AIRBORNE FIBER COUNTS

for

TAPE JOINT & TEXTURE PAINT COMPOUNDER

August 21, 1973

Present for

Present for Union Carbide Corporation: Mr. J. E. Walsh

Samples Analyzed By: Mr. E. J. Kleber

UNION CARBIDE CORPORATION
Mining and Metals Division
Niagara Falls, New York

PLAINTIFF'S EXHIBIT

UC-5133

DESCRIPTION OF PLANT & TESTS

Tests were conducted August 21, 1973 at
manufacturers of Tape Joint Compounds.

Personal breathing zone and environmental samples were collected in an effort to determin the amount of airborne asbestos fiber generated during the manufacture of and during unloading of a car of SG-210. Samples are described in the Table.

Sampling and dust counting were carried out in accordance with OSHA Regulation 1910.93a, using the Bayer, Zummalde and Brown method for counting asbestos fibers by phase contrast microscopy (Bureau of Occupational Safety and Health, Feb. 1969).

Battery-powered air pumps (M.S.A. type) calibrated to 2 liters per minute were used to collect personal breathing zone and environmental samples on millipore membrane filters o 0.8 micron porosity.

Fiber counting was performed on a Vicker's phase contrast microscope utilizing a Porton reticle for sizing and field definition.

TEST RESULTS

Two figures have been reported for each sample. They are:

1. Total Fiber - Any material longer than 5 microns having an aspect ratio greater than 3:1.

2. Probable Asbestos Fiber - Any material meeting the criteria in No. 1 which in th judgement of the operator could possibly be Chrysotile fiber.

SUMMARY OF FIBER COUNTS

Sample No	Field No	Description	Total Fiber Fibers/cc >5 μ	P. A. F
1	110	Environmental (10 min.) - Located 5 ft. off floor and 2 ft. to the left of dry blending through. Monitored between batches.	0.7	
2	221	Personal (5 min.) - Dry blender operator ( ) during addition of 200 lb. 7RF9 and 90 lb. SG-210.	22.2	
3	218	Environmental (15 min.) - Same position as No. 1 during addition of 200 lb. 7RF9 and 90 lb. SG-210.	3.9	
4	212	Personal (12 min.) - Dry blender operator ( ) completing batch with other dry ingredients such as Mica, etc.	3.6	
5	269	Environmental (16 min.) - Same position as No. 1 between batches.	2.2	
6	292	Personal (11 min.) - Wet mix operator ( ) during blending of dry ingredients with and water.	3.5	
	207	Environmental (75 min.) - Located 12 ft. from floor in middle of car door opening. Monitored from time door was opened until completion of unloading.	2.0	
8	145	Personal (87 min.) - Car unloader ( ) during entire unloading.	2.7	

REPORT OF CALL

Calidria ASBESTOS

cc for

E. J. Kleber - Niagara Falls
T. P. Morris - Chicago
H. B. Rhodes - Niagara Falls
W. C. Thurber - NY 38
KC Files
NF Files

UNION CARBIDE CORPORATION
P.O. Box 579 Niagara Falls, N.Y. 14302

By J. E. Walsh

Date 7/31/73

Full Name Georgia Pacific	Interviewed
Address Marietta, Georgia	Bob Favero - Plant Manager Doug Jones - Quality Control
Mfrs. of Tape Joint Muds	

Call made to run dust count per their request. The following is the data on the samples taken which have been forwarded to E. J. Kleber's attention for counting.

	Sample No.		Sample Time	
2.2	139	1.5-0.9	125 min.	- Sample was attached to John Tinker, plant foreman during his normal travels around the plant. It was felt that Tinker would be the most logical person who, during his work day, would cover all areas in the plant.
13.8	210	11.4	7 min.	- Personal sample on James Conner during redi-mix operation where H_2O, latex and blended dry ingredients are mixed on five foot high platform.
26.6	&	20.9	6 min.	- Exact repeat of sample 210 on next batch made to give us duplicate results to compare count levels
71.7	225	4.2-21.9	7 min.	- Background sample directly behind the wet mix platform area 10 feet above the floor. Sample taken during one complete batch mixing of water, latex and blended dry ingredients. A noticeable puff of dust is generated when dry ingredients are dropped into the tank.
35.8	216	22-13.3	7 min.	- Personal sample on Gary Dellorso during the mixing dry asbestos ingredients only. Two 100-lb. bags and three 30-lb. bags of SG-210 were added to dry mix trough with overhead dust collector.

Sample No.			Sample Time		
48.3	241	33.5	4 min.	-	Personal sample on Gary Delorse during the addition of the balance of dry mix materials. Materials added were 350 lbs. mica, 40 lbs. PVA, 37-1/2 lbs. Natrosol.
15.5	219	13.9	11 min.	-	Exact repeat of sample 216 on next batch to give us duplicate results to compare count levels. Asbestos ingredients only.
372	206	21.2 - 12.1	5 min.	-	Exact repeat of sample 241 on next batch to give us duplicate results to compare count levels. Other dry ingredients only.
11.0	198	7.3	18 min.	-	Background sample during mixing of all dry ingredients. Located two feet to the left of the trough and five feet above the floor. Slight amount of dust was noticeable that trough overhead dust collector did not take out.
3.3	230	2.3 - 1.1	37 min.	-	Background sample located in same area as sam 198 and taken during the period directly afte the last batch of dry ingredients were mixed and up to the start of the next batch mixing cycle.

Some interesting comments picked up during the day were that Gene O'Neill from Tigard is due to report in here August 1 and will be their Q.C. and R & D head for tape joint muds in the Southeast. Hank Peal, located in Wilmington, Delaware, is G-P's Eastern Regional Manager for Safety and all OSHA and EPA regulations. Jones phoned Peal after the count was done and discussed the cost of the equipment needed to run spot counts in the future, and it looks like Marlett will get the O.K. to buy one. G-P may have solved the problem of an asbestos replacement in dry-mix muds but are at a dead end for one in redi-mix muds.

During the mixing of asbestos dry ingredients, the bags of 210 on the pallet used were dirty, in some cases torn, and with visible asbestos evident, laying between the bags throughout the pallet. The 7RF9 bags from the pallet being used were, unfortunately, all clean and untorn, and loose asbestos was not evident

JEW/cs
Typed: 8/1/73

COUNT SHEET

Sample #	78	[illegible]	7[illegible]	77	7[illegible]	[illegible]	94	[illegible]
time	8/0		[illegible]		[illegible]		[illegible]	[illegible]
flow								
1	5	1912	0/0	141	0/0	167	0	209
2	4	1843	0/1	105	1/0	154	0	243
3	1	1896	0/0	102	0/0	184	0	219
4	2		0/0	131	1/0	171	0	212
5	2		2/0	91	1/0	156	0	256
6	1		0/0		0/0		0	
7	4		0/1		0/1		1	
8	4		0/0		1/1		0	
9	1		0/0		0/0		0	
10	3		0/0		0/0		0	
11	0		1/0		0/0		0	
12	1		0/0		0/0		0	
13	1		1/1		0/1		0	
14	1		0/0		0/0		0	
15	0		0/0		0/0		0	
16	1		0/0		0/1		0	
17	0		0/0		0/0		0	
18	1		0/0		0/0		0	
19	5		0/0		0/0		1	
20	2		0/0		1/0		0	
TOTAL	39	5651	[illegible]7	570	9[illegible]	832	2	1139
AVG	1.95	1883.7	.175	114.0	.225	166.4	.1	227.8
FIELD AREA								
FILTER AREA								
VOLUME	162	5.71	4	.1412	4	.1412	4	.1412
CONCENTRATION	1.72	2.8	~~7.13~~ 6.2	6.9	8.0	10.1	3.56	13.8

FOR CNT X FILTER AREA

FIELD AREA X [illegible]

REPORT OF CALL

cc for
E. J. Kleber - Niagara Falls
B. L. Ingalls - Niagara Falls
T. P. Norris - Chicago
H. B. Rhodes - Niagara Falls
W. C. Thurber - NY 38
KC Files
NF Files

UNION CARBIDE CORPORATION

P.O. Box 579 Niagara Falls, N.Y. 14302

By J. E. Walsh

Date 8/21 & 8/22/73

Full Name	Georgia Pacific	Interviewed
Address	Marietta, Georgia	Doug Jones - Quality Control
Mfrs. of	Tape Joint Muds	

Call made to collect another set of mixing samples and to observe the unload condition of the six shrink-wrapped pallets of SG-210 in the car. The following sampl were collected during the manufacturing of joint cement:

No. 110 - Background - Sample was hung five feet off the floor and two feet to the lef of the dry blending trough and covered the period between the finish of the last batch and the mixing of dry blend ingredients for the next batch. Time on, 1:05 p.m., off 1

No. 221 - Personal - Attached to Sam Gayton, the operator of the dry blender. Sample covers the addition of two 100-lb. bags of 7RF9 and three 30-lb. bags of SG-210. Time on 1:15 p.m., off 1:20 p.m.

No. 218 - Background - Sample was located in the same position as 110 sample and covere the period during the dumping of 200 lbs. of 7RF9 and 90 lbs. of SG-210. Time on 1:15 p.m., off 1:30 p.m.

No. 212 - Personal - Attached to Sam Gayton, the dry blend operator, during the additi the following dry ingredients to complete the batch: Mica, 350 lbs.; Gelvatol, 40 lbs. Natrosol, 37-1/2 lbs.; Dowicil 100, 7-1/2 lbs., Calgon, 12-1/2 lbs. Time on 1:16 p.m., off 1:28 p.m.

No. 269 - Background - Sample was located in same position as 110 and run during the pe starting from the end of one batch to the start of the next one. Time on 1:30 p.m., of 1:46 p.m.

No. 292 - Personal - Attached to wet mix operator Robert Huie during the mixing of the blended dry ingredients with latex and water. Time on 1:48 p.m., off 1:59 p.m.

The above samples were taken on 8/21 prior to delivery of the carload by the railroad. At about 4:30 p.m., the railroad spotted car Southern 19206 by G-P's unloading door. Doug and I tried to open the car door but it was stuck so we went to the use of a crowbar and tension chain. The best we could do was open the door about two inches, and when we did, a virtual asbestos snowstorm came blowin out the door, covering us from head to toe in white. After it stopped blowing, we looked in the door opening and saw that the problem was that the front four pallets by the door had shifted during transit and about 40 SG-210 bags were wedged against the door, preventing us from moving it. Due to the hour, we decided to forget it fc the day and start in on it at 7 a.m. the next day. In the morning, with the help of an experienced fork lift driver and boxcar unloader, we finally were able to free the door after 40 minutes of time had elapsed. After removing the damaged bags in t door area, I climbed up inside the car to locate the shrink wrapped pallets. Four of them were visible in the far end of the car. Loose asbestos lay on top of every pallet in the car and five to ten pound piles were all over the door area, between pallets, on the floor and between bags. The following samples were taken:

No. 207 - Background - On 7:55 a.m., off 9:10 a.m. Located 12 feet from the floor i the middle of the car door opening. Sample was run from the time the door was opene until the work on the car was stopped.

No. 145 - Personal - On 7:45 a.m., off 9:12 a.m. Attached to John Tinker, operator unloading the car, from the time the door was opened until work on the car stopped.

After an hour's work, the doorway area was still only half cleared and our chances of getting to the shrink wrapped pallets were about a day away, according to Tinker. As the writer had to catch an 11:00 plane, it was agreed that G-P would set aside the shrink wrapped pallets when the car was finally unloaded and I would c back after Labor Day to observe what they looked like.

JEW/cs
Typed: 8/31/73

UNION CARBIDE CORPORATION • MINING & METALS DIVISION • P.O. BOX 579 • NIAGARA FALLS

August 2, 1973

Mr. Doug Jones
Georgia-Pacific Company
1466 White Circle
Marietta, GA 30060

Dear Mr. Jones:

At the request of J. E. Walsh, enclosed is a copy of the recognized procedure for obtaining airborne asbestos fiber counts. Along with that is a list of equipment needed to perform these counts. If you intend only to obtain these counts and have them analyzed elsewhere, you only need the equipment marked with a red line. A substitution that can be easily made is the soap film flowmeter. One can cut the bottom of a graduate and rig a flowmeter without spending $40.00.

Please let us know if we can be of any further assistance. Simply contact Mr. Walsh at Union Carbide's Atlanta Sales Office.

We look forward to serving you.

Very truly yours,

Edward J. Kleber
Customer Service Representative

Enclosure

cc: J. E. Walsh

/ds

ASBESTOS FIBER COUNTS

for

December 29, 1972

Personnel Present:

Mr. E. J. Kleber
Union Carbide Corporation

Mr. T. P. Norris
Union Carbide Corporation

UNION CARBIDE CORPORATION
Mining and Metals Division
Niagara Falls, New York

DESCRIPTION OF PLANT AND TESTS

Tests were conducted November 27, 1972
[redacted] manufacturers of tape joint compounds.

Dry ingredients are added at a loading hopper the load is then conveyed to a bagging machine. Both operations were monitored.

APPARATUS AND PROCEDURE

Sampling and dust counting were carried out in accordance with OSHA Regulation 1910.93a, using the Bayer, Zummalde and Brown method for counting asbestos fibers by phase contrast microscopy (Bureau of Occupational Safety and Health, Feb. 1969).

Battery powered air pumps (M.S.A. type) calibrated to 2 liters per minute were used to collect personal breathing zone and environmental samples on Millipore membrane filters of 0.8 micron porosity.

Fiber counting was performed on a Leitz microscope utilizing phase contrast illumination at 400X and a Patterson Globe and Circle reticle.

Total dust was determined by light field microscopy at 100X.

TEST RESULTS

Three figures have been reported for each sample. They are:

1) Total Fiber - Any material 5 microns or longer having an aspect ratio of 3 or greater. Reported as fibers per milliliter.

Note: This figure is considerably higher than the "possible" asbestos fiber count. The presence of Mica in the test accounts for the large figure Mica, a mineral with a platelet-type appearance fits the strict rule of greater than 5 microns in length and having an aspect ratio larger than 3. However, it is obvious that these platelet structures are not asbestos, nor even fibrous in nature.

2) Asbestos Fiber - Any material, 5 microns or longer, having an aspect ratio of 3 or greater, which in the judgment of the operator could possibly be asbestos. Reported as fibers per milliliter.

3) Total Dust - Any fiber or particle present. Reported as million particles per cubic foot.

INTERPRETATION

The regulations have been established with the 5 fiber limit on a time-weighted average. This essentially means the figures must be arranged to show an employee's average intake of fibers per milliliter on an 8-hour day. For example, the highest reading in the test was 3.6 fibers/ml. If this was the only contact with asbestos that day, the 2 minute sample could be extrapolated to 8 hours, giving a time-weighted average of less than 0.02 fibers/ml.

