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16. Abstract (Limit: 200 words) This testimony provides support for the Environmental Protection Agency proposed standard for the identification and abatement of asbestos (1332214) in schools. Several field surveys were conducted by NIOSH to investigate the effectiveness of glove bags in controlling asbestos exposure during abatement. The data show that this practice does not entirely prevent the release of asbestos into the work environment. The results indicate the need for proper training of those persons using glove bags, the institution of proper work practices, and the need for supplemental control measures during the entire abatement action. Methods for sampling, analytical methods, fiber counting, and monitoring are discussed.					
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Comments to EPA

COMMENTS OF THE
NATIONAL INSTITUTE FOR OCCUPATIONAL SAFETY AND HEALTH
ON THE
PROPOSED RULE ON ASBESTOS-CONTAINING MATERIALS IN SCHOOLS

40 CFR Part 763
Docket No. OPTS-62048C

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U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES
Public Health Service
Centers for Disease Control
National Institute for Occupational Safety and Health

June 29, 1987

The National Institute for Occupational Safety and Health (NIOSH) believes that the Environmental Protection Agency (EPA) proposed standard is a reasonable approach to the identification and abatement of asbestos in schools. Copies of NIOSH's response to "EPA Proposed Rule: Asbestos Abatement Projects (40 CFR Part 763)" and "Statement of the National Institute for Occupational Safety and Health/Public Hearing on Occupational Exposure to Asbestos, June 21, 1984," are attached for your consideration in this proposed rule. These documents support our concern for the health risks of workers who are potentially exposed to asbestos and the need to maintain airborne exposures below 100,000 fibers greater than 5 micrometers in length per cubic meter of air. The determination of this fiber concentration should be in accordance with the procedures contained in the most current revision of the NIOSH analytical method 7400. Since asbestos is a recognized carcinogen, NIOSH recommends that only the maximum feasible level of respiratory protection be provided to and used by workers that are engaged in any activity where a potential for an asbestos exposure exists. Guidelines for the proper selection and maintenance of respirators are contained in the document "EPA/NIOSH Guide to Respiratory Protection for the Asbestos Abatement Industry."

NIOSH has conducted several field surveys investigating the effectiveness of glove bags in controlling asbestos exposures during abatement. The data from these studies show that the use of glove bags do not entirely prevent the release of asbestos into the work environment. Thus, the use of glove bags should not be construed as a means of maintaining fiber concentrations below 100,000 f/m³. These results indicate the importance of proper training of those persons using glove bags, good work practices, and the need for supplemental control measures during the entire abatement action. Copies of these reports are attached for your consideration.

Other specific comments include:

1. Page 15826 and 15871. Small-scale, short-duration maintenance activities need to be better defined so as to assure that large-scale abatement activities are not performed in a manner that would classify them as a small-scale task (i.e., a series of small- and short-duration abatement activities on the same job over an extended period of time). Persons performing small-scale, short-duration maintenance or removal activities should be given the same training as that provided workers who perform large-scale abatement activities.
2. Page 15826 and 15845. The limit of quantitation (LOQ) is stated to be 4 times the limit of sensitivity (LOS) or $.005 \times 4 = .02$ f/cc for transmission electron microscopy (TEM). These are analytical terms and are functions of the state of the art of the method. LOS is a function of the noise or blank concentration in the method. In this case, the LOS is determined by the background of the filter blanks. This is

certainly subject to change by improvements in filter technology and sample handling. The term quantitation implies a knowledge of the precision and bias of the method at a certain fiber concentration. No data have been presented in support of the LOQ or LOS.

3. Page 15827, III. Options Considered. The sampling requirements for abatement activities indicate only the use of filter sampling and laboratory analysis as a means for determining the adequacy of cleanup and containment systems. While direct reading dust instruments (including the MIE Fibrous Aerosol Monitor, optical particle counters or nephelometers) are not directly comparable to filter analysis techniques, they do provide the opportunity to continually evaluate the abatement containment system as well as indicate the adequacy of cleanup. In a short-term, high-intensity effort such as abatement, there is a serious potential for causing the release of asbestos and contamination of surrounding areas outside the abatement containment. Timeliness of exposure information is imperative so that corrective action can be undertaken to prevent such contamination. Phase contrast microscopy (PCM) is marginally useful in this regard even if rapid turnaround (hours) of results is available. TEM is not practical due to the long period of time necessary for analysis at a remote location. Direct reading instruments also provide an indication of the adequacy of the final cleanup. Quite often, clearance samples are so severely overloaded with non-fibrous particulate that reports of low fiber concentrations are due to obscuration of fibers on the overloaded filter samples rather than to an actual concentration. By using direct reading instruments to indicate that aerosol concentrations are sufficiently low to conduct clearance sampling, more accurate assessment of the cleanup situation can be carried out. Overloading of PCM filter samples is mentioned in the current version of Method 7400 which specifies the need to keep particulate loading on the filter to less than 50%. These provisions are often ignored in the haste to complete the job.

These instruments can be used (and are being used by several contractors) to identify serious problems with the containment procedure and to help define a sampling strategy for clearance monitoring. NIOSH acknowledges the need for further evaluation of these methods, but suggests that the possible use of these instruments be mentioned in the rules.

4. Page 15827. EPA intends to exempt employers from monitoring if they have demonstrated past low fiber concentrations (on the assumption that all future fiber concentrations will be low, doing the same type of work). Prediction of future exposures of presumed similar operations is almost impossible. Monitoring is the only tool to validate that exposures are, and continue to be, acceptable.

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5. Page 15828. NIOSH recommends that EPA require the Local Education Agency (LEA) to designate an "Asbestos Program Manager" and specify minimum training requirements for him as recommended by the EPA negotiating committee.
6. Page 15829, line 9. PCM does not identify asbestos; this should be Polarized Light Microscopy (PLM).
7. Page 15829, 2. Analysis. NIOSH believes that TEM is an appropriate analytical method for determining the presence of asbestos in bulk samples. The characterization of samples should be consistent with that proposed for air sample analysis (Page 15854, V. TEM Method). Additional field research should be undertaken by EPA to compare TEM with PCM and determine the feasibility of using the current NIOSH Method 7400 for clearance sampling.
8. Page 15832 and 15846. NIOSH agrees that aggressive sampling, both for PCM and TEM analysis, is required for clearance. However, a more explicit definition of what constitutes aggressive sampling is needed.
9. Page 15845 and 15865. There needs to be a clearer definition of what will be counted for clearance purposes by TEM: fibers only with aspect ratio 5:1, and/or asbestos structures (AS). While it is indicated the fibers and structures are counted and reported on the forms, it is not clear how these are combined to indicate the resultant "fibers/cc." For clearance purposes, all asbestos structures should be counted and reported, since they represent potential or actual contamination. The use of the term "fibers" also needs to be better defined.

While it may be preferable analytically to use a 5:1 aspect ratio definition for a fiber, it will cause a considerable amount of confusion and difficulty in comparing results obtained by PCM analysis. NIOSH believes that fibers should be defined using a 3:1 aspect ratio since this definition is consistent with that used for establishing health risks for asbestos exposure.
10. Page 15852. It is suggested that the use of a static eliminator during filter removal from the cassette be mentioned as a means of reducing sample loss.

4 Attachments

