FILE NAME: Johns-Manville (JMA)

DATE: 1967-1969

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DOCUMENT DESCRIPTION: Minutes & Report - Ambient Air Surveys

14435

6/19/67
Hugh Jackson
Here are some "quick" comments on the micrographs in the Vorwald report.
JJP

BD

Research and Engineering Center
June 15, 1967

File: 411

F. L. Pundsack

Vorwald Report

The following are some general comments concerning Dr. Vorwald's report on the dust samples collected in downtown Detroit.

1. Obviously, they were able to find many fiber particles in these dust samples. However, the pictures do not allow any estimate of the amount of such fibrous materials present in the dust.

2. The fibers that do appear to be chrysotile all show evidence of some type of degradation. Such degradation could be caused by either mechanical action or by heat.

3. Many of the high magnification optical micrographs have been blown up to a point where the details seen could be artifacts caused by the extreme magnification.

4. The optical micrographs of the pure fibers appear as though some attempt was made to separate a fine fraction from the original sample. In doing so they have isolated a large fraction of non-fibrous material.

5. The heat-treated fibers (2 hrs @ 1000°C) have the appearance of fibers which were heated at a lower temperature.

6. It appears that any fibrous material which had a tubular appearance was considered to be chrysotile regardless of the magnification used.

Specific comments compiled by D. Bailey and G. Reimschussel are attached.

J. P. Leineweber

JPL/mac

Attachment

cc: H. Jackson — DH
S. Speil
D. Bailey
G. Reimschussel

8/2 phone Sid Speil did not contact Vorwald on Detroit [illegible] ... [illegible] message [illegible]

BD

ATTACHMENT

COMMENTS - DONALD BAILEY

FIGURE	TITLE	MICROGRAPH	MAGNIFICATION	COMMENT
1	Amosite	Light	860X	Splinters, 15 microns and less
2	Amosite	Phase	1,376X	Splinters, 15 microns and less
3	Amosite	Electron	33,290X	Splinters, 0.4 micron diameter and less
5	Amosite	Light	860X	Splinters, 20 microns and less
7	Amosite 1000°C	Electron	55,383X	Possible sintering
10	Chrysotile	Light	1,655X	Not well opened
13	Chrysotile	Electron	168,200X	Damaged fibers? Ball Milled?
16	Chrysotile 1000°C	Electron	111,200X	Shows effect of heat
17	Crocidolite	Light	860X	Few fibers!
24	Pre-filter	Light	344X	Air-duct (outside intake). Fly-ash fibers; not definitely chrysotile. Cotton?
30	Pre-filter	Electron	83,100X	Concentration? Looks like chrysotile.
31-32	Pre-filter	Electron	18,400X 33,300X	Perhaps chrysotile; not very well resolved
33	Pre-filter	Light	677X	?
37	Pre-filter	Light	677X	?
38	Pre-filter	Phase	677X	?
39	Pre-filter	Light	1,376X	? Glass fiber?
40	Pre-filter	Phase	2,710X	? Glass fiber?

FIGURE	TITLE	MICROGRAPH	MAGNIFICATION	COMMENT
41	Pre-filter	Phase	1,376X	Possibly some chrysotile
42-45	Pre-filter	Electron	43,300X 168,200X	Chrysotile
50	Filter	Phase	344X	Trace glass?
52	Filter	Electron	14,890X	Animal hair? Trace chrysotile?
53-54	Filter	Electron	7,040X 18,400X	Main fiber probably not chrysotile; though possibly trace present
59	Filter	Light	344X	Glass fiber?
60	Filter	Phase	344X	Glass fiber?
61-70	Filter	Light Phase	677X 1,693X 1,084X	Some glass fiber?
71-76	Filter	Electron	168,200X 111,200X 83,100X	Possibly damaged chrysotile
77-81	Millipore	Light Phase	344X 677X	Possibly chrysotile?
82	Millipore	Electron	83,100X	Possibly damaged chrysotile? Where is other material? How concentrated?
83	Millipore	Electron	111,200X	Perhaps not chrysotile
84-88	Millipore	Phase	1,376X	What fiber?
89-91	Millipore	Electron	10,555X 43,300X 83,100X	Trace chrysotile? Why ash at so high a temperature?
92	Millipore	Electron	300,000X	Ash temperature too high

BD

ATTACHMENT

COMMENTS - GEORGE REIMSCHUSSEL

Introduction, Page 2 - Amosite and crocidolite fibers are labelled as though they are Johns-Manville fibers. These were obtained from Johns-Manville but, obviously, not produced by us.

