PLAINTIFF'S EXHIBIT

GP-952

AIRBORNE ASBESTOS SURVEY
AKRON JOINT CEMENT PLANT

October 23, 1975

Georgia-Pacific

intracompany memo

to	Mr. I. F. Weibel	location	Akron
from	G. W. Green	location	Tigard
subject	Airborne Asbestos Survey at Akron Joint Cement Plant	date	February 11, 1976

An asbestos dust survey was made at the Akron plant by George Fowler on October 23, 1975. An additional sample was taken later on November 7, 1975 during the unloading of an asbestos car.

All the time-weighted averages were below the 5 fibers/ml maximum currently in effect, and, in fact, are below the 2 fiber maximum to go into effect in Jul . The highest time-weighted average is on packer-stacker Leon Spears with 1.43 fibers/ml. The highest ceiling limit was measured on Al Kenworth, the ready mix mixer at 3.0 fibers/ml.

Sample No. 130, taken on Leon Spears, was not counted in his time-weighted average because the sampling pump was inadvertently turned off sometime during the sampling period so that the sample time was not known. If this sample were used, it would lower the time-weighted average slightly.

Sample No. 207, taken on Charlie Jackson was not counted because the filter was destroyed. The cause of the destruction is not known. If this sample was assumed to have a count of 1.57 fibers/ml (the highest Charlie Jackson for the day) it would raise his average from 0.93 to 1.06

Most of the samples were counted by Gail Patch, with a few being done by the writer. The method of sampling and analysis is by the N.I.O.S.H. Membrane Filter Method. The counting is done at 500X magnification on a Nikon phase contrast microscope.

G. W. G.

GWG:gvp

att.

cc: Mr. J. R. Hurd - Portland
Mr. H. W. Peele - Wilmington
Mr. G. F. Fowler - Marietta

GP 09

SGP 0008382

AKRON NEW YORK
AIRBORNE ASBESTOS DUST SURVEY
Date Sampled: October 23, 1975

Name	Location or Job Title	Time Weighted Average Fibers/ml.	Filter No.	Elapsed Time Minutes	Individual Count Fibers/ml.
Leon Spears	Packer-Stacker	1.43	135	88	1.98
			130	?	Void
			200	178	.20
			212	17	2.78
			216	69	1.17
			221	15	2.64
			223	31	.99
Clarence Blueye	Packer-Stacker	0.69	136	87	.58
			142	120	.41
			209	116	.41
			211	89	.59
			222	15	.78
			219	35	1.76
Al Kenworth	Ready Mix Mixer	0.84	143	97	.70
			137	70	.40
			201	168	.62
			210	17	3.00
			217	115	.63
Charlie Jackson	Dry Blender	.93	138	55	.43
			131	47	.85
			141	70	.47
			204	51	.29
			205	15	1.29
			207	103	Void
			214	143	1.57
Bob Krantz	Dry Blend Helper and Truck Driver	.89	139	155	.46
			203	53	.41
			206	105	.43
			213	101	1.96
			220	15	1.78
			231	29	1.55
Area Samples	Dry Blender		144	124	.35
	Dry Blender		202	79	.38
	Ready Mix		208	155	.32
	Warehouse		215	60	.14
	Packer		218	60	1.11
E. Ribbeck	Asbestos Car Unloading on 11/7/75	.28	238	120	.28

AIRBORNE ASBESTOS FIBER SAMPLING

Plant AKRON

Name Leon Spears

Title Packer - Sacker

Date 10/23/75

Pump Serial No. B-06-0305

Sampled by

Signature

LOCATION	Sacker & Packer	—	—	—	—	—				
FILTER NO.	135	130	200	212	216	221	223			
FLOW: Pump Setting	6	6	6	6	6	6	6			
Liter/min (R)	1.8	1.8	1.8	1.8	1.8	1.8	1.8			
TIME: On	7:16	8:44	9:47	1:15	1:32	2:41	2:56			
Off	8:44	9:47	1:15	1:32	2:41	2:56	3:27			
ELAPSED TIME (min) (t)	88	63	178	17	69	15	31			
VOLUME, Liters (t x r)	158	113	320	30.6	124	27	55.8			
REMARKS		This Filter turned off by MAN.	30 min Lunch Pumps off							
CONCENTRATION (F) fibers/ml	1.98	VOID	.20	2.78	1.17	2.64	.99			

Time written down for this Sample is the time shutdown Pump first Noticed.

Total Sample Time (T) 398 ~~415~~ mins.

$$\text{Time Weight Av. Concentration} = \frac{(t_1F_1) + (t_2\ _2) + (t_3F_3) + \ldots}{T}$$

$$= \frac{(88 \times 1.98) + (320 \times .20) + (30.6 \times 2.78) + (124 \times 1.17) + (27 \times 2.64) + (31 \times .99)}{398}$$

$$= \frac{174 + 64 + 85 + 145 + 71 + 31}{398} = \frac{570}{398} = \boxed{1.43}$$

SGP 0008384

Date: 1-20-76

ASBESTOS FIBER COUNT WORKSHEET

SAMPLE NO. 130

ELAPSED TIME (t) Unknown mins.

FLOW RATE _____ l/min

VOLUME (V) Unknown liters

FIELD AREA (a) _____ mm^2

BLANK COUNT (b) _____ fibers/field

FILTER AREA (A) 855 mm^2

AV. FIBER COUNT (f) 20 fibers/field

0	1	—	—	1	—
	1	—	—	—	—
	—	—	—	—	—
	—	—	—	—	1
	1	—	—	—	—
5	—	—	—	—	—
	—	—	—	—	—
	1	1	—	—	—
	—	—	—	—	—
	—	—	—	1	—
10	—	1	1	2	—
	—	—	—	●	—
	:	—	1	—	—
	—	—	—	—	—
15	—	—	1	—	1
	—	—	—	—	—
	—	—	—	2	1
	—	—	—	—	—
	—	1	—	—	—
20	—	—	—	—	—
SUBTOTALS	5	3	3	6	3

TOTAL 20

Constant $k = \frac{A}{1000\ a}$

Fiber Concentration $(F) = \frac{k\ (f-b)}{V}$

Void Time on not known.

SGP 0008385

Date: 1-22-76

ASBESTOS FIBER COUNT WORKSHEET

SAMPLE NO. 135 ELAPSED TIME (t) 59 mins.

FLOW RATE 1.5 l/min VOLUME (V) 155 liters

FIELD AREA (a) .00432 mm^2 BLANK COUNT (b) _____ fibers/field

FILTER AREA (A) 855 mm^2 AV. FIBER COUNT (f) .64 fibers/field

0	—	2	1	1	—
	—	—	—	1	—
	—	1	2	1	1
	—	—	2	—	—
	1	1	2	1	1
	—	—	2	1	2
5	2	1	1	1	1
	3	1	—	—	—
	—	—	1	1	1
	—	—	—	—	—
	1	1	—	—	2
10	1	—	—	—	2
	1	—	—	—	—
	2	1	1	—	—
	1	3	1	1	—
15	1	—	—	—	—
	—	—	—	—	1
	—	1	2	—	1
	—	—	—	1	—
20	—	2	—	1	—

SUBTOTALS TOTAL 64

Constant $k = \frac{A}{1000\ a}$

Fiber Concentration $(F) = \frac{k\ (f-b)}{V}$ $\frac{198\ (.64)}{155} = 1.98$

SGP 0008386

Date: _____

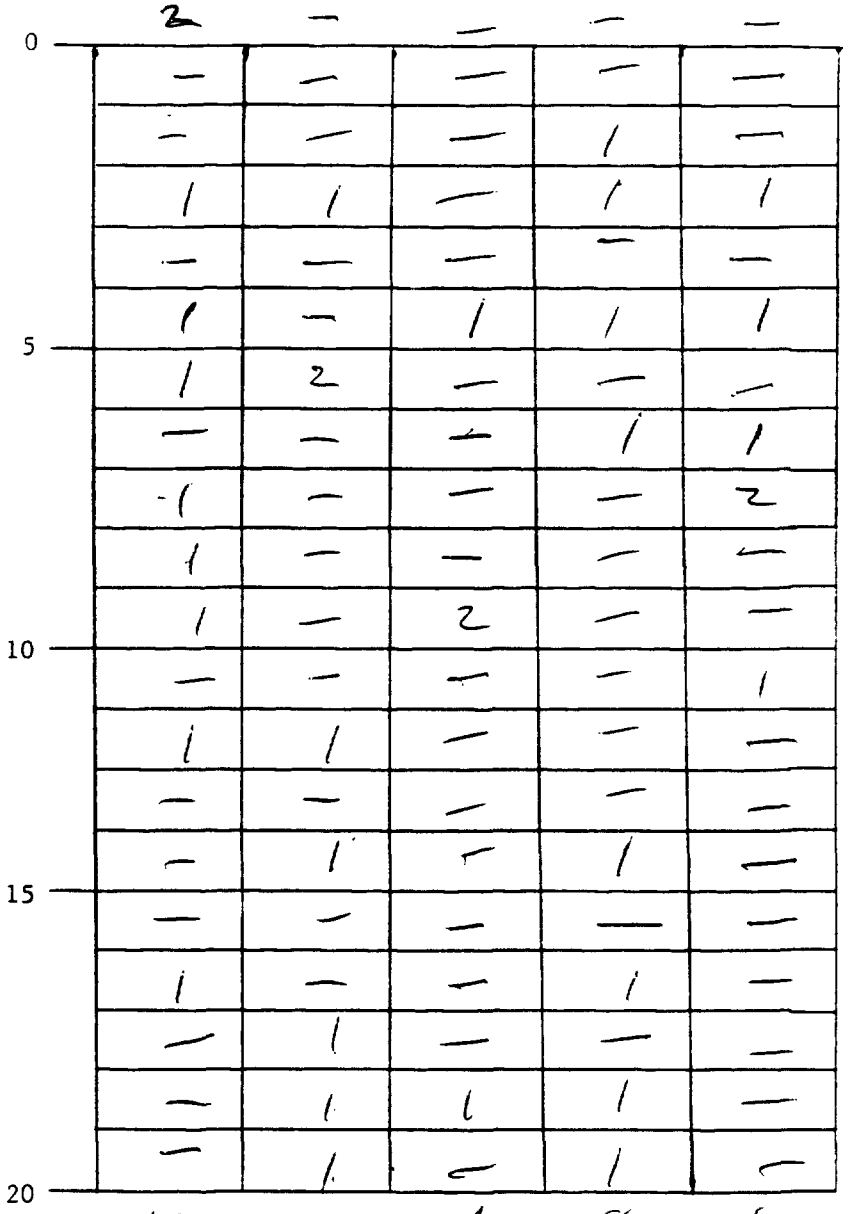
ASBESTOS FIBER COUNT WORKSHEET

SAMPLE NO. 221 | ELAPSED TIME (t) 15 mins.

FLOW RATE 1.5 l/min | VOLUME (V) 27 liters

FIELD AREA (a) .0432 mm^2 | BLANK COUNT (b) _____ fibers/field

FILTER AREA (A) 855 mm^2 | AV. FIBER COUNT (f) .36 fibers/field



SUBTOTALS	10	8	4	8	6

TOTAL 36

Constant $k = \frac{A}{1000\ a}$

Fiber Concentration $(F) = \frac{k\ (f-b)}{V}$ $\frac{188(.36)}{27} = 2.64$

Date: 12/15/25

ASBESTOS FIBER COUNT WORKSHEET

SAMPLE NO. 216 | ELAPSED TIME (t) 69 mins.

FLOW RATE 1.9 l/min | VOLUME (V) 124 liters

FIELD AREA (a) .0032 mm^2 | BLANK COUNT (b) _____ fibers/field

FILTER AREA (A) 855 mm^2 | AV. FIBER COUNT (f) 0.73 fibers/field

	—	—	—	1	2
0	2	1	1	—	—
	—	1	—	—	—
	1	—	2	—	1
	1	1	1	1	—
	—	1	3	—	2
5	2	—	1	2	1
	—	1	—	1	3
	1	—	1	1	1
	—	—	—	—	1
	—	1	—	1	2
10	3	—	—	1	1
	—	—	1	2	1
	1	—	—	—	—
	3	—	—	—	1
15	1	—	—	—	1
	1	—	—	—	1
	—	2	—	1	3
	1	2	—	—	1
20	1	—	1	1	—
SUBTOTALS	18	10	11	12	22

TOTAL 73

Constant $k = \frac{A}{1000\ a}$

Fiber Concentration $(F) = \frac{k\ (f-b)}{V}$ $\quad \frac{198\ (.73)}{124} = 1.17$

Date: _____

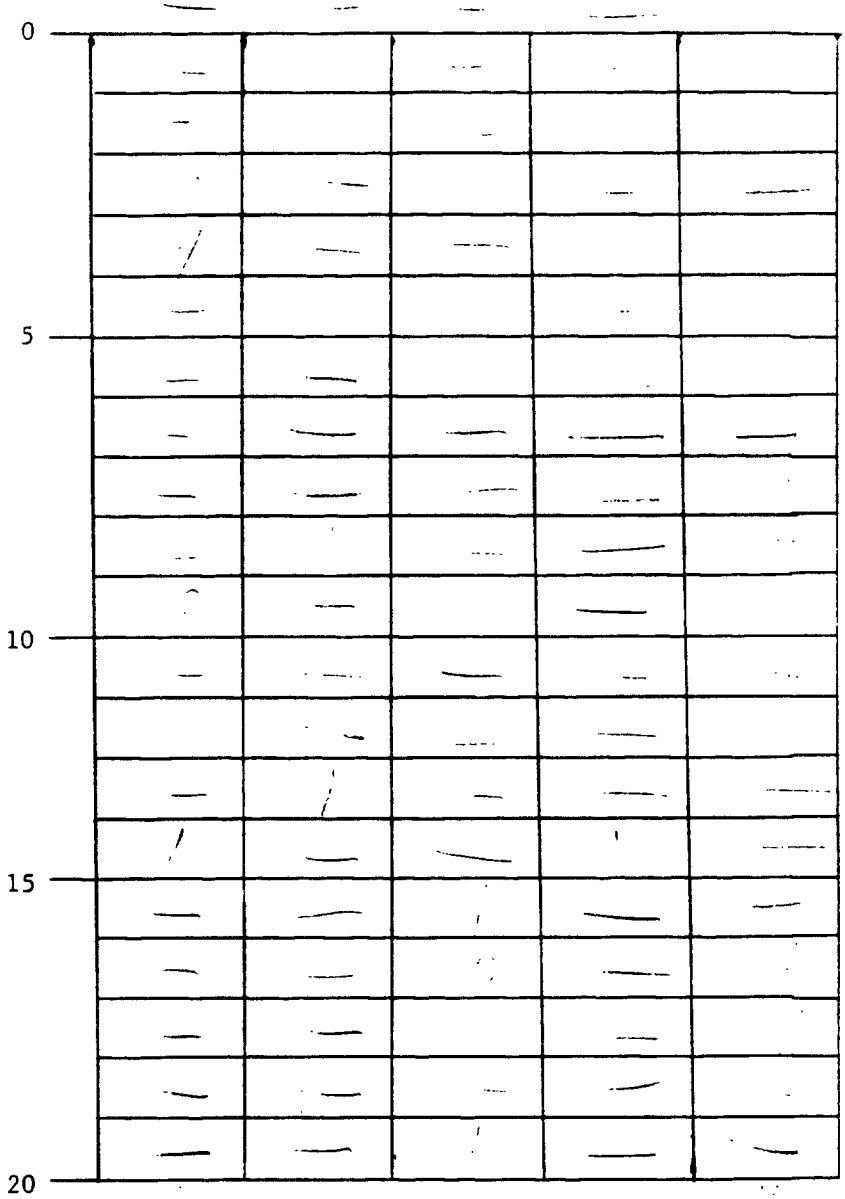
ASBESTOS FIBER COUNT WORKSHEET

SAMPLE NO. _____ ELAPSED TIME (t) 178 mins.

