

May 1, 2012

MEMORANDUM

SUBJECT: Clarifications Related to the SAB Draft Report Reviewing EPA's Draft Assessment Entitled "Toxicological Review of Libby Amphibole Asbestos"

FROM: Robert Benson, Toxicologist  
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TO: Dr. Agnes Kane, Chair  
Libby Amphibole Asbestos Review Panel  
U.S. Environmental Protection Agency Science Advisory Board (SAB)

As the co-chemical manager for this assessment and someone who is extremely familiar with the exposure-response modeling used to derive the Point of Departure (POD) for the Reference Concentration (RfC), I listened with great interest to the discussion of the modeling among the SAB Panelists today. Following are my observations and a request for clarifications to be incorporated in the final SAB report.

My observation is that the discussion today did not clearly distinguish the modeling done for the Marysville sub-cohort [12 cases of Localized Pleural Thickening (LPT) in 118 individuals] and the modeling done for the full Marysville cohort (63 cases of LPT in 434 individuals). As EPA demonstrated in Appendix E, these two cohorts have different explanatory variables that are important. For example, the only statistically significant explanatory variable for the sub-cohort is cumulative exposure. In contrast, the statistically significant variables for the full cohort are cumulative exposure and time from first exposure. Therefore, it should be clear that different statistical models must be applied to these two different data sets. I request that the Panel define with specificity the recommended model that should be applied to each of these data sets. Specific model equations are most helpful. I request that the Panel provide a separate recommendation for Charge Question 2 (for the sub-cohort on page 25 of the draft report) and a separate recommendation for Charge Question 3 (for the full cohort on page 26 of the draft report).

Several comments also led me to believe that some are not clear that all of the exposure-response modeling was conducted with the exposure and health outcome for each individual in the Marysville cohorts. Binning of data was only used to construct the comparison plots in the assessment (Figure E-1, Figure E-2, and Figure E-3). Specific recommendations on wording to clarify this concept would be greatly appreciated.

Finally to respond to Dr. Webber's concern, I can confirm what Dr. Devoney stated on the call. I am the EPA person who directed the University of Cincinnati Research Group in the completion of the exposure reconstruction for the Marysville

cohort. Figure F-1 is presented as ln transformed data. These data were “exponentiated” prior to the development of Table F-4 (exposure matrix). The data in Table F-4 are presented as fibers/cc for each department for each year. The Cumulative Human Exposure Equivalent Concentrations (CHEEC) as described in Section F.5 are also presented in units of fibers/cc-yr taking into account the work histories of each individual in the cohort. Specific recommendations on wording in Appendix F to prevent misinterpretation would be appreciated. Table E-2 and Section E.3.2 provide the units of the exposure metric that was used for the exposure-response modeling. The various PODs are provided in units of fibers/cc-yr. Specific recommendation on wording in Appendix E to prevent misinterpretation would also be appreciated.