

Pollution Control Agency**Proposed Permanent Rules Relating to Lake Water Quality****7050.0150 DETERMINING WATER QUALITY, BIOLOGICAL AND PHYSICAL CONDITIONS, AND COMPLIANCE WITH STANDARDS.**

[For text of subparts 1 to 3, see Minnesota Rules]

Subp. 4. **Definitions.** For the purposes of this chapter and chapter 7053, the following terms have the meanings given them.

[For text of items A to J, see Minnesota Rules]

K. "Dimictic lake" means a lake that mixes twice a year, in the spring and fall, and is stratified during the summer and winter.

~~K.~~ L. "Ecoregion" means an area of relative homogeneity in ecological systems based on similar soils, land use, land surface form, and potential natural vegetation. Minnesota ecoregions are shown on the map in part 7050.0468.

~~L.~~ M. "Eutrophication" means the increased productivity of the biological community in water bodies in response to increased nutrient loading. Eutrophication is characterized by increased growth and abundance of algae and other aquatic plants, reduced water transparency, reduction or loss of dissolved oxygen, and other chemical and biological changes. The acceleration of eutrophication due to excess nutrient loading from human sources and activities, called cultural eutrophication, causes a degradation of water quality and possible loss of beneficial uses.

~~M.~~ N. "Eutrophication standard" means the combination of indicators of enrichment and indicators of response as described in subpart 5. The indicators upon which the eutrophication standard for specific water bodies are based are as provided under subparts 5a to 5c.

O. "Geometry ratio" means a measure of a lake's geometric characteristics used as evidence to determine if a lake is polymictic or dimictic. The calculation used to determine lake stratification type for the purpose of assessing eutrophication standards in Minnesota is calculated as the fourth root of lake surface area (m^2) divided by maximum depth (m) ($A_0^{0.25}/Z_{max}$, where A_0 is lake surface area and Z_{max} is maximum depth).

~~N. P.~~ "Hydraulic residence time" means the time water resides in a basin or, alternately, the time it would take to fill the basin if it were empty.

~~Q. Q.~~ "Impaired water" or "impaired condition" means a water body that does not meet applicable water quality standards or fully support applicable beneficial uses, due in whole or in part to water pollution from point or nonpoint sources, or any combination thereof.

~~P. R.~~ "Index of biotic integrity," "index of biological integrity, " or "IBI" means an index developed by measuring attributes of an aquatic community that change in quantifiable and predictable ways in response to human disturbance, representing the health of that community.

~~Q. S.~~ "Lake" means an enclosed basin filled or partially filled with standing fresh water with a maximum depth greater than 15 feet. Lakes may have no inlet or outlet, an inlet or outlet, or both an inlet and outlet.

~~R. T.~~ "Lake morphometry" means the physical characteristics of the lake basin that are reasonably necessary to determine the shape of a lake, such as maximum length and width, maximum and mean depth, area, volume, and shoreline configuration.

U. "Lentic water" means a standing water body, such as a lake, pond, wetland, swamp, or bog.

~~S. V.~~ "Lotic water" means a flowing or moving water body such as a stream, river, or ditch.

~~¶~~ W. "Mixing status" means the frequency of complete mixing of the lake water from surface to bottom, which is determined by whether temperature gradients are established and maintained in the water column during the summer season.

~~¶~~ X. "Measurable increase" or "measurable impact" means a change in trophic status that can be discerned above the normal variability in water quality data using a weight of evidence approach. The change in trophic status does not require a demonstration of statistical significance to be considered measurable. Mathematical models may be used as a tool in the data analysis to help predict changes in trophic status.

~~¶~~ Y. "Natural causes" means the multiplicity of factors that determine the physical, chemical, or biological conditions that would exist in a water body in the absence of measurable impacts from human activity or influence.

~~¶~~ Z. "Normal aquatic biota" and "normally present" mean a healthy aquatic community expected to be present in the water body in the absence of pollution of the water, consistent with any variability due to natural hydrological, substrate, habitat, or other physical and chemical characteristics. Expected presence is based on comparing the aquatic community in the water body of interest to the aquatic community in representative reference water bodies.

~~¶~~ AA. "Nuisance algae bloom" means an excessive population of algae that is characterized by obvious green or blue-green pigmentation in the water, floating mats of algae, reduced light transparency, aesthetic degradation, loss of recreational use, possible harm to the aquatic community, or possible toxicity to animals and humans. Algae blooms are measured through tests for chlorophyll-a, observations of Secchi disk transparency, and observations of impaired recreational and aesthetic conditions by the users of the water body, or any other reliable data that identifies the population of algae in an aquatic community.