SUMMARY OF DUST COUNTS

N.B. No.	Description	"Possible" Asbestos Count Fibers/ml > 5μ	Total Fiber Count Fibers/ml > 5μ
1929-64-1	Environmental (8 min.) - Bagging area, 3 ft. from operator at fill and dump area.	0.9	2.6
1929-64-2	Environmental (2 min.) - At loading hopper during shaking of a load of dry mix.	3.4	6.8
1929-64-3	Personal (2 min.) - Operator dumping Mica into loading hopper.	0	82.5
1929-64-4	Personal (2 min.) - Operator dumping 2 bags 7RF9.	3.6	16.0
1929-64-5	Environmental - In office on top of file cabinets.	0.4	0.8

AIRBORNE DUST COUNTS

for

TAPE JOINT COMPOUNDS

December 8, 1972

Personnel Present:

E. J. Kleber
Union Carbide Corporation

J. E. Walsh
Union Carbide Corporation

UNION CARBIDE CORPORATION
Mining and Metals Division
Niagara Falls, New York

Description of Plant and Tests

Tests were conducted October 30, 1972 at
manufacturers of tape joint compounds

Asbestos is added at a hopper which has an overhead, negative pressure hood. Personal samples were collected from both the man dumping asbestos and his assistant, handing him the bags. A personal sample was also obtained during the dumping of mica. An environmental sample was placed near the dumping area and allowed to run for approximately one hour.

Sampling and dust counting were carried out in accordance with OSHA Regulation 1910.93a, using the Bayer, Zummalde and Brown method for counting asbestos fibers by phase contrast microscopy (Bureau of Occupational Safety and Health, Feb. 1969).

Battery powered air pumps (M.S.A. type) calibrated to 2 liters per minute were used to collect personal breathing zone and environmental samples on millipore membrane filters of 0.8 micron porosity.

Fiber counting was performed on a Leitz microscope utilizing phase contrast illumination at 400X and a Patterson Globe and Circle reticle.

Total dust was determined by light field microscopy at 100X.

Test Results

Two figures have been reported for each sample. They are:

1) Total Fiber - Any material 5 microns or longer having an aspect ratio of 3 or greater. Reported as fibers per milliliter.

2) Total Dust - Any fiber or particle present. Reported as million particles per cubic foot.

Interpretation

The regulations have been established with the 5 fiber limit on a time-weighted average. This essentially means the figures must be arranged to show an employee's average intake of fibers per milliliter on an 8-hour day. For example, the highest reading in the test was 8.0 fibers/ml. If this was the only contact with asbestos that day, the 2-minute sample would be extrapolated to 8 hours, giving a time-weight average of less than 0.04 fibers/ml.

SUMMARY OF DUST COUNTS

N.B. No.	Description	Fiber Count Fibers/ml. > 5 μ	Tot Dus mmpp
1929-48-1	Environmental (81 min.) - "Background" sample near filler bins on ladder 15 ft. from bag hopper for small raw material ingredients.	1.7	2.
1929-48-2	Personal (2 min.) - Operator's assistant handing bags to man who dumps.	6.2	6.9
1929-48-3	Personal (2 min.) - Operator dumping 2 bags 7RF9 and 3 bags SG-210	8.0	10.1
1929-48-4	Personal (2 min.) - Operator dumping 7 bags Muscovite mica	3.6	13.8

REPORT OF CALL

cc: E. J. Kleber - Niagara Falls
T. P. Morris - Chicago
H. B. Rhodes - Niagara Falls
W. C. Thurber - NY 38
KC Files
NF Files

Calidria Asbestos

UNION CARBIDE CORPORATION

P.O. Box 579 Niagara Falls, N.Y. 14302

By J. E. Walsh

Date 8/7/74

Full Name Georgia Pacific Address Marietta, Georgia Mfrs. of Tape joint muds	Interviewed Bob Favero, Plant Manager George Fowler, Tech Service

Call made on SG-210 carload account to run a dust count.

GP's mud business is way down, according to Bob, as they are now running only one shift as compared to three a year ago at this time. The carload we are shipping this month is the first since May as they now have only a 5-6 order backlog to work on compared to a 4-6 week backlog last year. An asbestos warning sign now greets you as you enter the plant, and Bob showed me the warning stickers they now put on their redi-mix cans. He also showed me some dry mix vinyl topping compound with "asbestos free" in big letters. Right now it is shipped into the Chicago area only, he said. George and I got into an interesting discussion re why they couldn't use an all 210 mud formula. George knew of no reason other than, maybe, we hadn't pushed at Tigard. After reviewing the economics now since the latest Canadian increase, it looks like we could save them 1 2/3¢/lb before figuring in the cost of limestone to make up the volume. George said his lab is all set up now, and he was going to whip up some all 210 muds, and if they are favorable, send a report to Tigard. He seemed interested in doing the work here because if it is workable, he could pick up some "brownie points" based on the amount of money he could save them.

EJK

The dust samples taken were as follows:

#T-41 - on 10:25 A.M.
off 10:30 A.M.
Personal sample attached to operator, Larry James, during the addition of 212 lbs of Carey 7RF-9 and 87½ lbs of SG-210.

#J-15 - on 10:30 A.M.
off 10:37 A.M.
Attached to operator, Larry James, during the addition of the following ingredients to complete the makeup of all dry materials in the batch: muscovite mica 350 lbs, Gelvatol 20 Natrosol 37½ lbs, Calgon T 12½ lbs, Troyson 5 lbs.

#H-17 - on 10:51 A.M.
off 10:58 A.M.
repeat of sample 1-41 on the next asbestos dump.

#I-17 - on 10:58 A.M. repeat of sample J-15 on the next batch of other dry
off 11:02 A.M ingredients dumped.

EJK Please phone me the results before mailing the report to Favero.

JW Follow up on next call with Fowler re his all 210 mud work.

ASBESTOS COUNT RECORD SHEET

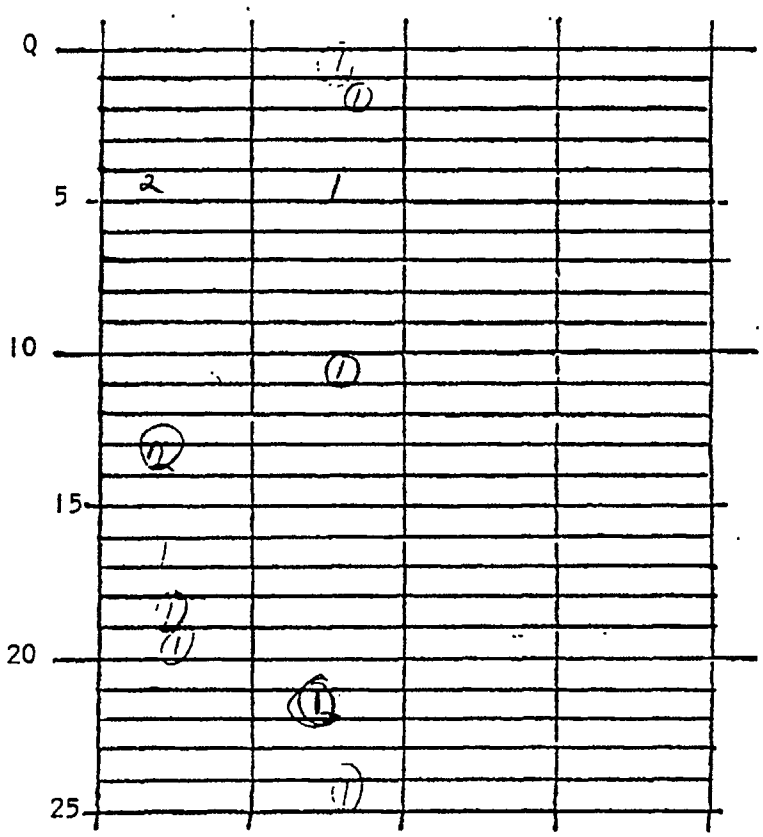
SAMPLE # _____ OPERATION _____

FLOW 2 TIME 6 VOLUME 1100 DATE / /

INITIALS _____ F. AREA _____ BLK.CNT.AV. _____

AV.COUNT 26/18 CONCENTRATION 3.9/2.7

COMMENTS:



SAMPLE 0-20 DATE

INST. FLOW RATE BLANK

TOTAL TIME 12:36 - 12:42 TOTAL AIR VOLUME

EMPLOYEES NAME LARRY JAMES

JOB TITLE

DESCRIPTION OF OPERATION:

Pers. —

weighing & adding 212.5 LBS Cag 7 RTY

& 875 LBS. SG 210

MICA, GELVATOL, NATROSOL, CALGON T, [illegible], CACO3

DESCRIPTION OF CONTROLS:

Sc 210

Packaging

[illegible]

SAMPLE 0-15

DATE

INST.

FLOW RATE

BLANK

TOTAL TIME 12:37-12:47

TOTAL AIR VOLUME

EMPLOYEES NAME

JOB TITLE

DESCRIPTION OF OPERATION:

CNU.

Dairy.

DESCRIPTION OF CONTROLS:

SAMPLE 0-3

DATE

INST.

FLOW RATE

BLANK

TOTAL TIME 12:42-12:46

TOTAL AIR VOLUME

EMPLOYEES NAME Larry Sares

JOB TITLE

DESCRIPTION OF OPERATION:

MICA Calcite

& Bag DISPOSAL

into Baler

DESCRIPTION OF CONTROLS:

ASBESTOS COUNT RECORD SHEET

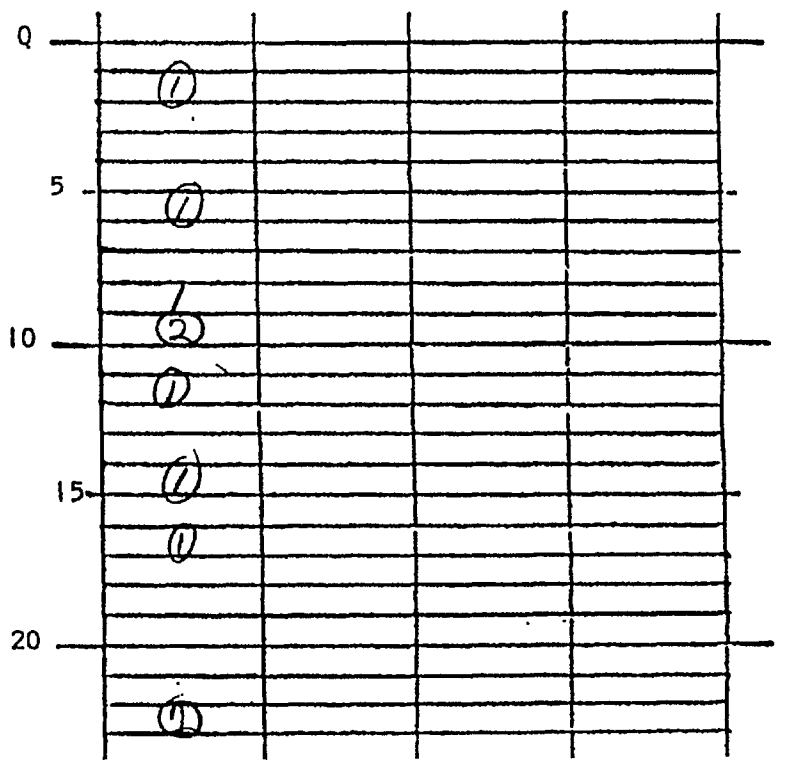
SAMPLE #_____ OPERATION_____

FLOW 2 TIME 15 VOLUME 20,000 DATE / /

INITIALS_____ F. AREA_____ BLK.CNT.AV._____

AV.COUNT 4/.36 CONCENTRATION 3.6 / 3.2

COMMENTS:



ASBESTOS COUNT RECORD SHEET

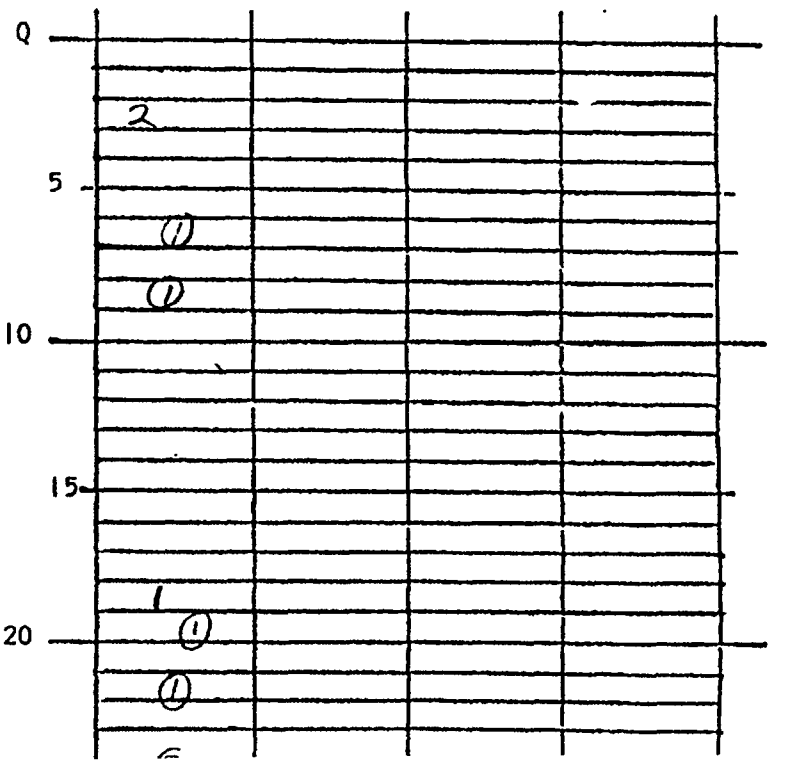
SAMPLE #_____ OPERATION_____

FLOW 2 TIME 4 VOLUME 1,000 DATE / /

INITIALS_____ F. AREA_____ BLK.CNT.AV._____

AV.COUNT .32/.2 CONCENTRATION 7.1 / 4.4

COMMENTS:



SAMPLE 0+4

DATE

INST.

FLOW RATE

BLANK

TOTAL TIME 12:46 - 1:00

TOTAL AIR VOLUME

EMPLOYEES NAME CAAAF

JOB TITLE

DESCRIPTION OF OPERATION:

Belt Sander

ESCRIPTION OF CONTROLS:

SAMPLE 0-9

DATE

INST.

