

MINNESOTA POLLUTION CONTROL AGENCY
AQUATIC LIFE CRITERIA

Page 1 SUMMARY

A.	Chemical: PFOA (Mississippi River)	CAS# 335-67-1	Date Aug. 15, 2007
----	------------------------------------	---------------	--------------------

B. Minnesota Criterion: ug/l (unless noted otherwise)					
Water Class	Use	CC	MC	FAV	Basis ¹
1,2A	DW, Salmonid	0.72	15,346	30,692	PCA Hs
1,2Bd	DW, NonSalmonid	0.72	15,346	30,692	PCA Hs
2B, 2C, 2D	NonSalmonid	2.7	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 Mississippi River site-specific criterion for PFOA is based on BAF information collected at Pool 3 on the Mississippi River. The site-specific criterion for PFOA at Lake Calhoun is based on BAF information collected at Lake Calhoun.

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

Archived document for informational only. Contact Water Quality Standards Unit for more information at <https://www.pca.state.mn.us/water/water-quality-standards>.

MINNESOTA POLLUTION CONTROL AGENCY
AQUATIC LIFE CRITERIA

Page 2 DIRECT AQUATIC LIFE TOXICITY - EPA Criterion Available

A.	Chemical: PFOA (Mississippi River)	CAS# 335-67-1	Date Aug. 15, 2007
----	------------------------------------	---------------	--------------------

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
- Four lowest GMAVs:
 - Commercially or recreationally important species:
 - Plant data:
 - Extrapolation of water quality effects:
 - 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:

Archived document for information only. Contact Water Quality Standards Unit for more information at <https://www.pca.state.mn.us/water/water-quality-standards>.

MINNESOTA POLLUTION CONTROL AGENCY
AQUATIC LIFE CRITERIA

Page 3 DIRECT AQUATIC LIFE TOXICITY
No EPA criterion available

A.	Chemical: PFOA (Mississippi River)	CAS# 335-67-1	Date Aug. 15, 2007
----	------------------------------------	---------------	--------------------

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:	
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:	Pimphales 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:

Archived document for information only. Contact Water Quality Standards Unit for more information at <https://www.pca.state.mn.us/water/water-quality-standards>.

MINNESOTA POLLUTION CONTROL AGENCY
AQUATIC LIFE CRITERIA

Page 4 HUMAN HEALTH

A.	Chemical: PFOA (Mississippi River)	CAS# 335-67-1	Date Aug. 15, 2007
----	------------------------------------	---------------	--------------------

B.	EPA Human Health Criterion: ug/l	DW and fish: none	fish only: none	DW only: none
	At/Ref.dose: none	mg/kg/day	Cancer Potency Slope: none (mg/kg-d) ⁻¹	
	Final BCF:	%lipid: not applicable		
	RSC:			

C.	Minnesota Human Health Criterion			
1.	Ref.dose: 0.0014	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)	24	not applicable	24
	2. White Bass (fillet)	26	not applicable	26
	3.			
	4.			
	Geo mean: 24			
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:			
10.	Final BAF: 2A: 24	2B,2C, 2D: 24		
11.	Criteria: 2A: 0.721 * ug/l	2Bd: 0.721 * ug/l	2B/2C, 2D: 2.68 #	HRL/HBV: 0.5
	ug/l		ug/l	

D.	Organoleptic: ug/l	Source:
----	-----------------------	---------

- E. Notes: BAFs derived from 1/2 the detection limit of the fish tissue data.
- F. * Criterion developed using 2 L/day water intake and 70 kg body wt. as specified in Minn. R. ch. 7050.
- G. # Criterion developed using 0.01 L/day incidental ingestion rate and 70 kg body wt. as specified in Minn.
- H. Rule ch. 7050. Criterion rounded up to 2.7 ug/l.

Archived document for information only. Contact Water Quality Standards Unit for more information at <https://www.pca.state.mn.us/water/water-quality-standards>.