

MAR 22 1976

PLAINTIFF'S
EXHIBIT
KM-138

ASBESTOS SURVEY
KELLY-MOORE, INC.
DENVER, COLORADO

Date of Survey: January 15, 1976

Date of Report: March 10, 1976

Report Prepared by: Bill Lutts

Asst. Southwest Div.

Industrial Hygienist

67 071

ASBESTOS SURVEY

KELLY-MOORE, INC.

DENVER, COLORADO

INTRODUCTION

A survey was made for airborne asbestos fibers in the dry wall products mixing area at Kelly-Moore, Inc., Denver, Colorado, on January 15, 1976. The purpose of the survey was to measure the presence and quantity of airborne asbestos fibers greater than five microns in length. The shorter fibers are not considered as an asbestos hazard, but rather as a category of free silica exposure. The recommended engineering control limit for asbestos fibers at present is 2 fibers per milliliter (per cubic centimeter) of workroom air for a normal work day and work week exposure. A total of four samples was taken with two pumps. One pump was mounted on the one man working in the dry wall area and the other pump was mounted on the center column of the room and measured the overall asbestos content of the air away from the ribbon mixers. The samples were taken open face at a rate of 2 liters per minute for 40 minutes and a blank was submitted with the exposed filters as a control.

CONCLUSIONS

The two samples taken on the mixing operator indicates that his exposure is less than or equal to the recommended engineering control limit during a mixing cycle. This result is not surprising since the ventilation system on the ribbon mixers where the bags are opened and emptied is doing an excellent job. In light of the relatively low exposure of the operator, the general room air results are surprisingly high.

An analysis of the sample taken in the center of the room at breathing zone height indicates that the number of asbestos fibers in the workroom air is greater than the recommended engineering control limit of 2 fibers per milliliter. Readings of 5 fibers per milliliter and three fibers per milliliter were obtained on each of the two 40 minute sampling runs. Measurements of the general room air flow were also made during the sample period and indicated that air was flowing in from the paint mixing area and out through the door which leads to the warehouse storage area. Given the operator's low exposure the only reasonable explanation for the difference in results is that the dust collector system beside the door which leads to the main paint mixing area is leaking or emitting fibers in some way and the general room air flow is then carrying them through the very region where we took the general room air sample. The low results obtained on the operator, who is the only man exposed in the room, indicates that the local exhaust ventilation system is performing properly at the source of contaminant. Therefore, assuming that our results give a true picture of the situation, the collector end of the exhaust ventilation system should be carefully checked for places where asbestos fibers might be escaping into the general room air.

RECOMMENDATIONS

76-1. A collection barrel is located beneath the dumping chute of the main dust collector bin. There is several inches of clearance between the bottom opening of this bin and the top of the collection barrel. It would be advisable to connect the bin and the barrel with a plastic sleeve which would prevent the release of asbestos fibers into the room air when the collection bin is dumped into the collection barrel. In addition, this would reduce the possibility that a leak in the bottom bin opening, or the residual fibers in the barrel itself, is a source of room contamination.

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76-2. Care should be taken to make sure that asbestos bags are not included in the compactor presently in use. One bag had inadvertently been placed in the compactor at the time of our visit. The operator demonstrated the normal disposal procedures and indicated that this particular bag had been placed there in error by another employee. Given the proximity of the compactor to the center post where we took the general room sample, it is possible that this single asbestos bag contributed significantly to the total fiber levels detected.

76-3. The duct work of the dust collection system should be carefully checked to make sure that there are no leaks emitting asbestos fibers and dust into the work room air. A visual inspection at the time of our visit did not reveal any leaks. But, this is one possible explanation of the high detected levels which should be investigated.

76-4. Operators in this area should continue to wear their personal protective equipment until such time as the effectiveness of the engineering controls are fully verified. The respirators presently in use are approved for asbestos fibers and pneumoconiosis producing dusts.

