

MINNESOTA POLLUTION CONTROL AGENCY
AQUATIC LIFE CRITERIA

Page 1 SUMMARY

A.	Chemical: PFOA (Lake Calhoun)	CAS# 335-67-1	Date Aug. 16, 2007
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B. Minnesota Criterion: ug/l (unless noted otherwise)					
Water Class	Use	CC	MC	FAV	Basis ¹
1,2A	DW, Salmonid	0.61	15,346	30,692	PCA Hs
1,2Bd	DW, NonSalmonid	0.61	15,346	30,692	PCA Hs
2B, 2C, 2D	NonSalmonid	1.62	15,346	30,692	PCA Hs
	Other				

Toxicity related to water quality?: no

If yes, above criteria values determined for:

Slope: Acute:

Chronic:

Formulas:

MPCA

EPA

CC:		
MC:		
FAV:		

Notes:

C.	EPA Criterion: ug/l	CCC: none	Basis:
	Date:	MC: none	Basis:
		FAV: none	Basis:

D.	Other Criteria ug/l	Source

E. Notes: The PFOA site-specific criterion for Lake Calhoun is based on BAF information from Lake Calhoun. Lake Calhoun is a class 2B water. The PFOA site-specific criterion for the Mississippi River is based on BAF information collected at Pool 3 on the Mississippi River.

¹ 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
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Page 2 DIRECT AQUATIC LIFE TOXICITY - EPA Criterion Available

A.	Chemical: PFOA (Lake Calhoun)	CAS# 335-67-1	Date Aug. 16, 2007
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B.	EPA Criterion: ug/l	CCC: none	Basis:
	Date:	MC: none	Basis:
		FAV: none	Basis:

1.	Related to water quality?: no		
2.	Toxicity:	FAV:	N:
	ug/l	Chronic value:	N:
3.	Residue		
	FDA action level: none		
	BCF Final: none	N total:	N used:
	geo mean at 1% lipid:		
	% lipid:		
	geo man unadjusted for lipid:		

C. MPCA Evaluation of EPA Criterion

1. Four lowest GMAVs:
2. Commercially or recreationally important species:
3. Plant data:
4. Extrapolation of water quality effects:
5. Chronic data No. of values:
 No. below criterion:

Notes:

6. ACRS	ACR used by EPA: none	N:
	Geo. mean, all ACRs:	N:
	ACR used by MPCA: 18	N: 1- generic ACR

Notes:

D. Separate Cool/Warm Water Criterion, ug/l

No. of Salmonids deleted from lowest 4 GMAVs:
N(nonsal): FAV: MC: CC:
Adjustments to FAV:

Notes:

E. Summary of changes made to EPA criterion:

MINNESOTA POLLUTION CONTROL AGENCY
AQUATIC LIFE CRITERIA

Page 3 DIRECT AQUATIC LIFE TOXICITY
No EPA criterion available

A.	Chemical: PFOA (Lake Calhoun)	CAS# 335-67-1	Date Aug. 16, 2007
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B. EPA National Method			
1. Data requirements:	Salmonid (2A water only):		
	Osteichthyes (fish):		Pimephales promelas
	Chordata (fish, amphibian):		
	Planktonic crustacean:		Daphnia magna
	Benthic crustacean:		
	Aquatic insect:		
	Phylum other than Arthropoda or Chordata:		
	Second insect or phylum not already rep.:		
2. GMAVs	Lowest 4(2A): see Tier II method	Lowest 4(2B,2C, 2D): see Tier II method	
ug/l			
	N:	N:	
3. FAV:	2A: see Tier II method	2B, 2C, 2D: see Tier II method	
4. Adjustments to FAVs:			
5. Chronic data: see Table 2a	No.	Species:	
mean values			
ug/l			
6. ACR Measured:	Acute value	Chronic value	ACR
	Generic		18
Generic: 18			
Final: 18			
7. Final Plant Value: NOEC of 23,900 ug/l for Northern milfoil			
8. Chronic Criterion (FAV/ACR) see Tier II method			

C. EPA Advisory Method		
1. Data requirements:	Fish:	Pimephales promelas
	Crustacean:	Daphnia magna
No. SMAVs: 2	Third animal:	
No. GMAVs: 2	Plant for herbicide:	
Factor: 13	Insect for pesticide:	
2. Lowest GMAV: 399,000 ug/l		Species: Daphnia magna
3. FAV: 30,692 ug/l		MC: 15,346 ug/l
4. Chronic data: See B.5.		
5. ACR: 18 See B.6.		
6. CC: 1705 ug/l		
7. Citation for lowest GMAV: AR226-0512, AR226-0517, AR226-0508, and STS-403		

D. Notes:

MINNESOTA POLLUTION CONTROL AGENCY
AQUATIC LIFE CRITERIA

Page 4 HUMAN HEALTH

A.	Chemical: PFOA (Lake Calhoun)	CAS# 335-67-1	Date Aug. 16, 2007
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B.	EPA Human Health Criterion: ug/l	DW and fish: none	fish only: none	DW only: none
	ADI/Ref.dose: none	mg/kg/day	Cancer Potency Slope: none (mg/kg-d) ⁻¹	
	Final BCF: none	%lipid: not applicable		
	RSC: none			

C. Minnesota Human Health Criterion					
1. Ref.dose: 0.00014		mg/kg/day	Source: MDH		
RSC: 0.2			Source: MDH		
2. Cancer Potency Slope: none (mg/kg-d) ⁻¹			Source:		
3. Measured BAFs: Species/Tissue			BAF	%lipid	Norm BAF
1. Bluegill (fillet)			35	not applicable	35
2. White sucker (fillet)			46	not applicable	46
3.					
4.					
Geo mean: 40					
4. Measured BCFs: Species/Tissue			BCF	%lipid	Norm. BCF
1. See Table 5a and Table 5b					
2.					
3.					
4.					
5.					
6.					
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:					
7. log Kow: not applicable adjust. for % lipid: not applicable			meas.	QSAR:	Est. BCF:
8. Parachor: not applicable					
9. Food Chain Multiplier: not applicable					
10. Final BAF: 2A: 40			2B,2C, 2D: 40		
11. Criteria: ug/l	2A: 0.61 * ug/l	2Bd: 0.61 * ug/l	2B/2C, 2D: 1.62 # ug/l	HRL/HBV: 0.5	

D.	Organoleptic: ug/l	Source:
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- E. Notes: BAFs mostly derived from 1/2 the detection limit of the fish tissue data.
F. * Criterion developed using 2 L/day water intake rate and 70 kg body wt. as specified in Minn. R. ch
G. 7050.
H. # Criterion developed using 0.01 L/day incidental ingestion rate and 70 kg body wt. as specified in
I. Minn. Rule ch. 7050.