NIOSH Comments to DOL

SUPPLEMENTAL COMMENTS OF THE NATIONAL INSTITUTE FOR OCCUPATIONAL SAFETY AND HEALTH ON THE OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION'S PROPOSED RULE ON OCCUPATIONAL EXPOSURE TO ASBESTOS, TREMOLITE, ANTHOPHYLLITE, AND ACTINOLITE

29 CFR Parts 1920 and 1926
Docket No. H-033-e

U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES
PUBLIC HEALTH SERVICE
CENTERS FOR DISEASE CONTROL AND PREVENTION
NATIONAL INSTITUTE FOR OCCUPATIONAL SAFETY AND HEALTH

1/4/93

In response to the OSHA Federal Register Announcement [57 FR 49657] published November 3, 1992, the National Institute for Occupational Safety and Health (NIOSH) is providing comments to the Occupational Safety and Health Administration (OSHA) request for supplemental information on issues related to occupational exposure to asbestos. These comments are in addition to those previously submitted to OSHA by NIOSH (Enclosures 2 and 3).

Issue 1. **PRESUMED ASBESTOS CONTAINING MATERIAL (PACM)**

a) **Definition of asbestos containing material**

There is no definition given by OSHA of asbestos containing material (ACM). Presumably, OSHA is using the EPA definition of 1% asbestos. However, there is no measurement method currently available that can accurately measure asbestos concentration at such low levels. The most commonly used method, involving the polarizing light microscope, has relatively large errors in the concentration range below 5-10%. The publication, "Estimating quantities of asbestos in building materials" by Jankovic et al. [1988] describes methods and limitations at low concentrations (Enclosure 4).

b) **Protocol for bulk sampling for asbestos**

NIOSH Method 9002 may be used for qualitative and semi-quantitative analysis of bulk asbestos materials (Enclosure 5). A description of bulk sampling procedures is given by Jankovic [1985] (Enclosure 6).

c) **The scope of the list of PACM**

At present, OSHA intends to limit the list of PACM to high-risk materials, such as thermal system insulation and sprayed-on or troweled-on surfacing materials. The scope of this list should be expanded to include additional materials that are prevalent, such as vinyl asbestos floor tile, and asbestos boards (transite) that may become high-risk if handled improperly. For example, in the proposed rule [55 FR 29725] OSHA states that sanding vinyl floor tiles would likely release high levels of asbestos and, in some cases, asbestos concentrations would exceed the proposed permissible exposure limit (PEL) of 0.1 fibers per cubic centimeter of air (f/cc).

Issue 2. **ADEQUACY OF BUILDING RECORDS**

Allowing building owners to utilize records to rebut the presumption that building material is PACM

Because building records may be unreliable or incomplete, building owners should not be permitted to use these records to rebut the

presumption that building material is PACM. For example, in past years it was not common to specify in purchase orders or drawings non-asbestos containing materials for construction.

NIOSH also disagrees with the discussion in the Federal Register notice wherein OSHA would exempt buildings constructed before 1920 from PACM considerations. Surely, during the 1920 to 1980 period, many of these older buildings have had major renovations that included the use of thermal system insulation in HVAC systems and possibly sprayed-on or troweled-on surfacing material containing asbestos. Furthermore, these buildings may have changed ownership several times and, therefore, the building or facility records may be unreliable, incomplete, or unavailable.

Issue 4. **EXPOSURE DATA**

a) **NIOSH Data**

NIOSH has not conducted any studies of "small-scale, short-duration" maintenance or custodial operations. NIOSH has conducted health hazard evaluations on asbestos exposure. However, only one specifically looked at exposure to maintenance personnel (Enclosure 7). In this instance, NIOSH found asbestos in bulk and settled dust samples but not in personal or area breathing zones of maintenance personnel.

b) **NIOSH Studies**

NIOSH has completed two studies evaluating the effectiveness of negative-pressure glove bags (Enclosures 8 and 9).

1) In-depth survey report: Evaluation of the aero-pipe capsule (negative air glove bag) during the removal of asbestos-containing pipe lagging (ECTB Report No. 147-21a).

2) In-depth survey report: Evaluation of a custom fabricated negative air glove bag during the removal of asbestos-containing pipe lagging (ECTB Report No. 147-22a).

NIOSH has also completed four in-depth reports on control technology for asbestos removal (Enclosures 10, 11, 12, and 13).

