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B-489

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THE HARTFORD

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November 9th, 1984

Mr. Steven Robinson
Personnel - Safety Manager
R. T. Vanderbilt
Gouverneur Talc, Inc.
P. O Box 89

RE: HARTFORD ACCIDENT & INDEMNITY COMPANY B-489

Dear Steve:

Attached, please find data sheets reflecting the results of assorted dust samples collected August 1, 2, and 3 representing most mine and mill areas and activities. Again, as practiced in 1982 and 1983, this effort involved an "overview" sampling strategy versus strict adherence to full shift personnel dust monitoring (as normally practiced by Regulatory Agencies). The rationale for this approach is again outlined under the attached "Method of Study" section. I do want to apologize for the inordinately lengthy turn around time. The delay involved our backlogged laboratory and the need to coordinate some of the data obtained with your corporate office.

In all, forty five samples were collected and analyzed for total particulates, respirable particulates, % Quartz, Free Silica, and Mineral particles by aspect ratio. The Talc and Wollastonite mined and milled at Gouverneur has always presented a somewhat perplexing problem in terms of what standards might the airborne dusts be best compared. Standards applied in this study are listed under the "standards" section attached. It should be understood that since several standards apply to most single samples, care must be taken in comparing the appropriate dust constituent to the appropriate standard. For comparison, data sheets also reflect data obtained in 1983 for the same sampling location/operation when applicable.

RESULTS

- A. No standard excesses in Mill #1 and 3 and Mines #2 and 3 were reflected.
- B. Dust levels in all areas sampled generally reflected lower concentrations than those obtained in 1983. This is particularly positive for the Mills as operations in these areas are less variable than those in the Mines (comparison more meaningful).
- C. Only one moderate standard excess involving total dust with greater than 1% quartz was reflected. Two 6 hour samples in Mine #1 collected at the operators station on level 900, slusher Main #2 reflected this excess (concentrations circled on data sheet).
- D. One interesting contrast to 1983 samples was the elevated % of Quartz noted in this year's samples (23% to 7% for Mill #1, 39% to <1% for Mill #3, 15% to 1.4% for Mine #2, 60% to <1% for Mine #4, 23% for Mine #1 - all averages). Since the same sampling and analytical technique was used for both set of samples, such a radical difference is difficult to understand. This type of disparity underscores again the importance of follow-up sampling as the higher free silica (respirable) content reflected may be valid. At the least, it will stimulate further investigation in this area for possible sampling, analytical or product exposure variables. Assuming the higher % free silica levels are valid no standard excesses (other than the one noted above) were still reflected. For reference purposes, a copy of the NIOSH sampling and analytical method utilized has been attached.
- E. The mineral particulates sampled were analyzed strictly for fiber aspect ratios with no attempt to identify mineral ID. Based purely on sizing, it is interesting to note that the vast majority of particulates fell below 20 to 1 aspect ratios. Such distribution is reportedly common for talc at the Gouverneur Plant. Mineral particle sizing data is provided purely for recording purposes. Additional comment may be found under the attached "Mineral Particle/ Method of Study" section.

SUGGESTIONS - COMMENTS

1. Annual follow-up sampling and comparison with prior data is again advised. Particular attention should be directed toward determining Free Silica Levels as there is considerable variation noted in this area.
2. While no significant standard excesses were noted in this year's effort, the presence of mineral dusts containing free silica and talc (non-asbestiform) presents an undisputed health threat. Exposure levels in the past have exceeded safe standards (from time to time) as well. Considering the potential involved it appears prudent that the use of dust masks/respirators or air flow helmet masks be

continued. Use in the Wheeler Area, during packaging operations and during assorted Mine activities (slusher stations, drilling, crushing in particular) is again urged for talc operations. It should be noted that on the survey dates good respirator use was in evidence.

3. For reasons noted above, continuation of the present medical monitoring program is also advised. As you recall an effort was made this year to review audiometric and spirometry results. Unfortunately no centralized or composite summary paper or report was available to do so as such data is recorded only in individual employee files. As discussed, it remains an objective of mine to develop a corporate-wide procedure through which such data would be routinely placed on a composite report (standardized) in a way which would protect individual employee identification but still provide "trend" information. When medical data is not utilized in this way it is not being utilized to its fullest advantage --- as another, important tool in assessing risk factors. When used in conjunction with environmental data, information on respirator use, etc., it can become an important loss prevention tool. Any plans/proposals for a standardized recording format will, of course, be discussed with all sites and approved by corporate prior to implementation.

I want to thank the many Gouverneur employees who cooperated by wearing sampling equipment necessary for this study. Further, I greatly appreciate your interest, time and cooperation. Again, please excuse the delay. I look forward to seeing you in 1985.

Respectfully,

John Kelse
Industrial Hygienist

JK:mmc

CC: Mr. Vern Streitmatter, Vice President - Mining & Manufacturing
CC: Mr. Henry Kamena, Assistant Treasurer
CC: C. S. Thompson, Phd, Manager, R & D Minerals
CC: Frank Blake, Loss Control, Frank B. Hall of New York
CC: John Barrett, Frank B. Hall of New York

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or Files

MINERAL PARTICULATE/METHOD OF SURVEY

Mineral particulates were collected on .8u pore size cellulose filters (open face cassette) at a rate of two liters per minute. Pre-calibrated Mine Safety Appliance Model "G" pumps were used. Note: for some mineral particulate sampling prescribed collection rate has recently been increased to three liters per minute with a modified filter cassette (differs from standard size).

Analysis was performed by the ALHA accredited Hartford Insurance Group Laboratory via standard phase contrast microscopy. Mineral identification was not determined as electron microscopy and polarized light microscopy was not available (instrumentation not available in laboratory). The "non asbestiform" term used on the data sheet was used as the sampled materials have previously been determined (via these additional steps) to be non asbestiform (two or three dimensional crystal growth). Interestingly, as also reported in prior analysis, the vast majority of particles above 5 microns fall into aspect ratios below 20 to 1 (widely held by mineralogists that true asbestos fibers generally have aspect ratios much greater than 20 to 1).

MINERAL PARTICULATE ANALYSIS

TALC: TREMOLITE - Non Asbestiform

<u>#</u> <u>SAMPLE</u>	<u>LITER VOL.</u> <u>&</u> <u>HRS. SAMPLED</u>	<u>LOCATION</u>	<u>TOTAL</u> <u>MINERAL</u> <u>PARTICULATES</u>
F-1	(225) 1 3/4	GYRATORY CRUSHER MILL #1	484,700
F-2	(225) 1 3/4	HARDINGS 1 & 2 MILL #1	311,350
F-3	(315) 2 3/4	WHEELER AREA, CENTER - MILL #1	572,950
F-6	(405) 3 1/4	CRUSHER AREA, CENTER - MILL #1	673,500
F-4	(360) 3	SURFACE CRUSHER, OUTSIDE BOOTH MINE #1	687,400
F-5	(360) 3	FIXED AT 700 CRUSHER MINE #1	VOIDED --

MINERAL PARTICULATE DIST.

IN ASPECT RATIOS AS %

<u>> 5u MINERAL PARTICULATES PER CC</u>	<u>3:1 TO <10:1</u>	<u>10:1 TO <20:1</u>	<u>20:1 TO <50:1</u>	<u>>50:1</u>
2.15	72.1	20.1	6.6	1.2
1.38	52.0	33.6	13.2	1.2
1.82	45.8	36.4	14.7	3.1
1.66	64.3	20.2	15.3	.2
1.91	57.6	28.0	14.2	.2

LOOSE PARTICULATE ON FILTERS