner here, that the occupational health on the
3 Western States level does have and has implemented a multi-
4 phasic health examination for our people. Being one of the
5 first areas that implemented this program and, of course, I
6 have told this in some detail, as to the people who have
7 taken part in the multiphasic examinations, I have found that
8 it has not only benefited our people but it has certainly
9 educated them into some of the problems that they face. And
10 I found that the people are ready to take part in these
11 examinations and follow through with their health program.
12 I do see that there is some concern here as far as medical
13 records. I do feel that the medical records should be kept
14 confidential. I feel that these records should only be used
15 in behalf of the individual and not something to be used
16 openly that could perhaps be used against the individual.
17 So I do feel that there is a great deal of need in the
18 education and control, as well as physical examinations in
19 this program. Thank you.

20 EXAMINER GOLDBERG: Thank you, Mr. Story.

21 Mr. Schinner, is Dr. Kingsley supposed to appear with
22 you?

23 MR. SCHINNER: No, sir.

24 EXAMINER GOLDBERG: May these gentlemen be excused?

25 Thank you, gentlemen.

ml
Labor
Asbestos
Hearings
3-15

1 Is there anyone else scheduled to appear Friday
2 who would prefer to go now?

3 We have no more volunteers. In that event,
4 we will stand in recess until 9:00 a.m., tomorrow morning.

5 (Whereupon, the hearing in the above-entitled
6 matter was recessed, to reconvene at 9:00 o'clock, a.m.,
7 on Thursday, March 16, 1972.)

8 * * *

9

10

11

12

13

14

15

16

17

18

19

20

21

22

23

24

25

UNITED STATES DEPARTMENT OF LABOR

WASHINGTON, D.C.

-----X
 :
 In the Matter of: :
 :
 STANDARD FOR EXPOSURE TO ASBESTOS DUST, : PUBLIC HEARING
 PROPOSED RULE MAKING :
 :
 -----X

300 X-3
 H033A

Conference Room B
 Interdepartmental Auditorium
 12th & Constitution Ave., N.W.
 Washington, D.C.
 Thursday, March 16, 1972

The above-entitled matter came on for further hearing,
 pursuant to recess, at 9:00 o'clock, a.m., Thursday, March 16,
 1972.

BEFORE:

ARTHUR M. GOLDBERG, Hearing Examiner

APPEARANCES:

(As heretofore noted.)

3-16-72

BEST AVAILABLE COPY

CONTENTS

<u>STATEMENT OF:</u>	<u>PAGE</u>
Mr. J. B. Jobe, Executive Vice President, Johns-Manville Corporation	222
Dr. Thomas H. Davidson, Corporate Medical Director, Johns-Manville Corporation	294
Mr. E. M. Fenner, Director of Environmental Control, Johns-Manville Corporation	301
Dr. Fred L. Pundsack, Vice President, Johns-Manville Corporation	306
Dr. Kingsley Key, Ph. D., University of Toronto	370
James W. Rawlings, Vice-President, Mining and Metals Division Union Carbide Corporation	376
Dr. Norbert Roberts., New York City, New York	382
B. F. Leaman, Vice President, National Airframe-Cartridge Products Corporation, Valley Forge, Pennsylvania	391
Joseph G. Hall, Vice President, GAF Corporation's Building and Industrial Products Group	399
E. A. DiSalvo, Vice President, Panacore Corporation	407

EXHIBITS

No. 43	353
No. 44	382
No. 45	392
No. 41	304
No. 42	321

3-16-72

P R O C E E D I N G S

EXAMINER GOLDBERG: Good morning. If everyone is ready we will resume.

On the record. The order of appearances I have for this morning are Mr. Pundsack and the people who will be appearing with him, Dr. Kingsley Kee and Mr. Rawlings.

Mr. Pundsack?

MR. PUNDACK: Mr. Examiner, our first testifier will be Mr. Bert Jobe.

STATEMENT OF MR. J. B. JOBE, EXECUTIVE VICE
PRESIDENT, JOHNS-MANVILLE CORPORATION

MR. JOBE: My name is J. B. Jobe and I am Executive Vice President for Operations of the Johns-Manville Corporation. Johns-Manville is the largest miner of asbestos fiber in the Free World and the largest producer of asbestos-containing products in the United States.

Accompanying me here today are five men widely experienced in the asbestos health field. They are Dr. George W. Wright, Director of Medical Research, Saint Luke's Hospital, Cleveland, Ohio; Dr. Fred L. Pundsack, Vice President for Research and Development for Johns-Manville; Mr. E. W. Fenner, Director of Environmental Control, Johns-Manville; Mr. H. B. Lorens, Vice President, Industrial Divisions and International Divisions, Johns-Manville; and Dr. T. H. Davison, Corporate Medical Director, Johns-Manville.

2 1 As an introduction to their testimony, I would like
3 to very briefly outline for you the position of my company with
4 regard to the proposed OSHA occupational health standards on
5 asbestos.

6 The asbestos industry in general, and Johns-Manville
7 in particular, has recognized for many years that there are
8 occupational health hazards associated with the excessive in-
9 halation of asbestos dust. As a result, the industry, beginning
10 at the Saranac Laboratories in Saranac Lake, New York, in the
11 late 1920's, has sponsored and cooperated in a wide variety of
12 scientific research projects designed to identify these hazards
13 and to eliminate them wherever they may exist, not only in asbestos
14 mines, mills and manufacturing plants, but also among fabricators
15 and applicators of finished asbestos products.

16 I can remember in the early 1940's personally calling
17 on fabricators of asbestos-containing products to advise them of
18 practices which would reduce or eliminate asbestos dust.

19 In recent years, the asbestos industry, either as
20 individual companies or through the Quebec Asbestos Mining
21 Association's sponsorship of the Institute of Occupational and
22 Environmental Health in Montreal, has been or is continuing to
23 support medical research at such highly regarded institutions
24 as McGill University in Montreal, Tulane University in Louisiana,
25 Saint Luke's Hospital in Cleveland, the Environmental Sciences
Laboratory at Mount Sinai Hospital in New York, the Industrial

3 1 Health Foundation in Pittsburgh, the University of California,
2 Fairleigh Dickinson University in New Jersey, the University
3 of Pittsburgh, and the Medical College of South Carolina, and
4 a number of others, both here and abroad.

5 The asbestos industry has also cooperated extensively
6 in various investigations into asbestos-health conducted by
7 agencies of the Federal Government, including the U. S. Public
8 Health Service and the Environmental Protection Agency.

9 The industry was, in fact, publicly praised at the
10 recent EPA hearings on asbestos for its assistance, cooperation
11 and responsible attitude with regard to controlling asbestos
12 emissions.

13 In the industry's own research laboratories, scientists
14 and engineers are also engaged in work related to health, de-
15 veloping better handling techniques for loosely-bound asbestos
16 products and also developing and improving techniques for the
17 measurement and control of asbestos emissions both in the work-
18 place and in the ambient air.

19 As a company and as an industry, we recognize the
20 necessity of protecting workers from exposure to potentially
21 hazardous amounts of asbestos dust. In this respect, we support
22 the intent of the Occupational Safety and Health Administration
23 in seeking to establish safe occupational health standards for
24 asbestos.

25 However, of all the work described above, there is no

4 1 credible evidence demonstrating the necessity for a standard
2 lower than 5 fibers/cc. Therefore, we must disagree strongly
3 with the content and the extent of many of the proposed OSHA
4 regulations.

5 Achieving a standard of 5 will cost millions of dollars
6 and cause a significant number of American jobs to be shifted
7 to foreign workers to whom in many cases no standards will
8 apply. Requiring a more stringent standard and requiring unnec-
9 essarily frightening labels can have catastrophic effects on
10 the very people OSHA and the industry are attempting to protect,
11 without really solving the human problem.

12 Where there is no scientifically credible evidence
13 demonstrating the necessity of such low standards, it would be
14 socially irresponsible to adopt them. I will not go into specific
15 points, as these will be covered in detail by subsequent speakers.

16 During these hearings we should be concerned with two
17 distinct goals. On the one hand, there is an obvious and recog-
18 nized necessity to protect workers exposed to hazardous
19 amounts of asbestos dust. On the other hand, our modern society
20 requires the continued availability of a wide variety of asbestos-
21 containing products.

22 Among other uses, asbestos provides build in protection
23 against fire and deterioration in scores of products in daily
24 use. Every day, it saves lives by preventing or checking the
25 spread of fires.

5

1 Asbestos-containing products are used in schools,
2 houses, theaters, office and other public buildings. The brakes
3 on automobiles, trucks, buses and trains are dependable and thus
4 save many lives every day because asbestos is a vital component
5 of their brake linings. Many other uses of asbestos, vital to
6 our way of life, could also even be mentioned.

7 This does not mean that we should weigh the life of
8 industry employees against the lives of the many millions of
9 Americans whose daily safety depends to some extent on one or
10 more uses of asbestos. The many benefits of asbestos cannot
11 provide a justification for injuring those employed in the manu-
12 facture of or application of asbestos products.

13 Nevertheless, we do have a dual responsibility in
14 developing these standards. We must provide for the continued
15 use of asbestos-containing products, and we must do it without
16 harming anyone. Both of these goals must be achieved before we
17 can rest contented with our efforts.

18 To achieve one at the exclusion or expense of the other
19 is to have failed. Therefore, great care must be taken to institute
20 adequate controls but at the same time avoid unnecessarily
21 harsh or restrictive regulations, the cost or unfeasibility of
22 which might destroy our ability as a nation to continue using
23 asbestos.

24 For these reasons, it is vital that we approach this
25 problem with an open rather than with a closed mind. Crucial

INVENTION DOCUMENT

6 1 decisions must not be made on the basis of incomplete or
2 speculative evidence. Emotionalism or political pressure must
3 not be allowed to interfere in the process of evaluation. The
4 guiding philosophy in developing these asbestos standards should
5 be to adequately protect the worker and to ensure that the life
6 saving and other vital uses of asbestos will not be abandoned.
7 Any other philosophy would be a mistake of the highest order.

8 We recognize that the development of the asbestos
9 standard is more or less a test case for OSHA, and that the
10 general principles established here will in time affect all
11 American industry.

12 OSHA is therefore in a history-making position, and
13 this responsibility should weigh heavily now in the decision-
14 making process. We are confident that OSHA will approach this
15 problem with recognition of its responsibilities to both employer
16 and employee, and to the nation, and with due consideration of
17 all the possible consequences of its action.

18 To destroy or seriously cripple the asbestos industry
19 in this country through hastily developed or unnecessarily severe
20 regulations will benefit neither the employee, the industry nor
21 the country as a whole, and could quite possibly have serious
22 economic, social and other consequences both now and in the
23 future.

24 Thank you, Mr. Examiner. That ends my statement.

25 EXAMINER COLEBURG: Thank you, Mr. Jobe.

7

1 Are there any questions of Mr. Jobe? You are excused,
2 sir.

3 MR. PUNDSACK: Dr. George W. Wright will be our
4 next testifier.

5 STATEMENT OF MR. GEORGE W. WRIGHT, M. D., HEAD
6 OF THE DIVISION OF MEDICAL RESEARCH, DEPARTMENT OF MEDICINE, ST.
7 LUKE'S HOSPITAL, CLEVELAND, OHIO

8 DR. WRIGHT: Mr. Goldburg, my name is George W. Wright.
9 I am the Head of Medical Research in the Department of Medicine,
10 of St. Luke's Hospital, Cleveland, Ohio.

11 In 1932 I received the MD degree from Indiana University
12 School of Medicine. After five years of Post Graduate Training
13 in Internal Medicine, with special training in pulmonary disease.
14 I spent two additional years in research training in the Department
15 of Physiology at Case-Western Reserve University.

16 From 1939 to 1953 I was a member of the Saranas Laboratories
17 of the Trudeau Foundation engaged in studies of the pneumoconiosis,
18 including asbestosis. Since 1953, I've continued
19 this general field of study in my current position.

20 My statement will be confined to consideration of a
21 single primary question. This question is: What is the quantity
22 or concentration of asbestos, in the air breathed by those
23 engaged in the production, manufacture, or use of asbestos
24 products, which can be tolerated for a normally expected work life
25 without risk that such exposure will cause disease?

ILLEGIBLE DOCUMENT

8

1 The answer to this question goes to the heart of
2 these hearings. While the question is rather easy to formulate
3 it is difficult though not impossible to answer.

4 The obligatory information required for developing an
5 answer to the primary question on an acceptable scientific basis
6 is of two categories. One of these essential categories concerns
7 the dose or quantity of asbestos inhaled and the other essential
8 category concerns the biological response. What we need to learn
9 is the dose-risk relationship.

10 The dose is estimated in terms of concentration of
11 respirable asbestos in the air multiplied by the duration of the
12 exposure. It is obligatory that we establish a dose, in measur-
13 able terms, at which the biological manifestations of disease
14 occurs and then, by observing populations exposed to progress-
15 ively smaller and smaller doses, determine the level at which
16 the biological reaction to asbestos no longer occurs.

17 To make observations with regard to the various
18 dose levels of different working populations without knowledge
19 of the biological response of these same populations is of no
20 use in answering the primary question. To make observations of the
21 biological response in various working populations without valid
22 knowledge of the different levels of asbestos exposure experienced
23 by these same populations is equally of no use for finding an
24 answer to the primary question.

25 Standard for a safe level of asbestos exposure

RECEIVED DOCUMENT
11

9 1 proposed or set in the absence of reliable and valid data in
2 both of these two categories must be considered empirical and
3 to some degree arbitrary and should be recognized as such.

4 I wish to indicate some of the difficulties encountered
5 in efforts to obtain the information essential for determining
6 what the safe level of asbestos in the occupational environment
7 truly is.

8 Asbestos is a generic term embracing four varieties
9 that are in common commercial use. Of these, chrysotile is used
10 in largest quantities followed by crocidolite, amosite and
11 anthophyllite. Each of these has different chemical and physical
12 attributes. Some working populations are exposed to only one
13 variety of asbestos while others are exposed to two or more
14 simultaneously and in varying proportions.

15 Thus there are several kinds of populations each
16 exposed in quite different ways to one or more kinds of asbestos,
17 each of which might react biologically in a different manner.
18 Moreover, workers exposed to asbestos are further exposed
19 simultaneously to other airborne agents.

20 In production, manufacturing, and utilization processes
21 these may differ greatly. For example, the asbestos producer
22 is exposed to asbestos with minimal coexisting agents while,
23 in contrast, the insulation manufacturer inhales asbestos plus
24 silica plus other pneumoconiosis producing dusts.

25 Insulation applicators inhale these materials plus

ILLEGIBLE DOCUMENT

10 1 a variety of additional agents present in whatever the environment
2 is in the place where he is working at that time.

3 Attention to such coexisting agents has been ignored
4 in most studies, especially those of insulation workers. Varia-
5 tions of type of fiber and the circumstances surrounding their
6 use must be taken into account in answering the primary question
7 and would suggest the possibility that different standards might
8 be rational in order to meet different conditions of use of
9 asbestos.

10 There are four totally different biological phenomena
11 or diseases thought to be related in some way to the inhalation
12 of asbestos fiber. These are pulmonary fibrosis, bronchogenic
13 cancer, thickening of the pleura, and mesothelioma. Not a
14 single one of these diseases is peculiarly related to or caused
15 solely by the inhalation of asbestos fiber.

16 Each of the four diseases occurs de novo or for other
17 reasons in persons who have never been exposed occupationally
18 to asbestos. The fact is, the biological reaction attributable
19 to asbestos is not a specific kind of disease indicated solely by
20 asbestos.

21 Instead, the biological reaction to asbestos manifests
22 itself by the fact that in some populations occupationally ex-
23 posed to asbestos, there is, in contrast to non-exposed populations,
24 an excess occurrence of one or more of the four previously men-
25 tioned diseases.

ILLEGIBLE DOCUMENT

11 1 To determine the safe level for the use of asbestos,
2 we are required to demonstrate the level of exposure to asbestos
3 at which no excess of disease develops when the exposed population
4 is compared to a non-exposed population. In order to establish
5 a safe level we must examine suitable control populations not
6 exposed to asbestos, but age matched and residence matched, from
7 which population one can learn the frequency of occurrence of
8 the scientific specific diseases in question.

9 In addition, we must examine an exposed population,
10 which can be ranked in various levels of exposure, in order to
11 learn at what level an excess of these diseases occur in the
12 exposed population. The observation of a biological abnormality
13 in only one or two persons who have been exposed to the inhal-
14 ation of asbestos fibers does not permit a comparison for suitable
15 groups, control groups, or afford contrasting exposure values.

16 Such observations are of no use for determining a safe
17 level standard. Isolated case reports of mesothelioma, bronchio-
18 genic cancer, or pulmonary fibrosis in individuals who may also
19 have had an exposure to the inhalation of asbestos fibers are of
20 no use in setting a safe standard for asbestos based upon sound
21 scientific principles.

22 Larger populations in which only the frequency of
23 occurrence of disease is reported, without the necessary data
24 indicating ranges of exposure and in which no attempt to relate
25 variations of exposure to disease is made, fall into the same

12 1 non-usable category of setting a valid safe level.

2 That is not to say that observations in such groups
3 are of no value for other purposes, but the issue should not be
4 confused by introducing data from such inadequate studies into
5 considerations of safe levels of asbestos exposure. Suitable
6 control populations made up of individuals in sufficient number
7 who were never exposed to the occupational inhalation of asbestos
8 fiber and occupational groups whose exposures are demonstrated
9 to have wide variation are difficult to obtain but absolutely
10 essential for our purpose.

11 The absence of this kind of control data, excused or
12 overlooked on the basis that it cannot be obtained, is an un-
13 acceptable condition if the safe level standard is alleged to be
14 set on the basis of universally accepted scientific principles.

15 There is difficulty also with assessing the frequency
16 of occurrence of the diseases thought to be related under some
17 circumstances to the inhalation of asbestos fiber. There is dis-
18 agreement as to the criteria for a valid diagnosis of "asbestosis",
19 especially in its least severe manifestation, are not generally
20 agreed upon.

21 The use of the chest x-ray for diagnosing the early
22 manifestation of asbestosis is a case in point. A recent report
23 by Murphy and his co-workers of a study of employees in a shipyard
24 demonstrated that twenty percent of the control, or non-exposed
25 population gave evidence of x-ray abnormalities which, if ob-
served in the exposed population in the absence of controls, in

ILLEGAL DOCUMENT

ILLEGIBLE DOCUMENT

all probability would have been interpreted as being evidence of the effect of the inhalation of asbestos fibers. In a population which has been exposed to asbestos inhalation, it is very tempting to ascribe any departure from a perfect appearance in the chest roentgenogram to the occupational exposure, and indeed, in some studies this has been done.

It is imperative to even recognize that some persons who have never had an occupational exposure to asbestos will show the same x-ray shadows that have been interpreted by some as evidence of asbestosis in populations exposed to the inhalations of asbestos fiber.

Studies such as those by Murphy exemplify the necessity bearing on the determination of a safe standard for asbestos.

There are still other difficulties having to do with establishing the dose risk relationship. The health effects of asbestos inhalation are both dose and lapse-time related.

Over evidences of asbestosis do not appear until years after the initiation of the exposure. The interval between onset of exposure and its effect is even greater for the development of bronchogenic cancer or mesothelioma. This interval ranges between twenty and forty years.

Because of the long time lapse between the initiation of exposure and the manifestation of injury, the incidence of disease occurring in populations now under study is the result of, and must be related to, exposures which took place twenty to forty years or more ago.

ILLEGIBLE DOCUMENT

To relate exposure measured only now in the past five or so years to the current frequency of development of disease which actually was induced by exposure occurring years earlier, is a serious error. During the past twenty-five or thirty years there have been many technological changes in the production, manufacture and use of asbestos containing materi..

In many situations there is much less asbestos now being incorporated in the material than was true twenty or more years ago. In addition, there has been a progressive dust control effort to reduce the concentration of airborne asbestos in mines, mills and manufacturing establishments in a deliberate attempt to reduce and abolish asbestos related disease.

So much has been accomplished in this direction by technological change and systematic asbestos control efforts, that contemporary measurements of occupational environments cannot be accepted as representative of conditions twenty to forty years ago.

To summarize this part of my statement I strongly urge that when data offered in support of setting a safe level standard is being judged, one should ask the following questions:

(1) What again were the different kinds and proportions of asbestos used and what were the coexisting agents to which workers were exposed in the different occupations?

(2) What were the specific criteria and methods used and were they adequate for making a diagnosis

ILLEGIBLE DOCUMENT

1 of the biological reaction attributed to
2 the inhalation of asbestos?

3 3. Were suitable controls in the sense of
4 non-exposed populations and exposed populations
5 whose exposure varied in the intensity and
6 duration utilized?

7 4. Was the exposure actually responsible for
8 the disease properly determined or were con-
9 temporary dust estimates inappropriately applied
10 to disease which was in fact the result of
11 exposure years ago?

12 The demands inherent in these questions pose formidable
13 obstacles to arriving at a scientifically valid single number
14 which will indicate the concentration of occupational airborne
15 asbestos that can be tolerated with safety for the customary
16 duration of employment.

17 In spite of this, as I will show later, there are
18 substantial data which will satisfy the requirements posed by
19 these questions and which again can be used for the purpose of
20 determining at least a first approximation to the safe level of
21 occupational exposure to airborne asbestos.

22 We must now examine the various established and
23 proposed standards for a safe level of asbestos in the occupational
24 environment, in the light of the just discussed requirements as
25 to data needed for setting a standard on a sound scientific
basis.

16 1 Systematic efforts to reduce here the amount of
2 asbestos in the air of working places by governmental directive
3 was made in the factories of Great Britain beginning in 1931.
4 No numerical standard for this purpose was set, but Statutory
5 Rules and Orders were promulgated. Later, on the basis of limited
6 data relating impinger dust counts to x-ray abnormalities in
7 several asbestos textile factories of the USA, Sayers and
8 Draesen suggested a numerical standard of five million particles
9 per cubic foot as a tentative safe level.

10 This was the limit adopted by the American Congress
11 of Governmental Industries Hygienists in 1946. Utilizing the
12 conversion data for textile mills published by Lynch and Ayers
13 of the U. S. Public Health Service 5 million parts per cubic
14 foot is the equivalent of approximately thirty fibers/cc.

15 In 1968 the British Occupational Hygiene Society
16 suggested numerical guides aimed at reducing the risk of
17 developing asbestosis.

18 The suggested guides indicate that those concentrations,
19 averaged over a three month period below 2 fiber/cc ought to be
20 considered low, and that over the course of 50 years of employ-
21 ment, 100 fiber years is the level below which there would be
22 less than 1 percent chance of developing asbestosis as defined
23 chiefly by the presence of rales.

24 If asbestosis is defined by x-ray abnormality, the
25 level becomes 135 fiber years. In 1968 the ACGIH changed its re-
commended standard to a time weighted average of 2 million

ILLEGIBLE DOCUMENT

ILLEGIBLE DOCUMENT

17 1 particles per cubic foot or twelve fibers/cc. In 1970 this
2 Committee decided to change the standard to 5 fibers/cc which
3 is equivalent to less than 1 million particles per cubic foot.

4 Several months ago OSHA set an emergency standard of
5 5 fibers/cc, and within the past few days NIOSH now proposes a
6 standard of 2 fibers/cc.

7 What is the scientific basis of these various standards?
8 The standard proposed by Sayers and Dreeson did attempt to
9 relate dose of dust containing asbestos, as measured by the
10 midget impinger to the risk of developing pulmonary abnor-
11 malities in terms of abnormal x-ray patterns.

12 Their study showed a higher frequency of abnormal
13 x-ray patterns in those most heavily exposed as contrasted to
14 those less exposed. They found no excess of abnormal chest x-ray
15 patterns than in those workers exposed to less than 5 million
16 particles per cubic foot. Hence their suggested standard of
17 5 million particles per cubic foot. We now know, however, that
18 the population studied was not observed long enough for the
19 full range of disease to develop.

20 The authors appreciated this possibility and proposed
21 the standard as being a tentative one. In retrospect we know
22 that the standard, although it led to marked lessening of the
23 dustiness in some occupations, was not adequately based and the
24 passage of time has demonstrated it to be an inadequate standard.

25 The numbers proposed by the British Occupational

18 1 Hygiene Society are based on a study of 290 male employees from
2 a single asbestos textile mill.

3 Their employment began after 1933, all had worked for
4 at least ten years, and the exposure period extended from 1933
5 until 1966. The indicator of disease was basal rates and x-ray
6 changes. No measurements of dustiness in this mill were available
7 prior to 1950.

8 Membrane filter fiber content counts done in the modern
9 manner were used only in the last year of the study and these
10 served as the factor for converting previous counts using other
11 methods to an expression in terms of fibers. To obtain an index
12 of exposure for the period between 1933 and 1950 - a crucial
13 period of exposure - the first measurements made in 1950 were
14 raised by 40 percent.

15 No evidence was given for using this very slight
16 augmentation. Studies in other textile factories such as those
17 by Sayers and Draccon indicated that when ventilation controls
18 were first applied in their textile mills the dust counts
19 dropped 1,000 percent or more.

20 One would assume that the same happened in this
21 British textile mill. The seventeen years of exposure during
22 that most crucial period between 1933 and 1950 would appear
23 to have been substantially underestimated.

24 This study, in spite of its less than adequate
25 scientific base is important because it was the first attempt

ILLEGIBLE DOCUMENT

ILLEGIBLE DOCUMENT

19 1 after 1938 to set numerical guidelines for the prevention of
2 asbestosis. The number of persons in the study is very small;
3 the criteria for disease, especially basal rates, not universally
4 accepted; and the estimate of dustiness seriously lacking in
5 rigor. The estimate of dustiness was on the low side for the
6 reasons that I have already mentioned and, in addition, because
7 no attempt was made to further adjust for the longer working
8 hours and chance of exposure during the war and earlier years.

9 In spite of all of this, the study is a first approx-
10 imation to a solution of a problem for which there were essen-
11 tially no other available data in 1968 upon which to attempt
12 a dose-risk estimate.

13 It is my understanding that the enforcement agency of
14 Great Britain looks upon these standards as guidelines and not
15 as rigid requirements for all circumstances in which asbestos
16 is used. Thus they recognize the incomplete nature of the data
17 used in developing the numbers.

18 The lowering of the 1938 standard from 5, to 2 million
19 particles per cubic foot and 12 fibers per cc, adopted by the UK
20 in 1968 appears to have been based in part upon the data under-
21 lying the British proposal and also upon the fact that there was
22 a growing awareness that the old standard of 1938 was not
23 universally effective.

24 The further lowering of it to 5 fibers/cc was not
25 based upon new scientific data, but appeared to have been made

20 1 to establish a margin of or "factor of safety." In a personal
2 communication from Dr. Herbert Stockinger, Head of the Division
3 of Laboratory and Criteria Development of the National Institute
4 of Occupational Safety and Health and Chairman of the Committee
5 on Threshold Limit Values of the American Conference of Government
6 Industrial Hygienists, I am informed that four months ago, in
7 November 1971, the Committee of the ACGIH reviewed the standard
8 of 5 fibers/cc and found no evidence to indicate that it should
9 be changed. There are several relatively current studies which
10 support this decision.

11 I would now like to discuss five of these supporting
12 studies. Murphy et al, in December of 1971 published data on
13 workers exposed over a period of approximately 35 years as
14 pipe coverers in new ship construction. The authors demonstrated
15 that no evidence of asbestosis was found until at least 50
16 million particles per cubic foot years of exposure had been
17 exceeded.

18 This would indicate that for a forty year period of
19 employment, 1.5 million particles per cubic foot would be the
20 value below which no asbestosis occurred. The report indicated
21 that the actual occurrence of asbestosis was restricted almost
22 solely to those exposed to more than 75 million particles per
23 cubic foot years, which would be close to a value of 2.0 million
24 particles per cubic foot for those employed for forty years.

25 Utilizing a conservative number to convert particles

ILLEGIBLE DOCUMENT

21 1 to fibers per cc, one arrives at a level of 5 fibers or more
2 as being that below which no asbestosis was observed.

3 If one utilizes their konimeter data, one can, by
4 suitable calculations, estimate that the average exposure for
5 these workmen was in the neighborhood of 8 fibers per cc, and
6 this too would suggest that a number of 5 or more fibers per
7 cc would have been the level below which no evidence of asbestosis
8 developed.

9 This study indicates not only that the old standard
10 of five million particles per cubic foot is unsafe but also that
11 a standard of 5 fibers/cc will prevent asbestosis in employees
12 working for forty years or more.

13 An extensive and detailed study of a population com-
14 prising thousands of workers, in the mining and milling of chry-
15 solite in eastern Canada conducted over the past few years by
16 Dr. Corbett McDonald and his associates is of great importance
17 in our considerations because this study has dust counts going
18 back many years and chest roentgenograms available from approxi-
19 mately 1935 to date.

20 Dr. McDonald will report on these studies at these
21 hearings. It is my understanding that these studies support the
22 conclusion that these individuals exposed in these occupations
23 for forty or more years would have to be exposed to higher
24 than 6 fibers/cc in order to reveal any evidence of asbestosis.

25 Becklake and her co-workers, utilizing a segment of

ILLEGIBLE DOCUMENT

OSHA DOCUMENT 1532409

REPORT DATE: 19991007

Expected Pages: 4
Scanned Pages: 0
File Name: DOCK
Accession No: S777
Cat/Doc: 05 03
Exhibit No.: 26-234
Signature: WADSWORTH THOMAS G
Title:
Organization: ST BARTHOLOMEWS HOSP LONDON
Address1:
Address2:
City:
State:
Zipcode:
Country:
Title: TENNIS ELBOW: CONSERVATIVE, SURGICAL AND
MANIPULATIVE TREATMENT
Source: BR MED J 294:621-624
Year Published: 19870307
Entry Date: 19991007
Hearing Date:

ILLEGIBLE DOCUMENT

the population from McDonald's larger study, have demonstrated that in those individuals who have been employed for long periods of time in the mining and milling of chrysotile asbestos and who do not even show evidence of x-ray changes, the accumulated exposure must have been more than 110 million particles per cubic foot years before the most sophisticated techniques can detect evidence of those physiologic changes thought to develop in response to inhalation of asbestos.

These data suggest that something larger than 2.5 million particles per cubic foot over a forty year period can be tolerated without even the most subtle manifestations of asbestos exposure. This number would translate into something between five and ten fibers per cubic centimeter.

In the fall of 1971 at the Fourth International Congress on Pneumoconiosis, held in Bucharest, Dr. McDonald updated his previously reported large study and reaffirmed that an excess of bronchogenic cancer did not occur in the workers in mining and milling of chrysotile asbestos until an exposure equivalent to 200 million particles per cubic foot years was exceeded.

This is equivalent to 5 million particles per cubic foot for forty years. It indicates that in the mining and milling of chrysotile an excess of bronchogenic cancer would not be demonstrable in those individuals who were exposed to less than 5 million particles per cubic foot.

This is equivalent to 10 or more fibers per cc.

ILLEGIBLE DOCUMENT

23 1 This most important finding supports the view
2 held by Stewart and others that an excess of bronchogenic
3 cancer occurs only in those who have manifestations of asbestosis
4 and that the standard adequate to protect against bronchogenic
5 cancer is a larger number than that required to protect against
6 asbestosis.

7 Recently Enterline and his co-workers have reported
8 the results of a study of retirees employed in various asbestos
9 using manufacturing processes including textiles and where the
10 exposure was different from that in mining and milling because
11 of the inclusion of exposure to crocidolite and amosite as well
12 as other agents which might co-exist.

13 This study shows, and I quote "there appeared to be
14 no direct relationship between asbestos dust exposure and res-
15 piratory cancer below 125 million particles per cubic foot
16 years. Important increments in respiratory cancer mortality ap-
17 parently occurred somewhere between 100 and 200 million particles
18 per cubic foot years' exposure."

19 This would indicate that exposure to 3 million par-
20 ticles per cubic foot would be tolerated for a forty year
21 period without a risk of excess bronchogenic cancer in those types
22 of occupations. Using the conversion factor suggested by Lynch
23 et al, this is equivalent to 44 fibers/cc.

24 This series of studies indicates that a lower standard
25 is required to protect against pulmonary fibrosis or asbestosis
than to protect against bronchogenic cancer. These five studies

24 1 offer strong support for the position taken by the American
2 Conference of Governmental Industrial Hygienists that there is
3 no need to lower the standard below 5 fibers/cc in order to
4 protect against pulmonary fibrosis or bronchogenic cancer.

5 In my judgment, we have no specific information of
6 a suitable scientific nature expressing the dose risk relation-
7 ship for mesothelioma. Isolated case reports of mesothelioma
8 are of no value in establishing a dose risk relationship.

9 Equally useless for this purpose are the data offered
10 in studies of insulation workers, asbestos workers, miners and
11 millers, workers in asbestos using manufacturing, domestic
12 exposures and neighborhood exposures.

13 Not a single one of these studies offers data comparing
14 variable exposures to the incidence of mesothelioma and they
15 are therefore of no use for establishing a safe level of asbestos
16 in the occupational environment. These studies do indicate
17 that in some circumstances the risk is present but none speak
18 to the question of the safe level on scientifically acceptable
19 grounds.

20 Nevertheless, these studies of a larger number of cases
21 of mesothelioma suggest that, in some circumstances the exposure
22 to asbestos which may be related to the development of mesotheli-
23 oma might be less than that required to produce asbestosis
24 or an excess of bronchogenic cancer.

25 One factor, which has been demonstrated which is with

ILLEGIBLE DOCUMENT

25 1 respect to the relationship between mesothelioma and inhalation
2 of asbestos is of the utmost importance.

3 In all of these circumstances where a strong relation-
4 ship between mesothelioma and the inhalation of asbestos is sus-
5 pected, two varieties of asbestos, namely crocidolite and
6 amosite, invariably have been implicated either alone or com-
7 bined. This is the case in the excess occurrence of mesothel-
8 ioma among crocidolite miners, asbestos using insulation workers,
9 workers in asbestos textile and insulation manufacturing, and
10 in a large multiproduct asbestos using manufacturing plant in the
11 USA.

12 In most of these circumstances there has been a mixed
13 exposure and chrysotile has also been present. In striking
14 contrast, however, when exposure has been solely to chrysotile,
15 as in mining and milling of chrysotile, the frequency of occur-
16 ence of mesothelioma has either not been increased or increased
17 only to the very slightest degree.

18 The virtual absence of an excess of mesothelioma in
19 populations exposed solely to chrysotile has been reported by
20 Gilon, Vigliani, Wagner and McDonald on the basis of separate
21 studies.

22 With respect to anthophyllite, no excess of mesothelioma
23 has ever been reported. On the basis of information currently
24 in mind, therefore, mesothelioma appears to be predominantly
25 linked with exposures to crocidolite or amosite but the

ILLEGIBLE DOCUMENT

26 1 dose relationships are unknown.

2 The studies referred to thus far are the only ones
3 I am aware of which in my judgment have a meaningful bearing
4 on the setting of a standard for control of asbestos exposure.
5 Other data does exist but in my judgment, it does not conform to
6 those criteria, universally agreed upon, for a sound scientific
7 basis upon which to predicate a safe standard.

8 There is an abundant other body of data which indicated
9 that the prolonged inhalation of asbestos fibers above some level
10 is hazardous, that the biological effect is dose related but that
11 many of the workers exposed for a lifetime never do develop
12 asbestos related disease.

13 This data indicates clearly that past exposures in some
14 occupations, as for example, the mining and milling of chrysotile
15 were far less hazardous than exposures in asbestos textile manu-
16 facture or the insulation worker's trade and possibly in other
17 occupations as well.

18 The reasons for these differences are not entirely
19 resolved at this time. Until recently the insulation trade
20 used much more amosite than chrysotile and in some work, espec-
21 ially in England, large amounts of crocidolite have been used.

22 There are coexisting agencies in the insulation trade
23 which are not present in mining and milling of chrysotile. The
24 peak exposures appear to be much higher in the insulation trades
25 than in mining, milling, or manufacturing.

ILLEGIBLE DOCUMENT

27 1 Peak exposures may be much more hazardous than lower
2 levels of prolonged exposure. Fiber counts in the insulation
3 trade in shipbuilding in Great Britain and in construction in
4 Finland, ranged from twenty to hundreds of fibers/cc depending
5 upon the kind of work being done. Fiber counts in the construction
6 industry in this country currently indicate somewhat lower time
7 weighted averages, but the intermittent high peaks of exposure.

8 For example, during the mixing of asbestos cement,
9 dust counts commonly as high as 75 fibers/cc during a 5 to 10
10 minute period are reached as often as 5 times or more a day.
11 Unfortunately, there are no data in the insulation worker trade
12 that compare degrees of exposure over a period of many years
13 to the biological manifestations of excess disease. Until this
14 is available, there is no way of utilizing data from these
15 trades to establish a standard for the control of asbestos
16 inhalation.

17 There is every indication that the levels of exposure
18 should be lowered especially the peak levels, but whether or not
19 a lower time weighted average standard is needed, in the insul-
20 ation trade than in the other trades remains unsettled.

21 There is substantial reason to believe that crocidolite
22 and amosite should be controlled more stringently than is chrys-
23 otile. There is also reason to believe that the geometric
24 conformation of the fibers in the mining and milling of chrysotile
25 may be different from those fibers generated subsequently

ILLEGAL DOCUMENT

28

1 in manufacture and use of asbestos.

2 Moreover, the fibers of crocidolite and amosite even
3 in mining have a different geometric configuration, as actually
4 observed by Timbrell in airborne specimens, for that of some forms
5 of chrysotile. For these reasons the pulmonary retention of
6 chrysotile may be substantially less than for other varieties
7 of asbestos or for the kinds of fibers generated in other occu-
8 pations than mining and milling. Animal experiments have demon-
9 strated this to be true.

10 On the basis of data now available and adequate for
11 the purpose, I wish to indicate that in my judgment a standard
12 of five fibers/cc time weighted average with peaks not to exceed
13 10 fibers/cc such as recommended by OSHA in its present standard
14 and by ACGIH, constitutes a level which will protect against
15 the development of asbestosis and bronchogenic cancer and include
16 a safety factor since it is a level substantially below that which
17 has been demonstrated to be associated unequivocally with an
18 excess of these two abnormalities.

19 There is evidence relating crocidolite and possibly
20 amosite to excess mesothelioma which suggest that a more rigorous
21 control of amosite or crocidolite would be justified. For this
22 reason it may be rational to have different standards covering
23 different occupations depending upon the variety of asbestos
24 used.

25 Since I am in disagreement with the recommendation of

ILLEGIBLE DOCUMENT

ILLEGIBLE DOCUMENT

29 1 the Criteria Development Document that two fibers/cc be estab-
2 lished as the safe level of occupational airborne asbestos, it
3 is incumbent upon me to indicate the important points of my
4 disagreement.

5 In my opinion, it is now incumbent upon the authors
6 of the Criteria Document to present evidence, which will meet
7 the requirements for scientific validity in support of their
8 proposal to change the standard and to establish a new one.

9 In the entire document I do not find reference to a
10 single study containing data which will, on the one hand meet
11 the criteria of scientific validity for setting standards, and
12 on the other, support the need to change the standard from 5
13 fibers/cc or to set it at 2 fibers/cc.

14 In fact, the Criteria Document explicitly says on page
15 10 of Section 5: "The number of studies that have collected
16 both environmental and medical data and with a significant number
17 of exposed workers, is not sufficient to establish a meaningful
18 standard based upon firm scientific data."

19 In other words, the authors of the Criteria Document
20 do not provide any scientific data upon which to base their
21 proposal to change the standard from 5 to 2 fibers/cc or to
22 support the choice of a standard of 2 fibers/cc. The failure
23 to provide this support, in my judgment casts the most serious
24 doubts upon the validity of the proposals.

25 I am in complete disagreement with the Criteria

ILLEGIBLE DOCUMENT

Document with respect to its expressed opinion that the data relating exposure to biological reaction is inadequate to establish a meaningful standard at this time. While the evidence may not be as far reaching as we would like, it is scientifically valid and adequate to support as a first approximation the opinion that the present standard, established by OSHA several months ago at 5 fibers/cc TWA and peaks not to exceed 10 fibers/cc should not be lowered but left as it is.

I have cited the studies supporting this opinion.

Lacking dose-risk relationship data adequate to support the proposal of 2 fibers/cc the Criteria Document appears to promote an aura of extreme toxicity of asbestos fibers in order to justify the new level. This is done chiefly by citing isolated case reports. In my judgment an inordinate amount of weight is given to isolated case reports, which, though of interest and some importance, have no possible utility in setting a numerical standard.

Their use in the Criteria Document is doubly difficult to accept in view of the fact that on page 24 of Section III there is the following statement: "Isolated clinical case reports are difficult to interpret in terms of dose-time response relationship and can only be used to indicate other possible areas and to highlight what may prove to be practicable areas for further study."

An attempt to convey the implication of extreme

31 1 toxicity of asbestos is again made on page 7 of Section 3 by
2 reference to a study of 232 former employees in a plant that
3 manufactured insulation.

4 This study, by Selikoff, is quoted as revealing four
5 employees who developed x-ray evidence of asbestosis after only
6 one day of exposure to asbestos. Observation of a control
7 group for comparison to those who had been exposed, is totally
8 absent from the Tables for this study that are shown in the
9 Criteria Document.

10 Murphy's study of pipe-coverers, referred to earlier
11 in this statement, demonstrates beyond doubt that in any adult
12 population not exposed occupationally to asbestos there will be
13 some individuals with x-ray shadows that could be interpreted
14 as evidence of slight asbestosis.

15 In the absence of suitable controls, Selikoff's study
16 cannot, on scientific grounds, be interpreted to prove that one
17 day of exposure to asbestos causes asbestosis. To do so on the
18 basis of the data shown is epidemiologically unsound and to cite
19 this study as evidence of extreme toxicity of asbestos is completely
20 unwarranted.

21 The manner in which reports and data of different
22 investigators throughout the world are utilized and criticized does
23 not appear to be uniform in this document. For example, the
24 comprehensive review of the epidemiology of asbestos related
25 cancers by Wagner, et al, published in 1971 is not referred to.

ILLEGAL DOCUMENT

ILLEGAL DOCUMENT

32 1 The report by McDonald, et al, of an extensive
2 epidemiologic study relating dose to risk in 11,788 workers
3 employed in the Quebec chrysotile asbestos mining industry is
4 not discussed in the Criteria Document . This study, published
5 in June 1971 is the single most detailed and complete study of
6 world's literature of the dose risk relationship of one kind of
7 population exposed to airborne asbestos.

8 The only reference made in the Criteria Document to
9 this study, pages 18 and 20 of Section 3, is a criticism of a
10 "progress report" given by McDonald at the Bucharest meeting
11 in September of 1971. One would think that a study of this
12 magnitude would require discussion in a document intended to be
13 a fully developed presentation of the evidence supporting recom-
14 mendations of such great importance.

15 It is difficult to understand why McDonald's report
16 is criticized, as stated at the top of page 20 of Section 3,
17 because of the conversion of numbers of particles to numbers
18 of fibers. Particles are converted to fibers by the British
19 Occupational Hygiene Society in developing their standard and
20 at no place in the Criteria Document, pertaining to the British
21 recommendation, does one see a questioning of that procedure.

22 ~~If it is acceptable in the one circumstance it should~~
23 ~~be acceptable in the other.~~

24 It is even more difficult to understand the
25 criticism expressed in the last sentence of the 1st paragraph

33 1 on page 20 of Section 3 of there to the effect that the McDonald
2 study lacks the evidence necessary to make general comparisons
3 with the data of other reported work.

4 The published paper by McDonald's group contains the
5 complete biological data and the required exposure data expressed
6 in millions of particles per cubic foot. This is substantially
7 more data than that furnished by others since it relates exposure
8 to biological effect in the same population whereas other studies
9 such as those of insulation workers do not in any way provide
10 this co-related data.

11 The index of dustiness used in the McDonald report
12 is the same as in those of Murphy et al, Dacoufle-Enterline and
13 Williams, all of which are quoted in this document. The criticism
14 that McDonald did not indicate the details of the method used
15 for converting particles per cubic foot to fibers/cc could easily
16 have been answered by a letter or a telephone call, if the author
17 of the Criteria Document had been desirous of making the compar-
18 isons.

19 Much weight is given to an unpublished paper by
20 Williams, et al from the Pennsylvania Department of Health. One
21 wonders why, in such an important document as the NIOSH Criteria
22 Package, the cruden data of the Williams' study was not shown in
23 the tables of the Criteria Document.

24 That way in which the sixty-four cases of asbestosis
25 referred to were related to what was undoubtedly a variable

ILLEGIBLE DOCUMENT

34 1 exposure is, not shown. It is very probable that all of these
2 64 cases occurred in those who were most highly exposed, very
3 possibly in the neighborhood of five million or more particles
4 per cubic foot.

5 The failure to handle such data in the conventional
6 dose risk relationships is a serious error. Inordinate and
7 unwarranted attention is given to contemporary dust counts.
8 The impression is given that these present day counts represent
9 the conditions that existed over the past forty years. While this
10 may not be intended, more care should be given to indicate that
11 the counts were substantially higher in the past, especially in
12 manufacturing places where effort toward controlling exposures
13 by exhaust ventilation has been expended in the past 30 years.

14 In addition, the reduction of the amount of asbestos
15 contained in manufactured materials has further reduced the
16 exposures, particularly in asbestos insulation workers.

17 Most of the counts in the tables of this document
18 are expressed as averages, for example, tables 13 and 14, per-
19 taining to exposures of insulation workers. This is an inade-
20 quate way of displaying data, since it can give misleading
21 information by making high exposures if there are a large number
22 of low exposures to dilute the high ones.

23 Biological effects are much more likely to occur in
24 those persons heavily exposed than in those with low exposure,
25 thus, averages of all exposures have little meaning or use in
determining the dose risk relationship.

ILLEGAL DOCUMENT

35

1

2 It is not possible to evaluate fully the exposure
3 from the data shown in some of the Tables of this document.
4 For this we need to know not only the time weighted averages but
5 also the peaks, the number of observations and the conditions of
6 the environment during the time of sampling.

6

7 This criticism is especially pertinent to the exposures
8 of insulation workers shown in Table 14. The insulation worker
9 experiences great variability with respect to job conditions,
10 to a large degree dictated by the volume of the space in which
11 he works and by natural ventilation as well as the kind of work
12 he is doing at the time.

12

13 Dust counts under all sorts of conditions, and peak
14 as well as TWA exposures must be measured before the insulation
15 worker's exposure can be portrayed. With respect to Table 14,
16 it is surprising that the job of "cement mixing", notoriously
17 characterized by peaks of exposure as high as 75 fibers/cc for
18 periods of 5 to 10 minutes several times a day, is omitted.

18

19 The summary, on page 16 of Section 5, describing the
20 basis for the new standard recommended by the Criteria Document
21 is confusing and inconsistent. I quote from the second paragraph:
22 "evidence indicates that past and current standards for fiber
23 concentrations in the working places where asbestos fibers occur
24 though undoubtedly contributing to reduction of the severity and
25 frequency of asbestosis, have not provided complete protection
from exposure to asbestos, necessitating development of a new

36 1 standard."

