WV-0029 #7

PLAINTIFF'S EXHIBIT

UC-3178

To: Mr. Fred Williams June 13, 1973

From: G. W. Bott-Industrial Hygiene

Subject: Air Sampling during the sawing of Asbestos material

Summary Four of five asbestos samples collected in the 740-large scale shop area exceed the Threshold Limit Value of 5 fibers per milliliter of air greater than 5 μ in length.

Discussion On June 12, 1973, the Industrial Hygiene group monitored airborne asbestos fiber resulting from the sawing of 3"X 1" discs. The sawing was performed by [redacted] machinist in the SID department. The equipment used in the cutting was a Rockwell drill press with a disc drill. This operation took place in Bldg. 740 Large-scale shop.

The material being cut was Marinite 23. Mr. Robert Kohott, Sales Representative of Johns-Manville said that this material contained approximately 40% asbestos.

Vacumn was supplied to the cutting area by an industrial type vacumn cleaner mounted to the drill press table. The airborne fibers were collected using membrane filter media, type AA, 0.8μ pore diameter , white, 37mm in size, at 1 liter per minute flow rate.

Five samples were taken during the cutting operation, two "personal" samples and three "area" samples.

The "personal" sampler was suspended from [redacted] neck as close to the breathing zone as was practical. An area sampler was taped to the cutting table six inches from the disc drill, and another sampler was located six feet from the cutting area five feet from the floor.

Duplicate samples were taken of the breathing zone and the cutting area, six inches from the cutting drill. A single sample was taken six feet away. The samples were analyzed and calculated the same day they were collected.

ASBESTOS SAMPLING

Bldg. 740-Large scale shop

SAMPLE NO.	DESCRIPTION	TIME	DURATION	AVERAGE	CONCENTRATION
1	Personal (cut 15 discs)	0906-0911 0915-0943	33 min.	10.5	8.58 fibers
2	6" from cutter (cut 5 discs)	0906-0922	16 min.	44.8	75.5 fibers
3	6" from cutter (cut 10 discs)	0924-0943	19 min.	4.25	6.03 fibers
4	6 ft. from cutter (cut 10 discs)	0940-1012	32 min.	1.25	1.05 fibers
5	Personal (cut 10 discs)	0943-1010	27 min.	9.85	9.83 fibers

CALCULATIONS

$$\frac{(S-B) \times A}{C \times V \times 1000} = \text{concentration, fibers per milliliter} > 5\,\mu$$

A= area of the millipore filter in mm^2 (the 37-mm diameter filters have an effective area of 855 mm^2)

B = average net fiber count of a blank filter

C = counting area in mm^2

S = average net fiber count for sample

V = total volume of air sampled, in liters (time x flow rate)

Results and Conclusions — The attached data sheet shows asbestos fibers in excess of the [illegible] TLV value of 5 fibers per milliliter of air greater than 5 μ in length in both "personal" samples. A high number of fibers were found in the area samples which were placed six inches from the cutting area, (We expected these samples to be high). The "area" samples six feet from the cutting area was relatively clean.

An additional vacuum cleaner was recommended for clean-up and to help evacuate the cutting area.

The data suggests that this operation is dirty and should not be performed in this manner.

G. W. Bolt

ASBESTOS COUNT RECORD SHEET

SAMPLE# #1 OPERATION 740 Shop - Asbestos Discs

FLOW 1 LPM TIME 33 VOLUME 33 DATE 6/12/73

INITIALS [redacted] F.AREA Drill Press BLK.CNT.AV. 210

AV.COUNT 10.5 CONCENTRATION 8.58 Fibers

COMMENTS Personal Filter

5
28
33

	1	2	3	4	
0	2	5	1	5	13
	3	5	3	5	16
	2	2	2	8	14
	2	1	1	1	15
	2	2	1	3	8
5	4	0	5	3	12
	2	3	3	2	10
	7	1	1	1	10
	2	1	3	2	8
	1	2	2	1	6
10	2	1	1	2	6
	3	1	0	3	7
	3	0	6	9	18
	0	2	5	2	9
	2	0	5	0	7
15	2	3	2	4	11
	3	2	4	2	11
	0	0	3	2	5
	4	1	2	2	9
	2	3	9	1	15
20	[redacted]				
					210
25					

SUB-TOTALS

$$\left(\frac{210}{20}\right) \times \frac{855}{.0317 \times 33 \times 1000} = 8.58 \text{ fibers}$$

