May 1, 1987

United States Environmental Protection Agency | Office of Water Regulations and Standards, Washington, DC 20460

G. Fred Lee

Water | EPA 440/5-86-001

EPA

UPDATES 1 & 2 INCLUDED

QUALITY CRITERIA for WATER 1986

Changes in Hg Regulatory Standards

Water Quality Criterion

US EPA 1986 Gold Book 12 ng/L Based on the Total Recoverable Hg (Strong Acid Digestion)

Assumes Worst-Case Bioaccumulation of Hg to 0.5 mg/Kg Fish Tissue Wet Weight

Typically Over-Protective - Some Waters Contain Total Recoverable Hg in Excessive of 12 ng/L without Excessive Bioaccumulation

Hg Bioaccumulation Depends on the Characteristics of the Water

Bioaccumulation of Hg/Unit Concentration Less in Highly Eutrophic, High-Suspended-Solids Waters Than in Oligotrophic Waters

federal register

Tuesday
August 5, 1997

Part II

Environmental Protection Agency

40 CFR Part 131
Water Quality Standards; Establishment of Numeric Criteria for Priority Toxic Pollutants for the State of California; Proposed Rule

United States Environmental Protection Agency | Office of Water 4301 | EPA-820-B-96-001 September 1996

EPA

1995 Updates:

Water Quality Criteria Documents for the Protection of Aquatic Life in Ambient Water

T.A. 87. 1995 Updates: Water Quality Criteria Documents for the Protection of Aquatic Life in Ambient Water. EPA-820-B-96-001. September 1996.

California Toxics Rule August 1997

Two Hg Standards

Aquatic Life Toxicity

1.4 µg/L-Acute (Dissolved Form)

0.77µg/L- Chronic (Dissolved Form)

Bioaccumulation for Human Health Protection

50 ng/L (Total Recoverable Hg)

Bioaccumulation Regulation

FDA Action Levels "Balance" Potential Impact of Chemical and Economic Considerations

US EPA Developing Risk-Based "Bioaccumulation Criteria"

Concentrations in Water That Could Bioaccumulate to Levels in Edible Aquatic Life to Cause Cancer Risk of 10^{-6} Given Assumptions Regarding Fish/Shellfish Consumption (e.g., 6.5 g Fish/person/day; 15 g Fish/person/day)

Relationships between Concentrations in Water & Tissue Not Reliably Quantified

US EPA Limitations Much Lower Than FDA Action Levels

D-043073

D—043073

US FDA Action Levels for Fish & Shellfish

Parameter	1995 Action Level (mg/kg)(ppm)*
Mercury (methyl)	1.0
Lindane	0.3
Aldrin & Dieldrin	0.3
Chlordane	0.3
DDT & Metabolites	5.0
PCB's	2.0
Kepone	0.3
Heptachlor & Epoxides	0.3
Mirex	0.1
Dioxin (Great Lakes)	25 ppT
Heavy Metals (Cd, Pb, As, Cr)	no limit**

* Based on Wet Weight of Raw, Edible Tissue
** FDA Issued Guidance Document on Establishing Local Levels

Critical Concentration of Hg in Fish Tissue

FDA Action Level 1mg/Kg

ATSDR/US Public Health Service - 5-Times Higher Than US EPA Screening Value

US EPA Screening Value 0.14 mg/Kg

30 g/Day - 1 Meal/ Week Fish Consumption Rate

Some Populations Consume Local Fish at Twice That Amount

Regulatory Use Issues for Hg Highly Unsettled

Suggested Approach

- Use 5 ng/L of Total Recoverable Hg as an Indication of Excessive Bioaccumulation, i.e., Fish Tissue Concentration > 0.1mg/Kg
- Regulate Hg Based on Actual Bioaccumulation, Not on Chemical Concentration

United States Environmental Protection Agency | Office Of Water (4305) | EPA 823-R-93-002 August 1993

EPA

Guidance For Assessing Chemical Contaminant Data For Use In Fish Advisories

Volume 1
Fish Sampling And Analysis

United States Environmental Protection Agency | Office Of Water (4305) | EPA 823-R-93-002 June 1994

EPA

Guidance For Assessing Chemical Contaminant Data For Use In Fish Advisories

Volume II
Risk Assessment And Fish Consumption Limits

United States Environmental Protection Agency | Air | EPA-452/R-96-001f June 1996

Mercury Study Report to Congress

Volume VI: Characterization of Human Health and Wildlife Risks from Anthropogenic Mercury Emissions in the United States

SAB REVIEW DRAFT

US EPA National Hg Review

Science Advisory Board Review

- Likely Develop New Water Quality Criterion for Bioaccumulation of 2 to 5 ng/L- Total Recoverable
- Many Waters Will Have "Excessive" Hg
- POTWs Will Not Be Able to Meet New Standard

  Lead to Over-Regulation in Many Waters