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Vivian Turner  
EPA Science Advisory Board (1400F)  
U.S. Environmental Protection Agency  
1200 Pennsylvania Avenue, N.W.  
Washington, D.C. 20460

RE: "Proposed Approach for Estimation of Bin-Specific Cancer Potency Factors for Inhalation Exposure to Asbestos"

Dear Ms. Turner:

The following comments are offered for consideration by the Science Advisory Board (SAB) in connection with the meeting scheduled for July 21, 2008.

While the objective of developing fiber type and fiber size-specific risk estimates is laudable, limitations of the available epidemiologic and fiber size data necessitate the use of many simplifying assumptions. The draft document discusses many of these assumptions and their potential impacts on the resulting risk assessments. However, several additional limitations and concerns should be noted.

1. Use of a single TEM size distribution by industry will not capture with-industry variability in size distributions, resulting in considerable misclassification in size-specific exposures. In our recent more detailed TEM analyses of samples from the Charleston SC textile plant, we noted substantial differences in fiber size by textile operation. [Dement et al., 2007 enclosed]. Also, an upper length of 10  $\mu$ m will not capture important differences with regard to longer fibers, both within and between industries.
2. We have observed a very high correlation between the diameter and length categories by TEM. The high correlation between the length and diameter bins precluded good separation of the size-specific risks in our recent publication [Stayner et. al, 2007, enclosed]. While lung cancer risk estimates were improved using TEM versus PCM, all combinations of length and diameter were found to be highly statistically significant predictors of lung cancer risk. Our findings in this regard are relevant to other

populations as worker cohorts studied to date have been predominately exposed to short fibers. Model fit statistics will not untangle this correlation, especially based on an ecological analysis using grouped rather than individual worker-specific data.

A strong distinction must be made between fiber size-specific potency, based on statistical model parameters, and ultimate risk. As noted above, exposures of all cohorts, especially those processing chrysotile, are highly dominated by fibers  $< 5 \mu\text{m}$  in length. Even if these short fibers are a magnitude or perhaps several magnitudes 'less potent' fiber for fiber, their contribution to worker risks can, none-the-less, be substantial.

3. The rationale for omission of the insulator worker studies by Selikoff and Seidman from the risk assessment seems very weak. This is one of the largest cohorts studied and is highly relevant to risks experienced by U.S. workers, particularly construction and craft workers. While these workers did experience mixed exposures to chrysotile and amosite, so did other cohorts chosen for inclusion, and with similar patterns of change over time. Approximation of the mix of chrysotile and amphiboles for this cohort would seem to be no less certain than for other studies chosen for inclusion and surely a reasonable range of fiber type mix could be chosen.

Thank you for allowing me to provide comments.

Sincerely,

John M. Dement, Ph.D.  
Professor