FIGURE	TITLE	MICROGRAPH	MAGNIFICATION	COMMENT
8	Chrysotile	Light	677X	Seems very short for 3 grade fiber
12	Chrysotile	Electron	18,400X	Has same appearance as Waring Blendor treated fiber
16	Chrysotile	Electron	111,200X	Looks more like our chrysotile sample which has been calcined for 1 hr at 700°C
30	Pre-filter	Electron	83,100X	Seems like a lot of fiber
33-35	Pre-filter	Light Phase	677X	Fibers are too large for chrysotile at this magnification
44	Pre-filter	Electron	43,300X	Does look like chrysotile
59-60	Filter	Light	344X	Has chrysotile appearance, but magnification is too low
82	Millipore	Electron	83,100X	Appears more like heat-treated chrysotile
92	Millipore	Electron	300,000X	Does not look like chrysotile

...ental Control Department
Research & Engineering Center
June 4, 1969

C. B. Burnett - GHQ
H. M. Ball - GHQ
J. B. Jobe - DHQ
K. V. Lindell - Asbestos 1500
A. B. Marchant - GHQ
A. C. Smith
Ivan Sabourin
F. J. Solon, Jr. - GHQ
W. L. VanDerbeek
Dr. G. W. Wright - GHQ

REPORT OF MEETING
ENVIRONMENTAL CONTROL SUBCOMMITTEE
MAY 19, 1969

Attending this meeting were: W. L. VanDerbeek, Chairman
K. V. Lindell
H. M. Jackson
G. L. Swallow
Dr. G. W. Wright

The agenda as issued on April 28, 1969, copy attached, was followed for the meeting.

I. The completed Manville Asbestos Textile Plant membrane filter personal air sampling results were presented and discussed.

It was pointed out that only 10 of 89 stations were below the J-M TLV of 6.0 fibers per cc. It was established that 33 stations were over the ACGIH TLV of 12 fibers per cc, principally in the Spinning and Twisting Departments.

The presentation included a comparison of the new J-M data with USPHS data taken by the same method, and a comparison of the new J-M data with 1968 J-M data taken by the impinger method. The new data were in good general agreement with USPHS results. The new data showed conditions to be worse with respect to the new TLV than they had formerly appeared, based on the impinger method and the old TLV.

The committee requested that the above data be provided for the Policy Meeting of June 16, together with similar data taken in the Manville Asbestos-Cement Shingle Department, and the Marshville Plant. Spread sheets covering each of the above are attached to these Minutes.

H. M. Jackson proposed that the Subcommittee submit a recommendation to the Policy Committee concerning use of respirators in the Manville Textile shops. The Subcommittee's consensus was that the recommendation should call for the use of approved respirators at stations with a fiber concentration over 12.0 fibers per cc. The details are to be worked out by H. M. Jackson and G. L. Swallow.

Dr. Wright asked if it could be established whether the "A" Building data represented "good" or "bad" operations in the opinion of plant supervisory people.

The answer was negative, based on inquiries already made to the Plant Manager. It was agreed that in future surveys the Industrial Hygienist would check at least daily with plant supervisory people and note on the data sheets whether plant conditions were considered normal or abnormal.

Dr. Wright inquired whether the basic normal air flow patterns in "A" Building were known. It was stated that such data were not presently available. G. L. Swallow agreed to see that this information is obtained.

G. L. Swallow presented and discussed the Bench Mark samples which are being taken to establish a correlation between the old and new methods of sampling for asbestos dust concentrations. These are simultaneous station samples taken at representative locations in each building and plant surveyed. He pointed out that the relationship between counts by the old and new method would necessarily vary with the process sampled. For this reason no general correlation can be established. However, correlations for specific situations can and will be established by the above technique.