2 There is evidence that asbestosis developed under
3 some circumstances in places thought to have an average exposure
4 of five million particles per cubic foot, or in modern parlance,
5 thirty fibers/cc.

6 This was the standard set in 1933. The ACGIH created
7 a new lower standard in 1958 and another still lower, introducing
8 a safety factor in 1970. The British Occupational Hygiene
9 Society suggested numbers that might serve as a standard in
10 1968.

11 The current standard in the USA set by OSHA is five
12 fibers/cc and was set only a few months ago. If there is to
13 be a new standard it will be one set since a few months ago, or
14 at most, not since three years ago. The statement in the Criteria
15 Document, to which I have just referred, indicates that the
16 authors have evidence that the standard recommended by ACGIH in
17 1968 has been inadequate and has not provided complete protection
18 and hence a new standard is needed.

19 The authors of the Criteria Document should be required
20 to give that evidence and it is obvious that they have not.
21 Could it be that they are referring to the fact that the standard
22 set in 1933 is inadequate and that a better standard is needed?

23 If so, a lower standard was provided in 1958 and still
24 lower in 1970, and it is this standard which was promulgated
25 as an "emergency standard" by OSHA.

ILLEGIBLE DOCUMENT

37 1 It is this OSHA standard for which I believe there
2 is substantial factual evidence for a supportive nature.

3 An even more serious inconsistency is demonstrated on
4 page 16 of Section 5. Close examination of Items a, b, c, and d
5 reveals in unequivocal terms that in the judgment of the authors
6 of the Criteria Document there are no scientifically usable data
7 on which to base a standard.

8 Nevertheless, without such data they decide that the
9 current standard must be changed and moreover recommend precisely
10 what the new one should be. There is a strong inference from the
11 second paragraph of page 17, section 5 that one and perhaps the
12 chief reason for setting the recommended standard at two fibers/
13 cc, is that the British have recommended such a standard.

14 I disagree with the concept, if actually intended, that
15 this represents a scientifically valid reason for recommending
16 such a standard. Moreover, it is my understanding that the B.L.
17 did not set a standard in the same sense that it is intended to be
18 used under the new Occupational Safety and Health Act.

19 The British standard is a series of numbers proposed
20 to furnish a guideline with a wide range of personal judgment on
21 the part of their inspectors as to the need for corrective measures
22 when these numbers are exceeded. Under our act it is my inter-
23 pretation that a standard is to be set which, if not complied with,
24 places the operator under certain penalties. To my mind the two
25 conditions are utterly different.

ILLEGIBLE DOCUMENT

38

1 I would like briefly to summarize. In this statement
 2 I have described the kind of data required for characterizing the
 3 dose risk relationship in such a manner, that it can be used
 4 for setting an occupational standard for airborne asbestos on
 5 a scientific rather than an arbitrary basis.

6 Because of the difficulties described, much of the data
 7 now extant, concerning asbestos associated disease, is of no
 8 use for setting a standard. Isolated case reports and data
 9 giving exposures or biological effects without relating the two
 10 in the same population are examples of this kind of unusable
 11 information.

12 Unfortunately, much of the data now available is com-
 13 petent only to say that asbestos is more or is less hazardous
 14 in different groups and that the exposure is varied. Nevertheless
 15 although not numerous, there are specific data competent to
 16 speak to dose risk relationship and these can be used for our
 17 purpose. I have cited these.

18 I have indicated the reasons for my opinion that the
 19 Criteria Document have failed to do what which is incumbent
 20 upon it, namely, to provide sound scientific evidence to
 21 support their request for a change from the OSHA emergency
 22 standard and for a new standard of 2 fibers/cc time weighted
 23 average and peaks not to exceed 10 fibers/cc.

24 I disagree with the view of the Criteria Document that
 25 there are no scientifically obtained data adequate for the

ILLEGIBLE DOCUMENT

39 1 purpose of setting a standard. I have cited the studies which
2 I believe are scientifically valid and adequate for setting a
3 first approximation to a standard or safe level of airborne
4 asbestos in occupational environments.

5 In my opinion, these studies fully support the current
6 OSHA temporary standard of 5 fibers/cc TWA with peaks not to
7 exceed 10 fibers/cc and the recent decision of the ACGIH that
8 there is no need to change from this standard.

9 It should be emphasized that prior to 1940 and for
10 some years thereafter, when many of those persons now developing
11 disease were actually being exposed, the dust counts in mining,
12 milling, and manufacturing commonly were in the range of 10 to
13 100 million particles per cubic foot. This was likely most
14 equivalent to 30 to 500 fibers/cc.

15 There is no evidence that exposures during that period
16 for insulation workers was substantially lower, and, on the basis
17 of British and Finnish data, it was in that range. It is clear
18 then, that the current OSHA temporary standard represents a
19 tremendous reduction from the dust levels of previous years, and
20 in my opinion includes a substantial safety factor.

21 I believe this level will protect workers, using
22 asbestos over a forty year or more span of employment, from
23 developing asbestosis or experiencing an excess of bronchogenic
24 cancer. If crocidolite and perhaps amosite are more stringently
25 controlled, the liability of experiencing mesothelioma will

ILLEGIBLE DOCUMENT

40

1 be markedly reduced and probably abolished.

2 Thank you, Mr. Examiner.

3 EXAMINER GOLDBURG: Thank you, Dr. Wright. Dr. Nicholson.

4 DR. NICHOLSON: I am William Nicholson. I appreciate
5 very much Dr. Wright's description of what would be admirable
6 scientific procedure to evaluate the standards to obtain doses
7 over a 40 year period, but let me ask some specific questions
8 with respect to his testimony.

9 One is with respect to the control -- first, a major
10 question with respect to the needs for a controlled population
11 which is indeed a good point.

12 Could you, Dr. Wright, tell me what the control
13 population was in Dr. Murphy's study?

14 DR. WRIGHT: Dr. Murphy's study, his control population
15 was a group of individuals employed in the same shipyard which
16 he stated were not exposed to asbestos.

17 DR. NICHOLSON: Would that group be in the shipyard?

18 DR. WRIGHT: I am sure they were on the premises, but
19 Dr. Murphy states they were not exposed.

20 DR. NICHOLSON: The concern for mesothelioma bears
21 upon the question of the incidence in insulation workers. It
22 has been documented that the disease incidence of insulation
23 workers who work in shipyards and who work in construction sites
24 and never worked in the shipyard are the same.

25 Could you give us some background as to the amount of

ILLEGIBLE DOCUMENT

41 1 crocidolite or amosite which was used in insulation work other
2 than in shipyards?

3 DR. WRIGHT: Well, as you indicate or refer to, the
4 British shipyards did use large amounts of crocidolite, and
5 in so far as I know the insulation workers, and not shipyard
6 workers in this country, have been exposed primarily to amosite.

7 DR. NICHOLSON: The materials used by non-shipyard
8 insulation workers is amosite?

9 DR. WRIGHT: That is right.

10 DR. NICHOLSON: I have been led to understand that
11 it was predominantly chrysotile, and that the total use in the
12 United States of amosite was only about 3 percent, perhaps, and
13 that was in shipyard work construction.

14 DR. WRIGHT: Mr. Goldberg, there are people in this
15 audience who can answer the question better than I can. I can
16 only do it by hearsay. I think others know exactly what was
17 in insulation over the past 40 years.

18 EXAMINER GOLDBERG: Just testify to the knowledge you have.

19 DR. WRIGHT: My knowledge is that it was predominantly
20 amosite until recently.

21 DR. NICHOLSON: Perhaps we can have comment later by
22 other members on that point.

23 ~~The main point I would like to raise now is with~~
24 respect to the discussion you made on the studies of Murphy,
25 McDonald in the various ways reported, and of Entenline where

ILLEGIBLE DOCUMENT

42 1 the dust evaluation was done in terms of million particles
2 per cubic foot, and you made a conversion from that dust exposure
3 to fibers per cc.

4 Could you tell me what the conversion factor was that
5 you used?

6 DR. WRIGHT: The conversion factor for the McDonald
7 study he will give in the ensuing presentation. I took what he
8 reported.

9 In converting the number that was given in millions
10 of particles per cubic foot from the Murphy study, I utilized
11 a factor of 2, which is about as low as anybody has given, 2
12 fibers per million particles per cubic foot. Most conversion
13 factors are higher than that.

14 The one for Enterline, since it involved textile work,
15 I used Dr. Lynch's conversion factor of 6.

16 DR. NICHOLSON: Were these conversion factors experi-
17 mentally determined in either of the two studies?

18 DR. WRIGHT: I am sure you are familiar with Dr. Ly-
19 nch's conversion factors. They have all been published. Dr. McDonald
20 will tell you how his were done, by side sampling of impinger
21 and membranes, and also by knowing the percent of fibers in there
22 that were on the membrane and making a conversion in that way.

23 Now the conversion I used in the Murphy study, as I
24 indicated to you, I took the lowest one I knew of, which is
25 two fibers per million, because he made no attempt to make a

ILLEGIBLE DOCUMENT

ILLEGIBLE DOCUMENT

43 1 conversion himself. The counts are interesting, because it is
2 accepted that the fibers were faithfully captured, and utilizing
3 what was in Murphy's paper, namely an expression of the percent
4 of the dust that was made up of fibers, I made the calculation
5 and it comes to an average of 8.

6 Now that means there is a range on either side. Some-
7 where higher, in other words, and somewhere lower.

8 DR. NICHOLSON: Since the dust exposure, that of the
9 mines, that of the insulation workers and that of the textile
10 workers, are so completely different in the magnitude of all the
11 other material as presented there, there certainly is a need
12 for this in terms of fibers.

13 Moreover, I would suggest that there is a considerable
14 difference in the fiber size, distribution of fibers in each
15 of these separate operations.

16 Were any measurements done to indicate that the total
17 fiber size was in these operations going to microscopic sizes,
18 greater than five microns to the full range of sub-microscopic
19 fibers present in the atmosphere?

20 DR. WRIGHT: So far as I know, this was not done,
21 but I would submit we were talking about a standard set on light
22 microscope studies. I am aware of the questions raised by the
23 electron microscope sized fibers, but they have no bearing here.

24 DR. NICHOLSON: We are talking about a standard set
25 in terms of the quantities of fibers measured longer than five
microns.

44

1

2 But in addition there are the fibers shorter. Do
3 those fibers here not have potential biological effect also
4 and should that fraction, if it is shorter than 5 microns, should
5 that be acknowledged and related to other exposures?

6

7 DR. WRIGHT: Dr. Nicholson, if you are talking about
8 those fibers seen in a microscope, you cannot recognize a fiber

9

10 DR. NICHOLSON: I am talking about all fibers.

11 DR. WRIGHT: I don't think that size fiber enters into
12 our discussion. We are setting a standard in terms of light
13 microscope sizes, and if we are going to talk about the electron
14 microscope size fibers we will have a long, long discussion.

15 I am prepared to have it now if you are prepared to
16 embark upon that, Mr. Goldberg.

17 DR. NICHOLSON: What -- one makes a comparison of data
18 contained in conditions in which the dust is so different,
19 and is it not appropriate for a scientific study for a desirable
20 criterion to use that total characterization of that dust cloud
21 used for the dose to which you are attributing a response be
22 completely characterized?

23 DR. WRIGHT: On the basis of science and a better
24 understanding, I agree we need all this information, and there
25 is some information, of course, on this point, but I can only
26 say, again, that I don't see how it is germane to the subject we
27 are talking about.

ILLEGIBLE DOCUMENT

45

1 OSHA has recommended standards in terms of the microscope

2

MR. DEGREGORIO: May I ask a question?

3

EXAMINER GOLDBURG: Go ahead.

4

MR. DEGREGORIO: May I suggest for the sake of a

5

complete record that the witness answer as many questions as

6

possible within the scope of his knowledge, and leave the

7

questions of what is relevant to one who has to make a decision,

8

so that extraneous information may be kept out of the record,

9

merely on the basis of what the witness thinks is relevant or

10

not? I think that would be a loss to the record.

11

EXAMINER GOLDBURG: All right.

12

MR. WOLFE: Dr. Wright, since you support the reduction

13

from 12 to 5 of the allowable number of particles, this in itself

14

is knowledge. That previous thoughts about what was safe, or

15

modifications needed for them, were changed. You mentioned before

16

at the beginning of your testimony, that a number of workers

17

could be exposed to asbestos without ever developing disease.

18

The law, as stated, would have no worker develop disease

19

What I am really wondering is, since the technical feasibility

20

exists to lower levels in plants down to the 2 that has been

21

recommended by the criteria package, why should not one opt now

22

in a maximum direction of safety?

23

You alluded to the fact that the new 5 standard contains

24

a substantial safety factor. The question I raise is, is it

25

substantial enough?

ILLUSTRATION DOCUMENT

46

1 In other words, if any possibility exists for any
2 worker to develop disease at that level, why should it not be
3 lowered to 2 until proven otherwise?

4 You would have the burden of proof be placed on workers
5 or on people developing data to show that it is unsafe, and I
6 think the burden of proof really in the face of something as
7 disastrous as asbestos needs to be to show that it is safe, and
8 if there is any possibility existing, which I think there is,
9 for the development of disease at 2, why can we not go down to
10 there until it can be proven or shown that 2 is too low, and
11 then perhaps it could be built back up?

12 DR. WRIGHT: I thought I made it as clear as I could
13 that I believed 5 fibers is safe. I think the evidence clearly
14 supports this, in terms of either fibrosis, which we call asbes-
15 tosis, or bronchogenic cancer. I don't know what the number should
16 be for mesothelioma, but since it is related to a cross-linking
17 and mesothelioma, if we control these two more stringently we would in
18 all probability get rid of any mesothelioma.

19 MR. WOFFE: What would you estimate the substantial
20 safety factor is?

21 Or obviously one gets diseases at a certain level, and
22 one says, "We want to really insure protection for the worker."
23 On what basis do you agree or disagree with a close substantial
24 safety factor?

25 DR. WRIGHT: I think the evidence as I interpret it is

ILLEGAL DOCUMENT

47 1 that every worker would be protected, 100 percent, in my judgment,
2 would be protected from asbestosis or bronchogenic cancer in
3 terms of this being excess at a level of 5 fibers.

4 You have to bear in mind that bronchogenic cancer is
5 a common kind of cancer. Some workers will still get it, but
6 it will not be in excess, and therefore there is no greater risk
7 for them to get it at the 5 level than if they had never walked
8 into an asbestos-using factory.

9 MR. WOLFE: Since we are dealing with measurement of
10 fibers over 5 microns, and since we are not dealing with the
11 fibers or fibrils which some people think are related to other
12 sorts of disease, can we not assume at least in a number of in-
13 stances that there is, particularly when there are other forms
14 of asbestosis mixed with the chrysotile, that going down, again,
15 below 5, down to 2, would not increase the possibility of protection
16 of workers in some of these other areas?

17 I agree with your idea that it would probably be more
18 adequate to set other standards for these smaller particles,
19 but at this point we have not, and in a sense going down from
20 5 to 2 for greater than 5 micron fibers is also going to reduce
21 the exposure to some other components.

22 Could you comment on that?

23 DR. WRIGHT: Could you rephrase your question so it
24 can get it more clearly?

25 MR. WOLFE: We are dealing only with the greater than

ILLEGIBLE DOCUMENT

48

1 five micron fibers. By lowering this further to 2, for instance,
2 or ultimately down to zero, are we not also decreasing exposure
3 to as yet unmeasured sorts of particles and fibers?

4 MR. WRIGHT: I think you have to look at that in this
5 way, and that is, whatever particles you may have in mind, which
6 we are not now measuring, have been there over this past 40 years
7 in that environment where we have been measuring 5 microns and
8 over particles.

9 There are two ways of looking at this. We do have some
10 documented evidence that the electron microscope size fibers
11 are there in very large numbers in the environment that we now
12 know at the five micron level is a safe level, so far as asbestosis
13 is concerned and bronchogenic cancer are concerned. We know that
14 the fibers have been there since asbestos has been in use.

15 I think this is my way of answering your question, that
16 when we set the light microscope size of 5 microns as being the
17 one we will look at, we are automatically taking care of the
18 EM size fibers, because they have been there all the time.

19 What you would like to know is, is there a direct
20 relationship between the light sized fibers and the EM sized
21 fibers. That is a piece of information we do not have.

22 EXAMINER CORNBURG: Dr. Wright, let me ask you one
23 question. I am asking questions to establish the record. Do I
24 understand you, then, that the measurement of the 5 micron
25 through the light microscope does not establish the consent of the

ILLEGIBLE DOCUMENT

49 1 smaller fibers which would be discovered by the electron microscope?

2 DR. WRIGHT: You are correct. It does not.

3 EXAMINER GOLDBURG: There is no established correlation
4 in content?

5 DR. WRIGHT: Not as yet.

6 MR. SIEGEL: My name is Edward Siegel. I am a member
7 of the American Council of Governmental Industrial Hygienists,
8 and I have a question in regard to Dr. Wright's statement that
9 the ACGIH has said there is no need to lower the standard below
10 5.

11 I am somewhat puzzled by this. I am well familiar
12 with the publication of the LD's, but in the preamble to this,
13 it states that these are only to be used as guidelines. There
14 is no statement that you are not to lower it below this, or
15 raise it above that, for that matter, and I am just wondering
16 if you have received any other pronouncement or letter from NIOSH
17 or on what you base that rather firm figure.

18 DR. WRIGHT: I don't think that what I said is in
19 conflict with what you are saying. You are absolutely correct
20 that the principal underlying the TLV's is that if you want to
21 go below them you can.

22 The suggestion is that you not go above them. The
23 evidence that I had is by personal telephone call, speaking
24 with Dr. Stottelinger, and I have a letter in my possession
25 from Dr. Stottelinger saying that the meeting was held, and they

ILLEGIBLE DOCUMENT

50 1 had considered and saw no reason to change the TLV as it
2 currently stands at 5.

3 MR. SIEGEL: I would say I agree with that, but the
4 preamble to the TLV is not a statement that it should not be
5 above or below.

6 DR. WRIGHT: I have no disagreement with that; if
7 somebody wants to go below it, we are in the business of setting
8 something here which is a PLV.

9 MR. DEGREGORIO: At the very beginning of your pre-
10 sentation you set up certain data of scientific methodology. You
11 expressed a view that in order for a study to be correct, in
12 your judgment the study would have to show an accurate relation-
13 ship between accurate measurements of exposure and the onset of
14 disease.

15 DR. WRIGHT: The level at which the excess begins to
16 occur, yes.

17 MR. DEGREGORIO: You mentioned, also, the possibility
18 that a mixture of asbestos fibers and dust with other agents
19 could affect the study. On that point, am I correct in assuming
20 that you mean that the mixture could either increase or decrease
21 the carcinogenic nature of asbestos fibers?

22 DR. WRIGHT: "Yes", in the quickest way to answer that.

23 MR. DEGREGORIO: Fine. Keep it that way. Now in the
24 light of those criteria or methodologies you have considered as
25 of no value, or no use, and I think those are your words, some

ILLEGIBLE DOCUMENT

51 1 studies made on the relationship of asbestos and disease. You
2 have particularly referred, particularly and repeatedly referred
3 to studies made on insulation workers.

4 Could you please name some of those studies?

5 DR. WRIGHT: Well, I would say that the studies by
6 Cooper, by Salnikoff, by Hares, these come to my mind most
7 quickly. All of them speak of the frequency of occurrence of
8 a biological abnormality, whether it be fibrosis, or whatever.
9 They speak of the frequency of occurrence in the population under
10 study.

11 That is one side of the thing. Not a single one of them
12 rank the severity of the exposure and indicate by such a ranking
13 a comparison to the level at which an excess of these diseases
14 occurs. Not one of them does that.

15 Therefore, they are of no use for the purposes we
16 are sitting here for, namely, setting such a level. That does
17 not mean they are not useful for other things.

18 MR. DEGRESCORIO: What are the things for which they
19 are useful?

20 DR. WRIGHT: To indicate that asbestos is a hazard.

21 MR. DEGRESCORIO: I hope it has more use than that,
22 surely. These physicians do not waste time proving what I assume
23 a lot of people have already concluded long, long ago, that there
24 is a relationship between certain exposures and diseases, so
25 presumably these researchers have tried to prove something more

ILLEGIBLE DOCUMENT

52 1 concrete, more definite than that.

2 Do you know them personally?

3 DR. WRIGHT: I don't know Hares personally.

4 MR. DEGRECORIO: Do you know what they are trying to
5 prove?

6 DR. WRIGHT: I can only react to that in terms of what
7 they write, which I can examine with my own eyes, and my inter-
8 pretation of what they write is what I have said.

9 MR. DEGRECORIO: Do you know what they think the studies
10 prove? I will be more specific. Do you know that these authors
11 you have mentioned, Selnikoff, and Cooper and the others, do
12 you know if any of them believes that his studies or anybody's
13 studies offer good reason to believe that we need a standard
14 lower than 5 fibers to assure the protection of the health of
15 the workers from either asbestosis or lung cancer, or whatever?

16 DR. WRIGHT: I can only assume from what I have heard
17 Dr. Selnikoff say that he believes this should be below 5.
18 There are times when he says it should be below 2. This I have
19 heard him say. That is a long way from saying he has the evidence
20 to demonstrate that that is necessary.

21 MR. DEGRECORIO: Do you think Dr. Selnikoff is a
22 competent worker in the field?

23 EXAMINER COLLEURG: I will sustain my own objection
24 to that question.

25 MR. DEGRECORIO: Would you say, then, on the basis

ILLEGIBLE DOCUMENT

53 1 of your last answer, would you say there is a difference of
2 opinion among the experts in the area, a difference of opinion
3 as to whether something less than five fibers standard is neces-
4 sary to protect the health of workers?

5 DR. WRIGHT: I would like you to leave out the term
6 "expert", because that requires me to say who is expert, and
7 I don't intend to do that. But there is a difference of opinion.
8 That is quite clear.

9 MR. DESEROGIO: Dr. Wright, you have stressed the
10 importance of peaks. During two days of hearings, cumulative
11 experience has also been stressed as important in producing
12 certain diseases.

13 Could you tell us if the cumulative experience is also
14 an important factor to consider?

15 DR. WRIGHT: There is a very scant evidence on this.
16 There is some to suggest, and perhaps Dr. McDonald will refer to
17 this, that if you take dose only, and no time, and this would be
18 what you are talking about, an accumulated dose, that there is
19 a relationship between the excess of all pulmonary fibrosis and
20 dose, but it appears at times equally important, and perhaps
21 it even overcomes this in some circumstances.

22 ~~Now, my own belief would be that you must have at least~~
23 some dose. It is hard to believe that you could operate without
24 having some quantity accumulating, but to say that the quantity
25 in the lung of necessity is the controlling factor as to what

ILLEGIBLE DOCUMENT

54 1 would happen later on, I don't think one could say that and
2 substantiate it.

3 It is one of the factors. It takes that, plus time.
4 I don't know whether I answered your question. You see, peaks,
5 you have mentioned something about peaks, and they enter into
6 the dose.

7 MR. DEGRECORIO: Yes, of course.

8 DR. WRIGHT: Because, as you know, you take any amount
9 of material and you, within the next hour or two, you get rid
10 of a large amount of it. It does not stay in the lung. There is
11 a cleansing mechanism in the lung. Now, the peak doses, and I
12 use the word "may" very advisably, because I don't know this,
13 but it is possible the peak doses may overwhelm the cleansing
14 mechanism and therefore you might retain more from peak doses
15 than from lower sustaining doses.

16 It is for this reason that I think peak doses may even
17 be more important than the time weighted averages.

18 MR. DEGRECORIO: I have heard said, in fact I have
19 seen it written, that there are differences, observable, in the
20 health experience of workers in mining and milling and workers
21 in other occupations.

22 I think you mentioned more or less the same thing
23 when you referred to inoculation. Do you believe that?

24 DR. WRIGHT: Yes, I believe it. The evidence indicates
25 that.

ILLEGIBLE DOCUMENT

MR. DEGREGORIO: Do you know why it happens?

DR. WRIGHT: Well, I touched on that in my testimony.

I said it was a matter that was unresolved. I think that in mining and milling you have less opportunity for exposure to other things simultaneously, and furthermore, the geometry of the fibers may be different, because fibrous bundles, as you handle them, tend to break lengthwise and split longitudinally. So the more the fiber is handled, the more opportunity there is in the handling of the fiber to have it become smaller and smaller.

The chrysotile fiber in many instances is a curly fiber, which, although its diameter let's say is of a certain dimension, by the time you put the curl in it, it is much broader, and therefore it gets intercepted on the mucociliary cleansing mechanism and then comes out.

There are animal experiments that show that if you expose animals to curly chrysotile, the fibers retained are 1 than if you exposed them to straight crocidolite.

So there are reasons you might use to explain the differences between the miner and the insulation worker.

MR. DEGREGORIO: We have made a distinction, then, between mining and milling and the insulation workers. Do you know of any other differences observed by yourself or others among insulation workers and workers, say, engaged in manufacturing?

DR. WRIGHT: The data that is in the literature would suggest that the textile workers, at least, as reported by Dr. Newhouse, have about the same biological experiences as the

56 1 insulation workers have.

2 The textile workers that have been reported thus far
3 by Dr. Knox I don't think would have quite the same. They would
4 be a little less severe. When you look at these, that is about
5 all there is in the literature to look at in terms of published
6 data that you can examine and make your own mind up about.

7 In contrast are the mining and milling experiences,
8 the experiences in Italy, the Cyprus experience reported by
9 Gillespie, and so forth.

10 The chrysotile experiences of these people are quite
11 concordant, and all speak to the finding that the biological
12 effects have been far less severe in mining than in manufacturing.

13 MR. DEGREDDO: That seems to me a very important
14 thing to consider because that seems to caution, at least, to
15 caution us in applying results of studies in mining and milling
16 to workers engaged in those occupations, doesn't it?

17 DR. WRIGHT: I would agree with you whole heartedly.
18 The only study that, to my mind, would go against this is the
19 underlying data which suggests that at least so far as broncho-
20 genic cancer is concerned, the requirement to develop it is that
21 the exposures are quite heavy, and the studies in England which
22 have led them to believe that the exposure must be heavy enough
23 to have at least produced asbestosis before there is an excess
24 of bronchogenic cancer.

25 This does not apply at all to mesothelioma, to that

ILLUSTRATION DOCUMENT

57

1 question.

2 MR. DEGREGORIO: I won't even keep you long. There
3 is one thing you said which is very important before these
4 proceedings, and I want to ask you questions about that.

5 You have said that there is evidence, to your mind,
6 that we need not go below 5 in order to protect the health of
7 workers. In support of that conclusion, you have mentioned the
8 study by McDonald in Canada, which I understood was made on
9 mining workers.

10 DR. WRIGHT: Mines and mills.

11 MR. DEGREGORIO: But your conclusion applies across
12 the board, because we are considering a standard to all workers
13 across the board.

14 DR. WRIGHT: I included Dr. Heterdicke's study,
15 which is on manufacturing.

16 MR. DEGREGORIO: Right, yes.

17 Now, what I would like to find out is this: Do these
18 studies which you mentioned prove that somehow that certain types
19 of groups under observation, that no adverse effect has been shown
20 to result from certain exposures, or do they really prove, to
21 your mind, that such exposures, or similar exposures, will not
22 result in adverse biological effects in other groups in general?

23 In other words, what I am driving at is this: Can
24 we generalize from these results and apply these results to other
25 groups apart from the question of the differences we have come?

ILLEGIBLE DOCUMENT

58

1 DR. WRIGHT: Well, your question is an extremely
2 important one, and a very appropriate one. I used the term
3 "first approximation" and I used that advisedly. It should
4 imply very strongly that we don't have all of the evidence neces-
5 sary to be adamant about all circumstances.

6 What I am saying is that we are here faced with the
7 problem of having to do something, and we must therefore deal
8 with what we have available to do something with, and the evidence
9 that I have cited includes mining and milling, it includes at
10 least one study of manufacturing, and the data seem strong enough
11 so that in my mind I believe, well, when taken in conjunction
12 with one thing that you may not think is very scientific, and
13 I hope you will permit me one lapse, when you think of the argument
14 these people operated under in the years when they were having
15 exposures that caused the disease they are now evidencing --
16 you see, we have no information on people exposed only in the
17 last ten years, and we won't have it for some period of time.
18 because it takes time to develop whatever is going to happen --
19 If you put those studies together with the fact that we have
20 an enormous radiation, and I think I am as compassionate as what
21 in my judgment we don't need to go below 5 until we have more
22 evidence to suggest that we should.

23 That is what is meant by "first approximation."

24 Well, when more evidence comes to bear, I think any
25 open minded person would be perfectly willing to accept new

ILLEGIBLE DOCUMENT

59 1 evidence, but on the basis of the evidence we currently have,
2 and there is one other thing I say that in my mind is so impor-
3 tant, and I think we are not subjecting individuals who will
4 work under those circumstances to an excess risk of getting
5 pulmonary fibrosis or bronchogenic cancer.

6 I made it clear that I am not in a position at this
7 moment to express an opinion in terms of numbers with respect
8 to mesothelioma. The route I have gone here is that I would
9 suggest a more stringent control of crocidolite and amosite,
10 because this seems to be the kind of asbestos that is associated
11 most strongly with excess mesothelioma.

12 I would recommend a more stringent control, of these
13 two items.

14 MR. DEGRECORIO: What about chrysotile?

15 DR. WRIGHT: I would not include chrysotile, because
16 we have evidence that the increase in mesothelioma is very,
17 very low, and in some studies non-existent, with chrysotile. When
18 you come to pure chrysotile manufacturing exposures, I would like
19 to say we have essentially no numbers, no data. They will be
20 coming within the next two or three years, because there are
21 studies underway at the present moment that should develop that
22 kind of information.

23 It is hard to find a pure chrysotile exposure, except
24 in mining and milling. I have sought diligently for a pure
25 chrysotile exposure in manufacturing. I know of only four in the

60 1 entire world. I have not been able to persuade one to undertake
2 studies in those places. That would be extremely important.

3 Pure amosite, I think perhaps Dr. Selnikoff's study
4 at the Paterson plant, and I could be corrected on that, but I
5 think it was essentially pure amosite, and that should bring out
6 some very useful information, provided he can construct something
7 about the intensity of past exposure.

8 That is essential. It can be the intensity of the
9 exposure or the nature of the material, and you must know both
10 of those factors before you can incriminate one or the other.

11 If you want to say that it is amosite that is the
12 harmful material, you must also prove then that it occurred in
13 an exposure which was low enough not to do it with other materials.
14 So it gets to be very complicated. I don't know whether I answer
15 your question.

16 MR. DEGRESCORIO: Yes, you did, and I thank you very
17 much.

18 MR. EATON: I have a few short questions. You did
19 recommend the 5 fiber standard.

20 DR. WRIGHT: Yes.

21 MR. EATON: While you did not go into engineering
22 controls, is that the method you would suggest to control to a
23 5 fiber level?

24 Generally speaking, I mean?

25 DR. WRIGHT: Yes. I think that -- I am trying to think
back.

ILLEGIBLE DOCUMENT

51 1 I don't know of any other way to do it.

2 MR. SARLE: Are the engineering controls currently
3 in use designed specifically to lower the exposure level only
4 to 5 fibers, and not less?

5 DR. WRIGHT: Well, I can tell you that from my knowledge
6 there are circumstances where the engineering and the performance
7 has gotten the fiber count below 5. It has gotten it down to
8 2, and there are some occupations and circumstances where I
9 think it is under 2. But there are still many places where it
10 has been -- it has not even achieved 5 -- and strong efforts will
11 have to be made to get it to 5.

12 The other thing that I think should be pointed out
13 is that when we set numbers, and this is, I think, comparable
14 to the spirit which the British regulations run in, when we
15 set a number, let's say, of 5, it means that an operator will
16 have to work at 3.

17 Otherwise, he is going to be out of compliance very
18 frequently, because you never stay right at 3. You go either
19 side of 3. Some of it will fall in 2 or 3 and 3 ranges, and
20 some a month later if the weather is somewhat different or
21 if some other factor is different, he could be back in 2, or 3.

22 If you set it at 1, he has to operate at 1, or 2 or
23 lower. I have to declare that to give him his margin of safety,
24 he will not be out of compliance.

25 The British attitude is a little different, I think.

ILLEGIBLE DOCUMENT

62 1 They look at it, what it is at the moment, and then
2 give you some leeway as to how you work, based on what is going
3 on and what the risks are. To get back to your question, I
4 think engineering is the way to get there, and I also think that
5 there are circumstances where it is below 5, and I don't know
6 anyone who wouldn't encourage people to go below 5. This is easy
7 to do. The concern is that if you put a limit that is unnecessary,
8 you will run the risk of making some parts of the industry not
9 be able to comply, and you will be asking them to comply unna-
10 turally, which I don't think anyone wants to do.

11 MR. BATTLE: You also mentioned earlier in your
12 statement that perhaps there was some element of mix of other
13 substances in the exposure factor, and I am sure you are aware
14 that we are attempting to deal with other exposures.

15 In light of the fact that each time we deal with a
16 toxic substance, or a harmful substance we are going to have
17 the mix of other substances perhaps leads to the toxicity
18 of this particular substance, do you propose that we defer, then,
19 anything in your statement? Do you see this as an illogical
20 position on our part?

21 MR. CRICHTON: No, I think that what would be logical
22 would be to have a series of laws to govern the toxic subjects, in
23 order to know the biological element is. That is down the road to
24 the substances.

25 I do not see the concept that it is mixed.

ILLEGIBLE DOCUMENT

1 exposures that do things, especially in carcinogenesis. When
2 you use a pure agent, sometimes nothing happens, when you combine
3 agents, something does happen.

4 This is the real world. What you strive to do, of
5 course, is that you know the agents that are involved, and these
6 are the ones you try to control. When you don't know the agents,
7 you are not in a position really to do the control.

8 MR. EARLE: But you would agree to attempt to learn as
9 much as possible about all of them as -- and approach them one
10 at a time so interested parties such as yourself have an oppor-
11 tunity to speak to their particular interest.

12 DR. WRIGHT: Of course, that is a logical approach,
13 and a very logical and long, hard and tedious one.

14 MR. EARLE: Agreed.

15 EXAMINER GOLDBURG: Is there any evidence at this
16 time as to the effect of any other substances combined with tobacco?

17 DR. WRIGHT: Well, yes, if you will permit me, I will
18 do it briefly. There are the striking data that Dr. Selikoff
19 has, in which, if he excludes the cigarette smokers, the excess of
20 bronchogenic cancer virtually vanishes. This can be thought to be
21 a premature conclusion in the sense that the numbers involved in
22 the non smoking group are really quite small.

23 Nevertheless, because the excess is quite high, in the
24 fact, I think the small number is significant. So that is one
25 thing. Cigarette smoking, which is an -- accepted in the medical

54 1 world mostly --- there are a few people who don't agree --
 2 butmost of the people who look at the scientific data would say
 3 there is something which relates cigarette smoking to excessive
 4 lung cancer.

5 When you come to looking at trace material, you take
 6 asbestos out of the earth in its raw state and from that time
 7 on you handle it mechanically. You start with certain things
 8 that are present in the virgin fiber and then you keep adding
 9 things to it, and you add some things which are known carcinogens
 10 -- nickel, for example-- it takes a very hard steel to, especially
 11 with thecidolite, to make it into a form you can use.

12 So you have the problem of trace metals attached to
 13 fibers, and there is some scientific evidence to support the
 14 idea that these trace metals may indeed play almost, if not the
 15 controlling role. and if we learn that, then, of course you
 16 handle that situation by saying, "Don't process your fiber with
 17 a material such as nickel."

18 I am using this as an example only. There is even
 19 some evidence which has not been published as yet, but I have
 20 been privy to see it, in which it appears some trace metals
 21 act as suppressants. You ask are there mixed agents that make
 22 you have less chance of malignancy. There is some evidence that
 23 this is true, that there are suppressants.

24 There is the whole question of what do other hydrocarbons
 25 which could exist besides those that are in cigarette smoke.

ILLEGIBLE DOCUMENT

65

1 We know the hydrocarbons are carcinogenic in their
2 own right, and when you begin to have incompletely burned
3 materials, then you form some of these hydrocarbons, and they
4 can be absorbed by asbestos. It is a fairly good absorber, and
5 can be carried on and held inside the lungs.

6 So there are bits and pieces, the most dramatic, I
7 think, is Dr. Sejnikoff's experience.

8 EXAMINER GOLDBURG: I was thinking in products used
9 in the industry processing. Let me ask you an elemental question
10 which I don't think has been developed on the record. I guess
11 it has been assumed by everyone who has appeared here. There
12 seems to be a general consensus that a fiber level must be
13 established in the asbestos industry. It appears that this is
14 based on empirical study as to the effect of the ingestion of
15 asbestos fibers over periods of time in quantity, and there is
16 dispute as to how much of a period of time and the number of
17 quantities.

18 Can you tell us what is the peculiar nature of asbestos
19 the asbestos fiber, as compared to other fibers which are present
20 in the industrial establishments which are ingested by workers
21 over a similar work life period in equal or greater quantity?

22 What is the peculiar property of asbestos which makes
23 it carcinogenic when other fibers are not?

24 DR. WAXLER: I was going to answer your question until
25 the last week, and then I would have to say I don't know what

ILLEGIBLE DOCUMENT

66

1 makes it carcinogenic. For fibrogenesis, making scars in the lung,
2 we have some observations which don't lead to a final definitive
3 conclusion of the kind you would like. Just let me say that I
4 don't know about the carcinogenesis end of it.

5 There are data including some going on at the present
6 time in my own laboratory, because I am looking specifically at
7 the question of what is the relationship between the geometry of
8 a fiber and the biological reaction in terms of scar or fibrosis,
9 and one thing that is clear, you have to have a fiber that can
10 be inhaled, and retained.

11 Because something does not happen even very abruptly. It
12 takes time, and it also takes some amount, that is, there has to
13 be a volume of the material present. I have animal lungs that
14 you could look at where you can see one fiber, and no reaction,
15 and in another place in the lung if there are 15 or 20 fibers,
16 there will be a reaction.

17 It looks as though one thing that has to happen is
18 that you must have numbers. It must, of course, get there and
19 stay there long enough for something to happen. There are some
20 fibers that are curly that fall out high in the air tubes, and
21 you swallow them or cough them up.

22 Let's say they get in. Fibers that are small enough
23 to go into a cell which is called a macrophage, which is like
24 a big eater. It is a cell which has the ability to engulf all
25 kinds of things.

UNCLASSIFIED DOCUMENT

67 1

2 If the fiber is short enough or flexible enough to
 3 be taken into this single cell, or into a complex of half dozen
 4 of these cells, it appears on the basis of what I know about
 5 it that such fibers are neutralized and don't do anything. They
 6 sit there surrounded by cells so to speak. That is quite in
 7 contrast with what happens with particles where the problem is
 8 the reverse.

9 The cell is killed by the free crystalline silica.
 10 This is not true in the data that I know of with respect to
 11 asbestos fibers. When the asbestos fiber is long enough to not
 12 be totally engulfed, it appears that then this is the size fiber
 13 that does cause the fibrous tissue.

14 How does it do it? I haven't the answer. There are
 15 people who are looking at whether it is a chemical reaction be-
 16 tween the surface of the fibers, or whether it is the fact that
 17 you have a long structure sitting there which can act as a
 18 physical irritant.

19 I don't think we are in a position to begin to answer
 20 that. But I do think we have on the basis of experiments that
 21 others have done, on the basis of experiments that I know of
 22 that are going on now, short fibers, less than 5 microns long,
 23 they do not cause fibrosis in the lung.

24 ~~The fibers must be longer than that, and that is of~~
 25 importance to us. Our standards are expressed in terms of fibers
 longer than 5. That only goes to fibrosis. I have no comment
 about carcinogenesis.

68 1 EXAMINER GOLDBURG: Thank you very much.

2 MR. BRODEUR: Dr. Wright, you stated that a standard
3 of 5 fibers per cubic centimeter would be sufficient and it
4 would not be necessary to go lower than that. In describing
5 standards that existed previous to that, you mentioned that
6 the recent standard which had been in effect for about 30 years
7 previous to 1968 was the equivalent of 30 fibers cubic centimeter.

8 You have told us during that time you worked on asbestos
9 disease and related pneumoconiosis at Saranac Lake, and since
10 1953 in a Department of Saint Luke's Hospital.

11 I wanted to ask you, in those 30 years in which there
12 was a standard in effect, did you at any time publish recommen-
13 dations in any reports to lower that standard?

14 DR. WRIGHT: No.

15 MR. BRODEUR: Subsequent to 1968 when a standard
16 was an inadequate standard and was lowered to 12 fibers per cubic
17 centimeter, did you between 1968 and the present time, or say
18 last December when OSHA took up the emergency standard of five
19 fibers, did you at any time publish recommendations that the 12
20 fibers per cubic centimeter be lowered?

21 DR. WRIGHT: No.

22 MR. BRODEUR: What I would like to know is, do you
23 feel the 5 fibers per cubic centimeter is exactly the right
24 level, or would you revise it up, down, or in between, sir? I
25 would -- I know you wouldn't revise it down, but where are

ALL INFORMATION CONTAINED
HEREIN IS UNCLASSIFIED

69

1 you as far as what you feel would be safe?

2 DR. WRIGHT: I am right on the 5.

3 MR. BRODNEUR: Thank you, sir.

4 MR. ST. LAURENT: My name is Yves St. Laurant.

5 Dr. Wright, you were at Saranac way back in the 1930's, am I
6 right?

7 DR. WRIGHT: Well, the late 1930's.

8 MR. ST. LAURENT: The director, the most important
9 director of research work then was Dr. Garten?

10 DR. WRIGHT: He was director, and I considered him
11 an important man.

12 MR. ST. LAURENT: His first works were published
13 in 1931 with comments on inhalation of asbestos dust and the
14 experimental studies on pneumoconiosis -- 1931.

15 DR. WRIGHT: You have reviewed it more recently than
16 I have. I will accept your 1931 date.

17 MR. ST. LAURENT: And in the years up to his death
18 he was very closely assigned, to your personal knowledge I ask,
19 to the problem relating to dust in our mines of Quebec Province,
20 where I am from?

21 DR. WRIGHT: Yes, he was.

22 MR. ST. LAURENT: There are the 1930's when which
23 were the object of the studies of Professor McDonald of McGill
24 University, who was here today, am I right?

25 DR. WRIGHT: Yes.

ALL INFORMATION CONTAINED HEREIN IS UNCLASSIFIED

70 1 MR. ST. LAURANT: Do these mines constitute, according
2 to your knowledge, a reservoir that has been supplying the
3 free world up to 85 or 90 percent of the crystals for the last
4 40 or 50 years, although mining started up there a century ago?

5 DR. WRIGHT: I understand that the proportion of the
6 free world supply of asbestos is mined there.

7 MR. ST. LAURANT: Did I understand you rightly when
8 you stressed it seemed to be a paramount, if not the paramount
9 study, at least as to mining, in connection with pure chrysotile
10 asbestos?

11 DR. WRIGHT: Yes.

12 MR. ST. LAURANT: Did I hear you say that Mr. McDonald
13 reported that the incidence of bronchogenic cancer there did
14 not seem to be in excess of the rate affecting the population
15 at large?

16 DR. WRIGHT: I did not say that, but I understand that
17 the study showed that.

18 MR. ST. LAURANT: Are you aware, Dr. Wright, that you
19 are considered to be the top consultant in the field in my
20 opinion? Are you aware that there were studies at Saranac Lake
21 time to time such as the Wexler and Brown study? Brown is an
22 old Walden man, I think. These dealt with the incidence of
23 cancer in the asbestos belt, I would call it, across Quebec, and
24 that this study did also point -- that was in 1954 or 1955 -- did
25 point out that the incidence of cancer did not seem to be in

ILLEGIBLE DOCUMENT

71 1 excess, maybe not in a substantial portion anyhow, to that
2 existing in the general population?

3 DR. WRIGHT: That is the substance of the Brown report.

4 MR. ST. LAURANT: Are you aware of the Metropolitan
5 Life ---

6 MR. EARLE: May he answer?

7 DR. WRIGHT: I don't believe the Brown-Truxin study
8 is the Saranac Lake study. I gather from what you said that you
9 were inferring that it was.

10 MR. ST. LAURANT: No, it was an Industrial Hygiene
11 Foundation study. I am sorry, sir. I should like to respectfully
12 ask you if you are aware, also, that the Metropolitan Laboratory
13 conducted an independent study under George Levy, who is now
14 vice president, and I am speaking about in the 1940's, the same
15 asbestos belt of Quebec, as to the incidence of tuberculous or
16 pulmonary conditions in Quebec and they found as to tuberculous
17 that the incidence was that of about the general population as
18 large?

19 MR. EARLE: Mr. Examiner, with all due respect to our
20 visitor from Canada, if he does wish to testify, we would like
21 him to take the stand so that we may have an opportunity to question
22 him about those studies.

23 MR. ST. LAURANT: I don't think I should testify, but
24 maybe I would be allowed to put one or two more questions in
25 to underscore the importance of the names, because we speak of

IN EXHIBIT DOCUMENT

72 1 name of Professor Gilson, and Wagner, who have reported as to
2 important data in connection with the problem now under con-
3 sideration.

4 Gilson, is that the Gilson that I know, that you know,
5 who is in charge of the pneumoconiosis research bureau in Great
6 Britain?

7 DR. WRIGHT: Yes.

8 EXAMINER GOLDBURG: I am going to cut you off on this,
9 sir. You are testifying, not asking questions.

10 MR. ST. LAURANT: I am guilty.

11 EXAMINER GOLDBURG: I would seek to save you from
12 sin, sir.

13 (Laughter)

14 EXAMINER GOLDBURG: Is there anything farther of this
15 witness? Thank you, Dr. Wright. You have been very helpful.

16 Off the record.

17 (Discussion off the record)

18 EXAMINER GOLDBURG: We will recess.

19 (Whereupon, a brief recess was taken.)
20
21
22
23
24
25

73

EXAMINER GOLDBURG: Ladies and Gentlemen, may we resume. We will have the next witness.

MR. PUNDSACK: Our next witness is Dr. Thomas H. Davidson.

STATEMENT OF DR. THOMAS H. DAVIDSON, CORPORATE
MEDICAL DIRECTOR, JOHNS-MANVILLE CORPORATION

Dr. Davidson. Mr. Chairman, my name is Dr. Thomas H. Davidson, I am an M. D., a graduate of Northwestern University School of Medicine, and certified by the American Board of Preventive Medicine in Occupational Medicine.

I am also a member of a number of Industrial or Occupational Medical Organizations which include being a Fellow of the Industrial Medical Association, a member of the American Academy of Occupational Medicine, a Fellow of the American College of Preventive Medicine, and a Fellow of the American College of Chest Physicians. I am and have been involved in directing the medical programs for Johns-Manville Corporation for eight years at a major manufacturing location in Wenhegan, Illinois and for the last two years as the Corporate Medical Director.

Because of long involvement and basic interest in the occupational health problems of employees working with asbestos or asbestos containing materials, I appreciate the opportunity of making comment with regard to the provisions of the medical portions of the existing OSHA Emergency Standards and those presently being proposed as Permanent Standards.

