# 7050.0220 SPECIFIC WATER QUALITY STANDARDS BY ASSOCIATED USE CLASSES.

Subpart 1. **Purpose and scope.** The numeric and narrative water quality standards in this chapter prescribe the qualities or properties of the waters of the state that are necessary for the designated public uses and benefits. If the standards in this chapter are exceeded, it is considered indicative of a polluted condition which is actually or potentially deleterious, harmful, detrimental, or injurious with respect to designated uses or established classes of the waters of the state.

All surface waters are protected for multiple beneficial uses. Numeric water quality standards are tabulated in this part for all uses applicable to four common categories of surface waters, so that all applicable standards for each category are listed together in subparts 3a to 6a. The four categories are:

- A. cold water sport fish (trout waters), also protected for drinking water: Classes 1B, 2A, 3A or 3B, 4A and 4B, and 5 (subpart 3a);
- B. cool and warm water sport fish, also protected for drinking water: Classes 1B or 1C, 2Bd, 3A or 3B, 4A and 4B, and 5 (subpart 4a);
- C. cool and warm water sport fish, indigenous aquatic life, and wetlands: Classes 2B, 2C, or 2D; 3A, 3B, 3C, or 3D; 4A and 4B or 4C; and 5 (subpart 5a); and
  - D. limited resource value waters: Classes 3C, 4A and 4B, 5, and 7 (subpart 6a).

### Subp. 2. Explanation of tables.

- A. Class 1 domestic consumption (DC) standards are the United States Environmental Protection Agency primary (maximum contaminant levels) and secondary drinking water standards, as contained in Code of Federal Regulations, title 40, parts 141 and 143, as amended through July 1, 2006. The DC standards are listed in subparts 3a and 4a, except that individual pollutants, substances, or organisms in the treatment technological, disinfectants, microbiological, and radiological categories are not listed unless they are listed because a secondary drinking water standard or a standard for another use class exists.
- B. Certain drinking water standards are not applicable to Class 1 waters. The following are not applicable to Class 1 surface waters: the primary drinking water standards for acrylamide, epichlorohydrin, copper, lead, and turbidity (treatment technique standards) and the standards in the disinfectants and microbiological organisms categories. The drinking water standards not applicable to Class 1 ground waters are listed in part 7050.0221.
- C. Class 2 standards for metals are expressed as total metal in subparts 3a to 5a, but must be converted to dissolved metal standards for application to surface waters.

Conversion factors for converting total metal standards to dissolved metal standards are listed in part 7050.0222, subpart 9. The conversion factor for metals not listed in part 7050.0222, subpart 9, is one. The dissolved metal standard equals the total metal standard times the conversion factor. Water quality-based effluent limits for metals are expressed as total metal.

D. The tables of standards in subparts 3a to 6a include the following abbreviations and acronyms:

AN	means aesthetic enjoyment and navigation, Class 5 waters
*	an asterisk following the FAV and MS values or double dashes (–) means part 7050.0222, subpart 7, item E, applies
(c)	means the chemical is assumed to be a human carcinoge
CS	means chronic standard, defined in part 7050.0218, subpart 3
DC	means domestic consumption (drinking water), Class 1 waters
_	double dashes means there is no standard
exp. ()	means the natural antilogarithm (base e) of the expression in parenthesis
FAV	means final acute value, defined in part 7050.0218, subpart 3
IC	means industrial consumption, Class 3 waters
IR	means agriculture irrigation use, Class 4A waters
LS	means agriculture livestock and wildlife use, Class 4B waters
MS	means maximum standard, defined in part 7050.0218, subpart 3
NA	means not applicable
(S)	means the associated value is a secondary drinking water standard
su	means standard unit. It is the reporting unit for pH
TH	means total hardness in mg/L, which is the sum of the calcium and magnesium concentrations expressed as CaCO <sub>3</sub>
TON	means threshold odor number

- E. Important synonyms or acronyms for some chemicals are listed in parentheses below the primary name.
- F. When two or more use classes have standards for the same pollutant, the most stringent standard applies pursuant to part 7050.0450. All surface waters are protected for Class 6, but this class has no numeric standards so it is not included in the tables.

## Subp. 3. [Repealed, 24 SR 1105]

Subp. 3a. Cold water sport fish, drinking water, and associated use classes. Water quality standards applicable to use Classes 1B, 2A, 3A or 3B, 4A and 4B, and 5 surface waters.

A. MISCELLANEOUS SUBSTANCE, CHARACTERISTIC, OR POLLUTANT

2A CS	2A MS	2A FAV	1B DC	3A/3B IC	4A IR	4B IR	5 AN
(1) Ammoni	a, un-ionize	d as N, μg/	L				
16	_	_	_	_	_	_	_
(2) Asbestos	s, >10 μm (c	), fibers/L					
_	_	_	7.0e+06	_	_	_	_
(3) Bicarbon	nates (HCO <sub>3</sub>	), meq/L					
_	_	_	_	_	5	_	_
(4) Bromate	, μg/L						
_	_	_	10	_	_	_	_
(5) Chloride	, mg/L						
230	860	1,720	250(S)	50/100	_	_	_
2A CS	2A MS	2A FAV	1B DC	3A/3B IC	4A IR	4B IR	5 AN
(6) Chlorine	, total residu	ıal, μg/L					
11	19	38	_	_	_	_	_
(7) Chlorite,	μg/L						
_	_	_	1,000	_	_	_	_
(8) Color, Pt	t-Co						
30	_	_	15(S)	_	_	_	_
(9) Cyanide,	, free, μg/L						

4			REVI	ISOR			7050.0220
5.2	22	45	200	_	_	_	_
(10) Escherica	hia (E.) co	<i>li</i> bacteria,	organisms/	100 mL			
See item D	_	_	-	_	-	_	-
2A CS	2A MS	2A FAV	1B DC	3A/3B IC	4A IR	4B IR	5 AN
(11) Eutroph chlorophyll-a,					oirs (ph	osphorus,	total, μg/L;
See part 7050.0222 subparts 2 and 2a	*	_	-	-	-	-	_
(12) Eutrophic μg/L; chlorop diel dissolved	hyll-a (ses	ton), µg/L;	five-day bi	iochemical	oxygen	demand (H	
See part 7050.0222 subparts 2 and 2b		_	_	_	-	_	_
(13) Fluoride,	mg/L						
_	_	_	4	_	_	_	_
(14) Fluoride,	mg/L						
_	_	_	2(S)	_	_	_	_
(15) Foaming	agents, μg	g/L					
_	_	_	500(S)	_	_	_	_
(16) Hardness	s, Ca+Mg a	as CaCO <sub>3</sub> ,	mg/L				
_	_	_	_	50/250	_	_	_

2A CS	2A MS	2A FAV	1B DC	3A/3B IC	4A IR	4B IR	5 AN
(17) Hydrogen	sulfide, m	g/L					
-	_	_	_	_	_	_	0.02
(18) Nitrate as	N, mg/L						
_	_	_	10	_	_	_	_
(19) Nitrite as	N, mg/L						
_	_	_	1	_	_	_	_
(20) Nitrate + 1	Nitrite as 1	N, mg/L					
_	_	_	10	_	_	_	_
(21) Odor, TO	N						
_	_	_	3(S)	_	_	_	_
2A CS	2A MS	2A FAV	1B DC	3A/3B IC	4A IR	4B IR	5 AN
(22) Oil, μg/L							
500	5,000	10,000	_	_	_	_	_
(23) Oxygen, d	lissolved, 1	mg/L					
7, as a daily minimum	-	_	-	-	_	-	_
(24) pH minim	um, su						
6.5	_	_	6.5(S)	6.5/6.0	6.0	6.0	6.0
(25) pH maxim	num, su						
8.5	_	_	8.5(S)	8.5/9.0	8.5	9.0	9.0

(26) Radioa	ctive materia	ıls					
See item E	_	_	See item E	_	See item E	See item E	_
2A CS	2A MS	2A FAV	1B DC	3A/3B IC	4A IR	4B IR	5 AN
(27) Salinity	y, total, mg/L	ı					
_	_	_	_	_	_	1,000	_
(28) Sodiun	n, meq/L						
-	-	_	-	-	60% of total cations	_	-
(29) Specifi	c conductanc	e at 25°C,	μmhos/cm				
_	_	_	_	_	1,000	_	_
(30) Sulfate	e, mg/L						
_	_	_	250(S)	_	_	_	_
(31) Sulfate	es, wild rice p	oresent, mg	g/L				
_	_	_	_	_	10	_	_
2A CS	2A MS	2A FAV	1B DC	3A/3B IC	4A IR	4B IR	5 AN
(32) Tempe	rature, °F						
No mate increase		_	_	_	-	_	_
(33) Total d	lissolved salts	s, mg/L					
_	_	_	_	_	700	_	_
(34) Total d	lissolved soli	ds, mg/L					

	_	_	_	500(S)	_	_	_	_
(35	5) Total suspe	nded solid	ls (TSS), m	ng/L				
	See part 7050.0222, subpart 2	_	_	_	_	_	_	_
В.	METALS AN	ND ELEM	ENTS					
	2A CS	2A MS	2A FAV	1B DC	3A/3B IC	4A IR	4B LS	5 AN
(1)	Aluminum, 1	total, μg/L	,					
	87	748	1,496	50- 200(S)	_	_	_	_
(2)	Antimony, to	otal, μg/L						
	5.5	90	180	6	_	_	_	_
(3)	Arsenic, tota	ıl, μg/L						
	2.0	360	720	10	_	_	_	_
(4)	Barium, tota	1, μg/L						
	_	_	_	2,000	_	_	_	_
(5)	Beryllium, to	otal, μg/L						
	_	_	_	4.0	_	_	_	_
	2A CS	2A MS	2A FAV	1B DC	3A/3B IC	4A IR	4B LS	5 AN
(6)	Boron, total,	μg/L						
	_	_	_	_	_	500	_	_
(7)	Cadmium, to	otal, μg/L						

1.1	3.9	7.8	5	_	_	_	_

Class 2A cadmium standards are hardness dependent. Cadmium values shown are for a total hardness of 100 mg/L only. See part 7050.0222, subpart 2, for examples at other hardness values and equations to calculate cadmium standards for any hardness value not to exceed 400 mg/L.

(8) Chromiur	n +3, total, $\mu$	ug/L					
207	1,737	3,469	_	_	_	_	_

Class 2A trivalent chromium standards are hardness dependent. Chromium +3 values shown are for a total hardness of 100 mg/L only. See part 7050.0222, subpart 2, for examples at other hardness values and equations to calculate trivalent chromium standards for any hardness value not to exceed 400 mg/L.

ioi airy mara	ness varae n	01 10 0/1000	a looms	ъ.				
(9) Chromiu	m +6, total,	$\mu g/L$						
11	16	32	_	_	_	_	_	
(10) Chromi	um, total, μ	g/L						
_	_	_	100	_	_	_	_	
2A CS	2A MS	2A FAV	1B DC	3A/3B IC	4A IR	4B LS	5 AN	
(11) Cobalt,	total, μg/L							
2.8	436	872	_	_	_	_	_	
(12) Copper,	, total, μg/L							

Class 2A copper standards are hardness dependent. Copper values shown are for a total hardness of 100 mg/L only. See part 7050.0222, subpart 2, for examples at other hardness values and equations to calculate copper standards for any hardness value not to exceed 400 mg/L.

(13) Iron,	total, $\mu g/L$						
_	_	_	300(S)	_	_	_	_

1,000 (S)

9.8

18

35

			TCE (	15010			7020.022	-0
(14) Lead, tot	al, μg/L							
3.2	82	164	NA	_	_	_	_	
Class 2A lead of 100 mg/L of equations to contact to contact the contact of the c	only. See pa	rt 7050.022	22, subpart	2, for exan	nples at c	ther hardn	ess values ar	
(15) Mangane	ese, total, µ	g/L						
_	_	_	50(S)	_	_	_	_	
2A CS	2A MS	2A FAV	1B DC	3A/3B IC	4A IR	4B LS	5 AN	
22	1.10		20			~	* ** 1	

(16) Mercury, total, in water, ng/L

6.9 2,400\* 4,900\* 2,000 - - - -

(17) Mercury, total in edible fish tissue, mg/kg or parts per million

0.2 - - - - - - -

(18) Nickel, total, µg/L

158 1,418 2,836 - - - - - -

Class 2A nickel standards are hardness dependent. Nickel values shown are for a total hardness of 100 mg/L only. See part 7050.0222, subpart 2, for examples at other hardness values and equations to calculate nickel standards for any hardness value not to exceed 400 mg/L.

(19) Selenium, total,  $\mu g/L$ 

5.0 20 40 50 - - - -

(20) Silver, total,  $\mu g/L$ 

0.12 2.0 4.1 100(S) - - - -

Class 2A silver MS and FAV are hardness dependent. Silver values shown are for a total hardness of 100 mg/L only. See part 7050.0222, subpart 2, for examples at other hardness values and equations to calculate silver standards for any hardness value not to exceed 400 mg/L.

2A CS	2A MS	2A FAV	1B DC	3A/3B IC	4A IR	4B LS	5 AN	
(21) Thalliur	n, total, μg/	L						
0.28	64	128	2	_	_	-	_	
(22) Zinc, to	tal, μg/L							
106	117	234	5,000 (S)	-	-	-	_	

Class 2A zinc standards are hardness dependent. Zinc values shown are for a total hardness of 100 mg/L only. See part 7050.0222, subpart 2, for examples at other hardness values and equations to calculate zinc standards for any hardness value not to exceed 400 mg/L.

#### C. ORGANIC POLLUTANTS OR CHARACTERISTICS

2A CS	2A MS	2A FAV	1B DC	3A/3B IC	4A IR	4B LS	5 AN
(1) Acenapl	nthene, μg/L						
20	56	112	_	_	_	_	_
(2) Acetoch	ılor, μg/L						
3.6	86	173	_	_	_	_	_
(3) Acrylon	itrile (c), μg/L	ı					
0.38	1,140*	2,281*	_	_	_	_	_
(4) Alachlo	r (c), μg/L						
3.8	800*	1,600*	2	_	_	_	_
(5) Aldicart	o, μg/L						
_	_	_	3	_	_	_	_

2A CS	2A MS	2A FAV	1B DC	3A/3B IC	4A IR	4B LS	5 AN
(6) Aldicarb	sulfone, μg/I	٠					
_	_	_	2	_	_	_	_
(7) Aldicarb	sulfoxide, μg	g/L					
_	_	_	4	_	_	_	_
(8) Anthrace	ene, μg/L						
0.035	0.32	0.63	_	_	_	_	_
(9) Atrazine	(c), μg/L						
3.4	323	645	3	_	_	_	_
(10) Benzen	e (c), μg/L						
5.1	4,487*	8,974*	5	_	_	_	_
2A CS	2A MS	2A FAV	1B DC	3A/3B IC	4A IR	4B LS	5 AN
(11) Benzo(a	a)pyrene, μg/I	-					
_	_	_	0.2	_	_	_	_
(12) Bromof	orm, μg/L						
33	2,900	5,800	See sub- item (73)		_	_	_
(13) Carbofu	ıran, μg/L						
_	_	_	40	_	_	_	_
(14) Carbon	tetrachloride	(c), μg/L					
1.9	1,750*	3,500*	5	_	_	_	_

(15) Chlordai	ne (c), ng/L							
0.073	1,200*	2,400*	2,000	_	_	_	_	
2A CS	2A MS	2A FAV	1B DC	3A/3B IC	4A IR	4B LS	5 AN	
(16) Chlorobo	enzene, μg/L	(Monochl	orobenzene	e)				
20	423	846	100	_	_	_	_	
(17) Chlorofo	orm (c), μg/L	,						
53	1,392	2,784	See subitem (73)	_	_	-	-	
(18) Chlorpy	rifos, μg/L							
0.041	0.083	0.17	_	_	_	_	_	
(19) Dalapon	, μg/L							
_	_	_	200	_	_	_	_	
(20) DDT (c)	, ng/L							
0.11	550*	1,100*	_	_	_	_	_	
2A CS	2A MS	2A FAV	1B DC	3A/3B IC	4A IR	4B LS	5 AN	
(21) 1,2-Dibr	omo-3-chlor	opropane (	(c), μg/L					
_	_	_	0.2	_	_	_	_	
(22) Dichloro	benzene (ort	tho), μg/L						
_	_	_	600	_	_	_	_	
(23) 1,4-Dich	lorobenzene	(para) (c),	μg/L					
_	_	_	75	_	_	_	_	
(24) 1,2-Dich	oloroethane (	c), µg/L						

	3.5	45,050*	90,100*	5	_	_	_	_
(25	5) 1,1-Dichlor	oethylene,	μg/L					
	_	_	_	7	_	_	_	_
	2A CS	2A MS	2A FAV	1B DC	3A/3B IC	4A IR	4B LS	5 AN
(26	6) 1,2-Dichlor	oethylene	(cis), μg/L	ı				
	_	_	_	70	_	_	_	_
(27	7) 1,2-Dichlor	oethylene	(trans), μg	:/L				
	_	_	_	100	_	_	_	_
(28	3) 2,4-Dichlor	ophenoxya	acetic acid	(2,4 <b>-</b> D), µ	ıg/L			
	_	_	_	70	_	_	_	_
(29	9) 1,2-Dichlor	ropropane (	(c), μg/L					
	_	_	_	5	_	_	_	_
(30	)) Dieldrin (c)	), ng/L						
	0.0065	1,300*	2,500*	_	_	_	_	_
	2A CS	2A MS	2A FAV	1B DC	3A/3B IC	4A IR	4B LS	5 AN
(3]	) Di-2-ethylh	exyl adipa	te, μg/L					
	_	_	_	400	_	_	_	_
(32	2) Di-2-ethylh	exyl phtha	late (c), με	g/L				
	1.9	_*	_*	6	_	_	_	_
(33	3) Di-n-Octyl	phthalate,	μg/L					
	30	825	1.650	_	_	_	_	_

(34) Dinoseb	, μg/L						
_	_	_	7	_	_	_	_
(35) Diquat,	μg/L						
_	_	_	20	_	_	_	_
2A CS	2A MS	2A FAV	1B DC	3A/3B IC	4A IR	4B LS	5 AN
(36) Endosul	fan, μg/L						
0.0076	0.084	0.17	_	_	_	_	_
(37) Endotha	ll, μg/L						
_	_	_	100	_	_	_	_
(38) Endrin,	μg/L						
0.0039	0.090	0.18	2	_	_	_	_
(39) Ethylber	nzene (c), με	g/L					
68	1,859	3,717	700	_	_	_	_
(40) Ethylene	e dibromide,	μg/L					
_	_	_	0.05	_	_	_	_
2A CS	2A MS	2A FAV	1B DC	3A/3B IC	4A IR	4B LS	5 AN
(41) Fluorant	thene, μg/L						
1.9	3.5	6.9	_	_	_	_	_
(42) Glyphos	ate, µg/L						
_	_	_	700	_	_	_	_

(43) Haloacetic acids (c),  $\mu$ g/L (Bromoacetic acid, Dibromoacetic acid, Dichloroacetic acid, Monochloroacetic acid, and Trichloroacetic acid)

_	_	_	60	_	_	_	_
(44) Heptach	lor (c), ng/L						
0.10	260*	520*	400	_	_	_	_
(45) Heptach	lor epoxide (	e), ng/L					
0.12	270*	530*	200	_	_	_	_
2A CS	2A MS	2A FAV	1B DC	3A/3B IC	4A IR	4B LS	5 AN
(46) Hexachle	orobenzene (	e), ng/L					
0.061	_*	_*	1,000	_	_	_	_
(47) Hexachle	orocyclopenta	adiene, μg/	L/L				
_	_	_	50	_	_	_	_
(48) Lindane	(c), μg/L (He	exachloroc	yclohexaı	ne, gamma	·)		
0.0087	1.0*	2.0*	0.2	_	_	_	_
(49) Methoxy	/chlor, μg/L						
_	_	_	40	_	_	_	_
(50) Methyler	ne chloride (d	c), μg/L (D	oichlorom	ethane)			
45	13,875*	27,749*	5	_	_	_	_
2A CS	2A MS	2A FAV	1B DC	3A/3B IC	4A IR	4B LS	5 AN
(51) Metolacl	hlor						
23	271	543	_	_	_	_	_
(52) Naphtha	lene, μg/L						
65	409	818	_	_	_	_	_

(53) Oxamyl,	$\mu$ g/L (Vyd	ate)					
_	_	_	200	_	_	_	_
(54) Parathio	n, μg/L						
0.013	0.07	0.13	_	_	_	_	_
(55) Pentachl	orophenol,	μg/L					
0.93	15	30	1	_	_	_	_

Class 2A MS and FAV are pH dependent. Pentachlorophenol values shown are for a pH of 7.5 only. See part 7050.0222, subpart 2, for examples at other pH values and equations to calculate pentachlorophenol standards for any pH value.

2A CS	2A MS	2A FAV	1B DC	3A/3B IC	4A IR	4B LS	5 AN
(56) Phenanthi	rene, μg/L						
3.6	32	64	_	_	_	_	_
(57) Phenol, μ	g/L						
123	2,214	4,428	_	_	_	_	_
(58) Picloram,	$\mu g/L$						
_	_	_	500	_	_	_	_
(59) Polychlor	inated bipho	enyls (c), r	ng/L (PCl	Bs, total)			
0.014	1,000*	2,000*	500	_	_	_	_
(60) Simazine,	μg/L						
_	_	_	4	_	_	_	_
2A CS	2A MS	2A FAV	1B DC	3A/3B IC	4A IR	4B LS	5 AN

(61) Styrene (c),  $\mu g/L$ 

	_	_	_	100	_	_	_	_
(62	) 2,3,7,8-Tetra	achlorodib	enzo-p-dio	xin, ng/L	(TCDD-die	oxin)		
	_	_	_	0.03	_	_	_	_
(63	) 1,1,2,2-Tetra	achloroetha	ane (c), μg	/L				
	1.1	1,127*	2,253*	_	_	_	_	_
(64	) Tetrachloroe	ethylene (c	), μg/L					
	3.8	428*	857*	5	_	_	_	_
(65	) Toluene, μg	/L						
	253	1,352	2,703	1,000	_	_	_	_
	2A CS	2A MS	2A FAV	1B DC	3A/3B IC	4A IR	4B LS	5 AN
(66	) Toxaphene (	(c), ng/L						
	0.31	730*	1,500*	3,000	_	_	_	_
(67	) 2,4,5-ΤΡ, μg	g/L (Silvex	)					
	_	_	_	50	_	_	_	_
(68	) 1,2,4-Trichle	orobenzen	e, µg/L					
	_	_	_	70	_	_	_	_
(69	) 1,1,1-Trichle	oroethane,	$\mu g/L$					
	329	2,957	5,913	200	_	_	_	_
(70	) 1,1,2-Trichle	oroethane,	$\mu g/L$					
	_	_	_	5	_	_	_	_
	2A CS	2A MS	2A FAV	1B DC	3A/3B IC	4A IR	4B LS	5 AN

applies only between April 1 and October 31.

2; and 7050.0224, subparts 2 and 3.

Subp. 4. [Repealed, 24 SR 1105]

Subp. 4a. Cool and warm water sport fish, drinking water, and associated use classes. Water quality standards applicable to use Classes 1B or 1C, 2Bd, 3A or 3B, 4A and 4B, and 5 surface waters.