FLOW RATE 1.8 l/min VOLUME (V) 320 liters

FIELD AREA (a) _____ mm^2 BLANK COUNT (b) _____ fibers/field

FILTER AREA (A) 855 mm^2 AV. FIBER COUNT (f) .32 fibers/field



SUBTOTALS TOTAL _____

Constant $k = \frac{A}{1000\ a}$

Fiber Concentration $(F) = \frac{k\ (f-b)}{V}$ $\frac{198\ (.32)}{320} = .20$

Date: 1-13-76

ASBESTOS FIBER COUNT WORKSHEET

SAMPLE NO. 223

ELAPSED TIME (t) 31 mins.

FLOW RATE 1.8 l/min

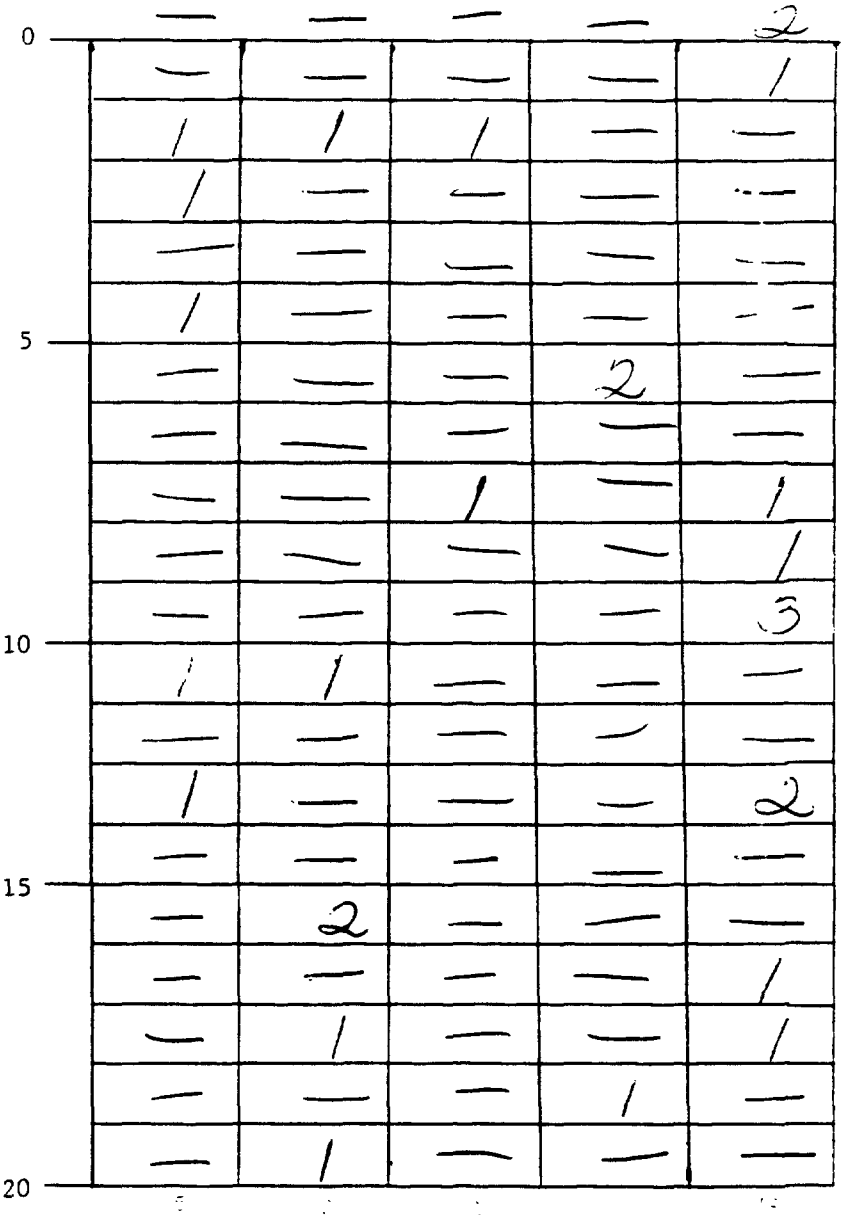
VOLUME (V) 55.8 liters

FIELD AREA (a) ~~~~ ~432 mm^2

BLANK COUNT (b) - fibers/field

FILTER AREA (A) 855 mm^2

AV. FIBER COUNT (f) .28 fibers/field



SUBTOTALS

TOTAL 28

Constant k = $\frac{A}{1000\ a}$

Fiber Concentration (F) = $\frac{k\ (f-b)}{V}$ $\frac{198\ (.28)}{55.8} = .99$

AIRBORNE ASBESTOS FIBER SAMPLING

Plant AKRON

Name Clarence Blueye

Title Packer - Stacker

Date 10/23/75

Pump Serial No. B-08-0490

Sampled by

Signature

LOCATION	Packer & Suction	—	—	—	—	—				
FILTER NO.	136	142	209	211	222	219				
FLOW: Pump Setting	6	6	6	6	6	6				
Liter/min (R)	1.7	1.7	1.7	1.7	1.7	1.7				
TIME: On	7:13	8:40	10:40	1:06	2:35	2:50				
Off	8:40	10:40	1:06	2:35	2:50	3:25				
ELAPSED TIME (min) (t)	87	120	116	89	15	35				
VOLUME, Liters (t x r)	148	204	197	151	25.5	59.5				
REMARKS			Pumps 88 30 min Lunch							
CONCENTRATION (F) fibers/ml	.58	.41	.41	.59	.78	1.76				

Total Sample Time (T) 462 mins.

Time Weight Av. Concentration = $\frac{(t_1F_1) + (t_2\ _2) + (t_3F_3) + \ldots}{T}$

$= \frac{(87 \times .58) + (120 \times .41) + (116 \times .41) + (89 \times .59) + (15 \times .78) (35 \times 1.76)}{462}$

$= \frac{50.5 + 49.2 + 47.6 + 48 + 52.5 + 11.7 + 61}{462} = \frac{320.5}{462} = \boxed{.69}$

SGP 0008391

Date: 1-16-76

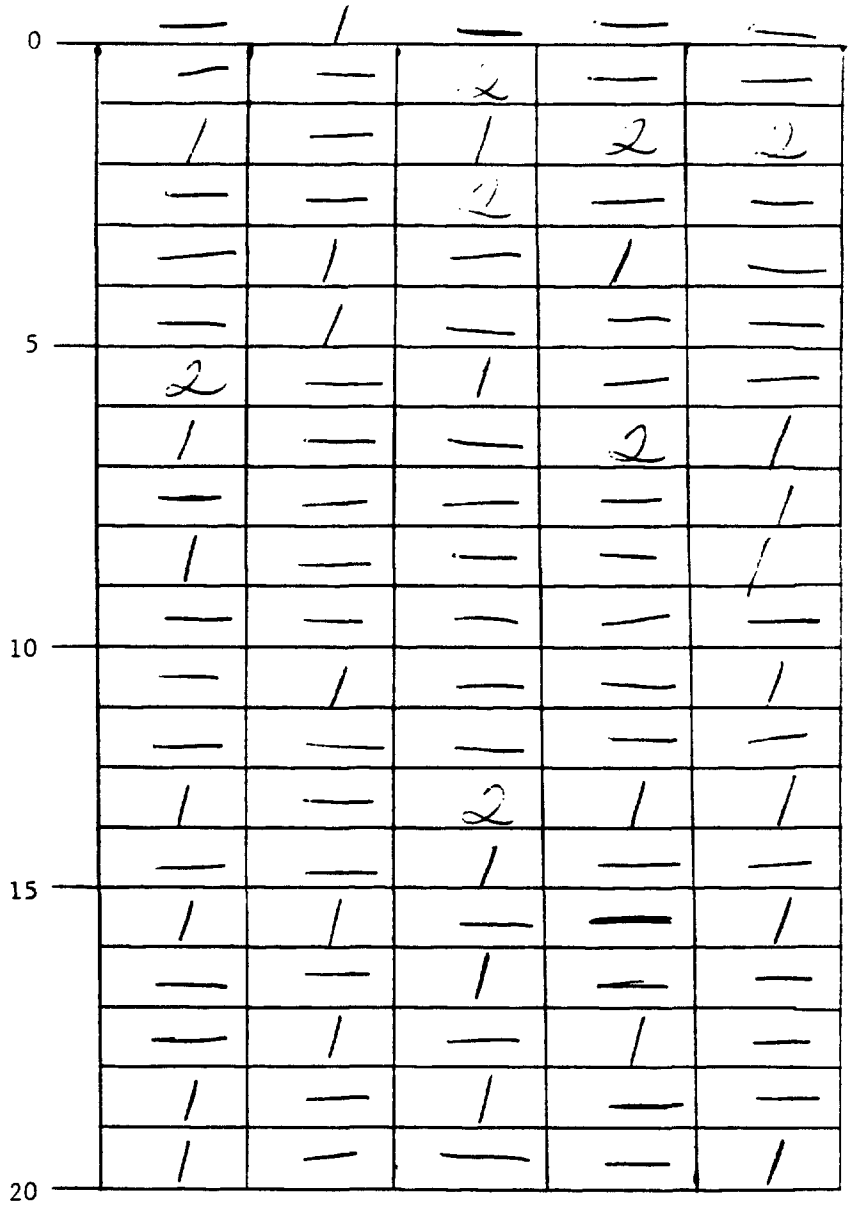
ASBESTOS FIBER COUNT WORKSHEET

SAMPLE NO. 142 | ELAPSED TIME (t) 120 mins.

FLOW RATE _____ l/min | VOLUME (V) 204 liters

FIELD AREA (a) _____ mm^2 | BLANK COUNT (b) _____ fibers/field

FILTER AREA (A) 855 mm^2 | AV. FIBER COUNT (f) .42 fibers/field



SUBTOTALS

TOTAL 42

Constant $k = \frac{A}{1000\ a}$

Fiber Concentration $(F) = \frac{k\ (f-b)}{V}$ $\frac{198(.42}{204} = .41$

Date: 1-23-76

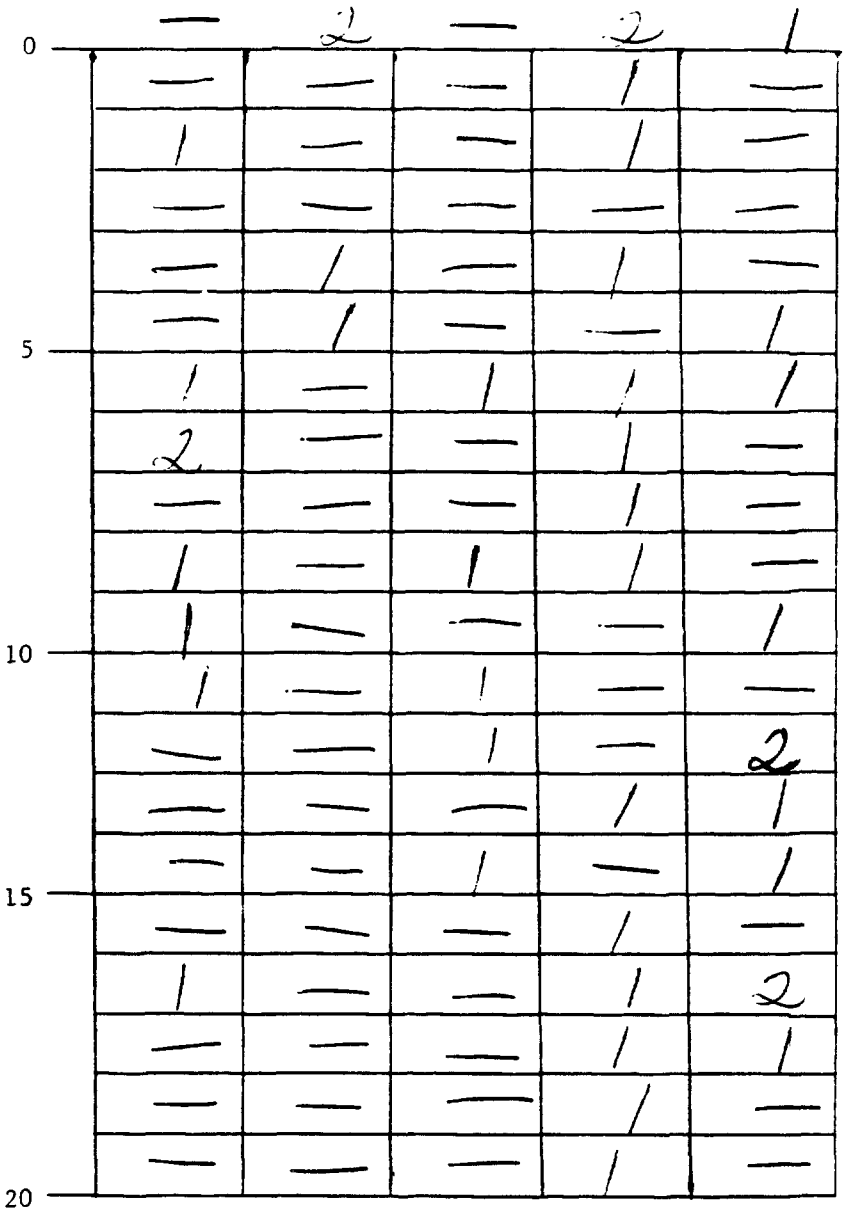
ASBESTOS FIBER COUNT WORKSHEET

SAMPLE NO. 136 | ELAPSED TIME (t) 57 mins.

