MINNESOTA POLLUTION CONTROL AGENCY AQUATIC LIFE CRITERIA

Page 1 SUMMARY

A. Chemical: Selenium, total CAS# 7488-56-4 Dafe Nov. 1989

B. Minnesota Criterion: ug/l (unless noted otherwise)

Water Class	Use	CC	MC	FAV	Basis*
1,2A	DW, Salmonid	5	20	40	EPA, T1
1,2B,2C	DW, NonSalmonid	5	20	40	EPA, T1
2B,2C	NonSalmonid	5	20	40	EPA, T1
	Other				

Toxicity related to water quality: No
If yes, above criteria values determined for:
Slope: Acute: Chronic:

Formulas:
MPCA: NA

EPA: CC: NA
MC:
FAV:

Notes:

EPA criterion based on field data.

C. EPA Criterion: ug/l
Date:

CCC: 5 Basis: Field toxicity data
MC: 20 Basis:
FAV: 40 Basis:

Notes:

D. Other Criteria:

ug/l	value	Source
	10	IJC

E. Notes:

*Criteria basis codes for part B:
EPA = From EPA criterion
PCA = Criterion developed by Minnesota Pollution Control Agency staff
T1 = Direct aquatic life toxicity, EPA national criteria procedures used
T2 = Direct aquatic life toxicity, EPA advisory procedures used
Hs = Human health systemic effects
Hc = Human health carcinogenic effects
R = Tissue residue (bioaccumulation)
W = Wildlife effects
O = Organoleptic (taste and odor)
Other = Criterion based on other end point

MINNESOTA POLLUTION CONTROL AGENCY AQUATIC LIFE CRITERIA

Page 2 DIRECT AQUATIC LIFE TOXICITY
EPA Criterion Available

A. Chemical Selenium, total CAS# 7488-56-4 Date Nov. 1989

B. EPA Criterion ug/l CCC: 5 Basis: Field data
Date: 1987 MCC: 20
FAV: 40 Basis: Chronic value x ACR

1. Related to water quality: No
Se IV/VI
2. Toxicity FAV: 371.8/25.65 N: 22/11 ACR: 8.314/2.651
ug/l Chronic value: 44.72/9.676 N: --
Se IV: lowered to 27.6 to protect rainbow trout
3. Residue
FDA action level: None
BCF Final: N total: N used:
geo mean at 1% lipid:
% lipid:
geo mean unadjusted for lipid:

C. MPCA Evaluation Of EPA Criterion
1. Four lowest GMAVs: OK

2. Commercially or recreationally important species: OK

3. Plant data: OK

4. Extrapolation of water quality effects: NA

5. Chronic data No. of values: Se VI: 6 for 3 species. Se VI: 3 for 3 species
ug/l No. below criterion: None
Notes:

6. ACRs ACR used by EPA: 7.993 N: 8
Geo. mean, all ACRs: 11.0 N: 9
ACR used by MPCA: 7.993 N: 8
Notes:

Rainbow trout ACR of 141.5 left out of calculation.

D. Cool/Warm Water Criterion ug/l
No. of Salmonids deleted from lowest 4 GMAVs: NA
N(nonsal): FAV: MC: CC:
Adjustments to FAV:
Notes:

E. Summary of changes made to EPA criterion

None

MINNESOTA POLLUTION CONTROL AGENCY AQUATIC LIFE CRITERIA

Page 4 HUMAN HEALTH

A. Chemical: Selenium CAS#: 7488564 Date: 11-15-89

B. EPA Human Health Criterion: df: 10 f: 10 d: 10 MCL
ug/l
ADI/Ref.dose: mg/kg/day slope:
Final BCF: %lipid:
K:
Based on current primary drinking water standard.

C. Minnesota Human Health Criterion

1. Ref.dose: 0.213 mg/kg/day Source: MDH
K: 0.2 Source: MPCA

2. Potency slope: Source:

3. Measured BAFs:

Species/Tissue	BAF	%lipid	Norm. BAF
1.			
2.			
3.			
4.			
5.			
6.			
Geo mean:			

4. Measured BCFs

Species/Tissue	BCF	%lipid	Norm. BCF
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
Geo mean:			

5. Edible portion BAF or BCF

	BAF	BCF
Cold water: 6.0 % lipid		
Warm water: 1.5 % lipid		

6. Geo mean unadjusted for lipid: BAF: BCF:

7. log Kow: meas. QSAR Est. BCF:
adjust. for % lipid:

8. Parachor:

9. BCF to BAF conversion factor:

10. Final BAF: 2A: 43 2B,2C: 43

11. Criteria: df(2A): 906 df(2B,2C): 906 f: 2290 RAL: 45.0
ug/l

D. Organoleptic: NA Source:
ug/l

F. Notes: