Minnesota Rules, Table of Chapters

Table of contents for Chapter 7052

7052.0100 WATER QUALITY STANDARDS.

Subpart 1. **Applicability.** The ambient water quality standards in subparts 2 to 6 are Class 2 standards for the protection of aquatic life, human health, and wildlife from the GLI pollutants. The numeric standard for a GLI pollutant includes the CS, MS, and FAV. Some pollutants do not have an MS or an FAV because of insufficient data. For these pollutants, the CS is the numeric standard. Additional standards applicable to the surface waters of the state in the Lake Superior Basin are found in chapters 7050 and 7065, including standards applicable to drinking water sources, which are listed in parts 7050.0220 and 7050.0221.

Some of the GLI pollutants listed in subparts 2 to 6 have both aquatic life and human health standards and four of the GLI pollutants have wildlife standards, as provided in tables 1 to 4 of the GLI Guidance. These standards are listed in subparts 2 to 6 to facilitate implementation of the standards under parts 7052.0200, subpart 3, and 7052.0210, subpart 1. The most stringent chronic aquatic life, human health, or wildlife standard listed is the applicable standard except when a less stringent chronic or maximum standard applies when setting an effluent limitation under part 7052.0200, subpart 3. For any aquatic life, human health, or wildlife chronic standard, a blank space in subparts 2 to 5 means no GLI standard is available and the most stringent listed chronic standard is applicable. For the aquatic life MS and FAV, blank spaces mean the GLI guidance lists no MS or FAV, and part 7050.0222 may contain an applicable MS or FAV.

Standards for metals are expressed as total metal but must be implemented as dissolved metal standards. Conversion factors for converting total to dissolved metal standards are listed in part 7052.0360, and applied under part 7052.0200, subpart 4. The conversion factor for metals not listed in part 7052.0360 is one. Standards for GLI pollutants followed by (TH) or (pH) vary with total hardness or pH. The formulas for these standards are found in subpart 6.

Subp. 2. **Water quality standards applicable to Lake Superior; Class 2A.**

Sub-stance	Units	Aquatic Life Chronic Stan-dard	Aquatic Life Maximum Stan-dard	Aquatic Life Final Acute Value	Human Health Chron-ic Stan-dard	Wild-life Chron-ic Stan-dard	Appli-cable Chron-ic Stan-dard
Arsenic, total	ug/l	148	340	680	2†		2
Benzene	ug/l				10		10

Cadmium, total (TH)	ug/l	subp 6	subp 6	subp 6			subp 6
Chlordane	pg/l				40		40
Chloro-benzene	ug/l	10†	423†	846†	278		10
Chromium III, total (TH)	ug/l	subp 6	subp 6	subp 6			subp 6
Chromium VI, total	ug/l	11	16	32			11
Copper, total (TH)	ug/l	subp 6	subp 6	subp 6			subp 6
Cyanide, free	ug/l	5.2	22	44	596		5.2
DDT	pg/l				25	11	11
Dieldrin	pg/l	56000	240000	480000	1.2		1.2
2,4-Di-methyl-phenol	ug/l	21	137	274	368		21
2,4-Dini-trophenol	ug/l	71	379	758	53		53
Endrin	ug/l	0.036	0.086	0.17	0.0039†		0.0039
Hexa-chloro-benzene	pg/l				74		74
Hexa-chloro-ethane	ug/l				1.0		1.0
Lindane	ug/l		0.95	1.9	0.08		0.08
Mercury, total	ug/l	0.91	1.7	3.4	0.00153	0.0013	0.0013
Methylene Chloride	ug/l				46		46
Nickel, total (TH)	ug/l	subp 6	subp 6	subp 6			subp 6
Parathion	ug/l	0.013	0.065	0.13			0.013
PCBs (class)	pg/l				4.5	122	4.5

Penta-chloro-phenol (pH)	ug/l		subp 6	subp 6	0.93†		0.93
Selenium, total	ug/l	5.0	20†	40†			5.0
2,3,7,8-TCDD	pg/l				0.0014	0.0031	0.0014
Toluene	ug/l	253†	1352†	2703†	3725		253
Toxaphene	pg/l				11		11
Trichlor-oethylene	ug/l				22		22
Zinc, total (TH)	ug/l	subp 6	subp 6	subp 6			subp 6

†this standard or FAV was derived under chapter 7050.