FLOW RATE _____ l/min | VOLUME (V) 148 liters

FIELD AREA (a) _____ mm^2 | BLANK COUNT (b) _____ fibers/field

FILTER AREA (A) 855 mm^2 | AV. FIBER COUNT (f) .43 fibers/field



SUBTOTALS

TOTAL 43

Constant $k = \frac{A}{1000\ a}$

Fiber Concentration $(F) = \frac{k\ (f-b)}{V}$ $\frac{(98)(.43)}{148} = .58$

Date: 12/9/75

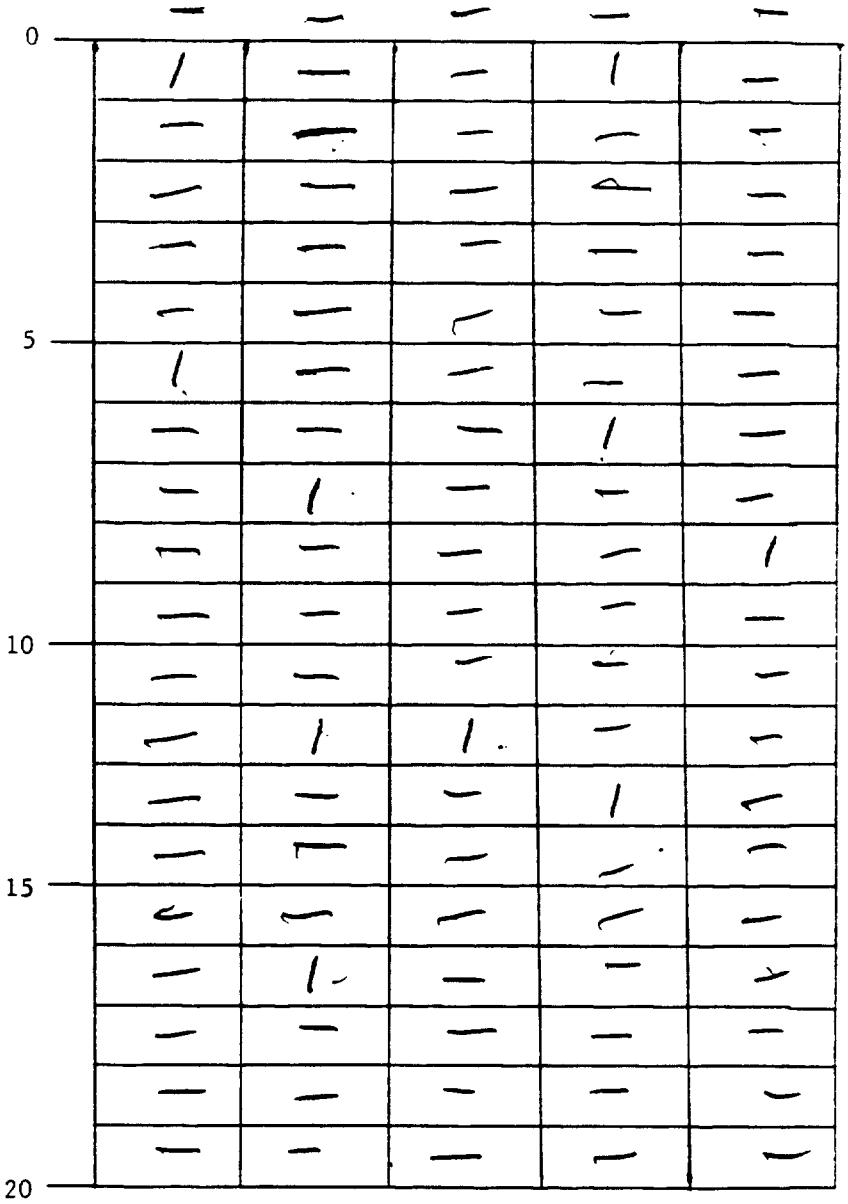
ASBESTOS FIBER COUNT WORKSHEET

SAMPLE NO. 222 | ELAPSED TIME (t) 15 mins.

FLOW RATE _____ l/min | VOLUME (V) 25.5 liters

FIELD AREA (a) _____ mm^2 | BLANK COUNT (b) _____ fibers/field

FILTER AREA (A) 855 mm^2 | AV. FIBER COUNT (f) 0.10 fibers/field



SUBTOTALS

TOTAL 10

Constant k = $\frac{A}{1000\ a}$

Fiber Concentration (F) = $\frac{k\ (f-b)}{V}$ $\frac{198\ (.10)}{25.5}$ = .78

SGP 0008394

Date: 12/10/93

ASBESTOS FIBER COUNT WORKSHEET

SAMPLE NO. 209

ELAPSED TIME (t) 116 ~~11/10/93~~ mins.

FLOW RATE _____ l/min

VOLUME (V) 197 liters

FIELD AREA (a) _____ mm^2

BLANK COUNT (b) _____ fibers/field

FILTER AREA (A) 855 mm^2

AV. FIBER COUNT (f) .41 fibers/field

0	—	1	1	—	1
	—	—	1	—	—
	—	1	—	—	—
	—	1	—	1	2
5	—	2	2	—	—
	3	2	3	—	—
	—	—	—	—	1
	—	—	—	—	—
	—	—	—	—	—
10	1	1	1	1	—
	—	—	—	—	—
	—	1	—	1	1
	—	1	—	—	—
15	1	—	—	—	—
	—	1	2	—	—
	1	—	—	—	—
	—	1	—	1	1
	—	—	—	—	—
20	—	1	2	—	—
SUBTOTALS	6	13	12	4	6

TOTAL 41

Constant $k = \frac{A}{1000\ a}$

Fiber Concentration $(F) = \frac{k\ (f-b)}{V}$ $\frac{198(.41)}{197} = .41$

Date: 12/15/75

ASBESTOS FIBER COUNT WORKSHEET

SAMPLE NO. 219

ELAPSED TIME (t) 35 mins.

FLOW RATE 1.7 l/min

VOLUME (V) 59.5 liters

FIELD AREA (a) .00432 mm^2

BLANK COUNT (b) fibers/field

FILTER AREA (A) 855 mm^2

AV. FIBER COUNT (f) .53 fibers/field

0	1	—	—	2	—
	—	1	—	—	—
	—	—	2	1	1
	1	—	—	—	—
	1	1	1	1	1
5	1	1	1	—	—
	1	—	1	—	—
	2	—	—	—	—
	1	—	—	1	5
	2	—	—	—	—
10	—	—	—	1	1
	—	—	—	1	—
	—	1	1	1	—
	—	—	—	1	—
15	2	1	1	—	—
	—	1	—	—	—
	—	1	2	1	—
	—	1	2	1	—
20	—	—	1	2	—
SUBTOTALS	12	8	12	13	8

6

TOTAL 53

Constant $k = \frac{A}{1000\ a}$

Fiber Concentration $(F) = \frac{k\ (f-b)}{V}$ $\frac{198(.53)}{59.5} = 1.76$

SGP 0008396

Date: 12/8/15

ASBESTOS FIBER COUNT WORKSHEET

SAMPLE NO. 212

ELAPSED TIME (t) 17 mins.

FLOW RATE 1.8 ~~1.75~~ l/min

VOLUME (V) 30.6 liters

FIELD AREA (a) .00432 mm^2

BLANK COUNT (b) fibers/field

FILTER AREA (A) 855 mm^2

AV. FIBER COUNT (f) .43 fibers/field

	1	1	—	—	—
0	1	—	—	1	—
	—	1	1	1	—
	—	—	—	2	1
	—	—	—	1	—
	1	—	—	1	—
5	1	1	—	—	—
	—	1	1	—	—
	2	1	1	1	—
	—	1	—	—	1
	2	—	1	1	—
10	2	—	—	1	—
	—	1	—	—	—
	—	—	1	—	—
	—	1	—	—	1
15	—	—	—	1	—
	—	—	—	1	—
	—	1	2	1	1
	—	—	—	—	2
	—	—	—	—	1
20					
SUBTOTALS	9	9	7	11	7

TOTAL 43

Constant $k = \frac{A}{1000\ a}$

Fiber Concentration $(F) = \frac{k\ (f-b)}{V}$ $\quad \frac{198(.43)}{30.6} = 2.78$

Date: 1-12-76

ASBESTOS FIBER COUNT WORKSHEET

SAMPLE NO. 211

ELAPSED TIME (t) 59 mins.

FLOW RATE 1.7 l/min

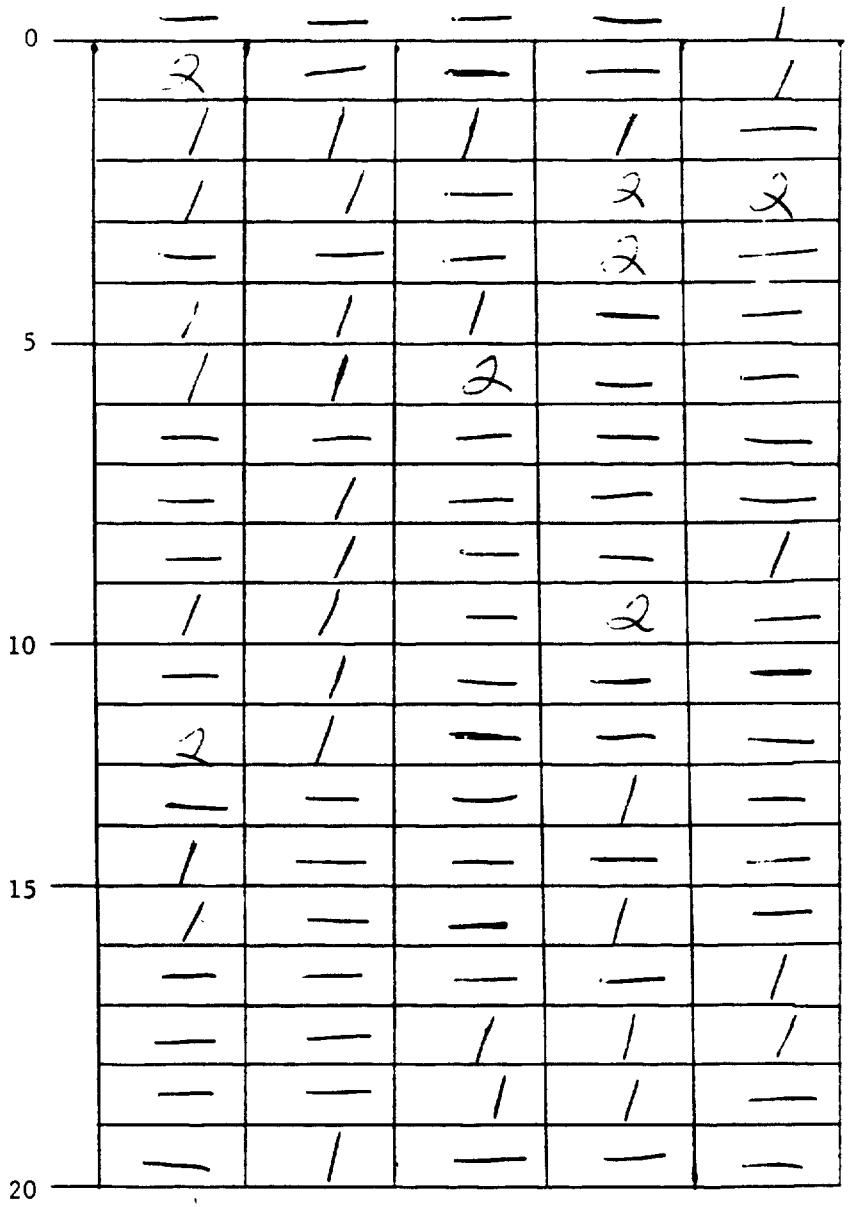
VOLUME (V) 151 liters

FIELD AREA (a) .02432 mm^2

BLANK COUNT (b) fibers/field

FILTER AREA (A) 855 mm^2

AV. FIBER COUNT (f) 45 fibers/field



SUBTOTALS

TOTAL 45

Constant $k = \frac{A}{1000\ a}$

Fiber Concentration $(F) = \frac{k\ (f-b)}{V}$ $\frac{190\ (.45)}{151} = .59$

AIRBORNE ASBESTOS FIBER SAMPLING

Plant AKRON

Name Al Kenworth

Title Ready Mix Mixer

Date 10/23/75

Pump Serial No. B06-0288

Sampled by [redacted]

Signature

LOCATION	Ready mix mixer	—	—	—	—					
FILTER NO.	143	137	201	210	217					
FLOW: Pump Setting	6	6	6	6	6					
Liter/min (R)	1.7	1.7	1.7	1.7	1.7					
TIME: On	7:08	8:45	9:56	1:17	1:30					
Off	8:45	9:55	1:13	1:30	3:25					
ELAPSED TIME (min) (t)	97	70	168	17	115					
VOLUME, Liters (t x r)	165	119	256	29	196					
REMARKS				~30 min Pumps off Lunch						
CONCENTRATION (F) fibers/ml	.70	.40	.62	3.00	.63					

Total Sample Time (T) 467 mins.

$$\text{Time Weight Av. Concentration} = \frac{(t_1F_1) + (t_2\ _2) + (t_3F_3) + \ldots}{T}$$

$$= \frac{(165 \times .70) + (119 \times .40) + (168 \times .62) + (17 \times 3) + (115 \times .63)}{467}$$

$$= \frac{115.5 + 47.6 + 104.2 + 51 + 72.5}{467} = \frac{390.8}{467} = .84$$

=

SGP 0008399

Date: 1-15-76

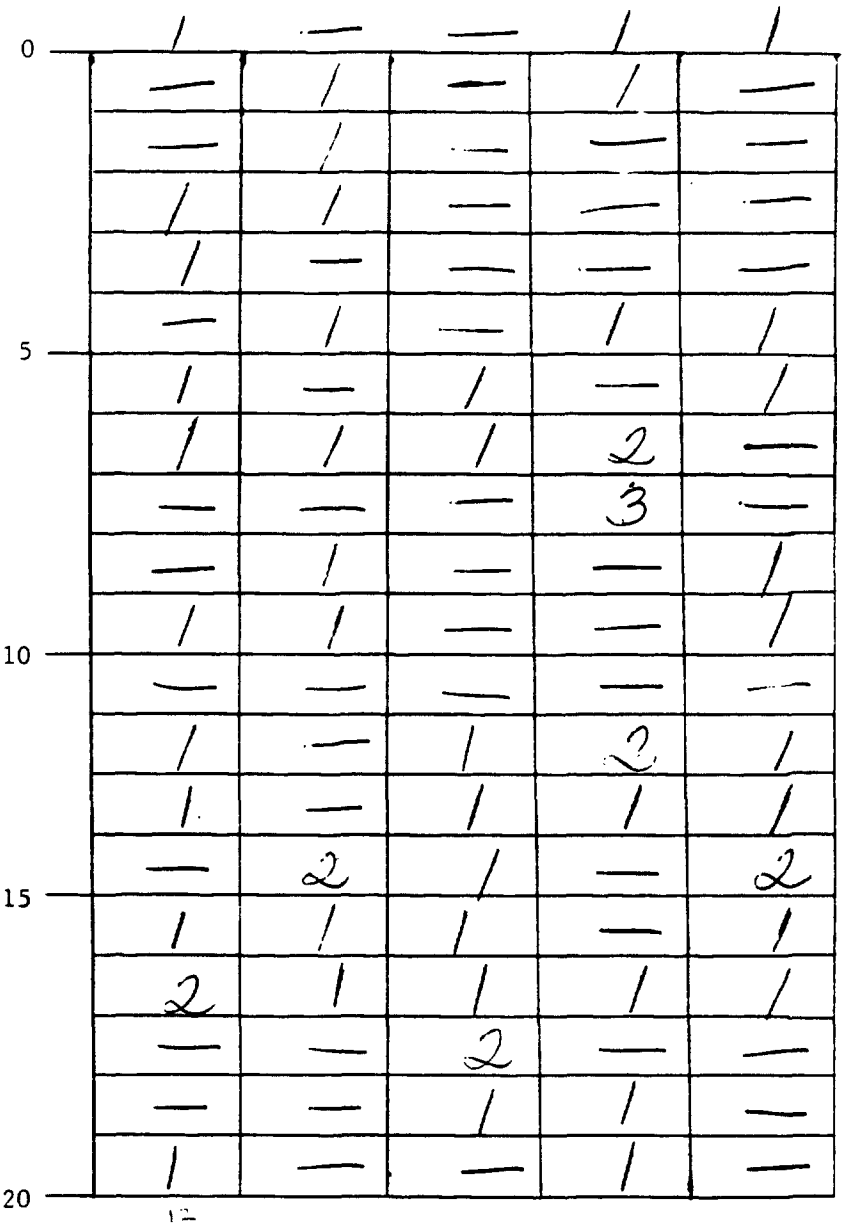
ASBESTOS FIBER COUNT WORKSHEET

SAMPLE NO. 143 — ELAPSED TIME (t) 97 mins.