FLOW RATE

BLANK

TOTAL TIME 12:47 - 1:01

TOTAL AIR VOLUME

EMPLOYEES NAME

JOB TITLE

DESCRIPTION OF OPERATION:

CNC

Belt

DESCRIPTION OF CONTROLS:

ASBESTOS COUNT RECORD SHEET

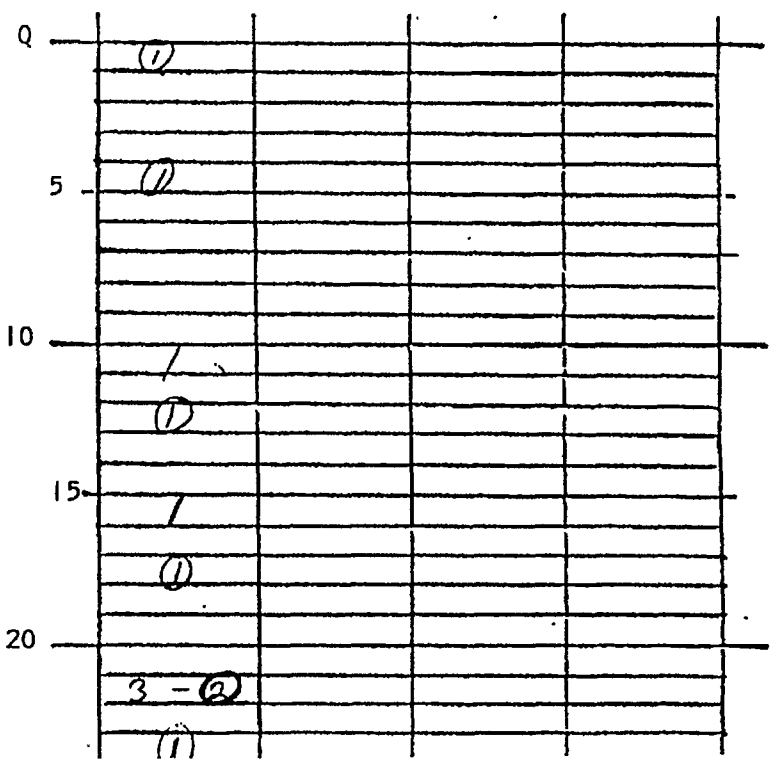
SAMPLE # _____ OPERATION _____

FLOW 2 TIME 17 VOLUME 28000 DATE / /

INITIALS _____ F. AREA _____ BLK.CNT.AV. _____

AV.COUNT 14/28 CONCENTRATION 2.5 / 1.8

COMMENTS:



ASBESTOS COUNT RECORD SHEET

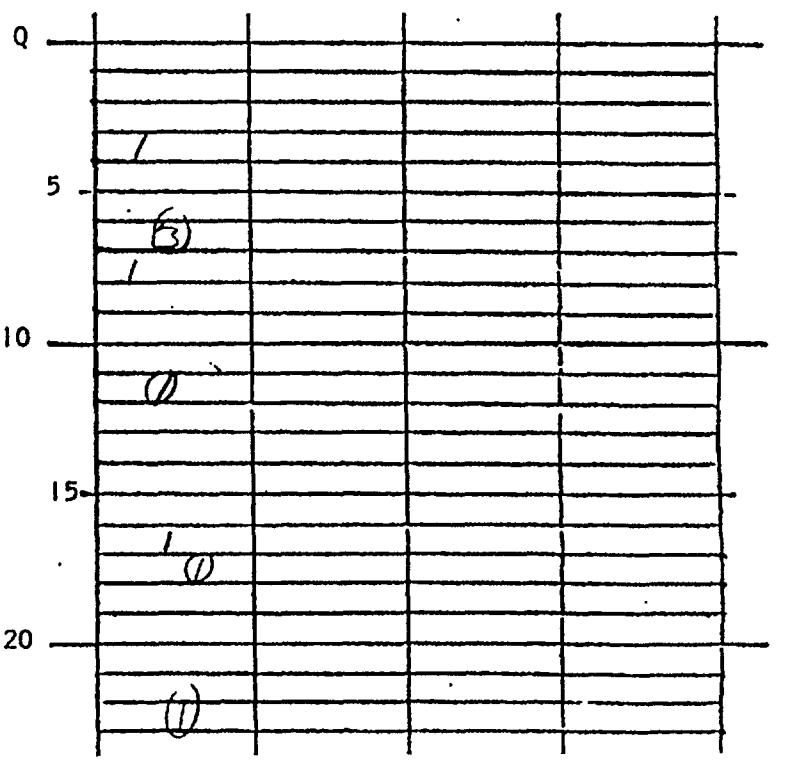
SAMPLE # _____ OPERATION _____

FLOW 2 TIME 17 VOLUME 28000 DATE / /

INITIALS _____ F. AREA _____ BLK.CNT.AV. _____

AV.COUNT 136/24 CONCENTRATION 2.3 / 1.5

COMMENTS:



SAMPLE 0-24

DATE

INST.

FLOW RATE

BLANK

TOTAL TIME 1:00 - 1:13

TOTAL AIR VOLUME

EMPLOYEES NAME Larry

JOB TITLE

DESCRIPTION OF OPERATION:

New Batch

Whole Batch

DESCRIPTION OF CONTROLS:

SAMPLE 0-23 ~~[illegible]~~

DATE

INST.

FLOW RATE

BLANK

TOTAL TIME 1:00 - 1:30

TOTAL AIR VOLUME

EMPLOYEES NAME

JOB TITLE

DESCRIPTION OF OPERATION:

[illegible]

Dump

[illegible]

Between

DESCRIPTION OF CONTROLS:

ASBESTOS COUNT RECORD SHEET

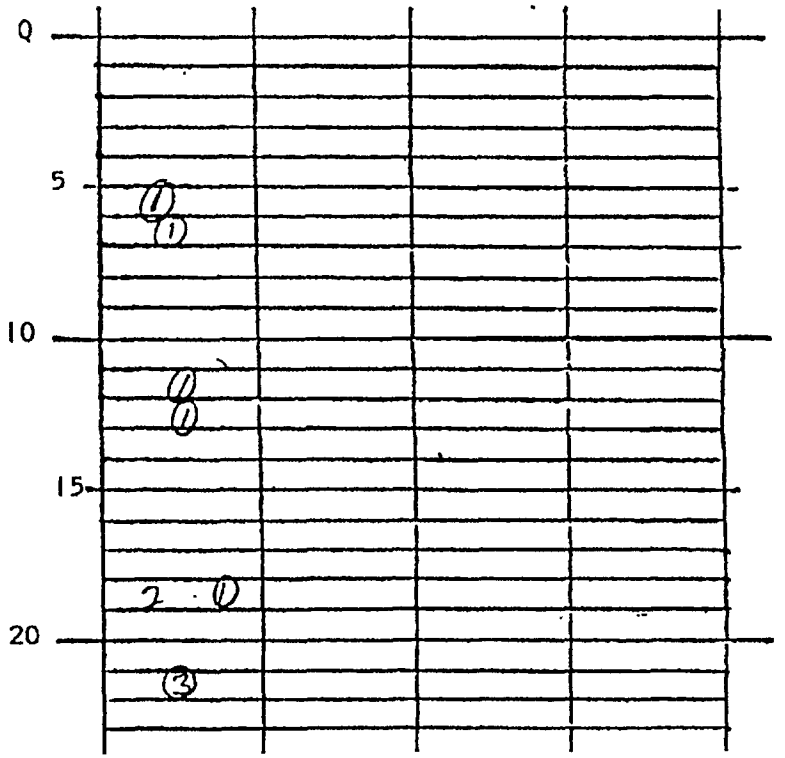
SAMPLE #_____ OPERATION_____

FLOW 2 TIME 13 VOLUME 2600 DATE / /

INITIALS_____ F. AREA_____ BLK.CNT.AV._____

AV.COUNT 4.8/4.4 CONCENTRATION 3.3/2.7

COMMENTS:



ASBESTOS COUNT RECORD SHEET

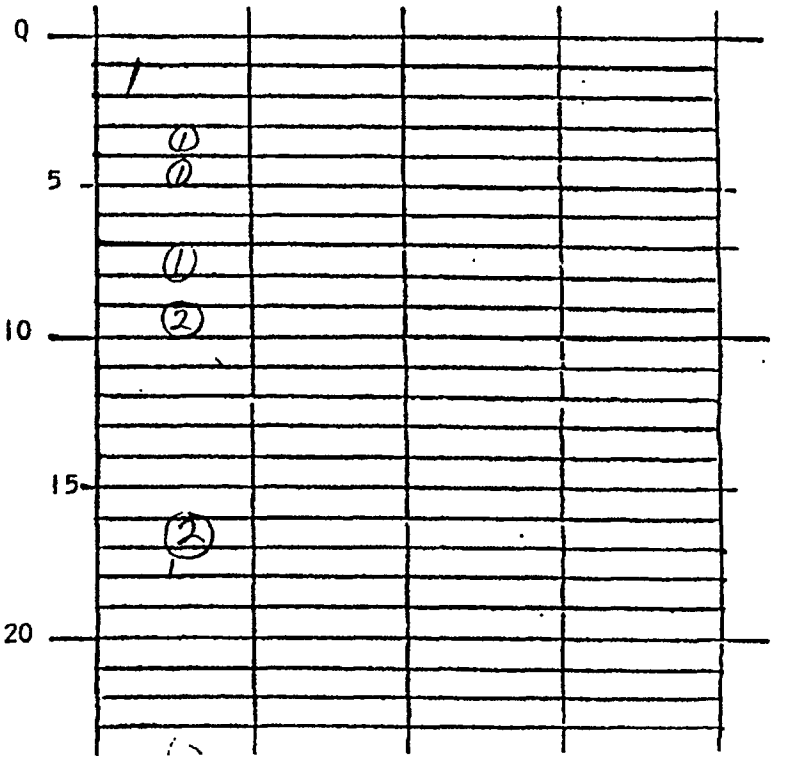
SAMPLE #_____ OPERATION_____

FLOW 2 TIME 29 VOLUME 5800 DATE / /

INITIALS_____ F. AREA_____ BLK.CNT.AV._____

AV.COUNT 4/2.4 CONCENTRATION 1.2/0.8

COMMENTS:



SAMPLE: 0-36

DATE:

INST.:

FLOW RATE:

BLANK:

TOTAL TIME: 1:13 - 1:30

TOTAL AIR VOLUME:

EMPLOYEES NAME: Larry

JOB TITLE:

DESCRIPTION OF OPERATION:

Between Batches

Q.C. Samples,

Pkging. etc.

DESCRIPTION OF CONTROLS:

SAMPLE: 0-7

DATE:

INST.:

FLOW RATE:

BLANK:

TOTAL TIME: 1:30 - 1:43

TOTAL AIR VOLUME:

EMPLOYEES NAME: Larry

JOB TITLE:

DESCRIPTION OF OPERATION:

Weld

Bailed

DESCRIPTION OF CONTROLS:

ASBESTOS COUNT RECORD SHEET

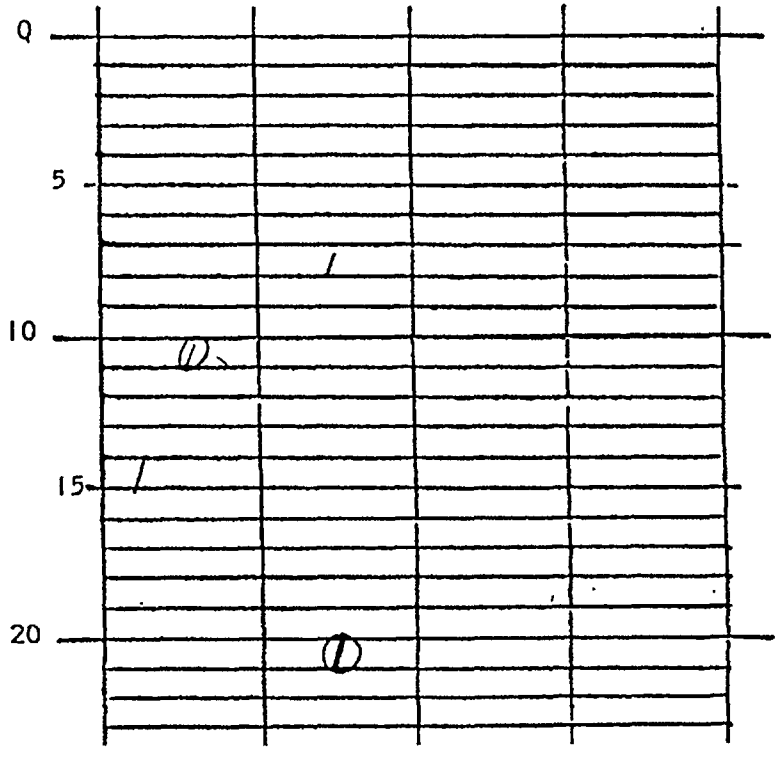
SAMPLE #_____ OPERATION_____

FLOW 2 TIME 17 VOLUME 34000 DATE / /

INITIALS_____ F. AREA_____ BLK.CNT.AV._____

AV.COUNT .08/.04 CONCENTRATION 0.4 / 0.2

COMMENTS:



ASBESTOS COUNT RECORD SHEET

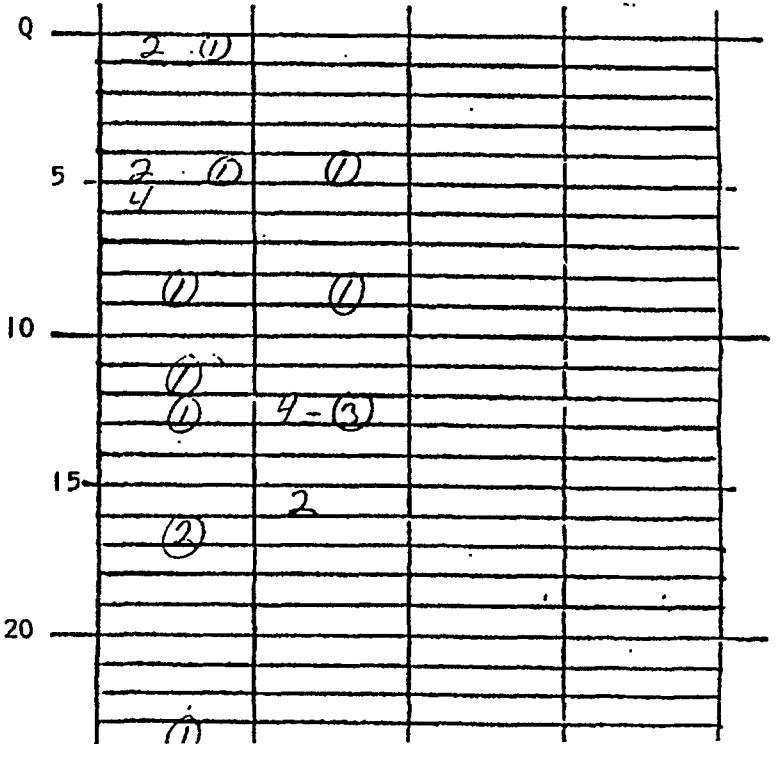
SAMPLE # C-7 OPERATION_____

FLOW 2 TIME 13 VOLUME 26000 DATE / /

INITIALS_____ F. AREA_____ BLK.CNT.AV._____

AV.COUNT .44/.26 CONCENTRATION 3.0 / 1.8

COMMENTS:



ASBESTOS COUNT RECORD SHEET

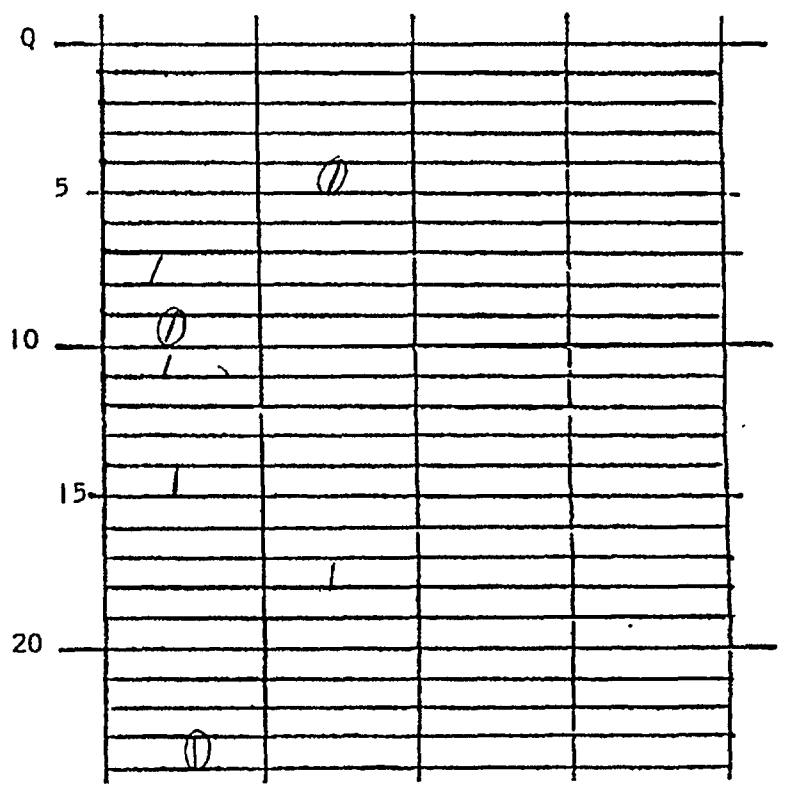
SAMPLE # _____ OPERATION _____

FLOW 2 TIME [illegible] VOLUME [illegible] DATE / /

INITIALS _____ F. AREA _____ BLK.CNT.AV. _____

AV.COUNT .14/.06 CONCENTRATION 0.57 / 0.24

COMMENTS:



SAMPLE 0-26 DATE _____

INST. _____ FLOW RATE _____ BLANK _____

TOTAL TIME 1.33 - 1.13 TOTAL AIR VOLUME _____

EMPLOYEES NAME _____

JOB TITLE _____

DESCRIPTION OF OPERATION:

LNU:
WHS'ing area
~ 50 ft. from
Dry mix area -
No ASD within
20 ft.

DESCRIPTION OF CONTROLS:

SAMPLE 027 DATE

INST. FLOW RATE BLANK

1:43 - 2:05
TOTAL TIME TOTAL AIR VOLUME

LARRY
EMPLOYEES NAME

JOB TITLE

DESCRIPTION OF OPERATION:

after Blasting

DESCRIPTION OF CONTROLS:

ASBESTOS COUNT RECORD SHEET

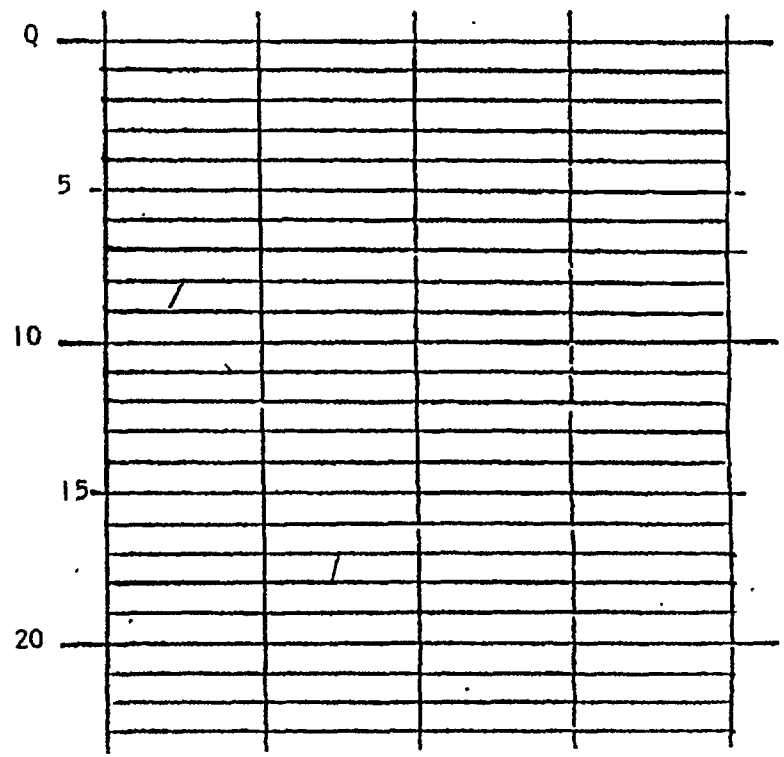
SAMPLE # OPERATION

FLOW 2 TIME 15 VOLUME .033 DATE / /

INITIALS F. AREA BLK.CNT.AV.

AV.COUNT .04 CONCENTRATION 0.24

COMMENTS:



ASBESTOS COUNT RECORD SHEET

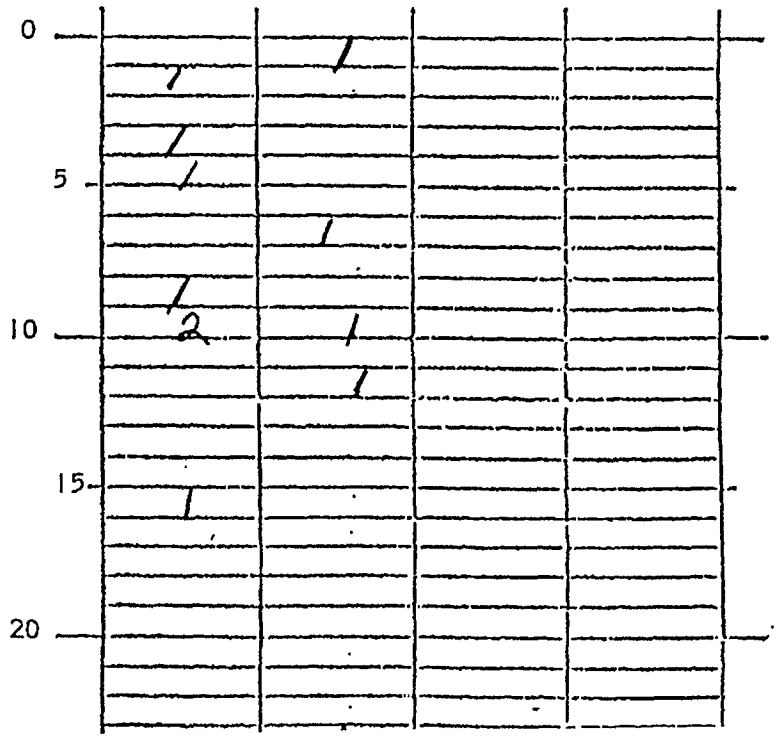
SAMPLE # J-15 OPERATION

FLOW 2 TIME 7 VOLUME 1100 DATE / /

INITIALS F. AREA BLK.CNT.AV.

AV.COUNT 2.4 CONCENTRATION ~~30~~ 3.1

COMMENTS:



ASBESTOS COUNT RECORD SHEET

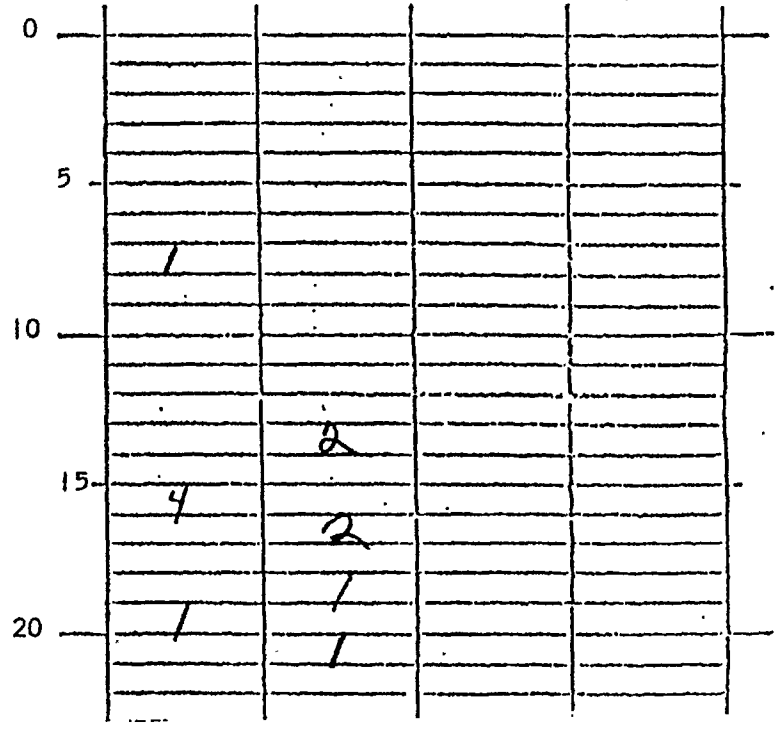
SAMPLE # 1-17 OPERATION

FLOW 2 TIME 4 VOLUME 800 DATE / /

INITIALS F. AREA BLK.CNT.AV.

AV.COUNT 2.4 CONCENTRATION 5.8

COMMENTS:



ASBESTOS COUNT RECORD SHEET

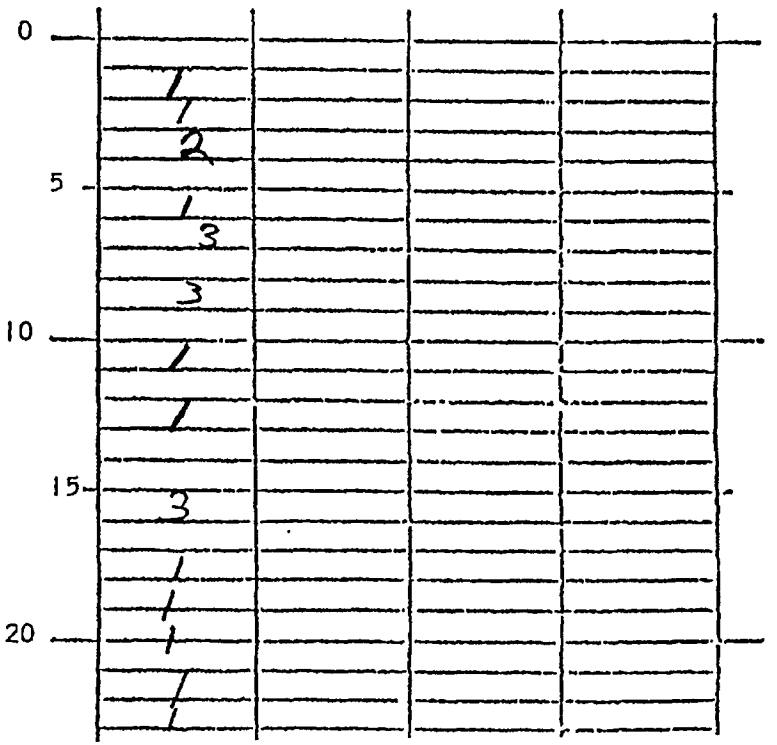
SAMPLE # H-41 OPERATION

FLOW 2 TIME 5 VOLUME 10 000 DATE / /

INITIALS F. AREA BLK.CNT.AV.

AV.COUNT .88 CONCENTRATION 15.7

COMMENTS:



ASBESTOS COUNT RECORD SHEET

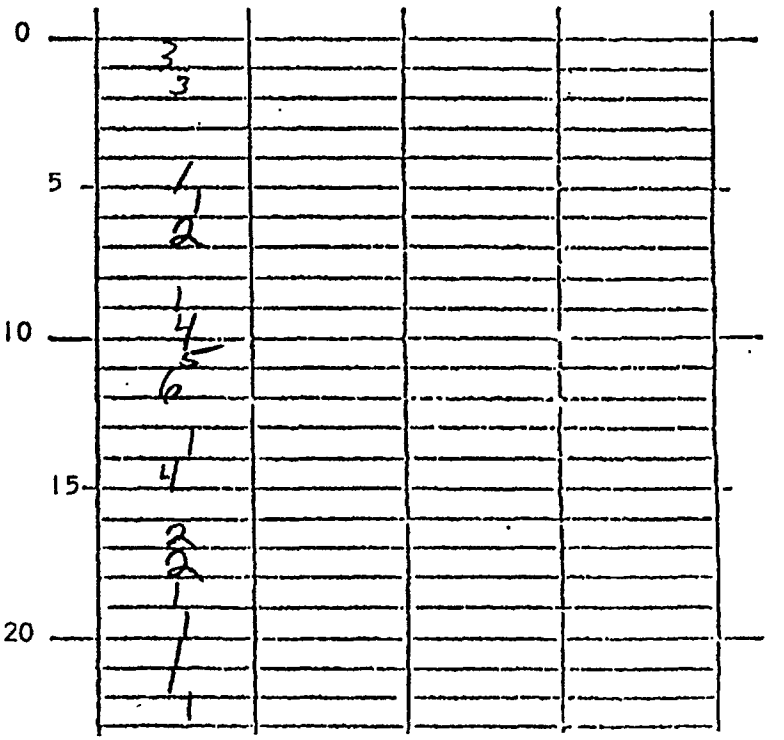
SAMPLE # H-17 OPERATION

FLOW 2 TIME 7 VOLUME 1100 DATE / /

INITIALS F. AREA BLK.CNT.AV.