Modified sampling schedules which have been established to expedite correction of problems in the Textile operations were discussed as follows:

A. Special Industrial Hygiene Surveys in the Manville Textile operation have top priority. These surveys are being made in close cooperation with the Packings and Friction Materials Division and plant people. They are for the purpose of isolating specific fiber dust sources and checking the effectiveness of changes made to equipment and process. E. J. Bulava's letter of May 22 to J. A. Krochta is attached, showing the results of the first special survey.

B. The four-times per year round-robin schedule for surveys at Manville and Marshville Textiles Shops is not being followed. Special surveys, as noted above, are being done instead.

C. The first Marshville Industrial Hygiene Survey, using the membrane filter technique has been completed. In accordance with "B" above, additional surveys will be in response to Division requests to check specific problems or to recheck for effectiveness of corrective measures.

D. The Asbestos Plant Textile Department will be surveyed twice in 1969.

II. Results of ambient air sampling at Manville Plant locations, downwind of the Textile Plant and downwind of the Pipe Plant showed a range of 0.04 to 0.14 fibers per cc. The average count was 0.07 fibers per cc. No significant difference existed between the Textile Plant and Pipe Plant locations.

II. (Cont'd.)

Electron microscope studies on two of the Textile Plant samples gave results of 3.30 μ gms of fiber in a 23-hour sample, and 3.67 μ gms in a 40.5-hour sample. Based on an assumed "average fiber" of 1 μ x 10 μ, the calculated equivalent fiber counts are 0.062 and 0.038 fibers per cc.

A discussion of the data and ambient sampling program followed and resulted in the following:

A. It was agreed that there has been sufficient sampling done on Manville Plant premises.

B. Sampling downwind of the Manville dump should be done next.

C. Dr. Wright suggested that ambient sampling should be done for short period simulating conditions at Manville Plant twenty years ago.

The Jeffrey ambient sampling schedule was presented. Sampling on Plant and Mine properties will proceed as soon as the Bausch and Lomb microscope is received (June 1969). This will be followed by sampling in the community at large. K. V. Lindell suggested using the roof of the Iroquois Club and supervisory employees' property as sampling sites.

III. Engineering Drawings, costs and dust counts for asbestos bag opening stations, comparing the Glove Box in the Manville Textile Shop with the Hooded, Shelf-type in the Asbestos-Cement Shingle Shop, were reviewed.

Station samples showed fiber counts of 4.4 and 1.7 fibers per cc respectively at the Glove Box and Hooded-shelf.

In discussion of the data it was agreed that:

A. Dust counts will be made at the Glove Box when the rest of the Textile operation is down, in order to eliminate the effect of ambient air fiber concentration.

B. Modifications will be made to the Hooded, Shelf-type bag opening station to overcome some observed fiber spillage, with the objective of improving performance to the point where it can become the J-M standard bag-opening method, rather than the Glove Box.

It was pointed out that in answer to customer inquiries, the Environmental Control Department is recommending the Hooded-Shelf Bag Opening Station, rather than the Glove Box; chiefly because of relative cost..

IV. The new Environmental Control Industrial Hygiene Survey reporting methods were discussed.

The newly adopted "Occupational Environmental Control Status Report" provides for Division reporting and quarterly updating of action being taken to correct each Industrial Hygiene Station over TLV.

The "Occupational Environmental Control - Open Appropriations" report shows the level of expenditures to correct environmental problems on a Plant and Division basis.

Summaries of the above are incorporated in the Quarterly Environmental Control Report.

Results of surveys are now being reviewed with Plant Managers before the Industrial Hygienists leave the plant location. Final results in writing of Noise and Fume/Vapor Surveys are given to the Plant Manager at that time. Dust Survey results are sent to the Plant Manager directly from the Area Industrial Hygiene Laboratory as soon as counts are completed, eliminating the wait for final notification and return of the Permanent Record Books.

The merits of removing the Industrial Hygiene Permanent Record Books from the plants and filing them in the Research and Engineering Center were reviewed. H. M. Jackson recommended and the committee agreed that no decision should be made on this, pending further consideration by the Industrial Relations Department.

V. G. L. Swallow reported on the status of programs for correction of asphalt saturator emissions at Manville, Fort Worth, Madison and Waukegan. Briefly stated:

Manville

A. Engineering Project ($73,400) for a Greco-Goldfield filter is approved.

B. State of New Jersey has expressed verbal agreement.

C. Expect unit to be operative in late 1969.

Fort Worth

A. An application for variances from existing ordinance has been submitted.

B. To satisfy State and Local authorities, we will have to start installation of control equipment by January 1970 and complete by June 30, 1970.