Subp. 3. **Water quality standards applicable to Class 2A waters other than Lake Superior.**

Sub-stance	Units	Aquatic Life Chronic Stan-dard	Aquatic Life Maximum Stan-dard	Aquatic Life Final Acute Value	Human Health Chron-ic Stan-dard	Wild-life Chron-ic Stan-dard	Appli-cable Chron-ic Stan-dard
Arsenic, total	ug/l	148	340	680	2†		2
Benzene	ug/l				11		11
Cadmium, total (TH)	ug/l	subp 6	subp 6	subp 6			subp 6
Chlordane	pg/l				56		56
Chloro-benzene	ug/l	10†	423†	846†	324		10
Chromium III, total (TH)	ug/l	subp 6	subp 6	subp 6			subp 6
Chromium VI, total	ug/l	11	16	32			11
Copper, total (TH)	ug/l	subp 6	subp 6	subp 6			subp 6
Cyanide, free	ug/l	5.2	22	44	596		5.2

DDT	pg/l				35	11	11
Dieldrin	pg/l	56000	240000	480000	1.6		1.6
2,4-Di-methyl-phenol	ug/l	21	137	274	391		21
2,4-Dini-trophenol	ug/l	71	379	758	53		53
Endrin	ug/l	0.036	0.086	0.17	0.0039†		0.0039
Hexa-chloro-benzene	pg/l				105		105
Hexa-chloro-ethane	ug/l				1.5		1.5
Lindane	ug/l		0.95	1.9	0.11		0.11
Mercury, total	ug/l	0.91	1.7	3.4	0.00153	0.0013	0.0013
Methylene Chloride	ug/l				46		46
Nickel, total (TH)	ug/l	subp 6	subp 6	subp 6			subp 6
Parathion	ug/l	0.013	0.065	0.13			0.013
PCBs (class)	pg/l				6.3	122	6.3
Penta-chloro-phenol (pH)	ug/l		subp 6	subp 6	0.93†		0.93
Selenium, total	ug/l	5.0	20†	40†			5.0
2,3,7,8-TCDD	pg/l				0.0020	0.0031	0.0020
Toluene	ug/l	253†	1352†	2703†	4214		253
Toxaphene	pg/l				15		15
Trichlor-oethylene	ug/l				24		24
Zinc, total (TH)	ug/l	subp 6	subp 6	subp 6			subp 6

†this standard or FAV was derived under chapter 7050.

Subp. 4. **Water quality standards applicable to Class 2Bd waters.**

Sub-stance	Units	Aquatic Life Chronic Stan-dard	Aquatic Life Maximum Stan-dard	Aquatic Life Final Acute Value	Human Health Chron-ic Stan-dard	Wild-life Chron-ic Stan-dard	Appli-cable Chron-ic Stan-dard
Arsenic, total	ug/l	148	340	680	2†		2
Benzene	ug/l				12		12
Cadmium, total (TH)	ug/l	subp 6	subp 6	subp 6			subp 6
Chlordane	pg/l				225		225
Chloro-benzene	ug/l	10†	423†	846†	461		10
Chromium III, total (TH)	ug/l	subp 6	subp 6	subp 6			subp 6
Chromium VI, total	ug/l	11	16	32			11
Copper, total (TH)	ug/l	subp 6	subp 6	subp 6			subp 6
Cyanide, free	ug/l	5.2	22	44	596		5.2
DDT	pg/l				142	11	11
Dieldrin	pg/l	56000	240000	480000	6.5		6.5
2,4-Di-methyl-phenol	ug/l	21	137	274	441		21
2,4-Dini-trophenol	ug/l	71	379	758	55		55
Endrin	ug/l	0.036	0.086	0.17	0.016†		0.016
Hexa-chloro-benzene	pg/l				418		418
Hexa-chloro-ethane	ug/l				5.0		5.0
Lindane	ug/l		0.95	1.9	0.43		0.43

Mercury, total	ug/l	0.91	1.7	3.4	0.00153	0.0013	0.0013
Methylene Chloride	ug/l				47		47
Nickel, total (TH)	ug/l	subp 6	subp 6	subp 6			subp 6
Parathion	ug/l	0.013	0.065	0.13			0.013
PCBs (class)	pg/l				25.2	122	25.2
Penta-chloro-phenol (pH)	ug/l		subp 6	subp 6	1.9†		1.9
Selenium, total	ug/l	5.0	20†	40†			5.0
2,3,7,8-TCDD	pg/l				0.0080	0.0031	0.0031
Toluene	ug/l	253†	1352†	2703†	5517		253
Toxaphene	pg/l				62		62
Trichlor-oethylene	ug/l				29		29
Zinc, total (TH)	ug/l	subp 6	subp 6	subp 6			subp 6

†this standard or FAV was derived under chapter 7050.

Subp. 5. **Water quality standards applicable to Class 2B, 2C, and 2D waters.**

Sub-stance	Units	Aquatic Life Chronic Stan-dard	Aquatic Life Maximum Stan-dard	Aquatic Life Final Acute Value	Human Health Chron-ic Stan-dard	Wild-life Chron-ic Stan-dard	Appli-cable Chron-ic Stan-dard
Arsenic, total	ug/l	148	340	680	53†		53
Benzene	ug/l	114†	4487†	8974†	237		114
Cadmium, total (TH)	ug/l	subp 6	subp 6	subp 6			subp 6
Chlordane	pg/l				225		225
Chloro-benzene	ug/l	10†	423†	846†	2916		10

Chromium III, total (TH)	ug/l	subp 6	subp 6	subp 6			subp 6
Chromium VI, total	ug/l	11	16	32			11
Copper, total (TH)	ug/l	subp 6	subp 6	subp 6			subp 6
Cyanide, free	ug/l	5.2	22	44	30240		5.2
DDT	pg/l				142	11	11
Dieldrin	pg/l	56000	240000	480000	6.5		6.5
2,4-Di-methyl-phenol	ug/l	21	137	274	7182		21
2,4-Dini-trophenol	ug/l	71	379	758	1982		71
Endrin	ug/l	0.036	0.086	0.17	0.016†		0.016
Hexa-chloro-benzene	pg/l				419		419
Hexa-chloro-ethane	ug/l				6.2		6.2
Lindane	ug/l		0.95	1.9	0.46		0.46
Mercury, total	ug/l	0.91	1.7	3.4	0.00153	0.0013	0.0013
Methylene Chloride	ug/l	1561†	9600†	19200†	1994		1561
Nickel, total (TH)	ug/l	subp 6	subp 6	subp 6			subp 6
Parathion	ug/l	0.013	0.065	0.13			.013
PCBs (class)	pg/l				25.2	122	25.2
Penta-chloro-phenol (pH)	ug/l	subp 6	subp 6	subp 6	5.5†		subp 6
Selenium, total	ug/l	5.0	20†	40†			5.0
2,3,7,8-TCDD	pg/l				0.0080	0.0031	0.0031

Toluene	ug/l	253†	1352†	2703†	45679		253
Toxaphene	pg/l				62		62
Trichloroethylene	ug/l				330		330
Zinc, total (TH)	ug/l	subp 6	subp 6	subp 6			subp 6

†this standard or FAV was derived under chapter 7050.