1) In-depth survey report: Control technology for asbestos removal at Winton Place Elementary School (Report No. 147.19d).

2) In-depth survey report: Control technology for asbestos removal at Bloom Middle School (ECTB Report No. 147-19c).

3) In-depth survey report: Control technology for asbestos removal at Sands Elementary School (Report No. 147-19b).

4) In-depth survey report: Control technology for asbestos removal at Washburn Elementary School (ECTB Report No. 147-19a)

c) **Literature Search**

A search of Medline© shows three articles in the last three years specifically on this issue. The three articles are:

1) Balmes JR, Daponte A, Cone JE. Asbestos-Related Disease in Custodial and Building Maintenance Workers from a Large Municipal School District.[1] Annals of the New York Academy of Sciences 1991, [Dec 31] 643:540-9.

2) Levin SM, Selikoff IJ. Radiological Abnormalities and Asbestos Exposure Among Custodians of the New York City Board of Education.[1] Annals of the New York Academy of Sciences 1991, [Dec 31] 643:530-9.

3) Oliver LC, Sprince NL, Greene R. Asbestos-Related Radiographic Abnormalities in Public School Custodians (Attachment 14).

d) **Other Studies**

A study by Keyes et al. [1991] (Enclosure 15), entitled "Exposure to airborne asbestos associated with a simulated cable installation above a suspended ceiling," reports asbestos concentrations in a simulated building maintenance operation. The paper provides several measurements of asbestos concentration by phase contrast microscopy during the simulated work cycle. The mean concentrations were 0.13 f/cc and 0.34 f/cc for two simulated work cycles. Unfortunately, few details regarding these measurements were given because they were not the focus of the study.

Also enclosed are three reports that evaluate airborne asbestos concentrations for selected maintenance activities including gasket removal and installation, electrical wiring operations, and valve-packing removal and installation. These reports were conducted by Turnkey Environmental Consultants, Inc. who performed the studies for an unnamed client. The reports are:

1) "Evaluation of Airborne Asbestos Fiber Levels During

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[1] These references are currently not available, however, they have been ordered and will be forwarded to OSHA as soon as they are received.

Gasket Removal and Installation" (Enclosure 16)

2) "Evaluation of Airborne Asbestos Fiber Levels During Electric Wiring Operations" (Enclosure 17)

3) "Evaluation of Airborne Asbestos Fiber Levels During Valve Packing Removal and Installation" (Enclosure 18)

Issue 6 **CURRENT PRACTICES - CONTROL TECHNOLOGY**

Data are available from the NIOSH National Occupational Exposure Survey (NOES) database relevant to respirator use for maintenance and janitorial workers. Respirator use was observed in less than 1% of the maintenance workers and in 0% of the janitorial workers potentially exposed to asbestos. (Enclosure 19)

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4. Title and Subtitle NIOSH Testimony on Occupational Exposure to Asbestos, Tremolite, Anthophyllite, and Actinolite by R. W. Niemeier, January 4, 1993	5. Report Date 1993/04/01 6.
7. Author(s) NIOSH	8. Performing Organization Rept. No.
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15. Supplementary Notes

16. Abstract (Limit: 200 words) This testimony provided comments to OSHA from NIOSH regarding supplemental information on issues related to occupational exposure to asbestos (1332214). One of the concerns was a lack of a definition from OSHA of asbestos containing material (ACM). If this designation indicated the presence of at least 1% asbestos, there was no available method to accurately measure low levels. NIOSH also testified that building records may be unreliable or incomplete and that building owners should not be allowed to use these records to rebut the presumption that building materials contain asbestos. The exemption of buildings constructed before 1920 was also questioned, since most such buildings would have had major renovations which could have included asbestos containing materials. No studies have been conducted by NIOSH of exposure during small scale, short duration maintenance or custodial operations. NIOSH studies on the effectiveness of negative pressure glove bags, and control technology for asbestos removal activities were cited. Other published studies on asbestos exposure during maintenance activities were also cited.

17. Document Analysis a. Descriptors

b. Identifiers/Open-Ended Terms NIOSH-Publication, NIOSH-Author, NIOSH-Testimony, Niemeier-R-W, Airborne-fibers, Asbestos-removal, Asbestos-fibers, Construction-materials, Control-technology, Maintenance-workers

c. COSATI Field/Group

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