Madison and Waukegan

A. We must file with the State of Illinois by August 15, 1969 an "Air Contamination Emission Reduction Program".

B. The program must show our plans and schedule for completion.

C. To satisfy the State, we must be in control by a date agreeable to both parties, probably December 1971.

Dr. Wright suggested, and the committee agreed, that asbestos dust counts would be taken at the emission from the Greco-Goldfield filter when it becomes operative in Manville.

G. L. Swallow, Acting Secretary
ENVIRONMENTAL CONTROL SUBCOMMITTEE

EMF/ems

Attach.

cc: H. M. Jackson - DHQ
File
C

April 28, 1969

Agenda
Environmental Control Subcommittee Meeting
May 19, 1969

I. Results of personal air sampling (membrane filter) program at the Manville Asbestos Textile Plant.

II. Results to date in the ambient (community) air sampling program for asbestos fiber. This program was carried on at Manville Plant.

III. Asbestos fiber bag opening methods.

IV. Review of new Environmental Control Industrial Hygiene Survey reporting techniques.

V. Air and water pollution problems at J-M plants.

7136

Environmental Control Department
Research & Engineering Center
July 31, 1969

CONFIDENTIAL

AUG 4 '69

OFFICE OF THE GENERAL COUNSEL

C. B. Burnett - GHQ
H. M. Ball - GHQ
J. B. Jobe - DHQ
K. V. Lindell - Asbestos 1500
A. B. Marchant - GHQ
A. C. Smith
Ivan Sabourin
F. J. Solon, Jr. - GHQ
W. L. VanDerbeek
Dr. G. W. Wright

REPORT OF MEETING
ENVIRONMENTAL CONTROL SUBCOMMITTEE
JULY 14, 1969

Attending this meeting were: H. M. Jackson
K. V. Lindell
Dr. G. W. Wright
E. M. Fenner

The agenda as issued on July 23, 1969, (Attachment 1) was followed for this meeting.

1. Special Dust Surveys - Manville Asbestos Textile Plant

Included in the special dust surveys taken during the past two months at Manville Asbestos Textile Plant were:

a. Comparative dust studies on two cards with and without specific dust control equipment.

b. Evaluation of the return air from the fly fiber dust collector.

Results of these two surveys are detailed in Attachment 2.

The card study indicated a considerable improvement in dust levels on a card equipped with shaft seals and hoods. Another card modified only by the addition of shaft seals showed considerably less improvement. However, this one test is not sufficient to determine the trend. The installation of shaft seals on all cards is now complete and a sampling program covering the entire card room is underway. Results will be available during the week of August 4.

The low dust levels in the return air from the fly fiber dust collector were confirmed by readings taken by representatives of DPE using the Sinclair Phoenix photometer. The photometer probe was inserted into the return air duct prior to fan start-up. As soon as the fans were started, the air quality in the duct immediately improved until in a few moments the photometer reading was near zero. This indicates that the return air was much cleaner than the ambient air in the duct. During the course of the

test the probe was removed from the duct in order to sample the ambient air on the rooftop. This air was considerably dirtier than the return air, being about the equivalent of the initial ambient air sample. The membrane filter sampling procedure will be repeated four more times.

At the conclusion of the discussion on conditions in Manville Asbestos Textile Plant, Dr. Wright suggested that dust count data be obtained on one card operator over a full 8 hour shift. This to be done by a series of 90 minute samples. This sampling program was completed on July 29 and results will be available the week of August 4, 1969.

2. Ambient (Community) Air Sampling

During the past month ambient air samples were taken at the Manville Plant dump, at Jeffrey Mine and in the town of Asbestos. Results of these surveys are detailed in Attachment 3.

Attachment 4, a map of the town of Asbestos, shows the sampling locations there. Please note the high count obtained at location 3 (Jeffrey #1 Gate Entrance to Mill 4). This sampling program will continue at Locations 1, 2 and 3. Additional locations may be added within the town of Asbestos. K. V. Lindell suggested also that samples be taken adjacent to the Jeffrey Tailings and Waste dump. This will be done.

