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MEMORANDUM

DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE
PUBLIC HEALTH SERVICE
CENTER FOR DISEASE CONTROL
NATIONAL INSTITUTE FOR OCCUPATIONAL SAFETY AND HEALTH

TO : Morton Corn, Ph.D.
Assistant Secretary of Labor
Occupational Safety and Health Administration
Department of Labor

DATE: DEC 15 1976

FROM : Director, National Institute for
Occupational Safety and Health

SUBJECT: Evaluation of Data on Health Effects of Asbestos Exposure and Revised Recommended Numerical Environmental Limits

According to your request, NIOSH has evaluated available data concerning the health effects of exposure to asbestos. The general conclusion of this study is that all forms of asbestos, both commercial and non-commercial, are carcinogenic. All have the capacity to induce pleural and peritoneal mesotheliomas and/or lung cancer in man. In addition, all forms of asbestos have been found to cause asbestosis in man.

NIOSH has proposed new environmental limits which are based on this study. These recommend that no worker be exposed to an airborne concentration of asbestos in excess of 100,000 fibers over 5 μm in length per cubic meter on an 8-hour time-weighted average basis. In addition, the proposed standard states that no worker should be exposed to peak concentrations in excess of 500,000 such fibers per cubic meter of air based on 15-minute sampling periods. Currently, it is not possible to establish a safe exposure level for a carcinogen. Therefore, recommended exposure values are based on the lowest concentration at which asbestos fibers can be monitored reliably using phase-contrast fiber counting procedures. After a thorough review and evaluation of all available sampling and analysis methods, NIOSH feels that phase-contrast microscopy is the only generally available and practical technique for routine monitoring, although electron microscopic methods are available on a limited scale for more precise research studies.

The recommended TWA standard of 100,000 fibers over 5 μm in length per cubic meter of air is intended to (1) protect against the noncarcinogenic effects of asbestos and (2) materially reduce the risk of asbestos-induced cancer. Because it is not possible yet to specify a safe exposure level for the carcinogenic activity of asbestos, only a ban on its use can ensure complete protection against this mineral's carcinogenic effect.

Therefore, emphasis should be placed on prohibiting the occupational use of asbestos in other than completely closed operations and on substituting other products whenever possible. Asbestos should be replaced, where technically feasible, by substitutes with the lowest possible chronic toxicities.