AV.COUNT 1.64 CONCENTRATION 20.9

COMMENTS:



ASBESTOS COUNT RECORD SHEET

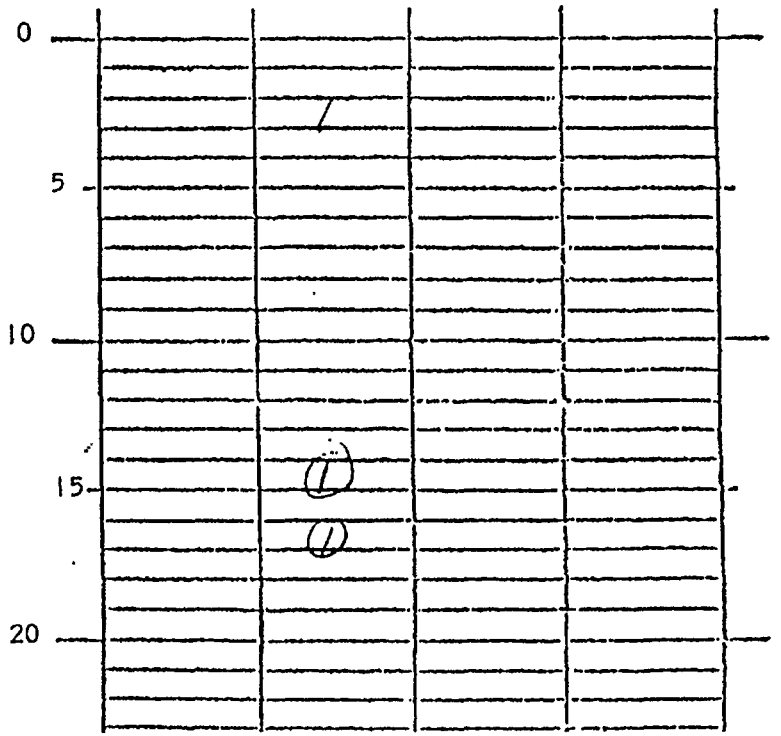
SAMPLE # 110 OPERATION

FLOW 2 TIME 10 VOLUME [illegible] DATE / /

INITIALS F. AREA BLK.CNT.AV.

AV.COUNT .08/.04 CONCENTRATION 0.7 / 0.4

COMMENTS:



ASBESTOS COUNT RECORD SHEET

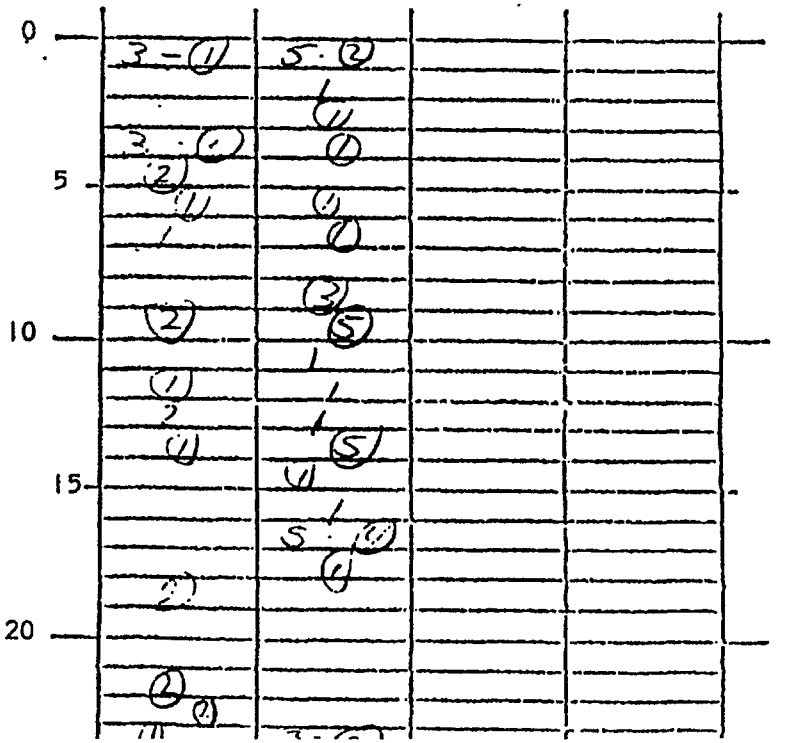
SAMPLE # 221 OPERATION

FLOW 2 TIME 5 VOLUME [illegible] DATE / /

INITIALS F. AREA BLK.CNT.AV.

AV.COUNT 1.22/.92 CONCENTRATION 22.2 / ~~FF~~ 16.7

COMMENTS:



ASBESTOS COUNT RECORD SHEET

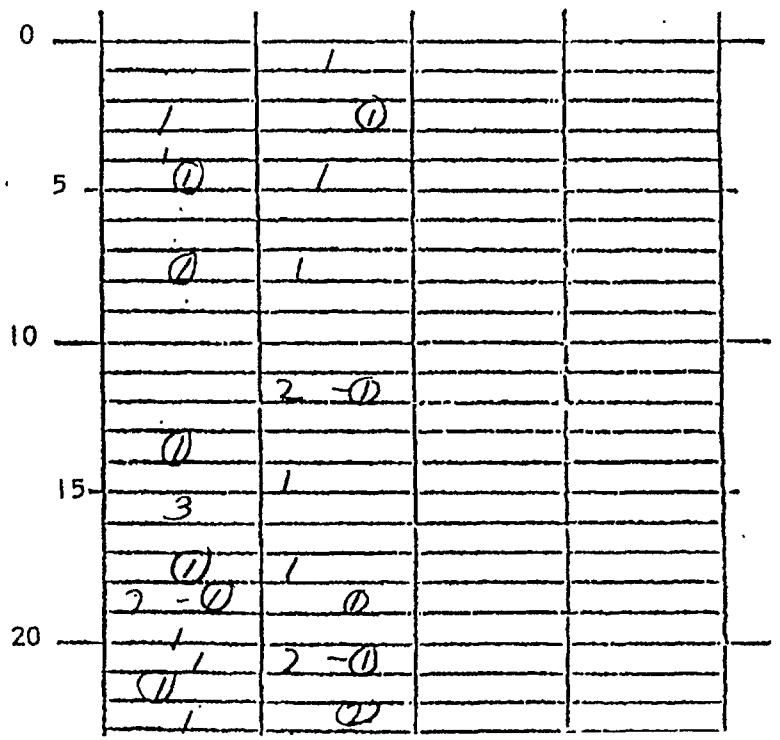
SAMPLE # 218 OPERATION

FLOW 2 TIME 15 VOLUME 30,000 DATE / /

INITIALS F. AREA BLK.CNT.AV.

AV.COUNT .63/.29 CONCENTRATION 3.9 / 1.5

COMMENTS:



ASBESTOS COUNT RECORD SHEET

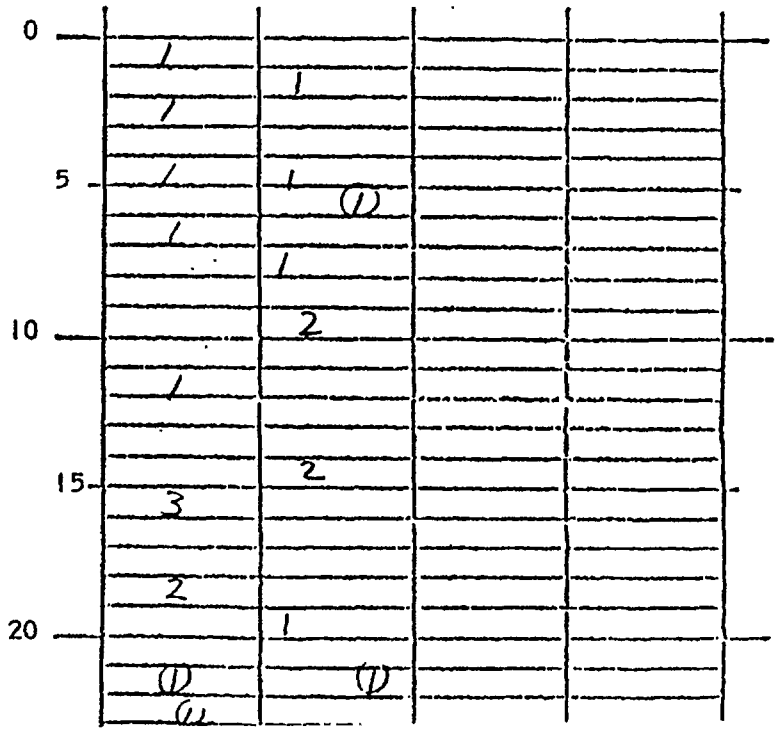
SAMPLE # 212 OPERATION

FLOW 2 TIME 12 VOLUME 24,000 DATE / /

INITIALS F. AREA BLK.CNT.AV.

AV.COUNT .46/.10 CONCENTRATION 3.6 / 0.5

COMMENTS:



ASBESTOS COUNT RECORD SHEET

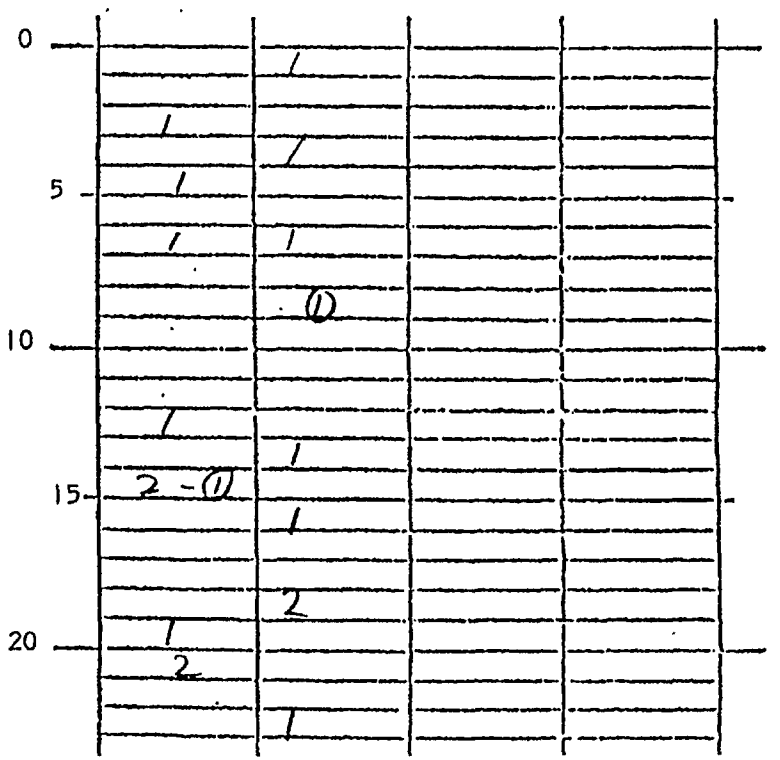
SAMPLE # 269 OPERATION

FLOW 2 TIME 16 VOLUME 5.000 DATE / /

INITIALS F. AREA BLK.CNT.AV.

AV.COUNT 38/.04 CONCENTRATION 2.2 / 0.2

COMMENTS:



ASBESTOS COUNT RECORD SHEET

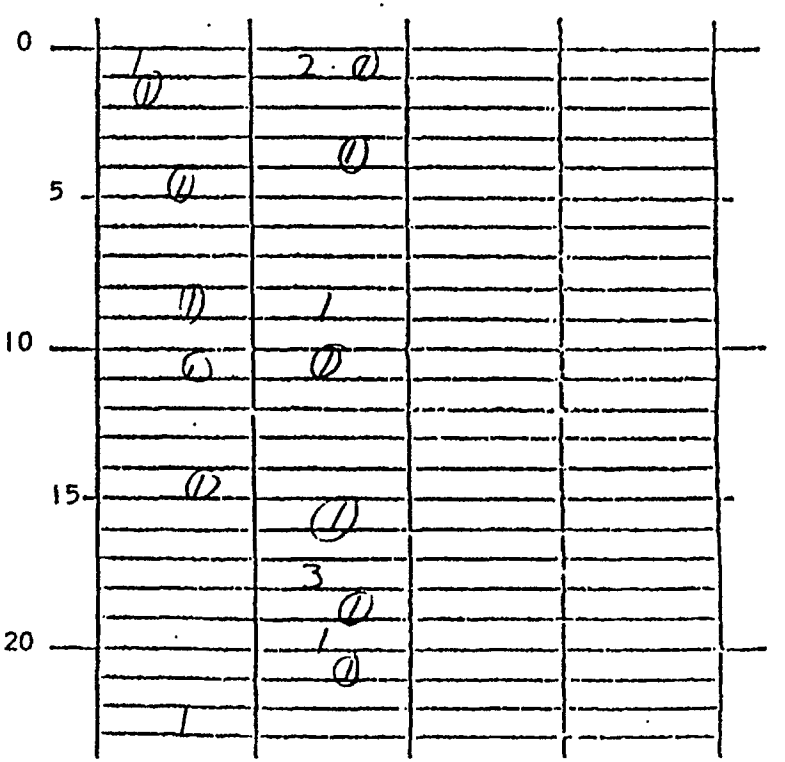
SAMPLE # 242 OPERATION

FLOW / TIME 11 VOLUME 2.000 DATE / /

INITIALS F. AREA BLK.CNT.AV.

AV.COUNT 42/.12 CONCENTRATION 3.5 / 1.9

COMMENTS:



ASBESTOS COUNT RECORD SHEET

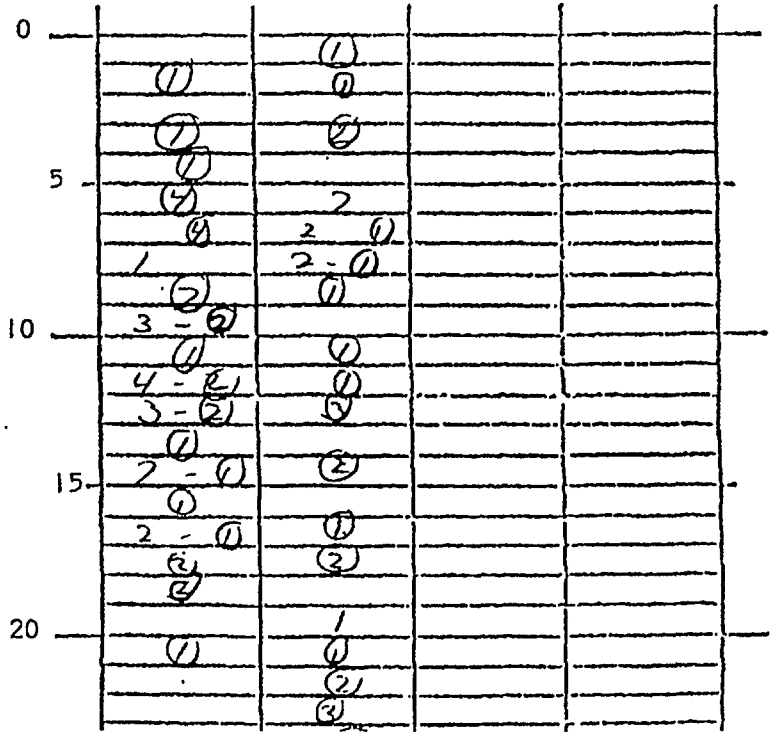
SAMPLE # 201 OPERATION

FLOW 2 TIME 75 VOLUME 3300 DATE / /

INITIALS F. AREA BLK.CNT.AV.