Photomicrographs of the dust samples taken on the roof of the Iroquois Club are attached to Mr. VanDerbeek's copy of this report. Note large fiber bundles.

One 14 hour sample was taken at the Manville Dump approximately 200 feet downwind from the active dumping area. Additional samples will be taken at the Dump as follows:

(a) Personal sample on "dozer" operator.
(b) Identical to previous sample just described.
(c) Sampling point approximately ½ mile further downwind toward the town of Manville.

We have arranged to take samples on the roof of a building at the Manville Borough Waste Treatment Plant. The prevailing winds pass over Manville Plant in the direction of this sampling location.

3. Fiber Feed Station

Dust counts taken on the original installation of a hooded shelf-type fiber feed station in "H" Building were 1.7 fibers per cc.

In the May 19, 1969 meeting of the Environmental Control Subcommittee, it was suggested that this unit might be made the basic standard for future and revised asbestos fiber bag opening and feed stations. Committee members recommended certain changes to the hood. The modified hood is shown on DPE Drawing 23758-1, copy attached.

The revisions were not a success. Dust counts increased to a maximum of of 4.1 fibers per cc from their previous level of 1.7 fibers per cc. The increase resulted from a kickback of dust from the breaker blades drifting up through the grating bag support. It was found to be impossible for a man to slit the back edge of a bag positioned properly on the grating shelf, because of interference between his arms and the top front edge of the hood.

The hood has again been modified as follows:

(a) A solid plate was installed over the grating. The 3 inch gap between the front of the bag support and the front of the hood was maintained.

(b) The top front edge of the hood was cut back and a heavy flexible curtain hung that would not impede the operator's arms.

Pictures of the hood as originally and finally modified are attached to W. L. VanDerbeek's copy of this report.

Dust counts taken after the final modifications were 2.0 fibers per cc. It is believed that when the operator becomes more familiar with the operation the dust counts will drop further, possibly into the area of 1.5 fibers per cc.

Since fiber feeding with this hood has become a minimal hazard operation and because the hood has a relatively low cost of manufacture ($800 to $1,500 assuming dust collection facilities are available), it is recommended that this design become the Johns-Manville basic standard.

4. Unloading of Box Cars - Asbestos Fiber and Celite

Eight box cars containing asbestos fiber and two box cars containing Celite were examined upon arrival at Manville Plant. Dust counts were taken at all fiber cars and at one Celite car during unloading. These examinations and counts were made during the period of May 16, 1969 to July 11, 1969. Results of the counts are tabulated in Attachment 6.

Similar dust counts were made during fiber car unloading at Waukegan and Denison Plants. Results of these counts are also tabulated on Attachment 6.

Photographs taken by our Industrial Hygienists showing the condition of the cars during the Manville survey are attached to Mr. VanDerbeek's copy of this report.

5. Respirator Program

The Respirator Program was discussed briefly. The major point was the confirmation of a previous decision that in asbestos fiber dust locations, the criteria for determining whether or not respirators are required would be the ACGIH Threshold Limit Value of 12 fibers per cc.

6. Industrial Hygiene Permanent Record Books

It was the decision of the Environmental Control Subcommittee that we recommend to the Policy Committee that the Industrial Hygiene Permanent Record Books be maintained in the Environmental Control office at the Research and Engineering Center in Finderne, instead of at each plant. The information furnished the Plant Managers after each survey would consist of the current results at all stations, with notations indicating the previous years that stations had been over TLV.

There was a further recommendation that this program be implemented gradually at the completion of future surveys, after approval of this procedure. The program probably could be fully implemented by the end of the first quarter of 1970.

7. Air and Water Pollution

The only item discussed was progress on the installation of the Goldfield-Greco filter at Manville Roofing Plant.

E. M. Fenner, Secretary
ENVIRONMENTAL CONTROL SUBCOMMITTEE

EMF/ems

Attach. (7)

cc: H. M. Jackson - DHQ
File
C

Attachment 1

July 3, 1969

Agenda
Environmental Control Subcommittee Meeting
July 15, 1969

1. Review of results of special dust surveys at the Manville Asbestos Textile Plant.

2. Review of results of initial ambient (community) air sampling for asbestos fiber at Manville Plant Dump, Jeffrey Mine, and in Asbestos.

