CRIT-00113
-00114

TIER II ACUTE AND CHRONIC AQUATIC LIFE VALUES FOR MANGANESE

Standard:

The procedures described in the Tier II methodology indicate that, except possibly where a locally important species is very sensitive, aquatic organisms should not be affected unacceptably if the four (4) day average concentration of maganese does not exceed 90 µg/L more than once every three (3) years on the average and if the one (1) hour average concentration does not exceed 809 µg/L more than once every three (3) years on the average.

Calculations:

Acute Aquatic Life:

SAV = lowest GMAV/SAF

Lowest GMAV = 12,940 µg/L
SAF = 8.0

SAV = 12,940/8.0 = 1618 µg/L

SMC = SAV/2 = 1,618/2 = **809 µg/L**

Chronic Aquatic Life:

SCV = SAV/SACR

SACR = 18

SCV = 1,618/18 = **90 µg/L**

Notes:

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Table 1. GMAVs and SMAVs for manganese

Genus Mean Acute Value (µg/L)	Species	Species Mean Acute Value (µg/L)	Acute-Chronic Ratio	Reference Number
333,000	Aquatic Sowbug Asellus aquaticus	333,000		1
694,000	Amphipod Cragonyx pseudogracilis	694,000		1
12,940 Cladoceran		9,800		2
	Daphnia magna			
	Cladoceran Daphnia magna	8,280		3
	Cladoceran Daphnia magna	26,700		4
208,060	Tubificid Worm Tubifex tubifex	208,060		5

References:

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3. Khangarot, B.J. and P.K. Ray 1989. Investigation of correlation between physicochemical properties of metals and their toxicity to the water flea Daphnia magna Straus.
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5. Khangarot, B.S. 1991. Toxicity of metals to a freshwater tubificid worm, Tubifex tubifex

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