

ASBESTOS FIBER COUNTS OF AIRBORNE SAMPLES COLLECTED

FOR

BAKER & TAYLOR, CANADIAN, TEXAS

September 28, 1972

PERSONNEL PRESENT

Baker & Taylor	:	G. Good
Montello, Inc.	:	R. Newman H. Wyatt
Union Carbide Corporation:		E. J. Kleber

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

OBJECTIVE

Monitor airborne asbestos in an actual on site condition inside a mud house.

INTRODUCTION

On September 28, 1972 tests were conducted at a Baker & Taylor drilling site about 40 miles from Canadian, Texas. All samples were collected in a mud house approx. 25' x 7' with a Quonset hut roof 7 ft. high at the zenith. Two asbestos products were evaluated; Super-Visbestos, essentially 100% liberated fiber, and New Granular Super-Visbestos, a pelletized form.

TEST METHOD

11:15 - 12:45 - 10 bags Super-Visbestos added to hopper.

12:45 - 2:10 - 10 bags New Granular Super-Visbestos added to hopper.

The first hour of each test was the dumping of asbestos, 1 bag every 6 minutes. The last half hour was monitored as a settling period.

SAMPLER LOCATIONS - (See Figure 1)

The samplers were left in the same spots for each test. They are designated as Position 1, 2, and 3.

Position 1 - 4 ft. from hopper in somewhat of a "dead" air area, 5-1/2 ft. above floor.

Position 2 - At opposite end of mud house, 3 ft. from door, downwind from hopper, 5-1/2 ft. above ground.

Position 3 - Operator dumping bags at the rate of 10/hour.

EQUIPMENT

Sampling and dust counting were carried out in accordance with OSHA Regulation 1910.93a.

Personal air samplers were used to collect personal breathing zone and environmental samples on Millipore Membrane Filters of 0.8 micron porosity.

Air samplers were as follows:

MSA Personal Sampler - Calibrated to draw 2 liters per minute of air. Used in position 3.

Unico Personal Sampler "A" - Draws 1.8 liters per minute. Used in position 1.

Unico Personal Sampler "B" - Draws 1.7 liters per minute. Used in position 2.

Fiber counting was performed on a Leitz Microscope utilizing Phase Contrast Illumination at 400X and a Patterson Globe and Circle Reticle.

TEST RESULTS - (See Table 1)

Table 1 contains the results of the sample analysis dust counting. The count is reported as fibers greater than 5 microns in length per milliliter of air sampled. A fiber is defined as any material having an aspect ratio greater than 3.

INTERPRETATION

Although the figures speak for themselves, it may be worthwhile to briefly review the Time Weighted Average (TWA) aspect. The Regulations have been established with a limit of 5 fibers per milliliter greater than 5 microns in length on a Time Weighted Average. This means the figures must be arranged to show the employee's average intake of fibers per milliliter on an 8 hour day. For example, a worker dumping asbestos for one hour per day and inhaling 8 fibers per milliliter during that hour would have a TWA of 1 fiber per milliliter and for 2 hours dumping at the 8 fibers per milliliter level would be 2 fibers per milliliter, etc. The highest reading in Table 1 is 1.03 fibers per milliliter and the operator was exposed to this level for 59 minutes. If this were his only exposure during the day, his TWA would be less than 0.2 fiber per milliliter.

TABLE I

SUMMARY OF DUST COUNTS

N.B. No.	Field No.	(Minutes)	Position	Description	Fibers/ml >5 μ
		Dumping of 10 bags Super-Visbestos			
1929-36-1	33	60	1	Environmental	0.40
-2	41	61	2	Environmental	0.20
-3	47	59	3	Personal	1.03
-4	9	27	1	Env. - After Dump	0.44
-5	34	27	2	Env. - After Dump	0.31
		Dumping of 10 bags New Granular Super-Visbestos			
-6	15	59	1	Environmental	0.47
-7	11	60	2	Environmental	0.35
-8	10	59	3	Personal	0.49
-9	42	25	1	Env. - After Dump	0.32
-10	46	25	2	Env. - After Dump	0.16

