~~CRIT=01049~~ CRIT-01011
01050 -01012

TIER II ACUTE AND CHRONIC AQUATIC LIFE VALUES FOR 2,4-DICHLOROPHENOXYACETIC ACID (2,4-D)

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 2,4-D does not exceed 380 µg/L more than once every three (3) years on the average and if the one (1) hour average concentration does not exceed 2,500 µg/L more than once every three (3) years on the average.

Calculations:

Acute Aquatic Life:

SAV = lowest GMAV/SAF

Lowest GMAV = 30,166 µg/L
SAF = 6.1

SAV = 30,166/6.1 = 4,945 µg/L

SMC = SAV/2 = 4,945/2 = **2,500 µg/L**

Chronic Aquatic Life:

SCV = SAV/SACR

SACR = 13.14 (Geometric mean of 18, 18, 7)

SCV = 4,945/13.14 = **380 µg/L**

Calculation of ACR's

Ceriodaphnia dubia

NOEC = 23,300 µg/L
LOEC = 48,800 µg/L

CV = Geometric Mean of 23300 and 48800 = 33,720

ACR = 236,000/33,720 = 7.0

Table 1. GMAVs and SMAVs for 2,4-D

Genus Mean Acute Value (µg/L)	Species	Species Mean Acute Value (µg/L)	Acute-Chronic Ratio	Reference Number
30,166	Cladoceran Daphnia magna	25,000		1
	Cladoceran Daphnia magna	36,400		1
320,000	Fathead Minnow Pimephales promelas	320,000		1
157,733	Bluegill Lepomis macrochirus	263,000		1
	Pumpkinseed Lepomis gibbosus	94,600		3
358,000	Rainbow Trout Oncorhynchus mykiss	358,000		1
122,200	Annelid Lumbriculus variegatus	122,200		2
236,000	Cladoceran Ceriodaphnia dubia	236,000		3
52,952	Striped Bass Morone saxatilis	70,100		3
	White Perch Morone americanus	40,000		3
300,600	American Eel	300,600		3
37,768	Carp Cyprinus carpio	134,800		4

Carp Cyprinus carpio	24,150	5
Carp Cyprinus carpio	31,250	5
Carp Cyprinus carpio	20,000	6

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