WV-00354 13

ASBESTOS

PLAINTIFF'S EXHIBIT

UC-3181

Mr. C. W. Camon
Mr. N. H. Ketcham

September 18, 1972

T. N. Spencer, M. D.

Gentlemen:

The attached report gives results for air samples that were collected to measure asbestos while Construction personnel were sawing, shaping and fitting "Kaylo 20" on a pre-heater in Building 777.

Charlie, there is need for a procedure of collecting wastes, clean-up and disposal of the asbestos in Construction. Apparently, personnel can use better techniques to control airborne quantities. Had these operations been performed indoors, much higher results may have been received. If you and Bob Poole need any additional information or help in promoting procedures and precautions for Construction personnel, please let me know.

Newt, this sampling was not broken down into phases due to the mode of operation. However, the results do confirm that we can stay within the 5 fibers limit with little effort during this type of work with asbestos. Demolition work in this area will create a high level if adequate controls are not utilized.

Sincerely,

F. Williams/ebc
Att.

MEMORANDUM

To: Mr. Fred Williams
791 - 25

September 18, 1972

From: Industrial Hygiene

Subject: Air Sampling During "Cutting and Fitting of "Kaylo 20"

SUMMARY Six "personal" air samples were collected during the application of insulating material containing a percentage of asbestos. Three samples show results in excess of the Threshold Limit Value of 5 fibers per milliliter greater than 5 u in length. The operation was performed at Building 770 by two Construction Department employees.

DISCUSSION On August 23, 1972, the Industrial Hygiene group monitored asbestos fiber that became airborne during the application of insulating material containing approximately 15% asbestos at Building 777.

The material being used was "Kaylo 20," a ~~Johns Manville~~ Owens-Corning product. The operation included sawing, shaping, and fitting material 2 inches in thickness. Each phase of the insulating procedure was carried out during each of the sampling periods, therefore, each result is a composite of the airborne fibers incident to individual phases. A portion of the operation was monitored between approximately 9:45 a.m. and 11:00 a.m. During this time period a considerable amount of waste "Kaylo 20" accumulated in the work area. In an area "downwind" of the operation small airborne particles were visible in the sunlight for a period of time. During the time of monitoring, insulation was "cut and fitted" to 2 sides of a "pre-heater," project item No. 111. The "pre-heater" was insulated while outside of the building and subsequently moved to a permanent position in Cell No. 1. The operation was performed by [redacted] and [redacted].

The samples were collected by the use of "personal" air sampling equipment. The sample collecting device was suspended around the neck of the insulator as close to the breathing zone as was practical. The airborne fibers were collected using membrane filter media, Type AA, 0.8 u pore diameter, white, 37 mm in size, at 2 lpm flow rate.

The samples were delivered to the R&D Environmental Health Laboratory for analysis.

RESULTS AND CONCLUSIONS The attached data sheet shows asbestos fibers to be airborne in concentrations and size greater than the Threshold Limit Value of 5 fibers per milliliter of air greater than 5u in length as a result of the use of "Kaylo 20."

A review of the application techniques involved in this type operation may be advisable and a clean-up procedure should be initiated.

R. O. Midkiff

R. O. Midkiff

R.O.M./ebc
Att.

APPLICATION OF "KAYLO 20"

BUILDING 777

Date: August 23, 1972 Sampled by: R. O. Midkiff

Sample No.	Sampling Time - Min.	Flow Rate LPM	Fibers/ml >5u in length	Insulator
1	15	2	7.0	[redacted]
2	15	2	3.8	[redacted]
3	15	2	4.1	[redacted]
4	15	2	5.9	[redacted]
5	15	2	3.8	[redacted]
6	15	2	5.6	[redacted]

Each sample covered periods of sawing, shaping and fitting pieces of "Kaylo 20" insulation.

INDUSTRIAL HYGIENE
SAMPLING

Date 8-23-72 Location - Bldg. 777 Room

CONTAMINANT Asbestos Collected By Midkiff

IDENTIFICATION

# 1	15 min @ 2 lpm	7.0
# 2	15 min @ 2 lpm	3.8
# 3	15 min @ 2 lpm	4.1
# 4	15 min @ 2 lpm	5.9
# 5	15 min @ 2 lpm	3.8
# 6	15 min @ 2 lpm	5.6

Sampling Equipment Used

Operation being monitored Insulating Pre heater (~~Preheater~~) - Kaylo 20 Johnsmanville
Item - # 111

UCC 000367 Insulated outside cell, then moved into cell #1

Asbestos

8/23/77
777

II [illegible] cutting & fitting [illegible] 20

[illegible] Earl Searls

#2 9:56
15 min at 2 lpm cutting + fitting [illegible] Earl [illegible]

#4 10:02 15 2 lpm

[illegible]

[redacted]

#1 7.0

#3 4.1 sawing on flat 2" pc., shook "Sawdust" [illegible]

#5 3.8

[redacted]