A. MISCELLANEOUS SUBSTANCE, CHARACTERISTIC, OR POLLUTANT

2Bd CS	2Bd MS	2Bd FAV	1B/1C DC	3A/3B IC	4A IR	4B LS	5 AN	
	1,10	111V			111	<b>1</b> 0	7311	
(1) Ammonia	a, un-ionized	d as N, μg/	L					
40	_	_	_	_	_	_	_	
(2) Asbestos,	>10 μm (c)	), fibers/L						

	_	_	_	7.0e+06	_	_	_	_
(3)	Bicarbonates	(HCO <sub>3</sub> ), r	neq/L					
	_	_	_	_	_	5	_	_
(4)	Bromate, µg/	L						
	_	_	_	10	_	_	_	_
(5)	Chloride, mg	/L						
	230	860	1,720	250(S)	50/100	_	_	_
	2Bd CS	2Bd MS	2Bd FAV	1B/1C DC	3A/3B IC	4A IR	4B LS	5 AN
(6)	Chlorine, tota	al residual,	μg/L					
	11	19	38	_	_	_	_	_
(7)	Chlorite, µg/l	L						
	_	_	_	1,000	_	_	_	_
(8)	Color, Pt-Co							
	-	_	_	15(S)	_	_	_	_
(9)	Cyanide, free	e, μg/L						
	5.2	22	45	200	_	_	_	_
(10	) Escherichia	(E.) coli b	acteria, or	ganisms/10	00 mL			
	See item D	_	_	_	_	_	_	_
	2Bd CS	2Bd MS	2Bd FAV	1B/1C DC	3A/3B IC	4A IR	4B LS	5 AN

<sup>(11)</sup> Eutrophication standards for lakes, shallow lakes, and reservoirs (phosphorus, total,  $\mu g/L$ ; chlorophyll-a,  $\mu g/L$ ; Secchi disk transparency, meters)

See part 7050.0222 subparts	,	_	_	_	_	_	_	
3 and 3a (12) Eutrophic ug/L; chloroph						_	_	
diel dissolved							(32 <sub>5</sub> ), mg/2	٠,
See part 7050.0222 subparts 3 and 3b	<u> </u>	_	_	_	_	_	_	
(13) Fluoride,	mg/L							
_	_	_	4	_	_	_	_	
(14) Fluoride,	mg/L							
_	_	_	2(S)	_	_	_	_	
(15) Foaming	agents, μg	/L						
_	_	_	500(S)	_	_	_	_	
(16) Hardness,	, Ca+Mg a	s CaCO <sub>3</sub> , 1	mg/L					
_	_	_	_	50/250	_	_	_	
2Bd CS	2Bd MS	2Bd FAV	1B/1C DC	3A/3B IC	4A IR	4B LS	5 AN	
17) Hydrogen	ı sulfide, n	ng/L						
_	_	_	_	_	_	_	0.02	
(18) Nitrate as	N, mg/L							
_	_	_	10	_	_	_	_	
(19) Nitrite as	N, mg/L							
_	_	_	1	_	_	_	_	

(20) Nitrate + N	Nitrite as I	N, mg/L					
_	_	_	10	_	_	_	_
(21) Odor, TON	٧						
-	_	_	3(S)	_	_	_	_
2Bd CS	2Bd MS	2Bd FAV	1B/1C DC	3A/3B IC	4A IR	4B LS	5 AN
(22) Oil, μg/L							
500	5,000	10,000	_	_	_	_	_
(23) Oxygen, d	issolved, 1	mg/L					
See part 7050.0222, subpart 3	_	-	-	-	-	-	-
(24) pH minim	um, su						
6.5	_	_	6.5(S)	6.5/6.0	6.0	6.0	6.0
(25) pH maxim	um, su						
9.0	_	_	8.5(S)	8.5/9.0	8.5	9.0	9.0
(26) Radioactiv	e materia	ls					
See item E	_	_	See item E	_	See item E	See item E	_
2Bd CS	2Bd MS	2Bd FAV	1B/1C DC	3A/3B IC	4A IR	4B LS	5 AN
(27) Salinity, to	otal, mg/L						
_	_	_	_	_	_	1,000	_
(28) Sodium, n	neq/L						

_	-	-	_	_	60% of total cations	_	-
(29) Specia	fic conductance	ce at 25°C,	μmhos/cm				
_	_	_	_	_	1,000	_	_
(30) Sulfat	e, mg/L						
_	_	_	250(S)	_	_	_	_
(31) Sulfat	es, wild rice p	oresent, mg	g/L				
_	_	_	_	_	10	_	_
2Bd CS	2Bd MS	2Bd FAV	1B/1C DC	3A/3B IC	4A IR	4B LS	5 AN
(32) Temp	erature, °F						
See item F	-	_	_	_	-	_	_
(33) Total	dissolved salt	s, mg/L					
_	_	_	_	_	700	_	_
(34) Total	dissolved soli	ds, mg/L					
_	_	_	500(S)	_	_	_	_
(35) Total	suspended sol	ids (TSS),	mg/L				
See pa 7050.0 subpar	222,	_	_	_	_	_	_
B. METAI	LS AND ELE	MENTS					
2Bd CS	2Bd MS	2Bd FAV	1B/1C DC	3A/3B IC	4A IR	4B LS	5 AN

(1)	Aluminum	n, total, μg/	'L					
	125	1,072	2,145	50- 200(S)	-	-	-	-
(2)	Antimony	, total, μg/l	L					
	5.5	90	180	6	_	_	_	_
(3)	Arsenic, to	otal, μg/L						
	2.0	360	720	10	_	_	_	_
(4)	Barium, to	otal, μg/L						
	_	_	_	2,000	_	_	_	_
(5)	Beryllium	, total, μg/l	L					
	_	_	_	4.0	_	_	_	_
	2Bd CS	2Bd MS	2Bd FAV	1B/1C DC	3A/3B IC	4A IR	4B LS	5 AN
(6)	Boron, tot	al, μg/L						
	_	_	_	_	_	500	_	_
(7)	Cadmium,	total, µg/I	- _					

Class 2Bd cadmium standards are hardness dependent. Cadmium values shown are for a total hardness of 100 mg/L only. See part 7050.0222, subpart 3, for examples at other hardness values and equations to calculate cadmium standards for any hardness value not to exceed 400 mg/L.

(8) Chromium +3, total,  $\mu$ g/L

207 1,737 3,469 - - - - -

Class 2Bd trivalent chromium standards are hardness dependent. Chromium +3 values shown are for a total hardness of 100 mg/L only. See part 7050.0222, subpart 3, for examples at other hardness values and equations to calculate trivalent chromium standards for any hardness value not to exceed 400 mg/L.

2Bd 2Bd 1B/1C 3A/3B **4B** 2Bd **4A** CS MS **FAV** DC IC IR LS AN (11) Cobalt, total, μg/L 2.8 436 872 (12) Copper, total, μg/L 9.8 18 35 1,000 **(S)** 

Class 2Bd copper standards are hardness dependent. Copper values shown are for a total hardness of 100 mg/L only. See part 7050.0222, subpart 3, for examples at other hardness values and equations to calculate copper standards for any hardness value not to exceed 400 mg/L.

(13) Iron, total, μg/L

- - 300(S) - - - 
(14) Lead, total, μg/L

3.2 82 164 NA - - - -

Class 2Bd lead standards are hardness dependent. Lead values shown are for a total hardness of 100 mg/L only. See part 7050.0222, subpart 3, for examples at other hardness values and equations to calculate lead standards for any hardness value not to exceed 400 mg/L.

(15) Manganese, total,  $\mu g/L$ 

50(S) 2Bd 1B/1C 3A/3B 5 2Bd 2Bd **4A 4B** CS MS **FAV** DC IC IR LS AN

(16) Mercury,	total in wa	ater, ng/L					
6.9	2,400*	4,900*	2,000	_	_	_	_
(17) Mercury,	total in ed	ible fish tis	ssue, mg/kg	g or parts p	er million		
0.2	_	_	_	_	_	_	_
(18) Nickel, t	otal, μg/L						
158	1,418	2,836	-	_	_	_	_
Class 2Bd nichardness of 10 values and equipmg/L.	00 mg/L or	ıly. See par	rt 7050.022	2, subpart	3, for exan	nples at oth	er hardness

(19) Selenium, total, μg/L

5.0 20 40 50 - - - 
(20) Silver, total, μg/L

1.0 2.0 4.1 100(S) - - - -

Class 2Bd silver MS and FAV are hardness dependent. Silver values shown are for a total hardness of 100 mg/L only. See part 7050.0222, subpart 3, for examples at other hardness values and equations to calculate silver standards for any hardness value not to exceed 400 mg/L.