FLOW RATE 1.7 l/min — VOLUME (V) 165 liters

FIELD AREA (a) .0432 mm^2 — BLANK COUNT (b) — fibers/field

FILTER AREA (A) 855 mm^2 — AV. FIBER COUNT (f) .58 fibers/field



SUBTOTALS 12

TOTAL 58

Constant $k = \frac{A}{1000\ a}$

Fiber Concentration $(F) = \frac{k\ (f-b)}{V}$ $\frac{198(.58)}{165} = .70$

Date: 1-3-76

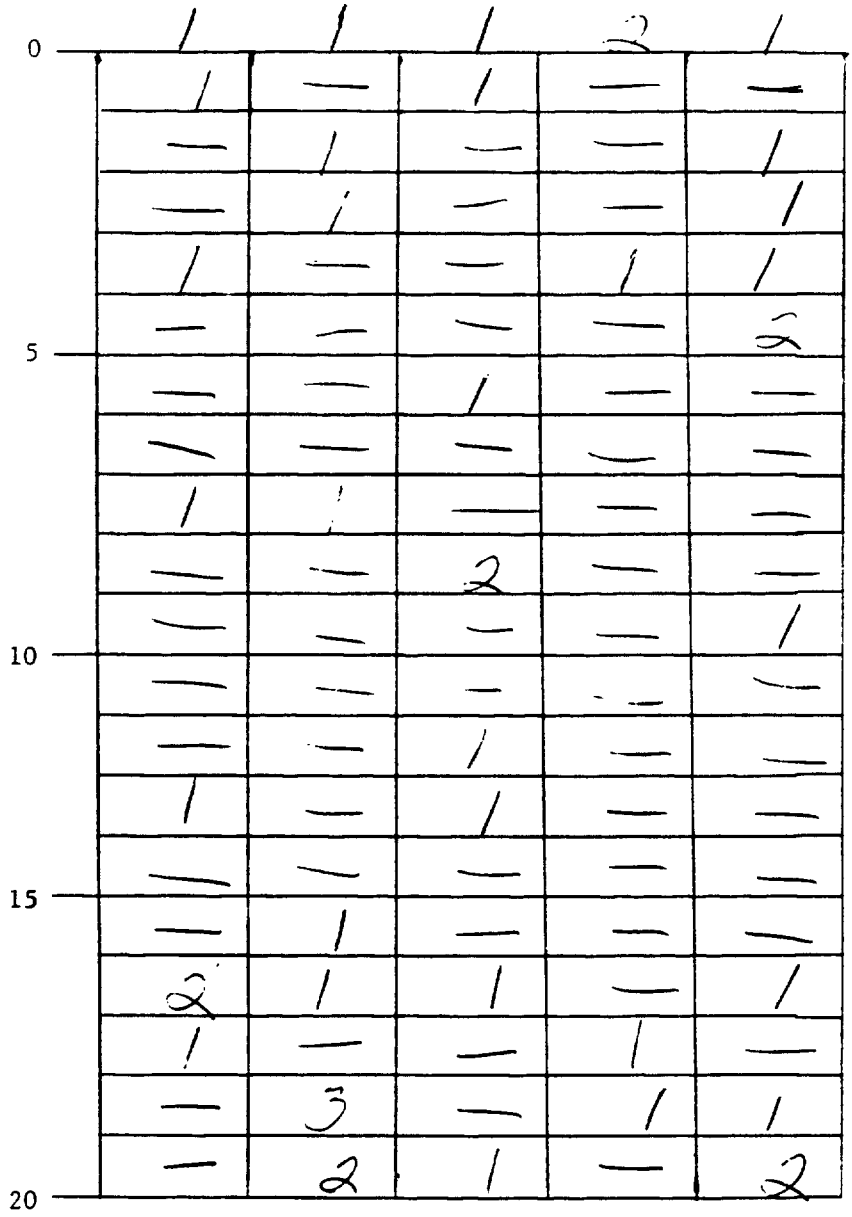
ASBESTOS FIBER COUNT WORKSHEET

SAMPLE NO. 2/3 ELAPSED TIME (t) 17 mins.

FLOW RATE 1.7 l/min VOLUME (V) 29 liters

FIELD AREA (a) .0432 mm^2 BLANK COUNT (b) - fibers/field

FILTER AREA (A) 855 mm^2 AV. FIBER COUNT (f) .44 fibers/field



SUBTOTALS TOTAL 44

Constant $k = \frac{A}{1000\ a}$

Fiber Concentration $(F) = \frac{k\ (f-b)}{V}$ $\frac{198\ (.44)}{29} = 3.00$

SGP 0008401

Date: 12/23/75

ASBESTOS FIBER COUNT WORKSHEET

SAMPLE NO. ~~2~~ 17 — ELAPSED TIME (t) 115 mins.

FLOW RATE 1.7 l/min — VOLUME (V) 196 liters

FIELD AREA (a) .0432 mm^2 — BLANK COUNT (b) — fibers/field

FILTER AREA (A) 855 mm^2 — AV. FIBER COUNT (f) .62 fibers/field

	3	—	1	1	—
0	—	1	2	1	1
	—	3	1	1	—
	1	—	—	1	1
	1	—	1	—	1
	2	—	2	—	1
5	1	—	1	—	1
	1	—	—	—	—
	—	—	—	—	—
	1	1	1	—	—
	—	—	1	1	1
10	—	—	—	1	—
	1	—	1	1	1
	—	—	2	1	—
	—	1	—	1	—
15	—	1	—	—	—
	—	1	1	1	2
	—	1	—	—	1
	—	1	1	1	—
20	1	1	2	—	1
SUBTOTALS	12	11	17	11	11

TOTAL 62

3 2 / 6

Constant $k = \frac{A}{1000\ a}$

Fiber Concentration $(F) = \frac{k\ (f-b)}{V}$ $\quad \frac{198\ (.62)}{196} = .63$

SGP 0008402

Date: 12-16-75

ASBESTOS FIBER COUNT WORKSHEET

SAMPLE NO. 21 | ELAPSED TIME (t) 168 mins.

FLOW RATE 1.7 l/min | VOLUME (V) 286 liters

FIELD AREA (a) .00432 mm^2 | BLANK COUNT (b) _____ fibers/field

FILTER AREA (A) 855 mm^2 | AV. FIBER COUNT (f) .90 fibers/field

0	1	1	—	—	1
	1	—	—	—	—
	—	1	—	—	1
	1	1	—	2	—
	1	1	1	—	—
	—	1	—	—	—
5	1	3	2	3	1
	2	1	—	3	—
	—	2	—	—	—
	3	—	—	3	—
	1	—	—	1	—
10	2	2	2	3	1
	1	1	2	2	1
	2	—	1	—	2
	1	—	1	1	2
15	3	2	1	—	—
	1	—	—	—	1
	—	2	1	—	5
	1	1	—	—	2
20	1	—	—	2	—

SUBTOTALS | TOTAL 90

Constant $k = \frac{A}{1000\ a}$

Fiber Concentration $(F) = \frac{k\ (f-b)}{V}$ $\quad \frac{198\ (.90)}{286} = .62$

SGP 0008403

Date: 12/9/21

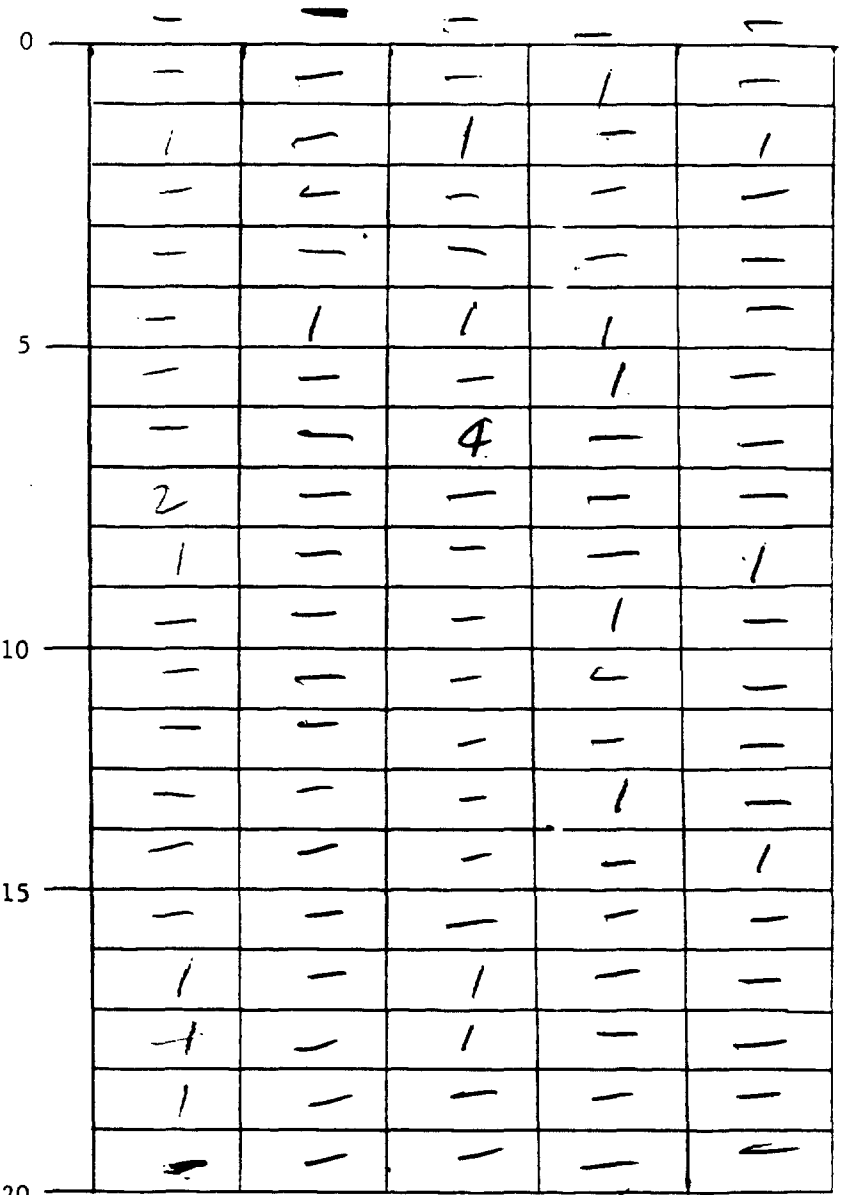
ASBESTOS FIBER COUNT WORKSHEET

SAMPLE NO. 137 — ELAPSED TIME (t) 70 mins.

FLOW RATE 1.7 l/min — VOLUME (V) 119 liters

FIELD AREA (a) .0043 mm^2 — BLANK COUNT (b) — fibers/field

FILTER AREA (A) 855 mm^2 — AV. FIBER COUNT (f) fibers/field



SUBTOTALS	7	1	8	5	3

TOTAL 24

Constant $k = \frac{A}{1000\ a}$

Fiber Concentration $(F) = \frac{k\ (f-b)}{V}$ $\frac{198\ (.24)}{119} = .40$

SGP 0008404

AIRBORNE ASBESTOS FIBER SAMPLING

Plant AKRON

Name Charlie Jackson

Title DRY Blender

Date 10/23/75

Pump Serial No. B-06-0444

Sampled by

Signature

LOCATION	DRY Blender area	—	—	—	—	—	—			
FILTER NO.	138	131	141	204	205	207	214			
FLOW: Pump Setting	6	6	6	6	6	6	6			
Liter/min (R)	1.75	1.75	1.75	1.75	1.75	1.75	1.75			
TIME: On	7:05	8:00	8:47	9:57	10:48	11:03	1:01			
Off	8:00	8:47	9:57	10:48	11:03	1:01	3:24			
ELAPSED TIME (min) (t)	55	47	70	51	15	103	143			
VOLUME, Liters (t x r)	96	82	123	89	26	180	250			
REMARKS					Pumped Asbestos During this Sample	30 min Pumps off lunch				
CONCENTRATION (F) fibers/ml	.43	.85	.47	.29	1.29	Void*	1.57			

Total Sample Time (T) ~~457~~ ~~506~~ 381 mins.

*Note: Filter damaged during sampling Could not take count.

$$\text{Time Weight Av. Concentration} = \frac{(t_1F_1) + (t_2F_2) + (t_3F_3) + \ldots}{T}$$

$$= \frac{(55\times.43)+(47\times.85)+(70\times.47)+(51\times.29)+(15\times1.29)+(143\times1.57)}{381}$$

$$= \frac{23.7 + 40.0 + 32.9 + 14.8 + 19.4 + 224.5}{381} = .93$$

Counted 332

SGP 0008405

Date: -7

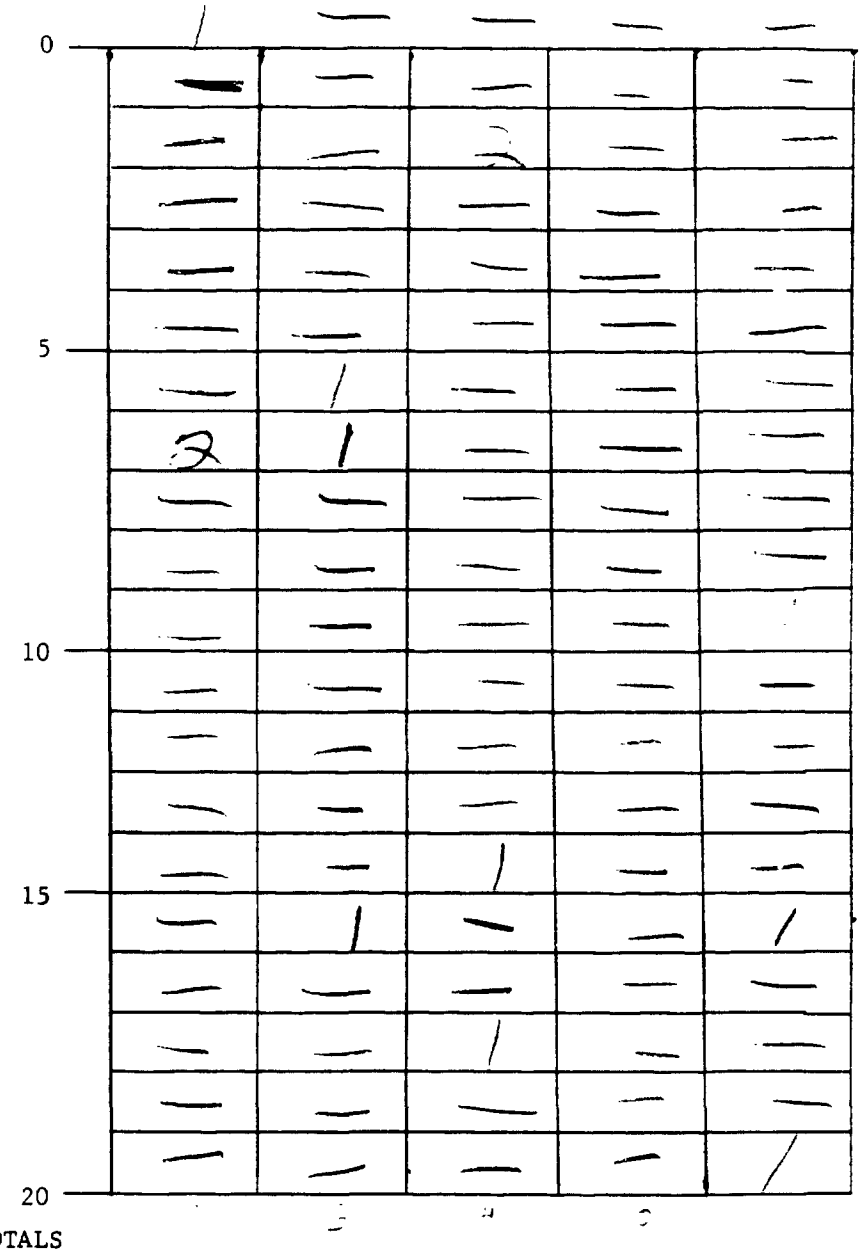
ASBESTOS FIBER COUNT WORKSHEET

SAMPLE NO. _____ ELAPSED TIME (t) 51 mins.