BB. "Oxythermal habitat" means a measure of temperature and dissolved oxygen in a water column of a lake where both dissolved oxygen and temperature are suitable to support aquatic life.

~~YY. CC.~~ "Periphyton" means algae on the bottom of a water body. In rivers or streams, these forms are typically found attached to logs, rocks, or other substrates, but when dislodged the algae will become part of the seston.

DD. "Polymictic lake" means a lake with frequent mixing of the water column during the ice-free period.

~~ZZ. EE.~~ "Readily available and reliable data and information" means chemical, biological, and physical data and information determined by the commissioner to meet the quality assurance and quality control requirements in subpart 8, that are not more than ten years old from the time they are used for the assessment. A subset of data in the ten-year period, or data more than ten years old can be used if credible scientific evidence shows that these data are representative of current conditions.

~~AA. FF.~~ "Reference water body" means a water body minimally or least impacted by point or nonpoint sources of pollution that is representative of water bodies of a similar surface water body type and within a geographic region such as an ecoregion or watershed. Reference water bodies are used as a base for comparing the quality of similar water bodies in the same geographic region.

~~BB. GG.~~ "Reservoir" means a body of water in a natural or artificial basin or watercourse where the outlet or flow is artificially controlled by a structure such as a dam. Reservoirs are distinguished from river systems by having a hydraulic residence time of at least 14 days. For purposes of this item, residence time is determined using a flow equal to the 122Q₁₀ for the months of June through September.

~~CC.~~ HH. "River nutrient region" means the geographic basis for regionalizing the river eutrophication criteria as described in Heiskary, S. and K. Parson, Regionalization of Minnesota's Rivers for Application of River Nutrient Criteria, Minnesota Pollution Control Agency (2013), which is incorporated by reference. The document is not subject to frequent change and is available through the Minitex interlibrary loan system.

~~DD.~~ II. "Secchi disk" means a tool that is used to measure the transparency of lake water. A Secchi disk is an eight-inch weighted disk on a calibrated rope, either white or with quadrants of black and white. To measure water transparency with a Secchi disk, the disk is viewed from the shaded side of a boat. The depth of the water at the point where the disk reappears upon raising it after it has been lowered beyond visibility is recorded.

~~EE.~~ JJ. "Secchi disk transparency" means the transparency of water as measured by a Secchi disk, a Secchi tube, or a transparency tube.

~~FF.~~ KK. "Secchi tube" means a tool that is used to measure the transparency of stream or river water. A Secchi tube is a clear plastic tube, one meter in length and 1-3/4 inch in diameter, with a mini-Secchi disk on a string. To measure water transparency, the tube is filled with water collected from a stream or river and, looking into the tube from the top, the weighted Secchi disk is lowered into the tube by a string until it disappears and then raised until it reappears, allowing the user to raise and lower the disk within the same water sample numerous times. The depth of the water at the midpoint between disappearance and reappearance of the disk is recorded in centimeters, which are marked on the side of the tube. If the Secchi disk is visible when it is lowered to the bottom of the tube, the transparency reading is recorded as "greater than 100 centimeters."

~~GG.~~ LL. "Seston" means particulate matter suspended in water bodies and includes plankton and organic and inorganic matter.

~~HH.~~ MM. "Shallow lake" means an enclosed basin filled or partially filled with standing fresh water with a maximum depth of 15 feet or less or with 80 percent or more

of the lake area shallow enough to support emergent and submerged rooted aquatic plants (the littoral zone). It is uncommon for shallow lakes to thermally stratify during the summer. The quality of shallow lakes will permit the propagation and maintenance of a healthy indigenous aquatic community and they will be suitable for boating and other forms of aquatic recreation for which they may be usable. Shallow lakes are differentiated from wetlands and lakes on a case-by-case basis. Wetlands are defined in part 7050.0186, subpart 1a.

~~HH.~~ NN. "Summer-average" means a representative average of concentrations or measurements of nutrient enrichment factors, taken over one summer season.

~~JJ.~~ OO. "Summer season" means a period annually from June 1 through September 30.