AV.COUNT 44/1.22 CONCENTRATION 0.5 / 1.5
2.0

COMMENTS:



ASBESTOS COUNT RECORD SHEET

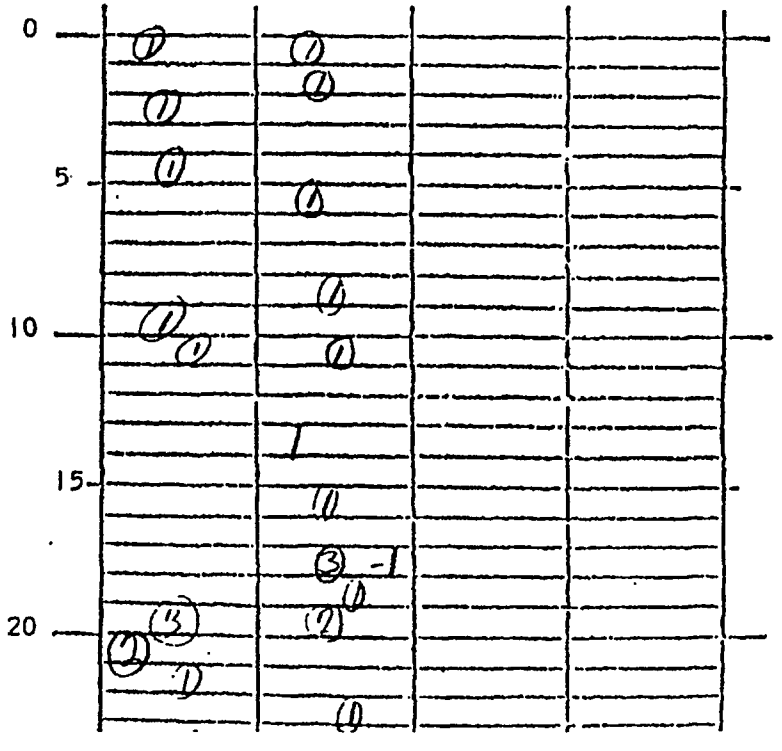
SAMPLE # 17 OPERATION

FLOW TIME VOLUME 4000 DATE / /

INITIALS F. AREA BLK.CNT.AV.

AV.COUNT 52/1.44 CONCENTRATION 23.6 / 22.3
80

COMMENTS:



ASBESTOS COUNT RECORD SHEET

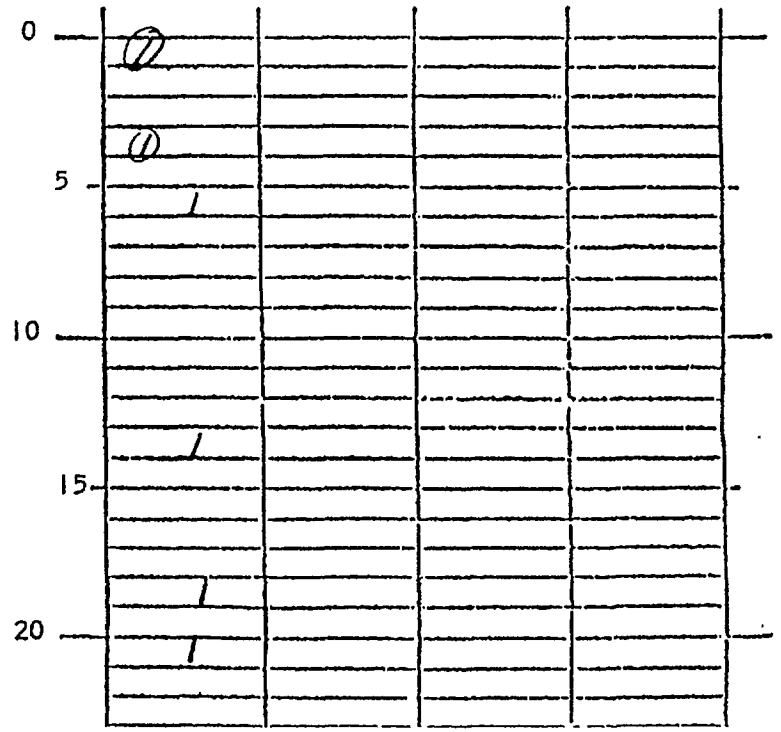
SAMPLE # 94 OPERATION

FLOW TIME VOLUME 4000 DATE / /

INITIALS F. AREA BLK.CNT.AV.

AV.COUNT 28/.08 CONCENTRATION 12 / 3.64

COMMENTS:



6 P.M.

ASBESTOS COUNT RECORD SHEET

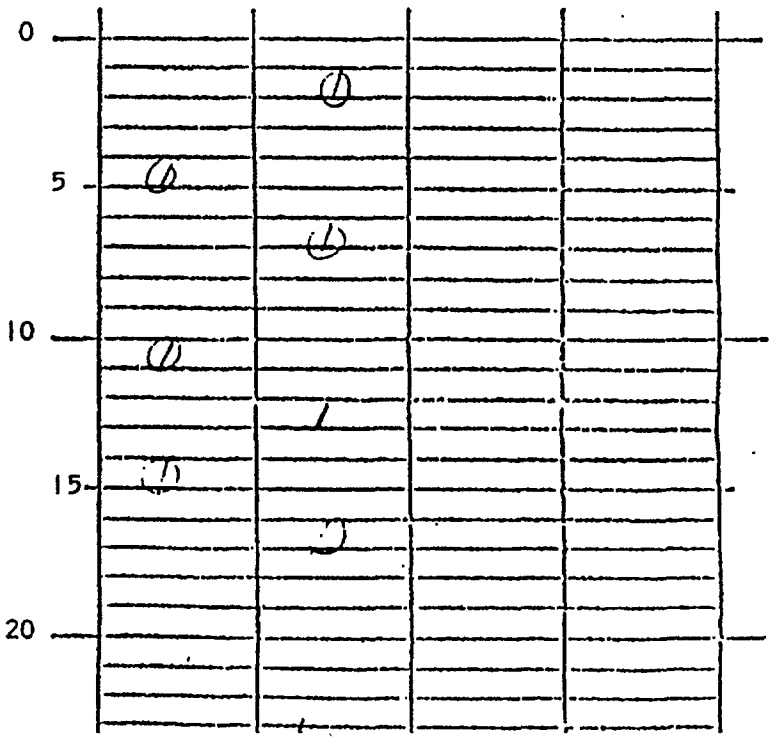
SAMPLE # 77 OPERATION

FLOW TIME VOLUME 6000 DATE / /

INITIALS F. AREA BLK.CNT.AV.

AV.COUNT 18/.14 CONCENTRATION 9 / 6.4
6.2

COMMENTS:



ASBESTOS COUNT RECORD SHEET

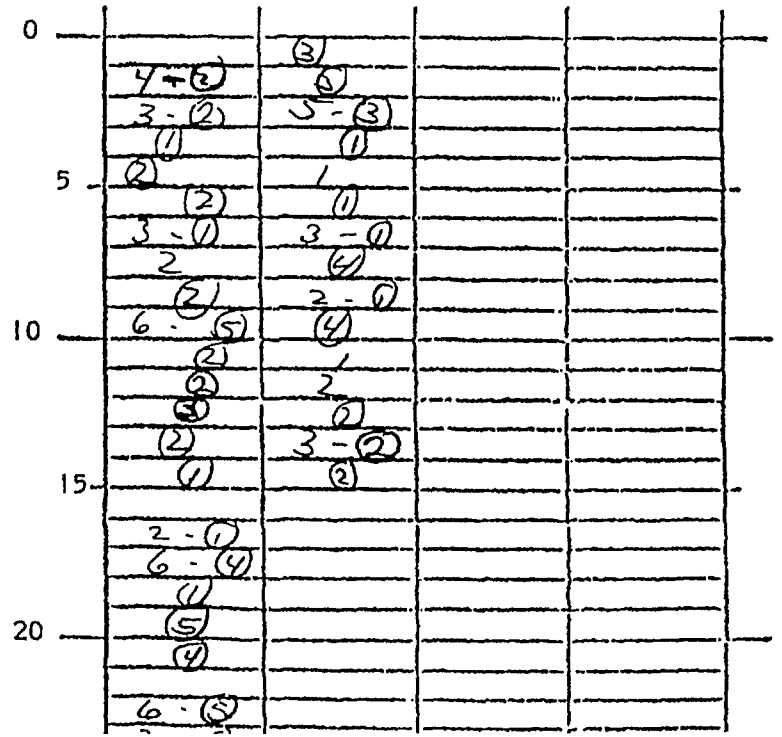
SAMPLE # 145 OPERATION

FLOW TIME 8 1 VOLUME 17 DATE / /

INITIALS F. AREA BLK.CNT.AV.

AV.COUNT 2.52/1.93 CONCENTRATION 2.7 / 2.1

COMMENTS:



ASBESTOS COUNT RECORD SHEET

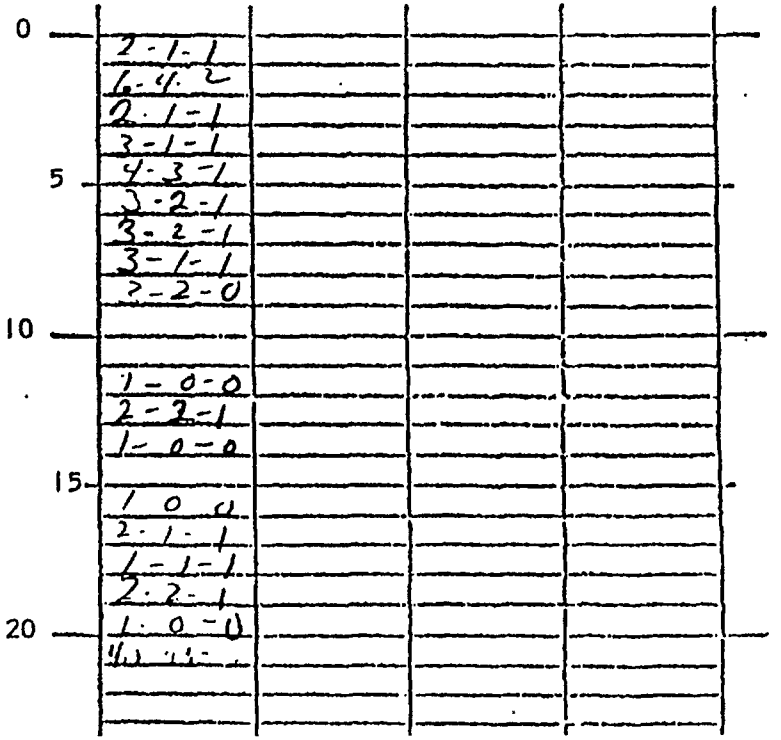
SAMPLE # 206 OPERATION

FLOW 2 TIME 5 VOLUME 0.00 DATE / /

INITIALS F. AREA BLK.CNT.AV.

AV.COUNT 2.0 / 1.3 = .65 CONCENTRATION 37.7 / 21.3 / 12.1

COMMENTS:



ASBESTOS COUNT RECORD SHEET

SAMPLE # 130 OPERATION

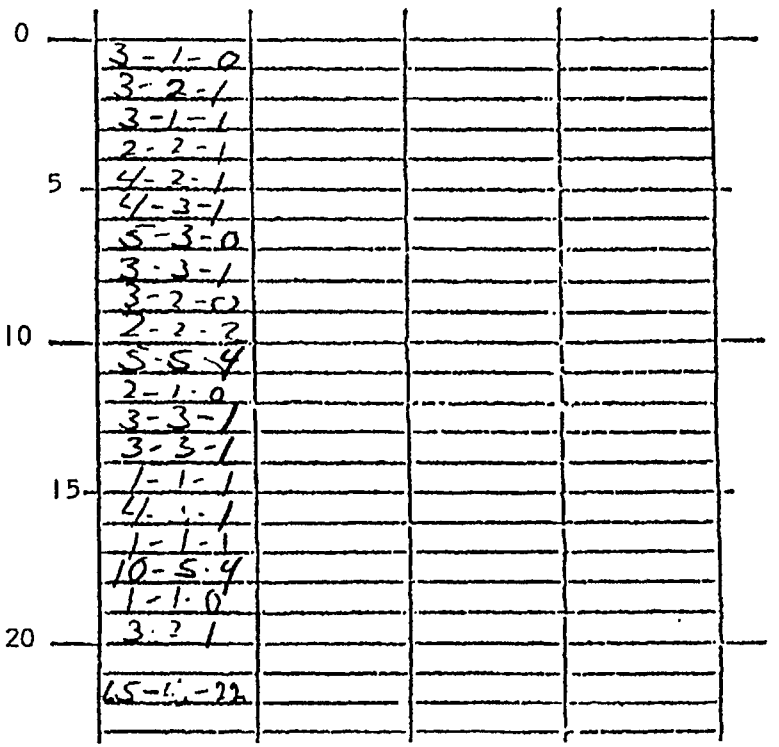
FLOW 2 TIME 37 VOLUME [illegible] DATE / /

INITIALS F. AREA BLK.CNT.AV.

AV.COUNT 3.25 / 1.84 CONCENTRATION 8.2 / 4.6 / 2.8

COMMENTS: 1.1

0	3-1-0			
	3-2-1			
	3-1-1			
	2-2-1			
5	4-2-1			
	4-3-1			
	5-3-0			
	3-3-1			
	3-2-0			
10	2-2-2			
	5-5-4			
	2-1-0			
	3-3-1			
	3-3-1			
15	1-1-1			
	4-[illegible]-1			
	1-1-1			
	10-5-4			
	1-1-0			
20	3-2-1			
	65-[illegible]-22			



ASBESTOS COUNT RECORD SHEET

SAMPLE # 241 OPERATION

FLOW -- TIME 4m VOLUME 8000 DATE / /

INITIALS F. AREA BLK.CNT.AV.