#2 3.8

#4 5.9

#6 5.6

INDUSTRIAL HYGIENE DEPARTMENT
ASBESTOS DUST STUDY

Department T.C. Bldg. 777 Date 5/23/72 Time

Sampled By: Analyzed By: C.E. Wajc Method: 3[illegible] 2984-R1

General Conditions: INSULATING PREHEATER (LEAD BATH) KAYLO 20

#6

FIBER COUNT (Fibers > 5μ in Length)

Slide 1				Slide 2			
1	0	11	0	1	1	11	1
2	4	12	0	2	0	12	0
3	3	13	2	3	1	13	0
4	1	14	1	4	3	14	2
5	2	15	1	5	2	15	2
6	0	16	3	6	3	16	0
7	1	17	3	7	2	17	1
8	1	18	5	8	1	18	2
9	1	19	4	9	4	19	0
10	0	20	2	10	2	20	1
Total	34	Avg.	1.7	Total	28	Avg.	1.4

CALCULATIONS

SAMPLE VOLUME: 15 Min. @ 2 LPM = 30 LITERS

$$\frac{(\text{Avg.Fiber Count-Avg.Blank Count})(\text{Total Filter Area})}{(\text{Counting Area})(\text{Vol.Air-Liters})(1000)} = \text{Concentration, Fibers per Milliliter} > 5\mu$$

1. $\frac{(1.7 - \quad)(855)}{(.00792)(30)(1000)} =$ 1453.5 6.1 Fibers per Milliliter > 5μ

5.6 AVG

2. $\frac{(1.4 - \quad)(855)}{(.00792)(30)(1000)} =$ 1197. 5.0 Fibers per Milliliter > 5μ

Special Conditions:

Remarks:

INDUSTRIAL HYGIENE DEPARTMENT
ASBESTOS DUST STUDY

Department T.C. Bldg. 777 Date 9/23/72 Time

Sampled By: Analyzed By: C. E. Maye Method: 38C-2-[illegible]

General Conditions: INSULATING PREHEATER (LEAD BATH) [illegible]

FIBER COUNT (Fibers > 5μ in Length)

Slide 1				Slide 2			
1	5	11	0	1	3	11	0
2	0	12	1	2	1	12	0
3	2	13	3	3	1	13	2
4	1	14	1	4	3	14	3
5	0	15	0	5	3	15	0
6	0	16	0	6	1	16	0
7	2	17	0	7	1	17	2
8	0	18	0	8	0	18	0
9	0	19	0	9	3	19	0
10	0	20	0	10	2	20	2
Total	15	Avg.	.75	Total	27	Avg.	1.35

CALCULATIONS

SAMPLE VOLUME: 15 Min. @ 2 LPM = 30 LITERS

$$\frac{(\text{Avg.Fiber Count}-\text{Avg.Blank Count})(\text{Total Filter Area})}{(\text{Counting Area})(\text{Vol.Air-Liters})(1000)} = \text{Concentration, Fibers per Milliliter} > 5\mu$$

1. $\frac{(.75 - \quad)(855)}{(.00792)(30)(1000)} =$ 641.2 2.7 Fibers per Milliliter > 5μ

3.8 p/c

2. $\frac{(1.35 - \quad)(855)}{(.00792)(30)(1000)} =$ [illegible] 4.[illegible] Fibers per Milliliter > 5μ

Special Conditions:

Remarks:

INDUSTRIAL HYGIENE DEPARTMENT
ASBESTOS DUST STUDY

Department [illegible] Bldg. 717 Date 8/[illegible]/72 Time _____

Sampled By: _____ Analyzed By: [illegible] Method: [illegible]

General Conditions: INSULATING [illegible] (LEAD BATH) [illegible]

#4

FIBER COUNT (Fibers > 5μ in Length)

Slide 1				Slide 2			
1	2	11	2	1	1	11	2
2	0	12	1	2	0	12	3 1
3	3	13	2	3	1	13	6
4	1	14	0	4	1	14	0
5	2	15	1	5	1	15	2
6	3	16	4	6	1	16	2
7	2	17	3	7	1	17	3
8	3	18	3	8	0	18	0
9	3	19	0	9	3	19	3
10	2	20	0	10	3	20	1
Total	37	Avg.	1.85	Total	28	Avg.	1.4

CALCULATIONS

SAMPLE VOLUME: 15 Min. @ 2 LPM = 3 LITERS

$$\frac{(\text{Avg.Fiber Count}-\text{Avg.Blank Count})(\text{Total Filter Area})}{(\text{Counting Area})(\text{Vol.Air-Liters})(1000)} = \text{Concentration, Fibers per Milliliter} > 5\mu$$

1. $\frac{(1.85 - \quad)(855)}{(.00792)(30)(1000)} =$ 1882 6.7 Fibers per Milliliter > 5μ

5.9 AVE

2. $\frac{(1.4 - \quad)(855)}{(.00792)(30)(1000)} =$ 5.0 Fibers per Milliliter > 5μ

