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	B. Minnesota Criterion: ug/l (unless noted otherwise)					
B. Minnesota	Use	CC	MC	FAV	Basis ¹	
1,2AC	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 6	NonSalmonid	2.7	15,346	30,692	PCA Hs	
Ing	Other					

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

EPA

CC:	' <i>V</i> .	
MC:	Ye,	
FAV:	Qu	

Notes:

Basis:

To Basis:

The Basis: C. EPA Criterion: ug/l

١.	EPA Criterion: ug/l	CCC: none	Basis:	
	Date:	MC: none	Racic:	
	Date.	FAV: none	Basis:	
		171V. Hone		
D.	Other Criteria ug/l		Source Source	
			*hitos.//	
			n _n	
			;D ₀	<u> </u>
E. N	otes: The Mississippi River s	site-specific criterion for PFO	OA is based on BAF information collected	at Pool 3 on the
Mice	issinni River The site-specif	c criterion for PEOA is at I	ake Calhoun is based on RAF information	collected at I ake
Colla.	our	criterion for FFOA is at L	ake Camoun is based on BAI intermation	conceicu at Lake
Cam	oun.		17.1.	
			To have	
			े वा	% .
			•	"h
				A.
				' Ø_
				·e/.
1 Crit	aria basis godas for part R			'er.qualiz
1 Crite	eria basis codes for part B:			·er.quality.s.t
1 Crite	eria basis codes for part B: EPA = From EPA criterion	innacota Pollution Control Aga	ancy staff	er.quality.stance
1 Crite	eria basis codes for part B: EPA = From EPA criterion PCA = Criterion developed by M	innesota Pollution Control Age	ency staff	erquality.standar
1 Crite F	eria basis codes for part B: EPA = From EPA criterion PCA = Criterion developed by M T1 = Direct aquatic life toxicity.	innesota Pollution Control Age EPA national criteria procedure	ency staff es used	erquality.standar
1 Crite	eria basis codes for part B: EPA = From EPA criterion PCA = Criterion developed by M T1 = Direct aquatic life toxicity, I T2 = Direct aquatic life toxicity, I Hs = Human health systemic effe	innesota Pollution Control Age EPA national criteria procedure EPA advisory procedures used	DA is based on BAF information collected ake Calhoun is based on BAF information. Hency staff es used	erquality-standal

Hc = Human health carcinogenic effects

R = Tissue residue (bioaccumulation)

W = Wildlife effects

O = Organoleptic (taste and odor)

Other = Criterion based on other end point

Criteria.dot 8/95

Page 2 DIRECT AQUATIC LIFE TOXICITY - EPA Criterion Available

	A.	Chemical: PF	OA (Mississippi R	liver)	CAS# 335-67-1	Ι	Date Aug	g. 15, 2007	
,	_								
C	В.	EPA Criterion	ı: ug/l	CCC:	none		Basis:		
•	Poor	Date:		MC:	none		Basis:		
	1 %			FAV:	none		Basis:		
	- 4	2							
	1.	Related to wat	ter quality?: no FAV: Chronic value:					_	
	2.	Toxic ity:	FAV:			N:		ACR:	
		Toxiclor	Chronic value:			N:			
	3.	Residue	700.						
		FDA action	n level: none						
		BCF Final	: none o	N total:	N used:				
		geo mean a	nt 1% lipid						
		% lipid:	'Na						
		geo man ur	nadjusted for lipi %						
			,	Y43/:					
	C.	MPCA Evalua	ation of EPA Criter	rion					
		1. Four lowes	st GMAVs:	0/9	Do.				
		2. Commercia	ally or recreational	ly impor	tant % ecies:				
		3. Plant data:			The form				
		4. Extrapolati	on of water quality	effects:	Tore	ing.			
		5. Chronic da	ta No. of v No. belo	alues: ow criteri	ion:	Ornation			
		Notes:	n level: none : none : none that 1% lipidic. nadjusted for lipidic ation of EPA Criter of GMAVs: ally or recreational on of water quality ta No. of v No. belo			•	Ar helps:		
		6. ACRS	ACR used by EP	A: n	one	N:	nh.		
		-	·					1	

- C.

6. ACRS	ACR used by EPA:	none	N: "h,	
o. Heres	Geo. mean, all ACRs:	none	N:	
	ACR used by MPCA:	18	N: 1-generic ACR	
No. of Sa N(nonsal	ol/Warm Water Criterion, ug almonids deleted from lowe): FAV: ents to FAV:	0	CC:	Mn. us haterhater quality standards.
Notes:				The state of the s
Summary of	changes made to EPA crite	rion:		andards.

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

Notes:

E. Summary of changes made to EPA criterion:

Page 3 DIRECT AQUATIC LIFE TOXICITY No EPA criterion available

A. Chemi	ical: PFO	A (Mississippi R	liver)	CAS# 335-67	-1	Date	Aug. 15, 2007	
ZR FDAN	Jational M	lethod						
1 Data require	ements:	Salmonid (2A	water only):					
C.	cificitis.	Osteichthyes (f			Pimephale	s nromel	20	
Chordata (fish, a			amphihian):		Timephate	s promer	.43	
- Str	A. Chemical: PFOA (Mississippi R B. EPA National Method 1. Data requirements: Salmonid (2A r Osteichthyes (f Chordata (fish, Planktonic crus Benthic crustace Aquatic insect: Phylum other t Second insect of				Danhnia n	10010		
	<u> </u>	Ponthic crusto	noon:		Барина п	iagiia		
	16 m	A quetie insect:	Call.					
	The street	Dhylum other t	han Arthrono	do or Chardatas				
	10/	Second insect	nan Arunopo	alraedy rop :				
2. GMAVs	Lowest	AlexA): see Tier	of piryrum not	L owest	4(2D 2C 2I)): S aa	tion II mathod	
2. GIVIA V S	Lowest	4(Z,A). See Hel	II memou	Lowest	4(2B,2C, 21	<i>J</i>). See	tier ii iiietiiou	
ug/1	NI.	Oh,		NI.				
	IN:	TC _F		IN:				
2 EAV.	24	tion II mother		2D 2C	2D.			
3. FAV:4. Adjustment	ZA: See	uer ii inetnodz	<i>Q</i> ,	2B, 2C	ΔD;			
4. Adjustment	SIOFAVS	. T-1-1 - 0 -	42/jkN	0				
5. Chronic o	iata: see	e rabie Za	3 21 X 0.	[5]	pecies:			
mean val	ues		'Ang					
ug/l			19/0	<u> </u>				
				<i>y</i> .				
6 A CD M	1			16 1		I A CID		
6. ACR Meas	sured:	Acute value		Chronic val	ıe	ACR		
		·		10 ₇₀		10		
G : 10		Generic		1250		18		
Generic: 18					Ž.,	1		
F' 1 10								
Final: 18					13/1	1		
5 E' 1 DI :	* * 1	NOEG 622 00	2 / / C 27	1 116.11	n _{fx}			
7. Final Plant	Value:	NOEC of 23,900	J ug/I for Nor	thern milfoil	7-0	·/		
8. Chronic Cri	iterion (FA	AV/ACR)	see Tier II me	ethod		My.		
G ED.	. 1	# .1 1						
C. EPA A	Advisory N	Viethod		~ .	1 1	• •	· <u>·</u>	
1. Data require	ements:		Fish: Pimp		phales prom	elas	-9/6 	
N. G			amphibian): tacean: Daphnia magna ean: In Arthropoda or Chordata: r phylum not already rep.: II method Lowest 4(2B,2C, 2D): See tier II method N: 2B, 2C, 2D: 18 18 19 19 19 19 19 10 19 10 10 10					
No. SMAVS:	2		I nird anima	1:				
No. GMAVs:	2		Plant for her				~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	
Factor:	13		Insect for pe					,
2. Lowest GM		,000 ug/l			Daphnia m	agna		Ter.
3. FAV: 30,69	_	_		MC: 15	,346 ug/l			942
4. Chronic dat		5.						11/2
5. ACR: 18 S								- ing
6. CC: 1705 t	-		2510 1555	0515 1505	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	1.00		"
/. Citation for	lowest G	MAV: AR226-0	J512, AR226-	0517, AR226-05	08, and STS	5-403.		
D. Notes:								

MINNESOTA POLLUTION CONTROL AGENCY AQUATIC LIFE CRITERIA

Page 4 HUMAN HEALTH

Α.	A. Chemicai: PFOA (Mississippi River)		CAS# 333-6/-1		Date	Aug. 15, 2007
			·			
В.	B. EPA Human Health Criterion:		DW and fish: none		none	DW only: none
1/2	ug/l					
A	ug/l Ref.dose: none mg/kg/day	Cancer F	otency Slope: no	one (mg/kg-	-d) ⁻¹	
Fin	a FB CF:	%lipid:	not applicable			
RS	C: Nene					
	The state of the s					

C. Minnesota Human Health Criterion			
1. Ref.dose: 0.00314 mg/kg/da	y Source: M	1DH	
RSC: 0.2	Source: M	1DH	
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. 1			
4. ***			
Geo mean: 24			
4. Measured BCFs: Species/Tissue	BCF	%lipid	Norm. BCF
1. See Table 5a and Table 5b			
2.			
3.	•		
4.	Dir.		
5.	Or.		
6.	non		
Geo mean:	ing		
5. Edible portion BAF or BCF	BAR		BCF
Cold water: 6.0 % lipid	- 7	ar.	
Warm water: 1.5 % lipid		The state of the s	
6. Geo mean unadjusted for lipid:		he	
		Øs.	
7. log Kow: not applicable	meas.	QSAR: Who	Est. BCF:
adjust. for % lipid: not applicable		W.O.	
8. Parachor: not applicable		, c ^s	0.
9. Food Chain Multiplier:			Tale Tale
10. Final BAF: 2A: 24	2B,2C, 2D:	24	·Mo
C. Minnesta Human Health Criterion 1. Ref.dose: 0.00314 mg/kg/da RSC: 0.2 2. Cancer Potency Slope, none (mg/kg-d) ⁻¹ 3. Measured BAFs: Spects/Tissue 1. Bluegill (fillet) 2. White Bass (fillet) 3. 4. Geo mean: 24 4. Measured BCFs: Species/Tissue 1. See Table 5a and Table 5b 2. 3. 4. 5. 6. Geo mean: 5. Edible portion BAF or 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 8. Parachor: not applicable 9. Food Chain Multiplier: 10. Final BAF: 2A: 24 11. Criteria: 2A: 0.721 * ug/l 2Bd: 0.721 * ug/l ug/l	2B/2C, 2D:	2.68 # HRL/HB	3V: 0.548/N
ug/l	ug/l		Wax

D.	Organoleptic:	Source:
	ug/l	· S.
		Aline Taline
E.	Notes: BAFs derived from 1/2 the detection limt of the	e fish tissue data.
F.	* Criterion developed using 2 L/day water int	ake and 70 kg body wt. as specified in Minn. R. ch. 7050.
G.	# Criterion developed using 0.01 L/day incide	ntal ingestion rate and 70 kg body wt. as specified in Minn.
H.	Rule ch. 7050. Criterion rounded up to 2.7 ug	√l. • • • • • • • • • • • • • • • • • • •

Rule ch. 7050. Criterion rounded up to 2.7 ug/l. H.