74 1

2 There is certainly no disagreement among physicians
3 such as myself who have had the opportunity of performing and
4 directing occupational periodic examination and health mainten-
5 ance programs for many years, of the value of comprehensive
6 periodic physical examinations and attendant medical tests and
7 procedures.

8 Many of the proposed provisions for examinations and
9 procedures have long been incorporated in our company's medical
10 programs.

11 I would, however, like to comment on certain specifics
12 contained in the existing Emergency Standards of January 12, 1972,
13 those proposed standards in the NIOSH Criteria Document, and
14 those recommendations regarding here the Proposed Standards for
15 exposure to asbestos submitted by the Advisory Committee, dated
16 February 25, 1972.

17 In the January 12, 1972 standard for asbestos dust
18 section (g), Medical Examinations, it states that "The Employer
19 shall provide, or make available at his cost, appropriate
20 medical examinations..." In the mining and manufacturing type of
21 operations that I have been associated with, the employer has for
22 many years assumed this responsibility.

23 This is both reasonable and feasible for our type of
24 operation. I recommend this provision to make a part of the
25 Federal Standards. This is a necessary feature to enable the
26 employer to fulfill his obligation in providing for appropriate

75 1 respirator use, job placement, maintenance of medical records
2 and other requirements of the proposed asbestos standards.

3 I would next like to comment with regard to the
4 selection of those employees who would be provided such medical
5 examinations. Under the Emergency Standards of January 12, 1972,
6 section (g), employees exposed above the currently recommended
7 threshold limit value (TLV) are to be examined.

8 Based on my experience with mining and manufacturing
9 it is my opinion that the criteria for the selection of those
10 employees to be examined is logically directed at those that have
11 a work exposure above the recommended threshold limit values.

12 Under the NIOSH recommendations however, that
13 selection is designated as those employees exposed to above 1
14 fiber per cc or peaks above 5 fibers. I see no need for special
15 examination procedures for employees working under a threshold
16 limit value that is considered hazard free under these standards.

17 It is therefore my recommendation that the criteria
18 for the selection of those employees to be examined be that
19 contained in section (g) of the Emergency Standards of January
20 12, 1972.

21 With reference to the frequency of the examinations
22 on a periodic basis, I note that the Emergency Standard of

23 section (g) prescribes only "on a periodic basis". Both NIOSH
24 (a) in the NIOSH Advisory Committee Report and Section 2 of the
25 NIOSH document recommend an annual examination for employees who

ILLEGIBLE DOCUMENT

76

1 either a history of ten or more years of exposure or such positive
2 findings and an examination every two years for workers with less
3 than ten years exposure. We endorse those recommendations subject
4 to the exposure limits I have just commented upon.

5

Regarding the content of the Medical Examinations
6 it is noted that the Emergency Standard simply indicates,
7 "appropriate medical examinations." The NIOSH Criteria Document
8 and the Advisory Committee report recommend specific examination
9 procedures.

10

Based on my personal experience performing and directing
11 such examination programs, those recommendations of a 14 x 17
12 chest x-ray, spirometry, including FVC and FEV 1, and a compre-
13 hensive medical history, to include smoking habits and counseling
14 that smoking shall be discouraged, and a general comprehensive
15 physical examination are certainly all well taken.

16

Such examination procedures have been performed for
17 many years by the Johns-Manville Corporation. I would endorse
18 all of those recommendations for the scope of the examination.

19

I would like to express the following objections to
20 other items of the examination recommendations. The Advisory
21 Committee recommendations under Paragraph (h), sub-paragraph

22

(ii), requires "a questionnaire for the presence and degree of

23

respiratory symptoms..." Since there is no generally accepted

24

questionnaire, and since this information will be included in

25

the usual comprehensive medical history taken at the time of the

ILLEGIBLE DOCUMENT

77 1 examination, I recommend that no questionnaire be required as part
2 of the standards.

3 With regard to the provision for cytology examination
4 as included in the committee recommendations this same paragraph
5 (h), subparagraph (ii), I strongly urge that such a provision
6 for cytology examinations not be included at this time. At this
7 stage of the knowledge regarding the evaluation of sputum cytology
8 examinations, they would not permit a useful evaluation of such
9 findings as atypical cells.

10 These are generally recognized to be frequently of
11 obscure etiology and significance. Since atypical cells may be
12 frequently found among smokers and other individuals subject to
13 chronic respiratory and inflammatory conditions, completely apart
14 from occupational dust exposures, the responsibility for follow
15 up of such findings could not logically be assigned under the
16 provisions for these asbestos standards.

17 Of particular importance to me as a physician are
18 several important questions that must be considered. What con
19 ditions are to be incorporated for the handling of these
20 individuals that show atypical cells, the etiology of which is
21 obscure?

22 The question of their continued employment with asbestos
23 will be a major concern. Where does the responsibility lie for further invest
24 gative procedures, such as bronchoscopy, biopsy, etc? Further
25 research must be undertaken to develop the significance of such

ILLEGIBLE DOCUMENT

1 findings associated with asbestos exposure. My recommendation
2 is that these procedures not be included until the body of
3 knowledge in this area is more specific.

4 Both Pre-Employment Physical Examinations and
5 Termination Examinations are provided for in the NIOSH Criteria
6 Document and the Advisory Committee report. While we concur in
7 the recommendation for the pre-employment physical examinations
8 it is felt that a provision for a Termination Examination may
9 prove to be medically unnecessary and administratively not
10 feasible.

11 I draw your attention to the situation of employees
12 terminating their employment without any prior notice to their
13 employers and therefore affording no opportunity for compliance
14 of the employer. The employer would have substantial difficulty
15 in scheduling or arranging for examinations and would have no
16 legal authority to require an employee having left employment
17 to return for such an examination.

18 Medically it is felt that the provisions for the
19 periodic examinations of employees under one or two year intervals
20 required by the standards will provide an employee with a current
21 medical status evaluation. This additional examination procedure
22 is therefore unnecessary.

23 My final comments are with regard to the handling of
24 the medical records as they involve the area of confidentiality.
25 The release of such personal records to any governmental agency,

79 1 their designates, or other medical consultants, and physicians
2 would be only upon the authorization of the employee/patient.

3 This is a basic standard of medical practice and
4 ethics. This point of confidentiality has always been one of
5 concern to we occupational physicians, since an employee's medical
6 records will contain information completely unrelated to his
7 occupational experience.

8 Therefore, provisions under these standards must
9 specifically preserve this right of the employee/patient. It
10 is therefore my recommendation that Section (h), Subsection
11 of the Emergency Standards of January 12, 1972, be changed to
12 read as follows:

13 "The records of medical examinations shall be made
14 available only upon authorization by the employee.

15 to the Secretary of Labor, to the Secretary of
16 Health, Education and Welfare, to designated
17 representatives of either of them or to the other
18 physicians designated by the employee."

19 As you can see, Mr. Goldberg, we strongly endorse
20 the sound and comprehensive medical maintenance programs for
21 employees under the provisions of these standards with the above
22 mentioned exceptions and recommendations.

23 Thank you, Mr. Chairman, for the opportunity of
24 addressing this hearing.

25 EXAMINER GOLDBERG: Thank you, Dr. Davidson. You are
excused.

ILLEGIBLE DOCUMENT

80

1 MR. PUNDSACK: Our next witness is E. M. Fenner.

2 STATEMENT OF MR. E. M. FENNER, DIRECTOR OF

3 ENVIRONMENTAL CONTROL, JOHNS-MANVILLE CORPORATION

4 Mr. Fenner. I am Edmund M. Fenner. Director of
5 Environmental Control for the Johns-Manville Corporation. I am
6 a graduate mechanical engineer and a licensed professional engineer.
7 I have 31 years of experience in the asbestos industry.

8 The Johns-Manville Corporation in 1958 established
9 four industrial hygiene laboratories, one each in New Jersey,
10 Illinois, California, and Quebec, Canada. These facilities presently
11 are staffed by 20 professional people. Industrial hygiene
12 surveys have been performed within our company for over 30
13 years.

14 Most of our hygienists have received the supplementary
15 training offered by the U. S. Public Health Service. For over
16 3 years, we have been using the membrane filter method recommended
17 by the National Institute of Occupational Safety and Health for
18 monitoring airborne asbestos fiber in our plants.

19 We believe that Johns-Manville has more experience
20 and more expertise in evaluation of asbestos fiber dust levels
21 than any other industrial, academic or governmental group.

22 The comments I will give concerning the proposed OSHA
23 standards for asbestos are based upon our collective corporate
24 experience of many years.

25 They are directed in support of the Emergency Standard

ILLEGIBLE DOCUMENT

81 1 TLV of five fibers per milliliter. I will discuss five major
2 areas as presented in the NIOSH criteria for the proposed stan-
3 dards, in the advisory committee recommendations, and in the
4 Emergency Standard itself.

5 The five areas are monitoring, engineering methods,
6 work practices, signs, and protective devices. The first para-
7 of the NIOSH criteria document states, "This standard is
8 amenable to techniques that are valid, reproducible and available
9 to industry and governmental agencies."

10 We believe this sentence refers to both monitoring
11 and engineering methods. While we concede that the monitoring
12 methods as outlined in appendix 1 of the NIOSH document are
13 valid, we cannot agree that they are reproducible nor that they
14 are reasonably available to industry at any time. Some reproduc-
15 ibility of monitoring results at fiber levels of 10 to 15 f
16 per milliliter is possible but our experience has shown that
17 reproducible results in the 2 to 3 fibers per milliliter
18 range are very difficult to obtain.

19 Appendix 1 of the NIOSH criteria package contains
20 a theoretical demonstration of the accuracy of the analysis
21 including confidence limits. We do not dispute these, but we
22 do point out that the accuracy of the analysis is heavily de-
23 pendent upon human judgment, and the visual acuity of the technician.

24 At the low levels of 1 to 3 fibers per milliliter,
25 even a small variation in technique may cause an erroneous result.

82

1

2 Additionally, we understand that the enforcement
3 of the standard will be such that any fiber dust level above
4 the TLV of 5 fibers per milliliter, such as 5.1 fibers per
5 milliliter, will be held to be a serious violation.

5

6 Appendix 1, air sampling methods, of the NIOSH
7 criteria documents states that 95 percent confidence limits
8 the analysis technique would be plus or minus 20 percent. We
9 recommend that the OSHA enforcement practices include provisions
10 that take into account every variability when considering a
11 citation.

11

12 While monitoring facilities and personnel are readily
13 available to Johns-Manville, they are not at this time available
14 to the thousands of other asbestos users. OSHA's own staffing
15 problems will attest to the shortage of trained industrial
16 hygienists.

16

17 Mr. Goldberg, at this time, at this point in time, in
18 the interests of time, I would like to conclude my verbal
19 testimony. However, I request that all my written comments on
20 monitoring, engineering methods, work practices, signs and
21 personal protective devices be included in the written transcript
22 of the official record of this hearing.

22

23 Q. Now, Mr. Goldberg, do you have a copy of the transcript?
24 A. Yes, I do.

24

25 Q. Now, Mr. Goldberg, do you have a copy of the transcript?

25

26 A. Yes, I do.

ILLEGIBLE DOCUMENT

83 1 marked Exhibit 41.

2 (The document referred to was marked
3 for identification as Exhibit 41 and
4 was received in evidence)

5 EXAMINER GOLDBURG: It is received in evidence.

6 May Mr. Fenner be excused?

7 Mr. Steckler.

8 MR. STECKLER: Mr. Fenner, Two questions. Number 1.
9 if those services for monitoring and analysis are available to
10 the thousands of users, could you give us some idea what the
11 cost to those users for the service would be?

12 MR. FENNER: Well ---

13 MR. STECKLER: Could you give us a brief idea of what
14 it may cost?

15 MR. FENNER: It is my understanding that most concerns
16 engaged in this practice charge between 250 and 300 dollars a
17 man day.

18 MR. STECKLER: If you want to do your own sampling
19 and merely have the sample analyzed on a private laboratory,
20 what would the cost per analysis be, please?

21 Approximately?

22 MR. FENNER: 15 to 20 dollars per sample.

23 MR. STECKLER: Thank you, sir.

24 MR. GOLDBURG: Very good, I don't have any more questions.

25 MR. FENNER: Thank you, sir. I will have that exhibit removed.

XXXX
ALL INFORMATION CONTAINED
HEREIN IS UNCLASSIFIED
DATE 11-11-81 BY 1043
1043

84 1 in the record?

2 EXAMINER GOLDBURG: Just a minute, Mr. Fenner.

3 Dr. Nicholson, the statement is available here. Why
4 don't you read it quickly over the lunch recess and I will direct
5 Mr. Fundsack to keep Mr. Fenner available for questioning after
6 the lunch recess.

7 Do you have any additional copies of this statement?

8 MR. FENNER: I do.

9 EXAMINER GOLDBURG: Could you get one and give it to
10 Mr. Nicholson right now?

11 MR. FENNER: Yes, sir.

12 EXAMINER GOLDBURG: Let the record note then Mr. Fenner
13 is handing a copy of his statement to Dr. Nicholson. Mr. EARLE?

14 MR. EARLE: Yes. In recommending some flexibility in
15 the enforcement policy because of inaccurate and inadequate
16 readings, what kinds of flexibility are you suggesting?

17 Are you suggesting two readings rather than one?

18 MR. FENNER: No, I don't think that either 1 reading
19 two readings, or 3 readings necessarily will overcome the in-
20 accuracy in the method.

21 MR. EARLE: That is all I have.

22 EXAMINER GOLDBURG: Thank you, Mr. Fenner. You are

23 now released. You are to be available for questioning.

24 FUNDACK: I am sorry.

25

ALL INFORMATION CONTAINED
HEREIN IS UNCLASSIFIED
DATE 11-11-81 BY 1043

85

STATEMENT OF DR. FRED L. PUNDSACK, VICE PRESIDENT,
JOHNS-MANVILLE CORPORATION

Dr. Pundsack. My name is Fred L. Pundsack, and I am Vice President for Research and Development for the Johns-Manville Corporation. I have a Ph.D. in Chemistry, and I have been involved with research and development work on asbestos for almost 20 years.

The purpose of my statement is to discuss the several warning label requirements for asbestos and asbestos-containing products which are specified in the various permanent standards for asbestos which have been proposed for consideration by the Occupational Safety and Health Administration.

These hearings have established clearly that the rule that is promulgated with respect to the permanent occupational standard for asbestos extends far beyond the direct effect on the asbestos industry and the people who work in it.

The Occupational Safety and Health Act places in the hands of government and the administrators of government the enormous responsibility to bring about significant social and economic changes. But it also places a great responsibility on the industry and the people who work in it to maintain and improve the health and safety of the workers.

Perhaps now as clear in the asbestos standards which are being developed today is the extent to which the industry and the people who work in it are being asked to maintain and improve the health and safety of the workers.

86 1 requirements. [If these label requirements are adopted in their
2 proposed form, they will in our opinion destroy large amounts
3 of the industry and eliminate thousands of jobs. And they will
4 do this without any significant evidence that the proposed types
5 of labels are necessary.]

6 I would like to spend the rest of my testimony to
7 point out why the proposed labels are unnecessarily destructive
8 to the industry, and to offer a constructive alternative which
9 will accomplish the objectives of protecting the health of the
10 worker and maintaining the useful products and the viability of
11 the asbestos industry.

12 The purpose of a warning label is to alert the user,
13 in this case the worker, to hazards that may be associated with
14 the handling of the product. In addition, the label should when
15 it is applicable, indicate the precautionary steps the worker
16 must take to protect himself. The label must accomplish these
17 objectives with clarity, brevity and visual impact. In short,
18 the label must be clear and correct and it need not be elaborate.
19 For example, the label for asbestos should read:

20 From the original copy of a label in this country:

21 [Illegible text]

22 [Illegible text]

23 [Illegible text]

24 [Illegible text]

25 [Illegible text]

ILLEGIBLE DOCUMENT

87 1 rapidly, often in a matter of minutes or hours. In addition,
2 the chemicals sometimes pose additional hazards because they may
3 have very low flash points and they may be highly flammable
4 or explosive or corrosive.

5 Asbestos, an inorganic substance, which has no vapor
6 pressure, is not explosive, does not burn, and is not absorbed
7 through the skin, does not fit very well into the numerical
8 hazard rating system for these types of properties. Nevertheless,
9 the NIOSH recommendations for an occupational exposure standard
10 for asbestos in Section 3- Labeling, of their document recommend
11 a warning label for asbestos which uses the toxicity standards
12 developed in 1954 and reported at that time now in an article
13 titled "Safe Handling Procedures for Compounds Developed by the
14 Petro Chemical Industry."

15 We believe the application of this type of labeling
16 to asbestos is inappropriate. Instead, we recommend that a caution
17 or warning label with the following type of text be used on bags
18 or containers of asbestos fiber:

19 CAUTION

20 This bag contains chrysotile asbestos fiber.

21 Whichever is the type of fiber were involved, the term

22 "chrysotile" could be substituted.

23 Inhalation of asbestos in excessive quantities

24 over long periods of time can be harmful.

25 If you are not sure of the proper use of this material,

ILLEGIBLE DOCUMENT

88

respirators approved by the U. S. Bureau of Mines for protection against pneumoconiosis producing dusts should be worn.

I would like to direct your attention now to the Advisory Committee recommendations. The Advisory Committee recommendations on Asbestos Dust Standards go far beyond the labeling recommendations made by NIOSH. The Advisory Committee in section (f) - Warning label and sign part (1) propose that a warning label be affixed to all raw products, mixtures and finished products containing 5 percent or more by weight of asbestos.

The legend proposed for the label utilizes the terminology "May cause asbestosis and cancer" in large bold type. On the other hand, the label does not really indicate the precaution the worker should take to protect himself.

We believe this proposed label on asbestos-containing products is unnecessarily frightening and alarming, and it would have a very severe and we believe undeserved economic impact on the industry. The proposal to label all asbestos-containing products also ignores the point that in the majority of asbestos-containing products, the asbestos is firmly locked in place, whether in cement, mortar, or plastics, and in house linings, appliances, etc.

There is no significant amount of asbestos dust in these products.

For example, in asbestos-cement pipe, which may contain as much as 15 percent asbestos, the asbestos is

firmly locked in place and will not be released under normal

use. The label is not needed for these products.

ILLEGIBLE DOCUMENT

89 1 pipe has been in use within this country for 40 years, and
 2 we know of not one single case of asbestos related disease
 3 associated with the installation or use of asbestos cement pipe.
 4 Yet the Advisory Committee recommendation would require that this
 5 product carry a label that it "may cause cancer."

6 I don't believe that it takes very much imagination
 7 to envision what will quickly happen to the asbestos cement
 8 pipe industry if this labeling requirement is adopted. The
 9 industry will simply cease to exist, and I believe it will cease
 10 to exist within 2 or 4 years after the adoption of the labeling
 11 requirement I have just discussed.

12 It will cease to exist because of the unjustified warning
 13 "cancer" in the label will frighten and terrify people.

14 If the asbestos cement pipe industry should fail,
 15 will mean the closing of more than a dozen manufacturing plants
 16 in this country, and it will put thousands of people out of work.
 17 In a number of cases these job losses will occur in communities
 18 in which the asbestos cement pipe plant is one of the largest
 19 employers in the community.

20 If asbestos cement pipe were really as dangerous, then
 21 it would have to restrict the use of it in many places.

22 It would have to restrict the use of it in many places.
 23 It would have to restrict the use of it in many places.

24 It would have to restrict the use of it in many places.

25 It would have to restrict the use of it in many places.

ILLEGIBLE DOCUMENT

90 1 Committee, is analagous to sentencing to death an innocent
2 victim.

3 I have cited as an example of the labeling problem
4 only asbestos-cement pipe. The same general arguments, however,
5 would apply to products such as asbestos-cement shingles,
6 flat and corrugated asbestos-cement sheets, vinyl asbestos
7 floor tile, asphalt saturated roofing felts and a number of other
8 products.

9 We believe therefore, that in products in which the
10 asbestos is locked in place with a firm binder such as portland
11 cement, or plastics, no label is required or should be required.
12 Instruction in good work practices in the handling and appli-
13 cation of these materials will provide excellent protection to
14 the workers installing the materials. We strongly urge, there-
15 fore, labeling of locked in asbestos containing products not
16 be required.

17 On the other hand, we support proper caution labels
18 on products in which the asbestos is not firmly locked in place
19 and is likely to be released during normal use or handling
20 and which are not otherwise adequately protected by other means
21 of asbestos release.

22 We believe that the labeling of asbestos containing products
23 should be based on the degree of asbestos release which can be
24 expected from the product under normal use or handling conditions.
25 We believe that the labeling of asbestos containing products should
26 be based on the degree of asbestos release which can be expected
27 from the product under normal use or handling conditions.

ILLEGIBLE DOCUMENT

FIGURE 1

C A U T I O N

THIS PRODUCT CONTAINS ASBESTOS FIBER.

INHALATION OF ASBESTOS IN EXCESSIVE
QUANTITIES OVER LONG PERIODS OF TIME
MAY BE HARMFUL.

DUST MAY BE CREATED WHEN THIS PRODUCT
IS HANDLED.

IF PROPER DUST CONTROL CANNOT BE
PROVIDED, RESPIRATORS APPROVED BY THE
U. S. BUREAU OF MINES FOR PROTECTION
AGAINST PNEUMOCONIOSIS PRODUCING
DUSTS SHOULD BE WORN.

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25

ILLEGIBLE DOCUMENT

92

1 We believe this label fulfills the requirements of
2 a good label. It alerts and instructs, and it does not terrify.

3 It would like to make one last point with regard to
4 labeling. If labeling is required for asbestos-containing
5 products manufactured and sold in the United States, then pro-
6 vision should be made to see that similar products produced
7 abroad and imported into the U. S. bear the same labels. ✱

8 Otherwise, the imports will enjoy an unfair
9 competitive advantage. So far as I am aware, OSHA does not have
10 the authority to regulate these imports.

11 Thank you, Mr. Goldberg, for the opportunity to
12 testify at this hearing.

13 EXAMINER GOLDBERG: Mr. Earle?

14 MR. EARLE: You indicated you knew of -- I take it
15 you are referring to those who install asbestos cement pipe --
16 you indicated you knew of no instances where there have been
17 individuals who engage in this business who have had asbestosis
18 or related malignancies, and have there been any studies?

19 DR. THE EARLE: I am not aware of any in depth
20 studies that have been made.

21 MR. EARLE: With respect to the labels found in
22 the field, I am not aware of any studies that have been made.

23 DR. THE EARLE: As far as I am aware, in the field, it is
24 not possible to do a study of this type.

25 I am not aware of any studies that have been made.

ILLEGIBLE DOCUMENT

93

1

MR. EARLE: When it is cut, would a worker be exposed?

2

Would the asbestos fibers be released by the cutting?

3

4

5

6

MR. PUNDACK: He could be exposed to the dust containing asbestos fibers, but a proper work practice would be to make that a wet cut. That is what we mean by instructions in proper work practices.

7

8

MR. EARLE: I believe you indicated in labeling of that. How would he know to do that?

9

10

11

12

DR. PUNDACK: By instructions and by a code of proper work practices in the installation of asbestos cement pipe. That would be true. The installation of the siding and shingles, too.

13

14

15

16

MR. DEGREGORIO: There is one question I think is important, and a question that has been brought up before. How make a distinction between, shall I say, loose fibers and locked in fibers.

17

18

19

Now these asbestos fibers locked in, are locked in by a kind of matrix. Is it a chemical action that keeps the fibers from being dispersed?

20

21

22

23

24

25

MR. EARLE: The fibers locked in is locked in by a physical action. In the case of the asbestos on old pipe, that is a very loose, that is, the pieces of material is what the fiber is, it is not locked in, it is just a loose fiber. It is not locked in, it is just a loose fiber.

ILLEGIBLE DOCUMENT

94

1 is bound in place by the resins that are used, in the case of
2 a vinyl floor tile.

3 MR. DEGRECORIO: Then the fibers are released by
4 cutting?

5 DR. PUNDACK: If dust were generated in the case of
6 cutting, as in the case we just discussed in asbestos cement pipe,
7 dust which would contain fibers might be generated.

8 MR. DEGRECORIO: How much cutting and abrasion is involved
9 in the use, in the installation of products with asbestos fibers
10 locked in?

11 For example, in laying down pipes or whatever, how
12 much cutting is involved in that kind of work?

13 DR. PUNDACK: In the case of pipe, I indicated there
14 are relatively few cuttings. It is not uncommon now on a pipe
15 job to have not more than 2 cuts during an entire day of laying
16 the pipe. In the case of installing floor tile, floor tile is
17 cut by scoring it and then breaking it, and the amount of dust
18 or the material generated by that action is extremely small.

19 In fact, one would have difficulty in making a
20 full assessment in the installation of floor tile material.

21 MR. DEGRECORIO: Is it possible to take the fibers
22 released during the installation of floor tile material?

23 I would like to ask you a question.

24 MR. PUNDACK: Yes, yes. You are talking about
25 the fibers that are released during the installation of floor tile material.

95 1 been concerned with this problem in terms of whether or not
2 there is any significant release, in the case of a built up
3 roof, for example. We have been running accelerated weathering
4 tests on this type of material for almost two years now, and
5 in which we run it through a cycle of simulated sunshine,
6 simulated rain and collect all of the air from the chamber and
7 all the water, and we can report that in those studies, in most
8 cases it is not possible to even detect light microscopically
9 any asbestos fiber, and we have on occasion detected electron
10 microscope fibers in extremely small quantities, and I am talking
11 in terms of billionths of a gram of material in gallons and
12 gallons of water.

13 MR. MCGREGG: I understand from these hearings that
14 even in cases of mixtures the proportion of asbestos to the other
15 substances or substance is small. I hear percentages like 5, or
16 up to 15. Is that correct?

17 MR. CLEGG: This would depend upon the material.
18 In the case of asbestos cement pipe, the range for most products
19 would be in the range of 10 to 15 percent asbestos in that material.

20 MR. MCGREGG: Is there any way of knowing the pro-
21 portion of asbestos that is released by cutting or using a
22 product that has 10 to 15 percent asbestos?

23 There is that I have to think. We have a product called
24 asbestos cement pipe. Now, suppose the
25 pipe is cut and the dust is released. We have a dust. In those

ILLEGIBLE DOCUMENT

96 1 any way of knowing what would be the percentage of the asbestos
2 dust and, briefly, what would be the percentage of fibers longer
3 than 5 microns in that dust?

4 DR. PUNDSACK: I do not know of any studies which
5 accurately define the answer to the question that you have posed.
6 I personally do not have knowledge that would permit me to
7 give you the answer to the question.

8 MR. DEGREGORIO: You have made now a distinction, and
9 I won't keep you long, please, I assure you, you have made a
10 distinction between what I might call hard products and soft
11 products, both containing locked in fibers.

12 What are some of these soft products? What are they
13 used for?

14 DR. PUNDSACK: When you talk about soft products,
15 I used the term "friable". An example of this would be the
16 relatively low density type pipe insulation which is installed
17 by the asbestos insulation workers. This would be a material in
18 most cases that had a density of perhaps 10 to 12 pounds per
19 cubic foot.

20 If you rubbed your finger on the surface and it
21 crumbled, the material would crumble under normal, gentle
22 pressure. This is what I had in mind as a product in which I
23 would be recommending the asbestos insulation be removed. I
24 would not recommend the removal of the asbestos insulation in
25 cases where the material is provided in great sheets or in
26 large blocks or in other cases where the material is not
27 friable.

97 1 generated. These are the materials that we believe should have
2 cautionary or warning labels on them.

3 This is the thing that poses a hazard, we believe, to
4 the worker.

5 MR. DEGREGORIO: Can you offer a test, a way of dis-
6 tinguishing these two kinds of products?

7 DR. FUNDSACK: I believe we could, and I would certainly
8 suggest or acknowledge or urge that we would be glad to work with
9 any appropriate committee or group on a definition that would
10 be satisfactory for products that are defined as locked in, or
11 whatever would be the proper term, versus not locked in.

12 MR. DEGREGORIO: Thank you very much.

13 MR. ZIMMER: Along those lines, could you provide for
14 the record of these hearings a list of products that you consider
15 to be bonded, and not necessarily a list of the soft products,
16 and perhaps, if possible, a breakdown of those products that
17 commonly are one, or in some way treated or bonded?

18 Sometimes you send asbestos tile, I understand, when
19 it is down on the floor for several years. I assume that would
20 cause the release of some fibers.

21 Perhaps in looking over the lines into these lines
22 and we might have some idea of what the situation is of handling these
23 materials. Would you provide such a list?

24 DR. FUNDSACK: Yes, with the understanding that I
25 would be going back and forth as at our present time.

ILLEGIBLE DOCUMENT

98 1 that the record would be kept open for perhaps ten days after
2 the close of the hearing.

3 I would like to submit that material next week if
4 it is satisfactory with you, to submit it into the record, a list
5 of the materials that we would consider locked in.

EXAMINER GOLDBURG: Next week will be satisfactory.

7 MR. NICHOLSON: Dr. Fundeack, since Dr. Wright indicated
8 a special concern for the incidence of mesothelioma and suggest
9 that it might perhaps be associated with the asbestos varieties,
10 crocidolite and amosite, could you, for the purpose of clarifying
11 the record, give a brief history of the asbestos concept of
12 insulation materials that were used in non-shipyard work for
13 the past 2 or 3 decades?

14 DR. PUMDSACK: If I might, Mr. Exonator, the witness
15 who was going to follow me, Mr. Moreno, is prepared with infor-
16 mation on that very point, and I would like to defer the question
17 to him, and then if it has not been answered to Dr. Nicholson's
18 question, I would be happy to return and amplify it.

EXPERIMENTAL APPROACHES: Final

Thank you, Mr. President.

DATE: 11/23/2011 11:04:52

21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100 101 102 103 104 105 106 107 108 109 110 111 112 113 114 115 116 117 118 119 120 121 122 123 124 125 126 127 128 129 130 131 132 133 134 135 136 137 138 139 140 141 142 143 144 145 146 147 148 149 150 151 152 153 154 155 156 157 158 159 160 161 162 163 164 165 166 167 168 169 170 171 172 173 174 175 176 177 178 179 180 181 182 183 184 185 186 187 188 189 190 191 192 193 194 195 196 197 198 199 200 201 202 203 204 205 206 207 208 209 210 211 212 213 214 215 216 217 218 219 220 221 222 223 224 225 226 227 228 229 230 231 232 233 234 235 236 237 238 239 240 241 242 243 244 245 246 247 248 249 250 251 252 253 254 255 256 257 258 259 260 261 262 263 264 265 266 267 268 269 270 271 272 273 274 275 276 277 278 279 280 281 282 283 284 285 286 287 288 289 290 291 292 293 294 295 296 297 298 299 300 301 302 303 304 305 306 307 308 309 310 311 312 313 314 315 316 317 318 319 320 321 322 323 324 325 326 327 328 329 330 331 332 333 334 335 336 337 338 339 340 341 342 343 344 345 346 347 348 349 350 351 352 353 354 355 356 357 358 359 360 361 362 363 364 365 366 367 368 369 370 371 372 373 374 375 376 377 378 379 380 381 382 383 384 385 386 387 388 389 390 391 392 393 394 395 396 397 398 399 400 401 402 403 404 405 406 407 408 409 410 411 412 413 414 415 416 417 418 419 420 421 422 423 424 425 426 427 428 429 430 431 432 433 434 435 436 437 438 439 440 441 442 443 444 445 446 447 448 449 450 451 452 453 454 455 456 457 458 459 460 461 462 463 464 465 466 467 468 469 470 471 472 473 474 475 476 477 478 479 480 481 482 483 484 485 486 487 488 489 490 491 492 493 494 495 496 497 498 499 500 501 502 503 504 505 506 507 508 509 510 511 512 513 514 515 516 517 518 519 520 521 522 523 524 525 526 527 528 529 530 531 532 533 534 535 536 537 538 539 540 541 542 543 544 545 546 547 548 549 550 551 552 553 554 555 556 557 558 559 560 561 562 563 564 565 566 567 568 569 570 571 572 573 574 575 576 577 578 579 580 581 582 583 584 585 586 587 588 589 590 591 592 593 594 595 596 597 598 599 600 601 602 603 604 605 606 607 608 609 610 611 612 613 614 615 616 617 618 619 620 621 622 623 624 625 626 627 628 629 630 631 632 633 634 635 636 637 638 639 640 641 642 643 644 645 646 647 648 649 650 651 652 653 654 655 656 657 658 659 660 661 662 663 664 665 666 667 668 669 670 671 672 673 674 675 676 677 678 679 680 681 682 683 684 685 686 687 688 689 690 691 692 693 694 695 696 697 698 699 700 701 702 703 704 705 706 707 708 709 710 711 712 713 714 715 716 717 718 719 720 721 722 723 724 725 726 727 728 729 730 731 732 733 734 735 736 737 738 739 740 741 742 743 744 745 746 747 748 749 750 751 752 753 754 755 756 757 758 759 760 761 762 763 764 765 766 767 768 769 770 771 772 773 774 775 776 777 778 779 780 781 782 783 784 785 786 787 788 789 790 791 792 793 794 795 796 797 798 799 800 801 802 803 804 805 806 807 808 809 810 811 812 813 814 815 816 817 818 819 820 821 822 823 824 825 826 827 828 829 830 831 832 833 834 835 836 837 838 839 840 841 842 843 844 845 846 847 848 849 850 851 852 853 854 855 856 857 858 859 860 861 862 863 864 865 866 867 868 869 870 871 872 873 874 875 876 877 878 879 880 881 882 883 884 885 886 887 888 889 890 891 892 893 894 895 896 897 898 899 900 901 902 903 904 905 906 907 908 909 910 911 912 913 914 915 916 917 918 919 920 921 922 923 924 925 926 927 928 929 930 931 932 933 934 935 936 937 938 939 940 941 942 943 944 945 946 947 948 949 950 951 952 953 954 955 956 957 958 959 960 961 962 963 964 965 966 967 968 969 970 971 972 973 974 975 976 977 978 979 980 981 982 983 984 985 986 987 988 989 990 991 992 993 994 995 996 997 998 999 1000 1001 1002 1003 1004 1005 1006 1007 1008 1009 1010 1011 1012 1013 1014 1015 1016 1017 1018 1019 1020 1021 1022 1023 1024 1025 1026 1027 1028 1029 1030 1031 1032 1033 1034 1035 1036 1037 1038 1039 1040 1041 1042 1043 1044 1045 1046 1047 1048 1049 1050 10

1. ANALYSIS OF THE DISTRIBUTION OF THE AREA

99

1 in those types of insulation is several fold. It forms a cohesive
2 network through which the calcium silicate binder, which is a
3 major component of both of these insulations, is interspersed.

4 It functions, then, as the temperature increases, to
5 form a cohesive network that holds the insulation together, and
6 gives the shrink resistant characteristics.

7 MR. GRILL: Would you say then if it is cut or scored
8 or abraded in any way in the application of this that it would
9 be surrounded by these other materials because of what you just
10 said?

11 DR. PUNDSACK: It would be present, certainly with
12 these other materials, and there certainly would be some of the
13 asbestos fibers that would have adhering to the pieces and
14 fragments of the calcium silicate binder that makes up the
15 insulation.

16 MR. GRILL: Thank you.

17 EXAMINER GOLDBURG: Thank you, Mr. Pundsack.

18 Off the record.

19 (Discussion off the record)

20 EXAMINER GOLDBURG: He will resume at 1:30.

21 (Whereupon, at 12:23 p.m. the hearing recessed, to

22 resume at 1:30 p.m.)

23

24

25

ILLEGIBLE DOCUMENT

100

AFTERNOON SESSION

1:30 P.M.

EXAMINER GOLDBURG: On the record.

Before Mr. Moreno takes the stand, Mr. Zimmerman wishes to offer a statement.

MR. ZIMMERMAN: Mr. Goldberg, I have the statement of Mr. Killian, Vice President of Manufacturing Operations for Gold Bond Building Products Division of National Gypsum Company. Mr. Killian could not stay in Washington any longer, sir, and I would like to present his testimony for the record, two copies.

EXAMINER GOLDBURG: Mr. Killian's statement will be marked Exhibit 42, and as marked received in evidence.

(Exhibit Number 42 was marked for identification and received in evidence.)

EXAMINER GOLDBURG: Mr. Fundack?

MR. FUNDACK: We would like to have Mr. Penner return and answer any questions from Dr. Nicholson at this time.

EXAMINER GOLDBURG: Do you have any questions, Dr. Nicholson?

DR. NICHOLSON: No questions.

EXAMINER GOLDBURG: Thank you, Mr. Penner.

STATEMENT OF MR. KILLIAN, VICE PRESIDENT OF MANUFACTURING OPERATIONS

FOR GOLD BOND BUILDING PRODUCTS DIVISION - NATIONAL GYPSUM COMPANY

MR. KILLIAN: Mr. Goldberg, and gentlemen, my name is

EXHIBIT 42

101 1 Henry B. Moreno, and I am the Senior Operating Vice President
2 of Johns-Manville responsible for the company's Industrial and
3 International Divisions.

4 I am a graduate of the University of Southern Calif-
5 ornia with a bachelor's degree in Electrical Engineering and post-
6 graduate work both at that institution and at the Harvard
7 Business School. For the past 22 years, I have held various
8 sales, marketing, production, general management and senior
9 management positions with Johns-Manville.

10 As our testimony thus far has indicated, we support
11 the present OSHA emergency standards if they are modified as
12 suggested by Johns-Manville associates here today.

13 I would like to address my remarks primarily to the
14 engineering problems involved and the economic impact of imple-
15 menting the standards. I will do this by relating personal ex-
16 periences and by presenting other information that we have
17 developed for this hearing.

18 Five years ago, I was given responsibility for the
19 Packings and Friction Materials Division. This is the division
20 in our company which has many of the asbestos handling problems,
21 especially in its asbestos handling and friction material
22 operations.

23 During these five years and right up to the present
24 time I have devoted a great portion of my time personally to
25 knowing in what conditions exist conditions for our employees.

ILLEGIBLE DOCUMENT

102 1 particularly those working with asbestos fiber.

2 For the last four years, our goal has been to bring
3 all of our operations to a Threshold Limit Value of five to
4 six fibers per cc, which is half of the previous LTV standard
5 of 12 fibers per cc.

6 Since we at Johns-Manville began our active dust
7 control program many years ago, we can speak from experience
8 about the difficulty ahead of achieving 5 fibers per cc and
9 solving environmental problems. Perhaps a specific example will
10 help give some insight to our activities.

11 One of our largest plants is located in Manville, New
12 Jersey. It is a multi-product plant containing, among other
13 things, a fairly extensive, integrated textile operation.

14 I first visited the Manville plant in 1949. Even
15 though we were unaware of specific health hazards, I can remember
16 the high visibility of dust which clouded the ambient air inside
17 the textile building.

18 The personal sampler method of measuring dust was
19 not available then, but certainly -- if we could have measured
20 dust by that method -- we would have determined that the cotton
21 content area equipment was over 100 fibers per cc.

22 The next time I saw the operation was several years
23 later during the 1950's. By that time, great improvements had
24 taken place as a result of the studies and developments in dust
25 control in the industry.

ILLEGIBLE DOCUMENT

ILLEGIBLE DOCUMENT

103 1 Extensive dust collecting systems were operating,
2 and the plant was using much cleaner asbestos fiber now
3 available because of improved equipment at the mines in Canada.

4 When I assumed responsibility for the Packings and
5 Friction Materials Division late in 1967, the Manville textile
6 operation was included. Maximum dust counts were about 30
7 fibers per cc.

8 When we embarked upon our program to reduce all counts
9 to five or six fibers per cc, it soon became apparent that we had
10 reached the practical limit of improving the system by collecting
11 dust and other similar mechanical means.

12 A complete redesign of process and equipment was
13 mandatory. We assembled a team of the best experts available
14 within our company and talked to manufacturers in both the
15 United States and Europe to determine if improved asbestos textile
16 machinery were available, that would perform within the dust level
17 we had specified.

18 After several months, it was determined that if improved
19 equipment were to be made available, we would have to design it
20 ourselves. This we proceeded to do, and after a short year con-
21 siderable progress, we have completed the installation of special
22 designed equipment and processes in which the new design are
23 substantially different from what had been used in the past
24 commonly being used by other asbestos textile producers.

25 From when I came on board to the time I left, over

104 1 fiftypercent due to our stringent operating procedures, we
2 are quite pleased with the results.

3 One can now look down the full length of the approx-
4 imately 900 foot building through nearly crystal clear air.
5 This is a dramatic improvement from the appearance three years
6 ago and fantastic considering the operations as I first viewed
7 it in the late forties.

8 Most of our dust counts are now below five fibers cc.
9 Note I said five not two, fibers per cc. If we are required
10 to operate at the two fibers per cc level, I can see no other
11 solution for us but to shut down some equipment. Having brought
12 the counts from 100 fibers per cc to their present levels has
13 been a major accomplishment particularly when one considers that
14 medical results that concern us all were incurred under the far
15 more dusty operating conditions and not under our current modern
16 methods.

17 I have selected the textile operation for my comments
18 today because that is one which required a great portion of my
19 personal effort and is typical of our composite program. We
20 are working on all of our other product lines as well. Fibers
21 are used in a wide variety of applications, such as machine
22 parts and equipment design. We could also mention friction
23 friction materials which pose no complex a problem as the textile
24 operation did.

25 In operation where equipment reduction is not

ILLEGIBLE DOCUMENT

105 1 sufficient to reduce dust counts to an acceptable level, complete
2 and sometimes radical changes must be employed.

3 These changes most often alter the finished product
4 substantially. When the properties of a high performance friction
5 material are changed for instance, extensive testing in labor-
6 atories and in the field must be conducted in order to be
7 certain that the product will perform as required under all
8 conditions, as a failure might cost hundreds of lives.

9 Can you imagine, for instance, a one hundred car
10 freight train operating with unproven brake linings? Or a water
11 pipe that has exploded because of inadequate fiber reinforcement?
12 In some cases, material tests and validations require as much as
13 four to five years.

14 It is obvious that protecting our environment is a
15 constant and evolutionary process, not one which could be easily
16 implemented by abrupt and severe legislation.

17 What is the current status of our dust control program?
18 In spite of the know how and our concerted effort and a massive
19 capital expenditure outlay of some twenty million dollars, we
20 have not, as you will shortly perceive, as our unmet dust control
21 needs are still mounting over five billion dollars a year.
22 We are still far from the goal of eliminating dust from our
23 environment. Because of this, we have a long way to go. We have
24 our work cut out for us. We have a long way to go. We have
25 a long way to go. We have a long way to go.

ILLEGIBLE DOCUMENT

106

1 of asbestos-containing products annually and have thus had to
2 put over three hundred workers into the unemployed ranks.

3 As I said before, all of our work has been directed
4 toward attaining a TLV of five to six fibers per cc because our
5 experience and medical advice indicates that this is the most
6 practical approach to providing a safe environmental atmosphere
7 for our workers.

8 To do this requires extensive engineering. For this
9 reason -- to reach a TLV of five fibers per cc actually means
10 designing equipment which will operate at about a three fiber
11 per cc level because we must allow for measurement inaccuracies,
12 human error, maintenance, and climatic variations.

13 11:45 end

14 Sparks/whistle

15 Probable Ruff

16 11:50

17

18

19

20

21

22

23

24

25

ILLEGIBLE DOCUMENT

Arbol

1 The cost of redesigning and building equipment to
2 operate at lower dust levels increases exponentially--not in
3 a linear fashion. If the TLV were to be set at two fibers
4 per cc, it would require capital expenditures of \$12 million
5 and additional operating costs of \$5 million per year to bring
6 our operations to the two fiber-per-cc level in those proces-
7 ses where we believe we could develop the capability to do so.

8 At the present time, approximately half of our
9 present dust stations show consistent readings over two fibers
10 per cc. Included in this group are five manufacturing plants,
11 involving approximately 1100 workers. As we see it now, it
12 would not be economically feasible for Johns-Manville to
13 attempt to operate these plants at a standard of one fiber per
14 cc. We estimate that 1100 workers would be out of jobs at these
15 locations. And when you add supporting sales, clerical, technical
16 and administrative personnel, we are talking about a total of
17 some 1100 employees who would have to join the unemployed.

18 Since Johns-Manville is quite explicit in showing that
19 it is a major asbestos product manufacturer and hence in the line
20 of business it is obvious that the overall effect of reducing the
21 standard to one fiber per cc would be to eliminate the
22 entire industry. It is not possible to operate at one fiber per cc
23 and still remain in business. The industry would be wiped out.

24 I would not like to speculate on what would happen if the
25 standard were set at one fiber per cc. It would be a disaster.

26 In the case of the proposed standard of one fiber per cc, the

there have been two sources--1, other manufacturers in the United States, some of whom have not as yet experienced the economic impact of attempting to achieve five fibers per cc; and (2) foreign manufacturers.

Even though Johns-Manville has the financial resources to pay for more sophisticated equipment, higher costs must ultimately be reflected in price increases. In our industry this, in many cases would just mean paving the way for foreign competitors. Already substantial and increasing quantities of fabricated asbestos materials being imported from Japan, Taiwan and South America are invading the U. S. markets. Some of our own surplus equipment has been sold to a company in India so we presume that India and possibly other Asian countries will increase their production and sales of asbestos materials to our country as it becomes more uneconomical to make these products inside the United States.

Attempting to achieve a standard of two fibers per cc will cost American industry millions of dollars in increased operating costs and, ultimately, cause a significant portion of jobs to be shifted to foreign workers for whom, in any

case, no similar health standards presently exist.

The present EPA emergency standard, which is intended to provide a good margin of safety and, based on our

experience, are enforceable in most circumstances, and

if the present standard is not enforced, it is likely that

ILLEGIBLE DOCUMENT

3 1 install the necessary equipment and implement process changes.

2 The establishment of an unnecessarily stringent
3 standard and the requirement of unnecessarily frightening
4 labels, as commented on by Dr. Dundack, would merely cause
5 confusion and perhaps harm to many very reputable companies.

6 In conclusion, I want to say this quite directly with
7 no scientifically credible evidence to prove the need for
8 such a low TLV standards of 2 fibers per cc, it would be
9 nothing less than complete social irresponsibility to adopt it.

10 We believe the Department of Labor must establish
11 standards that protect the worker, but at the same time are
12 practical and realistic--and mostly--attainable.

13 On behalf of myself and my associates, thank you for
14 permitting us to testify today.

15 Mr. Goldberg, that concludes my testimony unless
16 you want to allow me an opportunity to respond to Dr. Nicholson's
17 questions regarding insulation material.

18 CHAIRMAN GOLDBERG: Do you wish to do so?

19 DR. MENING: I will be pleased to speak if it is
20 desired.

21 DR. NICHOLSON: Do you still wish to answer?

22 DR. MENING: Yes.

23 DR. NICHOLSON: I am going to ask Dr. Nicholson a few
24 questions of a technical nature. I will ask you
25 to answer them. I will ask you to answer them.

ILLEGIBLE DOCUMENT

4 1 personal observations over the last 22 years in which I have
2 been involved and I think that is probably what you are after.