~~KK.~~ PP. "Transparency tube" means a tool that is used to measure the transparency of stream or river water. A transparency tube is a graduated clear plastic tube, 24 inches or more in length by 1-1/2 inches in diameter, with a stopper at the bottom end. The inside surface of the stopper is painted black and white. To measure water transparency, the tube is filled with water from a surface water; the water is released through a valve at the bottom end until the painted surface of the stopper is just visible through the water column when viewed from the top of the tube. The depth, in centimeters, is noted. More water is released until the screw in the middle of the painted symbol on the stopper is clearly visible; this depth is noted. The two observed depths are averaged to obtain a transparency measurement.

~~LL.~~ QQ. "Trophic status or condition" means the productivity of a lake as measured by the phosphorus content, algae abundance, and depth of light penetration.

~~MM.~~ RR. "Use attainability analysis" means a structured scientific assessment of the physical, chemical, biological, and economic factors affecting attainment of the uses of water bodies. A use attainability analysis is required to remove a designated use specified in section 101(a)(2) of the Clean Water Act that is not an existing use. The allowable reasons

for removing a designated use are described in Code of Federal Regulations, title 40, section 131.10 (g).

~~NN.~~ SS. "Water body" means a lake, reservoir, wetland, or a geographically defined portion of a river or stream.

~~ΘΘ.~~ TT. "Water body type" means a group of water bodies with similar natural physical, chemical, and biological attributes, where the characteristics are similar among water bodies within each type and distinct from water bodies of other types.

[For text of subpart 5, see Minnesota Rules]

Subp. 5a. **Impaired condition; lakes, ~~shallow lakes,~~ and reservoirs.**

A. For lakes, ~~shallow lakes,~~ and reservoirs, a finding of an impaired condition must be supported by data showing:

[For text of subitems (1) and (2), see Minnesota Rules]

[For text of items B and C, see Minnesota Rules]

[For text of subparts 5b and 5c, see Minnesota Rules]

Subp. 6. **Impairment of biological community and aquatic habitat.** In evaluating whether the narrative standards in subpart 3, which prohibit serious impairment of the normal aquatic biota and the use thereof, material alteration of the species composition, material degradation of stream beds, and the prevention or hindrance of the propagation and migration of aquatic biota normally present, are being met, the commissioner will consider all readily available and reliable data and information for the following factors of use impairment:

[For text of items A to C, see Minnesota Rules]

D. a quantitative or qualitative assessment of habitat quality, determined by an assessment of:

[For text of subitems (1) to (5), see Minnesota Rules]

(6) types of land use in the watershed; ~~and~~

(7) oxythermal habitat; and

~~(7)~~ (8) other scientifically accepted and valid factors of habitat quality; and

E. any other scientifically objective, credible, and supportable factors.

A finding of an impaired condition must be supported by data for the factors listed in at least one of items A to C. The biological quality of any given surface water body will be assessed by comparison to the biological conditions determined by the commissioner using a biological condition gradient model or a set of reference water bodies which best represents the most natural condition for that surface water body type within a geographic region.

[For text of subparts 7 and 8, see Minnesota Rules]

7050.0220 SPECIFIC WATER QUALITY STANDARDS BY ASSOCIATED USE CLASSES.

[For text of subparts 1 to 5, see Minnesota Rules]

Subp. 5a. **Cool and warm water aquatic life and habitat and associated use classes.** Water quality standards applicable to use classes 2B, 2Be, 2Bg, 2Bm, or 2D; 3; 4A and 4B; and 5 surface waters. See part 7050.0225, subpart 2, for class 3 and 5 standards applicable to wetlands. The water quality standards in part 7050.0222, subpart 4, that apply to class 2B also apply to classes 2Be, 2Bg, and 2Bm. In addition to the water quality standards in part 7050.0222, subpart 4, the biological criteria defined in part 7050.0222, subpart 4d, apply to classes 2Be, 2Bg, and 2Bm.

A. MISCELLANEOUS SUBSTANCE, CHARACTERISTIC, OR POLLUTANT

2B&D	2B&D	2B&D	4A	4B	5
CS	MS	FAV	IR	LS	AN

[For text of subitems (1) to (5), see Minnesota Rules]

(6) Eutrophication standards for lakes, ~~shallow lakes~~, and reservoirs (phosphorus, total, µg/L; chlorophyll-a, µg/L; Secchi disk transparency, meters)

See part	--	--	--	--	--
7050.0222,					
subparts					
4 and 4a					

[For text of subitems (7) to (20), see Minnesota Rules]

[For text of items B to H, see Minnesota Rules]

[For text of subparts 6 to 7, see Minnesota Rules]

7050.0222 SPECIFIC WATER QUALITY STANDARDS FOR CLASS 2 WATERS OF THE STATE; AQUATIC LIFE AND RECREATION.

[For text of subpart 1, see Minnesota Rules]

Subp. 2. **Class 2A waters; aquatic life and recreation.** The quality of class 2A surface waters shall be such as to permit the propagation and maintenance of a healthy community of coldwater aquatic biota, and their habitats according to the definitions in subpart 2c. These waters shall be suitable for aquatic recreation of all kinds, including bathing, for which the waters may be usable. This class of surface waters is also protected as a source of drinking water. Abbreviations, acronyms, and symbols are explained in subpart 1.