2Bd CS	2Bd MS	2Bd FAV	1B/1C DC	3A/3B IC	4A IR	4B LS	5 AN	
(21) Thalliu	ım, total, μ	g/L						
0.28	64	128	2	_	_	_	_	
(22) Zinc, to	otal, μg/L							
106	117	234	5,000 (S)	_	_	_	_	

Class 2Bd zinc standards are hardness dependent. Zinc values shown are for a total hardness of 100 mg/L only. See part 7050.0222, subpart 3, for examples at other hardness values and equations to calculate zinc standards for any hardness value not to exceed 400 mg/L.

## C. ORGANIC POLLUTANTS OR CHARACTERISTICS

	2Bd CS	2Bd MS	2Bd FAV	1B/1C DC	3A/3B ICIC	4A IR	4B LS	5 AN
(1)	Acenapht	hene, μg/L	,					
	20	56	112	_	_	_	_	_
(2)	Acetochlo	or, μg/L						
	3.6	86	173	_	_	_	_	_
(3)	Acrylonit	rile (c), μg	/L					
	0.38	1,140*	2,281*	_	_	_	_	_
(4)	Alachlor	(c), μg/L						
	4.2	800*	1,600*	2	_	_	_	_
(5)	Aldicarb,	$\mu g/L$						
	_	_	_	3	_	_	_	_
	2Bd CS	2Bd MS	2Bd FAV	1B/1C DC	3A/3B ICIC	4A IR	4B LS	5 AN
(6)	Aldicarb	sulfone, με	g/L					
	_	_	_	2	_	_	_	_
(7)	Aldicarb	sulfoxide,	μg/L					
	_	_	_	4	_	_	_	_
(8)	Anthrace	ne, μg/L						
	0.035	0.32	0.63	_	_	_	_	_
(9)	Atrazine							
(9)	Atrazine 3.4		645	3	_	_	_	_

6.0	4,487*	8,974*	5	-	_	_	_
2Bd CS	2Bd MS	2Bd FAV	1B/1C DC	3A/3B ICIC	4A IR	4B LS	5 AN
(11) Benzo	(a)pyrene, μ	g/L					
_	_	_	0.2	_	_	_	_
(12) Bromo	oform, μg/L						
41	2,900	5,800	See subitem (73)	_	_	-	-
(13) Carbo	furan, μg/L						
_	_	_	40	_	_	_	_
(14) Carbon	n tetrachlori	de (c), μg/l	L				
1.9	1,750*	3,500*	5	_	_	_	_
(15) Chlord	lane (c), ng/	L					
0.29	1,200*	2,400*	2,000	_	_	_	_
2Bd CS	2Bd MS	2Bd FAV	1B/1C DC	3A/3B ICIC	4A IR	4B LS	5 AN
(16) Chloro	benzene, με	g/L (Monoc	chlorobenze	ene)			
20	423	846	100	_	_	_	_
(17) Chloro	oform (c), με	g/L					
53	1,392	2,784	See subitem (73)	_	-	-	-
(18) Chlorp	yrifos, μg/L	1					
0.041	0.083	0.17	_	_	_	_	_

(19) Dalap	oon, μg/L						
_	_	_	200	_	_	_	_
(20) DDT	(c), ng/L						
1.7	550*	1,100*	_	_	_	_	_
2Bd CS	2Bd MS	2Bd FAV	1B/1C DC	3A/3B ICIC	4A IR	4B LS	5 <b>AN</b>
(21) 1,2-D	pibromo-3-chl	oropropane	e (c), μg/L				
_	_	_	0.2	_	_	_	_
(22) Dichl	orobenzene (	ortho), μg/]	L				
_	_	_	600	_	_	_	_
(23) 1,4-D	oichlorobenze	ne (para) (	e), μg/L				
_	_	_	75	_	_	_	_
(24) 1,2-D	oichloroethane	e (c), μg/L					
3.8	45,050*	90,100*	5	_	_	_	_
(25) 1,1-D	oichloroethyle	ene, μg/L					
_	_	_	7	_	_	_	_
2Bd CS	2Bd MS	2Bd FAV	1B/1C DC	3A/3B ICIC	4A IR	4B LS	5 AN
(26) 1,2-D	oichloroethyle	ene (cis), με	g/L				
_	_	_	70	_	_	_	_
(27) 1,2-D	oichloroethyle	ene (trans),	μg/L				
_	_	_	100	_	_	_	_
(28) 2,4-D	oichloropheno	xyacetic ac	eid (2,4-D)	, μg/L			

_	_	_	70	_	_	_	_
(29) 1,2-Die	chloropropa	ne (c), μg/	L				
_	_	_	5	_	_	_	_
(30) Dieldri	in (c), ng/L						
0.026	1,300*	2,500*	_	_	_	_	_
2Bd CS	2Bd MS	2Bd FAV	1B/1C DC	3A/3B ICIC	4A IR	4B LS	5 AN
(31) Di-2-et	thylhexyl ac	dipate, μg/I					
_	_	_	400	_	_	_	_
(32) Di-2-et	thylhexyl pl	hthalate (c)	, μg/L				
1.9	_*	_*	6	_	_	_	_
(33) Di-n-C	octyl phthala	ate, μg/L					
30	825	1,650	_	_	_	_	_
(34) Dinose	eb, μg/L						
_	_	_	7	_	_	_	_
(35) Diquat	, μg/L						
_	_	_	20	_	_	_	-
2Bd CS	2Bd MS	2Bd FAV	1B/1C DC	3A/3B ICIC	4A IR	4B LS	5 AN
(36) Endosi	ulfan, μg/L						
0.029	0.28	0.56	_	_	_	_	_
(37) Endoth	nall, μg/L						
_	_	_	100	_	_	_	_

(38) Endrin	, μg/L						
0.016	0.090	0.18	2	_	_	_	_
(39) Ethylbo	enzene (c),	μg/L					
68	1,859	3,717	700	_	_	_	_
(40) Ethylei	ne dibromi	de, μg/L					
_	_	_	0.05	_	_	_	_
2Bd CS	2Bd MS	2Bd FAV	1B/1C DC	3A/3B ICIC	4A IR	4B LS	5 AN
(41) Fluorai	nthene, μg/	L					
1.9	3.5	6.9	_	_	_	_	_
(42) Glypho	osate, μg/L						
_	_	_	700	_	_	_	_
(43) Haloac Monochloro					moacetic	acid, Dichl	oroacetic acid
_	_	_	60	_	_	_	_
(44) Heptac	hlor (c), ng	g/L					
0.39	260*	520*	400	_	_	_	_
(45) Heptac	hlor epoxio	de (c), ng/I					
0.48	270*	530*	200	_	_	_	_
2Bd CS	2Bd MS	2Bd FAV	1B/1C DC	3A/3B ICIC	4A IR	4B LS	5 AN
(46) Hexacl	nlorobenze	ne (c), ng/I					
0.24	_*	_*	1,000	_	_	_	_

(47) Hexachlorocyclopentadiene,  $\mu g/L$ 

	_	_	_	50	_	_	_	_
(4	8) Lindane	(c), μg/L (	Hexachloro	ocyclohexa	ne, gamma	·-)		
	0.032	4.4*	8.8*	0.2	_	_	_	_
(4	9) Methoxy	/chlor, μg/I	-					
	_	_	_	40	_	_	_	_
(5)	0) Methyler	ne chloride	e (c), μg/L (	Dichlorom	nethane)			
	46	13,875*	27,749*	5	_	_	_	_
	2Bd CS	2Bd MS	2Bd FAV	1B/1C DC	3A/3B ICIC	4A IR	4B LS	5 AN
(5	1) Metolacl	hlor						
	23	271	543	_	_	_	_	_
(5)	2) Naphtha	lene, μg/L						
	81	409	818	_	_	_	_	_
(5.	3) Oxamyl,	μg/L (Vyc	late)					
	_	_	_	200	_	_	_	_
(54	4) Parathio	n, μg/L						
	0.013	0.07	0.13	_	_	_	_	_
(5:	5) Pentachl	orophenol,	$\mu g/L$					
	1.9	15	30	1	_	_	_	_

Class 2Bd MS and FAV are pH dependent. Pentachlorophenol values shown are for a pH of 7.5 only. See part 7050.0222, subpart 3, for examples at other pH values and equations to calculate pentachlorophenol standards for any pH value.

