UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

July 30, 1985

Honorable Lee M. Thomas
Administrator
U.S. Environmental Protection Agency
401 M Street, S.W.
Washington, D.C. 20460

OFFICE OF
THE ADMINISTRATOR

Dear Mr. Thomas:

On May 23, 1985, the Environmental Health Committee of EPA's Science Advisory Board reviewed a draft Addendum to the Health Assessment Document for Dichloromethane (Methylene Chloride), dated April, 1985, and prepared by the Office of Health and Environmental Assessment (OHEA) in EPA's Office of Research and Development.* The original document had been reviewed on July 18, 1984. At that time, the Committee suggested to the Administrator, William D. Ruckelshaus, that the Agency delete the unit risk estimate from the original Health Assessment Document for Dichloromethane. The Committee concluded that the available information regarding the carcinogenicity of dichloromethane did not provide an adequate basis to calculate a unit risk estimate that was scientifically justified. In his November 6, 1984, response to the Science Advisory Board, Mr. Ruckelshaus declined to accept the Committee's suggestion on the grounds that inclusion of a unit risk estimate for dichloromethane was justified on a risk management basis for use as a policy tool.

The availability of new scientific data has caused the Agency to re-examine its conclusions regarding dichloromethane. The new draft Addendum reviews evidence from a National Toxicology Program sponsored bioassay of dichloromethane inhaled by rodents, which was not available when OHEA wrote the original document. The Committee agrees with the revised conclusion in the Addendum which states that using the criteria of the International Agency for Research on Cancer (IARC), the animal evidence for carcinogenicity of dichloromethane now is "sufficient." The Committee also agrees that the weight of the epidemiological evidence for carcinogenicity in humans remains "inadequate."

Overall, the new information will shift dichloromethane from IARC category 3 to 2B. Classification of this compound under the proposed EPA guideline for carcinogen assessment was not discussed by the Committee. The IARC classification may be misleading for purposes of regulatory decision-making. Other substances which produce rare and/or high incidence tumors in animals are included in the same 2B category, such as ethylene dibromide, ethylene oxide and 2,3,7,8-tetrachlorodibenzo-p-dioxin. In contrast, dichloromethane administration to rodents causes a low increase of malignant tumors at commonly occuring sites.

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* One member of the Committee, Dr. Robert Tardiff, participated in the discussion on May 23 but did not take part in the Committee's decisions or the preparation of this report. His employer, the Environ Corporation, assisted the Chemical Manufacturers' Association in preparing comments on another EPA document on dichloromethane.

At its review meeting the Committee suggested that OHEA staff analyze in more detail the data on metabolism and how such information might change the risk estimate presented in the document. At a public meeting on June 27, 1985, OHEA presented a revised section on pharmacokinetics and metabolism and subsequently briefed the Committee on the changes. The modification of the risk estimate (or its uncertainty) by pharmacokinetic data, when finalized, will constitute new information. Although Committee reviewers did not express a uniform opinion on the significance of the data, they did have a consensus that EPA should show the calculation of a modified risk estimate, if only as a "what-if" estimate. The qualitative conclusions about dichloromethane are not likely to change, but the quantitative estimate may change. The Committee requests that OHEA, in finalizing the document, inform the Committee in writing of how pharmacokinetic data was used.

Appropriate modification of the risk estimate by using pharmacokinetic information is not a new topic in the discussions between EPA and the Committee. We originally requested an improved analysis of the pharmacokinetics of dichloromethane in our oral comments on the original document, because of the wide range of exposure situations in which dichloromethane is found. We have requested similar written analyses for other sustances that the Agency has assessed including chloroform, perchloroethylene, 1,1,2-trichloroethylene, ethylene dichloride, butadiene, methyl chloroform, cadmium, manganese, beryllium and formaldehyde. In addition to revising the pharmacokinetic analysis, the risk estimate based on animal data should be compared to the human epidemiology data.

The draft Addendum does not have a stated purpose. The Committee has assumed that the document is to serve as a multimedia source to place adverse health responses in perspective and to provide a scientific basis for regulatory decisions by the Office of Air and Radiation. The Committee believes that the syntax of the Addendum should be improved. For example, many passages in the toxicology portions were difficult to understand. Some parts of the draft Addendum can only be understood by reference to the previous final document; other sections apparently are meant to replace parts of the previous final document. Thus, some kind of "road map" to the draft Addendum, in addition to the parent document, is recommended.

We appreciate the opportunity to review the Addendum to the Health Assessment Document for Dichloromethane and stand ready to provide additional advice on this public health issue. We request that the Agency formally respond to the scientific advice provided in this letter.

Sincerely,

Richard A. Griesemer

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cc: A. James Barnes
Assistant Administrators