PLAINTIFF'S EXHIBIT

CT-1352

DUST CONTROL HISTORY

The local exhaust ventilation system that exists today in CertainTeed's plants is essentially the same system that was installed when the plants were built in the early 1960's. Additional exhaust capacity has been added only when additional equipment was added.

The improvement in dust levels, from values above 2 f/cc to present levels in the neighborhood of 0.5 f/cc, have been attained over the years mainly because of improved hood design at the point source of dust generation, better maintenance of local exhaust systems, the establishment and enforcement of employee work practices and improved level of housekeeping throughout the plant.

It has been our experience that installing additional exhaust control equipment is not always the controlling factor in improving the environment in the workplace when you are dealing with fiber values at or below 1.0 f/cc. Rather, experience and ingenuity in designing dust hoods for the various pieces of process equipment and the individual employee work habits play a major role at reducing the fiber levels to 0.5 f/cc and lower.

It has been frequently suggested, in recent years, that by converting the present dry mixing systems in the asbestos-cement pipe plants to wet mixing systems, we could significantly reduce the employee exposure level. Our experience at CertainTeed does not substantiate this; in fact, we routinely get our lowest fiber counts in our dry mixing area and conversely, we oc-

casionally get some of our highest readings in the wet machine area. With a wet system, we find it very difficult to effectively use exhaust ventilation since the wetted dust particles eventually build up in the exhaust ductwork and stops the airflow in the exhaust ventilation system. In a wet system, the material builds up on the equipment and dries, and it must be chipped off. This clean-up procedure presents a situation for uncontrollable dust generation.

Significant improvements in reducing employee exposure during the rail car unloading operation took place when the fiber suppliers replaced the loosely packed burlap bags that were routinely used to supply fiber during the 1950's with pressure-packed polywoven bags that are in standard use today. In addition, the individual fiber bags were unitized into approximate one-ton palletized bundles that could be handled by a fork truck. These packaging improvements took place over a long period of time with the most significant improvement being the introduction of the polywoven bags during the early 1970's (1972-1974). Stretchwrapping or similar cocooning of the entire palletized bundle was added during the late 1970's (1978-1979), and this improvement virtually eliminated the employee exposure during the rail car unloading operation. Looking back over 30 years, the unloading of fiber bags from rail cars has gone from one of the dustiest operations to among one of the cleanest operations in an A-C pipe plant.

Dust studies were conducted in the plants during the late 1950's and early 1960's; however, no permanent records of these studies were maintained since they were conducted primarily to evaluate the effectiveness of the local exhaust ventilation systems that were being designed and installed at that time. The earliest existing records of asbestos exposures in our operations are from several OSHA and NIOSH studies conducted from 1966-1972.

In about late 1972, monitoring programs using the membrane filter technique were started in our plants through the assistance of our insurer and later about 1973-1974, by plant personnel who had attended the NIOSH dust sampling and evaluating course.

In 1979, a newly-founded Corporate industrial hygiene group began a program of periodically monitoring all positions in the plant on an annual basis. This program, in addition to the twice yearly in-plant monitoring program, continues at this date.

A summary of the 1966-1972 OSHA/NIOSH exposure studies is listed in Table 1. Of particular note in those studies are: (1) in the older plants, 38-94% of the samples exceeded 2 f/cc; (2) the high range of exposures found exceeds by several orders of magnitude the worst levels encountered today; and (3) the fiber levels in our two newer plants were generally in the range of 2 f/cc.

Since 1972, approximately 3,500 air samples have been taken in our plants. In our two remaining plants, 98% of the samples measure less than 0.5 f/cc.

Table 2 contains a historical summary of the cumulative frequency of sample values below 0.1, 0.5, 1.0, 5.0 and 10 f/cc. Significant improvements are seen in our older plants in reducing fiber exposures. Historically, the exposure levels in our two newer plants have generally been in the range of 2 f/cc or lower. Here also, however, improvements are observed.

TABLE 1 - SUMMARY OF 1965 - 1972 U.S. PUBLIC HEALTH SERVICE AND OSHA SURVEYS

	PLANT A				PLANT B				PLANT C				PLANT D			
	No. Samp	Mean f/cc	Range f/cc	% > 2 f/cc	No. Samp	Mean f/cc	Range f/cc	% > 2 f/cc	No. Samp	Mean f/cc	Range f/cc	% > 2 f/cc	No. Samp	Mean f/cc	Range f/cc	% > 2 f/cc
FIBER HANDLING	28	94.38(5)	2.0-393.0	100	5(1)	1.89	1.72-2.13	20	5 2	12.16(3) 2.25(4)	1.5-19.6 1.0-3.5	80 50	4	0.88(2)	0.2-1.4	0
PIPE MANUFACTURING	5	2.50(5)	0.8-4.9	80	0(1)	-	-	0	30 8	1.81(3) 1.11(4)	0.3-8.7 0.1-2.5	30 13	3	0.50(2)	0.3-0.8	0
FINISHING	21	4.15(5)	1.8-7.5	95	10(1)	2.04	1.27-3.36	50	15 10	4.69(3) 1.66(4)	1.6-11.3 0-4.6	93 30	5	1.26(2)	0.3-4.0	20
FITTINGS	22	15.93(5)	0.4-32.0	91	15(1)	1.74	0.8-3.23	33	18 19	8.78(3) 2.62(4)	0.1-33.4 0.2-13.4	67 21	5	1.34(2)	0.3-4.6	20
SCRAP CRUSHER	-	-	-	-	4(1)	2.85	1.63-4.82	50	-	-	-	-	-	-	-	-
MISCELLANEOUS	1	1.8(5)	-	0	0(1)	-	-	-	3 9	5.17(3) 0.47(4)	0.8-13.1 0.1-1.7	33 0	4	1.67(2)	0.1-6.1	25
TOTAL	77	40.19(5)		93.5%	34(1)	1.98		38%	71 48	7.50(3) 1.75(4)		56% 19%	21	1.18(2)		14.3%

NOTE: (1) 1972 OSHA Inspection - Fibers counted at greater than 5 microns.

(2) 1969 USPHS Study - Fiber counted at greater than 5 microns.

(3) 1967 USPHS Study - Fiber counted at greater than 5 microns.

(4) 1970 USPHS Study -- Fiber counted at greater than 5 microns.

(5) 1972 OSHA Inspection - Fibers counted at greater than 5 microns.

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TABLE 2

CUMULATIVE FREQUENCY

Location	Period	Smpl. No.	% Equal to or Less Than <0.1 f/cc	<0.5 f/cc	<1.0 f/cc	<5.0 f/cc	<10 f/cc
A	1972-76	144	1.4	13.9	31.3	73.6	84.7
	1976-80	421	13.8	49.6	70.1	93.8	96.7
	1980-84						
B	1972-76	107	3.7	29.9	57.0	100.0	
	1976-80	403	4.0	47.7	75.9	96.8	99.5
	1980-84	264	20.8	86.7	95.1	100.0	
C	1972-76	115	11.3	55.7	73.0	91.3	96.5
	1976-80	301	36.2	93.0	98.0	99.7	99.7
	1981-84	264	45.8	98.8	99.6	100.0	
D	1972-76	81	13.6	74.0	88.9	100.0	
	1977-80	256	32.0	83.2	94.1	100.0	
	1981-84	292	62.0	97.6	98.3	100.0	
E	1972-76	116	19.0	55.2	84.5	100.0	
	1977-80	233	33.0	91.0	96.6	100.0	
	1981-84	559	53.7	96.4	99.3	100.0	

A)
B) Locations have been shut down.
C)

D)
E) Locations are still operating.

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