FLOW RATE 1.75 l/min VOLUME (V) 89 liters

FIELD AREA (a) .00436 mm^2 BLANK COUNT (b) — fibers/field

FILTER AREA (A) 855 mm^2 AV. FIBER COUNT (f) .13 fibers/field



SUBTOTALS TOTAL 13

Constant k = $\frac{A}{1000\ a}$ = 198

Fiber Concentration (F) = $\frac{k\ (f-b)}{V}$ = $198\ \frac{(.13)}{89}$ = .29

SGP 0008406

Date: 12-18-75

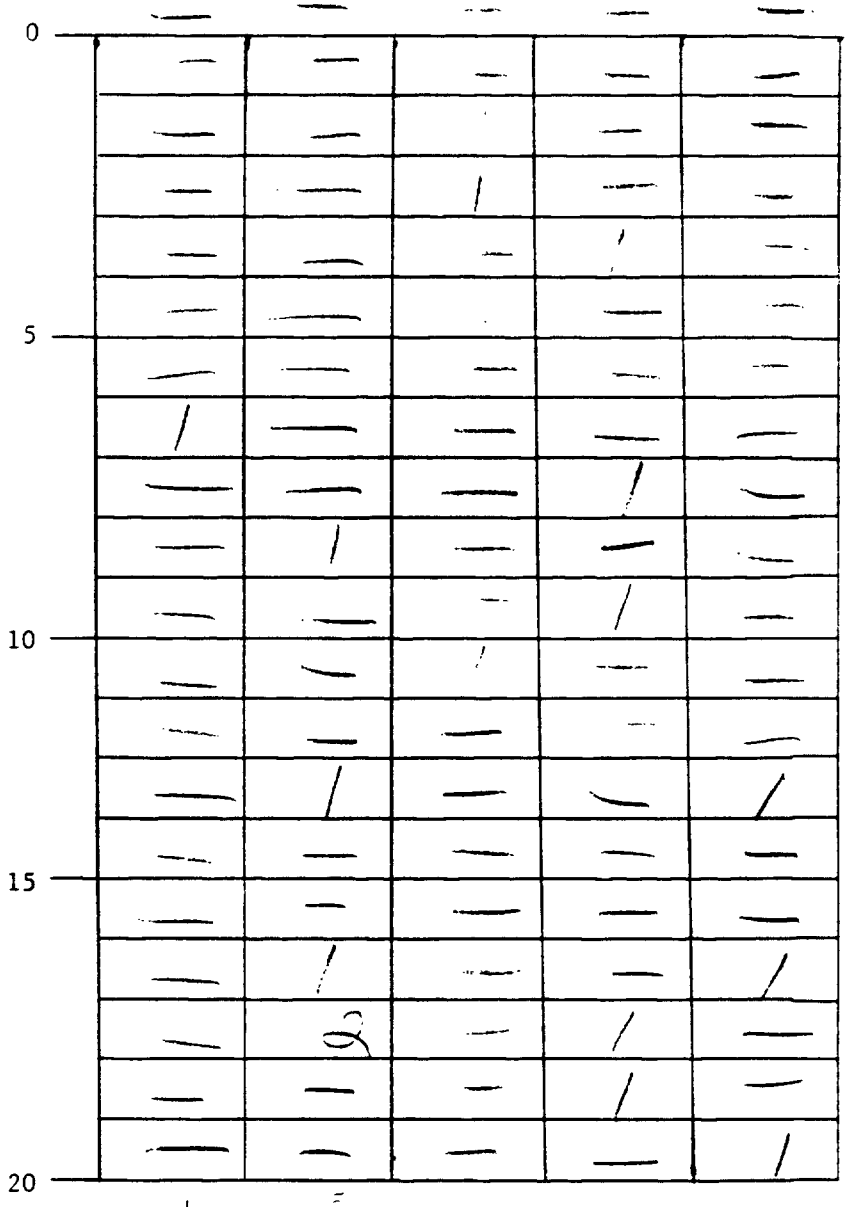
ASBESTOS FIBER COUNT WORKSHEET

SAMPLE NO. _____ ELAPSED TIME (t) 15 mins.

FLOW RATE 1.7 l/min VOLUME (V) 26 liters

FIELD AREA (a) .0132 mm^2 BLANK COUNT (b) – fibers/field

FILTER AREA (A) 855 mm^2 AV. FIBER COUNT (f) .17 fibers/field



SUBTOTALS 1 3 TOTAL 17

Constant k = $\frac{A}{1000\ a}$ = 198

Fiber Concentration (F) = $\frac{k\ (f-b)}{V}$ $\frac{198\ (.17)}{26}$ = 1.29

Date: _____

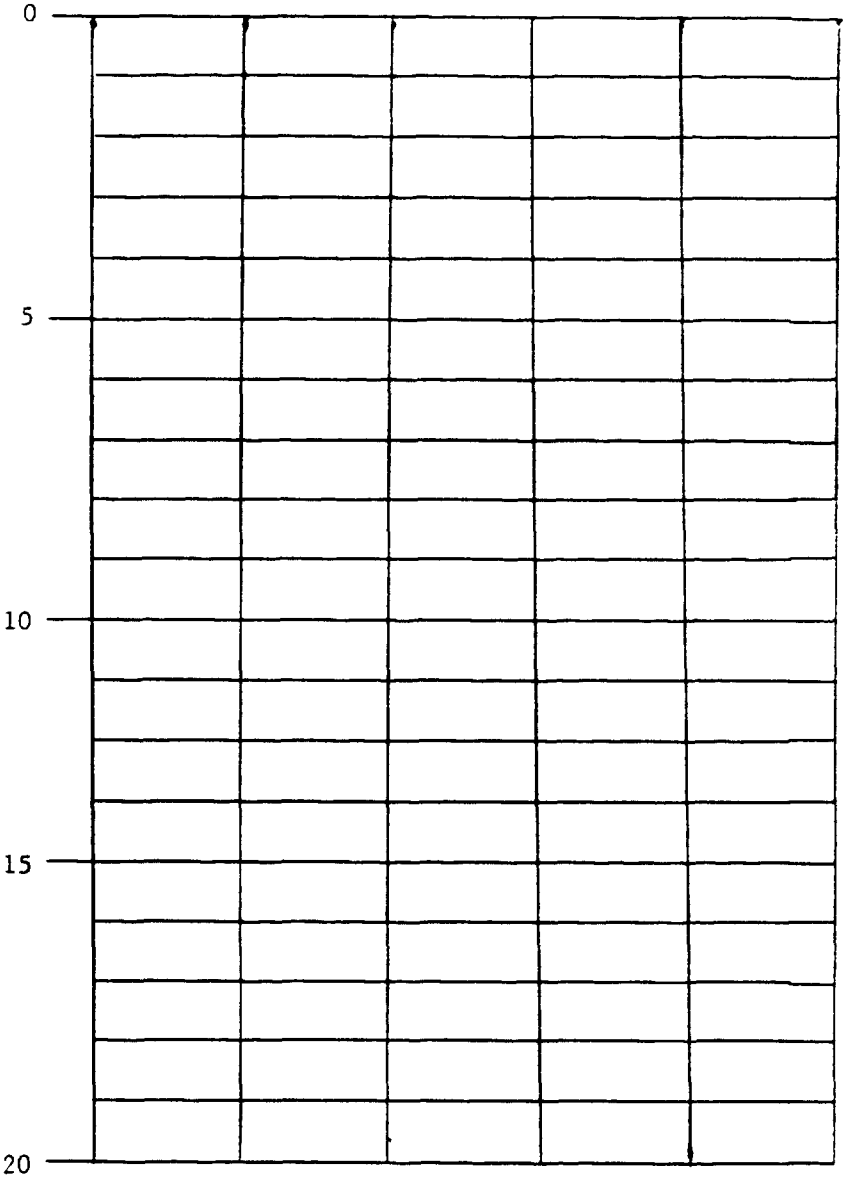
ASBESTOS FIBER COUNT WORKSHEET

SAMPLE NO. _____ ELAPSED TIME (t) _____ mins.

FLOW RATE _____ l/min VOLUME (V) _____ liters

FIELD AREA (a) _____ mm^2 BLANK COUNT (b) _____ fibers/field

FILTER AREA (A) 855 mm^2 AV. FIBER COUNT (f) _____ fibers/field



SUBTOTALS TOTAL _____

Constant $k = \frac{A}{1000\ a}$

Fiber Concentration $(F) = \frac{k\ (f-b)}{V}$

Date: _____

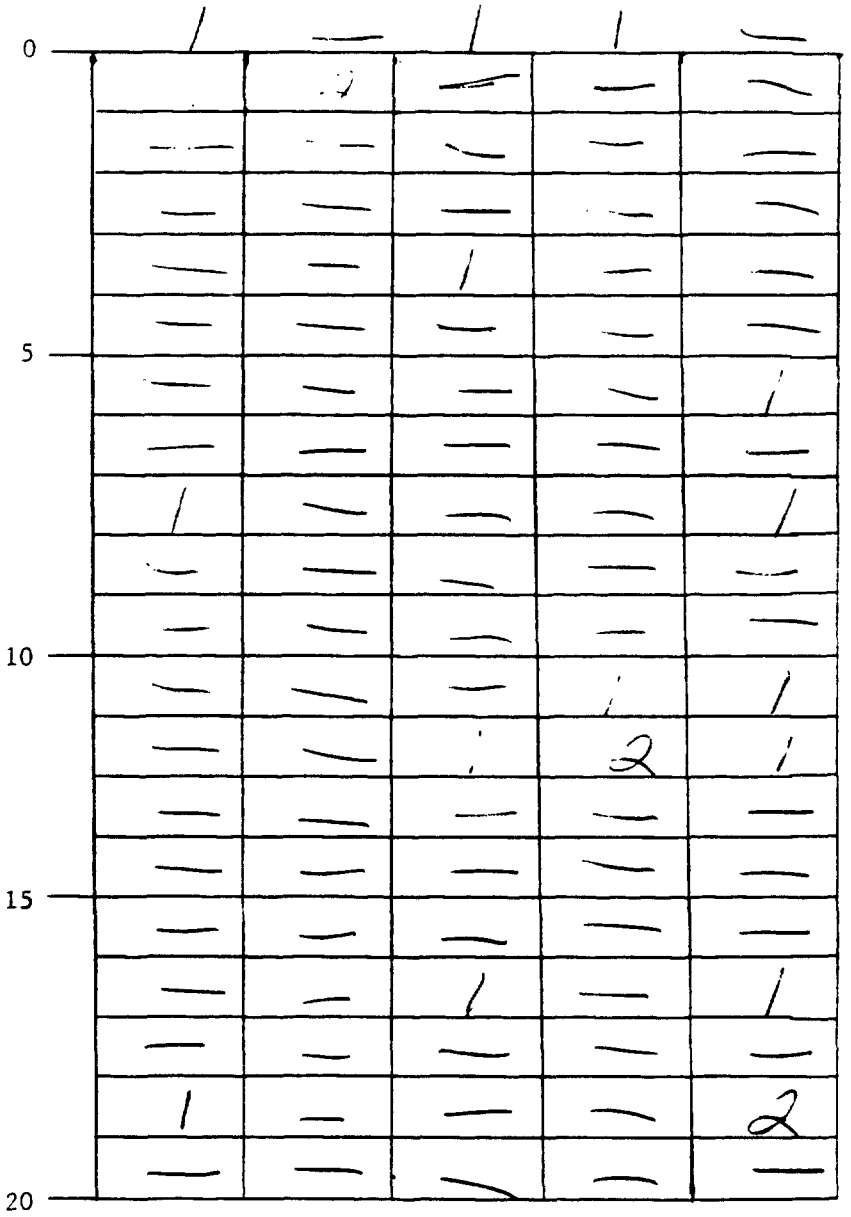
ASBESTOS FIBER COUNT WORKSHEET

SAMPLE NO. _____ ELAPSED TIME (t) 55 mins.

FLOW RATE 1.75 l/min VOLUME (V) 96 liters

FIELD AREA (a) .0432 mm^2 BLANK COUNT (b) — fibers/field

FILTER AREA (A) 855 mm^2 AV. FIBER COUNT (f) .21 fibers/field



SUBTOTALS TOTAL 21

Constant $k = \frac{A}{1000\ a}$

Fiber Concentration $(F) = \frac{k\ (f-b)}{V} = \frac{198\ (.21)}{96} = .43$

Date: 1-22-76

ASBESTOS FIBER COUNT WORKSHEET

SAMPLE NO. 131

ELAPSED TIME (t) 47 mins.

FLOW RATE 1.75 l/min

VOLUME (V) ~~82.5~~ 82 liters

FIELD AREA (a) 0.432 mm^2

BLANK COUNT (b) - fibers/field

FILTER AREA (A) 855 mm^2

AV. FIBER COUNT (f) 35 fibers/field

0	1	—	—	—	—
	—	—	—	1	3
	—	1	—	—	—
	—	—	1	1	—
	—	—	—	4	—
	—	—	—	1	—
5	1	1	—	—	—
	—	—	1	—	—
	—	1	1	1	—
	—	1	—	—	1
	—	—	1	—	—
10	—	—	—	1	—
	—	—	—	1	—
	1	—	—	2	—
	—	—	—	1	—
15	—	1	—	—	—
	2	—	—	1	—
	—	1	—	—	—
	2	—	—	—	—
20	—	—	—	—	—

SUBTOTALS

TOTAL 35

Constant $k = \frac{A}{1000\ a} = 198$

Fiber Concentration $(F) = \frac{k\ (f-b)}{V}$ $\frac{198\ (.35)}{82} = .85$

Date: 1-23-76

ASBESTOS FIBER COUNT WORKSHEET

SAMPLE NO. 141

ELAPSED TIME (t) 70 mins.