3 Twenty years ago or twenty-two years ago, almost
4 any high temperature insulation had amosite fiber in it. I
5 would say every ship built during World War II and afterwards
6 until within the last ten years had large quantities of
7 Amosite insulation because there was in effect a closed navy
8 Federal spec. specifying a particular type of insulation with
9 a high percentage of Amosite.

10 This was done, I think, because no one really
11 realized the dangers involved and secondly because this asbestos
12 fiber with amosite fiber in it had great mechanical strength
13 and could withstand the mechanical abuse. This material was
14 also used widely in industrial applications. The other materials
15 used in those days were generically called in the industry 85
16 per cent magnesium and calcium carbonate earth insulations both
17 of which contained approximately 15 per cent by weight amosite
18 asbestos fiber.

19 Starting about 1958 the trend was away from these
20 two insulations. What is the 85 per cent magnesium and calcium
21 carbonate? It is a mixture of magnesium carbonate and calcium carbonate
22 which is called 85 per cent magnesium carbonate and calcium carbonate
23 insulation or 85 per cent and the other 15 per cent is amosite fiber
24 which is a very high temperature resistant material. It is a
25 very good material and is used in many applications.

ILLEGIBLE DOCUMENT

instance that had an operating temperature of 1200 degrees, it was necessary to apply two layers of insulation, the first layer that could stand the 1300 degrees and then the next insulation which was 85 per cent magnesium that could only stand up to 800 degrees.

During the late Fifties a new insulation was developed and this is a material that is called calcium silicate and this is reinforced originally--I believe it might have have had some Amosite in it but during the past 12 years it had only had Chrysotile fiber in it. This is a material that today has replaced all of the other three materials in almost every application. As a matter of fact, the Amosite material that I referred to in the Navy specifications no longer is produced. The calcium silicate material originally when we introduced it had 12 to 15 per cent Chrysotile fiber and today we are operating with about 8 per cent Chrysotile fiber. Then in answer to your question, as I remember it, there has been a tremendous change in the kinds of insulating materials used particularly in the last twelve years. Do I remember your question correctly, sir?

THE INFORMATION: It provides information re matters re
PLANNING OF INTERNATIONAL COOPERATION AND THE PROGRESS AS WELL AS
OTHER MATTERS TO BE CONSIDERED BY AMERICA WHICH WOULD HAVE
BEEN OF THE INTERESTS AND A SPECIAL TRANSLATION OVER ...
... THE ...

... the fact that the

ILLEGIBLE DOCUMENT

6 1 little in this country prior to World War II. The total imports
2 could be listed in tens of thousands of tons rather than millions
3 of tons. Could you give me an estimate of the fraction of
4 Amosite that would have been used in commercial non-shipyard
5 or industrial non-shipyard insulation work from the period of
6 say roughly 1930 to 1940 to the current time the period of
7 time being that over which we have experienced the health effect
8 upon the insulation workers using that material.

9 MR. MORENO: May I break it in two periods. From
10 1900 if you want to take it or the thirties until about 1960
11 and then from 1960 to the present time. During the earlier
12 period, to my knowledge every high temperature insulation
13 except rock wool which was used in some areas--every high
14 temperature insulation had Amosite fiber in it because they had
15 85 per cent magnesium, the calcium Amosite, etc. All the
16 other material we talked about so every product that I know of
17 had some Amosite in it. Since 1960 there has been a decreasing
18 amount of it and I would say within the last three to five
19 years almost none.

20 MR. HILLMAN: Would the percentage in all insulation
21 prior to 1960 have been of the order of 80 per cent or more?
22 MR. MORENO: In all insulation used prior to 1960
23 everything was made.

24 MR. HILLMAN: Material of 700 degrees
25 MR. MORENO: Is Asbestos insulation.

7

MR. MORENO: Had Amosite and that quantity varied from as low as 15 per cent to as high as 50 or 60 per cent and I am not certain about the 50 or 60 per cent only because we didn't manufacture the product. I know in my own mind it was at least 50 per cent Amosite fiber. Our own products had 15 per cent Amosite asbestos fiber in them.

MR. NICHOLSON: Fifteen per cent of the fiber of the asbestos was Amosite.

MR. MORENO: No, sir. All of the products I was involved in was all Amosite.

MR. NICHOLSON: Thank you.

EXAMINER GOLDBERG: Thank you, Mr. Moreno.

MR. FURDSACK: Mr. Goldberg, that completes the testimony of those testifying on behalf of Johns-Manville. However, Dr. McDonald, whose work has been referred to by Dr. Wright and also cited in the HASH document wishes to testify as an individual witness representing himself.

EXAMINER GOLDBERG: Dr. McDonald, we appreciate your coming down from Montreal to be with us.

STATEMENT OF DR. J. GORDON MCDONALD,

PHYSICIAN, MONTREAL, QUEBEC

DR. MCDONALD: My name is John Gordon McDonald. I am professor of Radiology and Chairman of the Department of Radiology and Health at McGill University, Montreal. I was called to testify as an expert witness in the case of the late Mr. J. Edgar Hoover.

8 1 specialized in epidemiology and related subjects for the past
2 twenty-four years.

3 I would like to add here one or two points not in
4 my written submission to clarify my position here. The first
5 point is that I am a full-time employee at McGill University
6 and am an independent research worker. I do not work nor am
7 I associated with any asbestos producer or manufacturer. The
8 research which I shall be describing is supported by grants,
9 not to me but to McGill University from a number of sources,
10 the Institute of Occupational and Environmental Health, the
11 Canadian Government, the British Medical Research Council and
12 the United States Public Health Service. I am not here to
13 support the testimony or position of Johns-Manville or any
14 other body affected by the proposed regulations.

15 I am very grateful to those responsible for these
16 hearings for permission to testify today, for two main reasons
17 which are as follows:

18 1. Substantial research team at McGill has devoted
19 the last six years to a wide variety of studies, under my
20 direction into the quantitative relationships which exist between
21 asbestos exposure and the effects on man. We believe that
22 the very significant body of research, on the question of asbestos
23 exposure and its effects, which has been carried out by this
24 research team, is now being made available to the public.

25 2. The public has a right to know the truth about
26 the health effects of asbestos exposure. It is my duty to
27 make this information available to the public.

ILLEGIBLE DOCUMENT

1 inaccurate, out of context and seriously misleading. They were
2 made without my knowledge or advice and I ask that they be
3 discounted. I am very glad, therefore, to be allowed this
4 opportunity to place on record a more balanced account of our
5 research and its results.

6 The rest of my presentation is in the form of a
7 report entitled "The Health of Chrysotile Asbestos Mine and
8 Mill Workers of Quebec" which my colleagues and I have prepared
9 for publication in the near future. This paper summarized our
10 main findings to date and I believe it appropriate therefore
11 to ask that it be included in the record of these hearings.
12 This paper is not yet in its final form and still subject to
13 revision but is unlikely that we shall find reason to alter
14 our conclusions in any important respect.

15 EXAMINER GOLDWAG: Mr. McDonald, do you wish to
16 send that paper into the record or present it.

17 MR. McDONALD: I wish to send certain portions
18 of it, etc. There will be parts of it which are in the nature
19 of a preliminary report but I would like to send the rest into the
20 record.

21 EXAMINER GOLDWAG: Do you wish to send the preliminary
22 report into the record as well as the rest of the paper?
23 MR. McDONALD: Yes, I would like to send the preliminary
24 report into the record as well as the rest of the paper.

25 EXAMINER GOLDWAG: All right, I will send the preliminary
26 report into the record as well as the rest of the paper.

ILLEGIBLE DOCUMENT

in pulmonary fibrosis, lung cancer and malignant mesothelial tumors. However, exposure has usually been complicated by the presence of more than one form of asbestos and of other materials in the manufacture or application of asbestos products. In the mining and milling industry of Quebec, where almost half of the world's supply of chrysotile is produced, there has been very little exposure to other types of asbestos or the materials used to make asbestos products. An epidemiological study in this industry was started in 1966 to assess the effects of pure exposure to chrysotile. Our aims were to relate dust exposure assessments to mortality, radiographic changes, lung function and respiratory symptoms. The results of these studies are presented in separate papers on mortality^{1, 2, 3, 4}, radiographic change⁵, lung function^{6, 7, 8} and respiratory symptoms⁹.

The purpose of this report is to synthesize these and certain subsidiary findings and to discuss their implications for control.

Let us outline these studies. Records of the mining companies were used to identify all persons known to have worked in the industry where the exposure to chrysotile was highest. Lists of all persons who had worked in the industry were obtained from the companies. Information was obtained from the companies regarding the dates of employment and the duration of exposure. Information was also obtained regarding the dates of employment and the duration of exposure. Of these 6,400 were working on November 1, 1966, the selection of the study. The information obtained was as follows:

1 person consisted of date of birth and full industrial history.
 2 The latest chest radiograph for each employee, if available,
 3 was provided by the industrial medical clinics and read by
 4 an international group of six readers using the UICC/Cin-
 5 cinnati Classification. A follow-up of ex-employees was
 6 made and death certificates and autopsy reports were examined
 7 for those who had died. One section of this paper deals with
 8 results in women and the rest is concerned with men only.

9 Let me outline the problem of dust exposure.

10 Dust exposure levels were determined for each
 11 recorded job within the industry and for each year of employment.
 12 These levels were used to calculate a total dust exposure in-
 13 dex for each worker. My colleagues Gibbs and Lechman
 14 described the techniques used and Gibbs considered certain
 15 qualitative aspects. The main index was based on particle
 16 counts from sidget impinger samples, expressed as
 17 millions of particles per cubic foot (MPCF). For each worker,
 18 total dust exposure was calculated by multiplying the dust
 19 exposure index by the number of years of exposure at that
 20 index, expressed as foot-years.

21 The results which Gibbs has presented in terms of
 22 index or total dust exposure. The direct equivalents in
 23 particles per cubic foot-years obtained by simple arithmetic
 24 are also shown in our tables. The dust indices expressed in
 25 foot-years are calculated using an equivalence factor of

11
 ILLEGIBLE DOCUMENT

1 1 mpcf (midget impinger) equals 2.3 fibres/ml (membrane
 2 filter). This estimate of equivalence was based on 32 side-
 3 by-side samples taken in the summer of 1971 at three companies
 4 at Thotford Mines, and at present is the best available for
 5 the industry. The midget impinger technique was the same
 6 as was used to assess dust exposure indices throughout our
 7 studies. Fibres of 5 microns or more in length were collected
 8 and counted using essentially the method recommended by the
 9 United States Public Health Service. The equivalence ratio
 10 increased from mining (1.1) through crushing and drying (1.6)
 11 to milling (4.3) but the number of readings in each situation
 12 was small. Nevertheless, the mean for all areas (2.3) may
 13 underestimate the fibre exposure of mill workers and over-
 14 estimate that of miners.

15 An alternative approach to the question of
 16 equivalence makes use of information on the fibre content of
 17 dust obtained from membrane filter measurements. A series
 18 of 31 observations was made in the same three mines and mills
 19 during the same period of time with findings ranging from 1%
 20 to 1% and an average of 3 %.

21 These proportions also relate to fibres of 5
 22 microns or more in length counted at 500-fold magnification.
 23 The average ratio of membrane filter to midget impinger
 24 counts is about 2.3 based on the 31 observations.
 25 This is equivalent to the 2.3 based on the 32 side-by-side

ILLEGIBLE DOCUMENT

12 1 calculated by simple arithmetic from these data was 2.4.
 2 Agreement between this figure (2.4), based in part on
 3 independent data on fibre content, and 2.3 estimated by direct
 4 comparison of midget impinger and membrane filter is reassuring.
 5 Nevertheless, a larger series of parallel measurements is
 6 needed to establish the relationship in this industry with
 7 certainty. The current British standard for exposure to
 8 Chrysotile is 2 fibres per ml, averaged over 3 months for a
 9 50-year working life (ie 100 fibre/years.) The upper limit
 10 of our second highest dust group (230 fibre/years) is
 11 equivalent to more than twice this level.

12 Table 1 also lists the number of men included in
 13 the main analyses considered in this report.

14 The prevalence of parenchymal and pleural changes
 15 was higher in the area of Thetford Mines than of Asbestos,
 16 Quebec, though the towns are only about 50 miles apart and
 17 the asbestos mined is geologically similar. The two main
 18 findings of response to asbestos exposure were irregular
 19 small opacities and pleural thickening. In Thetford Mines the
 20 prevalence of these findings rose steadily with dust exposure.
 21 However at Asbestos there was very little relation to
 22 exposure (Table 2). The greatest prevalence of parenchymal
 23 opacities was observed in the group with asbestos exposure about 2/3
 24 that at Thetford Mines; but pleural thickening, of grade 1
 25 or more, the prevalence at Asbestos was only one half that

at Thetford Mines. The biggest difference among all the radiographic features was in pleural calcification, for which the prevalence of grade 1 or more were 0.4 per cent at Asbestos and 5.2 per cent at Thetford Mines. Although these relations to dust exposure were clearly present, no correlation exceeded 0.3. This is largely a reflection of the very high proportion of men who showed no radiographic change. Some of the difference between the two areas were not surprising since the level of dust exposure at Asbestos was considerably lower than at Thetford Mines, but other differences cannot yet be explained in terms of dust exposure or geology.

If variation in fibre content of dust were an important factor, the results in mine workers for whom the fibre proportion was low, should differ from those for mill workers, for whom the fibre proportion was higher. Altogether, there were 536 workers who had worked for ten or more years either exclusively in mining or entirely in milling. Analysis of their radiographic changes showed that though mill workers had a slightly higher prevalence of irregular small opacities, the same differences between Thetford Mines and Asbestos remained. The same conclusions concerning the relation between the radiographic changes and dust exposure.

DISCUSSION:

This study was limited to areas where the dust levels were high and the workers were employed for long periods of time.

The above day would then be used to make a preliminary survey of the proposed highway, and to make a preliminary estimate of the cost of the project. It is suggested that the above day be used to make a preliminary survey of the proposed highway, and to make a preliminary estimate of the cost of the project. It is suggested that the above day be used to make a preliminary survey of the proposed highway, and to make a preliminary estimate of the cost of the project. It is suggested that the above day be used to make a preliminary survey of the proposed highway, and to make a preliminary estimate of the cost of the project.

david/1

ILLEGIBLE DOCUMENT

It seemed possible that the radiographic differences between Thetford Mines and Asbestos might also be reflected in mortality. There was little evidence of this. Age-standardized death rates/1000 for all causes, all malignancies, all respiratory diseases and all circulatory diseases were 342, 54, 20 and 120 at Asbestos and 362, 61, 22 and 121 at Thetford Mines. All detailed comparisons showed the same remarkable similarity. For example, in Table 4 age standardized death rates by dust exposure are presented for lung cancer and pneumoconiosis. The only apparent difference is that the lung cancer rate rose in relation to dust slightly earlier but to a less extent at Thetford Mines.

Mortality and radiographic changes:

Of 10,120 persons traced in the mortality study, 9,692 were men and of these 5,002 had chest radiographs and 785 had died. At Thetford Mines, there were 354 deaths in 2,448 men traced. Death rates were calculated by date of birth, dust exposure and the presence or absence of parenchymal or pleural radiographic changes. The death rate from all causes combined was raised in the highest dust exposure group, taking into account exposure and date of birth, and those radiographs showed parenchymal changes had a higher rate (220/1000) than those without radiographic changes (110/1000) or higher than those with pleural changes only (100/1000).

In 1960, the observed number of deaths by cause of

FILED DOCUMENT

birth and radiographic change is compared with the expected number based on those without radiographic change. Of 97 deaths in those with parenchymal changes, 33 were in excess of the expected figure. Considering only deaths from respiratory disease, including tuberculosis and cancer, we calculated in a similar way that there were 32 deaths in those with parenchymal change compared with 8 expected, an excess of 24. Thus of the 33 excess deaths in this group at Thetford Mines, 24 were attributed to respiratory causes.

At Asbestos, the difference between the mortality of those with and without radiographic changes was less. Similar calculations to those used for Table 5 showed that only seven of the 431 total deaths were associated with parenchymal change and of these an estimated 2.4 were in the respiratory group.

Dust exposure levels at Thetford Mines were much higher than at Asbestos; thus, in the highest exposure group there were 335 and 69 men respectively who had been X-rayed and subsequently traced. Though the excess death rate in this highest exposure group was about 9% at both places, the number of excess deaths were therefore 35 and 6 respectively.

Longitudinal:

A total of 1,015 current employment measurements in function studies during the summers of 1957 and 1958. 6.7
single women for study was selected to include a higher position of older than younger workers, as

likely to show lung function changes. Those tested comprised 83% of the sample selected.

The variation in some of the lung function indices by dust level in smokers and non-smokers are shown in Figures 1, 2 and 3. The results of each test were standardized to age 50 years, height 170 cm and weight 70 kg. Total lung volume fell slightly with increasing dust exposure but exposure had little effect on either functional residual capacity or residual volume. Thus exposure to chrysotile affected only the inspiratory capacity portion of the total lung volume. Forced vital capacity and forced expiratory volume (1 second) both declined with increasing exposure - the forced vital capacity falling by about 18% in the highest dust group and the forced expiratory volume rather less. Neither steady state nor single breath diffusing capacities showed any effect of exposure at rest; on exercise, the steady state diffusion declined slightly.

Analysis of the relation between lung function and radiographic changes has been published and showed that in those with small opacities of category 2 or more there was an average reduction of 20% in 3 indices:-functional residual capacity, residual volume and single breath diffusion capacity at rest. Most indices showed a smaller reduction with increasing category of small opacities but only vital capacity and forced vital capacity showed significant reductions in the presence of the earliest radiographic changes. Pleural changes were also

ILLEGIBLE DOCUMENT

associated with depressed lung function ranging from about 3% in those without parenchymal changes to about 6% in those with advanced parenchymal changes. An additional small survey showed that changes in pulmonary mechanics possible precede both X-ray and other function changes ⁸.

Respiratory symptoms:

Each of the 1,015 workers in the function survey answered a slightly modified version of British Medical Research Council and the M.R.C. respiratory questionnaire given in French or English by a bilingual interviewer. Persistent cough and phlegm (bronchitis) and breathlessness on exercise were related to exposure. Table 5 shows, however, that after standardizing for age, the prevalence of bronchitis rose to about 50% with either increasing dust or with increased smoking. The effect of heavy exposure and heavy smoking together were the same as that of either separately. In contrast, the prevalence of breathlessness on exercise was unaffected by smoking but increased steadily with dust exposure.

Effect of smoking:

Smoking habits were originally determined only for employees in the lung function survey. Tables 1, 2 and 3 show that, with some of the lung function indices, the effect of smoking was greater than the effect of exposure to asbestos dust. This was more clear for functional residual capacity, residual volume and perhaps for the steady-state diffusing

ILLEGIBLE DOCUMENT

capacity at rest. Forced vital capacity and forced expiratory volume at one second were both depressed to a similar extent with increasing dust exposure but only forced expiratory volume was lower in smokers. As discussed above, smoking and dust exposure were both related to the prevalence of bronchitis but smoking was not associated with breathlessness.

Attempts are now being made to collect smoking histories in the cohort study of mortality both for those who are still alive and for those who are dead. This may eventually provide prospective and retrospective evidence on the interrelationship of smoking and asbestos exposure. A controlled retrospective study has been made, based on deaths from lung cancer in the cohort study. Each case was matched with a death from lung cancer from the same hospital records in a man never employed in the industry of approximately the same age and year of death. There was higher proportion of non-smokers in cases than controls which suggests that lung cancer may be caused by asbestos exposure in the absence of smoking. The controls were on average heavier smokers which also suggests this, but does not rule out the possibility of confounding between asbestos exposure and cigarette smoking. A case-control study was conducted from a survey of all known cases of malignant mesothelioma in Britain; this disease was unrelated to smoking.

The number of men ever employed in the asbestos industry

industry is small. In the mortality study, 428 of 465 women in the cohort were traced and of these 54 had died. One death was ascribed to lung cancer and none to pneumoconiosis; only 79 women had worked for more than ten years and few had been exposed heavily to asbestos dust.

There were 847 women for whom chest radiographs were available. Most of them were aged 30 or less and the total prevalence of radiographic changes of category or grade 1 or more was less than 1%. Detailed study suggests that women in the higher dust exposure categories had a slightly lower rate of radiographic change than comparably exposed men.

Discussion: I will now discuss these findings.

Though death may be the most definite and serious manifestation of exposure to asbestos, it need not be the most sensitive. Exposure-related excess deaths altogether were probably no more than 2% of the 3,270 deaths in the cohort study. Most of these were attributed to lung cancer and pneumoconiosis and almost all were in the two highest dust exposure categories. Thus, excess mortality was virtually confined to high exposure equivalent to at least 920 fibre-years, i.e. nearly 10-times the British standard. Detailed examination of the death records showed no particular excess, except for pneumoconiosis, which was more than expected from those of the general population of British.

An investigation of the 2,113 women aged 15-24 in 1951

ILLEGIBLE DOCUMENT

mesothelioma from all parts of Canada. 1959 through 1970, showed definite or probable occupational exposure to asbestos in 23% of cases, and in a further 9% there may have been indirect domestic exposure. Of the remaining 68% of cases, not one had ever lived within 20 miles of an asbestos mine or mill. Of all known mesothelioma cases, only 7 altogether, and 5 in the cohort studies, had worked in the Quebec chrysotile mining and milling industry.

These death rates are very low by comparison with the studies of the New York insulation workers¹⁴ and the London crocidolite factory workers¹⁵, in both of which there were much higher rates of malignancy, particularly of mesothelioma. Other studies of the chrysotile industry in the USSR¹⁶ and in Italy¹⁷ confirm the conclusion that only high levels of exposure to chrysotile during mining and milling have an appreciable effect on mortality.

Although radiographic changes had some relationship to dust exposure, the clinical significance of the minor changes is uncertain. Usually, irregular small opacities of category 2 and pleural thickening of grade 2 are considered clinically important. Changes of this order occurred in 1.1% of 1,001 and 0.7% of the entire working population. In men aged 61-65, employed on average for 20 years in the industry, the rates were 5.6% and 3.2% for exposure levels of 30 and 10 f.p.c./m. This is equivalent to 100 f.p.c.-years or 6 times the British

standard. These rates are very similar to those found in the chrysotile mining and milling industry in Cyprus¹⁸, but are much lower than those in the New York insulation workers¹⁴, or in the British Royal Naval Dockyards^{19,20}.

For lung function and respiratory symptoms, the effect of smoking was generally greater than the effect of exposure to asbestos. However, for inspiratory capacity, forced flow rates and breathlessness on exercise, relations to dust exposure were found. With these indices a 5% reduction in non-smokers occurred after a total exposure in excess of 100 mpcf-years (230 fibre-years). This is close to the lower limit of the dust category at which 1% of subjects had grade 2 radiographic changes and is approximately equivalent to exposure to 5 fibres per ml for 50 years.

In the Quebec studies, information on dust exposure was obtained, whereas in most other studies quantitative information is not available. Murphy et al.²¹ found 11 cases of asbestosis in 101 New England shipyard workers with an average exposure of 320 mpcf-years. These workers appear to show a larger effect of asbestos exposure than those engaged in chrysotile production. However, the main constituents of the insulating materials used was asbestos, with chrysotile to a lesser extent and the idiolite variety.

Dust exposure measurements were also made for the Cyprus mining and milling industry¹⁸ and the work of asbestos

ILLEGIBLE DOCUMENT

change for the same exposure levels were very similar to those in Quebec. Exposure indices have also been assessed in a study of two asbestos-cement plants in the USA by Weill et al, where the main exposure has been to chrysotile and silica, but the results are not yet available.

The limit standards for occupational exposure to asbestos are based solely on the airborne concentration of dust or fibre, averaged over a lifetime's work and the results in this report have been presented from this point of view. There was some evidence in our studies that longer exposures for the same total dust levels are associated with slightly higher prevalence rates of radiographic changes. However, the radiographs were all taken during working life, so the correlation between total dust and years of exposure or years since first exposure is high, and the separation of the contributions from these two factors - duration and concentration of exposure would be very difficult. The cohort study also showed that lung cancer mortality rates were higher in those who worked longer to reach a given dust level so, in assessing the overall effect of asbestos exposure, duration of exposure should not really be ignored. For this reason it would be unwise to apply the results of this or other descriptive epidemiologic studies widely different exposure patterns.

The British limit standard for chrysotile of 5 fibres per ml. averaged over 3 months, is based on the results of the

ILLEGIBLE DOCUMENT

dg-10

1% risk of acquiring clinically significant disease in a 50 year working lifetime of exposure is acceptable. The evidence from our studies suggests that if in the chrysotile mining and milling industry of Quebec all dust exposure were reduced to the level of this standard, there would be a much less than 1% chance of acquiring clinically significant disease. Considering all facets of disease (death, radiographic changes, lung function changes and respiratory symptoms) the 1% risk is reached by men in our third dust exposure category (230-460 fibre/years). This implies that a reasonable standard for chrysotile mines and mills would be between 5 and 9 fibres/ml on average for 50 years, and correspondingly higher for shorter periods of employment.

ILLEGIBLE DOCUMENT

This terminates my report but I would like to add one brief comment. That is, that though I have described here the results in miners' and millers' chrysotile, we did include in our study also workers in an asbestos products factory in Asbestos, Quebec.

This was included in the radiographic study and I would like to make the point that using identical methods, the dust-response relationships in this plant were essentially the same as in the mines and mills.

I would also like to add that the mastectoma mortality rate, and here we appreciate we are dealing with very tiny figures, was much higher in this small factory than in the miners' and millers' and I think it is probably relevant that the factory workers were also exposed to asbestosis.

CHAIRMAN GORDON: Thank you, Dr. McDonald. Do you have a copy of the full report you wish to put into evidence. Perhaps you have two copies.

DR. McDONALD: Several.

CHAIRMAN GORDON: Good. We just need one. We will have them, please.

Thank you.

DR. McDONALD: I have a copy of the full report and as noted previously, in evidence.

(The McDonald's report was submitted and placed in evidence.)

I would call to your attention that we are running late.

MR. NICHOLSON: All right. I will try to be brief.

Dr. McDonald, in your previous report that was published in 1968, the conclusion was that in the highest dust level the increased incidence of lung cancer was five times that of the lowest -- does that substantiate with the studies you are now reporting?

MR. McDONALD: Yes, as actually published in 1970 or 1971. We found that the ratio was between the highest and lowest five to one but taking into account a number of other factors in ascertainment of autopsy rates which varied between different exposure levels we concluded that a truer estimate was probably on the order of three to one but it is true that the face value was five to one.

MR. NICHOLSON: With the mesotheliomas that you are mentioning so, they were distributed throughout the lung categories?

MR. McDONALD: They were distributed throughout and as you will appreciate with 75 cases, it is very difficult to say anything, but what is in fact, they were more in the higher exposure group than the lower but the statistical significance would be zero.

MR. NICHOLSON: I have a couple of questions. The first one is: Is there a correlation between the duration of exposure and the incidence of lung cancer?

1 taken over the years and the fiber counts to give a fiber year
2 dust level which bears upon the issue of the applicability
3 of your data taken in mines and mills to data taken in other
4 asbestos operations involving Chrysotile dust.

5 There were thirty-two side-by-side measurements ranging
6 ing in the mining and milling area. You found there was nearly
7 a four-fold difference that was possible in the ratio of mill
8 particles per cubic foot to fibers per cc. The conversion
9 is 1.1 to 1.3 which is also found when the same conversion
10 was in textile mills. The problem, that is the conversion
11 is a very variable one.

12 Could you give an estimate of roughly the number of
13 people exposed in mining versus milling for example that would
14 have different exposures.

15 MR. McDONALD: I would really be guessing but my
16 impression is that very roughly the workers divide into about
17 a third.

18 A third miners -- a third millers and a third supporting
19 ing trades. I do not know how close that is.

20 MR. WINTERFUR: Thank you.

21 Would the number of all measurements adequately
22 represent the variety of jobs that would be in all of these
23 various operations throughout mining, milling and crushing.

24 MR. McDONALD: I can say to you yes, no, I do not
25 know it with certainty. I am sure that there was a

ILLEGIBLE DOCUMENT

1 needed in order to establish this equivalence level. We do some-
 2 what support it, of course, by the other approach which is based
 3 on other considerations using the estimate of the thing a
 4 late contribution, crocidolite.

5 If we are seriously interested in determining the
 6 correct level more work is needed on equivalence.

7 MR. NICHOLSON: How much do you think would be
 8 this ratio which would have been affected or do you think it
 9 is possible that there could have been an effect due to various
 10 dust control measures that were taken in the plant in the
 11 mills and the mines over the past decades, where they put back
 12 house filters onto reduce dust at the drilling operations and
 13 the various controls that you say did take place, could these
 14 not have also affected the ratio in that that would have been
 15 a different ratio in the earlier decades?

16 MR. HENSHAW: I think this is quite possible. We can
 17 not provide evidence either way on that point.

18 MR. NICHOLSON: This is a problem throughout the
 19 measurement of asbestos equipment. This is all we really wanted
 20 to establish. The final point with respect to that

21 was comparison of the two ratios which was based upon

22 comparing asbestos fibers that they were found in the environment

23 in the laboratory. The point being, that has been found in the

24 situation of fibers longer than three microns and less than

25 of 5 microns present in a given atmosphere when a person is working

in a given environment. That is the point that we are trying to establish.

ILLEGIBLE DOCUMENT

28 1 in equal proportions accounted for the excess. There were
2 101 deaths from respiratory cancer including 3 from
3 malignant mesotheliomas and an estimated excess of about 15
4 deaths. The difference in rates for respiratory cancer
5 between those maximally and minimally exposed was
6 five fold and though perhaps exaggerated, was apparently
7 determined by accumulated dust exposure and duration of
8 employment."

9 In that five per cent of the highest dust category
10 5 per cent of the cohort is that approximately 600 workers
11 the highest dust category?

12 MR. McDONALD: If your calculation is correct, I
13 think it is. It is in that order.

14 MR. BREURER: Was the excess death mostly in this
15 category?

16 MR. McDONALD: Yes.

17 MR. BREURER: Were the three mesotheliomas in that
18 category?

19 MR. McDONALD: No.

20 MR. BREURER: May I ask how many mesotheliomas were
21 in that category?

22 MR. McDONALD: I am not within three years. I
23 do not believe any of the three were in the highest.

24 MR. BREURER: The other question. In your opinion
25 are the potential dusts all of your dusts which are potential

ILLEGAL DOCUMENT

29

1

independently.

2

MR. McDONALD: That is correct. All things are relative.

3

4

MR. BREUER: Mr. Job this morning mentioned that the Johns-Manville Corporation supported research in asbestos. That is other research than what you are performing, right?

5

6

7

8

MR. McDONALD: I guess what he is referring to is the fact that Johns-Manville, together with other mining companies help support the Institute of Occupational and Environmental Health which is a granting body which receives grant application research applications and which, therefore, indirectly supports our research.

9

10

11

12

13

14

Now, it is a very indirect relationship.

15

16

17

18

19

MR. BREUER: One other question in this regard. I notice in this paper that you have referred to your paper published in the archives of Environmental Health that you refer to a Jackson Survey of Primary Malignant Neoplasms that published by Lisco and B. McDonald of Los Angeles as one of the co-authors on the report.

20

21

22

23

24

25

MR. McDONALD: Yes.

MR. BREUER: Was that survey confidential with respect to any information contained?

MR. McDONALD: Oh, yes, certainly.

MR. BREUER: Well, I am interested in your

when you refer to the Canadian Survey which was conducted, which you mentioned at some length, conducted by one of your coauthors of the report, I see the note "this work as undertaken with the assistance of a grant from the Institute of Occupational and Environmental Health of the Quebec Asbestos Mining Association."

MR. McDONALD: That is correct.

MR. TURNER: But that refers to the Canadian Survey.

Which you mentioned.

MR. McDONALD: Yes.

MR. TURNER: Thank you, sir.

MR. TURNER: Mr. DeGregorio.

MR. DeGregorio: Mr. McDonald, will you permit me two questions, please. I was surprised to hear that Canada produces about 50 per cent of the asbestos in the world.

MR. McDONALD: Something like 45, I think.

MR. DeGregorio: And the mine administration or the mine owners are concerned in the same governmental work?

MR. McDONALD: Yes.

MR. DeGregorio: In Quebec?

MR. McDONALD: Yes, I have been. There is a mine now in British Columbia and one in Ontario. I have been to the mine in Quebec and the mine in Ontario.

in this relatively local area of Quebec.

MR. DeGREGGIO: Do you happen to know the total number of workers engaged in those mines during the period of your study?

MR. McDONALD: Well, as I say in my report, so far as we can ascertain since the industry started in 1878, approximately 28,000 persons have been employed.

MR. DeGREGGIO: And your efforts include about in round numbers?

MR. McDONALD: Twelve thousand.

MR. DeGREGGIO: Twelve thousand?

MR. McDONALD: Yes.

MR. DeGREGGIO: I understand your study was begun in 1966 so that essentially your work has been retrospective and you have gotten your information, am I wrong?

MR. McDONALD: No, I think you are wrong.

The employees were registered at that time but the information then as to what happened to the workers was collected after that. It is basically speaking that we made such a retrospective study.

MR. DeGREGGIO: In your study of that time, the total employment in the industry to 1966 was approximately 28,000 persons. Is that correct?

MR. McDONALD: Some.

MR. DREGG: Or before and after?

MR. McDONALD: Some before and some after.

MR. DOUGREGORIO: That is what I had in mind. I corrected, of course.

Now, in doing that, in studying that relation, we relied on examination of documents prepared by the CIA.

MR. McDONALD: Yes.

MR. DOUGHERTY: And that brings up the question of
 y of those documents, does it not?

MR. MCNEAL: Yes.

Q2. D03360110: For example, how do we know how our knowledge of the level of exposures in the
or '52's?

DR. ROBERT: Yes, can I compare on this?

DR. DAZZLER: Amen.

[illegible]

331 over approximately 18 years. We have since in parallel with
 2 him done a parallel study and we find actually that we learn
 3 more from him than he does from us but certainly at the present
 4 time he is as good an observer as one is likely to come by.

5 Now, it is true that no doubt he has learned something
 6 in 18 years, too. But that is the source of the information.
 7 Now, of course, prior to 1950 there were practically no objec-
 8 tive measurements recorded or otherwise and before that we
 9 are having to rely on estimates. The way in which we estimated
 10 these exposures is certainly subject to error but I think that
 11 one of the reasons that I think we can put some reliance on
 12 them is that they were extremely high. Dust control made
 13 practically no impact on the industry so far as we can ascer-
 14 tain until after the war. And in fact, we still had until
 15 very recently a plant which was operating which had
 16 everyone out of business at still very heavy levels and
 17 it was possible using measurements in that plant and by getting
 18 observers who worked before and after to try to estimate
 19 as best we could what conditions were like in 1950.

20 DR. LEPAGE: Am I correct also in understanding that
 21 the highest of measured exposures there may have been were
 22 not observed because you did not observe your own work-
 23 place but they have been observed by others whose results
 24 were not in your favor, for example, death certification records
 25 are not in your favor, is that correct?

34

MR. McDONALD: The fact of death.

MR. DeGREGGIO: The fact of death.

MR. McDONALD: The fact of death, yes.

MR. DeGREGGIO: The fact of death, yes. But not the cause of death?

MR. McDONALD: The cause of death we then attempted to check, that is to say for all lung cancers and we went back and examined the data and looked for autopsy information and so on but always of course one is dependant on what other pathologists or physicians have recorded. You appreciate that this error applies to all levels of exposure so that the error, if it exists should not produce bias. As a matter of fact, there is a bias and it is a bias that is worth bearing in mind in all studies and that is that if a person is known to be an asbestos worker, he is much more likely to be recorded as lung cancer or mesothelioma. He is more likely to have an autopsy in general. This kind of bias with identity tends to exaggerate the dose response relationship but you are quite right again it is dependent upon human, yes.

MR. DeGREGGIO: On this question of bias, do you think that the bias is either in the same direction, say, if you have a relationship between exposure to asbestos and the occurrence of some other lung diseases and that will tend to be exaggerated.

MR. McDONALD: We have had some errors. I should like to

ILLEGIBLE DOCUMENT

35 1 the more certain people are that there is a risk associated
2 with the job, the more likely is this bias to come in. But I
3 think this bias has been pretty understandable because, if
4 a worker dies, the fact of human "connosist" [?] has been known for
5 a long time and the way in which compensation occurs is by
6 suspecting it and asking for an autopsy.

7 The autopsy rate is much higher in heavily exposed
8 people than in lightly exposed probably because the relatives
9 are more anxious to have an autopsy because they may have
10 a claim for compensation but the lung cancer may be much more
11 recent. May I add that very few of our deaths in our cohort
12 occurred before 1950--most of our mortality is since then.

13 MR. DEMEGGIO: Now, a point about which I am
14 just curious.

15 STANLEY GOLDBERG: If you are just curious, do not
16 ask.

17 MR. DEMEGGIO: Please, may I--well, am I
18 correct in assuming that the workers in these mines you
19 have studied came from the surrounding neighborhood--in other
20 words that it is believed by some that it is possible
21 to identify these households by the way they are situated,
22 is it possible that you have compared the homes of these
23 exposed group, and group of subjects exposed to the same
24 conditions and another group of relatives of those who were
25 alive at the time the mine was closed, the lives have

36 1 exposed to lower concentrations indirectly?

2 MR. McNEIL: Yes, it is possible and in fact we have
3 made several comparisons. If we compare the miners with the
4 local workers with local persons, that is where we find our big-
5 gest difference because the local rates of lung cancer are
6 much lower than in the province as a whole.

7 In other words, if we compare the mortality in
8 our miners with some that are away from the mining area,
9 say, Montreal and Quebec, there is no excess at all. This is
10 what someone has referred to, the fact that our overall
11 mortality is in fact for this industry slightly lower than for
12 the general population.

13 Now, that obscures the fact that, if you start
14 examining the people in relation to their dust exposure, then
15 you find that those at the highest level have an excess of lung
16 cancer. Do you follow me?

17 MR. BOSTWICK: No, I am sorry.

18 MR. McNEIL: In other words, if we did what you
19 are asking, there would not be any excess. The only reason
20 there is an excess is because we are comparing it with
21 local rates of lung cancer which are low. That is all.
22 In the province as a whole, the rates are higher than in the
23 mining area. Is that clear?

24 MR. BOSTWICK: The last question, but my
25 question was not clear enough to discover what you
26 meant by that. My question was, have you been able to find

ILLEGIBLE DOCUMENT

1 you studied with the control groups used by other researchers
2 in all occupations.

3 MR. McDONALD: Well, there are practically no other
4 researchers who have used any control. What has been used
5 generally has been the general population, the general
6 population, shall we say, of the United States or of a
7 number of states in the United States. This is the standard
8 procedure and we certainly can do that.

9 In other words, if you did that and you know the
10 general level of the mortality from lung cancer in Quebec
11 is lower than in the U.S., so if we were to compare it with
12 other people's controls, we would possibly find that asbestos
13 was good for you because our rates would be lower but that
14 kind of comparison is not valid. In fact, then we are
15 very reluctant to make comparisons with general population
16 controls so be quite strict--I doubt the validity of studies
17 based on that.

18 The standards of observation are not comparable
19 and this of course means that you are getting a different estimate
20 and of asbestos than London. That is why I think it is
21 very important that in any study as an epidemiologist, the
22 reaction should be based on the same population, standard
23 the population which it came to look at the same standard of
24 study after these different levels of exposure.

25 DR. TAYLOR: Thank you.

ILLEGIBLE DOCUMENT

38 1 EXAMINER GOLDBERG: Mr. Earl, I want to call your
2 attention to the fact that Dr. McDonald was scheduled to
3 testify this morning.

4 MR. EARL: Doctor, have there been any studies done
5 regarding the effect of smoking if there is an effect and having
6 such studies broken down between those that smoke on the job
7 and thus inhale the dust simultaneously with the smoke and
8 those who smoke generally but do not smoke on the job.

9 MR. McDONALD: I am not aware of any studies of
10 this kind. The number of studies which have touched on smoking
11 at all in relation to asbestos have been very few and we have
12 done a small study but it is still, I think, a question as
13 far as I am aware of that has not been studied.

14 MR. EARL: With your expertise, do you think it
15 could possibly be clinically significant the fact that a
16 man smokes on the job and inhales the dust simultaneously as
17 opposed to a man who smokes generally on the job does not.

18 MR. McDONALD: Frankly, I do not think so. I think
19 that it is in overall dust exposure and overall smoking but
20 no relationship.

21 MR. EARL: You indicated you were not sure as to whether
22 higher concentrations on non-smoking levels. Would you care to
23 remark on the high-dose level?

24 MR. McDONALD: I really am hard to present our study
25 in light of your brief for the years on exactly this question--

ILLEGIBLE DOCUMENT

dust?? 1

2 dose response relationship and the concluding point that I
3 make is that if we accept British constant of a point at
4 which the one per cent risk of clinically significant disease
5 is achieved in fifty years working on it, we find that level in
6 our asbestos miners in the category which lies between five
7 and nine fibers. So it follows from that that in my view
8 the concept of five is entirely reasonable.

9 MR. EARL: Thank you, Dr. McDonald.

10 You are excused, Dr. McDonald.

11 Dr. Kingsley Key.

12 STATEMENT OF DR. KINGSLEY KEY, Ph.D.

13 UNIVERSITY OF TORONTO.

14 I am Kingsley Key, I am a Ph.D. in physical
15 chemistry of the University of Toronto. Some considerable
16 time ago --and my special field is Occupational Toxicology--
17 I served on the Threshold Limits Committee of the American
18 Conference of Governmental Industrial Hygienists. I have
19 been a member of the subcommittee on Labeling of Hazardous
20 chemicals under the Chemical Industries Committee--the body
21 that consists of International Labor Organization, and I
22 have been chairman of the subcommittee on Labeling of Hazardous
23 Chemicals of the same ILO Committee.

24 I am currently a member of the Expert Advisory
25 Panel on Occupational Health of the World Health Organization
and my research currently is in the Occupational Cancer

ILLEGIBLE DOCUMENT

40 1 of Cancer. Because of this background which I have
2 just described I have been particularly interested in the
3 first air standard proposed under the Occupational Safety
4 and Health Bill. Also, as Associate Professor of Environ-
5 mental Medicine in Mount Sinai School of Medicine, an appoint-
6 ment which I have held for two years I have had a contact with
7 the work on asbestos in that center.

8 The new law of 1971 has the intent of preventing
9 diminished health functional capacity or life expectancy
10 as a result of work experience and furthermore I have noted
11 in the NIOSH criteria Document Section, two pages 2 and 3
12 that "biological monitoring by periodic chest roentograms
13 and removal from further exposure after indication of
14 fibrocystification or neoplasia will not prevent further
15 progression of asbestosis or clinical - of neoplasms and
16 therefore it is absolutely essential that a very low level of
17 air concentration be set to preclude the initiation of disease
18 resulting from exposure to asbestos. It is to this end that
19 I wish to address myself first. I have already submitted a
20 brief to the hearing and my comments are essentially
21 auxiliary to that brief.

22 As I pointed out in the brief very little attention
23 has been paid to the fact of monitoring in making a decision
24 such asbestos standard can be adopted out of the subject of
25 a series of standardized work that has been conducted.

41

1 the years.

2 Most of the investigators either did not examine a
3 statistically valid sample of workers or they did not
4 adequately describe the asbestos exposure by airmetric moni-
5 toring.

6 This statement of affairs has been covered
7 comprehensively in the NIAH report and need to be enlarged
8 upon at this time.

9 In the brief that I presented, I took the
10 opportunity to examine the Mount Sinai data graphically and
11 if anyone were interested there are copies at the table that
12 you could take. What I found was that the work on the 1117
13 insulation workers, the clinical work plots a smooth
14 mathematical relationship with the progression of lung abnor-
15 malities and some years after having had the exposure,
16 indicating that the cohort was adequate and reassuring in
17 regard to the validity of the study.

18 In addition this investigational group was able to
19 correlate the clinical evidence with some recent surveillance
20 monitoring of exposure levels on the procedure and
21 were able to find the clinical document. It is difficult
22 to find for both clinical and surveillance and there are
23 degrees in which data investigation frequently have shown
24 that the technology of the investigation made has remained
25 consistent, the same for any case as that some might
26 be given to be applied to the case which is the

ILLEGIBLE DOCUMENT

43 1 be a challenge by the data in table 27 of the NIAH Report
2 which shows that very short exposures to asbestosis lead to
3 lung abnormalities with the passage of time.

4 Furthermore, ample evidence is provided in the
5 NIAH report that Neoplasia may also eventuate from
6 extremely short exposures.

7 In the foregoing circumstances it is not clear
8 at what level to set an aerometric standard of asbestos
9 exposure for precluding diminished functional capacity,
10 diminished health, diminished life expectancy as the law
11 demands.

12 For instance, if 90 per cent of the workers at
13 around 5 fibers per cc show lung abnormalities within 40
14 years after onset of exposure and 50 per cent showed diminished
15 functional capacity as measured by shortness of breath and
16 if neoplasia occurs after very short exposure as is suggested
17 in some studies, then the aerometric index that is set
18 5 fibers per cc is called for to make this situation less
19 hazardous effectively.

20 Furthermore there has not appeared to be any study
21 in the literature of history and health and as a result a
22 standard which may contain some partial protection and which
23 is already in effect, standard of 5 fibers per cc is
24 based on some protection of all workers who are exposed
25 to asbestos. This standard is not in accord with the

ILLEGIBLE DOCUMENT

44

1 intentions of the United States Occupational Safety and
2 Health Act which, as I see it, seems to be intended to protect
3 all workers.

4 Viewing the data in Figure 1 again of my brief,
5 a reduction in the air exposure from, let us say, five
6 to two fibers per cc or four would even, if the effect were
7 linear leave us with 36 per cent of workers showing lung
8 abnormalities, 20 per cent with functional incapacity in
9 terms of shortness of breath.

10 The HIASE Report refers to safety factors and
11 standard setting. It is submitted that the conception of
12 safety factoring implicit in HIASE proposal and the Finnish
13 Standard which inspired it is far short of what is conceived
14 of in other fields as for instance food contamination where
15 safety factors of 100 have long been the practice of
16 standard setting, the question of course continues to be asked
17 why should industrial workers be subjected to the higher
18 level of health risk than the general public.

19 Now however, as an exposure of some 100 fibers per
20 cc by the WHO Commission of 1968 and subsequently, the only
21 standard world wide is internationally in force and
22 it would be a serious lapse for the OSHA Act to
23 require a lower standard for workers than the general public.
24 It is the air on.

25 Of course, there is of course, some 100 fibers per

ILLEGIBLE DOCUMENT

45 1 suppose that cigarette smoking of workers are mainly those
2 at risk. However, it is now known that polycyclic carcinogenic
3 hydrocarbon to which the neoplasias of cigarette smoking are
4 present in air pollutants present in the air adjacent to
5 cigarette smokers; a fact which has been recognized in a
6 practical way by the current move to separate smokers
7 and non-smokers in transportation and other occupations.

