



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

WASHINGTON, D.C. 20460

April 11, 1984

OFFICE OF
THE ADMINISTRATOR

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

Dear Mr. Ruckelshaus:

The Environmental Health Committee of the Science Advisory Board has completed its review of the Office of Research and Development's (ORD) Draft Health Assessment Document for Carbon Tetrachloride. The document was reviewed in public meetings on December 8, 1982 and April 25, 1983; the Committee has subsequently received a final draft of the document, dated August 1983, which adequately responds to its comments on earlier drafts.

The major conclusions in the revised August 1983 draft document include:

- o carbon tetrachloride (CCl₄) is extremely stable in the lower atmosphere and troposphere; however, once in the stratosphere, photodissociation is rapid. Its presence in the stratosphere is of concern due to its possible contribution to ozone depletion and subsequent modification of UV-B radiation flux. The extent of this contribution cannot presently be estimated for CCl₄ due to numerous significant uncertainties in modeling and data.
- o carbon tetrachloride causes damage to the liver, lungs, kidneys and central nervous system in humans. These effects are primarily the result of high oral or inhalation exposures. Less severe effects such as biochemical alternations, nausea and headache result from lower exposures or are secondary to the major health hazards attributed to higher exposures. Similar responses have been demonstrated in animals.

o carcinogenicity of CCl₄ has been observed in three animal species. This data provide evidence to indicate that CCl₄ is a potential human carcinogen. Human data on this chemical are limited to case reports and one preliminary epidemiological study. Using the classification criteria developed by the International Agency for Research on Cancer (IARC), the combined animal and human data base for CCl₄ would fall into category 2B which states that this compound is probably carcinogenic to humans.

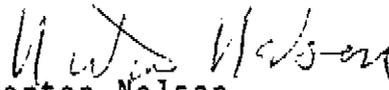
The Committee unanimously agrees with these conclusions and also concurs that the Draft Health Assessment Document for Carbon Tetrachloride is a scientifically adequate statement of the scientific literature for this substance.

The Committee provides additional comments and recommendations in the enclosure to this letter. We appreciate the opportunity to advise you on this issue.

Sincerely,



Herschel E. Griffin
Chairman
Environmental Health Committee



Norton Nelson
Chairman
Science Advisory Board

Enclosure

cc: Mr. Alvin Alm
Dr. Elizabeth Anderson
Dr. Bernard Goldstein
Dr. Terry Yosie

**Additional Comments and Recommendations of the
Environmental Health Committee on the Draft Health
Assessment Document for Carbon Tetrachloride (August 1983)**

1. A major focus of the Committee's review of this document dealt with the issue of quantitative risk assessment and mathematical modeling. The Committee notes with satisfaction the discussion of these issues that has been incorporated into successive drafts. In particular, the Committee commends EPA for 1) clarification of the assumptions used in preparing a quantitative risk assessment for CCl₄, 2) identification and comparison of results obtained for four different extrapolation models, and 3) presentation of both maximum likelihood and upper limit estimates of unit risk for exposure by inhalation and ingestion. In addition, the comparison of risk estimates for CCl₄ to fifty-two other substances develops a scientific context for the Committee and the scientific community to assess and is a useful aid for the risk manager in developing regulatory priorities.

2. Especially useful to the Committee in its review of the document was the development by ORD staff of an issue paper. This assisted both the Committee and the interested public in focusing more directly on the critical scientific issues needing to be addressed, clarified and resolved during the course of document review. The issue paper was a useful mechanism toward addressing three additional questions: 1) indicating which scientific issues were viewed to be significant by ORD staff;

2) stating the nature of the revisions that were incorporated in successive drafts of the document; and 3) providing direct feedback to the Committee on how its advice was utilized. The Committee commends ORD staff for developing this very useful communications tool.

3. The document appropriately takes a cautious position concerning evidence that CCl_4 is an environmental mutagen. Given the very limited data base, the document states that definitive conclusions concerning mutagenicity tests cannot be reached, and the evidence is not adequate to conclude whether or not CCl_4 is genotoxic. The Committee concurs with this summary statement of the current scientific literature.

4. Given the number of chemicals that interact with CCl_4 , the issue of synergistic and antagonistic responses arose. ORD attempted to obtain data on the frequency of the occurrence of compound interactions with CCl_4 and how such interactions might affect public exposures. The August 1983 draft document states that data on frequencies of groups of chemicals occurring together could not be obtained. The revised draft does, however, recognize this issue as a concern.

5. A list of major research needs for CCl_4 is included in the summary and conclusions chapter of the document. For two reasons, this is an important addition to the health assessment document: 1) the process of preparing an health assessment document, which involves the need to make judgments about a

chemical's behavior from the existing scientific data base,
leads to an identification of gaps in the knowledge base:

2) the process of identifying knowledge gaps is a planning tool
that, if appropriately utilized, can guide the development of a
research needs assessment and a research budget.