FLOW RATE 1.75 l/min

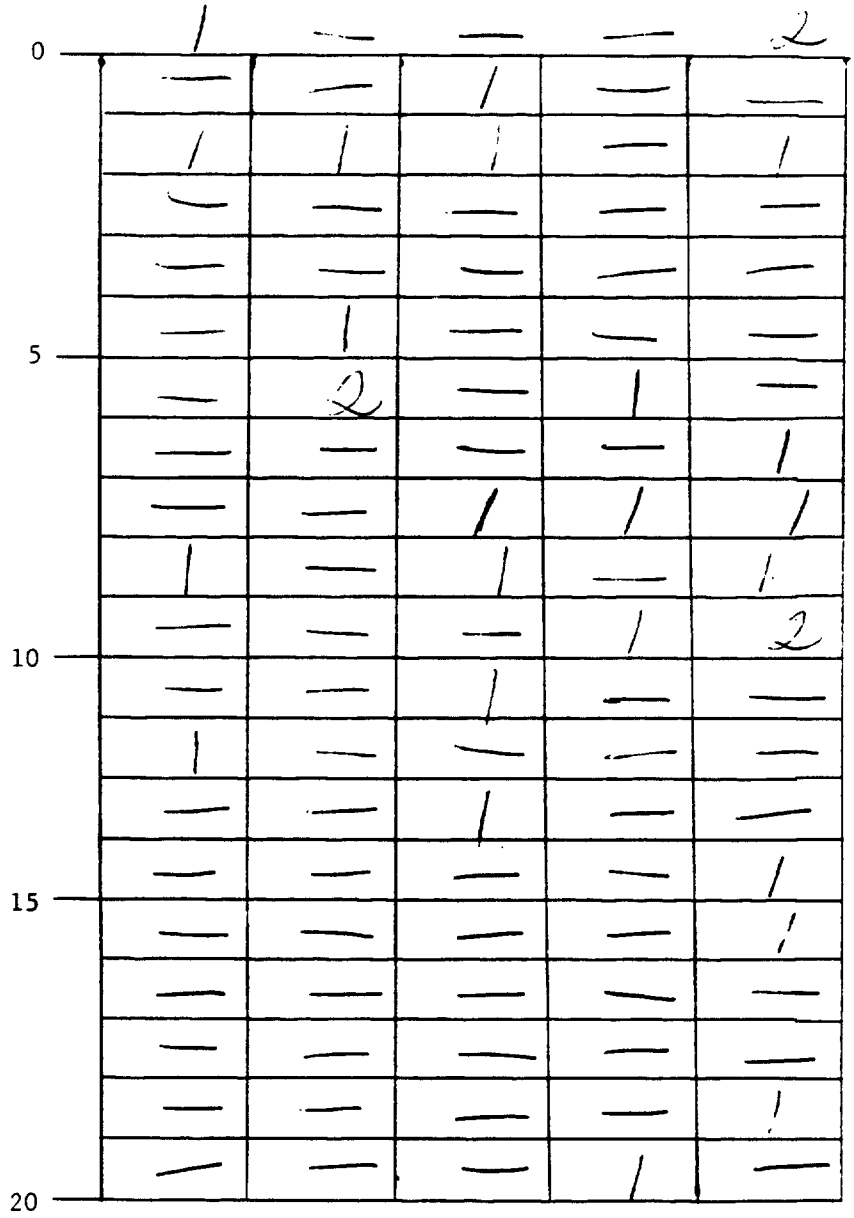
VOLUME (V) 123 liters

FIELD AREA (a) .02432 mm^2

BLANK COUNT (b) — fibers/field

FILTER AREA (A) 855 mm^2

AV. FIBER COUNT (f) .29 fibers/field



SUBTOTALS

TOTAL 29

Constant $k = \frac{A}{1000\ a} = 198$

Fiber Concentration $(F) = \frac{k\ (f-b)}{V}$ $\frac{(198)(.29)}{123} = .47$

SGP 0008411

Date: 12/8/75

ASBESTOS FIBER COUNT WORKSHEET

SAMPLE NO. 214 — ELAPSED TIME (t) 143 mins.

FLOW RATE 1.75 l/min — VOLUME (V) 250 liters

FIELD AREA (a) .0432 mm^2 — BLANK COUNT (b) — fibers/field

FILTER AREA (A) 855 mm^2 — AV. FIBER COUNT (f) 1.98 fibers/field

0	2	3	1		
	2	—	—		
	2	4	—		
	—	2	1		
	1	2	2		
5	1	1	2		
	2	1	5		
	4	1	1		
	3	3	—		
	—	3	1		
10	1	2	3		
	1	1	1		
	—	6	1		
	1	1	—		
15	1	2	1		
	4	2	1		
	1	3	1		
	2	1	2		
20	—	1	1		
SUBTOTALS	32	43	24		

TOTAL 119

1.98
60)119
 60
 590
 540
 500
 480
 20

Constant $k = \frac{A}{1000\ a}$

Fiber Concentration $(F) = \frac{k\ (f-b)}{V}$ $\quad \frac{198\ (1.98)}{250} = 1.57$

SGP 0008412

AIRBORNE ASBESTOS FIBER SAMPLING

Plant Akron

Name Bob Krantz

Title Dry Blend helper & Fork Truck Driver

Date 10/23/75

Pump Serial No. R-74-0799

Sampled by

Signature

LOCATION	Dry Blend area	—	—	—	—	—				
FILTER NO.	139	203	206	213	220	231				
FLOW: Pump Setting	6	6	6	6	6	6				
Liter/min (R)	1.9	1.9	1.9	1.9	1.9	1.9				
TIME: On	7:20	9:55	10:48	1:03	2:44	2:59				
Off	9:55	10:48	1:03	2:44	2:59	3:28				
ELAPSED TIME (min) (t)	155	53	105	101	15	29				
VOLUME, Liters (t x r)	295	101	200	192	29	55				
REMARKS			Pumps off for 30 min Lunch							
CONCENTRATION (F) fibers/ml	.46	.41	.43	1.96	1.78	1.55				

Total Sample Time (T) 458 mins.

$$\text{Time Weight Av. Concentration} = \frac{(t_1F_1) + (t_2\ _2) + (t_3F_3) + \ldots}{T}$$

$$= \frac{(155 \times .46) + (53 \times .41) + (105 \times .43) + (101 \times 1.96) + (15 \times 1.78) + (29 \times 1.55)}{458}$$

$$= \frac{71.3 + 21.7 + 45.1 + 198 + 26.7 + 45.0}{458}$$

$$= \frac{407.8}{458} = \boxed{.89}$$

SGP 0008413

Date: _____

ASBESTOS FIBER COUNT WORKSHEET

SAMPLE NO. 213 | ELAPSED TIME (t) 101 mins.

FLOW RATE 1.9 l/min | VOLUME (V) 192 liters

FIELD AREA (a) .02463 mm^2 | BLANK COUNT (b) _____ fibers/field

FILTER AREA (A) 855 mm^2 | AV. FIBER COUNT (f) 1.90 fibers/field

	2	1	3		
0	1	5	2		
	3	2	2		
	3	2	1		
	1	—	1		
	3	1	2		
5	1	—	3		
	3	2	3		
	1	3	2		
	2	1	1		
	3	4	1		
10	2	1	2		
	4	—	2		
	1	1	1		
	—	2	3		
15	2	4	2		
	2	—	—		
	5	2	4		
	1	2	2		
	—	2	2		
20					
SUBTOTALS	40	35	39		

39
35
40
114

19
60)1140
60
540

TOTAL 114

Constant $k = \frac{A}{1000\ a}$

Fiber Concentration $(F) = \frac{k\ (f-b)}{V}$ $\quad \frac{198\ (1.9)}{192} = 1.96$

SGP 0008414

Date: 12/10/25

ASBESTOS FIBER COUNT WORKSHEET

SAMPLE NO. 231

ELAPSED TIME (t) 29 mins.

FLOW RATE 1.9 l/min

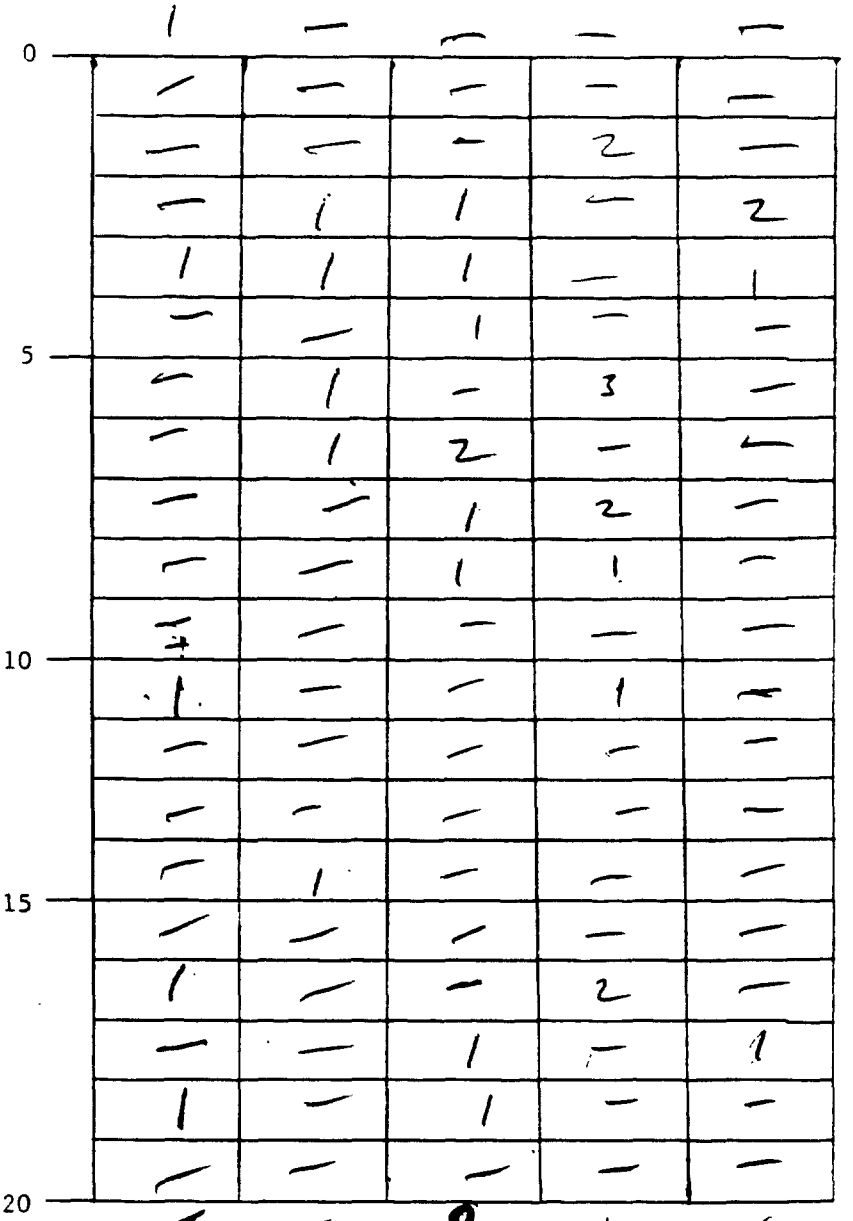
VOLUME (V) 55 liters

FIELD AREA (a) .00432 mm^2

BLANK COUNT (b) _____ fibers/field

FILTER AREA (A) 855 mm^2

AV. FIBER COUNT (f) 1.34 fibers/field



SUBTOTALS	5	5	9	11	4

TOTAL 34

Constant k = $\frac{A}{1000\ a}$

Fiber Concentration (F) = $\frac{k\ (f-b)}{V}$ $\frac{198(1.34}{55} = 1.51$

SGP 0008415

Date: 12-18-75

ASBESTOS FIBER COUNT WORKSHEET

SAMPLE NO. _____

ELAPSED TIME (t) 53 mins.

