

VALUE(S) ADDED 7-24-85

FACT SHEET REVISED _____

VALUE(S) REMOVED _____

Date: July 26, 1984

Surface Water Quality
Standard Documentation

Chemical: Hydrogen sulfide

C.A.S. No.(s): 7783-06-4

Basis (Human/Aquatic): Aquatic

Standard by Water Classification:

	<u>ug/l</u>	<u>Notes</u>
Classes AA,AA-s;A;A-s;B;C	2.0	H
Class D		
Classes SA;SB;SC;I	2.0	H
Class SD		

Remarks:

Summary of Information

1. EPA. 1976. Quality criteria for water. EPA 440/9-76-023. USEPA, Wash., D.C. 256 pp.

-criterion: "2 ug/l undissociated H₂S for fish and other aquatic life, fresh and marine water."

-based on chronic tests evaluating growth and survival of fishes and invertebrates.

-at pH 9 only about one percent of the sulfide is in the form of undissociated H₂S; at pH 7, about 50 percent; at pH 5, about 99 percent.

2. Smith et al. 1979. Sulfide-Hydrogen Sulfide. Pages 272-276 In: A review of the EPA Red Book: Quality criteria for water. R.V. Thurston et al. (Eds.) Water Quality Section, American Fisheries Society, Bethesda, MD.

-concurred with EPA (1976) criterion, but corrected EPA on two points: fry, not juvenile fish, are more susceptible to H₂S and cold temperatures reduce the susceptibility of fish to H₂S.

3. IJC, 1978. Group 2 proposed new and revised water quality objectives. International Joint Commission, Regional Office, Windsor, Ont. 195 pp.

-criterion: "Concentration of undissociated hydrogen sulfide should not exceed 0.002 milligrams per litre, at any time, or place, to protect aquatic life."

-at pH 6.5 about 75 percent of the sulfide is in the form H_2S .

-criterion based on chronic tests evaluating growth and reproduction of fishes and invertebrates.

Standard Derivation

The criterion of 2 ug/l undissociated H_2S is scientifically sound, satisfies the requirements of NYS protocol, and should be adopted as the standard for all fresh and salt waters except classes D and SD. The data suggest that juvenile or adult fish may withstand higher concentrations in class D and SD waters, but at these higher levels the invertebrate food base may be substantially reduced.