

W. R. GRACE & CO.
ENGINEERING DEPARTMENT - TECHNICAL GROUP
INTER-OFFICE MEMO

TO: F. W. Eaton
FROM: E. E. Moore
DATE: January 19, 1972
SUBJECT: EPA Meeting on Asbestos - January 18, 1972

I attended the morning session of the "Public Hearing of U. S. Environmental Protection Agency on Proposed National Emission Standards for Hazardous Air Pollutants, New York City, January 18, 1972." The P.M. session was not attended as I understood that there were to be no statements on asbestos.

Statements and comments were made by Johns-Manville Corporation and a professor from McGill University. The net-net of their statements were:

Johns-Manville Corporation.

1. All speakers unanimously recognized the need for emissions control and supported the proposed National Emission Standards.

They commented on:

- The need for improved clarification or wording relative to the definitions of particulate, visible emissions, filters and sources.
- EPA consideration of extending the 30 day filing period to 90 days to provide sufficient time for collecting, analyzing and collating the necessary information. (The EPA was not receptive to an extension.)
- J-M did not now have adequate technology to reduce to zero the emissions from their tailings operations. (EPA



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expressed hope that J-M would find a satisfactory solution).

2. Asbestos emissions today are less than that of 10 years ago due to large expenditures for equipment, training and operations.
3. J-M is performing tests in an attempt to pin down the amounts of asbestos emissions from natural sources and man-made.
4. There is insufficient analytical and medical data to support the premise that asbestos is a hazard to the general public.
5. Control of emissions is needed at the mining, processing and fabrication operations to protect personnel working in them or living near-by. In addition, J-M takes special precautions in the form of brushing, vacuuming and washing of clothes and showers.
6. J-M has and will continue to cooperate with the EPA and the asbestos industry in developing new equipment and products to reduce emissions.
7. J-M thinks that the entire asbestos industry is doing a good job in controlling emissions within technical and economic feasibility limitations.

Dr. J. C. McDonald, McGill University

Dr. McDonald reported on the Canadian asbestos industry in general.

He noted the following:

1. No cases of cancer or asbestosis were reported for people living or working greater than 20 miles from the mines or processing facilities.

2. Deaths and illnesses were directly related to the degree of exposure; for example there were 20% more deaths for men working in the mines than for those living near-by.
3. The asbestos hazard is purely occupational; no measurable risk to the general public.
4. The standards should be based on the type of asbestos fibers, dosage, and other materials in association with asbestos such as rock dust, binders, etc.

The morning session was well attended, moderated efficiently by Mr. Megonnell, and all speakers appeared qualified to testify. There were no questions or further comments from the floor. As noted above, there was little excitement or fireworks over the proposed standards.

Attached is a statement handed out by the EPA and the Agenda. A transcript of the entire proceeding is available only from the meeting reporter. We do not plan to purchase one unless you would like us to do so.

If you have any questions, please call me.



E. E. Moore

EEM:jd
Attachments

cc A. C. Christopher
J. J. Combes
R. H. Lafferty
J. N. Thurman

January 18, 1972

HEALTH HAZARDS OF AIRBORNE ASBESTOS

The following statement is a brief summary of those aspects of the toxicology of asbestos which establish it as a hazardous air pollutant. A hazardous air pollutant is defined by section 112 of the Clean Air Act of 1970 as one: "to which no ambient air quality standard is applicable and which in the judgment of the Administrator may cause, or contribute to, an increase in mortality or an increase in serious irreversible, or incapacitating reversible illness."¹

The diseases which have been related to the inhalation of asbestos by humans include asbestosis and malignant tumors of the lung, pleura and peritoneum. Of these, asbestosis was the first to be associated with exposure to asbestos. Asbestosis is a non-malignant lung disease which results in an x-ray pattern of diffuse interstitial fibrosis and physiologic changes consistent with a restrictive lung disorder.² The disease is often lethal in severe cases. However, prolonged exposure to asbestos concentrations far above those likely to be found in community air is required to produce clinically significant (i.e. incapacitating) asbestosis.²

An association between asbestos exposure and carcinoma of the lung was first firmly established by epidemiologic evidence reported in 1947.³ The data indicated that bronchogenic carcinoma was present in 13.2 percent of 235 persons known to have died with asbestosis.³ In the years since 1947, numerous other studies have confirmed this

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relationship between asbestos exposure and lung cancer.⁴⁻¹⁷ One study showed that asbestos workers who smoke are 92 times as likely to develop lung cancer as non-asbestos workers who do not smoke.¹⁵ (Should exposures in the general population approach those in occupational situations a considerable increase in mortality and morbidity of lung cancer could be produced.) However, whether nonoccupational exposures to asbestos play a role in the development of bronchogenic carcinoma has not been adequately studied. The Panel on Asbestos of the National Academy of Sciences has evaluated the existing literature on asbestos. According to their review the only tumor associated with nonoccupational asbestos exposure is diffuse mesothelioma.