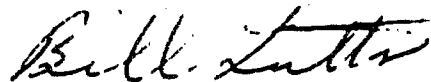
THE SURVEY

The four samples taken were collected in the standard manner using two personal sampling pumps. A flow rate of 2 liters per minute was used. A sampling period of 40 minutes per sample was used. The samples were taken with the cassettes open-face and pointed downward to prevent unwanted trash from settling on them.

One pump was mounted directly on the operator of the ribbon mixer and a total of two samples was taken with this pump. The other personal sampling pump was mounted in the center of the room at breathing zone height and two samples were taken on this pump also. More than two samples per pump might have been taken except that the mixing operations for that days workload had come to an end with the conclusion of the second set of samples.

The collected samples were then submitted to our Industrial Hygiene Laboratory at Hopkinton, Massachusetts. They were analyzed there by means of a phase-contrast microscope. A visual counting method was used to determine the number of fibers greater than 5 microns in length collected during the sampling period. This total sample volume collected and the total number of fibers present allowed the determination of fibers per milliliter to be determined.

A recommended engineering control limit of 2 fibers per milliliter is suggested in this report.



Bill Lutts

Asst. Southwest Division

Industrial Hygienist

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KELLY-MOORE, INC.
DENVER, COLORADO
DRY WALL MIXING AREA

Date of Survey: January 15, 1976

Date of Report: March 10, 1976

Material Sampled: Airborne Asbestos Fibers •

Analysis Method: Phase-Contrast Microscope

Recommended Engineering Control Limit: 2 fibers greater than 5 microns in length/ml.

<u>Location</u>	<u>Fibers/ml</u>
1. Middle of workroom. Breathing zone height. Pump fixed on center support column. 40 minutes sampling during batch mix.	5
2. Second sample under same conditions as #1 above.	3
3. Personal sample. 40 minutes sampling time during mixing cycle, operator's breathing zone.	1
4. Same conditions as #3 above.	2

MOORE

, California

*File -
Asbestos Survey - S.C. Proc*

S SURVEY

o this plant to re-evaluate the asbestos additional engineering controls and used along some of the lines. Mike Prevention Representative, accompanied

aco Division of this plant excessive asbestos in air on the current health gment was based on the 1, 1976, the "dry texture posed to an excessive amount

dry texture bagging machine

RECOMMENDATIONS

1. The local exhaust ventilation on the dry texture bagging machine be redesigned/increased so that dust can be effectively captured and removed.
2. The operator of the dry texture bagging machine should be provided with coveralls as much of this dust is infiltrating his street clothes. This increases his chance for taking asbestos fibers home and exposing other members of his family.
3. The ceiling texture mixer, dry texture mixer, and ready-mix mixer should wear the appropriate dust masks that have been provided for them whenever they are dumping bags of asbestos. Even though local exhaust ventilation has been provided at these dumping stations (150 linear feet per minute) the actual dumping of asbestos does create turbulence and dust which often billows into the operator's face before being exhausted.

DATA (continued)

SAMPLE #	LOCATION	TIME OF DAY	SAMPLING TIME MINUTES	AIR VOLUME LITERS	RESULTS ASBESTOS FIBERS/ml
9	OBZ, ceiling texture mixer.	10:15	53.0	95	1
10	OBZ, ceiling texture filler.	10:15	48.0	96	<0.9
11	OBZ, dry texture mixer.	10:15	47.0	94	1
12	OBZ, dry texture filler.	10:15	47.0	94	3
13	General room sample taken 10' above floor, 5' above mezzanine level at ceiling mixtures control station.	11:15	47.5	95	0.8
14	General room sample, taken 5' above floor along packaging line, 10' from windows.	11:15	47.0	94	<0.9
15	General room sample taken 5' above floor at dry texture filler's work table next to aisle.				
16	OBZ, ready mix mixer.				
17	Source sample taken at dry texture filler machine, 5' above floor, 2' from filling nozzle.				
18	Source sample taken above empty asbestos bags at ready mix station.				

*Too dusty to count.

828

File - New Plant - see notes