CAMBRIDGE

06046275

TO: John F. Murphy

DATE: March 29, 1966

FROM: Peter Kostic

SUBJECT: Zonolite Dust Conditions

CC: J. D. Kingery
J. F. Murphy, Jr.



At the request of Jack Stover, I have reviewed the file relative to the Zonolite dust problems. In order that all concerned are familiar with the background, following is a chronological summary of correspondence and reports relating to the problem:

1-23-59 Report of examination of employee Walter Mc Queen, age 69, who complained of shortness of breath on exertion for several years, which had worsened the past year or two, indicated that the man had extensive cystic disease of the lungs with decrease in lung function, and recommended that he be put on light work. His condition was due to chronic bronchitis which did not appear to be produced by irritating dust.

6-22-59 Report of examination at the Western Montana Clinic of an employee (Wagner), who complained of shortness of breath and fast heart stated "he was suffering from Pulmonary Emphysema (loss of elasticity of lung tissue)," and recommended that he stop smoking. No mention was made of exposure to or inhalation of dust.

2-14-64 Report of examination of employee Eitel Ludwig, who complained of chronic cough, heavy feeling in the chest and shortness of breath on exertion, indicated that he had Pulmonary Fibrosis and recommended that he avoid exposure to dust as much as possible. The lung condition, the report stated, was due to inhalation of dust particles, almost certainly from the asbestos content of the dust.

May-June, 1964 Respiratory function tests made on 140 men at Libby. Results of the tests showed that their respiratory function was below standard, that a serious hazard from Pneumo-coniosis (lung condition resulting from inhalation of dust particles) exists to employees at Libby. It recommended that the analysis be completed, and that further studies be carried out to quantitate the irritative properties of the dust unless, of course, inhalation of the same dust can be completely avoided.

11-5-64 Letter from L. Park, Maryland Casualty Supervisor, strongly urged that approved respirators be provided at Libby, Mt.

12-18-64 Letter from A. Mac Arthur to C. R. Babb advised that it is an established company policy that all employees making mixed products as well as those employees engaged in bagging Perlite, must at all times wear a respirator, and asked that people at their Atlanta plant be advised accordingly.

12-21-64 Letter from F. Rupp to L. Park stated that the Maryland Casualty inspector covering the Wilders plant promised to make recommendation regarding approved respirator, but failed to do so until called for the information.

12-29-64 Letter from L. Park to F. Rupp recommended procedures for identifying, testing and caring for respirators, and a program of training of new employees.

12-30-64 Letter from R. A. Bleich to J. A. Kelley explained the dust situation at the different operations at Libby, the control measures that have been taken or will be taken, and some that were under consideration.

1-2-65 Letter from E. D. Lovick to J. A. Kelley described the increase in the dust problem with the expansion of operation at Libby over the years, and the various medical studies that have been conducted on employees. Although X-rays showed lung disease in a number of employees (plus 20%) a panel of five doctors "felt that they could not come up with any conclusion as to whether our mill operation presented an above-normal occurrence of respiratory trouble."

1-7-65 Letter from J. A. Kelley to G. W. Blackwood explained that arrangements had been made to transfer X-ray pictures and related information from Dr. Nelson, Libby plant physician, to Dr. Chenowith of Maryland Casualty, for purposes of study and analysis. Kelley further stated that phasing out of the dry milling operation, which had been scheduled, would have to be done within the next year or two. He also indicated that the dust count of the mill does not meet Montana standards.

1-11-65 Letter from L. Park to F. Rupp reiterated the importance of providing approved respiratory protection and enforcement of wearing of such equipment at Wilders, but pointed out that respirators are not to be considered a substitute for engineering improvement of dust control.

1-13-65 Letter from J. A. Kelley to G. W. Blackwood reported that the situation at Libby is not as good as it should be as far as the State of Montana is concerned; that phasing out of the dry mill operations creating the major dust problem would be expedited with some definite plan by 9-1-65; and that the problem of physical condition of employees may be a long term problem.

3-2-65 Letter from J. A. Kelley to G. W. Blackwood, had as an attachment, a report of analysis and study of X-rays, breathing tests and other pertinent data relating to employees at Libby, by a Dr. Spicer, a recognized lung specialist of the University of Maryland. Some of the things Dr. Spicer had to say:

1. The tests done by Dr. Nelson at Libby, and the data received by Spicer from Nelson was incomplete and unsatisfactory.

2. His (Spicer's) findings were inconclusive.

3. He recommended extensive and costly studies of employees, and a control group, to be repeated in 2-3 years. He pointed out that the U. S. Public Health Service might support such study.

3-4-65 Letter from F. W. Rupp to L. Park asked for Park's comments regarding Dr. Spicer's report, and suggested that Maryland Casualty, as part of their service, proceed with the study.

3-5-65 Letter from J. A. Kelley to G. W. Blackwood advised that an asbestos rider had been included in their workmen's compensation insurance coverage.

3-23-65 Letter of transmittal from F. W. Rupp to G. W. Blackwood covered a letter from L. Park to Rupp in which Park stated that "it was not anticipated that Maryland Casualty was responsible for or should initiate the studies recommended by Dr. Spicer. He further pointed out that representatives of Maryland Casualty would take air samples at Libby on 3-21-65, for dust count and laboratory analysis.

5-5-65 Letter from J. A. Kelley to G. W. Blackwood advised "We are now getting most of our dust counts under 20 ppm, and in fact, had one in April that was over 20 ppm. The addition of the rest of the equipment should clean up this matter so that we are not under the gun. Montana State originally required a maximum of 50 ppm." (Kostic's comment: PPM means parts per million parts of air by volume. This term is normally used to express quantities of vapors or gases in the air. Mineral dust counts are expressed as mppcf - million particles per cubic foot of air. I presume Kelley means 20 mppcf).