8 To summarize it is submitted that the proposed
9 NIOSH standard of 2 fibers per cc asbestos exposure
10 is within the health injurious range and as such it is in
11 danger of becoming a protocol for human experimentation
12 over a long period that it will take to validate the
13 guess.

14 Finally, word on labeling. The proposed labeling
15 scheme appears to be fairly adequate for trained health
16 workers and technical staff and industry. Given the format
17 of the warning sign, that is the sign with the four gradations of
18 hazard, given the NIOSH warning sign, it is possible from
19 the symbol to estimate the hazard of the labeled product.

20 For the workers, however, the symbol clearly is
21 a source of confusion. It is suggested that the symbol be
22 simplified to a single hazard symbol. The NIOSH symbol for
23 hazard is a skull and crossbones and the proposed symbol with the four
24 gradations is a source of confusion. It is suggested that the
25 symbol be a single hazard symbol.

46

1 measure if it were not, then some more realistic symbol along
2 lines long ago accepted at the International level seems to be
3 called for in that situation.

4 EXAMINER COLEBERG: Thank you. You are
5 excused.

6 STATEMENT OF JAMES W. RAWLINGS, VICE PRESIDENT
7 MINING AND METALS DIVISION - UNION CARBIDE
8 CORPORATION

9 MR. RAWLINGS: I am James W. Rawlings, Vice President
10 of the Mining and Metals Division of Union Carbide Corporation.
11 and Product General Manager for the Division's asbestos
12 business. As such, I am concerned with all activities of our
13 asbestos operations from mining to sales.

14 Before proceeding with my proposed remarks, you
15 should like to note the primary reason for my appearance
16 here today. Union Carbide has developed a number of
17 asbestos products for special and little known applications. I
18 believe it is important that we make the nature of these products
19 known in the context of our total asbestos business and also
20 to outline the special aspects which some of the products have
21 with respect to our ability to produce asbestos fibers.
22

23 There are about 100,000 tons of asbestos in the United
24 States and the majority of this is in the form of chrysotile.
25 The chrysotile asbestos is the most common form of asbestos and
26 is the one which is most commonly used in the United States.

ILLEGIBLE DOCUMENT

47

1 Union Carbide's single asbestos mine is located in
 2 the remote New Idria mining district of California and the ore
 3 is processed 55 miles away at a mill near King City, California.
 4 The deposit was discovered by Union Carbide geologists in 1953.
 5 It contains several hundred million tons of a 50 per cent
 6 chrysotile short fiber ore and is one of the world's significant
 7 mineral reserves.

8 Despite the vast size of the deposit, the decision to
 9 develop it was difficult. The complete lack of long or medium
 10 fibers precluded any participation in such economically sig-
 11 nificant asbestos markets as textiles, insulation and cement.
 12 Moreover, our ability to directly compete with co-produced
 13 Canadian short fiber asbestos in floor tile, tape joint and
 14 other traditional short fiber markets located in the
 15 Western United States was marginal due to higher freight rates.
 16 It was also apparent that even major participation in traditional
 17 short fiber markets in the Western United States would
 18 require significant economic justification for development and recovery.
 19 Therefore, Union Carbide's management conducted a comprehensive market
 20 research program to evaluate the high purity, highly fibrous
 21 short fiber asbestos. As a result of this program, we have
 22 identified several new markets for this material along with a number of
 23 additional products. Some of these uses, which are now being
 24 developed, include: high purity asbestos for use in the manufacture of
 25 high purity asbestos for use in the manufacture of high purity asbestos
 26 for use in the manufacture of high purity asbestos for use in the
 27 manufacture of high purity asbestos for use in the manufacture of
 28 high purity asbestos for use in the manufacture of high purity asbestos
 29 for use in the manufacture of high purity asbestos for use in the
 30 manufacture of high purity asbestos for use in the manufacture of

ILLEGIBLE DOCUMENT

46

1 research efforts have continuously been directed toward the
2 development and sale of asbestos products for new applica-
3 tions which, as a group, we identify as "specialty products."

4 The economic viability of Union Carbide's
5 asbestos business is dependent on its ability to maintain its
6 specialty products market. Certain of the proposed regulations
7 seriously threaten this market by imposing restrictions which,
8 in our opinion, go beyond those reasonably required to protect
9 the health of individuals working with the products.

10 However, before discussing the specialty products market
11 and the impact of the proposed regulations, I would like to
12 briefly outline the economic benefits which directly flow from
13 Union Carbide's present ability to participate in the market.

14 While time will not permit a description of each
15 of our specialty products, a somewhat detailed description of one
16 is necessary in order to place our comments on the proposed
17 regulations in meaningful context. By far our most significant
18 specialty product is a chemically modified, high purity
19 asbestos fiber which serves as a thermoplastic agent in such
20 products as laminates, resins, and polymers. epoxy and polyurethane.
21 In addition, thermoplastic agents are used in almost everything from
22 to the car's engine, namely, for vibration control. High strength and
23 low weight are also important in the design of aircraft. Thermoplastic
24 agents, for example, are used in the design of aircraft to provide a
25 lightweight and strong structure which also allows for the use of

ILLEGIBLE DOCUMENT

1 makes contact with a static surface, almost immediately
2 become a solid which will not run or drop. A very substantial
3 application for our asbestos thixotrope is in polyester
4 resins used in the fabrication of boat hulls. Typically,
5 the hull is built up on a mold, working from the outside in.
6 A polyester coat is sprayed on, followed by a layer of
7 fiberglass and then by another polyester or t. This process
8 is successively repeated until the hull is built up to
9 the required thickness. Essentially, the same procedure is
10 followed in producing a variety of other products such as
11 shower stalls and automobile body parts. Applications of this
12 nature would not be possible without the viscosity control
13 afforded by an effective thixotropic agent.

14 The only significant alternative thixotropic agent
15 now available is amorphous silica. The silica product has a
16 much lower bulk density than our asbestos product and
17 is inherently much denser. It is more expensive than our
18 product and so, in our opinion, it will have a limited market.
19 Amorphous silica dust levels are also regulated under
20 the Clean Air Act, and health hazards are also regulated under
21 the Occupational Safety and Health Act. However, the silica
22 dust levels and asbestos regulations have a similar effect.
23 The use of the thixotropic agent is not questioned in any way.

24 Now, I have talked a lot about this product. I
25 have also talked a lot about the fact that I would like to see
26 it in the market as a thixotropic agent for a variety of products.

1 plastic material which contains a half per cent of the thio-
2 tropic product.

3 Earlier today Dr. Funsak discussed a list of
4 problems which were enclosed in strong binder resins and
5 we would very much like to work with him or independently to
6 provide you with a list of all of our specialty products because
7 they fall in that category and I think they are not many of
8 them are not generally known.

9 WEAVER: CORRECTION: The record will be kept open
10 for ten days for the receipt of additional statements and
11 material. And you may submit the samples that you wish to
12 do but when you do I notice that what you held up was
13 about the size of a silver dollar.

14 MR. BARNES: Yes.

15 WEAVER: CORRECTION: We are going to have difficulty
16 explaining that in the record. It will have to be recorded as
17 a sample of size that we can keep track of. All right.

18 WEAVER: What time would be convenient?

19 WEAVER: CORRECTION: We should have a way of saying that

20 it is not a sample of size that we can keep track of.

21 WEAVER: CORRECTION: It is not a sample of size that we can keep track of.

22 WEAVER: CORRECTION: It is not a sample of size that we can keep track of.

23 WEAVER: CORRECTION: It is not a sample of size that we can keep track of.

24 WEAVER: CORRECTION: It is not a sample of size that we can keep track of.

25 WEAVER: CORRECTION: It is not a sample of size that we can keep track of.

THE WITNESS: To this point, we have not commented on the proposed regulations as they would apply to our own operations. Here, we do have a number of advantages. The natural moisture content of the ore in our California deposit runs from fifteen to twenty per cent. The moist ore is transported in canvas-covered truck beds to a stockpile at the King City mill. A sprinkling system on the stockpile adds additional moisture to the ore. The milling process at King City is a unique, wet system (the ore is introduced and processed in a slurry) which inherently minimizes dust generation. Notwithstanding these advantages, we are planning to make an additional capital investment of approximately \$200,000 in order to further reduce concentrations of asbestos asbestos fibers in the mill.

We are confident that we can comply with a Threshold Limit Value of 5 fibers per milliliter on our operations. It is our opinion, however, that a threshold limit value of 1 fiber per milliliter cannot be achieved in our operations by an economically-feasible combination of engineering and administrative controls.

While we have not determined any additional health or safety measures which have been determined by the relevant authorities, we do believe that the adoption of a Threshold Limit Value of 1 fiber per milliliter is not economically feasible at this time.

50

1

EXAMINER GOLDBERG: Thank you, Mr. Rawlings. Do

2

you wish to introduce at this time two copies of the document?

3

MR. RAWLINGS: Yes, I do

4

EXAMINER GOLDBERG: The statement of James W. Raw-

5

lings will be marked Exhibit 44 and as marked, received in

6

evidence. And the additional documents that you wish to submit

7

in ten days, etc. Does anyone wish to examine Mr. Rawlings?

8

Thank you very much, sir.

9

(Exhibit 44 marked and received

10

in the record.)

11

EXAMINER GOLDBERG: We will take a fifteen-

12

minute break.

13

(Recess)

14

EXAMINER GOLDBERG: Is Dr. Roberts here?

15

DR. ROBERTS: Yes, sir.

16

STATEMENT OF DR. ROBERT ROBERTS, JR.,

17

NEW YORK STATE, NEW YORK.

18

DR. ROBERTS: I am Robert Roberts of New York City.

19

I am a physician and a member of the faculty of the Faculty of

20

of the University of New York University. I am also

21

the Director of the Department of Medicine of New York City.

22

I am also a member of the New York State Medical Society.

23

I am also a member of the New York State Medical Society.

24

I am also a member of the New York State Medical Society.

25

I am also a member of the New York State Medical Society.

ILLEGIBLE DOCUMENT

51 1 primarily of which I am the current president. This is an
 2 association of over 3600 physicians who spend all or
 3 part of their professional working time in the service of
 4 Occupational Health Programs. It sounds a little grandiose,
 5 maybe and pretentious to suggest that with the limited com-
 6 ments I intend to make that I also envision myself as speaking
 7 for the people who designed the Occupational Safety and Health
 8 Act of 1970 and for the several hundred thousands of workers or
 9 many hundreds of thousands of workers for whom it was
 10 designed to enact, but I think that you will understand why
 11 I can imagine myself speaking on behalf of them when you
 12 hear the content of my remarks.

13 We would like to comment only with respect to
 14 the immediate medical examination portion of the
 15 asbestos standards and not particularly on the asbestos stan-
 16 dard prepared by NIOSH or upon the Advisory Committee's
 17 standard for it.

18 In general and fundamentally endorse the
 19 medical surveillance portions of these documents. Our
 20 principal source of concern about which we would like to
 21 express ourselves is with respect to the certainty that you
 22 have expressed as well as the fact that because of the
 23 fact that the medical surveillance of workers exposed to
 24 asbestos.

25 There are several related factors that are

ILLEGIBLE DOCUMENT

52

1 employed in Occupational Medical Services and although I will
2 refer mostly to physicians in the course of my remarks are
3 supplemented by a great number of industrial hygienists and
4 a great number of nurses and other paraprofessionals who
5 are engaged in trying to serve the welfare with respect to
6 their health of the workers in our nation. Our goals or
7 commitments as career efforts were to the goals that the Occu-
8 pational Safety and Health Act speaks to.

9 We enforced the passage of this Act. It is our
10 judgment that if minimum leverage were desired in trying to
11 attain the implementation of it, that those professionals
12 who have spent their whole career working for the same goals
13 would be entitled fully in the sense of almost being figure-
14 heads designated to help the Department of Labor and Department
15 of HHS accomplish the goals of the Act.

16 It, therefore, is a considerable disappointment
17 to us to have people reacting to the effort that the single
18 group of health professionals who have worked longest and
19 hardest to protect the health of workers ought not to be
20 allowed to be the central individuals or to be the nucleus
21 of the individuals that have to share equal responsibility to protect
22 the health of workers and to protect the health of the community.

23 Now, if we are going to be suggesting that a people
24 who are health professionals be the employers of the
25 health care system, we are involved in the implementation of the

1 because he is paid by an employer that he is beholden to him
2 and can not remain detached and scientific and objective and
3 truly be devoted to the welfare of the employee.

4 I have yet to meet a physician that went to medical
5 school who worked for a company that manufactures asbestos or
6 a steel company or an oil company or any other such organiza-
7 tion.

8 If we stop to think of the goals of management
9 versus the goals of organized labor one would almost come to
10 the conclusion that a physician's goals would be more automati-
11 cally compatible to those of labor who concern themselves
12 with the interests and welfare of the individual. The fact
13 is that the vast majority of physicians, nurses and
14 industrial hygienists who are engaged in this work year in and
15 year out and have long before the passage of the Occupational
16 Safety and Health Act and with very considerable accomplishments
17 have never had their integrity or their detachment, their
18 scientific objectivity even challenged.

19 Now, the reason for organizing themselves as a union
20 out of the prohibition of these considerations for a union
21 is that and that is the question of whether or not a
22 union is necessary to protect their interests.

23 There is little doubt about the fact that there
24 have been people in this work who have been guilty of being
25 unscrupulous, of not protecting the welfare and safety of

1 the worker and of behavior that we would just as vigorously
2 condemn as anybody else who has spoken against it.

3 We do not deny that such problems have existed
4 and that they do still exist. What we are concerned about
5 is the matter of perspective and the matter of the proposed
6 solution to these problems. We think that it would be most
7 unrealistic to expect that enlightened managers who have
8 supported very generously good, high caliber occupational
9 health programs, would continue to support these as they
10 have if their involvement in examinations under OSHA were
11 precluded by regulations.

12 To us it seems that nothing would serve more
13 poorly the welfare of the hundreds of thousands of workers
14 who are being served by occupational health programs now
15 than to have support from them, support of them withdrawn.

16 We, in other words, would like to suggest that the
17 problem does exist of assuring integrity in performance of
18 physicians and nurses and industrial hygienists but that the
19 problem is a relatively limited one, that the solution is to
20 be to should be to have positive steps to ensure the problem
21 does not exist and as it exists, that it would be undesirable
22 to require the kind of steps that are being proposed, and, that
23 the kind of steps is intended for those who are signing.

24 Now, our proposal, therefore, is that as regulations
25 as regulations are made to prevent the involvement of

55

1 Occupational Health Personnel in the employment of managements
2 of organizations from the performance of examinations required
3 under OSHA.

4 It is true that the vast majority of us are paid
5 by management but that is because almost all occupational health
6 services are supported by management. Enlightened management
7 does not do this for an altruistic purpose. They do it because
8 it is just good business. They also appreciate the fact
9 that if they ask us as physicians to put the welfare of their
10 corporation or their profitability ahead of the welfare of
11 the patient that is in the chair next to our desk, that we
12 are not likely to go on being professionally satisfied with that
13 sort of a career or that sort of work and that we are not
14 likely to stay in their service and that we are not likely
15 to be able to enlist the cooperation of employees in a program
16 where the employer had to wonder whose welfare is to be
17 served in this process.

18 Now, we feel that enlightened managements that
19 have supported office programs and that many people that have
20 worked in these programs deserve at the very least to be allowed
21 to go on being that OHA has as its goal, protecting the
22 health of workers and that that system do exist in carrying
23 the continued safe and healthy working conditions of physicians
24 and other health professionals in their work that these problems
25 be solved by production means.

Our last point is this. We think this is an incredibly big and important subject and literally many people who are concerned would have valuable input on it but they have not been alerted at all in any way to the fact that it is under consideration here on this occasion, because nothing in the original document or in the Advisory Committee's revisions or it suggested that this was a subject for consideration. It has only comfort in the testimony. We, therefore feel it would be tremendously inappropriate for such a major precedent to be set without full discussion and full testimony by all of those who are involved, because of the fact that Dr. Marie Bundy, immediate past president was going to make this presentation but could not today, the statement that we have prepared in writing bears his name.

If I may, I should like to remain it as long as the hearings remain open to try to go to it and submit a revision that will incorporate his thinking and some of the comments that I have made.

That concludes my formal say. I would be glad to answer any questions if you wish.

Thank you very much. The will have for you to a
and the document, Dr. Nelson.

Very respectfully,

Dr. ENCHILADO: One.

ILLEGIBLE DOCUMENT

EXAMINER GOLDBERG: One.

MR. DEGENECRIO: Dr. Roberts, so far as you know, are the medical records made and kept in the medical department of an employer available to people who work in the personnel department of the same employer for purposes of administrative actions?

DR. ROBERTS: This would vary from cooperation to cooperation undoubtedly. We would vehemently disapprove of their being available in any way.

To illustrate to you the extent to which we go in the organization with which I am employed, Standard Oil Company of New Jersey, under no circumstances would any information be given to anybody in the personnel department, anybody in management of the company, anybody outside of the medical department that results from our observations in the course of a medical examination.

Our records are kept under lock and key. They are available to no one. In any reasonable standard of a proper occupational medical program, we would feel that medical records should not be available to people from the personnel department at all. In the instance, for example, of an employer who is the one organization with which we are presently dealing, we are occupational health and safety as well as first aid and the medical records are not available to anybody.

ILLEGAL DOCUMENT

We would provide them only with the information that law requires us to provide about the specific disability. For example, if one of our employees --if we had much other medical information on him, which we would consider totally confidential and which is not pertinent to the subject of the suit and which we did not have to reveal by law, we would not provide that even to our own attorneys.

This material remains in medical hands. We are proposing, our association in conjunction with a number of other health associations, is proposing a system of accreditation that would allow us to have a detached scientific body such as now hospitals or secondary schools or universities which would measure the fitness of an occupational medical service for such accreditation.

One of the standards that would undoubtedly be required would be the assured confidentiality of the medical records. We feel just as strongly about that as if we were in private practice. And I might say I have been in this business for 23 years for two companies and in this time I have not been asked by a management man to reveal a confidence nor by, incidentally, anybody else, government or by a labor union unless it was at the request of the employee who was with him.

ST. PAUL: How much will your association

be able to do?

59 1 DR. ROBERTS: The accreditation program is something
2 that has progressed to the point where this is the initial
3 manual or document intended for serious study and
4 review by the six or seven organizations cooperating in the
5 accreditation process. It will undoubtedly take a good
6 amount of time to get it into a working state.

7 We have a preliminary inadequate accreditation
8 system that has gone on for some years. We are very dissatis-
9 fied with it. This is why this effort is being born.

10 We are as anxious to see standards of performance
11 and integrity established as we can possibly be. We are
12 anxious for support of this effort by all of the organiza-
13 tions which are involved and we are presently meeting next
14 week in fact in Washington in pursuit of funding for this
15 effort.

16 DR. JAMES: When would you actually be able to--
17 do you think, conduct inspections and make a credit to a
18 particular program if everything goes well for that?

19 DR. ROBERTS: I would guess, if we were adequately
20 funded, we could do it within the year.

21 JAMES: I would like to ask you, Dr. Roberts, how
22 are you going to do this?

23 DR. ROBERTS: I am not sure.

24 JAMES: I am not sure either, Dr. Roberts.

25 JAMES: I am not sure either, Dr. Roberts.

60

1 MR. LEAMAN: I am B. F. Leaman, Vice President for
2 National Affairs, Certainteed Products, Valley Forge, Pennsylv-
3 ania.

4 Before submitting my own remarks, I would like to
5 present--which I have done for the record in duplicate the
6 written views of my company on the proposed standard for
7 exposure to asbestos dust.

8 EXAMINER GOLDBERG: He will mark the submission
9 of Certainteed Company as exhibit 45. And it is received.

10 (Exhibit 45 is marked in evidence.)

11 MR. LEAMAN: Certainteed Products Corporation
12 is a diversified manufacturer of asphalt roofing fiberglass
13 insulations, polyvinyl fluoride, pipe and siding, mill work,
14 carpeting asbestos cement pipe and other items in the
15 building industry of America.

16 Certainteed also manufactures building materials and
17 piping products in various locations around the country. Sales
18 in 1974 approximated \$330 million. The principal use of asbestos
19 cement is in the manufacture of asbestos cement pipe. This
20 pipe is used primarily for the transmission of water under
21 pressure and for sewer pipe.

22 The principal difference is in pressure pipe. Pressure
23 pipe is made in a variety of diameters of the asbestos cement. It
24 can be made strong enough for pressure fluid transmission
25 because pipe cannot be made of concrete without asbestos.

ILLEGIBLE DOCUMENT

61

1

In the written views you will find a detailed

2

analysis on the effect on Certainated, its employes and the

3

public if, because of the promulgation of too harsh a standard

4

by the labor department we are required to terminate our

5

asbestos cement pipe manufacturing business.

6

I would like to highlight just a few of the statis-

7

tics that are in much greater detail in the written report. If

8

it should be necessary to curtail production and in fact gone

9

out of the business of manufacturing asbestos cement pipe,

10

the gross profit would be completely lost to the company,

11

obviously.

12

In addition machinery and equipment within the

13

plant will be considered a total write-off at this

14

point. It will not in general be utilized for any type of

15

manufacturing activity and salvage value would probably pay

16

only for the removal cost.

17

The maintainability of land and building is a

18

question which has been left for the purpose of the study we

19

assume that such book value can be recovered over an extended

20

period of time.

21

In the case of machinery and equipment

22

the same assumption is made. It is assumed that an overall

23

percentage of value can be recovered. Since the value of

24

the property is not known, it is assumed that the value

25

ILLEGIBLE DOCUMENT

62 1 For finished cement pipe inventory, we are assuming
2 a 25 per cent loss on finished and in-process inventory. The
3 profit loss from asbestos cement pipe operations would be
4 somewhat reduced from the company's standpoint due to the
5 corresponding reductions in additional operations and,
6 therefore in personnel.

7 The effects discussed above can be dollarized
8 as follows:

9 The net book value of our asbestos cement pipe
10 operation is 26 million dollars. We would expect a loss write-
11 down of \$10,400,000. The effect on people employed and
12 wages paid.

13 In considering the effect of a shutdown of asbestos
14 to cement pipe operations on employment and wages we have
15 used the same assumptions as for the previous profits and loss
16 calculations.

17 In other words, we will assume the dismissal of
18 all asbestos cement plant employees, all of asbestos cement
19 general manufacturing employees and all of the
20 25 per cent of administrative employees.

21 Under these assumptions, personnel reductions
22 and wage reductions would amount to dollars:

23 A total of 1,000 employees, we would expect
24 a total wage level of \$1,000,000.

25 The effect of our asbestos cement operations on the

63 1 largest employer in the community. All people dismissed from
2 our pay roll with almost certainty would be added to the
3 unemployment and welfare rolls of those communities.

4 Thirdly, the affect of shutting down on supplies
5 and other recipients. We spend about \$30 million a year
6 to suppliers and including the paying of federal taxes. It
7 appears to be a safe assumption that about 100 people would
8 be thrown out of work by our vendors and truckers.

9 Equally important a strong, viable enterprise
10 having contributed \$2,377,000 in federal income taxes
11 plus \$500,000 in local property taxes would be forced out of
12 business by government action at a time when our government is
13 actually subsidizing very marginal and sub-marginal industries
14 which have been in business for many years simply to preserve
15 jobs for the American worker. Furthermore, we would be
16 eliminating a large insurance business and the jobs would
17 not be guaranteed in the assumption was made that all 40
18 other businesses could be replaced by SBC and other products
19 providing about equally job replacement of jobs.

20 All products plus the other companies...
21 ...
22 ...
23 ...
24 ...
25 ...

64

We have made some rough calculations as to the cost of compliance with the proposed rules and the Advisory Committee Report. Keeping in mind that each plant has certain peculiar problems all its own, it is our best estimate that compliance with the proposed rules will result in an average per-plant expenditure of \$200,000 or with six plants, a total capital investment of \$1,200,000.

Even with this expenditure we view at least three operations within our plants that under the five fiber cost will require the employee performing the job to wear a respirator. In addition this does not estimate the additional annual operating cost that would be required to administer the program. So that the requirements of the Advisory Committee Report, we estimate the capital cost would be double that required under the proposed standard to a total of \$2,400,000.

However, and I wish to emphasize this as strongly as I can, we do not at this time feel that even with this expenditure we will be able to comply with the standard.

The new policy and procedure we intend to carry out

will be to make sure that the employees are properly protected.

We will also make sure that the employees are properly trained.

We will also make sure that the employees are properly supervised.

We will also make sure that the employees are properly motivated.

We will also make sure that the employees are properly rewarded.

65

1 proposed standard which is set forth in the written material
2 adopts many of the positions espoused by the Advisory
3 Committee report. By our proposed standard, we are submitting
4 Certainteed to most of the expenditures set forth above.

5 We sincerely ask that the Labor Department not
6 now consider going to a two-fiber standard and thereby
7 increase these costs to what may be an intolerable level.
8 Certainteed is a diversified manufacturer and our management
9 will not commit capital funds to one segment of our business
10 to the detriment of other segments of our business competing
11 for the same dollars if the expenditures can not be recovered
12 and may not even preserve the life of that division.

13 If there is any doubt about the future of cement
14 management will have to divert funds.

15 Our management has indicated it will commit the
16 dollars necessary to originate to a three-fiber standard to the
17 extent that is technologically could be done. They have
18 considered but not committed to the expenditure of any funds
19 if the standard is set at two fibers.

20 I wish to emphasize Certainteed's position that
21 it can not continue in the asbestos cement pipe business if
22 standard is imposed which requires more intensive control
23 and more costly control systems.

24 We feel strongly that any label on our pipes
25 product, especially pipe, to be used for drinking water

ILLEGIBLE DOCUMENT

In conclusion, Certaineed would point to these areas in which we have the greatest concern--fiber count dust, and waste disposal, label; repeating Certaineed does not know whether the standard it proposes is technological or economically feasible but if we can have a realistic standard in the form presented here we feel we can have a real possibility of compliance.

Thank you very much.

EXAMINER GOLDBERG: Thank you, Mr. Leaman. You are excused, sir.

Mr. Hall.

STATEMENT OF JOSEPH G. HALL, VICE PRESIDENT
GAF CORPORATION'S BUILDING AND INDUSTRIAL
PRODUCTS GROUP.

MR. HALL: I am Joseph G. Hall.

I am Group Vice President of GAF Corporation's Building and Industrial Products Group. I have been associated with GAF for 22 years and have been involved with asbestos products and their manufacture for all of those years.

GAF Corporation has a responsibility to protect the health of its employees and the general public. We have been working to reduce asbestos exposure to the lowest possible level and to protect the health of our employees and the general public. We have been working to reduce asbestos exposure to the lowest possible level and to protect the health of our employees and the general public.

68

I would like first to give you a brief outline of GAF activities and policies.

GAF corporation is a world-wide company which manufactures and distributes a wide range of products in five related consumer and industrial market areas. The areas are Chemicals, building materials, photographic film and equipment, office systems and industrial products. The common bond uniting the product groups is chemical research and technology, from which GAF's "congeneric" nature evolved. Headquartered in New York City, we employ approximately 22,000 persons.

At its more than 70 manufacturing and processing plants throughout the U.S., GAF's policy is to operate in a safe manner consistent with sound business principles, and in compliance with all Federal, State and Local Laws. Our prime objective has been and continues to be as stated in our company's management policy, "to provide a safe and healthy working environment for GAF employees that will encourage the achievement of standards and objectives set forth."

Overall, GAF spent about \$5 million last year on safety and health programs, including the purchase of safety equipment, the development of safety programs, and the training of employees. I have been very proud to see the results of these efforts, and I am confident that we will continue to make significant progress in the future.

The following are some of the safety and health programs that we have implemented:

69 1 regulations of the many agencies operating in the health,
 2 safety and environmental control fields necessitate our
 3 having a full-time staff of professional safety and environ-
 4 mental control fields necessitate our having a full time
 5 staff of professional safety and environmental engineers
 6 to update and modernize our equipment and facilities to meet
 7 standards. This effort also includes research in those
 8 areas where there is presently no technology to combat
 9 certain problems. Our Corporate Health & Safety Department
 10 is responsible for formulating, developing and coordi-ating
 11 a complete health and safety program.

12 The GAT Building, Flooring and Industrial Products
 13 Divisions utilize asbestos in the manufacture of a number
 14 of products. These products consist of the following: (1)
 15 asbestos cement products, consisting of siding, roofing,
 16 flat sheets, canal building and simulated brick facing;
 17 (2) asbestos felt and millboard; (3) asphalt paints and plaster;
 18 (4) vinyl asbestos floor tile and sheet flooring; and
 19 (5) asbestos shingles.

20 We employ 6,000 employees at 15 asbestos product
 21 plants and an asbestos mine. Our major plants are in
 22 New York, Pennsylvania, Ohio, Michigan and Minnesota. The
 23 asbestos mine is located in Michigan. The asbestos products
 24 are sold to a wide variety of customers. In addition, our asbestos plants are
 25 subject to strict federal and state regulations.

70 1 amounting to over \$30,000,000 yearly.

2 Since we will be submitting for the record, a
3 detailed written statement, I will highlight our position
4 as to the proposals.

5 CAF has, in past years, spent several million
6 dollars on asbestos dust control and believes it will be
7 able to comply with a five fiber standard, with the expenditure
8 of an estimated additional \$2.2 million dollars. However,
9 this standard cannot be fully met for at least two years due
10 to the time necessary to design, order and receive abatement
11 equipment. If a further material reduction below 5 fibers
12 is later called for, the progress would have, of necessity,
13 to be considered slower. We believe that a standard
14 substantially below five fibers cannot be generally achieved
15 in this decade and that, if such a reduction could be accom-
16 plished, the cost would make questionable the economic
17 feasibility of continued operations of certain of our facili-
18 ties.

10 Engineers to test efficiency of substances have been
20 employed and it has been a number of different substances. It is
30 as a substance that the danger of the substance is to be a
40 substance, which is not a substance, but a substance, which is not a
50 substance, which is not a substance, but a substance, which is not a
60 substance, which is not a substance, but a substance, which is not a
70 substance, which is not a substance, but a substance, which is not a
80 substance, which is not a substance, but a substance, which is not a
90 substance, which is not a substance, but a substance, which is not a
100 substance, which is not a substance, but a substance, which is not a

as to the proper limit. At that time, if it is shown that a new time limit is required, it could be set with a realistic time schedule for achievement.

In addition, I am extremely concerned with the possibility that a label will be required to be placed upon asbestos-containing products. I strongly urge that this be reviewed in light of the "locked-in" nature of the asbestos in many products and the deleterious effect a warning label would create with regard to distribution of these products in the market place. GAF does not oppose labels when they serve a legitimate purpose as shown by our longstanding practice of labeling bags of asbestos fiber, but I see no reasonable purpose to be achieved by a label on products in which the asbestos is thoroughly bonded. A warning label, in our opinion, would seriously affect the future marketing of a number of our products. Vinyl floor tile, for instance, is often sold directly to the consumer and contains approximately 17 per cent asbestos which is securely "locked in." There is no evidence of harm associated to the application or use of vinyl flooring and other "locked-in" products, nor is there any indication that asbestos fibers are being released from these products. The release of asbestos fibers from these products is a very rare occurrence and, even in the case of vinyl flooring, would be limited to a very small amount of fibers. The release of asbestos fibers from these products is a very rare occurrence and, even in the case of vinyl flooring, would be limited to a very small amount of fibers.

1 plant closings. Where there is no need, there should be no
2 warning label.

3 It is important for you to have an understanding
4 of the size and importance of the asbestos industry. Asbestos
5 serves hundreds of essential uses and has brought safety
6 from the hazards of fire to all of us. Asbestos constitutes
7 a multi-billion dollar industry and provides the livelihood
8 for many thousands of workers. It is a strong, durable,
9 flexible and fire-resistant material. It is unique in the
10 sense that no other material duplicates all of its useful
11 qualities.

12 On the other hand, we do not question the potential
13 adverse effect on health of this material when one is
14 exposed for many years to significant concentrations of these
15 fibers. In this regard, raw asbestos fiber should be
16 controlled as well as any hazardous substances from asbestos
17 containing products.

18 In conclusion, OSHA does not oppose responsible
19 companies which are responsive to the problems and needs of
20 all the States. The standards which we are submitting for
21 your review, has been developed within a very brief time
22 period. The committee of OSHA is now in the process
23 of reviewing the standards which have been submitted to the
24 public and we are sure that the standards will be improved
25 and that the standards will be improved as a result of
26 the public hearing.

ILLEGIBLE DOCUMENT

1 GAF and, in our opinion, by the Labor Department. GAF
2 Corporation pledges its cooperation to the Department of
3 Labor and requests that all the facts be considered before
4 a permanent standard is enacted, and that each future standard,
5 when enacted, will regulate only the problem areas and not
6 needlessly penalize workers and industry through enactment
7 of superfluous controls.

8 Thank you. We will be forwarding for the record
9 a detailed statement the first of the week.

10 MR. MCGREGOR: A few questions. Do I
11 understand you correctly to say that you can control concen-
12 trations of asbestos fibers with engineering methods down to
13 five fibers. Is that what you said?

14 MR. HALL: We think we can do that within two
15 years at an expenditure in excess of \$2 million. Now we don't
16 know.

17 MR. MCGREGOR: Could you explain briefly what it is
18 that prevents engineering controls to bring concentrations
19 down to five with reasonable certainty steps so that you can not
20 go any lower. Could you explain to me?

21 MR. HALL: Well, I can try to explain to you.

22 I think it is a question of engineering controls. I think
23 we have to look at the problem of engineering controls. I think
24 we have to look at the problem of engineering controls. I think
25 we have to look at the problem of engineering controls. I think

1 in our plants that technology just does not exist and
2 there is no way from what I am informed to achieve that
3 within the foreseeable future.

4 MR. DESERGIO: Now, if you can bring the
5 concentrations down to five with engineering methods, it
6 seems to me that if you supplement those technological
7 controls with respirators and good housekeeping methods,
8 you should be able to bring down the concentrations to two,
9 is that reasonable?

10 MR. HALL: Let us say it is possible. The use of
11 respirators will be necessary even though we get down
12 to five fibers. There will be peak levels or there will be
13 certain parts in the plant, certain locations in the plant
14 where respirators will be necessary.

15 Getting down to the two fibers providing that the
16 technology will be developed, you get into an area of the
17 economic feasibility of doing it. Now, if it costs an area
18 \$2 million to get down to five, I could not--I would not
19 guess how much more it would cost to get down to two fibers
20 but I would suppose that we would have to consider very
21 carefully the economic cost of the operation. Now, I am
22 informed that the present technology is such that it is
23 possible to get down to two fibers in some cases, but it is
24 not possible to get down to two fibers in all cases.

25 Now, if it were to be determined that it is possible to
26 get down to two fibers in all cases, I would suppose that we would have to consider very carefully the economic cost of the operation.

75 1 that asbestos cement plant operation. This is particularly
2 true in the mine. We have a serious problem at our
3 Hydro Park Mine. We will have a very serious problem getting
4 down to five. I cannot conceive, and my engineering people
5 hardly can conceive that it will ever be possible to get
6 down to two.

7 With that mentioned, I am very certain that the
8 probability of our simply shutting the mine down would be very
9 good.

10 MR. DRECHTIG: Thank you very much.

11 BENJAMIN GOLDBERG: Thank you, Mr. Hall.

12 Mr. Hall.

13 GOVERNMENT OF E. A. DIALVO

14 THE ASSISTANT, BUREAU OF MINING.

15 MR. HARRIS: My name is E. A. DIALVO, I am

16 Vice President of Fairmont Corporation of Cincinnati, Ohio and

17 President and General Manager of Fairmont's Philip Carey

18 Company, Philip Carey has plants in Ohio, New Jersey, Connecticut,

19 Pennsylvania and Texas which provide jobs for over 1500 people,

20 and are also engaged in asbestos products. These

21 products are used in the construction of buildings and

22 in the manufacture of asbestos products.

23 These products are used in the construction of buildings and

24 in the manufacture of asbestos products. These

25 products are used in the construction of buildings and

1 areas which require better means of dust control.

2 To bring all of our operations under control, it
3 is estimated that it will take two years and a considerable
4 investment in dust control equipment, approximately one
5 million dollars.

6 We do not believe we will be able to meet the
7 standard of two fibers per ml recommended by NIOSH. Further-
8 more, we doubt that the techniques available for sampling and
9 counting fibers in the ambient air are sufficiently
10 accurate to give reliable readings at the two-fiber per ml
11 level. In the event that the 2 fiber per ml standard is
12 adopted, it is our belief that we will be forced to discontinue
13 a number of our operations and this would result in the elimina-
14 tion of hundreds of jobs for our employees.

15 We can accept paragraph (a) (1) and (2) Section
16 1010.22 as proposed January 12, 1972 which provide for warning
17 signs. Enforcement of our employees is, after all, the purpose
18 of the "Occupational Safety and Health Act of 1970."

19 The proposal of NIOSH to label asbestos products
20 as an extremely hazardous substance is that of pure advocacy
21 without any real basis in fact. Asbestos is a naturally occurring
22 mineral, which is found in many forms and is used in many
23 products. It is not a poison and is not a carcinogen. It is
24 a mineral which is found in many forms and is used in many
25 products. It is not a poison and is not a carcinogen.

771

Most asbestos products produce no asbestos dust when used or handled. An example would be an asbestos cement sheet, a floor tile or asbestos roofing materials. Asbestos products are, in fact, making living far safer and more pleasant for a large segment of our population. Examples include such critical and important items as brake linings, fireproofing for our homes, fireproof materials for pollution control, protective clothing, and safe insulating materials. A legion of products commonly used in every household contain asbestos to protect women and children, and every industrial facility has asbestos-containing products to protect its workers. We do not believe that labels are necessary for products of this nature and will, in fact, mislead consumers and the public as to the safety of these materials. A provision for a safety data sheet to be sent to the purchaser of the material should be adequate to protect his employees.

To summarize, we believe the standards proposed in the Federal Register Volume 37, No. 7 to be more than adequate for the protection of our employees but we will not be present in discussion then. There is a 15 day possibility that certain provisions will not be taken as discussed. If our employees are not satisfied with the proposed regulations, we will have to consider alternative action. We believe that we will have to consider alternative action. We believe that we will have to consider alternative action.

The job losses to the extent of 400 of our employees mentioned above, can also occur if labeling recommendations are accepted which can result in elimination of asbestos from our many products, where the fibers are, in fact, locked in.

Other specific examples of innocuous and harmless materials that would be branded by such labeling would include fire-resistant roofing shingles, containing 17 per cent asbestos; gasket papers, containing 60 per cent asbestos; asbestos roofing felts, containing 50 per cent asbestos; underground pipeline wrapping materials, containing 60 per cent asbestos; and adhesives containing 10 per cent asbestos. None of these products can emit asbestos into the ambient air or could be considered hazardous in any way whatsoever.

To appreciate this opportunity to testify and thank you for your attention. We earnestly hope that realistic and practical standards emerge as a result of these deliberations;

THANKING YOU: Thank you, Mr. Di Salvo.

That concludes the list of witnesses for today. I am sure that you will find it most interesting and will continue to follow the progress of the hearings in the Department of the Interior. The following witnesses are scheduled for tomorrow:

On Tuesday, November 11, 1970, Mr. William, Mr. John

OFFICIAL REPORT OF PROCEEDINGS

before the

of the

U. S. DEPARTMENT OF LABOR

Docket No.

In the matter of
**STANDARD FOR EXPOSURE TO ASBESTOS DUST,
PROPOSED RULE MAKING.**

PUBLIC HEARING

Place: Washington, D. C.

Date: March 17, 1972

Pages 412 through 548

HOOVER REPORTING COMPANY, INC.

Official Reporters

Washington, D. C.

546-6666

DAVID/1 1

UNITED STATES DEPARTMENT OF LABOR

WASHINGTON, D. C.

-----X

In the Matter of:

STANDARD FOR EXPOSURE TO ASBESTOS DUST, : PUBLIC HEARING
PROPOSED RULE MAKING :

-----X

Conference Room B
Interdepartmental Auditorium
12th & Constitution Avenue, N. W.
Washington, D. C.

Friday, March 17, 1972

The above-entitled matter came on for further hearing,
pursuant to recess, at 9:00 o'clock, a.m., :

BEFORE:

ARTHUR M. GOLDBERG, Hearing Examiner

APPEARANCES:

(As heretofore noted.)

david/2

C O N T E N T S

413

STATEMENT OF:

PAGE

JOHN W. KNAUBER,
Director, Environmental Resources, Division of
Public Health, Commonwealth of Pennsylvania

414

LOUIS J. BIBRI,
Vice President and Director of Employee
Relations, Armstrong Cork Company, Lancaster,
Pennsylvania

420

W. H. BEASLEY,
Manager, Cement Asbestos Products Company

442

GUY GEORGE GABRIELSON, JR.,
President, Nicolet Industries, Inc.

447

STUART G. LUXON,
Her Majesty's Superintending Chemical Inspector
of Factories and Director of Industrial Hygiene
Unit, Department of Employment, United Kingdom

463

GEORGE PERKELL,
Research Director, Textile Workers Union
of America

504

GEORGE H. R. TAYLOR
Executive Secretary, AFL-CIO Standing Committee
on Safety and Occupational Health

519

SHELDON W. SAMUELS,
Director of Occupational Health, Safety and
Environmental Affairs, Industrial Union
Department, AFL-CIO

529

Exhibit Number 46

443

Exhibit Numbers 47 thru 49

503

Exhibit number 50

504

Exhibit Number 51

506

Exhibit Number 52

520

Exhibit Number 53 & 54

542

Exhibit Number 55, 56 & 57

543

Exhibit Number 58, 59 & 60

544

Exhibit Number 61, 62, 63 & 64

545

Exhibit Number 65

546

* * * * *

3/17
9 a.m.
CWL
1 dm

P R O C E E D I N G S

EXAMINER GOLDBERG: On the record.

Mr. Walls.

MR. WALLS: Mr. Examiner, thank you for calling upon me to speak.

I waive the opportunity to contribute to the record.

EXAMINER GOLDBERG: Thank you, sir.

Mr. Knauber.

STATEMENT OF JOHN W. KNAUBER, DIRECTOR,

ENVIRONMENTAL RESOURCES, DIVISION OF

PUBLIC HEALTH, COMMONWEALTH OF PENNSYLVANIA

Mr. Knauber. I am basically in agreement with the proposed rule on asbestos dust as presented by the U.S. Department of Labor, Occupational Safety and Health Administration and published in the Federal Register, Vol. 37, No. 7, Wednesday, January 12, 1972. Review of the information available to me on the problem of asbestos exposure has caused me to reach the conclusion that the proposed exposure limits are the best that can be reached in keeping with present available information. I regret that there is no way of verifying that this limit will prevent asbestosis in those previously exposed to dust containing asbestos at higher levels. I feel that it is technically feasible to meet this limit provided that sufficient time is allowed for the necessary engineering control work-up, obtaining material and

dm 2

equipment and for installation of the control equipment.

I do feel there are changes in the wordage of the proposed rule which should be made to prevent problems of misinterpretation. Specifically, I feel that where the term asbestos dust occurs throughout the rule, e.g., 1910.93a, it should be changed to dust containing asbestos; and in 1910.93a(1) the reference that the sample be taken from a point located on the exterior of the respirator facepiece should be removed.

After reviewing the publication of the National Institute for Occupational Safety and Health on Occupational Exposure to Asbestos, which apparently is the basic justification for this rule, I have reached the conclusion that they are essentially referring to exposure to airborne fibers present when workers are exposed to dust containing asbestos. Without this change in wording, I expect there may be some difficulty in the application and interpretation of this rule which would disrupt the goal of the rule to prevent the occupational disease, asbestosis.

In regard to my comment on dust sampling method, I cannot justify requiring sampling at a point located on the exterior of the respirator facepiece when all other sampling relating to asbestos exposures is to be done within the normal breathing zone of employees in their normal working posture. I feel that it would be far better to define what the normal breathing zone is and leave out the reference to affixing a

dm 3

1 sampling head to the respirator facopiece. Although I am not
2 certain, there may be some safety hazard involved from affixing
3 a sampling head to the respirator facepiece. I feel it would
4 be far better to establish a definite breathing zone to be
5 within some distance of a man's nose and mouth such as within
6 12 inches. This number is merely given as an example, not as
7 a true distance.

8 I must also comment on the disposal of asbestos waste
9 and scrap. I think it should be clearly stated that it should
10 be disposed of in such a manner that there would be no other
11 problems resulting such as open dumping of waste and scrap
12 which would result in a future air pollution problem.

13 In summary, I wish to state my support of this
14 proposed rule and that certain changes should be made such as
15 changing the wording from asbestos dust to dust containing
16 asbestos and revising the requirements on dust sampling so that
17 they are consistent for all dust samples taken for evaluation
18 of exposures or potential exposures.

19 EXAMINER GOLDBERG: Thank you.

20 May Mr. Knauber be excused?

21 MR. EARLE: When you say you "support the rule," you
22 support the proposal as submitted in the NIOSHA document; is
23 that what you are referring to?

24 MR. KNAUBER: Basically, yes.

25 MR. EARLE: Other than the changes you have suggested.

dm 4

1 MR. KNAUBER: Yes.

2 MR. DeGREGORIO: May I ask a question.

3 You mentioned two problems, such as dumping methods.

4 How large are these two areas?

5 MR. KNAUBER: I have no idea.

6 The problem is when you start dumping materials such
7 as this you create potential problems.

8 MR. DeGREGORIO: Yes. I have seen it.

9 MR. KNAUBER: I have seen some waste piles contain-
10 ing asbestos that are quite large.

11 MR. DeGREGORIO: Can you suggest ways of taking care
12 of the dust problem, some way of keeping it down, of enclosing
13 the dust so it would not fly away --

14 MR. KNAUBER: You mean in dumping?

15 MR. DeGREGORIO: Right.

16 Not just during the process of dumping, but a way
17 so that the wind would not blow it away.

18 MR. KNAUBER: If it was put in a container and put
19 in a landfill, buried in some way, and would not create the
20 problems if the area was suitably identified.

21 MR. DeGREGORIO: Would you define that phrase,
22 "approved landfill"?

23 What do you mean by that?

24 MR. KNAUBER: I know it is a national program.

25 MR. DeGREGORIO: Let's talk about Pennsylvania.

dm 5

1 MR. KNAUBER: For dumping of materials, it is allow-
2 ed in landfill approved by the Department of Environmental
3 Resources -- in other words, before dumping can be performed
4 they must have a permit to do it at this site.

5 They are looking at a number of things, and one of
6 them is groundwater contamination of the Commonwealth.

7 These are controlled operations with control over
8 the operation of the landfill.

9 In other words, it must be covered over to a certain
10 depth at the end of the day. Things like this.

11 MR. DeGREGORIO: For a condition of approval, do you
12 require the digging of a hole where you can put the waste in
13 and cover it?

14 MR. KNAUBER: I do not actively work in this program.
15 I am aware of some of the factors of it.

16 The procedures -- I understand it -- is to operate
17 a landfill, they must first apply for a permit.

18 Supply certain information, and you said "conditions."
19 There are rules and regulations in the Commonwealth covering
20 this aspect.