Mesotheliomas, primary malignant tumors of the pleura and peritoneum, however, are serious. In 1960 Wagner et al.¹⁸ reported 33 cases of pleural mesothelioma from South Africa. A history of asbestos exposure was established for all but one patient. Only 17 of these were occupationally exposed. The remaining patients lived in the vicinity of an asbestos mine or had household contacts with miners. Numerous other reports linking mesothelial malignancies to asbestos exposure have been published since 1960.^{8,9,10,14,19-27}

This argues strongly for a causal association. Thus several types of exposure to asbestos have been associated with mesotheliomas including: 1) occupational exposure to asbestos, 2) employment or residence near an asbestos industry, 3) household contact with an asbestos worker, and 4) no known exposure. For example, Newhouse and Thompson²⁶

reviewed a series of 83 patients whose mesotheliomas were diagnosed at the London Hospital between 1917 and 1964. The authors were able to obtain full occupational and residential histories for 76 patients in the series. They found that 31 (40.8%) had occupational exposures to asbestos, 9 (11.8%) lived in the same house as an asbestos worker, 11 (14.5%) had no history of occupational or household exposure but lived within half a mile of an asbestos factory and 25 (32.9%) had no known exposure. Of the 25 with no known exposure, four were found to have asbestos bodies in their lungs. Corresponding percentages for a group of matched control subjects were: occupational exposure - 10.5%, household exposure - 1.3%, neighborhood exposure - 6.6%, and no exposure - 81.6%. These findings strongly implicate asbestos as a causal factor in this disease.

Many case reports of mesothelioma include persons who have worked in the shipbuilding and construction industries at jobs that do not involve direct contact with asbestos.²⁸ Thus, it is apparent that indirect occupational as well as nonoccupational exposure to asbestos may contribute to the development of mesothelioma. Accurate characterization of previous asbestos exposure in individuals who subsequently develop mesothelioma is difficult because of the prolonged latent period between exposure and the onset of disease. The prognosis of malignant mesotheliomas is extremely poor. In one large series of malignant mesotheliomas²⁶ the average duration of life following the onset of symptoms was only 16.4 months.

In conclusion, the Panel on Asbestos of the NAS has stated:
"Because of the known serious effects of uncontrolled inhalation of asbestos minerals in industry and uncertainty as to the shape and character of the dose-response curve in man, it would be highly imprudent to permit additional contamination of the public environment with asbestos. Continued use at minimal risk to the public requires that the major sources of man-made asbestos emission into the atmosphere be defined and controlled. In the absence of such controls, local fiber concentrations might at times approach those in occupational sites. Analytic methods and epidemiologic data are not yet adequate for the development of an ambient air standard, but emission controls are needed and appear to be feasible."²⁹

Asbestos References

1. The Clean Air Act. Environmental Protection Agency, Washington, D. C. December, 1970. p. 16.
2. Asbestos. Report of the Comm. on Biological Effects of Atmospheric Pollutants, Div. of Medical Sciences, National Research Council, National Academy of Sciences, Washington, D. C. 1971. p. 4.
3. Ibid. p. 5.
4. Buchanan, W. D. Asbestosis and primary intrathoracic neoplasms. Ann. N. Y. Acad. Sci. 132: 507-518, 1955.
5. Dunn, J. E., Jr. and J. M. Weir. A prospective study of mortality of several occupational groups. Special emphasis on lung cancer. Arch. Environ. Health 17: 71-76, 1968.
6. Enterline, P. E. Mortality among asbestos products workers in the United States. Ann. N. Y. Acad. Sci. 132: 156-165, 1965.
7. Enterline, P. E. and M. A. Kendrick. Asbestos-dust exposures at various levels and mortality. Arch. Environ. Health 15: 181-186, 1967.
8. Hammond, E. C., I. J. Selikoff, and J. Churg. Neoplasia among insulation workers in the United States with special reference to intra abdominal neoplasia. Ann. N. Y. Acad. Sci. 132: 519-525, 1965.
9. Jacob, G. and M. Anspach. Pulmonary neoplasia among Dresden asbestos workers. Ann. N. Y. Acad. Sci. 132: 536-548, 1965.
10. Kleinfeld, M., J. Messite, and O. Kooyman. Mortality experience in a group of asbestos workers. Arch. Environ. Health 15: 177-180, 1967.
11. Knox, J. F., R. S. Doll, and I. D. Hill. Cohort analysis of changes in incidence of bronchial carcinoma in a textile asbestos factory. Ann. N. Y. Acad. Sci. 132: 526-535, 1965.
12. Lieban, J. Malignancies in asbestos workers, Arch. Environ. Health 73: 619-621, 1966.
13. Mancuso, T. E. and A. A. El-Attar. Mortality pattern in a cohort of asbestos workers. J. Occup. Med. 9: 147-162, 1967.
14. Selikoff, I. J., J. Churg, and E. C. Hammond. Asbestos exposure and neoplasia. J.A.M.A. 188: 22-26, 1964.