ASBESTOS COUNT RECORD SHEET

SAMPLE# 2 OPERATION 740 Shop - Asbestos Discs

FLOW 1 LPM TIME 16 MIN VOLUME 16 DATE 6/12/73

INITIALS [redacted] F.AREA Drill Press BLK.CNT.AV. 896

AV.COUNT 44.8 CONCENTRATION 75.5 Fibers

COMMENTS 6" Foam Cutter

	1	2	3	4	
0	26	28	11	16	81
	14	36	23	27	100
	12	14	11	14	51
	11	19	12	11	53
	10	15	11	5	41
5	11	12	17	6	46
	15	11	12	10	48
	6	6	6	8	26
	5	15	10	5	35
	8	5	6	8	27
10	8	9	5	6	28
	11	14	14	7	46
	9	10	5	7	31
	10	8	13	7	38
	12	10	11	10	43
15	7	8	12	10	37
	9	5	7	8	29
	13	10	12	15	50
	9	8	13	8	40
	13	12	9	12	46
20					~~896~~
					896
25					

SUB-TOTALS

75.5 fibers

$\left(\frac{896}{20}\right) \times 855 = 75.5$ fibers

$.0317 \times 16 \times 1000$

ASBESTOS COUNT RECORD SHEET

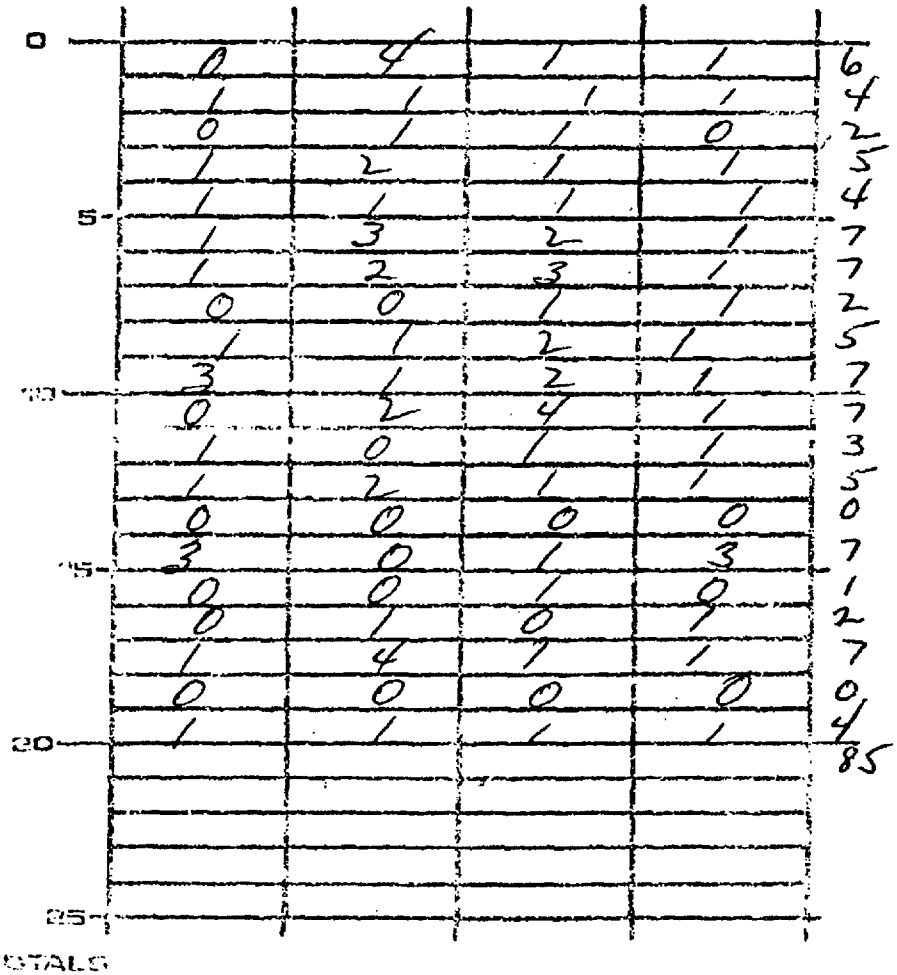
SAMPLE# #3 OPERATION 740 Shop - Asbestos Discs

FLOW 1 LPM TIME 19 MIN VOLUME 19 DATE 6/12/73

INITIALS [redacted] F.AREA Drill Press BLK.CNT.AV. 85

AV.COUNT 4.25 CONCENTRATION 6.03 Fibers

COMMENTS 6" From Cutter



$$\frac{\left(\frac{85}{20}\right) \cdot 855}{.0317 \times 19 \times 1000} = 6.03 \text{ Fibers}$$

ASBESTOS COUNT RECORD SHEET

SAMPLER [redacted] #4 OPERATION 740 Shop Asbestos Discs

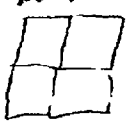
FLOW 1 LPM TIME 32 MIN VOLUME 32 DATE 6/12/73