21 They must comply with those rules and regulations.
22 This is in the operation of the landfill. The site must be
23 suitably researched to make certain that it will not cause any
24 problems to the Commonwealth, or its residents.

25 MR. DeGREGORIO: Thank you very much.

am6

1 EXAMINER GOLDBERG: Mr. Knauber, could the future use
2 of landfill for asbestos, for either residential or commercial
3 construction cause troubles such as the press last reported
4 in the past where uranium landfill was utilized for construction
5 purposes?

6 MR. KNAUBER: This is a potential problem. This is
7 why I say this is going to have to be handled very carefully,
8 this problem of salt disposal in Pennsylvania is really just
9 getting under way now.

10 Control of where things are going to be disposed of,
11 control of future use of this site is definitely a problem.
12 I feel we do have many areas in Pennsylvania who could handle
13 this type of thing without any type of problem, because of
14 the nature of Pennsylvania.

15 I do know we ran into a similar type of problem
16 in decontamination of verillium structure, and we had to
17 develop a suitable burial ground so it would not cause any
18 problems, post it, and it is on land owned by the Commonwealth,
19 so we do have some control over the future use of this land.

20 EXAMINER GOLDBERG: Thank you, sir.

21 Mr. Bibri.
22
23
24
25

(2)

dm 7

STATEMENT OF LOUIS J. BIBRI, VICE PRESIDENT
AND DIRECTOR OF EMPLOYEE RELATIONS,
ARMSTRONG CORK COMPANY,
LANCASTER, PENNSYLVANIA

MR. BIBRI: My name is Louis J. Bibri, Vice President and Director of Employee Relations of Armstrong Cork Company, a Pennsylvania corporation, with headquarters in Lancaster, Pennsylvania. With me is my associate, George W. Nickel, Jr., Manager of Corporate Safety and Health.

Armstrong manufactures and markets a comprehensive range of interior furnishings, including resilient flooring and carpets, ceiling systems, and furniture; and a variety of specialty products for the building, automotive, textile and other industries. It has annual sales in excess of \$500 million, total assets of \$389 million, with 37 manufacturing plants located in 11 States. Additionally, there are a number of subsidiaries located in the United States and abroad. Total employment exceeds 21,000 people.

I want to thank the Office of Safety and Health Standards personally and on behalf of Armstrong for the privilege of appearing here today to present our views on the proposed regulations setting standards for exposure to asbestos dust.

Company Experience:

Every day for the past 25 years in the manufacturing facilities of our parent company, we have had an average of

dm 8

1 770 employees involved in the production of materials contain-
2 ing asbestos. During this period voluntary X-ray programs
3 were periodically provided for all employees. Although chest
4 X-rays are not mandatory, almost all Armstrong employees
5 participate. Neither these X-rays nor any other examination
6 or notification to the Company indicates that there has been
7 or presently exists any case of asbestosis among our employees.

8 Labeling:

9 On February 23, 1972, the Advisory Committee on
10 Asbestos issued a recommendation on a proposed warning label
11 for raw products, mixtures and finished products containing
12 5 percent or more asbestos by weight. The wording proposed by
13 the Committee for this label is as follows:

14 "DANGER

15 Contains Asbestos fibers.

16 Do not make unnecessary dust.

17 DO NOT BREATHE DUST -- MAY CAUSE ASBESTOSIS

18 AND CANCER"

19 On behalf of the Armstrong Cork Company, I submit
20 that any such warning label we might be required to use in
21 connection with our products containing five percent or more
22 asbestos content by weight would be unnecessary, inappropriate,
23 ineffective and potentially damaging to the sales of the
24 products and thus to the job security of employees engaged in
25 their production.

dm9

1 Armstrong manufactures flooring materials in both
2 sheet and tile form which contain 5 percent or more of asbestos
3 by weight of total product. The sheet materials consist of
4 one or more impermeable wear layers compounded from polyvinyl
5 chloride binders and other materials, and ranging up to .053
6 inches in thickness. The wear layers, which contain no
7 asbestos, are laminated onto a backing sheet. The basic
8 construction of this backing is felted asbestos fibers.

9 It is important to note that a key step in the
10 production of this backing material is a "beater saturation
11 process" which coats each individual asbestos fiber with latex.
12 This latex coating binds the fibers together more effectively.
13 It also acts to inhibit fiber shedding or dusting.

14 The vast majority of these sheet flooring materials
15 are installed as permanent floors. They are cemented to the
16 subfloor, or by the application of a band of adhesive to the
17 perimeter of the subfloor. In the completed installation, the
18 portion of the flooring material containing asbestos is
19 completely sealed off by the impermeable wear surface and by
20 the adhesive cementing it to the subfloor.

21 In tile products, asbestos fibers are used to
22 prevent distortion during the production process. To be fully
23 effective in this regard, each asbestos fiber must be firmly
24 bound in the product mix by a matrix composed of a synthetic
25 binder such as polyvinyl chloride or an elastomer. This

dm 10

1 composite is exactly analagous to the space-age high strength
2 composition made from such exotic fibers as graphite and boron
3 blended with a polymeric or metallic matrix.

4 The asbestos fibers thus bonded into a matrix are
5 not readily released and restored to their original fibrous
6 state. None of the techniques involved in the installation
7 of flooring tile -- cutting, scribing, fitting, cementing
8 or rolling -- develop a mechanical stress level sufficient to
9 break down the asbestos fiber-matrix composite. The face of
10 tile is sealed by a factory-applied finish. Its installation
11 involves cementing it to a subfloor. And its customary
12 maintenance is the application of wax or other floor finish,
13 which further serves as a sealant.

14 In summary, then, the installation and use of
15 resilient flooring materials with asbestos content does not
16 present the likelihood of any release of free asbestos fibers.

17 The one possibility of airborne asbestos fiber
18 emanating from resilient flooring materials occurs at the very
19 end of the product life cycle -- during its removal from the
20 subfloor, or during the process preparatory to installing a
21 new floor over an existing tile floor. It is sometimes the
22 practice to mechanically sand, grind or abrade tile for this
23 purpose.

24 Occasionally, residual patches of sheet flooring
25 backing material adhere to the subfloor after an old floor is

dm 11

1 stripped away, and this is removed by mechanical abrading.
2 Airborne asbestos fibers may result from such practices. I
3 repeat: This situation occurs only at the end of the product's
4 use, when an old floor is being removed or prepared for a
5 replacement floor's installation over it.

6
7 In light of the foregoing, I submit that a cautionary
8 label on or in a flooring material package, or attached to
9 the product itself, would be unnecessary when the product is
10 purchased, installed, or in use. There is no possible exposure
11 to airborne asbestos until and unless the material is removed
12 or replaced by a method using mechanical abrading. Consider-
13 ing the fact that removal or replacement of a resilient floor
14 is normally separated from its purchase and installation by
15 a period of many years, a warning label would not serve any
16 useful purpose.

17 I would like to go a step farther and suggest to you
18 that the label as presently worded would unjustly jeopardize
19 the public acceptance of resilient flooring materials in the
20 marketplace. The phrase, "MAY CAUSE ASBESTOSIS AND CANCER,"
21 which appears in large type on the label as presently proposed
22 is a harsh and unwarranted indictment of flooring materials.
23 Even the warning label on cigarettes is less explicit and more
24 moderate. When a consumer who buys both a package of
25 cigarettes and a resilient floor might infer from the respect-
ive product labels that he faces the greatest health hazard

dm 12

1 from the floor, then surely there is the basis for questioning
2 the proposed label's ultimate effect.

3 It seems clear that the proposed label is the result
4 of conclusions based on a questionable premise: that any raw
5 material, mixture or finished product containing 5 percent
6 or more asbestos content by weight is, ipso facto, a source of
7 airborne asbestos fibers in sufficient quantity to be a health
8 hazard. This is demonstrably untrue as far as resilient
9 flooring materials are concerned.

10 A much more appropriate and effective remedy for
11 possible hazardous conditions which might arise when mechanical
12 abraders are used to remove or scarify resilient flooring is
13 the creation of a performance standard that would cover persons
14 actually engaged in such work. This performance standard
15 would deal precisely with the crux of any hazard which might
16 exist in connection with the installation of resilient
17 flooring.

18 Virtually all large flooring installations likely
19 to involve subfloor preparation by mechanical abrading --
20 and this would be a floor's replacement rather than its
21 initial installation -- are performed by flooring contractors
22 or large retail flooring dealers. Communications within this
23 relatively small and specialized installation profession is
24 unusually good, and continuing educational programs enjoy a
25 high degree of success. Specific and exacting safety

dm 13

practices and requirements in connection with subfloor preparation can be quickly and effectively promulgated, and we believe that this procedure would, of itself, serve the intended purpose.

However, if it is the sense of the Office of Safety and Health Standards that cautionary information is required, it is our suggestion that more effective than a "label" would be the inclusion of a passage on installation instruction sheets and in specification and professional installation literature as follows:

"CAUTION TO INSTALLER: If subfloor preparation requires machine-sanding or previously installed floor tile or an asbestos-type sheet backing, do not breathe the resulting dust."

This information, widely disseminated, would adequately cover the one circumstance in which resilient flooring might be a source of airborne asbestos fibers. Moreover, it should not cause the general public to fear that resilient flooring might be a health hazard during normal use -- which in fact it is not.

Asbestos Waste Disposal:

The recommendations for an asbestos standard now under consideration call for asbestos waste and scrap to be collected and disposed of in sealed bags or other containers.

In this matter, just as in the case of the warning

dm 14

1 labels which I discussed earlier, the proposed regulation is
2 based on the assumption that all asbestos waste and scrap
3 contains loose fibers which readily become airborne contaminants.
4 This does not apply to scrap resulting from the manufacture of
5 resilient flooring products.

6 Vinyl asbestos tile scrap consists of broken pieces
7 of tile. As in the finished product, the asbestos fibers are
8 entrapped and locked in by a fused binder. Similarly, resilient
9 flooring in sheet form with a backing of latex-coated felted
10 asbestos fibers is not a source of airborne asbestos dust, as
11 I have previously pointed out. Handling and transporting this
12 type of scrap does not release asbestos fiber into the
13 atmosphere, and therefore requires no special precautions.

14 At one of our plants in New York where asbestos is
15 contained in the wet slurry from which the backing sheet for
16 flooring material is formed, the industrial waste treatment
17 facility products a wet sludge cake which contains asbestos.
18 However, the fibers are wetted out to such an extent that
19 there is no opportunity for the fibers to become airborne
20 when the sludge is loaded into a disposal vehicle and trans-
21 ported to a landfill where it is buried.

22 We recommend that a performance standard be develop-
23 ed covering the disposal of asbestos scrap and waste, with
24 requisite air measurements used to measure compliance. Such
25 a performance standard would apply to all types of scrap and

dm 15

1 waste, including fluffy asbestos fibers, scrap tile, or wet
2 sludge containing asbestos.

3 Medical Examinations:

4 I have one further recommendation regarding the
5 proposed standard. This is in the area of medical examinations.

6 The proposal calls for the employer to provide, or
7 make available at his expense, appropriate medical examinations
8 to any employee exposed to asbestos dust. However, according
9 to the proposal, the records of medical examinations are to
10 be made available only to the Secretary of Labor, to the
11 Secretary of Health, Education and Welfare, to designated
12 representatives of either, and, at the request of the employee,
13 to his physician.

14 I recommend that the records of medical examinations
15 of employees exposed to asbestos dust also be made available
16 to the employer.

17 The employer must have records of such medical
18 examinations if he is to be in full compliance with the
19 standard. The standard requires employers to monitor employee
20 exposure, and to take preventive measures where warranted.
21 Medical examination records would certainly assist in complying
22 with this provision.

23 Moreover, the standard specifically requires the
24 employer to maintain records of personal and environmental
25 monitoring and medical examinations, and to do so for at least

dm 16

1 a 20-year period. Thus the employer faces the awkward
2 situation of being required to keep on file for 20 years records of
3 medical examinations to which he is denied access.

4 I hope this inconsistency in the standard will be
5 rectified to permit the employer to have medical examination
6 records made available to him.

7 Summary:

8 In summary, I want to restate the recommendations I
9 am making on behalf of the Armstrong Cork Company.

10 We recommend that a performance standard be applied
11 to persons actually engaged in removing or replacing resilient
12 floors, whose work might involve machine-sanding, and who
13 therefore might be exposed to asbestos dust. The warning label
14 as now proposed for all products containing asbestos is both
15 inappropriate and ineffective for resilient flooring materials.

16 We recommend that a performance standard be applied
17 to the disposal of scrap and waste containing asbestos. Such
18 scrap and waste from Armstrong's production operations are not
19 a source of airborne asbestos, and it is not necessary for
20 their disposal in sealed containers as required by the proposed
21 standard.

22 We recommend that records of medical examinations
23 of employees exposed to asbestos dust be made available to the
24 employer. Such records are necessary for medical claim
25 administration, and, in fact, the employer is required by the

dm 17

1 proposed standard to keep them on file for at least 20 years.

2 We recognize that the entire proposed standard is
3 intended to encompass all industry, and that regulations which
4 are so broadly applicable may contain inadvertent inequities.
5 My purpose here today has been to assist in minimizing these
6 inequities by shedding light on certain aspects of the proposed
7 standard which unfairly and unnecessarily penalize some users
8 of asbestos.

9 Again, on behalf of the Armstrong Cork Company, I
10 want to express my appreciation for this opportunity to make
11 the foregoing recommendations, and to present this information
12 in their support.

13 Thank you.

14 EXAMINER GOLDBERG: Are there any questions?

15 (No response.)

16 EXAMINER GOLDBERG: Mr. Bibri, the waste from
17 production of tile or sheet flooring, is that biodegradable?

18 MR. BIBRI: I don't know the answer to that.

19 I will ask Mr. Nickel, who is a chemist by background,
20 as to whether it is or is not.

21 George.

22 MR. NICKEL: I would say most of it is, yes.

23 EXAMINER GOLDBERG: So in the course of the time
24 the material in the ground will break down?

25 MR. NICKEL: Most of our tile is limestone. Maybe

dm 18

1 some people in the audience can tell me whether it is bio-
2 degradable.

3 It is not. So the answer would be "No."

4 MR. BIBRI: We are returning some earth material back
5 to the earth.

6 MR. NICKEL: An inorganic going into an organic.

7 EXAMINER GOLDBERG: The question goes to whether a
8 bonding material will, in the course of time, break down so
9 as to release the asbestos fiber content.

10 MR. BIBRI: Well, if it does, of course, it is buried.
11 It is dumped into a trench and it is covered by earth, so it
12 is hopefully buried forever, even if it did break down and
13 resort to its original fibrous mass.

14 EXAMINER GOLDBERG: So this would go to the question
15 of future use of landfill for residential or other purposes.

16 MR. BIBRI: So I understand.

17 EXAMINER GOLDBERG: My second question:

18 As you interpret the requirements that you maintain
19 medical records and utilize those records for the purposes of
20 safety standards in your operation, will it be necessary for
21 you to receive the reports of those medical records identify-
22 ing employees by name, or would summaries as to medical history
23 by group or length of employment, or by some other method, as
24 you understand the regulations, enable you to implement the
25 results of those studies?

dm 19

1 MR. BIBRI: I think we would be inclined to feel
2 that we would need the individual records for each employee,
3 because I think we have to look at each employee as an
4 individual and determine what his health problems may be, if
5 in fact he might be somewhat affected by exposure, let's say,
6 to asbestos dust.

7 I might add here at this point, in our company we
8 have a practice of giving every employee that we hire a
9 complete physical examination, including X-rays at the time
10 we employ such an employee, and presently we do have a
11 medical record in existence for every employee that is on our
12 payroll.

13 And periodically, for one reason or another, these
14 medical records are adjusted for some activity that takes
15 place during the course of the employment with our company.

16 Well, this is not an unusual situation in our
17 company right now. We have, I guess, as complete medical
18 records for every employee that we need, and our purpose right
19 now is that we understand the proposed recommendation that we
20 are going to be required to deny ourselves certain information
21 that we have been getting now on sort of a routine basis, and
22 without any known problems or the unions who represent these
23 employees, and it is awfully difficult to understand why
24 the employer should be denied the information.

(3) fls

25

Labor
WCL-3
hws-1
3-17

1 EXAMINER GOLDBERG: Mr. DeGregorio.

2 MR. DeGREGORIO: May I have a few questions, please?

3 MR. BIBRI: Yes, sir.

4 MR. DeGREGORIO: You say that your company currently
5 has a medical surveillance program and, of course, you have
6 records of all employees.

7 Do you make administrative use of the information on
8 those records?

9 For instance, let's start at the employment point,
10 at the point of hiring.

11 You give a pre-employment medical examination.

12 MR. BIBRI: Yes, sir.

13 MR. DeGREGORIO: Do you use the results of that exam-
14 ination in deciding whether to hire or not to hire the appli-
15 cant?

16 MR. BIBRI: Yes, sir.

17 That is one principal reason that we give the employee
18 the physical examination before being hired, because when we
19 employ an individual we take on certain obligations.

20 We have a recent experience where we employed an
21 individual in one of our outlying plants.

22 Unfortunately, the X-raying of the back was over-
23 looked. This is one of the things that we do.

24 That individual came to work for us, and about two
25 months after he started to work for us he told us that he had

hws-2

1 disc problem, and the result is that he has had to submit him-
2 self to surgery, not once, but two times.

3 Now, we have undertaken a tremendous financial
4 responsibility for that individual, and we are certainly
5 financing all of his medical costs, and we are also continuing
6 to pay this man, not at 100 percent of his earnings, but well
7 over 50 percent of what we hired him for, and this is why it
8 is so important to us to have these physical examinations at
9 the beginning of the employment period.

10 MR. DeGREGORIO: Sir, would it be fair from what
11 you are saying to say that if an applicant should, on his
12 X-rays, evidence asbestosis, or asbestos related illness, that
13 your company would not hire the applicant?

14 MR. BIBRI: We have about three or four different
15 categories that we place applicants into.

16 For instance, the person who comes to us completely
17 healthy.

18 There is not any evidence that there is any sort of
19 disease or disability that he brings with him, and there is no
20 problem there, then we have these different gradations.

21 Now, if we should X-ray a prospective employee, and
22 he has some shadows on his lungs, we are going to take a look
23 at that and decide what it is, and if we feel this man is not
24 employable in our operation, we could make that decision at
25 that time, and it could be that we would not hire that

hws-3

1 individual, depending upon the overall evaluation of the serious-
2 ness of what is uncovered in that medical examination.

3 MR. DeGREGORIO: Take the case of a current employee,
4 who after years of employment is discovered to have some ill-
5 ness.

6 Would the policy there be more favorable to the
7 employee?

8 MR. BIBRI: Yes, sir.

9 We have assumed the responsibility, and I think our
10 company has an excellent track record of taking care of all of
11 the employees, including those who become disabled along the
12 way.

13 We have an extremely liberal policy in that regard.

14 MR. DeGREGORIO: I would like to ask you about the
15 communication system between personnel people and the medical
16 department.

17 When the personnel people need some medical informa-
18 tion to determine employability or fitness for the job, do the
19 people look at the whole file on the individual affected, or
20 do the people merely ask a physician whether or not the affected
21 employee is fit for certain occupations?

22 MR. BIBRI: The latter would be the more usual circum-
23 stance, on going to our medical department.

24 If we have a need to question the health of an employee,
25 we would ask the medical department to answer any questions

hws-4

1 that we might have.

2 We don't normally go into the files, using your term
3 "personnel."

4 We don't have that free access to them. These are
5 medical department records, and we go to the medical people
6 who can answer our questions.

7 If they need to go to the file to sort of refresh
8 their memories, that is their decision, but normally the
9 personnel people do not climb into those files.

10 MR. DeGREGORIO: But if any person needs to refresh
11 his recollection, that person would be the nurse, or the
12 doctor --

13 MR. BIBRI: Yes.

14 MR. DeGREGORIO: In other words, you keep a separation
15 of medical information and personnel files?

16 MR. BIBRI: Oh, very definitely.

17 We have a scheme in our company of personnel records,
18 including such things as the application blank, and letters
19 that have been written back and forth, and things of that type.
20 Those are called our personnel records, including the history
21 of the individual's progress in the company.

22 Those are kept physically separated from the medical
23 records in two different organizations completely separate to
24 each other that they have access to the different records.

25 There is not this crossover that you might suspect

hws-5

1 or might be in some situations.

2 MR. DeGREGORIO: Now, as you pointed out, we are
3 talking about a standard which would apply to many industries
4 and many employers, so I wish you would answer some general
5 questions on this general subject.

6 Do you know how other companies are related to their
7 medical departments?

8 Do they follow your procedure, or do they have their
9 own different procedures?

10 MR. BIBRI: I am going to have to beg off answering
11 that, because I don't really know.

12 I can give you an opinion, but I am not basing it
13 on my personal -- I have a feeling --

14 EXAMINER GOLDBERG: Mr. Bibri, would you answer the
15 question only from personal knowledge?

16 MR. BIBRI: I cannot answer your question from my own
17 personal knowledge.

18 MR. DeGREGORIO: Just one question, please.

19 On the abrading of floors, do you have any reliable
20 estimates of the fiber concentration released by the operation?

21 MR. BIBRI: I do not. We do not.

22 We have never made any such measurements to ascertain
23 just how much fiber might be released into the atmosphere when
24 the operation takes place.

25 MR. DeGREGORIO: Do you know of anybody else who --

hws-6

1 MR. BIBRI: I don't know of anybody, except that
2 criteria issued by NIOSH.

3 That is the only thing I have seen.

4 MR. DeGREGORIO: Thank you very much.

5 EXAMINER GOLDBERG: Should a floor in a home be re-
6 placed in that method, do you have any knowledge as to the
7 residual -- I will put it another way.

8 For how long a period the fibers raised by the
9 abrading process would be maintained in the air in the home?

10 MR. BIBRI: I have no personal knowledge of that,
11 and so there is no point in me trying to luck it out.

12 EXAMINER GOLDBERG: Mr. Earle, did you have any
13 questions?

14 MR. EARLE: Yes.

15 Of the 770 employees you mentioned that worked with
16 asbestos in your operations, you indicated that your X-ray
17 evidence has thus far disclosed no evidence of asbestosis.

18 MR. BIBRI: That is true.

19 MR. EARLE: This sort of means that you have taken
20 certain steps, engineering controls, personal respirators,
21 and other measures to lower the exposure level of these
22 employees.

23 Could you briefly describe some of these steps that
24 you have taken?

25 MR. BIBRI: I can't describe them precisely in

hws-7

1 engineering terms, but we do try to live within the regulations
2 as we understand them, and to the extent that we can reason-
3 ably provide for dust-free operations, that certainly is an
4 objective in engineering into being certain types of equipment
5 that we use, whether there is asbestos dust involved or not.

6 We just try to minimize the dust created in any of
7 our operations, as well as minimize the type of fumes we might
8 emit into the atmosphere.

9 This is a natural and objective thing for our engineers
10 to want to do, and of course, recently, with the emergency
11 standard that was published on the fiber level, that has caused
12 us to engage in a practical crash program, with our engineering
13 people, to further reduce the amount of dust that may be
14 emitted into the atmosphere.

15 We have taken some measurements with industrial
16 hygienists to see how far away we are from the five fiber
17 standards, and in some areas we are in good shape, and in some
18 other areas we have a hell of a lot of work to do to get down
19 to the five fiber levels.

20 Our estimates tell us it is going to take a minimum
21 of two years, possibly, if we can make it, to get all of our
22 facilities where we do use asbestos to get the range down to
23 the five fibers.

24 MR. EARLE: How long has your X-ray operation been
25 in operation?

hws-8

1 MR. BIBRI: This has been going on from the year one
2 in our company.

3 In some departments we have annual X-rays, and in
4 other departments there may be a schedule of an X-ray every
5 two or three years, and it is obvious that we are going to
6 have to do it much more often.

7 MR. EARLE: This has been going on for as much as
8 20 years?

9 MR. BIBRI: Yes.

10 MR. EARLE: If the X-rays do show possible asbestosis,
11 would your medical department automatically inform you, or
12 would they inform you only if the employee requested that they
13 inform you?

14 MR. BIBRI: Well, what we would do there, if the
15 X-ray showed a shadow on the lung, we would evaluate the X-ray
16 to determine what caused it.

17 MR. EARLE: Your medical department?

18 MR. BIBRI: Yes.

19 If it is caused by exposure to asbestos dust, and
20 we have a legal, corporate, and oral commitment to correct the
21 situation as far as that employee is concerned, we have to
22 help this person get back to a healthy condition, if at all
23 possible, and so if we do uncover such a situation, and let's
24 assume, just for assumption purposes, because we haven't
25 encountered this in our company, perhaps we have a number of

hws-9

1 people who show evidence of asbestosis. Our medical department
2 would take the initiative and come to us, and go to the line
3 operation and production operation, and say, "fellows, you
4 have a problem."

5 And then they would describe to us their findings as
6 a result of these X-rays, and from that we would have to initi-
7 ate action, whatever our problem is.

8 MR. EARLE: Would they name individual employees?

9 MR. BIBRI: Oh, they might or might not.

10 I don't know that that would be material, do you?

11 MR. EARLE: Well, you are leading me to the conclu-
12 sion that the reason you would be notified that one of the
13 reasons is to create better control of asbestos dust in the
14 areas where this occurred.

15 MR. BIBRI: We would have to do that, but we do
16 not have a medical department proceeding of the department
17 saying, "Ann, Billy, Johnny have shadows on their lungs," and
18 it doesn't mean we would immediately single out these fellows
19 and put a tag on them, and they would be under some threat as
20 far as the employment status is concerned.

21 MR. EARLE: If a final standard, for assumption
22 purposes, allowed the employer to see the records, but only
23 at the request or permission given by the employee, what are
24 your opinions concerning that?

25 MR. BIBRI: I think that is unduly restrictive.

hws-10

1 The employer in this scheme, in this act, is one of
2 the key parties to seeing that there is a safe and healthy
3 work environment at the work place.

4 That is the entire thrust of the occupational health,
5 and when you prohibit him from carrying out the act, I think
6 we are playing games with each other, and I don't think we are
7 going to meet the adequate procedures when you do not permit the
8 employer to see that he provides a safe and healthy atmosphere
9 for his employees.

10 EXAMINER GOLDBERG: Thank you.

11 Is Mr. Luxon here?

12 Mr. Beasley.

13 STATEMENT OF W. H. BEASLEY, MANAGER,

14 CEMENT ASBESTOS PRODUCTS COMPANY

15 MR. BEASLEY: Mr. Examiner, I would like to submit
16 these two copies as exhibits, and summarize my statement.

17 EXAMINER GOLDBERG: The written statement submitted
18 by Cement Asbestos Products Company will be marked as Exhibit
19 46.

20 (The document referred to was
21 marked for identification as
22 Exhibit No. 46.)

23 EXAMINER GOLDBERG: And as so marked, it will be
24 received into evidence.

25 (The document referred to,

hws-11

heretofore marked for identification
as Exhibit No. 46 received in
evidence.)

MR. BEASLEY: My name is W. H. Beasley. I am Manager
of Cement Asbestos Products Company, Ragland, Alabama, which
is jointly owned by Mead Corporation and American Smelting and
Refining Company.

We operate two plants, one at Ragland, Alabama that
manufactures A-C pipe, and one at Van Buren, Arkansas that
manufactures A-C pipe and PVC pipe.

I am here today to express our concern and interest
in the proposed standard for control of asbestos exposure to
employees. We are interested in providing a clean and safe
environment for our employees. Therefore, we are interested
in a standard designed to accomplish this goal .

At the same time, we are opposed to some of the
methods used in the proposed standards to reach this goal.

It is apparent to me that there is a need for a
standard that would have flexibility enough to fit every indus-
try represented here and still protect the employees included.

For instance, some testimonies have been concerned
with fiber levels primarily, while others have a disposal of
scraps problem, others mixing operations, some want confidential
medical history, some recommend that the employer have access
for the benefit of the employee in their particular situation,

hws-12

1 and some products may require labeling, some do not, due to
2 their particular physical makeup -- what I am saying is that
3 if we all here have the desire to protect our employees, and
4 at the same time, the desire to be able to continue the oper-
5 ations on a sound business basis for the good of the employees
6 and the companies, then I think this standard can be designed
7 so it will be workable in all different circumstances.

8 Our concerns are listed in the written testimony
9 submitted, but I would like to emphasize some of the problems
10 peculiar to us.

11 On the fiber level we recognize the necessity of
12 controlling asbestos dust in our plants, and have endeavored
13 in the past to do so by the use of dust collectors, exhaust
14 and ventilation.

15 This is an expensive item in our plant costs, but
16 we are desirous of having our employees' environment as clean
17 as possible. We feel that the proposed five fibers level will
18 be extremely difficult to maintain in our operation.

19 However, if this is the concentration level required
20 to protect our employees, then we accept the challenge to stay
21 within the limits prescribed in paragraph (a) of the emergency
22 standard.

23 However, the two fiber proposal is considered by our
24 industrial hygienists as an impossibility to achieve and main-
25 tain continuously.

hws-13

1 With the data available at this time we feel the
2 standards should be set no more than five fibers per cc.

3 On mixing systems, some have proposed mixing in
4 plastic bags, but it is impossible to mix the quantities used
5 in our operation in bags. This points up the need for wording
6 that would permit mixing by other means as long as they are
7 controlled by the introduction of water or other methods to
8 prevent the dust from becoming airborne.

9 On disposal, in some operations it may be possible
10 to dispose of waste and scraps in bags or containers, but in
11 our A-C pipe operation a great part of the scraps is in pieces
12 of pipe that cannot be bagged or containerized.

13 Different treatment should be provided for the
14 various types of scrap.

15 For instance, scrap that has the fiber locked in,
16 as in A-C pipe and other products that have no danger because
17 of its physical makeup could have their own disposal require-
18 ments or be exempt.

19 We suggest a landfill area.

20 On labels, we object to labeling all products that
21 contain five percent or more by weight of asbestos as being a
22 health hazard.

23 For instance, A-C pipe has more than five percent
24 asbestos, but it is locked in and is not released while in
25 service. Many other products fall into this same category,

hws-14

1 as testified to in this hearing.

2 We firmly believe that if we are required to label
3 our pipe as has been proposed, we will be unable to sell our
4 product and would be out of business within two years.

5 Why should we not set a standard based on facts as
6 they relate to each product involved?

7 The cost involved in staying within the five fiber
8 limit and complying in these other areas mentioned would be
9 \$969,000 initially, and \$148,000 annually, assuming it is
10 technically possible.

11 At this time we have no figures on the two fiber
12 level, if it can be in fact accomplished. These costs may
13 keep us from being able to operate, but if they didn't, label-
14 ing, as proposed, would surely put us out of business any way.

15 Thank you for hearing my testimony, and I am hoping
16 that due consideration will be given to all parties concerned
17 in the writing of the standard and its promulgation.

18 EXAMINER GOLDBERG: Thank you, Mr. Beasley.

19 Off the record.

20 (Discussion off the record.)

21 EXAMINER GOLDBERG: On the record.

22 In calling witnesses, we are now in the schedule of
23 the afternoon, and I am favoring people whom I know are from
24 out of town, and would undoubtedly like to get home this
25 evening.

hws-15

1 I have next Mr. Taylor, who is from Washington. I
2 am going to pass over him and go to Mr. Gabrielson

3 Are you here, Mr. Gabrielson?

4 MR. GABRIELSON: Yes. I am.

5 EXAMINER GOLDBERG: Are you ready to go on?

6 MR. GABRIELSON: Yes. I am.

7 STATEMENT OF GUY GEORGE GABRIELSON, JR.,
8 PRESIDENT, NICOLET INDUSTRIES, INC.

9 MR. GABRIELSON: Mr. Goldberg, gentlemen, my name is
10 Guy Gabrielson, Jr.

11 I am President of Nicolet Industries, Incorporated,
12 a manufacturer of asbestos products.

13 I first became acquainted with asbestos when I visited
14 the Nicolet mine in Quebec in 1930.

15 I worked briefly as an hourly employee in our Norris-
16 town, Pennsylvania plant in 1941.

17 I became an officer of Nicolet in 1948, and its
18 President in 1957.

19 Since 1930 I have made frequent visits to the mines
20 and plants of my company, and to the mines and plants of its
21 competitors.

22 I have never made a dust count, but I consider myself
23 qualified to testify to the vast improvement in dust conditions
24 in the asbestos mining and manufacturing industries during
25 the last 40 years.

1 I personally have been exposed to high concentrations
2 of airborne asbestos on many occasions, particularly during
3 the years prior to World War II.

4 To the best of my knowledge, I am in excellent health,
5 but then I have not smoked during the last 20 years.

6 Nicolet is, I believe, the smallest manufacturing
7 company which has presented testimony at this hearing.

8 We have a net worth of \$10 million, and annual sales
9 of \$16 million.

10 At the same time, we may be more heavily dependent
11 on asbestos than any other manufacturer.

12 Virtually all our products contain asbestos, usually
13 the shortest grades, those grades which contain the most dust.

14 We are perhaps more vulnerable to the negative im-
15 pact of the regulations here under consideration than any
16 other manufacturer.

17 We no longer are miners of asbestos. Our mine, which
18 also was the smallest in the industry, closed in December of
19 1968, essentially because we had exhausted our ore.

20 Today we manufacture only at four operating locations.
21 Ambler, Pennsylvania, Norristown, Pennsylvania, Hamilton,
22 Ohio, and Hollister, California.

23 We employ approximately 600 people. We use about
24 40,000 tons of chrysotile asbestos per year.

25 Our processes involve primarily the handling of

hws-17

1 asbestos in slurry form.

2 Our product line includes gasketing materials,
3 corrosion protection materials, high density asbestos cement
4 boards, specialty asbestos millboards, asbestos felt, and
5 specialty asbestos papers.

6 Although our processes are basically wet processes,
7 asbestos must be received into our plants in dry forms, stored
8 there, and finally moved to and introduced into our mixing
9 equipment before its dust creating potential finally is
10 eliminated.

11 The magnitude of our dust control problem can best
12 be expressed by citing these facts.

13 Our average dry fiber inventory at Norristown is
14 2,500 tons, and at Hamilton is 1,000 tons.

15 When operating at capacity, the Norristown plant will
16 use six tons of asbestos per hour, and the Hamilton plant will
17 use three tons of asbestos per hour.

18 These are not small volume specialty uses, where
19 mixing might be accomplished in a plastic bag. We are handling
20 significant quantities of short fiber asbestos in relatively
21 large factory areas, servicing major pieces of equipment.

22 We face far more difficult engineering problems than
23 the simple fitting of a dust collection device to a band saw.

24 Nor is dust our only problem under the proposed OSHA
25

hws-18

1 standards. Our Norristown and Hamilton plants generate more
2 than ten tons of trim and waste each day, and our Ambler plant
3 generates somewhat lesser quantities.

4 Most of this waste consists of asbestos bonded into
5 a matrix of other materials.

6 Packaging all of this scrap in the manner provided
7 in the regulations would be extremely financially prohibitive,
8 and would serve no useful purposes.

9 We have spent a long week hearing extensive testimony
10 concerning the health problems of the asbestos industry.

11 Much of that testimony has been technical in nature,
12 and much of it has been contradictory and/or ambiguous.

13 I am not a doctor. I am not an engineer. I am not
14 a chemist or a hygienist, or do I have explicit competence in
15 any related field.

16 Nevertheless, this testimony is of immediate and
17 vital concern to me.

18 At some point, in both economic and governmental
19 processes, technical data and expert opinion must be received
20 by non-technical people, evaluated and translated into action.

21 Non-technical people in the Department of Labor must
22 promulgate regulations which will have far reaching affects.

23 Non-technical people in manufacturing management must
24 decide what products will be produced and what products will
25 be discontinued, what markets will be served, and what markets

hws-19

1 abandoned, and where moneys will be invested.

2 In the final analysis, the judgment of non-technical
3 people may be the most significant step in the process.

4 Technical people can define the area of doubt, the
5 gray area, and step aside with reputation unimpaired.

6 We non-technical people must grope our way into the
7 gray area and make those technical decisions which, if proved
(5) 8 wrong, will cause calumnies to rain upon us.

9 It behooves you, those in government, before you make
10 your choices, to ascertain what fateful choices I will make.

11 You should take notice of the technical data and
12 opinions presented here, because knowledge of my probable
13 response, whether you accept its logic, or challenge it, will
14 assist you in predicting the economic consequences of the
15 action which you will take.

16 I have been in faithful, albeit somewhat tiring.
17 attendance at these sessions for three reasons.

18 One: in response to your request, I wished to
19 develop a better basis for a critical evaluation of the criti-
20 cal regulations.

21 Two: I wished to observe the hearing, and in that
22 way try to predict the probable future course of government
23 action with respect to asbestos so that I may better plan the
24 future of my company, and

25 Three: I wished to enhance my knowledge of the

hws-20

1 health hazard of asbestos for the same general planning pur-
2 pose.

3 Had the hazards appeared to me to be of high order,
4 I was prepared to decide that Nicolet should abandon all
5 asbestos operations, whatever action might be taken by OSHA.

6 In receiving my opinions I trust you will be toler-
7 ant of my limited technical knowledge, and make charitable
8 editorial corrections of my misuse of technical terms.

9 Based upon all that I have heard this week, and all
10 that I have learned in prior years, my conclusions today are:

11 One: all commercial varieties of asbestos can cause
12 asbestosis; but none of them will cause asbestosis if care is
13 taken to avoid both high peak exposures and heavy cumulative
14 exposures.

15 For a normal lifetime of work with chrysotile, peak
16 exposures of no more than 12 fibers in the plus five micron
17 range per milliliter of air and a time weighted average of
18 less than ten such fibers probably provides an adequate margin
19 of safety.

20 Two: any inorganiz particulate matter entering the
21 lungs might constitute a primary carcinogen (if this is not
22 proper terminology, I have devised it to mean a substance
23 which alone causes cancer), a co-carcinogen, or simply a
24 vehicle for transporting into the body and retaining there any
25 one of many primary carcinogenic substances.

hws-21

1 Whatever the role of the inorganic material, it will
2 be more or less efficient in penetrating the organism, depend-
3 ing in large measure upon its shape and size.

4 The filter mechanisms in the upper respiratory tract
5 may fail to arrest and eject a thin, straight body which passes
6 through end first, and a fiber which finally reaches the lungs
7 may be too long to be enveloped by the contaminant-neutralizing
8 cells which are found there.

9 As far as fibrous bodies are concerned, it follows
10 that fibers too heavy to be inhaled are not dangerous, curly
11 fibers which will be trapped by the filter mechanism are not
12 dangerous, and short fibers which can be ingested by the
13 neutralizing cells are not dangerous.

14 Three: any one of the commercial varieties of
15 asbestos might be a primary carcinogen.

16 It is possible that crocidilite is a primary cause
17 of mesothelioma.

18 The same may be said of amosite. It is probable that
19 chrysotile is not a primary carcinogen.

20 Four: anyone of the commercial varieties of asbestos
21 might be a co-carcinogen.

22 Five: Any one of the commercial varieties of
23 asbestos might be no more than a vehicle for transporting into
24 the body a primary carcinogenic.

25 Six: Whatever the carcinogenic role of the different

hws-22

1 varieties of asbestos, crocidolite and amosite would seem to
2 be more effective in penetrating the human body and remaining
3 there than chrysotile.

4 Crocidolite and amosite typically are long, straight
5 and stiff or rigid; whereas chrysotile is more apt to be short,
6 curly and flexible.

7 Seven: the susceptibility of different persons to
8 diseases associated with asbestos varies, probably because of
9 differences in the effectiveness of individual lung protecting,
10 purging or neutralizing mechanisms.

11 Eight: Environmental conditions which provide ade-
12 quate protection against asbestosis probably provide a greater
13 margin of safety against lung cancer.

14 Nine: Smoking while inhaling asbestos is several
15 times more dangerous than either smoking or inhaling asbestos
16 alone.

17 In the final analysis, however, we are dealing with
18 probabilities. When the last statistic has been cited, and
19 the last interpretation given, the studies taken together say
20 clearly to me, "be very careful of crocidolite and amosite,
21 and avoid massive doses of chrysotile, and don't smoke."

22 I would like to repeat here that these are my personal
23 opinions only, based upon all that I have heard this week,
24 and all that I have heard in years past.

25 My general conclusion is that I do not consider

hws-23

1 chrysotile asbestos to be a very hazardous material; I believe
2 that it can be used safely if reasonable precautions are ob-
3 served.

4 I shall not recommend to my Board of Directors that
5 Nicolat abandon the asbestos business because of any inherent
6 dangers involved in the handling of the material.

7 My obligations as an employer will be fulfilled to
8 the satisfaction of my conscience if I keep dust levels in my
9 factories at the lowest practical levels, make sure that peak
10 concentrations never exceed 12 fibers of plus five microns
11 per milliliter of air, provide respirators in the event that
12 concentrations shall exceed that level, endeavor to persuade
13 my employees not to smoke (or forbid smoking on the job if
14 union contracts permit), and ban the use of crocidolite and
15 amosite in all manufacturing operations.

16 Let me turn now to a consideration of the proposed
17 regulations.

18 The purpose of the Occupational Safety and Health
19 Act, of course, is employee health; and we have devoted the
20 greater part of our time here this week to that subject.

21 We cannot, however, entirely ignore collateral factors.
22 I am sure that there is no one here who would wish to increase
23 the margin of safety in our dust standards so far beyond the
24 point at which employee health is adequately protected that,
25 as a consequence, we deprive of their means of livelihood the

1 very persons whom we are trying to benefit. This would be an
2 action as foolish as it is absurd.

3 Nor can the Department of Labor forget that it is
4 a part of the Executive Branch of our Government, a government
5 which has many, and often conflicting objectives to achieve.

6 In the final analysis, government is indivisible.
7 Where but here in this room may we balance all the consider-
8 ations that may flow from the regulatory provisions which we
9 are considering?

10 The genius of a republic lies in the fact that it
11 provides forums such as this where the total impact of govern-
12 ment action may be considered, to the end that any negative
13 consequences may be strictly limited to those which are
14 essential to the achievement of the desired beneficial conse-
15 quence or consequences.

16 Any regulation pertaining to the health hazards of
17 asbestos in industry will have some undesirable results, to
18 the extent that it discourages the use of asbestos materials,
19 it will shrink the market for asbestos products with consequent
20 loss of profits and loss of employment opportunities.

21 To the extent that it makes the manufacture of
22 asbestos materials in the United States technologically un-
23 feasible or uneconomic, it will force the purchase abroad of
24 products for which there is no non-asbestos substitute, with
25 consequential losses in profit, increases in unemployment, and

hws-25

1 deterioration in the nation's balance of payments.

2 To the extent that it forces heavy capital investments
3 by manufacturers, it will drive smaller producers from the
4 field, and tend to create monopoly in the hands of the largest
5 and wealthiest competitors.

6 Since it is national policy to encourage profits
7 (and tax revenues), to increase employment, to strengthen the
8 nation's balance of payments, and to encourage competition in
9 a free market; regulations affecting the use of asbestos in
10 industry should not go beyond that point at which they demon-
11 strably and defensibly achieve their basic objective.

12 To do more would constitute an unreasonable use of
13 the police power and would result in an unjustifiable depriva-
14 tion of property (as represented by the loss of good will and
15 decline of asset value in the companies affected) without fair
16 compensation.

17 Nicolet subscribes to the following views, some of
18 which already have been expressed by others at this hearing:

19 One: There is, at the time, no sound scientific
20 justification for a mandatory limit of two chrysotile fibers,
21 five microns or more in length, per cc of air on a time weighted
22 average basis.

23 Two: there is, at this time, little or no scientific
24 justification for a mandatory limit of five chrysotile fibers,
25 five microns or more in length, per cc of air on a time weighted

hws-26

average basis.

Three: there is, at this time, adequate scientific justification for establishing a mandatory peak concentration of 1.2 chrysotile fibers, five microns or more in length, per cc of air.

Four: there is, at this time, adequate scientific justification for establishing more stringent limits for airborne crocidolite and amosite fibers.

Five: there is, at this time, no adequate scientific justification for requiring any label on chrysotile asbestos products, except, perhaps, for a cautionary label to be applied to bags of free asbestos fiber and to asbestos containing materials for which free fibers may be released by routine handling.

Six: there is, at this time, no adequate scientific justification for requiring that all asbestos waste materials be placed into sealed containers; when many of them present no hazard to health, and there are satisfactory alternative ways to handle those which may be hazardous.

Seven: to achieve the five fiber limit in some asbestos manufacturing operations may be impossible, and in many it will be very expensive.

Eight: to achieve the proposed two fiber limit in many asbestos manufacturing operations is technically unfeasible or prohibitive in cost.

hws-27

1

2

3

4

5

6

7

8

9

10

11

12

13

14

15

16

17

18

19

20

21

22

23

24

25

It is not feasible for major critical Nicolet operations.

As far as Nicolet itself is concerned, then the situation would appear to me to be this:

One: if the labeling requirement is eliminated or substantially modified, and the waste removal provisions are eliminated or substantially modified, and the five fiber weighted average limit per cc of air is adopted as final; Nicolet may be able to comply with the regulations at a capital cost of \$1,050,000, and an increase in annual operating costs of \$120,000.

I cannot say with conviction that we will be able to find or attract the \$1,050,000.

Two: If the waste removal provisions stand as proposed, our annual operating costs will be increased by a further \$780,000.

Since this figure exceeds our profit before taxes for 1971, the continued existence of Nicolet as a viable business enterprise would depend upon whether or not our very competitive market permits us to pass this cost along to our customers.

Three: if the labeling requirement as proposed is adopted and the five fiber weighted average limit is continued as the permanent standard, we will lose that portion of our market which consists of backing felt for roll vinyl flooring,

hws-28

1 our other markets will shrink, and we probably will be obliged
2 to close our Hamilton, Ohio plant, concentrating our expendi-
3 tures for dust control equipment at Norristown, Pennsylvania
4 and Ambler, Pennsylvania.

5 Four: if the two fiber weighted average limit is
6 adopted, I would predict that we would have to close both our
7 Hamilton, Ohio and Norristown Pennsylvania plants. These
8 facilities are not practically or economically suited to the
9 manufacture of anything but asbestos papers and millboards,
10 so our equipment would have to be sold for its salvage value
11 and the plants offered for sale as real estate.

12 The two fiber limit would, in all likelihood, reduce
13 sales volume at our Ambler plant to a level which no longer
14 would support its overhead.

15 In that event, it too might have to be offered for
16 sale.

17 As I said earlier, I see no hazard in chrysotile
18 asbestos great enough to prompt Nicolet voluntarily to abandon
19 its asbestos business. The proposed regulations, however, if
20 adopted, probably will force Nicolet out of the asbestos
21 business.

22 In summary, then, the proposed regulations could
23 have a very serious adverse impact on my company, an impact
24 which cannot be justified by any demonstrable benefit to our
25 employees, to the employees of our customers, or to the

hws-29

1 general public.

2 Fortunately for all of us this result is not neces-
3 sary.

4 The asbestos industry can be preserved virtually
5 intact, and the nation can continue to enjoy the benefits of
6 asbestos containing materials without endangering the lives
7 of any asbestos worker.