2Bd	2Bd	2Bd	1B/1C	3A/3B	<b>4A</b>	<b>4B</b>	5	
CS	MS	FAV	DC	ICIC	IR	LS	AN	

(56) Phenanthrene, μg/L											
	3.6	32	64	_	_	_	_	_			
(57	(57) Phenol, μg/L										
	123	2,214	4,428	_	_	_	_	_			
(58	(58) Picloram, μg/L										
	_	_	_	500	_	_	_	_			
(59	) Polychlo	rinated bip	henyls (c),	ng/L (PCH	Bs, total)						
	0.029	1,000*	2,000*	500	_	_	_	_			
(60	) Simazine	e, µg/L									
	_	_	_	4	_	_	_	_			
	2Bd	2Bd	2Bd	1B/1C	3A/3B	4A	4B	5 A N			
	CS	MS	FAV	DC	ICIC	IR	LS	AN			
(61	) Styrene (		FAV	<b>ВС</b>	ICIC	IK	LS	AN			
(61			FAV	100	-	- IK		AN -			
	Styrene (	(c), μg/L –	- dibenzo-p-0	100	_	_					
	Styrene (	(c), μg/L –	_	100	_	_		- -			
(62	Styrene (  - ) 2,3,7,8-T	(c), μg/L - Cetrachlorod	_	100 dioxin, ng/ 0.03	_	_					
(62	Styrene (  - ) 2,3,7,8-T	(c), μg/L  - Tetrachloroge - Tetrachloroge	– dibenzo-p-o	100 dioxin, ng/ 0.03	_	_					
(62 (63	) Styrene (  - ) 2,3,7,8-T  - ) 1,1,2,2-T 1.5	(c), μg/L  - Tetrachloroge - Tetrachloroge	- dibenzo-p-o - ethane (c), 2,253*	100 dioxin, ng/ 0.03	_	_					
(62 (63	) Styrene (  - ) 2,3,7,8-T  - ) 1,1,2,2-T 1.5	etrachloroe  1,127*	- dibenzo-p-o - ethane (c), 2,253*	100 dioxin, ng/ 0.03	_	_					
(62) (63)	) Styrene (  - ) 2,3,7,8-T  - ) 1,1,2,2-T  1.5 ) Tetrachlo	(c), μg/L  - Cetrachlorod - Cetrachlorod 1,127* Proethylene 428*	- dibenzo-p-α - ethane (c), 2,253* e (c), μg/L	100 dioxin, ng/2 0.03 μg/L –	_	_					

2Bd CS	2Bd MS	2Bd FAV	1B/1C DC	3A/3B ICIC	4A IR	4B LS	5 AN			
(66) Toxap	(66) Toxaphene (c), ng/L									
1.3	730*	1,500*	3,000	_	_	_	_			
(67) 2,4,5-7	ΓΡ, μg/L (Si	lvex)								
_	_	_	50	_	_	_	_			
(68) 1,2,4-7	Frichlorober	nzene, μg/L								
_	_	_	70	_	_	_	_			
(69) 1,1,1-7	Trichloroeth	ane, μg/L								
329	2,957	5,913	200	_	_	_	_			
(70) 1,1,2-7	Trichloroeth	ane, μg/L								
_	_	_	5	_	_	_	_			
2Bd CS	2Bd MS	2Bd FAV	1B/1C DC	3A/3B ICIC	4A IR	4B LS	5 AN			
(71) 1,1,2-7	Trichloroeth	ylene (c), μ	g/L							
25	6,988*	13,976*	5	_	_	_	_			
(72) 2,4,6-Trichlorophenol, μg/L										
2.0	102	203	_	_	_	_	_			
	(73) Trihalomethanes, total (c), µg/L (Bromodichloromethane, Bromoform, Chlorodibromomethane, and Chloroform)									
_	_	_	80	_	_	_	_			
(74) Vinyl	chloride (c)	, μg/L								
0.18	_*	_*	2	_	_	_	_			

(75) Xylenes,	total ug/L						
		2,814 1	0,000	_	_	_	_
	Escherichia a geometric lendar mont month indivi	(E.) coli mean of no th, nor shall dually exce	bacteria s t less than I more than ed 1,260 d	n five sa an ten p	amples represent of a	resentative all samples	taken during
E. I 3; and 7050.0			s, see parts	s 7050.0	0221, subpa	art 3; 7050.0	0222, subpart
F. T and three degr daily tempera degrees Fahre	ees Fahrenhe ture, except	eit above na	tural in lal	kes, bas	ed on mont	hly average	
Subp. 5.	[Repealed,	24 SR 110	5]				
standards appl waters. See p for Class 3D, A. MISCELL.	licable to use arts 7050.02 4C, and 5 st	e Classes 2E 223, subpart andards app	3, 2C, or 21 5; 7050.0 blicable to	D; 3A, 3 0224, st wetlan	3B, or 3C; 4 abpart 4; ards, respecti	4A and 4B; ad 7050.022 vely.	25, subpart 2,
2B,C&D CS	2B,C&D MS	2B,C&D FAV	3A/3B/3 IC	C	4A IR	4B LS	5 AN
(1) Ammonia,	un-ionized	as N, μg/L					
40	_	_	_		_	_	_
(2) Bicarbona	tes (HCO <sub>3</sub> ),	meq/L					
_	_	_	_		5	_	_
(3) Chloride,	mg/L						
230	860	1,720	50/100/2	250	_	_	_
(4) Chlorine,	total residua	l, µg/L					
11	19	38	_		_	_	_

(5) Cyanide, f	ree, μg/L					
5.2	22	45	_	_	_	_
2B,C&D CS	2B,C&D MS	2B,C&D FAV	3A/3B/3C IC	4A IR	4B LS	5 AN
(6) Escherichi	a (E.) coli b	acteria, org	anisms/100 mL			
See item D	-	_	_	_	-	-
` ′			es, shallow lake k transparency,	-	ervoirs (pho	osphorus, total,
See part 7050.0222 subparts 4, 4a, and 5		_	_	_	-	_
μg/L; chloropl	hyll-a (sesto	on), μg/L; fi	s, streams, and ve-day biochem orophyll-a (peri	nical oxyge	en demand	_
See part 7050.0222 subparts 4 and 4b	-	-		_	-	_
(9) Hardness,	Ca+Mg as (	CaCO <sub>3</sub> , mg/	L L			
_	_	_	50/250/500	_	_	_
(10) Hydroger	n sulfide, mę	g/L				
_	_	_	_	_	_	0.02
(11) Oil, μg/L						
500	5,000	10,000	_	_	_	_

	2B,C&D CS	2B,C&D MS	2B,C&D FAV	3A/3B/3C IC	4A IR	4B LS	5 AN		
(12)	(12) Oxygen, dissolved, mg/L								
	See part 7050.0222 subparts 4 to 6	_	-	-	-	-	-		
(13)	pH minim	ium, su							
	6.5 See item E	-	-	6.5/6.0/6.0	6.0	6.0	6.0		
(14)	pH maxim	num, su							
	9.0 See item E	_	-	8.5/9.0/9.0	8.5	9.0	9.0		
(15)	Radioactiv	ve materials	S						
	See item F	-	_	-	See item F	See item F	_		
(16)	Salinity, to	otal, mg/L							
	_	_	_	_	_	1,000	_		
	2B,C&D CS	2B,C&D MS	2B,C&D FAV	3A/3B/3C IC	4A IR	4B LS	5 AN		
(17)	Sodium, n	neq/L							
	-	-	-	_	60% of total cations	-	-		