3. Review of special dust sampling at modified "H" Building-type fiber feed station.

4. Review of special dust surveys taken during unloading of box cars containing asbestos fiber and Celite bags.

5. Review of Respirator Program.

6. Final decision on policy concerning location of Industrial Hygiene Permanent Record Books.

7. Review of air and water pollution problems and corrective measures.

Manville Asbestos Textile Plant
Special Dust Surveys

Card Room

Date	Location	Personal	Station	Remarks
6/28/69 5:00 A.M.	#40 Card	8.5	12.0	Prior to modification. No other cards operating.
7/3/69 5:00 A.M.	#40 Card	3.9	3.3	Card cleaned and modified by the addition of shaft seals and hood. No other cards operating.
7/3/69 10:00 A.M.	#40 Card	9.9	5.7	Card modified as above. Card room in normal production operation. Card tender working a four card assignment.
7/4/69 5:00 A.M.	#30 Card	12.6	15.1	Prior to modification. No other cards operating.
7/8/69 5:00 A.M.	#30 Card	11.1	10.4	Shaft seals installed. No additional hoods. No other cards operating.
7/8/69 10:00 A.M.	#30 Card	9.6	31.5	Card modified as noted above. Card room in normal production operation. Card tender working a four card assignment.

Note: 6182 stock being run during all tests.

Return Air Test

Return air from the fly fiber dust collector was sampled by means of a membrane filter holder supported in the mouth of the return air duct.

Time	Fibers per cc Over 5 microns	Remarks
6:00 A.M.	0.46	Dust collector fans started at 6:00 A.M.
10:00 A.M..	0.27	
2:00 P.M.	0.39	
6:30 P.M.	0.41	
10:00 P.M.	0.64	

Environmental Control Department
Research & Engineering Center
October 2, 1969

C. B. Burnett - GHQ
H. M. Ball - GHQ
J. B. Jobe - DHQ
K. V. Lindell - Asbestos 1500
A. B. Marchant - GHQ
A. C. Smith
Ivan Sabourin
W. L. VanDerbeek
Dr. G. W. Wright - GHQ

REPORT OF MEETING
ENVIRONMENTAL CONTROL SUBCOMMITTEE
SEPTEMBER 15, 1969

Present at this meeting were:

H. M. Jackson
K. V. Lindell
W. L. VanDerbeek
Dr. G. W. Wright
E. M. Fenner.

The agenda as issued on August 25, 1969, (Attachment 1) was followed for this meeting.

(1) Bulletin On Environmental Control Standards

The newly revised Executive Bulletin (312-3) on Environmental Control Standards was reviewed and modified. The bulletin in its modified form, was discussed at the General Managers Meeting held the last week in September. The final bulletin, incorporating changes recommended at the General Managers Meeting, (Attachment 2), is now being prepared for distribution.

(2) Industrial Hygiene Resurvey - Manville Asbestos Textile Plant

A report, (Attachment 3), comparing the July/August resurvey of Manville Asbestos Textile Plant with the original membrane filter survey of February/March 1969, was discussed.

(3) Ambient Air Sampling Program

A data sheet, (Attachment 4), detailing the results of the ambient air sampling done since the issuance of the Environmental Control Department Report #10, dated September 1, 1969, was reviewed. It was recommended that the exposure of the bulldozer operator on the Jeffrey Tailings dump be measured. (Done and included in Attachment 4).

Dr. Wright inquired if there might be asbestos fiber in the Millipore filter paper being used in our sampling program. Upon investigation it was learned that the filter paper manufacturer previously had stated that no fiber was used in this paper and that analysis work performed at our Research Center confirmed his statement.

(4) Personal Air Sample - Full Shift

The Eastern Area Industrial Hygiene Laboratory had recently sampled one Card Operator at Manville Asbestos Textile Plant for a total of 6 hours; four 90-minute samples.

Dr. Wright requested that this sampling procedure be repeated on a different operator at Manville Textiles. At the suggestion of H. M. Jackson, it was decided to sample the Card Room Stocker.

The results of these two sampling programs are shown on Attachment 5.