8 In my opinion, we do not need to trade the health
9 or well being of our employees for the lifesaving properties
10 of asbestos, for jobs, for the balance of payments, for
11 vigorous competition in the industry, or for corporate profits.
12 We can have our health and all these things, too.

13 I propose that OSHA adopt permanent regulations which:

14 One: require the asbestos industry to use every
15 reasonable engineering method, and the best available work
16 practices and standards to keep airborne contaminants of all
17 kinds in the working environment at the lowest feasible level.

18 Two: establish a peak concentration of 12 chrysotile
19 fibers, five microns or more in length, per milliliter of air
20 in the working environment and require that employees be
21 provided with suitable personal protection if the ceiling
22 value ever should be exceeded. (This peak value automatically
23 will assure an average value which is much lower.)

24 Three: establish a concentration of two asbestos
25 fibers, five microns or more in length, per milliliter of air

hws-30

1 on a time weighted average basis in any work environment which
2 any quantity of crocidolite or amosite fiber is used.

3 Four: forbid smoking by any asbestos worker on the
4 job.

5 Five: require a cautionary label only on packages
6 of free asbestos fiber and on any asbestos product from which
7 free fibers may be liberated by normal contact with the hands,
8 and

9 Six: require all persons in the asbestos industry
10 to dispose of waste in such a way that the designated limits
11 for airborne asbestos fibers are never exceeded.

12 In addition, I urge the Department of Labor to do
13 whatever it can to sponsor and encourage further research into
14 the biological effects of asbestos, research which will define
15 the distinctions among the biological effects of different
16 varieties of asbestos, will define the impact of low and
17 medium concentrations of each fiber type, will ascertain the
18 significance of fiber dimensions, and will identify more
19 precisely the specific carcinogenic agent or agents with which
20 we may be dealing.

21 Nicolet Industries stands ready to cooperate in any
22 such programs.

23 Mr. Goldberg, this completes my testimony.

24 I thank you and the Department of Labor for per-
25 mitting me to appear at this hearing and to present my views.

hws-31

1 EXAMINER GOLDBERG: Thank you, Mr. Gabrielson.

2 Off the record.

3 (Discussion off the record.)

4 EXAMINER GOLDBERG: On the record.

5 We will take a 15 minute recess.

6 (Short recess.)

7 EXAMINER GOLDBERG: On the record.

8 Mr. Luxon.

9 STATEMENT OF STUART G. LUXON,

10 HER MAJESTY'S SUPERINTENDING CHEMICAL

11 INSPECTOR OF FACTORIES AND DIRECTOR OF

12 INDUSTRIAL HYGIENE UNIT, DEPARTMENT OF

13 EMPLOYMENT, UNITED KINGDOM

14 MR. LUXON: Mr. Examiner, I would thank you for the
15 opportunity of appearing here today, and would, first of all,
16 like to make a brief general statement which may assist the
17 hearing in its consideration of a standard for exposure to
18 asbestos dust.

19 The use of asbestos and asbestos products in industry
20 in the United Kingdom is controlled by the asbestos regulations
21 which came into force in May, 1970.

22 In addition, the Inspectorate has published a Tech-
23 nical Data Note Number 13, setting out the standards which
24 they will adopt in the enforcement of these regulations, and
25 a copy is available for the consideration of this hearing.

hws-32

1 It should be noted that references in the regulations
2 to asbestos dust, and hence the application of the regulation
3 are taken to be references to dust consisting of or containing
4 asbestos to such an extent as is liable to cause danger to the
5 health of persons employed.

6 Under United Kingdom law it would be for a court to
7 decide what concentration of dust in any particular situation
8 might be liable to cause injury to health in the light of all
9 available evidence.

10 The Inspectorate, however, in the TDN referred to
11 above, have set out the standards of asbestos dust concentra-
12 tions which they regard as falling within this definition and
13 the methods whereby these concentrations can be measured and
14 evaluated.

15 It must be appreciated that the Inspector has there-
16 for a certain discretion in his assessment of risk.

17 Perhaps I should, however, comment on the principles
18 underlying this standard.

19 We believe it is accepted that available information
20 on asbestos health hazards over a variety of industries is
21 sufficiently documented but at the same time we must, in order
22 to achieve uniform acceptable working standards, adopt a
23 practical working value for asbestos dust concentrations in
24 the working environment. In the longer term we have decided
25 to carry out a prospective epidemiological survey covering all

hws-33

1 persons exposed to an asbestos dust concentration of two
2 fibers per cc or over.

3 This will take the form of a medical check on such
4 workers coupled with a selective ten percent environmental
5 check which we hope can be extrapolated to cover all such
6 exposed persons.

7 It must be appreciated, that it will be many years
8 before such work becomes meaningful.

9 As distinct from this long term exposure we have to
10 control the dangers associated in the peak or ceiling expos-
11 ures. For such exposures we have adopted a standard of 12
12 fibers per cc sampled over a 10 minute period (duplicate
13 samples being taken to avoid any possible gross errors).

14 If the level exceeds this, we require immediate
15 action -- in other words, respiratory protection.

16 This standard appears to be similar in concept to
17 that set out in the document entitled "Criteria for a Reco-
18 mended Standard for Asbestos" which suggests a ceiling figure
19 of ten fibers per cc over a 15 minute period.

20 Our work leads us to believe that when the airborne
21 concentration on an eight hour basis exceeds four fibers per
22 cc, there will, in the great majority of processes be excu-
23 sions beyond 12 fibers per cc, and this peak value may in
24 practice therefore be of greater significance than might appear
25 at first sight.

hws-34

I believe a concentration of two fibers per cc greater than five microns, with an aspect ratio of three to one is a correct standard in the light of present knowledge to minimize risk of disease in the long term.

It could be argued that, given a lesser period of exposure than 50 years, some relaxation may be possible in view of the fact that the BOHS standard recommends a lifetime exposure of 100 fibers per cc years.

On the other hand, we are dealing with a serious hazard which results in over 100 cases of asbestosis in the United Kingdom each year.

This figure of two fibers per cc should be related to a time weighted personal exposure over a working day, although for practical purposes we have chosen to measure this concentration by sampling over a four hour period.

If the exposure was, however, substantially less than eight hours, allowance would be made for this fact.

We know that there will be processes where even given a high standard of control the nature of the operation makes the achievement of such a level very difficult.

Certain textile processes and handling sheets of insulation board may be cited as particular examples.

We have, in the United Kingdom, for obvious reasons, concentrated our activities, therefore, on the processes giving the highest exposures, while exerting the maximum

hws-35

1 pressure for the reduction of asbestos dust at all processes
2 where the concentrations have been found to exceed two fibers
3 per cc.

4 In the longer term we are working towards a reduc-
5 tion to two fibers per cc in all processes, but in certain
6 areas, clearly time is a most important factor. As we approach
7 the figure of two, we must also, I believe, have regard to
8 the estimated sampling and evaluation errors which may be of
(7) 9 the order of plus or minus 30 percent.

10 For crocidolite, we have adopted for this form of
11 asbestos a much higher standard -- in other words, 0.2 fibers
12 per cc as a ceiling value evaluated over a ten minute period
13 of maximum dust emission.

14 This standard is very difficult to achieve in prac-
15 tice, and it has, since the passing of the regulations, resulted
16 in a greatly reduced level of use and almost complete absence
17 of new processes in which crocidolite is used.

18 For respiratory protection in the use of chrysotile
19 and amosite, it should be understood that in the United
20 Kingdom, if a concentration of asbestos dust in the breathing
21 zone of an employed person is found to exceed 12 fibers per
22 cc, respiratory protection is required as an immediate measure
23 until other remedial action can be taken.

24 When the concentration exceeds two but is less than
25 12, then the use of respiratory protection must be considered

in the light of Regulations 7 and 8 of the Asbestos Regulations, and in this context, practicability of control and duration of exposure are both of paramount importance.

A copy of this Technical Data Note dealing with the approval of respiratory equipment for various types of asbestos is available for the information of the hearing.

This will not be directly comparable with American practice, because of the differing standards for respiratory protective equipment as between the two countries.

Again referring to crocidolite, with this material respiratory protection must be provided when the concentration of 0.2 fibers per cc is exceeded in the breathing zone of any employed person when measured over a ten minute period of maximum emission.

The standards are set out in the Technical Data Note referred to above.

Concerning methods of sampling and evaluation, in general, the techniques proposed in the criteria documents and those used in the United Kingdom are similar.

Technical differences in procedures will not be discussed here. It is perhaps worth noting, however, that in evaluating long term exposure measurements are usually taken to evaluate asbestos exposure over a four hour period using personal sampling equipment.

In considering the index of concentration, it should

hwg-37

1 be pointed out that the fiber concentrations referred to above
2 are considered to be a measure of the total asbestos dust
3 burden in the air -- in other words, they are an index of the
4 degree of contamination, rather than an absolute measurement
5 of the number of fibers.

6 Recent work has tended to indicate that the longer
7 fibers may be more biologically active, and this has added
8 further weight to the use of such a parameter.

9 Because of the difficulties which have arisen in
10 recent years in regard to the measurement of other dusts --
11 for example, silica -- and the tendency to move towards gravi-
12 metric techniques, we are actively pursuing methods of eval-
13 uating dust concentrations by the use of gravimetric size
14 selective samplers, and subsequent analysis of the respirable
15 fraction by X-ray diffraction techniques.

16 Until we have more information we are carrying out
17 occasional check determinations by this method so as to keep
18 open the possibility of converting figures obtained by count-
19 ing with possible future gravimeter standards.

20 In summary, the techniques used for the measurement
21 of asbestos in the United States and United Kingdom are similar.

22 It is considered that two fibers per cc is a correct
23 long term standard in the light of present knowledge, and
24 that 12 fibers per cc measured over the ten minute period of
25 maximum emission should be the ceiling value.

hws-38

1 This could be held to be very similar to your pro-
2 posed standard of ten fibers over a 15 minute period.

3 In view of the sampling error, the difficulties in
4 setting an "absolute" standard and the engineering problems
5 in achieving it, some discretion may be necessary in enforcing
6 levels of four fibers per cc, and below in certain processes
7 for a period of time.

8 Thank you, Mr. Examiner.

9 EXAMINER GOLDBERG: Thank you, sir.

10 Does anyone wish to ask questions of Mr. Luxon?

11 MR. BIBRI: I have two questions.

12 One: are there any labeling requirements provided
13 under your regulations on finished products that contain
14 asbestos fibers?

15 Two: what methods are prescribed for disposing of
16 scrap or waste that contain asbestos fibers?

17 MR. LUXON: To deal with the first of those ques-
18 tions, the only requirement on labeling in our regulations
19 is for crocidolite, which must be labeled "including asbestos."

20 MR. BIBRI: At what point, sir?

21 MR. LUXON: At all points, sir.

22 MR. BIBRI: Including the finished product?

23 MR. LUXON: No. But I must point out that this is
24 under consideration in Europe, and the Council of Europe on
25 the labeling of hazardous substances, of which I am chairman,

hws-39

1 is considering this at the present time, and we feel it would
2 be improper for us to apply a form of label before that matter
3 is resolved in a wider context.

4 To deal with the second point, scrap within the
5 factory, by the regulations, must be kept in enclosed con-
6 tainers.

7 The ultimate disposal of scrap is not dealt with
8 in the regulations because these regulations are for the
9 protection of employed persons, and the disposal of scrap in
10 its ultimate form is a matter of general contamination.

11 MR. BIBRI: Thank you very much.

12 EXAMINER GOLDBERG: Mr. Savbrouin.

13 MR. SAVBROUIN: Mr. Luxon, it has been the under-
14 standing of some of us here, and the opinion has been expressed
15 from time to time, that the interpretation of the so-called
16 regulation 13 that you alluded to was such that it could be
17 said that the tolerance takes place in the interpretation of
18 same in the United Kingdom to a point within the province
19 within your jurisdiction, to a point that the ceiling could
20 be here and there, four or five, six, seven, eight, nine, ten,
21 eleven, twelve, thirteen, and possibly fourteen, and yet you
22 would not stringently interpret the two fiber per cc, and
23 thus would have quite a degree of moderation in the application
24 of the standard.

25 Can you tell me if I am right?

1 Possibly my question was a bit lengthy, but I hope
2 I was clear enough.

3 MR. LUXON: The question of the concentration, of
4 course, has to be viewed in conjunction with the time of
5 exposure.

6 We believe that where it is feasible, in the present
7 state of the art of control measures, that the concentration
8 should be reduced to two.

9 We feel that there will be problem areas, perhaps
10 from two up to four.

11 Two up to four, where, with even stringent controls,
12 we are not yet in a position to reach a figure of two, and
13 in these areas, is a need to apply further research and in-
14 vestigation into reducing the concentration, and I think we
15 should allow some element of time for this to be done, but
16 clearly, as we go up from five, we must be ready to take
17 further remedial steps in a shorter time.

18 In other words, I believe we are here weighing con-
19 centration against time in the immediate evaluation of the
20 environment, and concentration against time at the lower
21 levels in regard to economic and scientific feasibility of
22 control, but I see no reason, and I must emphasize this, in
23 the vast majority of persons where we know that two can be
24 achieved, why we should not achieve that rate here.

25 I am speaking of the United Kingdom, and not the

hws-41

1 United States, but in the United Kingdom, where it is feasible
2 and possible in the economic process, we should arrive at
3 two.

4 MR. SAVEROUIN: Yes.

5 I think -- if I may be allowed -- I understand you
6 to say that when the feasibility may be envisioned, and where
7 it may be possible for the party to respect the ceiling, well,
8 then, you aim immediately to it, but where the feasibility
9 may not, in the opinion of the Inspectorate, may be, owing to
10 the prevailing circumstances sometimes, because a plant has
11 been in existence for some 20 to 25 years, and where the
12 methodology has not been transformed recently, that more time
13 should be given; that nevertheless there, in view of that
14 feasibility aspect, you will, according to circumstances,
15 somewhat subject each case upon its own merits.

16 Am I right?

17 MR. LUXON: Yes.

18 I agree that in this area we must, in our opinion,
19 in my practice, look at the process upon its merits, but we
20 certainly would want to be convinced that it was a practical
21 possibility at the present moment to reduce the concentration
22 to two before we could think in terms of allowing some slight
23 latitude along these lines.

24 I think we have to keep in mind the fact that while
25 the evidence may be scanty, to arrive at a firm figure, we

1 have a serious hazard, and we must do everything within our
2 power to reduce that hazard as far as possible.

3 MR. SAVBROUIN: I thank you, sir.

4 EXAMINER GOLDBERG: Mr. Perkel.

5 MR. PERKEL: I am George Perkel, with the Textile
6 Workers of America.

7 Mr. Luxon, I would like to see if I understood
8 your responses to the last question, and pose some questions
9 of my own.

10 As I understood you, you said that in the United
11 Kingdom there is a fixed standard of time weighted average
12 of two fibers per cc, and this is the standard that your
13 department enforces.

14 In particular cases, you might find that there were
15 problems in meeting these standards, and you would provide
16 additional time, if it was required, in order to meet those
17 standards.

18 Is that a fair understanding?

19 MR. LUXON: We would provide the time if we were
20 satisfied in our mind that this would not involve a signifi-
21 cant increase in the liability to health.

22 We have to look at the length of exposure to the
23 individual, the general supervision regarding medical atten-
24 tion, and other factors, and we have to look at the feasibility
25 of providing control measures, and we have to take all of these

hws-43

and 7

things into account, and I would not want it thought that we accepted a figure of two, without any evidence and consideration, and we wouldn't want to see just the acceptance of this higher figure for a long period of time.

Calvin/ms

Tape 8
fls. hws

1 MR. PERKEL: This sounds like the provision in our
2 law for temporary variance; that is, that in any circumstance
3 where it is found that technical feasibility cannot be
4 achieved immediately, the Department of Labor is authorized to
5 provide a temporary period for reaching the established standard.

6 Is that essentially what you are referring to?

7 MR. LUXON: Mr. Examiner, I find myself in difficul-
8 ties here, because you clearly held a different approach
9 legally to this particular problem.

10 The laws are slightly different, and the arrangements
11 for enforcing the laws are different, and I think I could not
12 answer that in saying how the variances are given and the way
13 the law operates.

14 MR. PERKEL: When did the two fibers per cc become
15 effective in the United Kingdom?

16 MR. LUXON: In May 1970.

17 MR. PERKEL: Was the industry put on notice when that
18 regulation would come into play?

19 MR. LUXON: Yes. A year before the regulation.
20 But, sometime before that, we had held discussions, both with
21 industry and with unions, and we reached this standard in a
22 consensus opinion, among all parties concerned.

23 MR. PERKEL: Have there been any cases, to your
24 knowledge, where plants in the United Kingdom that discontinued
25 their operation or curtailed their amount of employment

1 because of their inability to reach the two fiber limit?

2 MR. LUXON: I know of no case which has been
3 directly attributable to this cause.

4 MR. PERKEL: Thank you.

5 MR. LUXON: Subject, always, to the factor that I
6 made, where there might be some maneuver at the low end where
7 this is not economically feasible.

8 MR. PERKEL: Well, with respect to the maneuver,
9 what has been the actual experience that you have mentioned?

10 One is the proportion of cases which you observed
11 where it is necessary to depart from the two fiber limit.

12 Would you give us an approximation of that?

13 MR. LUXON: I think, Mr. Examiner, this is a very
14 difficult question to answer.

15 I couldn't suggest that we knew comprehensively what
16 this might be, and particularly when we are talking about
17 judging cases on their merits.

18 I am afraid I can't help on that, but there are some
19 areas which are necessary, but the great bulk of the manipula-
20 tive work in the various projects can be brought into play.

21 MR. PERKEL: And from your experience, the plants
22 have met the two fibers per cc measures?

23 MR. LUXON: On the manipulative side, yes.

24 I wouldn't want to say they have all done it.

25 MR. PERKEL: Would you explain what you mean by

ms-3

1 "manipulative side"?

2 MR. LUXON: The manipulation of asbestos products.

3 MR. PERKEL: Does that include the making of textiles?

4 MR. LUXON: No.

5 MR. PERKEL: What has been the workings of the tex-
6 tile area?

7 MR. LUXON: It operates in a different category where
8 you have different concentrations.

9 The concentration levels fluctuate very widely. I
10 think a great deal has been done in the United Kingdom, and a
11 great research effort has been carried out in the process of
12 revamping materials, revamping our methods process, and the
13 problem is coming within sight of the lower levels that are
14 mentioned.

15 MR. PERKEL: Has anything like a manual or recommended
16 procedures booklet been developed, say, for the textile
17 industry?

18 MR. LUXON: The industry itself has developed leaf-
19 lets, setting out the sort of ways in which the regulations
20 can be met, but we, as a department, have not published such a
21 document.

22 We believe it is the responsibility of the industry
23 and of the employers to comply with these studies. And I am
24 pleased to say that the industry has, in fact, come up to its
25 responsibilities and has provided these documentations to a

ms-4

great extent.

MR. PERKEL: Thank you very much.

EXAMINER GOLDBERG: Dr. McDonald.

DR. McDONALD: I am Corbett McDonald from Yale University.

You said that the epidemiological evidence upon which the rates are based are rather scanty.

MR. LUXON: I didn't say that.

I said it was insufficient.

DR. McDONALD: Yes.

In the event that the epidemiological evidence is produced to indicate that some modification of that standard should be made, what mechanism would exist for doing that?

MR. LUXON: We made the very point that you brought out in our publication, when you have an opportunity to see this, that we would need to modify the standards in the light of further knowledge of the hazards, because the regulations talk about liability of injury to health. We don't have to order the regulations -- we only need to order the materials we are providing as to how to interpret those words.

EXAMINER GOLDBERG: Mr. DeGregorio.

MR. DeGREGORIO: Sir, will you permit me some questions, please.

It is my understanding that the asbestos regulations of 1969 do not contain numbers describing levels to be attained,

ms-5

1 is that correct?

2 MR. LUXON: That is correct.

3 MR. DeGREGORIO: Nonetheless, in your presentation,
4 you have referred to a No. 2 standard, a No. 12 standard, as
5 a peak, and also a No. 4.

6 Will you please tell us where you get those numbers,
7 please?

8 MR. LUXON: Yes.

9 The numbers are published in a document which I will
10 make available to the hearing entitled "Standards for Asbestos
11 Regulations for 1969."

12 MR. DeGREGORIO: Are those regulations, sir, part of
13 the substantive regulations, and are they binding?

14 MR. LUXON: I tried to make the point in my opening
15 statement, in the United Kingdom it is the court to decide
16 what may cause injury to health.

17 It may have regard to such a publication as that, but
18 that is not a binding legal requirement.

19 MR. DeGREGORIO: Are those regulations which
20 mention --

21 MR. LUXON: They are not regulations. They are
22 information in a technical data note.

23 Mr. DeGREGORIO: Is that the information, please,
24 binding on inspectors of your department?

25 MR. LUXON: It is given to them as guidance. We

1 would hesitate to use the word "binding," other than in a
2 legal concept.

3 MR. DeGREGORIO: Sir, do you know if the ^{inspectors} standards
4 in your department do substantially comply with your instruc-
5 tions?

6 MR. LUXON: They use them as a guideline.

7 Where further information is needed, they would
8 refer them for further advice.

9 MR. DeGREGORIO: Suppose an inspector, during an
10 inspection, finds that the concentration of fibers in the air
11 exceeds 12 fibers?

12 I understood you to say that a time period is --

13 MR. LUXON: For 12 fibers, the inspector would
14 require immediate remedial measures.

15 MR. DeGREGORIO: Now, when does an inspector give
16 some time -- under what kind of situation does he allow some
17 time to bring down the concentration, and down to what level,
18 please?

19 MR. LUXON: The time factor depends upon the con-
20 sideration of the particular individual circumstances.

21 One would have regard to how much the figure of two
22 is exceeded.

23 The duration of the exposure of the person. If the
24 exposure is short, then the eight-hour average will bring
25 down the level to two, and the economic and scientific

ms-7

1 feasibility of scientific control measure, and the work and
2 time necessary to get these figures down to two.

3 MR. DeGREGORIO: So, just to test my understanding,
4 if the level exceeds 12 fibers --

5 MR. LUXON: Yes.

6 MR. DeGREGORIO: An employer is required to take
7 immediate correction.

8 MR. LUXON: Yes.

9 MR. DeGREGORIO: If the level exceeds two fibers,
10 then there is the question of considering the action in time
11 necessary to bring the concentration down to two fibers.

12 MR. LUXON: But only at the bottom end of that,
13 because we are talking here of two different things.

14 We are talking about the peak value of over 10 or
15 15 minutes, and the long-term time weighted figure, and the
16 long-term time weighted figure of 6 or 7, maybe more serious
17 than the peak value of 12. So, it wouldn't apply.

18 You would still be able to apply your control
19 measures at that sort of level, but as we approach the two,
20 there has to be a greater level of flexibility of the economic
21 and scientific knowledge is not available to reduce it to a
22 figure of two in the immediate figure, but only at this low
23 end.

24 MR. DeGREGORIO: Before I leave this area, may I
25 ask you if the instruction that contained those numbers is

ms-8

1 published by your department, please?

2 MR. LUXON: Yes.

3 EXAMINER GOLDBERG: Let me ask one question.

4 Who exercises the discretion in granting the addi-
5 tional time to meet the No. 2 level?

6 MR. LUXON: In the final course, it must be a court
7 of law.

8 But, of course, the Inspectorate must clearly, in
9 its day-to-day functions, consider these various problems that
10 we are discussing, and the individual inspector subject to
11 guidance must decide in his mind where the figures, as found
12 in a particular situation, are allowable to give injury to
13 health. And it gives him a slight measure at the bottom end
14 in his approach, where the process cannot be seen to be
15 readily controlled.

16 MR. DeGREGORIO: May I pursue that point for just a
17 moment, please.

18 Suppose an inspector, after considering all those
19 factors that you have mentioned, states that the correction
20 has to be made within, say, a month.

21 MR. LUXON: He cannot do that. He must then apply
22 to a court for an order. He must himself conduct the case in
23 court and convince the magistrate or the judge that he is
24 correct in his assumptions.

25 MR. DeGREGORIO: But, who determines the time during

ms-9

1 which the inspection has to be made, the court?

2 MR. LUXON: In the final circumstances, yes.

3 MR. DeGREGORIO: But let me try to explain myself.

4 Is it possible to have an agreement as to the time
5 of correction without the resort to court?

6 Can an inspector suggest a period of time during
7 which a correction has to be made, and can an employer agree
8 to that time so that the matter is not referred to the court?

9 MR. LUXON: No.

10 I think this would be a wrong approach. I think the
11 correct approach would be asking for a reduction to a level,
12 but perhaps not to depress to that stage unless the inspector
13 felt there would be a threat to health, in his judgment.

14 MR. DeGREGORIO: But if the inspector feels it is
15 potentially serious --

16 MR. LUXON: Then he must go to court, and the court
17 must determine.

18 MR. DeGREGORIO: And it is only at that stage that
19 the time period for correction is mentioned?

20 MR. LUXON: If there is a liability of injury to
21 health, and the employer will be in violation, if this can be
22 shown.

23 EXAMINER GOLDBERG: Let us move on.

24 MR. DeGREGORIO: I would like to ask a few more
25 questions, please.

ms-10

1 Monitoring. Are employers made to monitor the
2 ambient air of the work place?

3 MR. LUXON: No.

4 The largest employers do this. We have carried the
5 whole operation by discussion as far as possible, and agreed.

6 The large companies institute monitoring. Their
7 association monitors for other users, and we ourselves, of
8 course, monitor from a point of view of checking what has been
9 done, but there is no legal requirement for checking.

10 MR. DeGREGORIO: With regard to your monitoring, how
11 often is it done, please, more or less?

12 MR. LUXON: We do not monitor on a routine basis.

13 The requirements to comply rest on the owner or
14 occupier of the factory. We monitor to check to see if what
15 he is doing is the correct procedure.

16 MR. DeGREGORIO: Could you give us an idea of how
17 often the checking is done?

18 MR. LUXON: It is not done on the basis of time. It
19 is done on the basis of requirement.

20 If an inspector in the field finds that a process is
21 giving rise to dust, he will ask us to monitor the situation,
22 but it is not done on a regulated time basis.

23 It is a fire brigade basis, if you wish to term it
24 that way.

1 MR. DeGREGORIO: Do you have any regulations against
2 smoking in concurrence with the manufacture of asbestos?

3 MR. LUXON: No.

4 We feel it is important, but we feel we cannot
5 control people's preferences in this respect.

6 MR. DeGREGORIO: Is there any requirement in the
7 United Kingdom regulations for medical examinations?

8 MR. LUXON: No.

9 MR. DeGREGORIO: Are there any provisions against --
10 adverse personnel actions against employees found to have
11 signs of asbestosis or other asbestos related diseases?

12 For example, specifically, may an employee be
13 fired because of such signs?

14 MR. LUXON: I am not sure I follow your line of
15 reasoning, exactly.

16 MR. DeGREGORIO: Is there any action taken against
17 an employee, or firing the employee, who has been found, by
18 X-ray, for example, to have signs of asbestosis?

19 MR. LUXON: This is not a matter of protection for
20 the employee.

21 This is another matter altogether.

22 This would be a matter of employment between the
23 man and his employer.

24 It is not something with which we are really con-
25 cerned in the context of these regulations.

1 MR. DeGREGORIO: When you talk about controlling
2 the asbestos dust, do you put any special emphasis on certain
3 kinds of controls?

4 Specifically, do you prefer engineering controls
5 to respirator systems?

6 MR. LUXON: Yes.

7 The Regulation 7 deals with engineering controls.
8 Regulation 8 deals with respiratory controls if
9 the engineering is impractical.

10 MR. DeGREGORIO: I understood you to say you have
11 some labeling requirements, but only in connection with
12 crocidolite.

13 I also understood you to say that the question of
14 labeling is under consideration.

15 MR. LUXON: The question generally?

16 MR. DeGREGORIO: Yes. With regard to chrysotile.

17 MR. LUXON: I couldn't indicate what might happen,
18 because, as I indicated, this is a European exercise, as
19 against one country.

20 MR. DeGREGORIO: Thank you very much.

21 EXAMINER GOLDBERG: Mr. Earle.

22 MR. EARLE: You referred earlier in your remarks
23 to a hope or desire on your part to reach the two-fiber
24 levels in all processes.

25 Do you have any time in mind for reaching that?

1 Have you set, either by regulation or --

2 MR. LUXON: Well, the regulation requires no injury
3 to health.

4 I think we can't set a time because we don't know
5 what the future holds in the way of methods for suppressing
6 dust, but we would certainly keep pressure on the industry
7 where it is necessary for industry to reduce its dust level,
8 and to look at possible ways of reducing the level to a
9 satisfactory figure.

10 MR. EARLE: Am I correct in the information that we
11 have received so far that Technical Note 13 in your regulations
12 is designed to protect workers against asbestosis and lung
13 cancer; however, not designed to protect them from other
14 malignancies caused by exposure?

15 MR. LUXON: That is very true.

16 MR. EARLE: In arriving at your technical note,
17 could you describe very, very briefly the procedural nature?

18 Did you hold public hearings?

19 MR. LUXON: No.

20 If we can reach agreement with the parties concerned,
21 both the unions and the employers, the manufacturers, then we
22 don't have a public inquiry.

23 If we cannot reach an agreement, then we have a
24 public inquiry, and in these regulations we did have agreement
25 from all concerned that these were the right regulations, and

1 we felt that these were necessary, and therefore there was⁴⁸⁹
2 no inquiry.

3 MR. EARLE: Before taking action, would the party
4 have to go through the Court?

5 MR. LUXON: Yes.

6 Every inspector, during the term of his appointment,
7 has to conduct the case in Court, and I think this will make
8 the difference in dealing with this difficult situation in
9 arriving at scientific and practical possibilities.

10 MR. EARLE: Are your inspectors, then, lawyers?

11 MR. LUXON: They have power to conduct proceedings
12 in Court, yes.

13 MR. EARLE: Just for this purpose?

14 MR. LUXON: Yes.

15 MR. EARLE: How many actions, if any, have you
16 instituted when you have discovered levels between the two
17 and twelve fiber count?

18 MR. LUXON: I haven't the exact figures to differen-
19 tiate between the various levels.

20 I would estimate that the great majority of the
21 cases have been taken over 12, but, as I indicated at the
22 beginning, it is because I indicated we have to deal with the
23 worst situations first, and we are facing a very large
24 problem here.

25 MR. EARLE: What are the penalties involved here?

1 Are there injunctions or monetary penalties?

2 MR. LUXON: There are two different systems of
3 enforcement; one, a monetary penalty, and the Court ordering
4 what must be done within a certain time.

5 MR. EARLE: Does the Court assess the monetary
6 penalty, also?

7 MR. LUXON: Yes.

8 MR. EARLE: Could an employer have a monetary and
9 an injunction issued against him?

10 MR. LUXON: This could be possible, but not entirely.

11 There are two different sections of the Act in the
12 point you are making, and one would proceed on one section
13 or the other.

14 EXAMINER GOLDBERG: Mr. Swetonic.

15 MR. SWETONIC: Sir Luxon, I just want to differen-
16 tiate between two things, as I try to understand you properly.

17 You have said that in that low gray area, and I
18 think you said in a range of 2 to 14 fibers, great discretion
19 is given in describing --

20 MR. LUXON: I think, sir, you are putting words in
21 my mouth.

22 I didn't say "great discretion." I said "limited
23 discretion."

24 MR. SWETONIC: I am sorry.

25 Now, what I wanted to do is differentiate between

1 that, and, say, a level between 12 and the higher range.

2 Are employers presently being required, say, they
3 have a level of eight, nine, or ten, and when they improve,
4 do they improve to two? Or is that discretionary?

5 MR. LUXON: No. The discretionary idea is not on
6 the question of how far you reduce the concentration.

7 If you can reduce it to two, then we believe you
8 should reduce it to two.

9 MR. SWETONIC: Thank you.

10 EXAMINER GOLDBERG: Mr. Holmes.

11 MR. HOLMES: Mr. Examiner, Mr. Luxon was not
12 present when I gave my testimony on Wednesday.

13 EXAMINER GOLDBERG: You won't repeat it.

14 (laughter)

15 MR. HOLMES: I would like to ask him a question
16 which clears up a point which Mr. DeGregorio has been trying
17 to make.

18 In reply to a question on Wednesday, Stuart, I
19 was asked what action is taken in the bridge where concentra-
20 tions were above 12.

21 I said, and I hope I was right, that the immediate
22 action would be to put anybody working in those areas into
23 respiratory protection, and time allowed for the necessary
24 engineering controls to be provided, then there would be
25 another check, and it would only be a failure after that second

1 check that would lead to that correction.

2 Was I right in saying that?

3 MR. LUXON: You were right in the first part, but
4 I don't think we could agree in certain circumstances, and
5 this would not accord with the conditions so far, that if
6 the conditions were over 12, we would not take action in the
7 means of prosecution.

8 MR. HOLMES: Thank you.

9 MR. LUXON: We have done that already.

10 There was one point I lost in the beginning
11 of that which I wanted to take up.

12 MR. HOLMES: I was asked the question: what happens
13 in the situation where the levels are above 12, and are
14 confirmed above 12?

15 MR. LUXON: I have the point.

16 You said that a period of time would be allowed.

17 I wouldn't want it thought this would be a long
18 period of time, weeks or months.

19 MR. HOLMES: I said the period of time required.

20 MR. LUXON: Yes. But this is a different time scale
21 altogether on the bottom.

22 MR. HOLMES: Thank you.

23 EXAMINER GOLDBERG: Thank you, Mr. Holmes.

24 Mr. Scannell.

25 MR. SCANNELL: Mr. Luxon, you said that the medical

1 examinations are not required in the regulations for
2 employees.

3 Yet you mentioned that you are conducting some
4 tests.

5 MR. LUXON: Yes.

6 MR. SCANNELL: Could you explain that a little
7 further, sir?

8 MR. LUXON: Yes.

9 The purpose of the survey is, of course, to tie
10 over the years medical findings on the progress or instance
11 with the environmental concentrations that exist in the
12 particular industry so that we are better able to relate the
13 standard to medical findings.

14 This is part of the responsibility we must accept
15 in setting standards, and any allowance at all over the
16 figure, and we have to be sure that if we make an allowance,
17 that we are not endangering the health of the people con-
18 cerned.

19 Of course, this would be a breach of our respon-
20 sibility.

21 Whatever we do, we must provide that we do not
22 create an injury to the employed person.

23 MR. SCANNELL: When do you think that study would
24 be completed, sir?

25 MR. LUXON: This will be a continuing exercise, but

1 in view of the fact that the onset of the first symptoms may
2 be 8 or 10 years from the exposure to asbestos, or even
3 longer, and it is going to be a considerable period of time,
4 because we can only relate symptoms to environmental factors,
5 and this will be related over some period of time, but I
6 believe that in the interim it will be argued that there is
7 not a lot of evidence -- that there is any evidence to
8 support two, but there is less evidence to support five, and
9 we have adopted two until we have more information.

10 We may be shown that this figure is higher, and
11 this may be so, but until we have this information, we cannot
12 adopt this figure.

13 MR. SCANNELL: Mr. Luxon, protective clothing,
14 rather than respiratory equipment above 12, is there a
15 requirement on clothing?

16 MR. LUXON: Yes.

17 MR. SCANNELL: What clothing requirement would that
18 be?

19 MR. LUXON: Well, in the pottery industry in this
20 work we discovered that a great deal of dust being breathed
21 was coming from clothing, and such clothing that was made
22 from man-made fibers was better than cotton and wool as far as
23 retention of dust, and we can control better the type of
24 clothing that is worn and prevent this retainment of dust.

25 This is not anything that would cause, we believe,

1 any difficulty to industry, and we would like to see more
2 research into this area as to what is the best type of
3 clothing to protect the person and keep the fibers from
4 entering the air as loose fibers.

5 MR. SCANNELL: As waste disposal materials.

6 Do you have plans for those?

7 MR. LUXON: Yes.

8 All loose asbestos fibers must be in enclosed
9 containers at all times in the factories.

10 MR. SCANNELL: Thank you.

11 EXAMINER GOLDBERG: Mr. Luxon, I believe you said
12 that the inspectors work like a fire brigade.

13 To continue the analogy, who gives the alarm to
14 bring the brigade into action?

15 MR. LUXON: Well, perhaps you will bear with me
16 while I describe the system of inspection in the United
17 Kingdom.

18 It is an integrated system, where all the investi-
19 gations, controls, and enforcement is all within the one
20 inspectorate.

21 We have spread over the country a force of in-
22 spectors on the order of 500 on a district basis, and we have
23 at the headquarters of the inspectorate an industrial hygiene
24 unit which has about 15 or 20 inspectors, and a staff of 20
25 or 30.

1 This deals with the problem that when we are
2 alerted by the general inspectorate and the general in-
3 spectorate visits every factory periodically; normally, every
4 four years, but if a particular factory has a hazard which
5 is known to be serious, then they will visit more frequently.

6 If the hazard is in the writing and so on, which
7 determines this, and in the course of this inspection, which
8 includes all matters of safety, and when one is picked out
9 and deserves more attention, it is sent to the inspectorate
10 and there is an inspection on the monitoring of safety, and
11 so on.

12 EXAMINER GOLDBERG: Well, do you have a trade union,
13 or a medical practitioner can ask the inspectorate to visit
14 the plant?

15 MR. LUXON: Yes.

16 The inspectors have close ties with the medical
17 units, the unions, in their areas, and anybody can complain
18 to the inspectorate, and they are investigated.

19 EXAMINER GOLDBERG: Mr. Earle.

20 MR. EARLE: Did you say how many hygienists you
21 had?

22 MR. LUXON: They don't call them hygienists, but
23 we have 20 hygienists, and these people are not specialists,
24 but they have training equally in law, in hygiene, safety, and
25 so on.

1 MR. EARLE: All of the 500?

2 MR. LUXON: Yes.

3 And they have ability to assess the hazard on a
4 quantitative, rather than qualitative basis.

5 MR. EARLE: Do you think the mounded waste,
6 including such things as asbestos has --

7 MR. LUXON: We have required that asbestos materials
8 be in bags if it includes asbestos dust, and it is liable to
9 present a risk to health, and the fibers cannot exceed 2 per
10 cc, measured over the peak period of 10 minutes, then if we
11 find any material that will be used, manipulated, or handled
12 in any way, when it is over 2, we would immediately require
13 that the waste be enclosed in bags.

14 EXAMINER GOLDBERG: Mr. Gilbert.

15 MR. GILBERT: I believe you indicated that when
16 the level of asbestos dust achieved its peak concentration
17 of 5 or 12, you required the wiring of respirators.

18 You also indicated that at the level of 2 to 4 would
19 be up to the discretion of the inspectorate.

20 MR. LUXON: In the range that it would not be
21 hazardous to workers.

22 This could be tolerated for some period while the
23 process is brought under control, yes.

24 But I must reemphasize that this is a very limited
25 discretionary power that we use, purely to prevent cessation

1 of manufacturing.

2 We have to give thought to the fact that products
3 have uses which promote safety in other areas, such as fire,
4 ship construction, insulation, as a fire precaution, and so
5 we have a very difficult balance to draw in some of these
6 areas, and it is a weighty and difficult problem.

7 MR. GILBERT: When you have a 6 count time-weighted
8 average, would it be more hazardous to employees -- would be
9 more hazardous to workers at 6, would you have the employees
10 wear respirators?

11 MR. LUXON: We would think first in terms of
12 control. If control was not practical, then we would have
13 to think about those possibilities.

14 MR. GILBERT: But it would not be mandatory until
15 you went over 5 fibers?

16 MR. LUXON: The inspectorate is not one single body,
17 as you think of it.

18 The inspectorate is there to enforce the law by
19 bringing the offender before the Court.

20 He can do nothing in the field. He has to bring
21 it to the Court, and maybe the Court will listen to him, but
22 he has no authority to say, "You must do this."

23 He must get the Court to do that.

24 MR. GILBERT: Thank you.

25 MR. DeGREGORIO: Sir, may I have one more question,

1 please, about sampling?

2 Will you tell us briefly, please, the procedure
3 and instruments which you must use in sampling, and your
4 opinion of the reliability.

5 MR. LUXON: This, Mr. Examiner, is a difficult
6 question to answer in a short space of time.

7 The instruments we use are personal samplers.

8 There is the problem in using personal samplers
9 that you have to relate the time and volume of the sample to
10 the concentration, or you may have coincidence errors in
11 the taking of the samples, so you may not in areas of
12 relatively high concentrations be able to take one continuous
13 sample over 4 hours.

14 You may have to split these into different periods,
15 and so the membrane filter is made to be excessive in
16 measurement.

17 I referred earlier to the error that could be
18 found to be variable in these techniques; it could be an
19 error of 30%.

20 This is important because we believe in considering
21 any of these figures that we have to be able to say beyond
22 doubt, and we must be given the benefit of the doubt, that
23 this figure is over the figure that we are stating.

24 If we are saying 2 on a 30% error, it would carry
25 us quite high up.

1 We would have to be at 7 units before we would say
2 it was 5.

3 MR. DeGREGORIO: Thank you very much.

4 EXAMINER GOLDBERG: Mr. Luxon, under this Court
5 procedure, I guess there has been some experience in the
6 inspectorate taking the matters before Court.

7 MR. LUXON: Yes, sir.

8 EXAMINER GOLDBERG: Do you have any knowledge of
9 the time lag from the time the inspectorate takes a matter
10 to Court to the time the Court issues a decision?

11 MR. LUXON: The Court issues a decision on that
12 day of the hearing, at the time of the hearing, at the time
13 the Court decides whether the defendant is guilty or not
14 guilty, and the decision is given at that time.

15 EXAMINER GOLDBERG: So this is a very rapid type
16 of procedure.

17 MR. LUXON: Yes. It decides at that time.

18 MR. GRILL: Dr. Luxon, I assume that in the
19 construction industry that when they place the waste into the
20 containers, and this is probably from the insulation con-
21 tractors more than anyone else, that it is then disposed of
22 by, oh, let us say, a general contractor who is responsible
23 for trash pickup from the construction site.

24 Am I right?

25 MR. LUXON: What we recommend in terms of insulation,

??Grill?

1 we recommend that this insulation is wetted before removal
2 by wet steam.

3 This isn't always possible, but it is the desirable
4 method to use, and by wetting, I mean steam intermingling
5 into the matter, and not just the surface.

6 In some cases it may not be able to wet it this
7 way, and sometimes you wet the surface and sometimes not
8 that.

9 If this is not done, you will have a concentration
10 of quite a number of fibers.

11 You will need your respiratory protection there.

12 If the substance is wetted and not dusty, this
13 would be the more preferred method.

14 MR. GRILL: Is this done in the destruction as
15 well as construction of a building?

16 MR. LUXON: Are you asking me about spraying
17 insulation?

18 MR. GRILL: No. No spraying. This is preformed
19 application. Application which entails the generation of
20 waste in many different forms, either powder or dust or
21 fibrous matter, but it is there.

22 MR. LUXON: And you dispose of the waste material
23 with this?

24 MR. GRILL: Yes, sir.

25 MR. LUXON: Well, if this includes asbestos, it

1 should be put in an enclosed container.

2 MR. GRILL: Is that a bag, or something --

3 MR. LUXON: It could be.

4 It doesn't allow the dust to escape.

5 MR. GRILL: And does the responsibility of the
6 contractor end at that point or after it is in the land fill?

7 MR. LUXON: When it leaves the contractor it becomes
8 a different matter altogether, and it becomes a matter of
9 pollution of the environment, and I don't wish to enter at
10 this time the question of the environment.

11 That is a different subject altogether, subject to
12 any definition you see fit to make on it.

13 EXAMINER GOLDBERG: No.

14 Thank you very much, Mr. Luxon.

15 Mr Earle.

16 MR. EARLE: Mr. Luxon indicated he wished to submit
17 two documents for the record.

18 MR. LUXON: Mr. Examiner, they are the two technical
19 data notes, one on the standards, Technical Data Note No. 13,
20 and 24, and a document concerning health and safety at work,
21 which we published, Booklet No. 44, which gives the regulations
22 and general information on regulations.

23 EXAMINER GOLDBERG: We will mark the booklet No.
24 44, Asbestos Health Precautions in Industry as Exhibit 47.

25

1 (The document referred to above was
2 marked Exhibit No. 47 for identi-
3 fication.)

4 EXAMINER GOLDBERG: We will mark Technical Data
5 Note No. 13 as Exhibit No. 48.

6 (The document referred to above was
7 marked Exhibit No. 48 for identi-
8 fication.)

9 EXAMINER GOLDBERG: And we will mark Technical Data
10 Note No. 24 as Exhibit No. 49.

11 (The document referred to above was
12 marked Exhibit No. 49 for identi-
13 fication.)

14 EXAMINER GOLDBERG: And as so marked the exhibits
15 are received in evidence.

16 (Exhibits Nos. 47, 48 and 49 were
17 received in evidence.)

18 EXAMINER GOLDBERG: Off the record.

19 (Discussion off the record.)

20 EXAMINER GOLDBERG: On the record.

21 Mr. Perkel.

22 MR. PERKEL: Are you offering this statement as
23 an exhibit or are you going to read it?

24 MR. PERKEL: As an exhibit.

25 EXAMINER GOLDBERG: All right.

???

1 We will mark Mr. Perkel's statement as Exhibit 50.

2 (The document referred to
3 above was marked Exhibit 50
4 for identification.)

5 EXAMINER GOLDBERG: And as marked, Exhibit 50 is
6 received.

7 (Exhibit No. 50 was received
8 in evidence.)

9 STATEMENT OF MR. GEORGE PERKEL, RESEARCH DIRECTOR,
10 TEXTILE WORKERS UNION OF AMERICA

11 Mr. Perkel: My name is George Perkel.

12 I am Research Director of the Textile Workers
13 Union of America, which represents certain of the employees in
14 the asbestos textile and related asbestos industries.

15 I have submitted as an exhibit a statement that our
16 union submitted on February 11, 1972, of our views on the
17 proposed standard that the Department of Labor issued in
18 January.

19 I will not review in any detail the position we
20 took at that time.

21 I would like to take this opportunity to express our
22 views on the criteria document submitted by NIOSH, and the
23 recommendations of the Asbestos Advisory Committee in
24 February.

25 We note that the recommendations of the Advisory

1 Committee were submitted with a forward, and we were most
2 anxious to have the portion as recommended of the working
3 manual to be included in the same regulation, and it would
4 have the same force as the similar standards.

5 We believe that the most effective way of safe-
6 guarding the health of people exposed to asbestos dust is
7 to develop the kind of practices that will minimize exposure
8 and in that regard, I am glad to see that our views are
9 shared by the industry people who spoke today.

10 I would like particularly to be associated with the
11 views expressed by Mr. Duncan Holliday, who is a consultant
12 to NIOSH, and has many years of experience in evaluating dust
13 problems, and in dealing with the controls for them, who
14 testified earlier this week concerning the particular experi-
15 ence he has had in developing work practices in the trade
16 and minimizing the harmful effects of asbestos dust.

17 We think the work practices that have been developed
18 and recommended for the insulation trade and other trades
19 should be developed for all operations involving exposure to
20 asbestos dust, and we have submitted, in the exhibit I have
21 earlier referred to, an extract from a study or compendium
22 that was made in 1965, called "The Biological Effects of
23 Asbestos" from the New York Academy of Sciences.