Substance, Characteristic, or Pollutant (Class 2A)	Units	CS	Basis for CS	MS	FAV	Basis for MS, FAV
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Acenaphthene	µg/L	20	HH	56	112	Tox
Acetochlor	µg/L	3.6	Tox	86	173	Tox
Acrylonitrile (c)	µg/L	0.38	HH	1,140*	2,281*	Tox
Alachlor (c)	µg/L	3.8	HH	800*	1,600*	Tox
Aluminum, total	µg/L	87	Tox	748	1,496	Tox
Ammonia un-ionized as N	µg/L	16	Tox	--	--	NA

The percent un-ionized ammonia can be calculated for any temperature and pH by using the following equation taken from Emerson, K., R.C. Russo, R.E. Lund, and R.V. Thurston, Aqueous ammonia equilibrium calculations; effect of pH and temperature. Journal of the Fisheries Research Board of Canada 32: 2379-2383 (1975):

$$f = \frac{1}{10^{(pk_a - pH)} + 1} \times 100$$

where: f = the percent of total ammonia in the un-ionized state

$pk_a = 0.09 + (2730/T)$ (dissociation constant for ammonia)

T = temperature in degrees Kelvin (273.16° Kelvin = 0° Celsius)

Substance, Characteristic, or Pollutant (Class 2A)	Units	CS	Basis for CS	MS	FAV	Basis for MS, FAV
Anthracene	µg/L	0.035	Tox	0.32	0.63	Tox
Antimony, total	µg/L	5.5	HH	90	180	Tox
Arsenic, total	µg/L	2.0	HH	360	720	Tox
Atrazine (c)	µg/L	3.4	HH	323	645	Tox
Benzene (c)	µg/L	5.1	HH	4,487*	8,974*	Tox
Bromoform	µg/L	33	HH	2,900	5,800	Tox
Cadmium, total	µg/L	equation	Tox	equation	equation	Tox

The CS, MS, and FAV vary with total hardness and are calculated using the following equations:

The CS in µg/L shall not exceed: $\exp.(0.7852[\ln(\text{total hardness mg/L})]-3.490)$

The MS in µg/L shall not exceed: $\exp.(1.128[\ln(\text{total hardness mg/L})]-3.828)$

The FAV in µg/L shall not exceed: $\exp.(1.128[\ln(\text{total hardness mg/L})]-3.1349)$

Where: exp. is the natural antilogarithm (base e) of the expression in parenthesis.

For hardness values greater than 400 mg/L, 400 mg/L shall be used to calculate the standard.

Example of total cadmium standards for five hardness values:

TH in mg/L	50	100	200	300	400
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Cadmium, total

CS µg/L	0.66	1.1	2.0	2.7	3.4
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MS µg/L	1.8	3.9	8.6	14	19
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FAV µg/L	3.6	7.8	17	27	37
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Substance, Characteristic, or Pollutant (Class 2A)	Units	CS	Basis for CS	MS	FAV	Basis for MS, FAV
Carbon tetrachloride (c)	µg/L	1.9	HH	1750*	3500*	Tox
Chlordane (c)	ng/L	0.073	HH	1200*	2400*	Tox
Chloride	mg/L	230	Tox	860	1720	Tox
Chlorine, total residual	µg/L	11	Tox	19	38	Tox

Chlorine standard applies to conditions of continuous exposure, where continuous exposure refers to chlorinated effluents that are discharged for more than a total of two hours in any 24-hour period.