	_	_	_	_	1,000	_	_
(19)	Sulfates, w	vild rice pre	esent, mg/L				
	_	_	_	_	10	_	_
(20)	Temperatu	ıre, °F					
	See item G	_	_	_	_	_	-
(21)	Total disso	olved salts,	mg/L				
	_	_	_	_	700	_	_
(22)	Total susp	ended solid	s (TSS), mg	g/L			
	See part 7050.0222 subpart 4		_	_	_	-	_
B. N	METALS A	ND ELEM	ENTS				
	2B,C&D CS	2B,C&D MS	2B,C&D FAV	3A/3B/3C IC	4A IR	4B LS	5 AN
(1)	CS						
(1)	CS Aluminum,	MS total, μg/L					
	CS Aluminum,	MS total, μg/L 1,072	FAV				
	CS Aluminum, 125	MS total, μg/L 1,072	FAV				
(2)	Aluminum, 125 Antimony,	MS total, μg/L 1,072 total, μg/L 90	<b>FAV</b> 2,145				
(2)	Aluminum, 125 Antimony, 31	MS total, μg/L 1,072 total, μg/L 90	<b>FAV</b> 2,145				
(2)	Aluminum, 125 Antimony, 1 31 Arsenic, tot	total, µg/L 1,072 total, µg/L 90 tal, µg/L 360	<b>FAV</b> 2,145 180				
(2)	Aluminum, 125 Antimony, 1 31 Arsenic, tot 53	total, µg/L 1,072 total, µg/L 90 tal, µg/L 360	<b>FAV</b> 2,145 180				
<ul><li>(2) 4</li><li>(3) 4</li><li>(4) 1</li></ul>	Aluminum, 125 Antimony, 1 31 Arsenic, tot 53	MS  total, μg/L 1,072  total, μg/L 90  tal, μg/L 360  l, μg/L -	<b>FAV</b> 2,145 180		IR - -		

Class 2B, 2C, and 2D cadmium standards are hardness dependent. Cadmium values shown are for a total hardness of 100 mg/L only. See part 7050.0222, subpart 4, for examples at other hardness values and equations to calculate cadmium standards for any hardness value not to exceed 400 mg/L.

	2B,C&D CS	2B,C&D MS	2B,C&D FAV	3A/3B/3C IC	4A IR	4B LS	5 AN
(6)	Chromium	+3, total, μ	g/L				
	207	1,737	3,469	_	_	_	_

Class 2B, 2C, and 2D trivalent chromium standards are hardness dependent. Chromium +3 values shown are for a total hardness of 100 mg/L only. See part 7050.0222, subpart 4, for examples at other hardness values and equations to calculate trivalent chromium standards for any hardness value not to exceed 400 mg/L.

(7) Chromi	um +6, total	, μg/L				
11	16	32	_	_	_	_
(8) Cobalt,	total, μg/L					
5.0	436	872	_	_	_	_
(9) Copper,	total, µg/L					
9.8	18	35	_	_	_	_

Class 2B, 2C, and 2D copper standards are hardness dependent. Copper values shown are for a total hardness of 100 mg/L only. See part 7050.0222, subpart 4, for examples at other hardness values and equations to calculate copper standards for any hardness value not to exceed 400 mg/L.

(10) Lead, total, μg/L

3.2 82 164 - - - -

Class 2B, 2C, and 2D lead standards are hardness dependent. Lead values shown are for a total hardness of 100 mg/L only. See part 7050.0222, subpart 4, for examples at other hardness values and equations to calculate lead standards for any hardness value not to exceed 400 mg/L.

2B, CS	C&D	2B,C&D MS	2B,C&D FAV	3A/3B/3C IC	4A IR	4B LS	5 AN	
(11) Me	rcury, t	total in wate	er, ng/L					_
6.9		2,400*	4,900*	_	_	_	_	
(12) Me	rcury, t	otal in edib	le fish tissu	ie, mg/kg or pa	rts per milli	ion		
0.2		_	_	_	_	_	_	
(13) Nic	kel, to	tal, μg/L						
158		1,418	2,836	_	_	_	_	
Class 2F	3 2C :	and 2D nicl	cel standard	ls are hardness	denendent	Nickel va	dues shown	are

Class 2B, 2C, and 2D nickel standards are hardness dependent. Nickel values shown are for a total hardness of 100 mg/L only. See part 7050.0222, subpart 4, for examples at other hardness values and equations to calculate nickel standards for any hardness value not to exceed 400 mg/L.

(14) Selenium, total, µg/L

5.0 20 40 - - - -

(15) Silver, total, µg/L

1.0 2.0 4.1 - - - -

Class 2B, 2C, and 2D silver MS and FAV are hardness dependent. Silver values shown are for a total hardness of 100 mg/L only. See part 7050.0222, subpart 4, for examples at other hardness values and equations to calculate silver standards for any hardness value not to exceed 400 mg/L.

	2B,C&D CS	2B,C&D MS	2B,C&D FAV	3A/3B/3C IC	4A IR	4B LS	5 AN	
(16)	Thallium,	total, μg/L						
	0.56	64	128	_	_	_	_	
(17) Zinc, total, μg/L								
	106	117	234	_	_	_	_	

Class 2B, 2C, and 2D zinc standards are hardness dependent. Zinc values shown are for a total hardness of 100 mg/L only. See part 7050.0222, subpart 4, for examples at other hardness values and equations to calculate zinc standards for any hardness value not to exceed 400 mg/L.

## C. ORGANIC POLLUTANTS OR CHARACTERISTICS

	2B,C&D CS	2B,C&D MS	2B,C&D FAV	3A/3B/3C IC	4A IR	4B LS	5 AN		
(1)	Acenaphthe	ene, μg/L							
	20	56	112	_	_	_	_		
(2) Acetochlor, µg/L									
	3.6	86	173	_	_	_	_		
(3)	Acrylonitri	le (c), μg/L							
	0.89	1,140*	2,281*	-	_	_	_		
(4)	Alachlor (c	), µg/L							
	59	800	1,600	_	_	_	_		
(5)	Anthracene	e, μg/L							
	0.035	0.32	0.63	_	_	_	_		
	2B,C&D CS	2B,C&D MS	2B,C&D FAV	3A/3B/3C IC	4A IR	4B LS	5 AN		
(6)	Atrazine (c	), μg/L							
	10	323	645	_	_	_	_		
(7)	Benzene (c	), μg/L							
	98	4,487	8,974	_	_	_	_		
(8)	Bromoform	n, μg/L							
	466	2,900	5,800	_	_	_	_		

(9)	Carbon tetr	rachloride (	c), µg/L				
	5.9	1,750*	3,500*	_	_	_	_
(10)	Chlordane	e (c), ng/L					
	0.29	1,200*	2,400*	_	_	_	_
	2B,C&D CS	2B,C&D MS	2B,C&D FAV	3A/3B/3C IC	4A IR	4B LS	5 AN
(11)	Chlorober	nzene, μg/L	(Monochlo	probenzene)			
	20	423	846	_	_	_	_
(12)	Chlorofor	m (c), μg/L	,				
	155	1,392	2,78	_	_	_	_
(13)	Chlorpyri	fos, μg/L					
	0.041	0.083	0.17	_	_	_	_
(14)	DDT (c),	ng/L					
	1.7	550*	1,100*	_	_	_	_
(15)	1,2-Dichlo	oroethane (	e), µg/L				
	190	45,050*	90,100*	_	_	_	_
	2B,C&D CS	2B,C&D MS	2B,C&D FAV	3A/3B/3C IC	4A IR	4B LS	5 AN
(16)	Dieldrin (	c), ng/L					
	0.026	1,300*	2,500*	-	_	_	_
(17)	Di-2-ethy	lhexyl phth	alate (c), με	g/L			
	2.1	_*	_*	_	_	_	_
(18)	Di-n-Octy	l phthalate,	μg/L				