24 I would like to amplify that by submitting as an
25 exhibit an article entitled "The Controls as Developed in a

1 British Textile Plant."

2 EXAMINER GOLDBERG: The article entitled "Economics
3 of Dust Control" by D. W. Hills, from the New York Academy
4 of Sciences, Volume I, December 31, 1965, is marked as
5 Exhibit 51.

6 (The document referred to above
7 was marked Exhibit No. 51 for
8 identification.)

9 EXAMINER GOLDBERG: And as marked, it is received
10 in evidence.

11 (Exhibit No. 51 was received
12 in evidence.)

13 MR. PERKEL: You will note in Exhibit 50 that we
14 enumerated nine specific operations which were covered in
15 this article that I have just referred to which are descrip-
16 tions of the processes used at the Turner Brothers Company,
17 Limited, in Rhodesdale, England, to achieve a minimum
18 exposure to asbestos dust in their plants, and these are
19 enumerated on page 4, which include protection for workers
20 required if their health and safety is to be preserved.

21 The article, submitted in toto, shows what must be
22 done in order to make the working areas safe, in spite of the
23 fact that this asbestos dust is being generated at various
24 points.

25 Also, as I understand, the facts presented by

1 industry people this week, about the cost of dust control,
2 there is some valuable evidence in this article about the
3 experience of this particular plant which shows that the
4 cost of controlling dust in their experience is nowhere near
5 the cost involved as described this week.

6 For example, for this highly mechanized mill, which
7 has developed what is considered to be highly developed dust
8 control methods, they have reported that their cost of dust
9 extraction is equal to 2.7% as the total cost of converting
10 asbestos fiber into asbestos dust yarn and cloth, and we are
11 not talking about 100% and more, and very large numbers in
12 terms of cost.

13 Now, when we get into the body of the recommendations
14 of the Advisory Committee, we note that the standard of 2
15 fibers per cc is proposed.

16 I certainly agree with the last witness, that there
17 is considerable evidence, while not sufficient for a purist
18 to establish without question, but certainly considerable
19 evidence that 2 fibers is the appropriate level to safeguard
20 workers' health.

21 As he said, there is less evidence to support the
22 count of 5 fibers.

23 We believe that the goal should be zero exposure
24 because we are not satisfied with the evidence that 2 fibers
25 will protect peoples' lives, and here too, I think we are in

1 good company, since industry people have expressed their
2 views -- similar views, not only here, but in the discussion
3 of the biological aspects of asbestos at the New York
4 Academy of Sciences.

5 I refer to a discussion of this question at that
6 conference by two industrialists, on page 335, Mr. C. G.
7 Attingly, of British Smelting and Asbestos, Limited, stated,
8 and I quote:

9 "We do not believe that there is any safe limit.
10 We have our ideas as to how low we can get, and we are always
11 striving to get right down to zero."

12 And we found that his American counterpart in
13 industry, Mr. George Wells, of what is now the Uniroyal
14 Company, gave as his conclusion, and I quote from page 336:

15 "Our own conclusion as we began to see what was
16 happening in our own process, was that the only safe amount of
17 asbestos dust exposure was zero, and that the efforts in
18 terms of achieving that lay basically in engineering and,
19 secondly, in education, but as far as a safe level of asbestos
20 dust is concerned, our own conclusion in Hogansville, Georgia,
21 is that there is no safe level.

22 "The safe level is nil, and anything above the safe
23 level represents certain risk."

24 And therefore we support the proposals that have
25 been made, such as by the Oil Chemical Workers and others, and

1 that this should be the goal to be achieved gradually over a
2 three-year period, of zero exposure to asbestos dust.

3 Now, the NIOSH document does provide, as I said,
4 and as our friends from Great Britain have said, ample
5 evidence to support the two-fiber as an immediate goal of
6 the epidemiological studies, cited in the criteria document,
7 have clearly established a connection between asbestos
8 exposure and asbestosis and cancer.

9 In the discussion of the correlation of exposure
10 and effect, the document says, and I quote:

11 "Evidence is somewhat extensive, indicating a
12 strong association between the diseases and exposure under a
13 variety of conditions, and evidence is a dose-response
14 relationship."

15 For those who are proposing controls, we should wait
16 until we have more data, and we really do a big job and
17 discuss everything before we take any action, and I would
18 remind the Government that the Department of Public Health
19 Service and HEW concluded its studies about the data on
20 asbestos in 1967.

21 They have accumulated a great deal of data, and if
22 they work for years, they can accumulate a great deal more
23 data, but as the document points out, science has recognized
24 that where there is a clear and evident danger to workers,
25 there is a need to perform some tasks before achieving all the

1 answers.

2 This is an article in the document which is of
3 interest to us because of our own contact with it, and that
4 is the unpublished study by Williams, Bear and Thomas, which
5 is on 321 in which it states that they compiled data from the
6 Pennsylvania Department of Health files on exposure levels
7 at various textile operations from two plants.

8 The data included asbestos dust accumulation from
9 1940 through 1948, and here is the important point:

10 "Even though the exposures were below the 30,000
11 part per foot -- " this was the TLV originally and adopted by
12 several States -- "and the changes of 2 million parts per
13 foot, 60 cases of asbestosis were reported from these two
14 textile plants."

15 And we have had dealings with asbestos plants in
16 Pennsylvania during this period and the plant is now out of
17 existence, and it was our harrowing experience to see, when we
18 talked to management about the necessity for dust controls
19 for protection of the workers and they would say "We have
20 dust controls, and the Government comes in here and samples
21 our air and makes their tests."

22 And they gave us copies of these reports, and I have
23 tabulated them and I was reading them over in preparation for
24 this hearing.

25 In the period for 1963 through 1967, there were four

511
1 separate air samples in this particular plant, the plant
2 employing about 64 people, as of January 1969.

3 Every time the air sample showed that -- with very
4 few exceptions -- one exception. in most cases -- the con-
5 centration figure was well below the TLV standard.

6 In 1963, all but one sample were less than 4 million
7 particles and at that time the standard was 7 million.

8 In 1965, the Public Health Service came in and
9 took 65 samples and all but one were less than the 5 million,
10 less than the TLV.

11 In the following year, the Pennsylvania Department
12 of Health found that all of the samples were less than 1
13 million parts per cubic foot, and in 1967, again, all but one
14 of the 32 samples were less than 32 million parts per cubic
15 foot, but the remarkable thing about this was that people
16 kept on dying and getting disabled because of asbestosis and
17 cancer of the lungs who worked in that plant, and in this
18 same period, when all of these samples were taken, 21 people
19 were terminated with a confirmed diagnosis by the company's
20 physician, as well as the union's physician, that they had
21 asbestosis. And there was a death rate of 12% in that six-
22 year period from that plant. So it is all very well to have
23 a standard, but if it isn't sufficiently stringent, and if it
24 isn't accompanied by the direction of specific control measures,
25 people are going to get sick and die.

1 It is not going to accomplish its stated purpose.

2 Now, the environmental data that the Public Health
3 Service and NIOSH have published in this document, it in-
4 dicates to us the technical feasibility of the figure 2
5 level.

6 Even in the textile plants which were the worst
7 ones, as far as environmental solutions were concerned, the
8 lowest and the second lowest samples were under one fiber
9 per cc, except one, and that was 1.4, and the judgment is
10 rendered in this document that these mills probably could meet
11 the standard if given time to clean up the plant operations,
12 and if we look at the secular trend data that is contained in
13 this book, there are two interesting points raised.

14 There are two textile mills that are shown in
15 Tables 20 and 21.

16 One is Plant A, which the mean contamination rates
17 generally ran anywhere from less than one fiber per cc to
18 14 and $14\frac{1}{2}$ by operation, and in the major operations, there
19 were over 10 fibers per cc. In 1964, when the first study is
20 reported here, they show that between 1964 and 1970 in most of
21 the operations the concentration increased, and whereas most
22 of them were over 10, now most of them in 1970 are over 15
23 fibers.

24 So things haven't been getting better at that
25 particular plant under our old State's regulation of

1 occupational safety and health. However, on Table 21, which
2 provides information about another textile plant, a plant that
3 had a much better situation in 1965, the mean contamination
4 levels were between 5 and 7, or 6 fibers per cc; and in all
5 of those operations with the exception of one, the levels were
6 reduced in the six years from 1965 to 1971.

7 So this, to us, indicates that the technology is
8 there. What is needed is the will. The dust counts can be
9 reduced, but management needs the pressure of an effective
10 standard and enforcement program to compel it to meet the
11 requirements.

12 One other point about the environmental data, and
13 that is the extreme variance shown among the textile mills
14 that are included in this survey.

15 Table 12 provides information on eight plants.

16 The disparity between the lowest and the highest is
17 very severe.

18 In most of the lowest plants, two fibers or less is
19 the mean, and some are higher, but in the highest, they
20 generally run from 10 to 20.9 fibers, another indication of
21 the fact that the technological basis for a clean plant in
22 textiles is available. It needs to be used.

23 We object to the long postponement proposed by the
24 NIOSH document, and I believe the Advisory Committee in the
25 effective data of the 2-fiber standard, in view of the fact

1 that they showed that a number of plants have improved their
2 contamination ratio, we don't see why more than six months
3 should be required to bring the others up into line.

4 Much has been made in many of the industrialists'
5 statements in this hearing about the economic considerations.

6 Now, of course, we, as a union, are accustomed to
7 dealing with the companies in negotiations, and perhaps we
8 have developed a little more cynicism than most people, and
9 any motion we make for economic improvement, we are told that
10 the costs are prohibitive, and the only natural consequence
11 is either curtailment or liquidation, and the imports will
12 come in and take over, and our balance of payments that you
13 have heard about would engulf us.

14 We urge you to apply an appropriate amount of
15 sodium chloride or salt to these kinds of predictions.

16 I note that the law provides for variances, where
17 for whatever reason the company cannot meet the requirements
18 immediately, the Department has the means for postponing this
19 effect, and we think these are adequate for reaching the
20 appropriate standards.

21 With respect to the use of respirators, we note that
22 the Advisory Committee recommended that, and I quote:

23 "Except for emergencies, respirators shall be used
24 only when a variance is acquired, and pending or granted."

25 Now, we want to support that as strongly as we can,

1 because from our experience with workers, and anybody's
2 experience with workers who are ordered to wear these
3 cumbersome and difficult things, like respirators, they are
4 not an appropriate control measure and should not be relied
5 upon for that purpose.

6 They should be relied upon only for emergencies
7 and periods where action is taken upon an engineering basis.

8 With respect to the question of warnings, I can
9 certainly appreciate why industry would want to avoid danger
10 signals on their plants and on their products, and yet this
11 was the most poignant thing in my experience that I have
12 come in contact with workers who are engaged in working with
13 asbestos.

14 "Wherever I go, one of the things always said:
15 "If I had only known when I came to work here that I was
16 being exposed, I would have known, and would have been able
17 to make a decision as to whether I wanted to earn my living
18 this way or not, and here I work here for 10, 15 years, and
19 I see people getting asbestosis and cancer, and I am subject
20 to the same thing, and it is unfair."

21 And I think it is unfair, that the people who work
22 in the factories should know whether there is a danger or
23 not, so that they can make their choice.

24 One final word. With respect to the medical
25 examinations, I am sure that I will not be able to add anything

1 fresh to this subject, because I think it has been a subject
2 that has been discussed many times this week.

3 I just want to say that it does seem to me, as a
4 union representative, that information about the workers'
5 health that may be used against him by the employer is not
6 something that the Government should make the employer do or
7 make available to the employer.

8 If an employee takes a physical examination, the
9 worker should determine what will happen to him. He should
10 have the choice of doctors.

11 Of course, the HEW and Department of Labor should
12 have access to it for control purposes, but we are opposed to
13 making these records available to the employers, who can, for
14 their own interests, use them adversely as related to the
15 workers.

16 EXAMINER GOLDBERG: Thank you, Mr. Perkel.

17 Mr. Earle.

18 MR. EARLE: One question on this particular area.

19 The plant in England that you referred to earlier,
20 and gave the cost figures, do you mean when those plans were
21 implemented, what year?

22 MR. PERKEL: I believe it was during the 1960's.

23 MR. EARLE: During the 1960's?

24 MR. PERKEL: Yes.

25 MR. EARLE: Is that plant operating at a zero

1 exposure level due to these controls? Do you know?

2 MR. PERKEL: I do not know.

3 MR. EARLE: The question concerning the use of
4 respirators; let's assume a situation where there are no
5 engineering controls to reduce the dust levels with respect
6 to the particular operations at this time.

7 Let's assume that this is a situation, and would
8 you then, rather than have the workers be required to wear
9 respirators pending discovery of a method of engineering
10 controls, cessation of that particular operation, which might,
11 because of its nature, require cessation of the use of the
12 plan?

13 MR. PERKEL: Well, the law specifies that each
14 employer is obligated to provide a safe place of employment.

15 Whatever the condition, the safe condition, or
16 whatever, where workers are exposed to disease and injury,
17 that should not be permitted.

18 MR. EARLE: No. If the respirators will lower the
19 exposure to dust in that operation, am I understanding that
20 you would oppose the use of respirators in that situation?

21 MR. PERKEL: Well, it is not my opposition to it,
22 it is that people will not wear respirators on a continuing
23 basis for that length of time, and therefore it is bound to
24 result in their not wearing them all the time, and their
25 being effected by the contaminant adversely.

Labor
asbestos
3-17
WCLynn;ml

1 MR. EARLE: Do you represent any workers who deal
2 with the final work with the textiles?

3 MR. PERKEL: We have some plants that manufacture
4 garments, not dealing with asbestos, but we include knit
5 goods, hosiery, underwear, knitted outerwear and so forth.

6 MR. EARLE: With asbestos fibers?

7 MR. PERKEL: No.

8 As far as I know, except for special purposes,
9 such as fire-prevention, asbestos cloth -- asbestos is not
10 used for cloths.

11 We don't have any plants using asbestos in clothes.

12 MR. EARLE: Thank you.

13 EXAMINER GOLDBERG: Thank you, Mr. Perkel.

14 We will stand in recess until 1:30.

15 (Whereupon, the hearing was recessed at 12:45 o'clock,
16 p.m., to reconvene at 1:30 o'clock, p.m., the same day.)

17 end tape
18 13
19
20
21
22
23
24
25

CWL-13
hws-1

AFTERNOON SESSION

1:40 p.m.

EXAMINER GOLDBERG: On the record.

Our next witness is Mr. Taylor.

Would you identify yourself and give your testimony,
sir?

STATEMENT OF GEORGE H. R. TAYLOR

EXECUTIVE SECRETARY, AFL-CIO STANDING

COMMITTEE ON SAFETY AND OCCUPATIONAL

HEALTH

MR. TAYLOR: Mr. Examiner, for the record, my name
is George H. R. Taylor.

I am a research economist in the Research Department
of the AFL-CIO. I am Executive Secretary of the AFL-CIO
on the Standing Committee on Occupational Safety and Health.

If it please the Examiner, I would like to have my
statement included in the record, and, in the interest of time,
I would like to summarize our findings and conclusions, if
this is agreeable to you.

EXAMINER GOLDBERG: If you will hand me two copies,
we will mark them.

The document entitled "Comments by the American
Federation of Labor and Congress of Industrial Organizations
on Proposals for Standard to Protect Workers from Asbestos,"
George H. R. Taylor, will be marked Exhibit 52.

hws-2

(The document referred to was marked as Exhibit No. 52 for identification.)

EXAMINER GOLDBERG: And as so marked, will be received in evidence.

(The document referred to, heretofore marked for identification as Exhibit 52 received in evidence.)

MR. TAYLOR: My name is George H. R. Taylor. I am Executive Secretary of the AFL-CIO Standing Committee on Safety and Occupational Health.

On behalf of the American Federation of Labor and Congress of Industrial Organizations, I appreciate this opportunity to present the views of organized labor on the criteria and recommended asbestos standards prepared by the National Institute of Occupational Safety and Health and the recommended asbestos standard of the Advisory Committee on Asbestos Dust appointed by the Secretary under Section 6(b)(1) of the Act.

The chain of events which has led to this hearing began with a letter dated November 4, 1971 to Secretary Hodgson requesting, on behalf of the AFL-CIO and the Industrial Union Department (AFL-CIO), that he promulgate an emergency standard for asbestos under Section 6(c)(1) of the Occupational Safety and Health Act of 1970. The letter included a number of

hws-3

1 recommendations concerning the content of such a proposed
2 emergency standard, and an attachment containing background
3 information to justify our request.

4 The Secretary, on December 7, 1971, published in
5 the Federal Register (F.R. 23207) an emergency standard on
6 exposure to asbestos.

7 This was followed on January 12, 1972, with a notice
8 of proposed rule making by the Secretary (F.R. 466 FF), which
9 under the Act provides that the emergency standard as published
10 shall serve as a rule for these proceedings.

11 In the narrowest sense this hearing is a means by
12 which interested parties are given the opportunity to comment
13 on the Secretary's proposed rule, on the criteria and recom-
14 mended standards developed by the National Institute of
15 Occupational Safety and Health, and the recommendations of
16 the Secretary's Advisory Committee on Asbestos Dust.

17 But what is really before us is the spectre of dead
18 and dying workers, of workers permanently incapacitated, of
19 unwitting victims of this deadly material exposed to it out-
20 side the plant environment.

21 Far better than empty words of sympathy and indig-
22 nation, would be the hammering out of a standard, strictly
23 enforces, that will reduce and bring to a stop, these dis-
24 abling illnesses and these needless deaths. This is the only
25 monument that has meaning.

hws-4

1 The decision making that will come from these pro-
2 ceedings will give the labor movement and the public, a clear
3 conception of whether workers are as important as the machine,
4 and whether dollar values weigh more heavily in decision
5 making than the worth and dignity of a human life.

6 Asbestos exposure is national in scope and in
7 seriousness. There may be as many as five million workers
8 actually or potentially exposed to this toxic substance as
9 both the amount and variety of use of asbestos increases.
10 Ambient asbestos particles are being breathed into the lungs
11 of unknown thousands of individuals in the general environ-
12 ment, adding to both the extent and complexity of the problem.

13 As the AFL-CIO wrote to the Secretary on November 4,
14 1971 in urging an emergency asbestos standard: "The first
15 incipient stages of asbestos diseases already exist. Only
16 drastic and immediate action will contain and slow the develop-
17 ing incidence and prevalence of death and disabling disease."

18 Section 6(b)(5) of the Occupational Safety and
19 Health Act of 1970 provides that: "The Secretary in promul-
20 gating standards dealing with toxic materials shall set the
21 standard which most adequately assures the extent feasible,
22 on the basis of best available evidence, that no employee will
23 suffer material impairment of health or functional capacity,
24 even if such employee has regular exposure to the hazard dealt
25 with by such standard for the period of his working life..."

hws-5

1 This subsection of the Act requires the Secretary to
2 promulgate a health standard which, "In addition to the attain-
3 ment of the highest degrees of health and safety protection
4 for the employee, other considerations shall be the latest
5 available scientific data in the field, the feasibility of
6 the standards, and experience gained under this and other
7 health and safety laws."

8 Asbestos is a product of many essential valuable
9 uses to industry and the home. In setting forth the position
10 of organized labor on an adequate standard, we are not pro-
11 posing that it be outlawed, only that it be used safely and
12 under approved controls and methods. We are convinced that
13 although it will increase the costs of doing business of
14 affected industries, that this can and must be done. As the
15 Act provides, the health and safety of the worker is of the
16 first priority.

17 Experience with ionizing radiation, plutonium,
18 perhaps the deadliest substance in existence, radon daughters
19 gas have shown that workers can and are being adequately
20 protected by standards governing the use of these substances.

21 But if the strongest standard is not coupled with a
22 strict and well-manned enforcement program, nothing will be
23 gained. Establishments complying of their own volition, will
24 be at a competitive disadvantage with those who do not and
25 get away with it. The health and the lives of workers and

hws-6

1 the general public will to the extent of unenforced situations
2 continue to be threatened by this dangerous hazard. Without
3 adequate enforcement, the strongest standard becomes a paper
4 tiger.

5 The considerations guiding our specific proposals
6 for an asbestos standard which follows these generalized com-
7 ments are:

8 1. Past standards, and even one presently used by
9 the British, have been developed for control of asbestosis,
10 not cancer induced by exposure to asbestos.

11 2. But mounting scientific evidence shows that
12 cancer -- lung, gastrointestinal or mesothelioma -- is by
13 far the more serious threat than asbestosis.

14 3. The present proposals evaluated by this proceed-
15 ing are also designed primarily to prevent asbestosis, with
16 a safety factor to develop a concentration level which will
17 reduce the body burden of asbestos and more adequately guard
18 against neoplasms.

19 4. The concentration level of five fibers longer
20 than five microns per milliliter, as expressed in the Secre-
21 tary's proposed temporary emergency standard, would be inade-
22 quate to provide full protection against even asbestosis.

23 5. Some types of workers in asbestos, in particular
24 those in the insulation field, have a long-term average
25 exposure that does not exceed three fibers per milliliter and

1 have been shown by the work of Dr. Irving J. Selikoff, as in-
2 ccurring high rates of asbestosis, as well as cancers, including
3 mesothelioma.

4 In addition, persons living near asbestos plants, where
5 environmental exposures are less than two fibers per milliliter,
6 have become victims of cancer caused by asbestos.

7 6. It appears that there has been no real program,
8 either by management or State or Federal governments, to pro-
9 vide for statistically valid sampling of concentration of
10 asbestos dust in workplaces where it is produced.

11 7. The most effective means of successfully attacking
12 the problem of both asbestosis and asbestos-induced cancers,
13 is a strong exposure standard, combined with effective work
14 practices and performance standards.

15 Proposals for an effective asbestos standard:

16 1. Concentration: We endorse the recommendations
17 of the NIOSH Criteria and the recommendations of the Advisory
18 Committee on Asbestos Dust, calling for 2.0 fibers per cubic
19 centimeter of air based on a count of five fibers greater than
20 five micrometers in length.

21 However, we propose the following changes -- first
22 that this standard become effective within six months, with
23 no allowable concentration greater than five fibers per cc., up
24 to 15 minutes per hour, but no more than five hours in any
25 workday; second, that within one year thereafter, it be

hwd-8

1 reduced to one fiber per cc of air.

2 2. Performance standards of compliance: Adminis-
3 trative controls and work practices must be required in order
4 to achieve zero concentrations of asbestos dust, regardless
5 of whether the limits in (1) above are met.

6 3. Use of respiratory equipment: We endorse the
7 recommendations contained in the NIOSH recommended standard,
8 with the plain provision that respiratory equipment be used
9 only after application for temporary variance of the standard
10 be approved by the Secretary, and during the variance period
11 employees wearing approved respirators be given a 15 minute
12 rest period each hour of wearing. A standby respirator pro-
13 gram should be ready for use for restricted periods in the
14 event of control equipment failure.

15 Provision should be made for dust free areas for
16 clothing change, cleansing, recreation or rest and food or
17 refreshment.

18 4. Enclosure and ventilation: Areas where asbestos
19 is used or processed, should be enclosed and well ventilated
20 to prevent other employees and persons outside from being
21 exposed.

22 5. Monitoring: We endorse the NIOSH Criteria
23 provisions for monitoring, but recommend the additional allow-
24 ances for employees to wear personal monitoring equipment when
25 he desires during the shift, to operate such equipment; to

hws-9

1 monitor concentrations of asbestos; to allow employee repre-
2 sentatives access to the monitoring process and records done
3 and kept by management and check the management data.

4 6. Records: We support the NIOSH criteria document
5 and recommendations of the Advisory Committee with these
6 further proposals: Records of monitoring, including personnel
7 monitoring, sampling and maintenance of control equipment,
8 shall be kept in duplicate by the National Institute for
9 Occupational Safety and Health. They should be entered on a
10 log provided for this purpose, maintained currently and kept
11 for at least 20 years. Personal exposure records shall be
12 made available to workers at request, at least annually, and
13 on separation from employment, a cumulative record shall be
14 furnished the worker.

15 7. Medical examinations: We propose that in addi-
16 tion to the criteria documents provisions on medical examin-
17 ations, there be included the strongest protections over
18 confidentiality of records. The worker should be allowed to
19 be examined by a physician of his choice at the expense of
20 his management. Results and records of such examinations
21 should be considered as the property of the worker, not to be
22 released to anyone without his permission except the Depart-
23 ment of Health, Education and Welfare.

24 8. Employee warnings and labeling: We endorse the
25 provisions of the criteria document in this area, with the

hws-10

1 additional requirement that the employer notify workers of
2 their overexposure to concentrations of asbestos, and inform
3 them of the steps taken to correct the situation.

4 9. New workplaces, or processes using asbestos or
5 products containing asbestos: Any new plant using such pro-
6 ducts, or any existing plant inaugurating of a process involving
7 the use of asbestos shall be required to notify the Secretary
8 of Labor. The Secretary shall with the cooperation of the
9 Institute, immediately undertake a special inspection of the
10 plant or process so involved.

11 10. Work practices manual on asbestos: We endorse
12 the recommendation of the Advisory Committee on Asbestos Dusts
13 that such a manual be prepared and given the widest dissem-
14 inations among management and employees and their unions, and
15 the various States.

16 11. Federal employees: Agencies of the Federal
17 Government must be required, by Executive Order, if necessary,
18 to impose this standard and enforce on all Federal workplaces
19 where the hazard exists.

20 12. Coordination with other Federal agencies: The
21 closest coordination should be maintained with the Atomic
22 Energy Commission, Environmental Protection Administration,
23 the Department of Defense, Food and Drug Administration, and
24 other Federal agencies to carry out the intent of this
25 standard.

hws-11

13. The Secretaries of Labor and HEW should, within 30 days after this standard becomes effective, call meetings of labor and management groups to discuss the means of mutual achievement of the goals of this standard.

Thank you.

EXAMINER GOLDBERG: Thank you, Mr. Taylor.

You are excused.

MR. TAYLOR: Thank you.

EXAMINER GOLDBERG: Mr. Samuels.

STATEMENT OF SHELDON W. SAMUELS,
DIRECTOR OF OCCUPATIONAL HEALTH,
SAFETY AND ENVIRONMENTAL AFFAIRS,
INDUSTRIAL UNION DEPARTMENT, AFL-CIO

MR. SAMUELS: Mr. Goldberg, may I introduce our research assistant, who, in the last part of this presentation, operate our audio visual equipment, Miss Sherry Sullivan.

Let me say, to begin my statement, that it should be obvious that there are great advantages to being nearly last in this prolonged hearing.

As you know, Mr. Goldberg, I did not plan it that way. But it has provided me with an important overview which I intend to exploit.

Most other witnesses provided you with a pedigree. I, too, have one. Suffice it to say that I, too, went to a famous university where I earned a degree and went on to do

hws-12

1 multidisciplinary graduate research and university teaching,
2 among other and more important things, none of which prepared
3 me to really solve the basic issue before us.

4 The issue was made crystal clear at your pre-hearing
5 conference when the Asbestos Information Service attempted to
6 prevent Danny Maciborski from being heard, referring to him
7 in a disgustingly unmentionable manner. I did not reply be-
8 cause I knew that Colin Neal of the Papermakers would do so
9 more diplomatically. I knew that Danny's quiet bravery would
10 make a liar of Mr. Walsh.

11 Danny asked me to give you a copy of this broadside
12 distributed to every Johns-Manville employee by the so-called
13 "information service." Its title belies the nightmare American
14 workers face: Asbestos and health. Its omissions and decep-
15 tions make a farce of life itself.

16 Danny didn't ask to be heard for dramatic effect.
17 He was trying to tell you that more than the company's ad-
18 mittedly advanced environmental control and medical surveil-
19 lance program was needed to reduce the risk to other workers.

20 The issue is whether human life can be traded off
21 in the marketplace, whether workers must really face death
22 on the job. The law, an expression to the negative, has no
23 meaning to the corporate giants you have heard from. The law
24 makes irrelevant international competition and similiar
25 economic considerations. There are other forums and other

hws-13

1 devices to deal with these important but ill-placed problems.

2 But we should place into the record a letter from
3 Dr. Borow which may be useful on another occasion to demon-
4 strate that the industry claim to great concern and investment
5 did not extend to providing \$3,000 to help the medical pro-
6 fession prepare themselves in that area for the impending
7 epidemic of mesothelioma Dr. Borow identified in 1967.

8 As a footnote, you should know that the \$3,000 was
9 gathered gladly from the pockets of the several unions that
10 represent the workers in the Johns-Manville Corporation. I
11 would like to place in the record another letter, from the
12 Department of Health, Education and Welfare, that indicates
13 that far from joining in an open and scientific inquiry, the
14 industry forced from the Government a vow of secrecy as a
15 condition of their pre-1971 investigations.

16 The consequence of their action is that the full
17 evaluation of their claims about the technical feasibility
18 of any environmental standard in the 27 plants investigated
19 by the Public Health Service may never be possible. It is
20 difficult to develop pangs of sympathy for the companies
21 involved.

22 We are fortunate, however, to have an evaluation of
23 this secret information by an agency that somehow has managed
24 to maintain its integrity despite the conditions under which
25 it must work. An analysis of that evaluation is an important

hws-14

1 part of our presentation this afternoon. It will be the last
2 part of my presentation.

3 Before doing this, however, I want to quickly sum-
4 marize our views of the proposed standard taken as a whole.

5 Dr. Wright yesterday referred to a "personal com-
6 munication" from Dr. Stockinger of NIOSH, in which he was
7 quoted as saying that the ACGIH tlv Committee "found no
8 evidence to indicate that it should be changed."

9 I called Dr. Stockinger yesterday afternoon for
10 clarification. He told me that no evidence related to the is-
11 sue of cancer was discussed. The five fiber standard, he said,
12 was based on evidence from asbestosis studies. While the
13 incidence of asbestosis may be reduced by this standard, he
14 said, the Committee merely assumed that this would mean a
15 likely reduction in cancer. There is no evidence that this
16 would be the case.

17 He was apparently unaware of the existence of two
18 key tendrils of evidence: Dr. Selikoff's letter of October 18,
19 1971 to Dr. Marcus Key, which I submit, questioning the
20 ability of British standards to prevent mesothelioma, based
21 on a report of the Medical Director of Turner, Newall;
22 Murphy's report that month in ARRD of two cases of mesothelioma
23 in which the workers may have been exposed to 1.2 and 1.3
24 fibers.

25 Frankly, if we had been aware of this evidence when

hws-15

1 we requested an emergency standard, we would have demanded a
2 one fiber limit instead of two. It is the basis for asking
3 for such a standard at this time. Further, we are prepared to
4 support its feasibility.

5 In view of the lack of data (admitted by the indus-
6 try) clearly supporting any safe exposure which would not
7 result in cancer among workers, in view of the recent FDA
8 report noting that permissible levels of carcinogens as a
9 practical matter will usually result in zero, in view of the
10 fact that this hearing has heard even the industrial witnesses
11 question the validity of current sampling methods, and in view
12 of the unavailability of trained technicians in industry and
13 government to sample and count, a second and independent standard
14 must also exist.

15 Here we are referring to what Dr. Nicholson refers
16 to as a performance standard. Here we are guided by a comment
17 of Jack Baliff, a New York State hygienist and a member of
18 the Secretary's Asbestos Advisory Committee, that equipment
19 and work practices should be designed for zero emissions. For
20 many applications this is now possible.

21 When the equipment fails or is not immediately
22 available, then it is our contention that an expected or
23 measured level of one fiber should trigger a temporary vari-
24 ance procedure during which respirators may be used during
25 the period of variance.

hws-16

1 The employer should provide and require a respira-
2 tory protective device at his cost to exposed workers. Employees
3 required to wear respirators must be provided with rest periods
4 of at least 15 minutes for each hour during which the devices
5 are worn. A respirator program needs to be maintained on a
6 standby status for use not to exceed 72 hours per worker and
7 not to exceed two weeks from the time of initiation.

8 In other words, we should aim at zero emissions and
9 initiate emergency procedures at one fiber. Within a six
10 month transition period, we would recommend a two fiber limit,
11 within two years one fiber, and ultimately naught. The time-
12 table is generous in view of the implied advice to drop their
13 levels at least to two fibers in a letter from the Public
14 Health Service, submitted here for the record, dated more than
15 three years ago.

16 If further research indicates that this is unneces-
17 sarily stringent, any industry or person may request a new
18 standard of the Secretary. Industry already has had more than
19 the 30 years necessary to explore the possibility of a less
20 stringent standard.

21 I can assure you that we will not stand idly by for
22 another 30 years while they make guinea pigs of our people,
23 as they suggest.

24 But other measures are also warranted.

25 Each employer must be required to provide dust-free

hws-17

1 areas for personal cleansing, rest and food or refreshment
2 intake. Dr. Borow reports a case of a former stock boy who,
3 after 18 months exposure, developed mesothelioma 24 years
4 after exposure. All employees must be protected. Cases of
5 relatives of workers contacting mesothelioma have become almost
6 common.

7 The policy of the Labor Department on this point
8 is callously irresponsible. We have asked formally and in-
9 formally for action. None has even been suggested, either
10 as an action of the Department or of the Environmental Pro-
11 tection Administration.

12 Areas of asbestos processing or application should
13 be enclosed and ventilated to prevent asbestos dust exposure
14 of other employees. Control equipment should be regularly
15 inspected and maintained each week with a log kept of such
16 services. This data will be more important than sampling
17 data for day-to-day enforcement.

18 The criteria document recommendations for labeling
19 should be followed for each container of asbestos from the
20 mine to the consumer. The label should include in the lower
21 quadrant a skull and crossbones. Enlarged labels (no less
22 than 20" by 20") of identical color should serve as warning
23 signs and posted every 50 feet in every plant where asbestos
24 is used.

25 The recommendations on monitoring of the criteria

hws-18

1 document should be followed with the additional provision that
2 each employne exposed to any amount of asbestos must be per-
3 mitted to wear his own personal monitoring equipment at such
4 times as he wishes.

5 Similarly, an employee representative must be per-
6 mitted to operate such equipment as will monitor ambient con-
7 centrations. In any plant where asbestos dust concentrations
8 can be expected to exceed the one fiber limit without engineer-
9 ing control methods, such plant should have a continuous
10 statistically valid random sampling to monitor the efficiency
11 of the controls, and to provide a flow of information on the
12 basis of which emergency action may be taken.

13 Employees or their representative should be enabled
14 to observe each step of the monitoring process, to note any
15 result of measurement, and to corroborate these with his own
16 measurements and instrumentation.

17 In other words, some of our unions are offering to
18 supplement the measures of industry and government with tech-
19 nicians we will train and equip at our own cost. Some unions
20 already have hygienists and engineers able to do this work.

21 The medical examination recommendations of the
22 criteria document are satisfactory with the following quali-
23 fications: The employer shall provide the cost of such exam-
24 inations to be conducted by a physician chosen by the employee.
25 All records and results of such examinations should be the

hws-19

1 property of the employee and released only to such persons as
2 he chooses and to the Department of Health, Education and
3 Welfare (who may not release them to the employer), who shall
4 hold them under conditions of strict confidentiality.

5 We are opposed to medical records being kept by the
6 employers. We have no faith in the ability of company doc-
7 tors to fulfill an unbiased patient-physician relationship.
8 No employer can guarantee that his records will be confidential
9 or even that there will be a company in existence to keep
10 them.

11 Some companies, especially joint ventures, are
12 specifically created as temporary corporate structures for
13 ad hoc purposes. Lives which depend upon good records must
14 not be involved in this kind of vagary.

15 Most important, even though we recognize that many
16 company doctors provide acceptable and often excellent ser-
17 vices, any employee who lacks confidence in the judgment of
18 physician directly responsible to his employer should have
19 the right to choose another source of medical service.

20 Danny Maciborski passed a medical examination pro-
21 vided by a Johns-Manville employed physician only a few weeks
22 before his own physician diagnosed mesothelioma.

23 The only records to be kept by the employer should
24 pertain to inspection of control equipment and personal
25 environmental sampling, copies of which should be maintained

hws-20

1 in duplicate by the Department of Health, Education and Welfare.
2 All such records should be kept current, entered in a pre-
3 scribed log on the day of measurement, and available to
4 employees for at least 20 years.

5 No new or substantially modified workplaces using
6 asbestos or asbestos-containing products should be permitted
7 to begin operation without notification to the Secretary of
8 Labor. Given the time lag of source identification and avail-
9 ability of inspectors, years may go by without any preliminary
10 determination of compliance.

11 At this point, sir, I would like to conclude our
12 presentation by graphically illustrating the following
13 points.

14 EXAMINER GOLDBERG: Now, before you do, we have a
15 problem of getting this into the record.

16 MR. SAMUELS: I have one Xerox of these charts, and
17 I will be happy to supply a second.

18 (Slide.)

19 MR. SAMUELS: Many operations and some plants are
20 already below a one fiber limit.

21 With good housekeeping they would approach zero.

22 Less than this standard would, in effect, become a
23 license to unnecessarily expose workers to a carcinogenic
24 standard for which no safe level has been established.

25 (Slide.)

hws-21

1 MR. SAMUELS: Many operations in some plants are
2 already below two fibers, but above one.

3 Fof control equipment is not now commercially avail-
4 able, a stringent standard will create a market for its
5 design and production.

6 No such market currently exists. It would be fool-
7 ish for control equipment manufacturers to venture capital in
8 the design of controls for which there is no demand.

9 In A, the data shown here, and in subsequent charts
10 are based 15 minutes to one hour samples taken in large number

11 They are considered close to time weighted average
12 exposures.

13 All of this data, I might add, comes from the
14 criteria documents.

15 It should be noted that when consideration is given
16 to feasibility of engineering control in coupling and finish-
17 ing, the individual high sample was 13.4, and the lowest and
18 second lowest samples were zeroes.

19 Warehousing and mixing, 3.1 fibers were the highest
20 means by operation, and the lowest were .4 and .5, to below
21 the two fiber standard.

22 About 75 percent of the mean measurements were
23 below two fibers.

24 This chart shows the average for an entire operation
25 in different friction plants. Over 50 percent were below

hws-22

1 two fibers.

2 The dates in the data would indicate that these
3 were 1966 and 1969 samplings.

4 This is one plant over time, 1966 to 1969, and 1971.
5 It demonstrates the great variability of the same operation
6 in the same plant, inferring, perhaps, the possibility that
7 with more attention paid to maintenance, a good portion of
8 the problem can be alleviated.

9 In textile operations, D, data from eight plants
10 show the individual low of .4 concentrations shown here,
11 where, in all cases, which were in all cases below one fiber
12 per cc, except fiber preparation, which was 1.4 fibers.

13 Next, asbestos insulation plants are supposed to be
14 one of the worst kinds of plants to control, but all the loss
15 values are under the two fibers that NIOSH recommends, and
16 also, the second lowest are also under it. Values on this
17 graph are the total operations of the plant. Over 40 percent
18 of the values are under the two fibers per cc.

19 Next, here we have a rare bit of data.

20 This comes from the Johns-Manville plant, and it
21 was given us by the local union who received it in a report
22 from NIOSH.

23 The large samples show some secular transits which
24 are very, very interesting.

25 1967 is the worst year with most, the largest

hws-23

percentage being above 12 fibers per cc.

In 1965 to 1971, the majority of measures were above the Walsh/Healey standard by 5.1 percent.

Note that that is a Walsh/Healy plant, and let the record show that the Department of Labor was informed of this fact.

The fact is that if you look at the bottom line, the blue line, you will see that without any great change in process the company was able to achieve a standard that at least approached two percent.

I admit that these numbers are not time weighted averages, although we have been assured by the Public Health Service that they are close to these averages.

These long term secular trends, I think, indicate the case for maintenance and controls that we have seen thus far.

Thank you, sir.

That ends the presentation.

EXAMINER GOLDBERG: Before we get to discussion, let's straighten out this exhibit problem.

You have a certain amount of letters and documents that you referred to in your your testimony.

MR. SAMUELS: Yes, sir. I do.

I wonder, before I offend my brothers in two other unions, if I may also introduce into the record, Mr. Goldberg,

hws-24

1 some comments of the United Lime and Gypsum Workers, and com-
2 ments by the International Printing Pressmen Union which sup-
3 port our position.

4 EXAMINER GOLDBERG: I believe I am taking these in
5 the record as they appeared in your testimony.

6 MR. SAMUELS: Yes.

7 EXAMINER GOLDBERG: Exhibit 53, a Xerox of a document
8 entitled "Asbestos and Health, Questions and Answers," and
9 would you prepare, as I go along, a duplicate of each of
10 these and hand them to Mr. Blair?

11 MR. SAMUELS: Yes.

12 EXAMINER GOLDBERG: That document is Exhibit No. 53.

13 (The document referred to was
14 marked for identification as
15 Exhibit No. 53.)

16 EXAMINER GOLDBERG: Exhibit Number 54 is a letter
17 from Dr. Maxwell Borow, to which is attached a reprint of
18 an article, is that correct?

19 MR. SAMUELS: That is correct.

20 EXAMINER GOLDBERG: All right.

21 That is Exhibit Number 54.

22 (The document referred to was
23 marked for identification as
24 Exhibit No. 54.)

25 EXAMINER GOLDBERG: Exhibit 55, a letter to Mr.

hws-25

Sheldon W. Samuels, on the letterhead of the Department of Health, Education and Welfare, dated March 3, 1972.

That is Exhibit No. 55.

(The document referred to was marked for identification as Exhibit No. 55.)

EXAMINER GOLDBERG: Exhibit No. 56, a letter addressed to Dr. Marcus M. Key, MD., dated October 18, 1971, from Dr. Irving J. Selikoff, with an attached table.

That is marked for identification as Exhibit No. 56.

(The document referred to was marked for identification as Exhibit No. 56.)

EXAMINER GOLDBERG: Exhibit No. 57, a letter, dated November 24, 1971, to Mr. Sheldon W. Samuels, on the letterhead of the Department of Health, Education and Welfare, to which are attached a number of other documents.

That will be marked as Exhibit No. 57.

(The document referred to was marked for identification as Exhibit No. 57.)

EXAMINER GOLDBERG: Exhibit No. 58, comments of the United Lime and Gypsum Workers, International Union, proposed standards on asbestos dust.

That is Exhibit No. 58.

hws-26

(The document referred to was marked for identification as Exhibit No. 58.)

EXAMINER GOLDBERG: Exhibit No. 59, a letter, dated February 25, 1972, on the letterhead of the IPP and AU, Special Project, Respiratory Diseases, addressed to the Office of Safety and Health Standards.

That is Exhibit No. 59.

(The document referred to was marked for identification as Exhibit No. 59.)

EXAMINER GOLDBERG: Now, the graphs.

MR. SAMUELS: May we, sir, if the record is going to be open, attach additional narratives which I have skipped over for the sake of time for the record at a later date for the graphs?

EXAMINER GOLDBERG: The record will be kept open for ten days for additional comments.

Exhibit No. 60 is a graph, entitled "Asbestos Cement Pipe, Plants," carrying the capital letter A thereon.

That will be Exhibit No. 60.

(The document referred to was marked for identification as Exhibit No. 60.)

EXAMINER GOLDBERG: Exhibit No. 61, a graph,

hws-27

entitled "Asbestos Friction Plants," carrying the capital letter B.

That will be Exhibit No. 61.

(The document referred to was marked for identification as Exhibit No. 61.)

• EXAMINER GOLDBERG: Exhibit No. 62, a graph entitled "Asbestos Friction Plants," with the capital letter C.

That will be Exhibit No. 62.

(The document referred to was marked for identification as Exhibit No. 62.)

EXAMINER GOLDBERG: Exhibit No. 63, a graph, entitled "Asbestos Textile Plants," capital letter D.

That will be Exhibit No. 63.

(The document referred to was marked for identification as Exhibit No. 63.)

EXAMINER GOLDBERG: Exhibit No. 64, a graph entitled "Asbestos Insulation Plants," capital letter E.

That will be Exhibit No. 64.

The document referred to was marked for identification as Exhibit No. 64.)

EXAMINER GOLDBERG: Exhibit No. 65, a graph entitled

hws-28

1 "Johns-Manville Plant, Secular Trends," capital letter F.

2 That will be Exhibit No. 65.

3 (The document referred to was
4 marked for identification as
5 Exhibit No. 65.)

6 EXAMINER GOLDBERG: Off the record.

7 (Discussion off the record.)

8 EXAMINER GOLDBERG: On the record.

9 Will there be examination of Mr. Samuels?

10 Mr. Savbrouin.

11 MR. SAVBROUIN: As you know, I represent Johns-
12 Manville in Canada, and we are quite interested and involved
13 in building products, and I did note that Mr. Samuels, with
14 the last presentation of the last day of this week's confer-
15 ence, is directly impugning the figures that might have been
16 presented or spoken about, commented on by the Johns-Manville
17 spokesman we heard two days ago.

18 I would ask, very respectfully, and in all fairness,
19 and in the proper procedure, we should be given communication
20 of the exhibits just filed, as well as the presentation of
21 Mr. Samuels, with the permission of the Chairman, so that
22 within the week after the receipt of these exhibits and this
23 presentation we would be in a position to comment upon the
24 same.

25 This is the last presentation -- the exhibits, and

hws-29

1 I asked Mr. Samuels if he had copies of same for us, and he
2 doesn't have them, and as they have, it seems, have some
3 quite important features of them, and I do not consider myself
4 qualified to analyze them, I would respectfully ask that the
5 presentation of Mr. Samuels and his exhibits, if not given
6 us immediately, within as short a delay as possible, and we
7 be given a week thereafter to let you have, please, Mr.
8 Chairman, our comments.

9 EXAMINER GOLDBERG: I will consider your application.

10 MR. SAVBROUIN: That is very kind of you, sir.

11 MR. SAMUELS: May I volunteer?

12 Our exhibits and presentation are available to you,
13 and I will make them available to you.

14 EXAMINER GOLDBERG: Anything further of Mr. Samuels?

15 (No response.)

16 MR. SAMUELS: I see, sir, there are some advantages
17 to being last.

18 EXAMINER GOLDBERG: Quite obviously, the last shall
19 not be the least.

20 Mr. Savbrouin, the record is still open, you still
21 have an opportunity to testify, sir.

22 You are excused, Mr. Samuels.

23 We have now exhausted our list of witnesses, if
24 nothing else.

25 MR. DeGREGORIO: Mr. Examiner, just a question of

hws-30

clarification, please.

What do you mean by a ten day period of post-hearing comments and documents, I assume, and do you mean ten working days or calendar days, and when will the period start running, please?

EXAMINER GOLDBERG: The record will be kept open for ten days for the receipt of comments and duplicate exhibits.

In other words, all comments, documents, exhibits must be received by the close of business March 27.

If there is nothing further, I want to thank every one for their courtesy, their decorum, their patience in the conduct of this hearing.

I especially want to express my appreciation to the supporting staff of OSHA, who assisted in the technical arrangements.

I know Mr. Blair, but not others, although I have seen the faces from time to time.

I now declare the hearing closed.

(Whereupon, at 2:30 o'clock, p.m., the hearing in the above-entitled matter was adjourned.)

- - -