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Scott A. Masten, PhD.
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NIEHS/NTP
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May 5, 2007

RE: Public Comment – "Asbestos, naturally occurring and atypical forms"

Dear Dr. Masten;

The National Toxicology Program (NTP) has requested comment regarding nominations for toxicological study for recently nominated substances. This correspondence and the appended reference material constitute preliminary comments by the R. T. Vanderbilt Company, Inc. (Vanderbilt) regarding the captioned nomination.

Several years ago the NTP attempted to address "asbestiform" talc and found the nomination prompted a debate regarding the definition of asbestos itself. Ultimately, the NTP abandoned that nomination recognizing the nature, significance and complexity of the issue exceeded the resources of the NTP. Further, the NTP acknowledged that asbestos, regardless of where it appears, is already a recognized human carcinogen.

We believe the present nomination for testing is likely to pose similar difficulties unless appropriate expertise is involved in the process. The testing of discrete chemical substances contrasted to the testing of mineral particulate with varying crystallization habits and forms is likely to pose testing relevance issues in the absence of such expertise. Mineral specimens selected for testing can vary widely with some having little if any significance beyond a specific location or application.

Examples and discussion that demonstrate the importance of accurate mineral characterization are enclosed in this submission. These references include materials linked to the present emphasis on naturally occurring asbestos in El Dorado Hills, California, the impurity of asbestos standard materials themselves (e.g. NIST 1867a), mischaracterization of tremolitic talc (White Paper) and fiber characteristics most associated with risk and proper identification (Wylie, Lippmann, Bermin, BOM).

For decades researchers have attempted to identify "common thread" fiber risk characteristics in an effort to better predict and protect workers and the public. The mineral fiber characteristics most frequently studied include: dose, particle dimension, biopersistence, lung clearance mechanisms, surface area, harshness and other physio-chemical properties. Though several of these characteristics unquestionably play a role (dimension, dose and bio-persistence in particular), questions remain in respect to exactly which of these and in what combination are of most significance.

The effective study of mineral particulate risk requires a strong and unbiased multidisciplinary approach. Research in this area should not be limited to medical personnel, industrial hygienists, epidemiologists or toxicologists with little no mineral expertise. The lack of precision in elongated particle exposure characterization has hampered the usefulness of many prior research efforts. This imprecision is likely to continue and the attribution of risk misdirected if care is not taken.

Although much of the fiber risk literature is problematic, a body of reliable scientific work does exist. Much of this material is discussed and referenced in the appended documents. Before additional research work is undertaken, we believe it is of critical importance to identify and separate overly broad, imprecise work from more discriminating work so that future research is not redundant or serves only to further cloud fiber risk issues.

For example, exclusive emphasis on fiber dimension without regard to crystal structure and mineral type is a serious deficiency in many fiber risk studies. The contribution of fibriller bundling (asbestiform crystal growth) seen in all asbestos exposures is often overlooked in favor of a dimensional and biopersistence focus alone. A single crystal amphibole cleavage fragment may obtain the same dimension of an asbestos amphibole fiber bundle of the same mineral and both may be respirable (though such size similarity is rare). Once both "fibers" are in the lung, the single crystal cleavage fragments remains a single crystal while the fiber bundle breaks apart (disaggregates) and presents the lung with a significant number of thinner and thinner fibers to clear with an attending difference in surface properties. Failure to describe crystal growth ignores a biologic reality that is very likely more significant than the originating fiber dimension.

Lastly, Vanderbilt is concerned about the current increase of interest among government agencies regarding asbestos and fiber risk in general. The recent NOSH draft review entitled "Asbestos and Other Mineral fibers: A Roadmap for Scientific Research" also suggests inadequate risk identification and control exists for naturally occurring asbestos and other elongated minerals. While understanding fiber risk is important and a proactive approach is preferred, meaningful understanding of fiber risk requires the highest research standards possible. Vanderbilt is concerned that multiple work by multiple agencies will result in a disjointed and duplicative effort.

Poor science in this area can result in an unnecessary but significant adverse impact to the economy. Poor, overly broad fiber risk description can damage the aggregates industry, mining in general, real estate values and promote spurious litigation. It is of critical importance that research in this area be held to the highest possible ethical and professional standards. We believe the appended documents show a history of confusion and the application of second rate science. Vanderbilt would not like to see this trend continued. We hope the NTP finds these comments and the appended references helpful.

Very truly yours,

R. T. VANDERBILT COMPANY, INC.

[Redacted]

John W. Kelse, Corporate Industrial Hygienist
Director, Corporate Risk Management Dept.

Appended File Folders:

El Dorado Hills File (conflicting analytical reports and debate)
RTV White Paper
3 Cleavage Fragment review papers (human, animal and cell)
M. Lippmann Papers
W. Bermin Paper
Select A. Wylie Papers
ASTDR Symposium Summary (NY 2003)
BOM RI 1977 "Selected Silicate Minerals and their Asbestiform Varieties"
NIST Asbestos Std. Material – 1867a