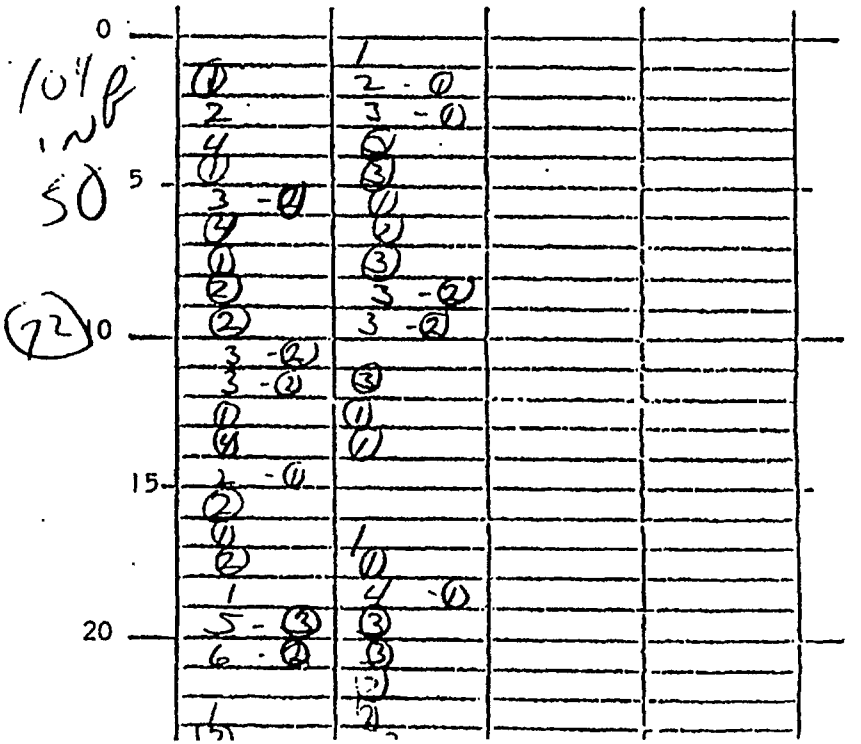
AV.COUNT 2.08 CONCENTRATION 48.3

COMMENTS: 1.44 33.5

104 f
in
50

72

0		1		
	1	2-1		
	2	3-1		
	4	2		
5	1	3		
	3-2	1		
	4	2		
	1	3		
	2	3-2		
10	2	3-2		
	3-2			
	3-2	3		
	1	1		
	4	1		
15	2-1			
	2			
	1	1		
	2	1		
	1	4-1		
20	5-3	3		
	6-2	3		
		2		
	1	2		
	2			



ASBESTOS COUNT RECORD SHEET

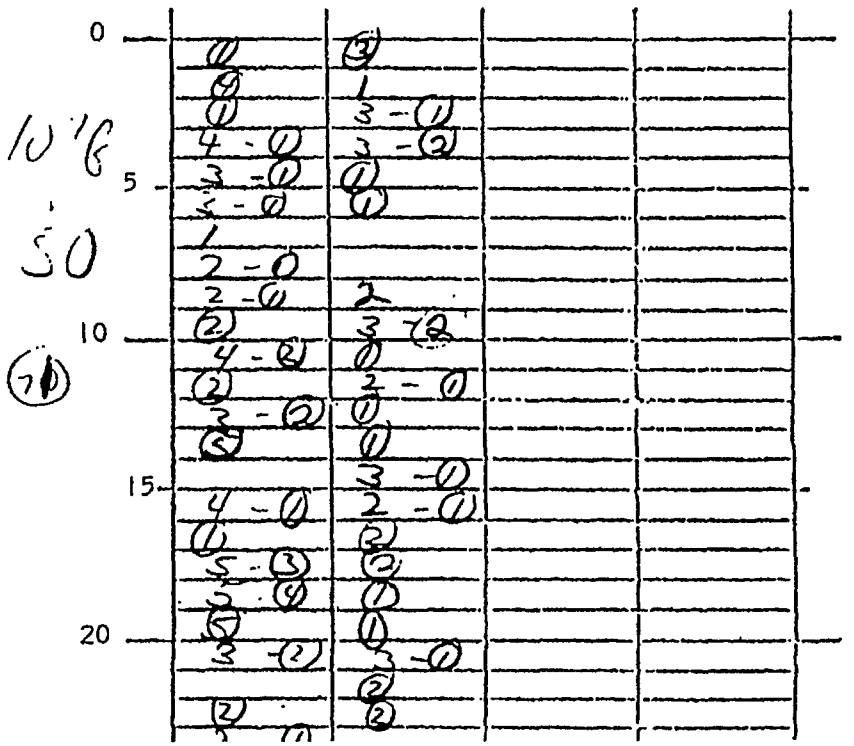
SAMPLE # 198 OPERATION

FLOW 4 TIME 18 VOLUME 36,000 DATE / /

INITIALS F. AREA BLK.CNT.AV.

AV.COUNT 2.14 CONCENTRATION 11.0

COMMENTS: 1.42 7.3



ASBESTOS COUNT RECORD SHEET

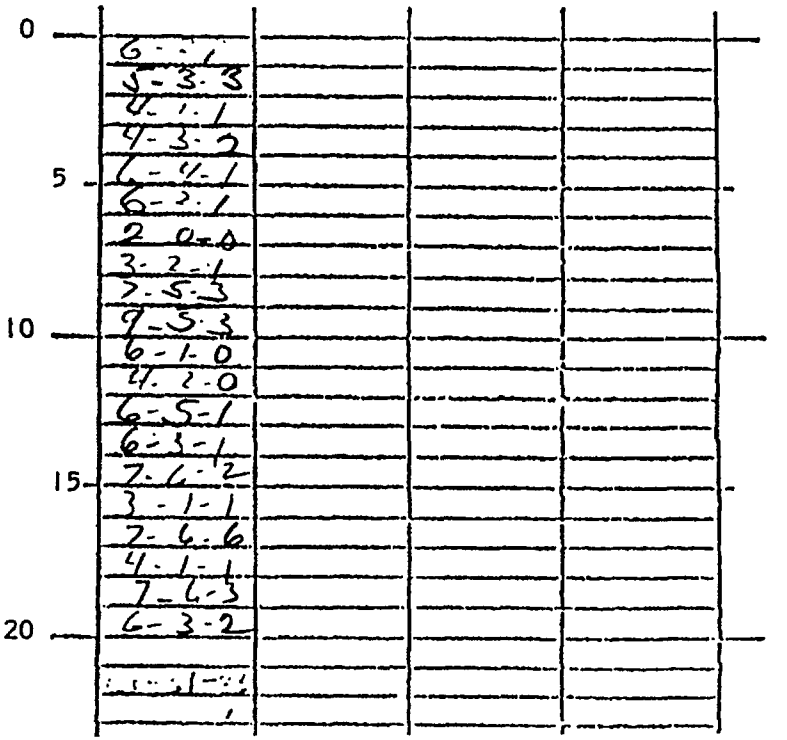
SAMPLE # 225 OPERATION

FLOW TIME 7 VOLUME 7,000 DATE / /

INITIALS F. AREA BLK.CNT.AV.

AV.COUNT 5.4 / 3.1 CONCENTRATION 7.7 / 4.2 / 21.9

COMMENTS: 1.5



ASBESTOS COUNT RECORD SHEET

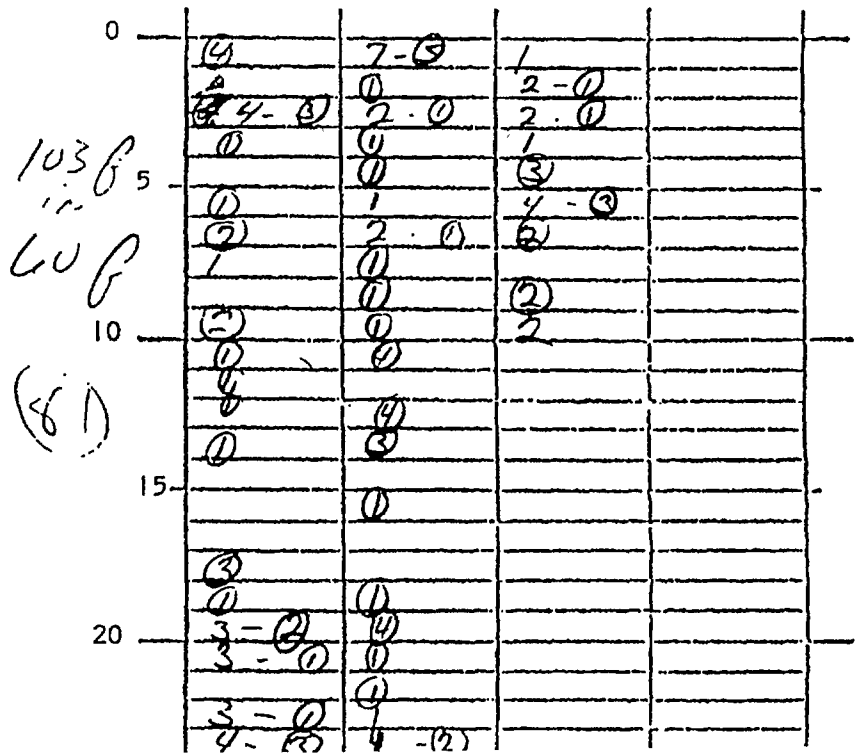
SAMPLE # 6 OPERATION

FLOW 2 TIME 6 VOLUME 12,000 DATE / /

INITIALS F. AREA BLK.CNT.AV.

AV.COUNT 1.72 CONCENTRATION 20.6

COMMENTS: 1.35 2.0.9



ASBESTOS COUNT RECORD SHEET

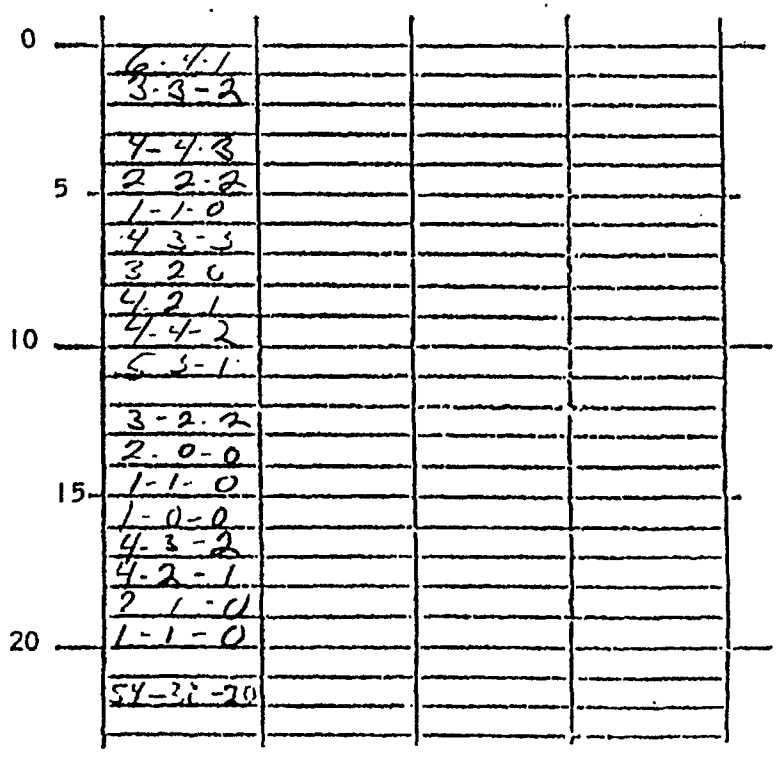
SAMPLE # 216 OPERATION

FLOW 1 TIME 7 VOLUME 14 DATE / /

INITIALS F. AREA BLK.CNT.AV.

AV.COUNT 1.1/1.1 CONCENTRATION 35.8/25.2/15.3

COMMENTS: 1.0



C.P.I

ASBESTOS COUNT RECORD SHEET

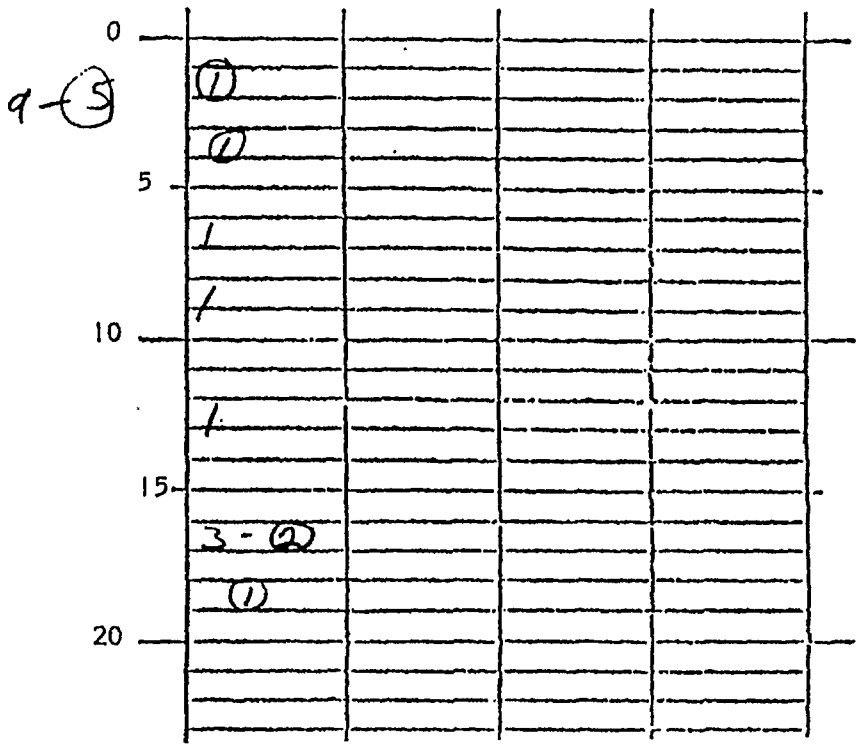
SAMPLE # 77 OPERATION

FLOW TIME VOLUME DATE / /

INITIALS F. AREA BLK.CNT.AV.