	30	825	1,650	_	_	_	_
(19)	Endosulfa	n, μg/L					
	0.031	0.28	0.56	_	_	_	_
(20)	Endrin, με	g/L					
	0.016	0.090	0.18	_	_	_	_
	2B,C&D CS	2B,C&D MS	2B,C&D FAV	3A/3B/3C IC	4A IR	4B LS	5 AN
(21)	Ethylbenz	ene (c), μg/	/L				
	68	1,859	3,717	_	_	_	_
(22)	Fluoranth	ene, μg/L					
	1.9	3.5	6.9	_	_	_	_
(23)	Heptachlo	or (c), ng/L					
	0.39	260*	520*	_	_	_	_
(24)	Heptachlo	or epoxide (	c), ng/L				
	0.48	270*	530*	_	_	_	_
(25)	Hexachlor	robenzene (	c), ng/L				
	0.24	_*	_*	_	_	_	_
	2B,C&D CS	2B,C&D MS	2B,C&D FAV	3A/3B/3C IC	4A IR	4B LS	5 AN
(26)	Lindane (	c), μg/L (He	exachlorocy	vclohexane, gam	ma-)		
	0.036	4.4*	8.8*	_	_	_	_
(27)	Methylene	e chloride (d	c), μg/L (Di	ichloromethane)			
	1,940	13,875	27,749	_	_	_	_

23 271 543 - - - -

(29) Naphthalene, µg/L

81 409 818 - - - -

(30) Parathion, µg/L

2B,C&D 2B,C&D 2B,C&D 3A/3B/3C 4A 4B 5 CS MS FAV IC IR LS AN

(31) Pentachlorophenol, µg/L

5.5 15 30 - - -

Class 2B, 2C, and 2D standards are pH dependent, except that the CS will not exceed 5.5  $\mu$ g/L. Pentachlorophenol values shown are for a pH of 7.5 only. See part 7050.0222, subpart 4, for examples at other pH values and equations to calculate pentachlorophenol standards for any pH value.

(32) Phenanthrene,  $\mu g/L$ 

3.6 32 64 - - - -

(33) Phenol, µg/L

123 2,214 4,428 - - - -

(34) Polychlorinated biphenyls (c), ng/L (PCBs, total)

0.029 1,000\* 2,000\* - - - -

(35) 1,1,2,2-Tetrachloroethane (c),  $\mu$ g/L

13 1,127 2,253 - - - -

2B,C&D 2B,C&D 2B,C&D 3A/3B/3C 4A 4B 5 CS MS FAV IC IR LS AN

(36) Tetrachloroethylene (c), μg/L

	8.9	428	857	_	_	_	_				
(37)	(37) Toluene, μg/L										
	253	1,352	2,703	_	_	_	_				
(38) Toxaphene (c), ng/L											
	1.3	730*	1,500*	-	_	_	_				
(39)	(39) 1,1,1-Trichloroethane, μg/L										
	329	2,957	5,913	_	_	_	_				
(40)	(40) 1,1,2-Trichloroethylene (c), μg/L										
	120	6,988	13,976	_	_	_	_				
	120	0,700	15,770								
		2B,C&D MS	,	3A/3B/3C IC	4A IR	4B LS	5 AN				
(41)	2B,C&D CS	2B,C&D	2B,C&D FAV								
(41)	2B,C&D CS	2B,C&D MS	2B,C&D FAV								
	2B,C&D CS 2,4,6-Trich 2.0	2B,C&D MS	2B,C&D FAV , μg/L 203								
	2B,C&D CS 2,4,6-Trich 2.0	2B,C&D MS	2B,C&D FAV , μg/L 203								
(42)	2B,C&D CS 2,4,6-Trich 2.0 Vinyl chlo	2B,C&D MS nlorophenol 102 ride (c), µg _*	2B,C&D FAV , μg/L 203 /L								

- D. Escherichia (E.) coli bacteria shall not exceed 126 organisms per 100 milliliters as a geometric mean of not less than five samples representative of conditions within any calendar month, nor shall more than ten percent of all samples taken during any calendar month individually exceed 1,260 organisms per 100 milliliters. The standard applies only between April 1 and October 31.
  - E. For pH, maintain background. See part 7050.0222, subpart 6.
- F. For radioactive materials, see parts 7050.0222, subpart 4; and 7050.0224, subparts 2 and 3.

- G. Temperature must not exceed:
- (1) Class 2B standard: five degrees Fahrenheit above natural in streams and three degrees Fahrenheit above natural in lakes, based on monthly average of maximum daily temperature, except in no case shall it exceed the daily average temperature of 86 degrees Fahrenheit;
- (2) Class 2C standard: five degrees Fahrenheit above natural in streams and three degrees Fahrenheit above natural in lakes, based on monthly average of maximum daily temperature, except in no case shall it exceed the daily average temperature of 90 degrees Fahrenheit; and
- (3) Class 2D standard: maintain background as defined in part 7050.0222, subpart 6.
  - Subp. 6. [Repealed, 24 SR 1105]
  - Subp. 6a. Limited resource value waters and associated use classes.

A. WATER QUALITY STANDARDS APPLICABLE TO USE CLASSES 3C, 4A, 4B, 5, AND 7 SURFACE WATERS

4 4

LIMITED RESOURCE VALUE	1C	4A 1R	LS	AN	
(1) Bicarbonates (HCO	3), meq/L				
_	_	5	_	_	
(2) Boron, μg/L					
_	_	500	_	_	
(3) Chloride, mg/L					
_	250	_	_	_	
(4) Escherichia (E.) col	li bacteria, org	ganisms/100 mL	,		
See item B	_	_	_	_	
(5) Hardness, Ca+Mg a	as CaCO <sub>3</sub> , mg	/L			
_	500	_	_	_	

	7 LIMITED RESOURCE VALUE	3C 1C	4A 1R	4B LS	5 AN
(6) Hy	drogen sulfide, mg	/L			
	_	_	_	_	0.02
(7) Oxy	ygen, dissolved, m	g/L			
	See item C	_	_	_	_
(8) pH	minimum, su				
	6.0	6.0	6.0	6.0	6.0
(9) pH	maximum, su				
	9.0	9.0	8.5	9.0	9.0
(10) Ra	adioactive material	S			
	_	_	See item D	See item D	_
	7 LIMITED RESOURCE VALUE	3C 1C	4A 1R	4B LS	5 AN
(11) Sa	linity, total, mg/L				
	_	_	_	1,000	_
(12) Sc	odium, meq/L				
	_	_	60% of total cations	_	_

-	-	1,000	_	_	
(14) Sulfates, wild	rice present, mg/L				
-	-	10	_	_	
(15) Total dissolve	ed salts, mg/L				
-	-	700	_	_	
(16) Toxic pollutar	nts				
See item E	E –	_	_	_	

- B. *Escherichia (E.) coli* bacteria shall not exceed 630 organisms per 100 milliliters as a geometric mean of not less than five samples representative of conditions within any calendar month, nor shall more than ten percent of all samples taken during any calendar month individually exceed 1,260 organisms per 100 milliliters. The standard applies only between May 1 and October 31.
- C. The level of dissolved oxygen shall be maintained at concentrations that will avoid odors or putrid conditions in the receiving water or at concentrations at not less than one milligram per liter (daily average) provided that measurable concentrations are present at all times
  - D. For radioactive materials, see part 7050.0224, subparts 2 and 3.
- E. Toxic pollutants shall not be allowed in such quantities or concentrations that will impair the specified uses.

## Subp. 7. Site-specific modifications of standards.

- A. The standards in this part and in parts 7050.0221 to 7050.0227 are subject to review and modification as applied to a specific surface water body, reach, or segment. If site-specific information is available that shows that a site-specific modification is more appropriate than the statewide or ecoregion standard for a particular water body, reach, or segment, the site-specific information shall be applied.
- B. The information supporting a site-specific modification can be provided by the commissioner or by any person outside the agency. The commissioner shall evaluate all relevant data in support of a modified standard and determine whether a change in the standard for a specific water body or reach is justified.
- C. Any effluent limit determined to be necessary based on a modified standard shall only be required after the discharger has been given notice of the specific proposed effluent limits and an opportunity to request a hearing as provided in part 7000.1800.

D. Through the procedures established in items A to C, the following site-specific reservoir eutrophication standards apply to Lake Pepin (25-0001-00) in lieu of the water quality standards listed in this part and part 7050.0222:

(1) Phosphorus, total μg/L less than or equal to 100
 (2) Chlorophyll-a (seston) μg/L less than or equal to 28

Statutory Authority: MS s 115.03; 115.44

**History:** 9 SR 913; 12 SR 1810; 15 SR 1057; 18 SR 2195; 24 SR 1105; 24 SR 1133; 32 SR 1699; 39 SR 154

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