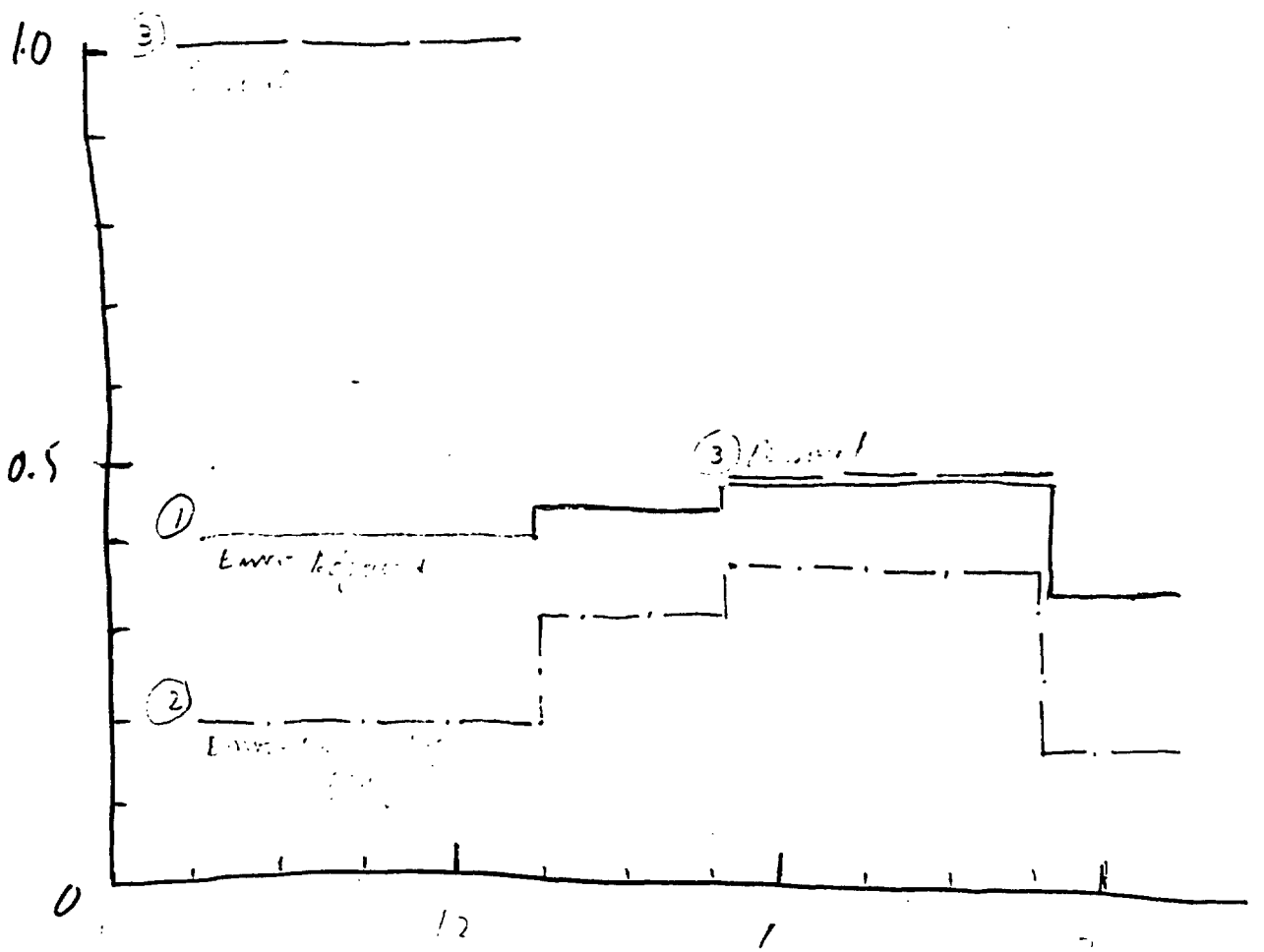

FIGURE 1

Mud House

