

Miller, Diane M. (CDC/NIOSH/EID)

From: Heidorn, Dave (CDC asse.org)
Sent: Thursday, May 31, 2007 12:27 PM
To: NIOSH Docket Office (CDC)
Subject: Comment on ?Asbestos and Other Mineral Fibers: A Roadmap for Scientific Research,?
NIOSH Docket Number NIOSH-099
Attachments: 053007NIOSHAsbestos-3.doc

Attached are ASSE's comments on the draft document "Asbestos and Other Mineral Fibers: A Roadmap for Scientific Research," NIOSH Docket Number NIOSH-099. If there are any difficulties, please contact Dave Heidorn, Manager of Gov't Affairs and Policy at dheidorn@asse.org or 847/768-3406. Thank you, Dave Heidorn

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May 31, 2007

John Howard, MD, JD, LLM
Director
National Institute for Occupational Safety and Health
Hubert H. Humphrey Building
200 Independence Avenue, SW
Washington, DC 20201

RE: Comments on Draft "Asbestos and Other
Mineral Fibers: A Roadmap for Scientific
Research," NIOSH Docket Number NIOSH-
099

Dear Dr. Howard:

On behalf of the more than 30,000 members of American Society of Safety Engineers (ASSE) and its Environmental Practice Specialty, ASSE offers the following comments on the National Institute for Occupational Safety and Health's draft document, "Asbestos and Other Mineral Fibers: A Roadmap for Scientific Research" (NIOSH Roadmap), *NIOSH Docket Number NIOSH-099, February 2007*.

In February of this year, NIOSH issued for public comment a draft research strategy document on asbestos and other mineral fibers. The draft suggests directions for new research to answer current scientific questions about occupational exposure and toxicity issues specifically relating to asbestos and other mineral fibers. ASSE believes that the benefits of the proposed research will clarify and reduce current scientific uncertainties in those areas, provide a sound scientific foundation for future policy development, and contribute valuable insight into the potential health impact from asbestos and other toxic and/or potentially toxic mineral fibers in our environment.

Although many advances were made in the scientific understanding of occupational health effects from asbestos and other mineral fibers in the mid- and late-20th Century, new findings have generated many questions while significant areas of scientific uncertainty remain. ASSE finds that the research roadmap proposed by NIOSH accurately provides a current reappraisal of the areas of research needed to answer these

new questions and provide a sound scientific foundation for future policy development to prevent asbestos-related occupational illnesses.

ASSE agrees with NIOSH that, in order to reduce the uncertainty and controversy concerning exposure assessment and health effects of asbestos and other mineral fibers, strategic research activities are needed in toxicology, epidemiology, exposure assessment, and analytical methods. This important research is sorely overdue. We also agree that the scientific results can contribute to the potential development of new policies for asbestos and other toxic and/or potentially toxic mineral fibers with recommendations for exposure indices that more effectively protect workers' health. Likewise, we see a secondary benefit to this research that will also contribute towards better asbestos exposure assessments for family members of workers with occupational exposures to asbestos. Finally, we believe this research will also benefit our understanding of health risks to the general public from two sources of low-level, sporadic and incidental exposures – the mining, industrial, and construction generated environmental asbestos pollution; and, naturally occurring, fibrous amphibole and zeolite minerals. In short, ASSE supports the NIOSH Roadmap and its research efforts to bridge the knowledge gaps and reduce the uncertainty regarding the occupational exposures to asbestos and these other probable toxic and/or potentially toxic mineral fibers.

NIOSH has requested public comment on the potential research goals and objectives suggested by the draft document. ASSE provides the following comments in support of the three main topic areas the NIOSH Roadmap proposes:

- Development of improved sampling and analytical methods for asbestos and other mineral fibers

The NIOSH Roadmap identifies the major known areas of uncertainty about the toxicities of fibers from the asbestos minerals, of fiber-like cleavage fragments from nonasbestiform analogs of the asbestos minerals, and of other mineral fibers, as well as the short-comings of current analytical techniques. ASSE is concerned that these scientific uncertainties have negative effects on the health of workers exposed to asbestos. We support the NIOSH research proposal found in Section 2 of the "Road Map" that addresses these gaps in sampling and analytical methods for asbestos and other mineral fibers. ASSE encourages NIOSH to expand this research to include man-made fibers.