(5) Review of Membrane Filter/Personal Air Sampler Survey Program

Results of the program to date were very briefly discussed. At the conclusion of the discussion, Dr. Wright recommended a sampling program at Jeffrey Mill using the membrane filter for sampling and both the light microscope and the electron microscope for analysis of each sample. It was decided that 15 samples would be taken; 5 in a high dust area (above 12 F/cc); 5 in a medium dust area (6 - 12 F/cc); and 5 in a low dust area (below 6 F/cc). The electron microscope analysis technique will be such that its results may be compared with similar sampling and analysis work done by Dr. Selikoff's group at Mt. Sinai Hospital.

(6) Air and Water Pollution Problems

The status of our major air and water pollution problems is detailed in the Environmental Control Department Report #10. Three items not included in this report were discussed:

(a) A complaint was received from a close neighbor to Waterville 07 Plant concerning fiber glass microfibers being deposited on property where he is creating a real estate subdivision.

(b) A citation was received from the State of Colorado Department of Health notifying us that stack emissions at our Florence Plant exceeded State standards. The Environmental Control Department is presently further investigating this situation.

(c) The Goldfield-Greco fiber glass mat air filter is now in experimental operation on the #4 Asphalt Saturator at the Manville Roofing Plant.

E. M. Fenner, Secretary
ENVIRONMENTAL CONTROL SUBCOMMITTEE

Attach. (5)

cc; H. M. Jackson - DHQ
File & C

(Attachment 1)

Proposed Agenda
Environmental Control Subcommittee Meeting
September 15, 1969

1. Discussion of revised bulletin on Environmental Control Standards.

2. Results of total resurvey of Manville Asbestos Textile Plant - conducted during July and August 1969.

3. Review of ambient air sampling data to determine future course of the program.

4. Results of personal air sampler survey on one Asbestos Textile employee for full shift.

5. Review of membrane filter/personal air sampler surveys completed to date.

6. Review of air and water pollution problems.

(Attachment 2)

Sept. 16, 1969

E X E C U T I V E B U L L E T I N

312-3 (Rev.)

Occupational Environmental Control Standards as set forth in Executive Bulletin 312-3 dated April 28, 1968, have been reviewed, and reaffirmed or revised based on experience. These Standards are detailed below and for effective Occupational Environmental Control they should be adopted at all locations.

(1) Brooms and Shovels

Brooms and shovels may be used for clean-up in areas and operations where their use does not create airborne toxic dust contamination in excess of the Johns-Manville Threshold Limit Values. Where the use of brooms and shovels does create such conditions; vacuum cleaners, central vacuum systems, vacuum booster systems connected to existing dust collection systems, and/or power sweepers shall be used instead.

(2) Fiber Feeding Operations

The following procedures shall be adopted at all fiber feeding stations:

(a) All asbestos fiber shall be supplied in clean, tight bags on clean pallets.

(b) New or revised dust control hoods shall be designed as shown on CPED Drawing 23758-1 "Bag Opening Station", modified as required by the local application.

(c) Bag disposal shall be accomplished without creating airborne fiber dust contamination.

(3) Unloading of Toxic Bagged Materials

The following procedures shall be used in unloading toxic bagged materials:

(a) Quality Control personnel shall inspect each shipment upon arrival to determine its condition and shall prepare a report on their findings.

(b) Spilled material shall be removed from all car, pallet and bag surfaces before and during the unloading operation, using suitable vacuum cleaning equipment.

(c) Torn bags shall be sealed with tape or covered with a slip bag as they are removed from the car. Patched bags shall be placed on separate pallets and used immediately in the production operation.

(d) Personnel engaged in the unloading operation shall wear respirators whenever broken bags and loose material are encountered.

(4) Asbestos Fiber Empty Bag Disposal

Jute fiber bags shall not be sold or reused within th plants. They shall be encased in plastic or paper bags and buried in a land fill dump, either by the plant or a contract hauler.

Used paper bags shall be encased in clean paper bags and used as furnish in the Paper Mill. The filled clean bags may be baled or otherwise compacted under dust controlled conditions, for easier handling. Where used paper bags cannot be disposed of by this method, they shall be handled in the same way as jute fiber bags.

(5) Pallet Cleaning

Dirty pallets shall be cleaned before reuse. They shall be vacuumed, water washed in a suitable drainage area, or air washed in a dust controlled booth.