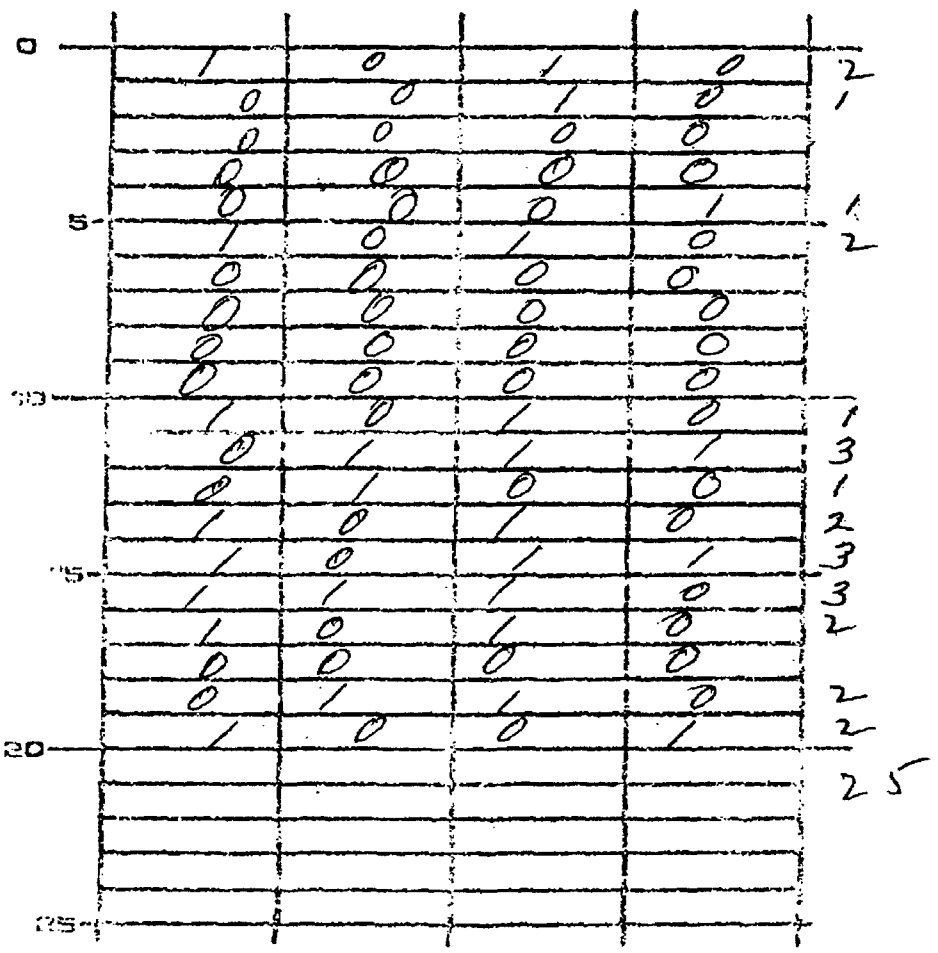
INITIALS [redacted] F.AREA Drill Press BLK.CNT.AV. 25

AV.COUNT 1.25 CONCENTRATION 1.05 Fibers

COMMENTS 6 ft from Cutter

← .1784 ↔ .0991





CUE-TOTALS

29 KY-21a

$$\frac{(S-B) \times A}{\left(\frac{25}{20}\right) \times 855}$$

$$\overline{.0317 \times 32 \times 1000} = 1.05 \text{ fibers}$$

ASBESTOS COUNT RECORD SHEET

SAMPLE# #5 OPERATION 740 Shop - Asbestos Dust

FLOW 1 LPM TIME 27 MIN. VOLUME 27 DATE 6/13/73

INITIALS [redacted] F.AREA Drill Press BLK.CNT.AV. 197

AV.COUNT 9.85 CONCENTRATION 9.83 Fibers

COMMENTS Personal Filter (Center of Chest)

0	2	4	0	5	11
	1	2	4	0	7
	1	3	0	0	4
	3	2	5	1	11
	3	4	3	1	11
5	3	1	1	1	6
	2	2	2	2	8
	2	2	4	2	10
	9	6	2	3	20
	3	8	5	5	21
10	3	3	2	4	12
	2	2	2	5	11
	3	1	2	1	7
	2	3	1	1	7
	6	2	3	1	12
15	2	1	1	2	6
	1	1	1	1	4
	2	3	1	3	9
	1	2	2	4	9
	6	3	1	1	11
20					197
25					

SUB-TOTALS

$$\frac{\left(\frac{197}{20}\right) \cdot 855}{.0317 \times 27 \times 1000} = 9.83$$

Asbestos Sampling

Bldg. 740 - Large Scrap Shop

Sample No	Description	Time	Duration	Average Count	Concentration
1	Personal (Cut 15 Discs)	0906-0911 0915-0943	33 min.	10.5	8.58 F/cc
2	6" From Cutter (Cut 5 Discs)	0906-0922	16 min.	44.8	75.5 F/cc
3	6" From Cutter (Cut 10 Discs)	0924-0943	19 min.	4.25	6.3 F/cc
4	6 ft From Cutter (Cut 10 Discs)	0940-1012	32 min.	1.25	1.65 F/cc
5	Personal (Cut 10 Discs)	0943-1010	27 min	9.85	9.53 F/cc

442-11 (2-71)