15. Selikoff, I. J., E. C. Hammond, and J. Churg. Asbestos exposure smoking and neoplasia. *J.A.M.A.* 204: 106-112, 1968.
16. Vigiliani, E. C., G. Mottura, and P. Maranzana. Association of pulmonary tumors with asbestos in Piedmont and Lombardy, Ann. N. Y. Acad. Sci. 132: 552-574, 1965.
17. Wright, G. W. Asbestos and Health in 1969. *Amer. Rev. Resp. Dis.* 100: 467-479, 1969.
18. Wagner, J. C., C. A. Sleggs and P. Marchard. Diffuse Pleural Mesothelioma and Asbestos Exposure in the Northwestern Cape Province. *Brit. J. Ind. Med.* 17: 260-271, 1960.
19. Borow, M., A. Conston, L. L. Livornese, and H. Schalet. Mesothelioma and its association with asbestosis. *J.A.M.A.* 201: 587-591, 1967.
20. Elmes, P. C., W. T. E. McCaughey, and O. L. Wade. Diffuse mesothelioma of the pleura and asbestos. *Brit. Med. J.* 1: 350-353, 1965.
21. Elmes, P. C., and O. L. Wade. Relationship between exposure to asbestos and pleural malignancy in Belfast. *Ann. N. Y. Acad. Sci.* 132: 549-557, 1965.
22. McEwen, J., A. Finlayson, A. Mair, and A. A. M. Gibson. Mesothelioma in Scotland, *Brit. Med. J.* 4: 575-578, 1970.
23. Newhouse, M. L. and H. Thompson. Epidemiology of mesothelial tumors in the London area. *Ann. N. Y. Acad. Sci.* 132: 579-588, 1965.
24. Owen, W. G. Diffuse mesothelioma and exposure to asbestos dust in the Merseyside area. *Brit. Med. J.* 2: 214-218, 1964.
25. Slikoff, I. J., J. Churg, and E. C. Hammond. Relation between exposure to asbestos and mesothelioma. *New England J. Med.* 272: 560-565, 1965.
26. Newhouse, M. L. and H. Thompson. Mesothelioma of pleura and peritoneum following exposure to asbestos in the London area. *Brit. J. Ind. Med.* 22: 261-269, 1965.
27. Lieben, J. and H. Pistawka. Mesothelioma and Asbestos Exposure. *Arch. Environ. Health* 14: 559-563, 1967.
28. Asbestos. op. cit., p. 19.
29. Ibid. p. 31.

A G E N D A

Public Hearing of U. S. Environmental Protection Agency
on Proposed National Emission Standards for
Hazardous Air Pollutants, New York City
January 18, 1972

Moderator: Mr. William Maginnell

- 10:00 a.m. Opening Remarks
Statement by Dr. Robert Horton, U. S.
Environmental Protection Agency
- 10:30 a.m. Dr. Merril Eisenbud, New York University Medical - Beryllium
Center
- 11:00 a.m. Mr. J. B. Jobe, ^{v.p. & gen. mgr.} Mr. Fred Pundsack, ^{v.p. & gen. mgr.} Dr. George Wright, ^{Dr. of Med. Res.}
Dr. J. C. McDonald, Mr. Edmund Fenner, Johns-Manville ^{Asbestos}
Corporation ^{Dr. of Env. / Control}
McGill Univ. (not J-M)
- 12:30 p.m. Lunch
- 2:00 p.m. Department of Public Health, Bureau of Air Quality
Control, Commonwealth of Massachusetts
- 2:10 p.m. Mr. Ernest Bratt, H. K. Porter Incorporated
- 2:15 p.m. Mr. Robert Mitchell Jr, The Chlorine Institute
- 2:20 p.m. Dr. Leonard Goldwater, Duke University Medical
Center

Did not attend p.m. session.

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