FLOW RATE 1.9 l/min

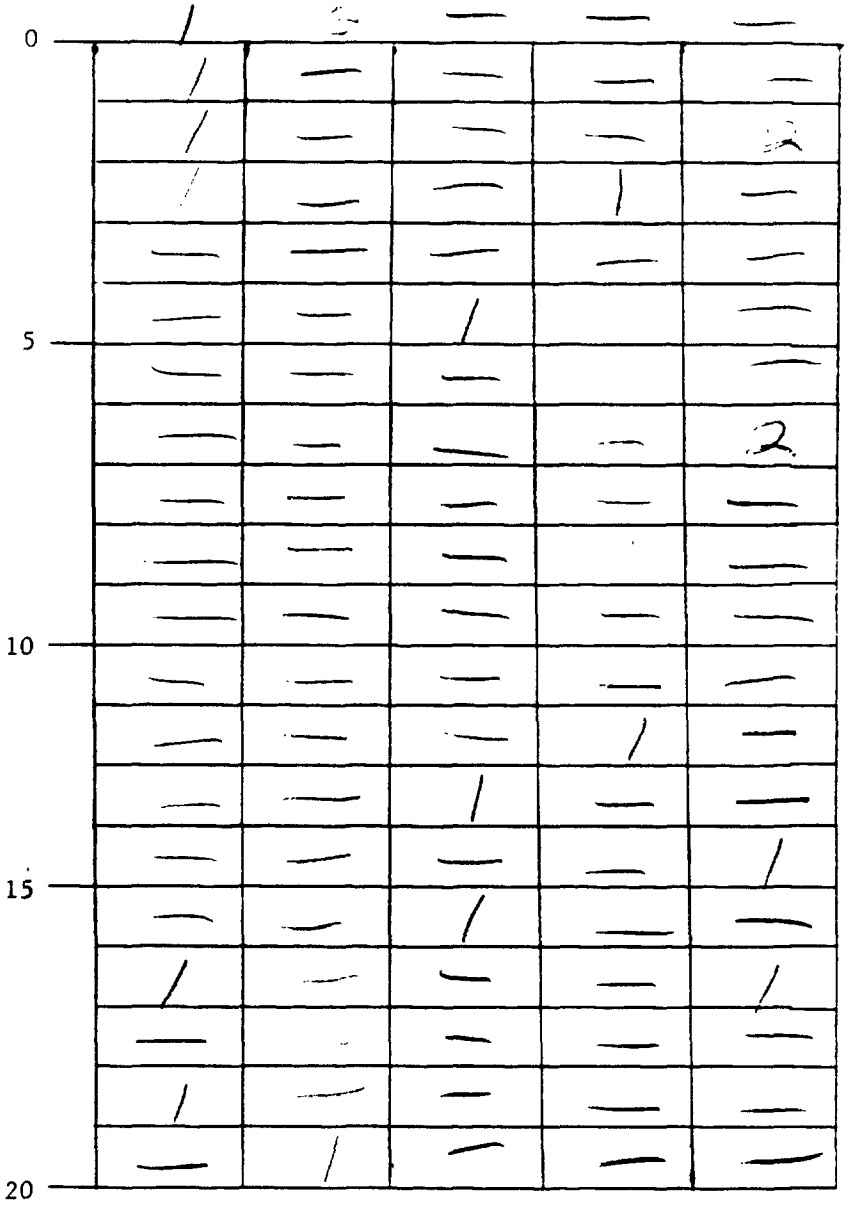
VOLUME (V) 101 liters

FIELD AREA (a) .00432 mm^2

BLANK COUNT (b) _____ fibers/field

FILTER AREA (A) 855 mm^2

AV. FIBER COUNT (f) .21 fibers/field



SUBTOTALS

TOTAL 21

Constant $k = \frac{A}{1000\ a}$

Fiber Concentration $(F) = \frac{k\ (f-b)}{V}$ $\frac{198(.21)}{101} = .41$

Date: _____

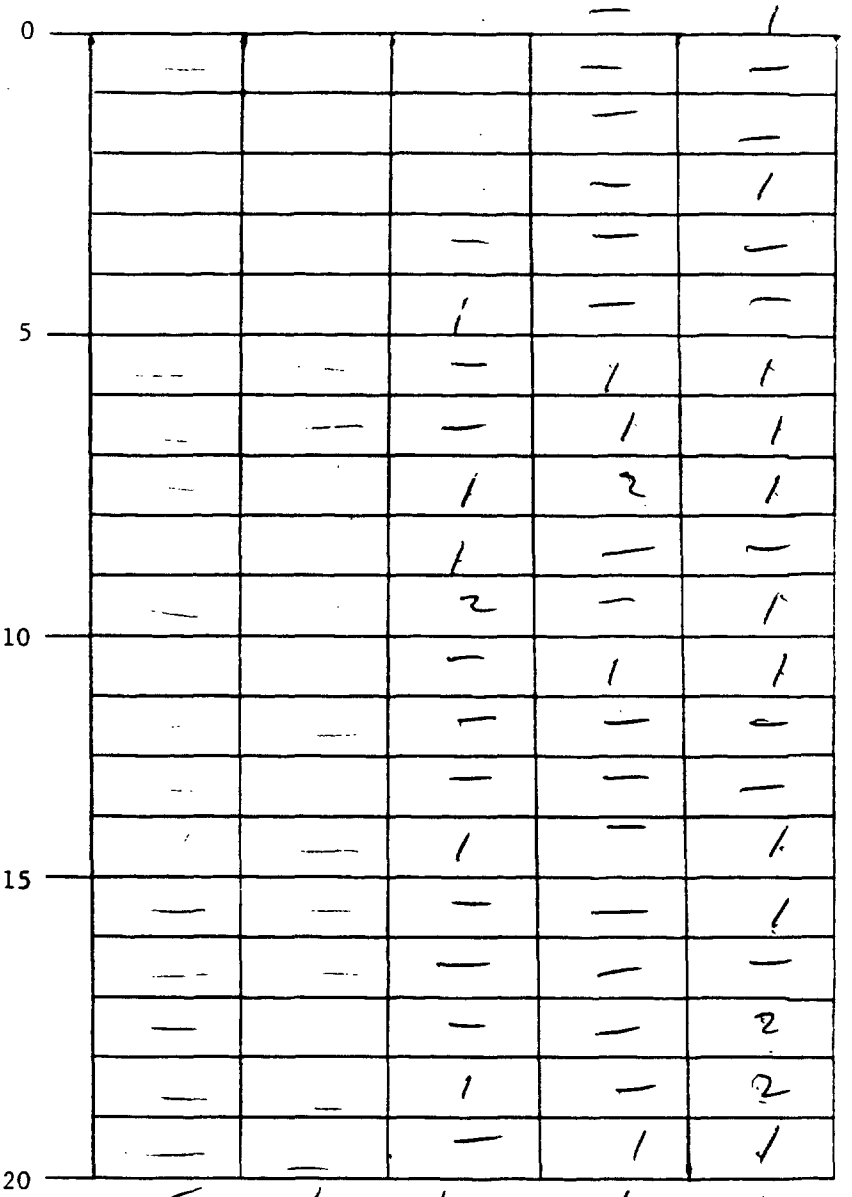
ASBESTOS FIBER COUNT WORKSHEET

SAMPLE NO. _____ ELAPSED TIME (t) 105 mins.

FLOW RATE 1.9 l/min VOLUME (V) 20 liters

FIELD AREA (a) .00432 mm^2 BLANK COUNT (b) _____ fibers/field

FILTER AREA (A) 855 mm^2 AV. FIBER COUNT (f) .43 fibers/field



SUBTOTALS	5	6	12	6	14	TOTAL 43

Constant $k = \frac{A}{1000\ a}$

Fiber Concentration $(F) = \frac{k\ (f-b)}{V}$ $\frac{198\ (.43)}{20} = .43$

Date: 1-13-76

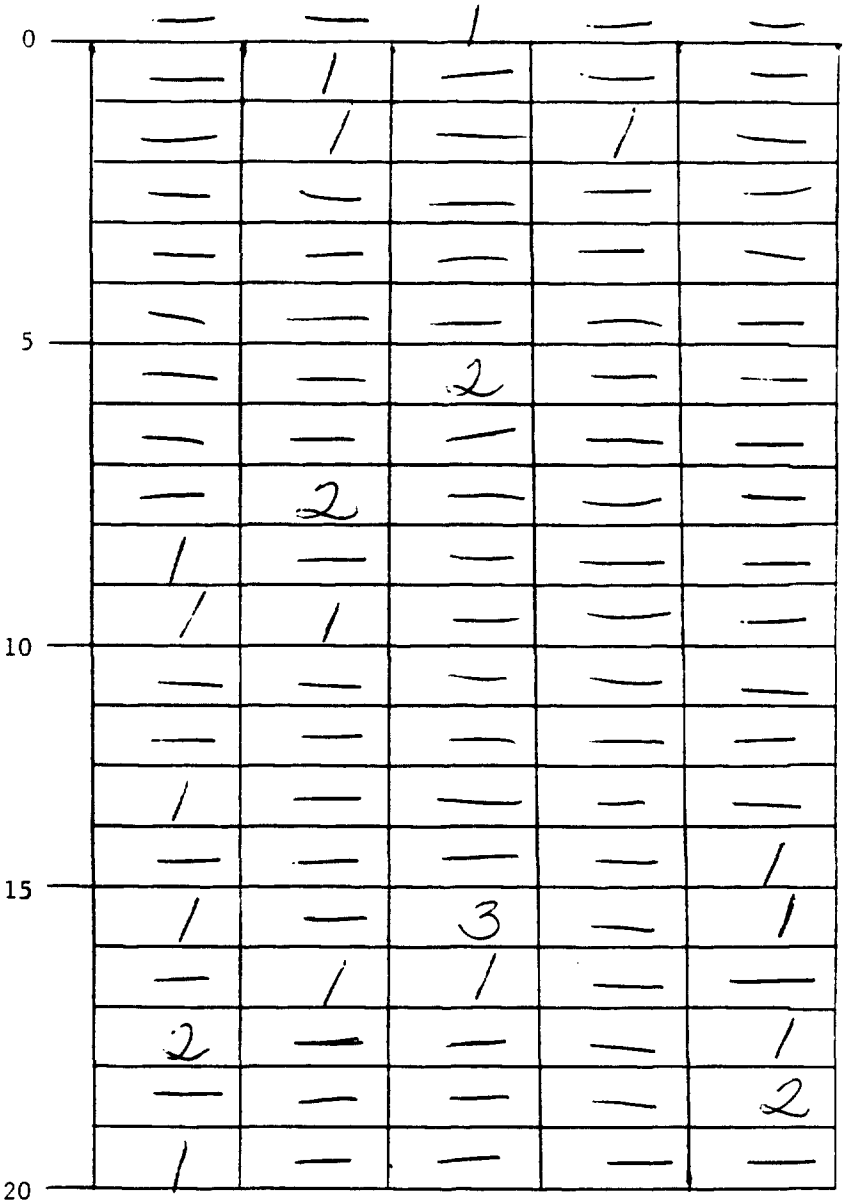
ASBESTOS FIBER COUNT WORKSHEET

SAMPLE NO. 220 | ELAPSED TIME (t) 15 mins.

FLOW RATE 1.9 l/min | VOLUME (V) 29 liters

FIELD AREA (a) .00432 mm^2 | BLANK COUNT (b) _____ fibers/field

FILTER AREA (A) 855 mm^2 | AV. FIBER COUNT (f) .26 fibers/field



SUBTOTALS

TOTAL 26

Constant $k = \frac{A}{1000\ a}$

Fiber Concentration $(F) = \frac{k\ (f-b)}{V}$ $\frac{198\ (.26)}{29} = 1.78$

Date: 1-14-76

ASBESTOS FIBER COUNT WORKSHEET

SAMPLE NO. 134 | ELAPSED TIME (t) 155 mins.

FLOW RATE 1.9 l/min | VOLUME (V) 295 liters

FIELD AREA (a) .0432 mm^2 | BLANK COUNT (b) _____ fibers/field

FILTER AREA (A) 855 mm^2 | AV. FIBER COUNT (f) .69 fibers/field

0	2	2	—	1	—
	—	—	1	—	2
	—	1	3	—	1
	1	—	2	2	—
	1	—	3	—	—
	—	3	—	—	—
5	1	2	2	—	—
	1	1	2	—	3
	1	—	—	—	—
	2	—	—	1	—
	—	—	1	—	—
10	—	1	2	—	—
	2	—	1	—	2
	—	—	2	1	2
	—	—	—	—	—
15	1	1	2	—	—
	1	—	—	—	1
	—	1	1	2	—
	—	—	2	—	—
20	—	—	1	1	—
SUBTOTALS					TOTAL 12.9

Constant $k = \frac{A}{1000\ a}$

Fiber Concentration $(F) = \frac{k\ (f-b)}{V}$ $\frac{198(.69)}{295} = .46$

SGP 0008419

AIRBORNE ASBESTOS FIBER SAMPLING

Plant AKRON

Name Area Samples

Title

Date 10/23/75

Pump Serial No. B-06-0422

Sampled by

Signature

LOCATION	ORI Blend area	—	Ready Mix area	Warehouse	Packer
FILTER NO.	144	202	208	215	218
FLOW: Pump Setting	6	6	6	6	6
Liter/min (R)	1.7	1.7	1.7	1.7	1.7
TIME: On	7:22	9:26	10:45	1:20	2:30
Off	9:26	10:45	1:20	2:20	3:30
ELAPSED TIME (min) (t)	124	79	155	60	60
VOLUME, Liters (t x r)	211	134	264	102	102
REMARKS					
CONCENTRATION (F) fibers/ml	.35	.38	.32	.14	1.11

Total Sample Time (T) _____ mins.

$$\text{Time Weight Av. Concentration} = \frac{(t_1F_1) + (t_2\ _2) + (t_3F_3) + \ldots}{T}$$

RECEIVED

Date: 12-17-75

ASBESTOS FIBER COUNT WORKSHEET

SAMPLE NO. [illegible]

ELAPSED TIME (t) 79 mins.

FLOW RATE 1.7 l/min

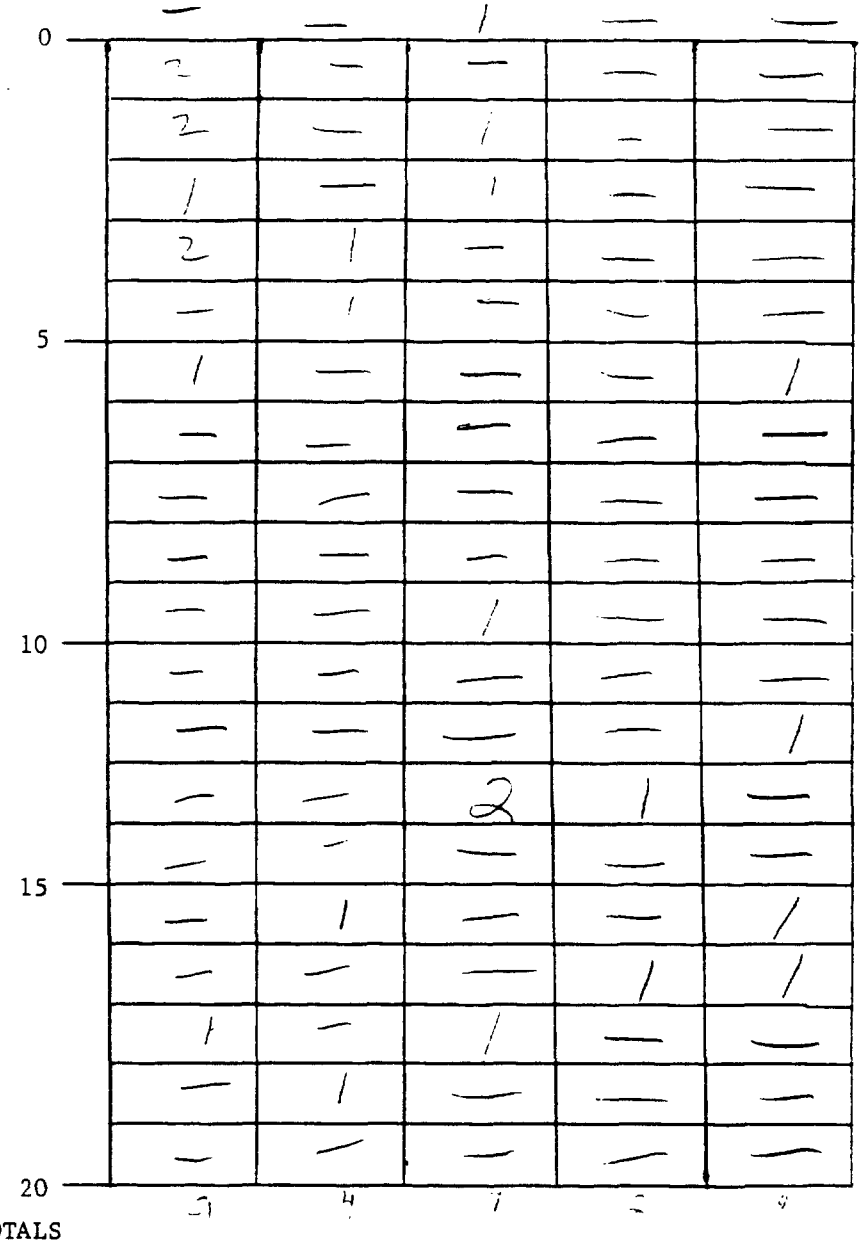
VOLUME (V) 134 liters

FIELD AREA (a) _____ mm^2

BLANK COUNT (b) _____ fibers/field

FILTER AREA (A) 855 mm^2

AV. FIBER COUNT (f) .24 fibers/field



—	—	1	—	—
2	—	—	—	—
2	—	1	—	—
1	—	1	—	—
2	1	—	—	—
—	1	—	—	—
1	—	—	—	1
—	—	—	—	—
—	—	—	—	—
—	—	—	—	—
—	—	1	—	—
—	—	—	—	—
—	—	—	—	1
—	—	2	1	—
—	—	—	—	—
—	1	—	—	1
—	—	—	1	1
1	—	1	—	—
—	1	—	—	—
—	—	—	—	—

SUBTOTALS 3 4 7 2 4 TOTAL 20

Constant $k = \frac{A}{1000\ a}$

Fiber Concentration $(F) = \frac{k\ (f-b)}{V}$ $\frac{198 \times .24}{134} = .38$

SGP 0008421

Date: 12/15/75

ASBESTOS FIBER COUNT WORKSHEET

SAMPLE NO. 205 | ELAPSED TIME (t) 155 mins.

