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EXECUTIVE OFFICER AND SECRETARY

State of Montana
State Board of Health

HELENA, MONTANA

May 11, 1964

Mr. R. A. Bleich, Manager
The Zonolite Company
Libby, Montana

Dear Mr. Bleich:

Enclosed are two copies of a recent study made of the dry mill section of your plant near Libby. It is expected that a follow-up will be done in September, 1964 to determine the dust control provided by the additional fan described and by improved housekeeping.

We appreciate the courtesy and cooperation of you and your staff in this matter.

Sincerely yours,

Benjamin F. Wake
Benjamin F. Wake
Industrial Hygiene Engineer
Division of Disease Control

-BFW/bko

Encl.



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On April 29, 1964 a study was made of the dry mill section of the Zonolite Mill at Libby, Montana to determine if compliance with previous recommendations for the control of dust had been achieved. The study was made in the company of Mr. Bud Vinion, after discussion of the plant operations with Mr. Kujawa, Plant Superintendent.

The study consisted of a review of the dust collection system and its improvement and the collection of five dust samples for counting to determine any improvement in the over-all dust control procedures.

Description of Operations

It was noted that a considerable change had been made in the ventilation system of the dry mill which appeared to reduce dustiness in some areas considerably. The backs to the screens had been replaced on nearly all machines and the rubbers on the screens were in good shape, generally, although a few were broken. Those that were broken were leaking dust badly.

The duct work to the ventilation system had been repaired and a new 35,000 cfm fan which discharged at ground level had been installed. According to Mr. Vinion, the plant expects, in addition, to have a southside fan (old 600) hooked up soon. This should improve the situation on the southside of the mill by reducing the considerable dustiness from some of the operations on that side. Priority should be given to this ventilation so that it is completed by the first of September, 1964.

It was noted that the rafters were heavily loaded with dust. Much of the high dust concentrations noted were due to this dust falling off the rafters and other places of deposit. It is unfortunate that the good work that has been done in the ventilation system is reduced by extremely poor housekeeping.

The second floor continues to need special attention and may be improved with the installation of the new fan system which was not in operation at the time of this study.

The third floor on the high grade side needs more work and should be gone over carefully to determine those areas which need special attention for the control of dust.

The elevator feed box on the half deck leaked dust badly and was a main contaminator of both the half deck and the second floor. A rubber was also missing on the connector to No. 210 screen and should be replaced. All screens should be inspected weekly and any missing screen backs or broken rubbers replaced immediately.

According to Mr. Vinion, the southside roll crusher and high grade circuit will have a separate ventilation system soon. As noted previously, this work should be given priority so that it is in and functioning before the first of September of 1964.

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Concentrations

A review of Table I for Dust-In-Air indicates that even though there have been some reduction in dust concentration, there still remains a great deal of room for improvement to reach the maximum allowable concentration of 20 million particles per cubic foot of over-all dustiness. While it is recognized that the 20 million particles per cubic foot level does not reduce the asbestos dustiness to exactly 5 million particles per cubic (mppcf) foot, it is felt that over-all dustiness reduction to 20 mppcf will be suitable for the control of asbestos dust, since the 5 million particles per cubic foot figure is not a precise dividing line between a safe and unsafe condition but simply indicates a range at which control should be aimed.

TABLE I

Dust-in-Air for years noted
Concentrations in Millions of Particles per Cubic Foot of Air (MPPCF)

	1956	1959	1962	1963	1964
6th Floor	Not Determined	46.3	51.0	30.6	Not Determined
5th Floor	17.9	51.8	69.5	65.6	37.6
4th Floor	51.8	26.2	90.0	32.4	20.6
3rd Floor	28.7	24.8	60.5	32.8	22.0
2nd Floor	48.3	27.2	59.2	50.0	59.2
Half Deck	Not Determined	Not Determined	54.5	77.8	54.4
1st Floor	63.0	7.5	44.5 & 50.9	59.8 & 26.8	Not Determined

Maximum Allowable Concentration 20 MPPCF Total

Maximum Allowable Concentration 5 MPPCF Asbestos

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A constant effort should be made, however, to achieve the reduction in total dustiness so that the 5 million particles per cubic feet of asbestos laden air is achieved at sometime in the future.

Toxicology

In a recent article published in the Journal of the American Medical Association, April 6, 1964 by Selikoff and others, it is indicated that the ~~Building trades insulation workers have relatively light, intermittent,~~ exposure to asbestos. Of 632 insulation workers, who entered the trade before 1943 and were traced through 1962, forty-five died of cancer of the lung or pleura, whereas only 6.6 such deaths were expected. Three of the pleural tumors were mesotheliomas; there was also one peritoneal mesothelioma. Four mesotheliomas in a total of 255 deaths is an exceedingly high incidence for such a rare tumor. In addition, an unexpectedly large number of men died of cancer of the stomach, colon, or rectum (29 compared with 9.4 expected). Other cancers were not increased; 20.5 were expected, 21 occurred. Twelve men died of asbestosis."

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In addition, "The recent demonstration, by South African and British investigators of pleural and peritoneal neoplasms among individuals who had chance environmental exposure to asbestos many years before raises the very important question of possible widespread carcinogenic air pollution." It was also demonstrated that asbestos bodies were found in a man not employed in an industry but living next door to an asbestos factory. "Asbestos exposure in industry will not be limited to the particular craft that utilizes the material. The floating fibers do not respect job classifications. Thus, for example, insulation workers undoubtedly share their exposure with their workmates in other trades; intimate contact with asbestos is possible for electricians, plumbers, sheet-metal workers, steamfitters, laborers, carpenters, boiler makers, and foremen."

While the above situation does not apply specifically to the operations of your plant, the asbestos content of the material with which you are working appears to provide some serious potential for the development of disease if not properly controlled. In addition, the discharge of large volumes of asbestos-laden dust at ground level sets up a condition where all members of the plant can be exposed in addition to those who work in the dry mill. This presents a problem that needs to be dealt with in view of the information submitted and the findings on other workers employed using similar materials.

Conclusions and Recommendations

Based on the findings of this study and in view of past experience, it is recommended that a review of past studies be made to determine areas producing dustiness. In addition, the following recommendations are submitted:

1. That a careful program of housekeeping be instituted so that dust collected on rafters does not reach the subsidence point. Careful cleaning of the floors should be done on a sufficiently frequent and routine basis as to prevent dust from falling off the rafters or from collecting on the floor to such a degree that this dust is a contributor to the overall load generated by the machines.
2. That a special priority be given to the installation of the additional fan described so that those areas not now sufficiently ventilated are brought under control by the first of September, 1964.
3. That the blower discharge--presently at ground level--be elevated to such a degree that re-entry is not so prevalent. It is expected that large volumes of dust will re-enter the building when the wind is in the right direction. It may also be desirable to consider collecting the exhaust dust by means of a cyclone or other suitable dust collecting device.
4. That continued effort be made by the company to determine the dust concentrations in the building by frequent sampling and analysis and by frequent observation of the dust collection systems to determine that they are operating at maximum efficiency.

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