VALUE(S) ADDED 7-24-85

FACT SHEET REVISED _____

VALUE(S) REMOVED _____

Date: October 9, 1984

Surface Water Quality Standard Documentation

Chemical: Vanadium

C.A.S. No.(s): NA

Basis (Human/Aquatic): Aquatic

Standard by Water Classification:

	ug/l	Notes
Classes AA,AA-s;A;A-s;B;C	14	J
Class D	190	K
Classes SA;SB;SC;I		
Class SD		

Remarks:

Summary of Information

1. Stendahl, D. 1979. Acute toxicity of vanadium in rainbow trout (Salmo gairdineri Richards) in waters of different hardness and pH. Masters of Science thesis. Univ. of Guelph, Guelph, Ontario 105 pp. (from abstract).

   -acute toxicity of dissolved vanadium in saltwater was 2.0 mg/l.

2. Holdway, D.A., and J.D., Sprague. 1979. Chronic toxicity of vanadium to flagfish. Water Research 13: 905-910.

   -no deleterious effects of vanadium to flagfish was found at 0.04 mg/l in very hard water.
   -"safe"-to lethal ratio was 0.007 (chronic to acute ratio).

3. Stendahl, D.H. and J.B. Sprague. 1982. Effects of water hardness and pH on vanadium lethality to rainbow tout. Water Research 16: 1479-1488.

   -7-d LC_{50} for rainbow trout was 1.9 mg/l in softwater.

4. Birge, W.J. 1978. Aquatic toxicicology of trace elements of coal and flyash. In: J. H. Thorpe J. W. Gibbons eds. Energy and environmental stress in aquatic systems pages 219-240. D.O.E. symposium series (CONF-77114) GPO Wash., D.C.

   -reported LC_1 of an early life stage test for three species of aquatic life: rainbow trout, 6.9 ug/l; goldfish, 55.2 ug/l; and toad, 7.4 ug/l.

Standard Derivation

Multiplying the 2,000 ug/l acute value for rainbow trout by the application factor of 0.007 results in a value of 14 ug/l which is recommended as the standard for all freshwater classes except D. As could be expected, this value is somewhat less than the chronic value determined by Holdway and Sprague (1979). The recommended standard of 14 ug/l is simular to the LC_1 calculated by Birge (1978) which corroborates the recommended standard.

Multiplying the 1,900 ug/l acute value reported by Stendahl and Sprague (1982) by the application factor of 0.1 ug/l results in a value of 190 ug/l which is recommended as a standard for class D.