(6) Fiber Storage

Whenever possible, the principle of first in, first out, shall be applied to the warehousing of bagged fiber. In all cases, fiber inventory should be turned over once a year.

Plastic covers shall be used over fiber stored in unlined jute bags.

(7) Containers

Covers shall be used on all containers of asbestos fiber and other toxic dusty materials during transportation and storage.

(8) Dust Control Systems

New or rebuilt dust control systems must meet the following criteria:

(a) They must be engineered to maintain dust levels below the applicable Johns-Manville Threshold Limit Value (for example, 2 F/cc for asbestos fiber dusts, and 0.2 Mg/M^3 for lead dusts).

(b) They must meet basic design specifications as developed by DPE to assure maximum efficiency and minimum maintenance and clean-up requirements. They must be maintained adequately to insure operation at design effectiveness.

(9) Visible Dusts

When visible dusts and chips do not create a hazardous condition, periodic clean-up of accumulation of such dusts and chips will be included in plant housekeeping schedules and programs. Frequency of clean-up will be determined by the requirement that accumulations must not create hazardous airborne dust concentrations and by Corporate Housekeeping Standards (E.C. 200 Series - Manual of Standard Practices).

W. L. VanDerbeek
Vice President for Production and Engineering

FIBER DUST SURVEYS

MANVILLE TEXTILES

Operation		Total No.	No. Over 12 F/cc	No. Over 6 F/cc
Fiber Prep.	A	10	3	8
	B	10	5	7
Carding	A	16	2	16
	B	15	1	10
Spinning	A	8	8	8
Twisting	A	21	15	20
	B	20	11	18
Weaving	A	26	5	21
	B	24	0	13

A - Survey in Feb./Mar. 1969
B - Survey in July/Aug. 1969

(Attachment 4)

AMBIENT AIR SAMPLING

I. Jeffrey

Station #7 - 1/8 mile downwind of the dumping operation on the Tailings Dump - 16 hour sampling time.

Station #8 - East of Station #7 - 16 hour sampling time.

Samples collected on 0.8 micron pore size 37 mm diameter millipore filter using a personal air sampler pump at 2 LPM.

Station No.	Date	Total F/cc	F/cc >5μ in Length
7	8/11	0.81	0.36
7	9/1	5.8	3.6
8	8/18	1.25	0.6

II. Scotch Plains

8 hour samples taken on the porch roof of G. L. Swallow's home in Scotch Plains.

Samples collected on 0.8 micron pore size 37 mm diameter Millipore filter using a personal air sampler pump at 2 LPM.

Date	F/cc >5μ in Length
9/6	0.075
9/7	0.04

Electron microscope analysis of these samples shows only a trace, almost nil, of asbestos fiber. Consequently, some of the fibrous material in the sample as noted under the light microscope was not asbestos.

III. Manville Borough

A high volume air sample was collected on the grounds of the Manville Borough Waste Treatment Plant. The sampling pump operated at 34 CFM for 25 hours. Collecting medium was an 8" x 10" 0.8 micron pore size Millipore filter.

The examination by light microscopy showed 0.55 F/cc >5μ in length. The electron microscope analysis indicated that only 1% of the total ash or less than 0.01 F/cc were asbestos.

IV. Jeffrey

Two membrane filter/personal air samples were taken on the Bulldozer Operator on the Tailings Dump.

Sample No.	Total Fibers/cc	F/cc Over 5μ
1	125.0 F/cc	46.6 F/cc
2	99.0 F/cc	30.7 F/cc

(Attachment 5)

FULL SHIFT SAMPLING

One Card Room operator at Manville Asbestos Textile Plant was sampled for 6 hours; four consecutive 90-minute samples. Results are as follows:

(1) 7.0 F/cc > than 5μ in length

(2) 6.5 F/cc " " " " " "

(3) 6.2 F/cc " " " " " "

(4) 6.6 F/cc " " " " " "

The Card Room stocker was sampled for 4½ hours, three consecutive 90-minute samples. Results are as follows:

(1) 20.6 F/cc > than 5μ in length

(2) 17.5 F/cc " " " " " "

(3) 27.0 F/cc " " " " " "