Subp. 6. **Water quality standards that vary with water quality characteristics.**

A. Class 2 standards that vary with total hardness (TH) applicable to all surface waters of the state in the Lake Superior Basin are listed in this subpart. Total hardness is the sum of the calcium and magnesium concentrations expressed as calcium carbonate in mg/l. For ambient or effluent total hardness values greater than 400 mg/l, 400 mg/l must be used in the calculation of the standard. Exp. is the base e exponential function.

Cadmium, total	Formula, results in ug/l	Example standards at hardness of: 50	100	200	300	400
Chronic standard	exp.(0.7852[ln (TH mg/l)]-2.715)	1.4	2.5	4.2	5.8	7.3
Maximum standard	exp.(1.128[ln (TH mg/l)]-3.6867)	2.1	4.5	9.9	16	22
Final acute value	exp.(1.128[ln (TH mg/l)]-2.9935)	4.1	9.0	20	31	43

Chromium III, total	Formula, results in ug/l	Example standards at hardness of: 50	100	200	300	400
Chronic standard	exp.(0.819[ln (TH mg/l)]+0.6848)	49	86	152	212	268
Maximum standard	exp.(0.819[ln (TH mg/l)]+3.7256)	1022	1803	3181	4434	5612
Final acute value	exp.(0.819[ln (TH mg/l)]+4.4187)	2044	3606	6362	8867	11223

Copper, total	Formula, results in ug/l	Example standards at hardness of: 50	100	200	300	400
Chronic standard	exp.(0.8545[ln (TH mg/l)]-1.702)	5.2	9.3	17	24	30
Maximum standard	exp.(0.9422[ln (TH mg/l)]-1.700)	7.3	14	27	39	52
Final acute value	exp.(0.9422[ln (TH mg/l)]-1.0069)	15	28	54	79	103

Nickel, total	Formula, results in ug/l	Example standards at hardness of: 50	100	200	300	400
Chronic standard	exp.(0.846[ln (TH mg/l)]+0.0584)	29	52	94	132	169
Maximum standard	exp.(0.846[ln (TH mg/l)]+2.255)	261	469	843	1188	1516
Final acute value	exp.(0.846[ln (TH mg/l)]+2.9481)	522	938	1687	2377	3032

Zinc, total	Formula, results in ug/l	Example standards at hardness of: 50	100	200	300	400
Chronic standard	exp.(0.8473[ln (TH mg/l)]+0.884)	67	120	216	304	388
Maximum standard	exp.(0.8473[ln (TH mg/l)]+0.884)	67	120	216	304	388
Final acute value	exp.(0.8473[ln (TH mg/l)]+1.5772)	133	240	431	608	776

B. Standards that vary with pH applicable to Lake Superior, other Class 2A and 2Bd waters in the Lake Superior Basin are listed in this subpart. Exp. is the base e exponential function.

Pentachloro-phenol	Formula, results in ug/l	Example standards at pH of: 6.5	7.0	7.5	8.0	8.5

Maximum standard	exp.(1.005[pH]-4.869)	5.3	8.7	14	24	39
Final acute value	exp.(1.005[pH]-4.175)	11	17	29	48	79

C. Standards that vary with pH applicable to Class 2B, 2C, and 2D waters in the Lake Superior Basin are listed in this subpart. Exp. is the base e exponential function.

Pentachloro-phenol	Formula, results in ug/l	Example standards at pH of: 6.5	7.0	7.5	8.0	8.5
Chronic standard	exp.(1.005[pH]-5.134) not to exceed 5.5 ug/l	4.0	5.5	5.5	5.5	5.5
Maximum standard	exp.(1.005[pH]-4.869)	5.3	8.7	14	24	39
Final acute value	exp.(1.005[pH]-4.175)	11	17	29	48	79

STAT AUTH: MS s 115.03; 115.44

HIST: 22 SR 1466

Current as of 06/16/05