PLAINTIFF'S
EXHIBIT
FRC-1211

GRACE

Construction Products Division

W.R. Grace & Co.
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Cambridge, Mass. 02140

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May 13, 1985

Dr. J. Corbett McDonald
Director
School of Occupational Health
McGill University
1130 Pine Avenue West
Montreal, Quebec
CANADA H3A 1A3

Dear Corbett:

Enclosed is our fiber analysis summary from Libby for year end 1984. Personnel samples as determined show 203 samples with an average TWA of 0.10 f/cc. Since our sampling is performed in areas of highest known exposure, the amount shown overstates the average employee exposure. Based on the number of persons employed and the areas of exposure, our 1984 average employee exposure was determined to be 0.07 f/cc.

Sincerely yours,

Jack W. Wolter
Vice President
Manufacturing & Engineering

JWW:dcl

Enclosure

bcc: R. M. Vining
R. C. Walsh

Zonolite
Construction Products Division

GRACE

Monthly Fiber Exposure Summary

December 1984

	NO. OF T.W.A.'S	T.W.A. AVERAGE (f/cc)	(%) T.W.A. DISTRIBUTION, RANGES IN f/cc			
			0.00-0.20	0.20-0.50	0.50-1.00	1.00 + -
TOTAL PERSONNEL YEAR-TO-DATE	203	0.10	92%	6%	1.5%	0.5%
			186	13	3	1
TOTAL PERSONNEL MO.	22	0.06	91%	9%	0%	0%
			20	2	0	0

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CONCENTRATE INVENTORIES

The table below shows comparison between year-end 1983 and 1984.

It is interesting to note that the traditional size distribution of inventories have switched from an excessive inventory of fines to an excessive inventory of coarse material. With the market trend expected to continue, we will be attempting to shift our production distribution to accumulate at least 3,000 tons of both No. 3 and No. 4, in addition to what we have now during the first quarter of 1985, at the same time attempting to de-emphasize as best as possible the production of No. 2 product and eliminate production of No. 1 product. Permanent installation of the Fitzmill grinder in the screen plant will give us better control over this balance.

PRODUCT	1983 INVENTORY	1984 INVENTORY
L-1	2882.0	4741.5
L-1 SBO	-	0
L-2	3112.0	100.0
L-2 SBO	-	4071.0
L-3	8281.0	309.0
L-3 SBO	-	5309.0
L-4	6830.0*	2740.4*
L-4 SBO	-	1820.9
L-5	0	0
TOTAL	21,105.0	19,091.8

We also have 218,000 pounds of LTEV in inventory which was produced in 1984.

*Includes approximately 2600 tons of dead storage in the bottom of silos which is of questionable quality and would have to be loaded by hand.

POLLUTION CONTROL/FIBER EXPOSURE

During 1984, 203 TWA measurements of personnel exposure were made at Libby. The average TWA exposure measured was 0.10 F/CC. 92.0% of all exposures measured were less than 0.20 F/CC, 6% fell below 0.20 and 0.50 F/CC, 1.5% fell between 0.50 and 1.00 F/CC and only one of the measurements taken exceeded 1.00 F/CC. A statistical analysis was attempted to try and develop an average exposure for workers at Libby from the measurements taken in the various job categories and the number of people

working in those categories. The result of this analysis is that Libby employees, on average, were exposed to 0.07 F/CC on a TWA. All of these statistics are accumulated utilizing Dr. Julie Yang's discriminatory counting method.

These results are very encouraging since they represent a very substantial improvement over the measurements taken during the last seven months of 1983, utilizing the same counting technique. During that period approximately two-thirds of the counts were less than 0.20 F/CC and the estimated average employee exposure was 0.14 F/CC. Most of this improvement is due to a more enhanced employee awareness and caution in this area rather than the result of physical changes in the plant or working conditions. Spray shields were installed on the Derrick screens in the wet mill and they are somewhat effective, although we are still not satisfied with the exposures we are experiencing in the tower section of the mill. The SBO system is now treating all concentrates which are added to inventory, and other than the No. 1 inventory, we have turned over the inventory during the last half of the year and have very little dry material in storage. This, of course, has had a dramatic affect on fiber exposures in the storage and load out areas, as well as screening plant employees shuttling material from the screen plant to storage.

In October we initiated a service to all employees which should in the future result in further reduction of fiber exposure at Libby. We completed a laundry facility and began a mandatory program of laundering work garments used by all employees on a frequent basis. At these extremely low exposure rates, we confirmed with a few tests that a substantial amount of the exposure was being carried around by employees on their clothing. Frequent laundering, a free service provided by the company, will eliminate this portion of the exposure. The program is well accepted by employees in general and being utilized, and on the basis of November and December, the only two months statistics available, showed a reduction of 40 to 50% in the time weighted average fiber exposures measured. At least one year's accumulation of data will be required to draw a definitive conclusion.

Mark Murphy has developed a program which will be used in 1985 to generate a more rigid statistical analysis of our fiber exposure measurements. To make it possible to estimate a confidence interval on our estimation on the average fiber exposure being experienced at Libby, we believe by changing some of the work area listings so that unlike areas are measured separately, and by placing more emphasis on the listing of measurements taken in abnormal situations, where respirators are

used, for example, separate from the averaged figures that we can fit to a "Student t" statistical distribution and make possible the estimate of a 90% confidence interval without significantly adding to the number of samples taken during the year.

PROCESS CONTROL/ RESEARCH GROUP

The major efforts of the research group during 1984 included:

1. Sampling evaluation of the slot screen circuitry which was added to the screening plant and started at the beginning of 1984. There were several bugs to work out regarding the selection of screening cloth, etc. Sampling and test work in this area has continued throughout the year in a declining rate and by year-end most of the problems have been resolved. This circuit is very successful; see Quality Control section of this report.

2. Start-up support for the SBO coating circuitry installed at the screening plant. Testing and calibration, etc. required substantial research efforts for brief periods of time during the latter half of the year.

3. Evaluation of a Gyroter air classification machine developed by MPSI. The machine, although successful in making a size split, did not appear to make tremolite reductions hoped for.

4. Additional heavy media separation work which has also failed to come up with effective practical tremolite rejection scheme. However, the work did confirm previous knowledge that heavy media could be used to reject substantial quantities of gangue material in the head feed and may yet prove to be a justifiable circuit modification.

5. Continued monitoring of seasonal changes in our process water have identified changes in both calcium and temperature which may be significant. In 1985 we plan to continue sampling on a weekly basis and include the 8X20 flotation water in