11-3-65 Letter from J. A. Kelley to G. W. Blackwood described progress in dust collection at Libby and stated that a major change in processing, which will cut down the dust, may soon be realized. An attached report of dust counts in seven different areas showed a range between 4 mppcf and 9 mppcf. The report further stated that the maximum allowable concentration was 10 mppcf.

12-28-65 Letter from L. Park to F. W. Rupp recognized that progress in dust control was being made at Libby, and explained how and by whom maximum allowable concentrations are established, and the purpose of such standards. He stated further that "it is believed possible and practical that positive control of certain dusty operations will establish and maintain the dust concentration below the maximum allowable concentration."

1-25-66 Letter from R. A. Bleich to F. W. Rupp expressed dissatisfaction with Maryland Casualty's air sampling, communications, and general handling of the dust situation. He explained that although the maximum allowable concentration for asbestos is 5 mppcf, the Montana State Board of Health had, after an analysis of the dust, set their maximum for all dust at 20 mppcf, but because the air borne dust is 40% asbestos, Libby has voluntarily set their standard at 10 mppcf.

2-15-66 Letter from L. Park to P. Kostic stated that air samples are taken by Zonolite on a regular basis (assumed to be monthly), and that the maximum allowable concentration used is that of the State of Montana, which he indicated as 5 mppcf. An attached report indicated that dust count samples from seven different areas on 10-12-65 showed readings ranging from 4 mppcf to 9.3 mppcf. Five of the seven readings were above the 5 m level. It further stated that "Management at Libby seemed to feel that the total dust count is shown to a level that is as good as present equipment can maintain. As to a total concentration of 5 mppcf, there seems to be a discrepancy in our thinking on this figure." The inspector who wrote the report questioned as to which was the proper figure.

COMMENTS

I note there are some conflicting remarks in the correspondence. Lovick states in a letter to Kelley, 1-2-65, "Montana has had for many years an Industrial Accident Law, but it was not until 1959 that they passed an industrial disease law. This law specified certain specific industrial diseases for which employers would be responsible. The only specified disease which we felt would apply to us was Silicosis." Then he went on to say further, "We have never had a known case of Silicosis among our employees. Silicosis is caused by free Silca. The minerals we process are Silicates and do not cause Silicosis." On this point he is correct, Silicosis is caused by inhalation of free Silca over a number of years. It should be noted, however, that other lung diseases are caused by inhalation of Silicates such as Asbestos, Mica, Soapstone, Talc and Portland Cement.

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Another big difference expressed in the correspondence is in the maximum allowable concentration. L. Park of Maryland Casualty specifies, as does the recognized authority (American Conference of Governmental Industrial Hygienists), that the MAC for asbestos is 5 mppcf. In a letter to F. W. Rupp from R. A. Bleich, 1-25-66, Bleich states "We have two distinct differences from what Mr. Park has indicated. Our dust contains Tremolite, not the asbestos type referred to, and our dust is not all Tremolite. In Mr. Ben Wake's report of 5-23-63, Montana State Board of Health, the maximum allowable concentration for us is 20 mppcf total dust and 5 mppcf for asbestos. He explains that the asbestos concentration is calculated on the basis of our air-borne dust being 40% asbestos. In April, 1963, Mr. Wake had 6 samples analyzed by the U. S. Public Health Service which identified the mineral as Tremolite-Actinolite in concentration varying from 6.2% to 22.5%. Note the use of Tremolite instead of asbestos and the high of 22.5% instead of 40%. However, this did not change the maximum allowable concentration of 20 mppcf and 5 mppcf. The 20 mppcf total multiplied by 40% gives 8 mppcf instead of the alloweble 5 mppcf for Tremolite. Mr. Wake explained that the 20 mppcf total was acceptable because the 5 mppcf for Tremolite was not an exact dividing line between a safe and unsafe condition, but a range at which control should be set. These limits were referred to in Mr. Wake's report of 10-2-64 and to our knowledge are still valid as far as the Montana State Board of Health is concerned. We have not been inspected since that time. For our own purposes, we have voluntarily set our standards at 10 mppcf total dust." Frankly, this letter confuses me.

Regarding the elaborate studies and tests recommended by Dr. Spicer, I feel that they would be of greater value to the medical and health professions than to us. The fact that employees had contracted lung conditions is not as important now as determining if there is a health exposure (by scheduled air samplings and analysis), and applying proper controls. Although there have been no workmen's compensation claims for chest disease since Maryland Casualty took over the risk in 1963, it should be expected that there will be as time goes by.

I agree with L. Park of Maryland Casualty in that respirators should not be considered a substitute for proper engineering controls. Respirators are fine for short periods of time, but to get a man to wear one eight hours a day is next to impossible.

SUMMARY

It is my recommendation that consideration be given to the following:

1. Include chest X-rays in the pre-employment physical examinations.

2. Reach an agreement as to what the maximum allowable concentration should be, and use that as a standard.

3. Set up a schedule of monthly air samplings and laboratory analysis. If after a time, the dust count is consistently below acceptable limits, the tests could be done on a quarterly basis.

4. If analysis of the dust content in the air shows that it is above the maximum limit, improve or add to the existing ventilating and/or dust collecting equipment.

Peter Kostic (gp)

Peter Kostic

PK:gp

Signed in his absence