Special Conditions: _____

Remarks: _____

INDUSTRIAL HYGIENE DEPARTMENT
ASBESTOS DUST STUDY

Department T C Bldg. 777 Date 8/[illegible] Time

Sampled By: Analyzed By: [illegible] Method: [illegible]

General Conditions: INSULATING [illegible] (LEAD BATH) [illegible]

#3

FIBER COUNT (Fibers > 5μ in Length)

Slide 1				Slide 2			
1	1	11	0	1	1	11	0
2	1	12	2	2	0	12	1
3	1	13	1	3	1	13	2
4	0	14	0	4	1	14	4
5	1	15	1	5	2	15	3
6	3	16	2	6	1	16	0
7	4	17	1	7	1	17	4
8	0	18	2	8	0	18	0
9	1	19	0	9	0	19	1
10	0	20	2	10	1	20	0
Total	23	Avg.	1.15	Total	23	Avg.	1.15

CALCULATIONS

SAMPLE VOLUME: 15 Min. @ 2 LPM = 30 LITERS

$$\frac{(\text{Avg.Fiber Count-Avg.Blank Count})(\text{Total Filter Area})}{(\text{Counting Area})(\text{Vol.Air-Liters})(1000)} = \text{Concentration, Fibers per Milliliter} > 5\mu$$

1. $\frac{(1.15 - \quad)(855)}{(.00792)(30)(1000)} =$ 9 3.3 4.1 Fibers per Milliliter > 5μ

4.1 AVG

2. $\frac{(1.15 - \quad)(855)}{(.00792)(30)(1000)} =$ 4.1 Fibers per Milliliter > 5μ

Special Conditions:

Remarks:

INDUSTRIAL HYGIENE DEPARTMENT
ASBESTOS DUST STUDY

Department [illegible] Bldg. [illegible] Date 8/[illegible] Time

Sampled By: Analyzed By: [illegible] Method: [illegible] 29X4-K1

General Conditions: INSULATING PREHEATER (LEAD BAT[illegible] [illegible] 20

FIBER COUNT (Fibers > 5μ in Length)

Slide 1				Slide 2			
1	2	11	0	1	1	11	0
2	2	12	1	2	1	12	5
3	1	13	1	3	3	13	1
4	0	14	1	4	0	14	1
5	1	15	2	5	3	15	0
6	0	16	0	6	1	16	2
7	0	17	0	7	1	17	[illegible]
8	1	18	1	8	1	18	[illegible]
9	0	19	1	9	1	19	3
10	2	20	1	10	1	20	0
Total	17	Avg.	.85	Total	25	Avg.	1.25

CALCULATIONS

SAMPLE VOLUME: 15 Min. @ 2 LPM = 30 LITERS

$$\frac{(\text{Avg.Fiber Count}-\text{Avg.Blank Count})(\text{Total Filter Area})}{(\text{Counting Area})(\text{Vol.Air-Liters})(1000)} = \text{Concentration, Fibers per Milliliter} > 5\mu$$

1. $\frac{(.85 - \quad)(855)}{(.00792)(30)(1000)} =$ 726.8 3.2 Fibers per Milliliter > 5μ

3.5 [illegible]

2. $\frac{(1.25 - \quad)(855)}{(.00792)(30)(1000)} =$ 4.5 Fibers per Milliliter > 5μ

Special Conditions:

Remarks:

INDUSTRIAL HYGIENE DEPARTMENT
ASBESTOS DUST STUDY

Department [illegible] Bldg. 711 Date [illegible] Time [illegible]

Sampled By: [illegible] Analyzed By: [illegible] Method: [illegible]

General Conditions: [illegible]

711

FIBER COUNT (Fibers > 5μ in Length)

Slide 1				Slide 2			
1	1	11	3	1	2	11	0
2	5	12	0	2	0	12	6
3	1	13	5	3	3	13	6
4	[illegible]	14	3	4	2	14	4
5	1	15	1	5	0	15	2
6	5	16	1	6	3	16	3
7	1	17	2	7	3	17	2
8	2	18	2	8	4	18	0
9	3	19	3	9	1	19	1
10	1	20	1	10	0	20	1
Total	44	Avg.	2.2	Total	34	Avg.	1.7

CALCULATIONS

SAMPLE VOLUME: 15 Min. @ 2 LPM = 30 LITERS

$$\frac{(\text{Avg.Fiber Count} - \text{Avg.Blank Count})(\text{Total Filter Area})}{(\text{Counting Area})(\text{Vol.Air-Liters})(1000)} = \text{Concentration, Fibers per Milliliter} > 5\mu$$

1. $\frac{(2.2 - \quad)(\quad)}{(\quad)(30)(1000)} =$ 7.9 Fibers per Milliliter > 5μ

7.0 AV=

2. $\frac{(1.7 - \quad)(\quad)}{(\quad)(\quad)(1000)} =$ 6.1 Fibers per Milliliter > 5μ

Special Conditions: [illegible]

Remarks: [illegible]