



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

July 19, 1988

OFFICE OF
THE ADMINISTRATOR
SAB-EHC-88-036

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

Subject: Science Advisory Board's review of COPPER health
criteria document

Dear Mr. Thomas:

The Metals Subcommittee of the Science Advisory Board's Environmental Health Committee has completed its review of the Drinking Water Health Criteria Document for Copper dated February 1987. The review was conducted January 14-15, 1988 at the St. James Hotel in Washington, D.C.

The Subcommittee concludes that the derivation of the drinking water standard from the 1 day Health Advisory ("HA") is reasonably based on acute effects. Such effects have appeared after the intake of high levels of copper in drinking water which caused local gastrointestinal tract irritation but did not lead to systemic toxicity. No data indicate that copper will accumulate in the body at these levels, which justifies the use of the 1 day health advisory for the drinking water standard. However, there is a caveat: If the proposed drinking water standard is equivalent to or the basis for a Maximum Contaminant Level Goal (MCLG), the consideration of dietary intake from food is recommended, since this route comprises most (more than 80%) of the total copper intake. The 1.3 mg/L value given in the health advisory implies greater accuracy than is supported by the data. The Subcommittee recommends that only one significant figure be used for the final value. Rounding off the value to 1 avoids this misinterpretation.

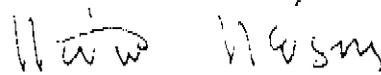
Copper has the unique characteristic that its presence in drinking water comes from the water pipes themselves. Consequently, its concentration can be measured only at the tap. The Subcommittee recommends that this fact be explained in the criteria document and that the importance of pH in the leaching process be stressed.

A more detailed discussion of the possibility of an increased sensitivity of 13% of the black population with G6PD deficiency is recommended. The paragraph on this topic in the EPA document, "Summary Review of the Health Effects Associated with Copper", (EPA/600/8-87/001, page 56) could be used.

The kinetic diagram needs to be updated with the latest information. It is recommended that, in general, all documents should contain such a metabolic/kinetic model illustration.

A list of more specific detailed comments have already been sent to the program offices.

Sincerely,



Norton Nelson, Chairman
Executive Committee



Richard A. Griesemer, Chairman
Environmental Health Committee



Bernard Weiss, Chairman
Metals Subcommittee

U.S. ENVIRONMENTAL PROTECTION AGENCY
Science Advisory Board
Environmental Health Committee
Metals Subcommittee

Dr. Bernard Weiss [Chair], Professor, Division of Toxicology, P.O. box
KBB, University of Rochester, School of Medicine, Rochester, NY 14642
(716) 275-3791

Dr. Ronald Wyzga [Vice-chair], Electric Power Research Institute, 3412
Hillview Avenue, P.O. Box 1041, Palo Alto, California 94303 (415) 855-2577

Dr. Thomas Clarkson, Professor and Head, Division of Toxicology, University
of Rochester, School of Medicine, Post Office Box KBB, Rochester, New York
14642 (716) 275-3911

Dr. Gary Diamond, Assistant Professor of Pharmacology, University of
Rochester School of Medicine, Rochester, New York 14642 (716) 275-5250

Dr. Phil Enterline [ENVIRONMENTAL HEALTH COMMITTEE], Department of Biostatistics,
Graduate School of Public Health, University of Pittsburgh, 130 Desoto Street,
Pittsburgh, PA 15261 (412) 624-3032

Dr. Robert Goyer, Department of Pathology, Health Sciences Centre, University
of Western Ontario, London, Ontario, Canada N6A5C1

Dr. Marvin Kushner, Dean, School of Medicine, Health Science Center,
Level 4, State University of New York, Stony Brook, New York 11794
(516) 444-2080

Dr. Brooke T. Mossman, Department of Pathology, The University of Vermont,
Medical Alumni Building, Burlington, Vermont 05405-0068 (802) 656-2210

Dr. Gunter Oberdoerster, Associate Professor, Radiation Biology and
Biophysics Division, University of Rochester, School of Medicine, 400
Elmwood Avenue, Rochester, N.Y. 14642 (716) 275-3804

Dr. F. William Sunderman, Professor of Laboratory Medicine and Pharmacology
and Head, Department of Laboratory Medicine, University of Connecticut
Health Center, Room C 2021, Farmington, Connecticut 06032 (203) 674-2328

Executive Secretary

Dr. Richard Cothorn, Executive Secretary, Environmental Health Committee,
Science Advisory Board [A-101F], U.S. Environmental Protection Agency,
Washington, D.C. 20460 (202) 382-2552