AV.COUNT .45/.25 CONCENTRATION 20.9 / 11.6

COMMENTS:



ASBESTOS COUNT RECORD SHEET

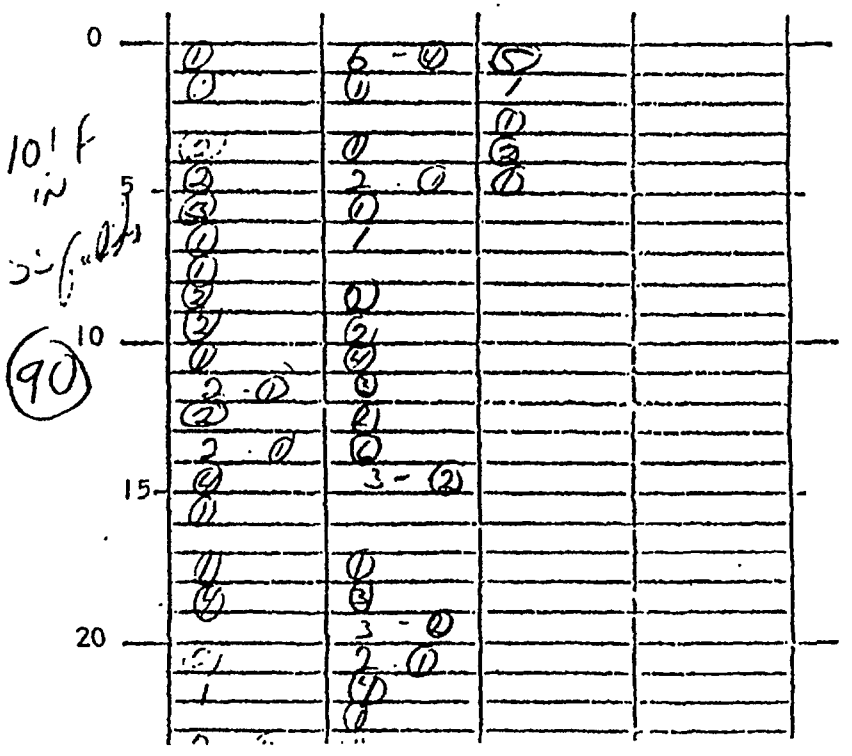
SAMPLE # 2.9 OPERATION

FLOW 2 TIME 11 VOLUME 22,000 DATE / /

INITIALS F. AREA BLK.CNT.AV.

AV.COUNT 1.84 CONCENTRATION 15.5

COMMENTS: 1.64 13.9



ASBESTOS COUNT RECORD SHEET

SAMPLE # 139 OPERATION

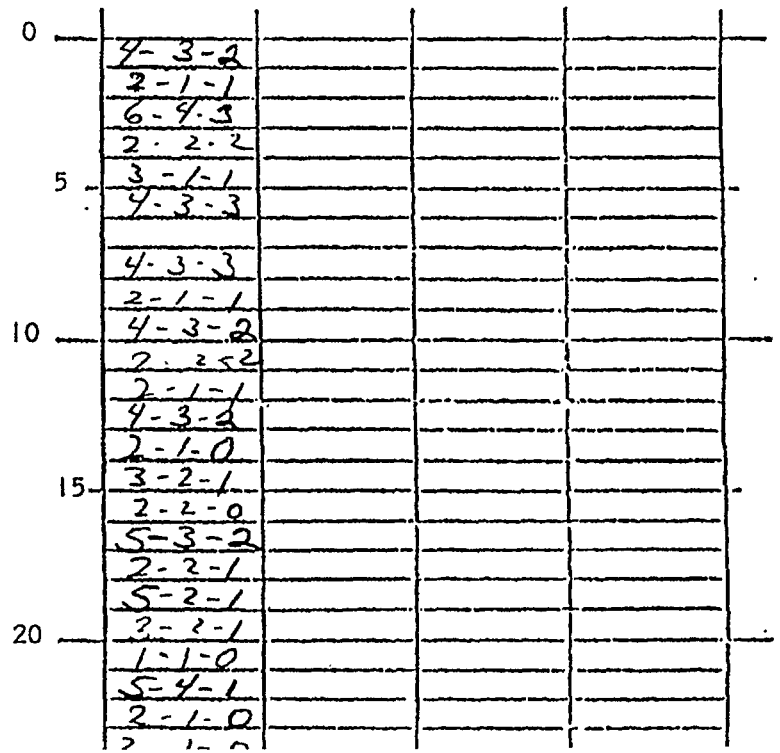
FLOW TIME VOLUME 750 Gm DATE / /

INITIALS F. AREA BLK.CNT.AV.

AV.COUNT 2.92 / 1.96 / 1.24 CONCENTRATION 2.17 / 1.5 / 0.9

COMMENTS: Left - Trial
Center - Countable in 1 Ave.
Right - Obvious

0	4-3-2			
	2-1-1			
	6-4-3			
	2-2-2			
5	3-1-1			
	4-3-3			
	4-3-3			
	2-1-1			
10	4-3-2			
	2-2-2			
	2-1-1			
	4-3-2			
	2-1-0			
15	3-2-1			
	2-2-0			
	5-3-2			
	2-2-1			
	5-2-1			
20	3-2-1			
	1-1-0			
	5-4-1			
	2-1-0			
	2-1-0			



ASBESTOS COUNT RECORD SHEET

SAMPLE # 210 OPERATION

FLOW / TIME 7 VOLUME 1-[illegible] DATE / /

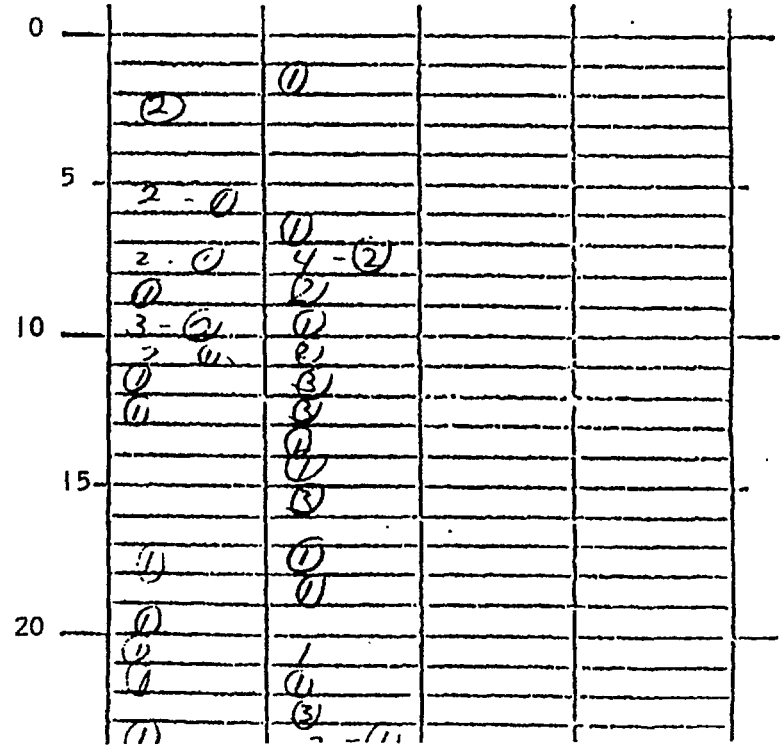
INITIALS F. AREA BLK.CNT.AV.

AV.COUNT 104 CONCENTRATION 13.8

COMMENTS: .86

114

0				
		(1)		
	(2)			
5	2-(1)			
		(1)		
	2-(1)	4-(2)		
	(1)	(2)		
10	3-(2)	(1)		
	2-(1)	(2)		
	(1)	(3)		
	(1)	(3)		
		(1)		
15		(1)		
		(3)		
	(1)	(1)		
		(1)		
20	(1)			
	(1)	1		
	(1)	(1)		
		(3)		
	(1)	2-(1)		



SAMPLE _____ DATE _____

INST. _____ FLOW RATE _____ BLANK _____

TOTAL TIME _____ TOTAL AIR VOLUME _____

EMPLOYEES NAME _____

JOB TITLE _____

DESCRIPTION OF OPERATION:

DESCRIPTION OF CONTROLS:

1)-29

SAMPLE _____ DATE _____

INST. _____ FLOW RATE _____ BLANK _____

TOTAL TIME 12:24-12:37 TOTAL AIR VOLUME _____

EMPLOYEES NAME _____

JOB TITLE _____

DESCRIPTION OF OPERATION:

Dry Blending Area
2 ft from Hopper
@ 3½ ft off floor
— No Activity —

DESCRIPTION OF CONTROLS:

C P1

ASBESTOS COUNT RECORD SHEET

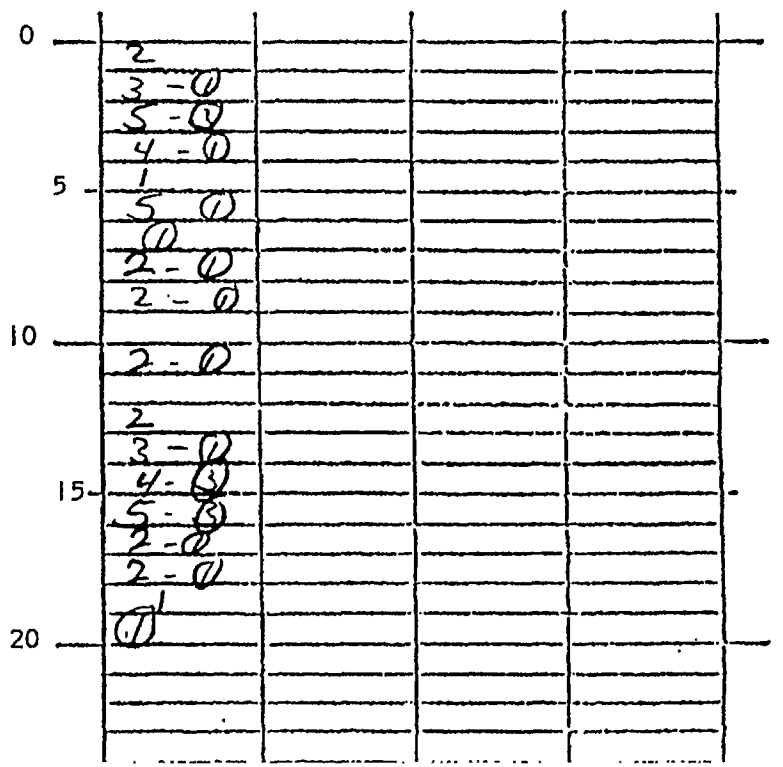
SAMPLE # 78 OPERATION

FLOW TIME VOLUME DATE / /

INITIALS F. AREA BLK.CNT.AV.

AV.COUNT CONCENTRATION

COMMENTS:



ASBESTOS COUNT RECORD SHEET

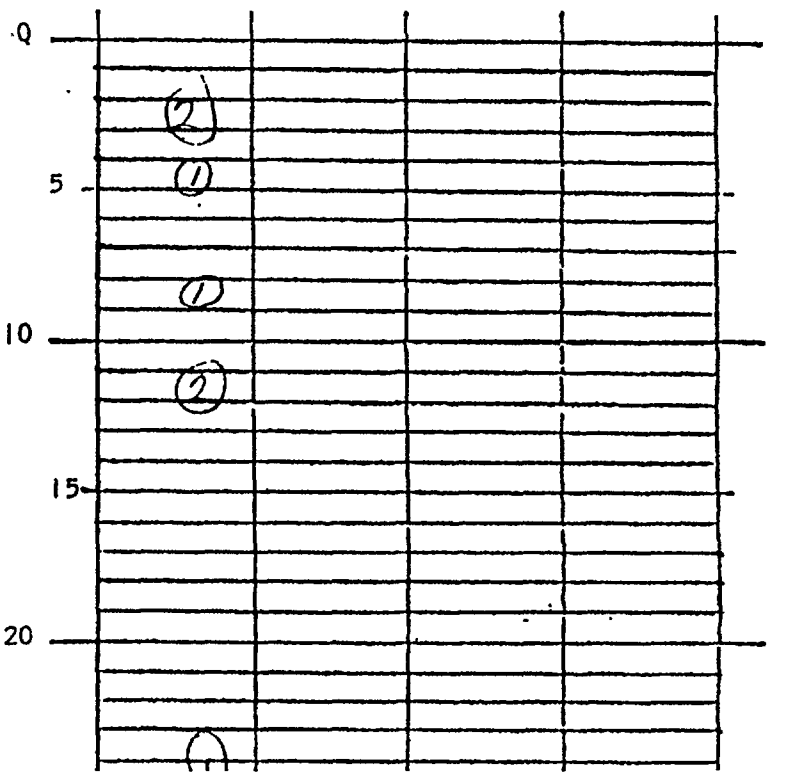
SAMPLE # OPERATION

FLOW 2 TIME 1 VOLUME 1200 DATE / /

INITIALS F. AREA BLK.CNT.AV.

AV.COUNT 28 CONCENTRATION 1.9

COMMENTS:



AIRBORNE FIBER COUNTS

for

Georgia-Pacific Corporation
Marietta, GA

August 21, 1973

Present for Georgia-Pacific:	Mr. D. Jones
Present for Union Carbide Corporation:	Mr. J. E. Walsh
Samples Analyzed By:	Mr. E. J. Kleber

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DESCRIPTION OF PLANT & TESTS

Tests were conducted August 21, 1973 at Georgia-Pacific Corporation Marietta, Georgia, manufacturers of Tape Joint Compounds.

Personal breathing zone and environmental samples were collected in an effort to determine the amount of airborne asbestos fiber generated during the manufacture of Joint Cements and during unloading of a car of SG-210. Samples are described in the Table.

Sampling and dust counting were carried out in accordance with OSHA Regulation 1910.93a, using the Bayer, Zummalde and Brown method for counting asbestos fibers by phase contrast microscopy (Bureau of Occupational Safety and Health, Feb. 1969).

Battery-powered air pumps (M.S.A. type) calibrated to 2 liters per minute were used to collect personal breathing zone and environmental samples on millipore membrane filters of 0.8 micron porosity.

Fiber counting was performed on a Vicker's phase contrast microscope utilizing a Porton reticle for sizing and field definition.

TEST RESULTS

Two figures have been reported for each sample. They are:

1. Total Fiber - Any material longer than 5 microns having an aspect ratio greater than 3:1.

2. Probable Asbestos Fiber - Any material meeting the criteria in No. 1 which in the judgement of the operator could possibly be Chrysotile fiber.

SUMMARY OF FIBER COUNTS

Sample No	Field No	Description	Total Fiber Fibers/cc ~ 5 cc	Prot Asbe Fi Fibe
1	110	Environmental (10 min.) - Located 5 ft. off floor and 2 ft. to the left of dry blending through. Monitored between batches.	0.7	
2	221	Personal (5 min.) - Dry blender operator (Sam Gayton) during addition of 200 lb. 7RF9 and 90 lb. SG-210.	22.2	I
3	218	Environmental (15 min.) - Same position as No. 1 during addition of 200 lb. 7RF9 and 90 lb. SG-210.	3.9	
4	212	Personal (12 min.) - Dry blender operator (Sam Gayton) completing batch with other dry ingredients such as Mica, etc.	3.6	
5	269	Environmental (16 min.) - Same position as No. 1 between batches.	2.2	
6	292	Personal (11 min.) - Wet mix operator (Robert Huie) during blending of dry ingredients with Latex and water.	3.5	
7	207	Environmental (75 min.) - Located 12 ft. from floor in middle of car door opening. Monitored from time door was opened until completion of unloading.	2.0	
8	145	Personal (87 min.) - Car unloader (John Tiaker) during entire unloading.	2.7	