FLOW RATE 1.7 l/min | VOLUME (V) 264 liters

FIELD AREA (a) _____ mm^2 | BLANK COUNT (b) _____ fibers/field

FILTER AREA (A) 855 mm^2 | AV. FIBER COUNT (f) .42 fibers/field

0	1	—	—	—	—
	—	—	1	1	2
	—	—	1	—	2
	—	1	1	—	—
	1	—	1	—	1
	—	—	—	—	—
5	1	—	—	1	—
	—	—	1	—	—
	—	—	—	—	1
	—	—	—	1	1
	—	—	—	—	—
10	1	—	—	—	—
	2	—	—	—	—
	—	—	—	—	1
	—	1	1	—	—
15	1	2	1	1	—
	—	—	1	1	—
	—	1	1	—	1
	—	—	2	—	—
20	1	—	1	1	3
SUBTOTALS	9	5	12	6	12

TOTAL 42

Constant $k = \frac{A}{1000\ a}$

Fiber Concentration $(F) = \frac{k\ (f-b)}{V}$ $\quad \frac{198\ (.42)}{264} = .32$

SGP 0008422

Date: _____

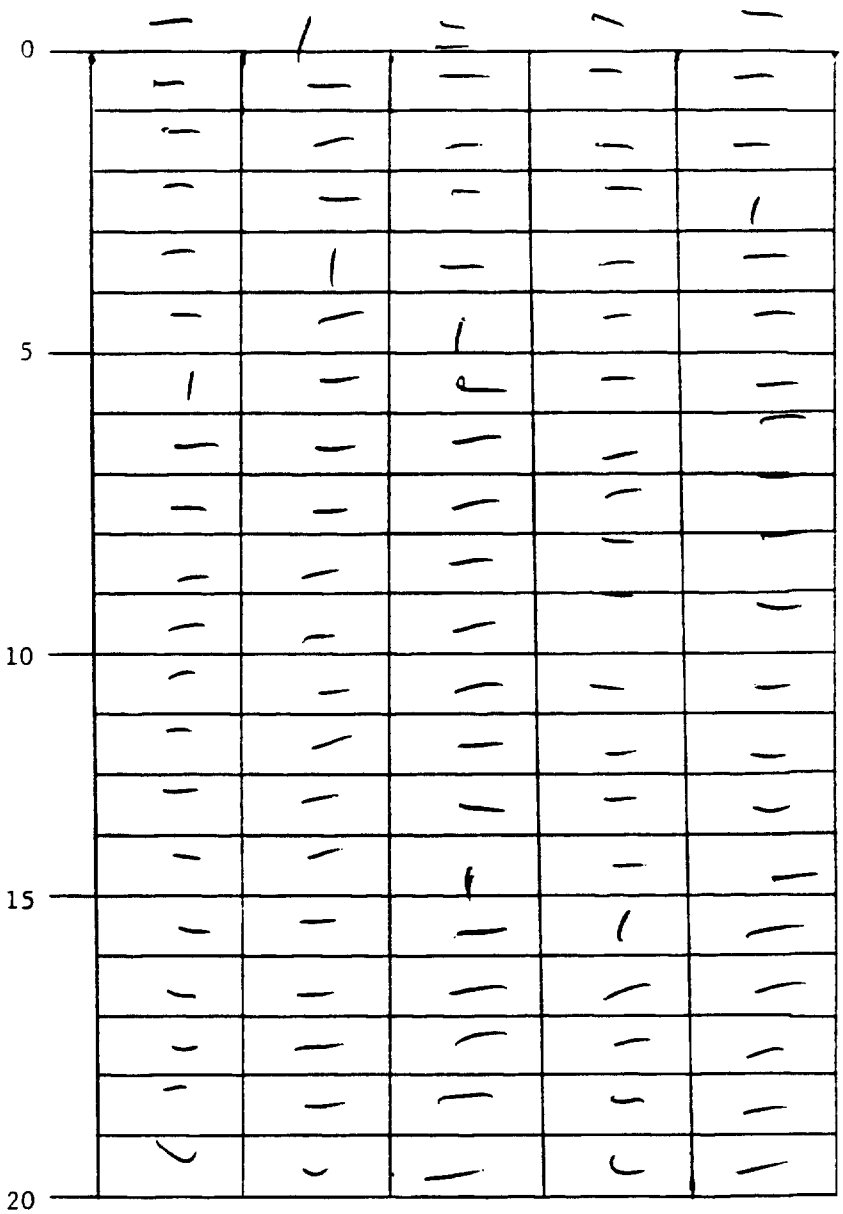
ASBESTOS FIBER COUNT WORKSHEET

SAMPLE NO. 215 | ELAPSED TIME (t) 60 mins.

FLOW RATE 1.7 l/min | VOLUME (V) 102 liters

FIELD AREA (a) _____ mm^2 | BLANK COUNT (b) _____ fibers/field

FILTER AREA (A) 855 mm^2 | AV. FIBER COUNT (f) .07 fibers/field



SUBTOTALS

TOTAL 7

Constant $k = \frac{A}{1000\ a}$

Fiber Concentration $(F) = \frac{k\ (f-b)}{V}$ $\frac{198 \times .07}{102} = .14$

Date: 12/8/97

ASBESTOS FIBER COUNT WORKSHEET

SAMPLE NO. 2:E

ELAPSED TIME (t) 60 mins.

FLOW RATE _____ l/min

VOLUME (V) 102 liters

FIELD AREA (a) _____ mm^2

BLANK COUNT (b) _____ fibers/field

FILTER AREA (A) 855 mm^2

AV. FIBER COUNT (f) .57 fibers/field

	—	1	2	1	—
0	1	—	2	—	—
	—	1	1	—	—
	1	1	2	2	—
	1	—	—	3	—
	1	—	1	—	—
5	—	1	—	1	—
	1	—	—	—	1
	3	—	2	—	—
	—	—	—	—	—
	1	—	—	—	1
10	—	—	2	1	—
	2	1	1	—	—
	—	1	—	—	—
	—	—	2	—	—
15	1	—	2	—	1
	1	—	—	1	—
	1	—	—	—	—
	—	1	—	—	1
20	1	—	1	2	—
SUBTOTALS	15	6	19	11	4

TOTAL 57

Constant $k = \frac{A}{1000\ a}$

Fiber Concentration $(F) = \frac{k\ (f-b)}{V} \frac{198 \times .57}{102} = 1.1$

Date: 1-4-76

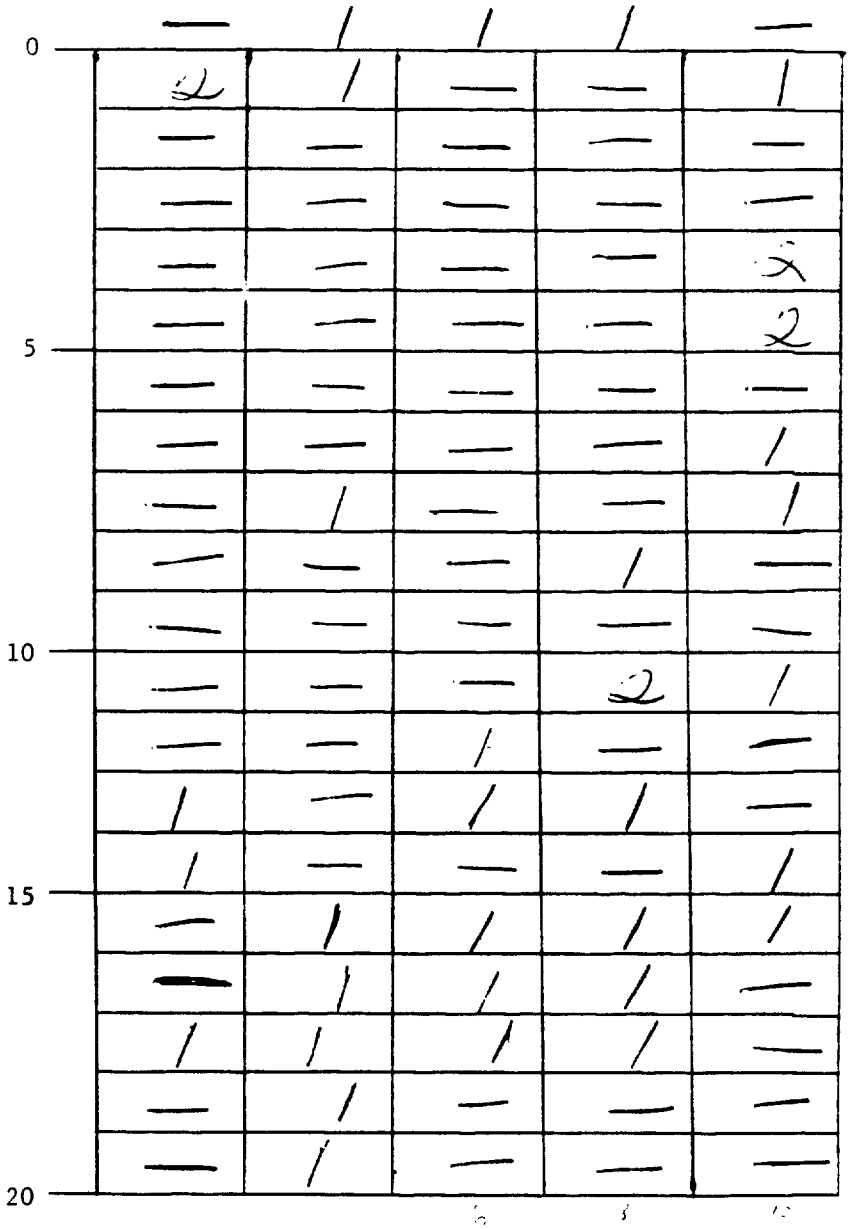
ASBESTOS FIBER COUNT WORKSHEET

SAMPLE NO. 144 | ELAPSED TIME (t) 124 mins.

FLOW RATE _____ l/min | VOLUME (V) 211 liters

FIELD AREA (a) _____ mm^2 | BLANK COUNT (b) _____ fibers/field

FILTER AREA (A) 855 mm^2 | AV. FIBER COUNT (f) .37 fibers/field



SUBTOTALS

TOTAL 37

Constant $k = \frac{A}{1000\ a}$

Fiber Concentration $(F) = \frac{k\ (f-b)}{V}$ $\frac{198 \times .37}{211} = .35$

AIRBORNE ASBESTOS FIBER SAMPLING

Plant Akron N.Y.

Name E Ribbeck

Title Trk Driver

Date 11/7/75

Pump Serial No. B-06-288

Sampled by

Signature

LOCATION	Unload Asbestos Car				
FILTER NO.	238				
FLOW: Pump Setting	6				
Liter/min (R)	1.7				
TIME: On	10:00 AM				
Off	12:00 Noon				
ELAPSED TIME (min) (t)	120				
VOLUME, Liters (t x r)	204				
REMARKS					
CONCENTRATION (F) fibers/ml	.28				

Total Sample Time (T) 120 mins.

$$\text{Time Weight Av. Concentration} = \frac{(t_1F_1) + (t_2\ _2) + (t_3F_3) + \ldots}{T}$$

$$= \boxed{.28}$$

SGP 0008426

Date: 12/9/71

ASBESTOS FIBER COUNT WORKSHEET

SAMPLE NO. 238 | ELAPSED TIME (t) 120 mins.

FLOW RATE _____ l/min | VOLUME (V) 204 liters

FIELD AREA (a) _____ mm^2 | BLANK COUNT (b) _____ fibers/field

FILTER AREA (A) 855 mm^2 | AV. FIBER COUNT (f) 0.29 fibers/field

	—	1	—	—	—
0	1	—	—	—	—
	1	1	1	—	—
	1	1	—	—	—
	—	—	—	1	1
	1	—	—	—	—
5	—	1	1	—	—
	1	—	—	—	1
	—	—	1	—	2
	—	—	—	—	—
	—	2	—	1	—
10	1	—	—	—	—
	—	—	—	—	—
	—	1	—	—	1
	—	—	—	—	1
15	—	1	1	—	2
	—	—	1	—	—
	1	—	—	1	—
	—	—	—	—	—
20	—	—	2	—	—
SUBTOTALS	7	8	7	3	8

TOTAL 29

Constant $k = \frac{A}{1000\ a}$

Fiber Concentration $(F) = \frac{k\ (f-b)}{V}$ $\frac{198(.29)}{204} = .28$

SGP 0008427

Georgia-Pacific

intracompany memo

to	* See Below	location	
from	G. E. Wilson	location	Portland
subject	Asbestos	date	October 23, 1975

COPY

As you are all aware, we find ourselves in a position of being legislated out of the use of asbestos in joint cement. The question at this time is not if it will happen, but when, as all signs are definite that levels will be established too low for us to live with.

With this in mind, one if not our major priority in joint cement at this time is to develop a Ready-Mix that does not contain asbestos. We want to do this as soon as possible but at the same time want to take an orderly approach so that we do not get ourselves into a major catastrophe.

You can be of great assistance by fully cooperating with the product development people in formula changes and field trials, making sure that when material is sent out it is followed and we get accurate readings on performance. In view of the program, I would also remind you that you should maintain close control of your asbestos inventory so that we do not find ourselves in a position of writing off large quantities that are no longer useable.

G. E. W.

GEW:jb

* TO: Messrs. K. W. Brown - Acme
I. P. Weibel - Akron, N. Y.
M. A. Palmowski - Chicago J. S. Plant
R. V. Favero - Marietta
H. W. Scharf - Milford

cc: Messrs. E. B. Hollingsworth - Wilmington, Del. - Gypsum
T. W. Richards - Tigard Lab
C. W. Lehnert - Tigard Lab
E. L. Aasen

RECEIVED
OCT 24 1975

SGP 0008428

Georgia-Pacific

intracompany memo

to	*See Below	location	
from	G. W. Green	location	Tigard
subject	Proposed Rule Changes - Occupational Exposure to Asbestos	date	October 24, 1975

Following is a summary of the proposed rule changes concerning occupational exposure to asbestos. Arguments for or against the proposals must be submitted prior to December 8, 1975. A date has not yet been set when these proposals, if adopted, will become effective.

Also included is a summation of the results of the initial monitoring of joint cement plants.

1. The proposed rules will not apply to the construction industry.

2. Limits: The permissible exposure will be reduced from 5 to 0.5 fibers per milliliter for an 8 hour time weighted average. The ceiling limit will be reduced from 10 to 5 fibers per milliliter. The present law rules that the time weighted average is to be reduced to 2 fibers per milliliter in July, 1976.

3. Definition: The new definition of an asbestos fiber: "Asbestos fiber means a particulate form of asbestos, longer than five micrometers, with a length to diameter ratio of at least three to one and a maximum diameter of five micrometers. The previous definition did not define a maximum diameter.

4. Roster: Only authorized persons may be allowed to enter a regulated area, and a daily roster of all persons entering the area shall be maintained. This roster must be kept for at least forty years. A regulated area is any area where the above limits may be exceeded.

5. Monitoring: If either of the two limits are exceeded, air samples must be taken once a month. If the limits are met, samples must be taken at least once each three months. However, if two consecutive monitorings show levels below the limits, then monitoring need not be repeated. The records must be kept at least forty years.

   At present, monitoring must be done at least every six months.

6. Employee Notification: Within five working days of receiving the results of monitoring, each employee must be notified, in writing, of the results concerning the employee's exposure.

7. Dust Collection Monitoring: Measurements which demonstrate the effectiveness of dust control systems, such as captive velocity, duct velocity, or static pressure, will be made at least every three months. Records of these measurements must be maintained for three years.

RECEIVED BY
OCT 28 1975
GYPSUM DIVISION

Georgia-Pacific

intracompany memo

to *See Below location

from G. W. Green location Tigard

subject Proposed Rule Changes - Occupational Exposure to Asbestos date October 24, 1975

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GP 09