- Development of a broader understanding of the important determinants of toxicity for fibers and fiber-like cleavage fragments

ASSE is concerned that fiber shape might be more important than chemical composition in explaining the health effects of asbestos. If true, this finding would expand our support of the NIOSH Roadmap with its probable effects on research in occupational exposures to man-made and to other naturally occurring mineral fibers. This includes (1) naturally occurring fibrous minerals found as a contaminant in certain mined commodities [e.g., richterite and winchite in vermiculite], (2) man-made fibers [e.g., synthetic vitreous fibers], and (3) new or emerging man-made fiber

technologies [e.g., carbon nanotubes]. ASSE agrees with NIOSH that the biological significance of occupational exposure to many of these minerals remains unknown and difficult to establish given the mixed and sporadic nature of exposure in many work environments and the general lack of good exposure characterization information. ASSE finds that the NIOSH Roadmap provides research that will provide a better understanding of the significance of these complex exposures on the workforce.

ASSE also supports the NIOSH Roadmap's ultimate goal of developing a comprehensive research program for asbestos and other mineral fibers would be the development of a unified theory of toxicity for thoracic-sized mineral fibers. We agree that a unified approach would specify criteria, such as a range of chemical composition, dimensional attributes (e.g., length range, diameter range, aspect ratio), and dissolution rate/fragility (biopersistence), for considering fibers as potentially toxic. Such an approach would have the advantage of identifying asbestos and other fibers warranting concern based on their qualities and attributes, and even new fibers identified or manufactured could be compared to the criteria to determine a likelihood of health effects. A unified theory of fiber toxicity would clearly identify the potency of fibers for causing specific diseases and how that potency varies, depending on the particular combination of fiber characteristics and dose. ASSE has concluded that a unified, coherent risk management approach for fibers that fully incorporates this understanding of the toxicity of fibers must be developed to minimize the potential for disease.

The policy concerning thoracic-size fibers could be extended beyond mineral fibers to synthetic vitreous fibers and even to other manufactured materials. ASSE is specifically interested in any research of occupation exposure to the emergence of engineered nanomaterials in the workplace. Although engineered nanomaterials are well beyond the scope of the NIOSH Roadmap, ASSE is concerned that fiber-shaped nanoscale particles have been shown to impact health in some animal studies. ASSE supports the NIOSH Roadmap suggestion to integrate the results of nanoparticle toxicity investigations into the NIOSH Roadmap. Such integration will help advance the development of a unified theory of fiber toxicity.

- Development of information and knowledge on occupational exposures to asbestos and other mineral fibers and fiber-like cleavage fragments, and the health outcomes of those exposures

ASSE recognizes that the importation and use of asbestos-containing materials in the United States has steadily declined over the last thirty years. The NIOSH Roadmap provides additional evidence that occupational exposures in traditional asbestos occupations have also declined during this time. However, ASSE supports NIOSH's position that current exposure limits to occupational exposure to asbestos are based more on limits of sensitivity of analytical protocols than on health risks. We also find that asbestos usage has not been completely eliminated and that asbestos-containing materials remain in place in structural materials and machinery. Hazardous exposures remain a potential occupational risk. Therefore, these lower level asbestos exposures

incurred in the workplace must continue to be studied.

ASSE is also concerned that occupational exposures to naturally occurring asbestos, other fibrous minerals, and man-made fibers have already occurred and will continue to take place. The current definition of asbestos is restricted to the six commercially important asbestos minerals. This regulatory definition does not provide occupational protection from exposure to fibers from other fibrous silicate minerals with structures and chemical compositions similar to fibers from asbestos minerals, or man-made fibers, which have either demonstrated health effects in exposed workers or can reasonably be predicted to produce health effects. ASSE supports the NIOSH Roadmap research into these relatively new occupational exposure routes.

Conclusion

ASSE fully supports the proposed research goals found in the NIOSH Roadmap. Each is an important step towards protecting workers from asbestos, other fibrous minerals, and man-made fibers. To achieve them, a significant investment of time, scientific talent and resources by NIOSH and its partners will be necessary, as will coordination between these efforts and other ongoing research to maximize the benefits of this research. Investment in this research will benefit worker safety and health, provide knowledge needed to protect the general population and offer important insight into the emerging presence of engineered nanomaterials in the workplace. Any recommendations for occupational safety and health protection policies must be based on sound scientific research. The NIOSH Roadmap provides a comprehensive research agenda for achieving sound policy on addressing the risks posed by asbestos, other toxic and/or potentially toxic mineral fibers, and man-made fibers.

Thank you for your time in considering ASSE's views.

Sincerely,

Donald S. Jones, Sr., CSP, PE
President