

GRACE

ZONOLITE

DIVISION W. R. GRACE & CO.

LIBBY, MONTANA

MINERS AND MANUFACTURERS OF VERMICULITE PRODUCTS

January 6, 1965



Dr. Robert F. Chenowith, M.D.
Maryland Casualty Company
P. O. Box 1228
Baltimore 3, Maryland

Dear Dr. Chenowith:

At the request of our Chicago Office, we are forwarding to you the following data:

1. Copies of chest X-ray reports on our employees which were taken in May and June 1964
2. Spirometer tracings taken at the time of the X-rays
3. Calculations of forced vital capacities and maximum expiratory flow rates, calculated by Dr. Woodrow Nelson of Libby
4. The preliminary reports on Spirometry tests written by Dr. Woodrow Nelson

You will note on the X-ray reports we have shown length of employment of each employee and the number of months they have been employed in our mill. Generally speaking, the dust exposure is higher in our dry mill than any other part of our operation, and the people who are employed there have a more continuous exposure.

Very truly yours

ZONOLITE DIVISION
W. R. GRACE & CO.

By: *E. D. Lovick*

E. D. Lovick

EDL/jbg

15142433

In May and June of 1964 spirometry measurements and studies were carried out on the 140 men employed at Libby Zonolite.

This project was stimulated by the findings by Dr. William Little of pneumoconiotic x-ray changes in certain employees in 1962 (see this report). The project was combined with re-x-ray of Zonolite employees.

The primary purpose of the project was to record an objective measure of respiratory function for present use and future comparison and to note any correlation between x-ray change and pulmonary function on these employees.

The measuring device used was the Vitalor 25 A of McKesson Appliance Co., with standard rapid expiration technique. Two or more forced vital capacity (FVC) curves were made on each individual. One second forced expiratory volumes (FEV1) and the maximum expiratory flow rates (MEFR) were calculated therefrom.

Using standards of "normal" on an age-height basis, determined by Korr, Smith, and Callahan in a V.A. - Army cooperative study, FVC% of standard and FEV1% of standard for each employee was calculated. X-ray reports of Dr. Little were reviewed, employees with definite pneumoconiotic changes were tabulated and notations made on grade and severity and of any changes in the past two years. History of duration and type of employment was obtained.

Preliminary analysis was made of (1) Average FVC% of standard, and FEV1% of standard for the entire group of 140 employees. (Standards of Korr et al for the actual age-height as noted above). FVC% and FEV1% of less than 90% was considered probably abnormal and of less than 80% as distinctly abnormal.

~~(2) FVC% and FEV1% of standard in the group with non-pneumoconiotic x-rays~~

(110 employees) and in the group with pneumoconiotic x-rays (30 employees).

RESULTS:

1. In the total 140 employees the average FVC% was 86.9% and the average FEV1% was 85%. This appears to be a moderate but distinct decrease in respiratory function.
2. Thirty employees (21%) of the 140 had definite pneumoconiotic changes on x-ray. The spirogram findings in this group (30 employees) and in the rest of the group without such changes (110 employees) is as follows:
 - A. Non-pneumoconiotic group (110 employees) FVC%-----90% of standard.
FEV1%-----88% of standard.
 - B. Pneumoconiotic group (30 employees) FVC%-----75% of standard.
FEV1%-----72% of standard.

Only 4 of the 30 men in the pneumoconiotic group had forced vital capacity of above 90% of standard for their height and age. Only 3 of these 30 had forced expiratory volume in one second of above 90% of standard for their height and age.

CONCLUSIONS:

- ① Analysis of the data in hand is in a very preliminary stage. No attempt to correlate such factors as duration of employment and other personal factors with individual findings had been made. Of special interest would be a study of employees with normal x-rays and measured abnormal functional findings.
- ② However, in my opinion, the results reported above are the result of valid work. The measured ^{respiratory} ~~dysfunction~~ ^{positive} in the ~~picture of the~~ x-rayed group is of such severity that I would conclude that a serious hazard from pneumoconiosis exists to the employees at Libby and it is recommended that this analysis be completed. further studies be carried out to quantitate It is also recommended that the irritative properties of the dust unless, of course, inhalation of the same can be completely avoided.

15142435

J. A. Kelley

-4-

January 2, 1965

Normal ChestsMONTHS

	<u>Total</u> <u>Employment</u>	<u>Mill</u> <u>Employment</u>
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L. J. Baenen	213
John Baker	205
Tom Beaulieu	157
W. D. Fields	215
David Foster	192
James Gidley	118
Donald Hutton	169
Donald Johnson	164
Fred Johnson	301
Fred Koehler	152
Jim Lyle	184
Charles Mercer	164
Harvey Noble	153
Derward Preston	349
Arnold Smith	170
Donald Smith	157
James Smith	242
Paul Thieman	235
Fay Tisher	118
Albert Urdahl	245
Edward Wittlake	152

33
164
(some mill exposure)
146
153
(some mill exposure)
46

Abnormal Chests

Clyde Basham	191
Allen Boothman	185
Robert Cohenour	189
Floyd Cole	181
Jack Garrison	163
Orville Haines	214
Ernie Hamilton	189
Louis Hoppe	264
Michael S. McNair	193
Lloyd Miller	189
Richard Rayome	217
Stuart Risley	156
Harold Shrewsberry	146
Elmer Stanley	212
Lionel VanHorn	166
R. C. Watts	164
L. D. Welch	181
Orland Welch	192

150
106
94
171
116
98
2