

October 16, 2000

W-00-15 Comment Clerk
Water Docket
US Environmental Protection Agency
1200 Pennsylvania Ave., N.W.
Washington, DC 20460

**Subject: 2000 Update of Ambient Water Quality Criteria for Cadmium
Proposed for Public Comment on August 17, 2000**

Dear Comment Clerk:

The Georgia Industry Environmental Coalition¹ (GIEC) respectfully submits the following comments on the above referenced document.

GIEC's comments are focused on three concerns:

1. Ensuring consideration of toxicity testing variability;
2. Ensuring proper documentation of the single, unpublished study upon which the significant decrease in the Final Chronic Value (FCV) is primarily based; and
3. Ensuring consideration of the wide range of Genus Mean Chronic Values (GMCVs) among sensitive species that exceeds USEPA's own recommended maximum.

Detailed discussions of each of these concerns and recommendations on how these issues may be handled follow.

Toxicity Test Variability

First, with regard to toxicity test variability, recent studies have concluded that test variability "can be quite high in some laboratories, despite the use of standardized

¹ GIEC is a not-for-profit membership organization of environmentally-regulated companies in Georgia. Its members form a diverse group of industries, representing over 30 companies and 19 SIC codes, with the shared belief that environmental regulations should, and can, be both protective and cost efficient. The mission of GIEC is to serve as a technically-based advocate for Georgia industry by promoting environmental regulations and policies founded on the protection of human health and the environment, sound science and cost/benefit principles. It is not GIEC's purpose to engage in political advocacy at either the state or national level.

protocols, species, and reference toxicants" (Water Environment Research Foundation, 1999). There are some clear examples of toxicity variability in the data presented in the subject water quality criteria document. In two acute toxicity test studies (Carroll et al. 1979, and Holcombe et al. 1983) of brook trout (*salvelinus fontinalis*), the LC50 value varied by more than three orders of magnitude. It appears that USEPA may not have recognized the implication that test variability may be responsible and may be an important factor in deriving water quality criteria.

Again, in the case of acute toxicity tests on striped bass (*morone saxatilis*), one study (Rehwoldt et al. 1972) indicated an LC50 that was two to three orders of magnitude higher than two other studies (Hughes 1973 and Palawski et al. 1985). However, this study was apparently not considered in calculating the GMAV for this sensitive species. This again may indicate a deeper problem of test result variability that has not been addressed.

GIEC believes this data is a clear indication of variability in toxicity test results. When variability is as extreme, as in these two cases, we urge USEPA to evaluate the appropriateness of utilizing test data with this degree of variability. While GIEC recognizes that the current USEPA guidance for deriving water quality criteria (USEPA, 1985) recommends dismissal of such highly variable results, GIEC does not believe such dismissal is appropriate in light of the recent findings and revised USEPA guidelines (USEPA, 2000) concerning such variability. Consequently, GIEC recommends that USEPA reevaluate the data used to derive the cadmium water quality criteria with respect to toxicity test variability.

The issue of toxicity test variability resulted in the recent issuance of a guidance document on whole effluent toxicity testing (USEPA, 2000). While this document specifically addresses toxicity testing in the context of NPDES permit enforcement, the underlying issues of test variability are equally valid in the context of establishing water quality criteria. GIEC recommends that USEPA evaluate the data used in calculating the cadmium water quality criteria in light of the new guidance document recommendations, especially those concerning statistical methods and concentration-response relationships.

Use of Unpublished Data

The FCV listed in the subject document is highly dependent upon a single, unpublished study (Ingersoll, C.G. and N. Kemble, 2000). GIEC does not believe that USEPA has provided adequate documentation of this unpublished study, as required by the guidance document (USEPA, 1985). GIEC recommends that USEPA provide additional documentation on the unpublished study to verify that the results are credible and have been through peer review.

The inclusion of this single unpublished study causes the FCV to be reduced by more than 50%, from 0.179 $\mu\text{g/l}$ to 0.0861 $\mu\text{g/l}$. It is notable that a FCV of 0.179 $\mu\text{g/l}$ would still be below all GMCVs, including that determined by the referenced unpublished study. Additionally, a FCV of 0.179 $\mu\text{g/l}$ is more than one order of magnitude lower than that necessary to protect any commercially or recreationally important species. Based on these facts, GIEC does not believe that the single, unpublished study presents a compelling case for reducing the FCV to 0.0861 $\mu\text{g/l}$ and recommends that USEPA review the appropriateness of such a significant decrease based upon one study.

Range of Genus Mean Chronic Values

Finally, there is more than a factor of ten difference between the four lowest GMCVs. In accordance with USEPA guidance, if these values vary "by more than a factor of ten, some or all of the values probably should not be used in calculations" (USEPA, 1985). GIEC recommends that USEPA review this wide range of GMCVs and either recalculate the FCV or justify the current FCV in accordance with the guidance document.

It is notable that GMCVs of five sensitive commercially and recreationally important species are closely grouped in the range of 0.8736 to 8.351 $\mu\text{g/l}$. GIEC believes these GMCVs would be the most appropriate in calculating the FCV and recommends that USEPA consider their use.

GIEC appreciates this opportunity to provide comment on the subject document and trusts they will receive due consideration. If you have any questions, please contact either of us.

Sincerely,

GEORGIA INDUSTRY ENVIRONMENTAL COALITION

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