Chlorobenzene (Monochlorobenzene)	µg/L	20	HH	423	846	Tox
Chloroform (c)	µg/L	53	HH	1,392	2,784	Tox
Chlorpyrifos	µg/L	0.041	Tox	0.083	0.17	Tox
Chromium +3, total	µg/L	equation	Tox	equation	equation	Tox

The CS, MS, and FAV vary with total hardness and are calculated using the following equations:

The CS in µg/L shall not exceed: $\exp.(0.819[\ln(\text{total hardness mg/L})]+1.561)$

The MS in µg/L shall not exceed: $\exp.(0.819[\ln(\text{total hardness mg/L})]+3.688)$

The FAV in µg/L shall not exceed: $\exp.(0.819[\ln(\text{total hardness mg/L})]+4.380)$

Where: exp. is the natural antilogarithm (base e) of the expression in parenthesis.

For hardness values greater than 400 mg/L, 400 mg/L shall be used to calculate the standard.

Example of total chromium +3 standards for five total hardness values:

TH in mg/L	50	100	200	300	400
Chromium +3, total					
CS µg/L	117	207	365	509	644
MS µg/L	984	1,737	3,064	4,270	5,405
FAV µg/L	1,966	3,469	6,120	8,530	10,797

Substance, Characteristic, or Pollutant (Class 2A)	Units	CS	Basis for CS	MS	FAV	Basis for MS, FAV
Chromium +6, total	µg/L	11	Tox	16	32	Tox
Cobalt, total	µg/L	2.8	HH	436	872	Tox
Color value	Pt/Co	30	NA	--	--	NA
Copper, total	µg/L	equation	Tox	equation	equation	Tox

The CS, MS, and FAV vary with total hardness and are calculated using the following equations:

The CS in µg/L shall not exceed: $\exp.(0.620[\ln(\text{total hardness mg/L})]-0.570)$

The MS in µg/L shall not exceed: $\exp.(0.9422[\ln(\text{total hardness mg/L})]-1.464)$

The FAV in µg/L shall not exceed: $\exp.(0.9422[\ln(\text{total hardness mg/L})]-0.7703)$

Where: exp. is the natural antilogarithm (base e) of the expression in parenthesis.

For hardness values greater than 400 mg/L, 400 mg/L shall be used to calculate the standard.

Example of total copper standards for five total hardness values:

TH in mg/L	50	100	200	300	400
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Copper, total

CS µg/L	6.4	9.8	15	19	23
MS µg/L	9.2	18	34	50	65
FAV µg/L	18	35	68	100	131

Substance, Characteristic, or Pollutant (Class 2A)	Units	CS	Basis for CS	MS	FAV	Basis for MS, FAV
Cyanide, free	µg/L	5.2	Tox	22	45	Tox
DDT (c)	ng/L	0.11	HH	550*	1100*	Tox
1,2-Dichloroethane (c)	µg/L	3.5	HH	45,050*	90,100*	Tox
Dieldrin (c)	ng/L	0.0065	HH	1,300*	2,500*	Tox
Di-2-ethylhexyl phthalate (c)	µg/L	1.9	HH	--*	--*	NA
Di-n-octyl phthalate	µg/L	30	Tox	825	1,650	Tox
Endosulfan	µg/L	0.0076	HH	0.084	0.17	Tox
Endrin	µg/L	0.0039	HH	0.090	0.18	Tox
<i>Escherichia (E.) coli</i>	See below	See below	HH	See below	See below	NA

Not to 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.

Ethylbenzene	µg/L	68	Tox	1,859	3,717	Tox
Substance, Characteristic, or Pollutant (Class 2A)	Units	CS	Basis for CS	MS	FAV	Basis for MS, FAV

Eutrophication standards for aquatic life assigned to class 2A lakes and reservoirs.

Designated lake trout lakes in all ecoregions (lake trout lakes support ~~natural~~ populations of lake trout, *Salvelinus namaycush*):

Phosphorus, total	µg/L	12 <u>7</u>	NA	--	--	NA
Chlorophyll-a	µg/L	3	NA	--	--	NA
Secchi disk transparency	meters	No less than 4.8 <u>3.5</u>	NA	--	--	NA

Designated lake whitefish lakes in all ecoregions (lake whitefish lakes support populations of lake whitefish, *Coregonus clupeaformis*):

<u>Phosphorus, total</u>	<u>µg/L</u>	<u>12</u>	<u>NA</u>	<u>--</u>	<u>--</u>	<u>NA</u>
<u>Chlorophyll-a</u>	<u>µg/L</u>	<u>5</u>	<u>NA</u>	<u>--</u>	<u>--</u>	<u>NA</u>
<u>Secchi disk transparency</u>	<u>meters</u>	<u>No less than 2.8</u>	<u>NA</u>	<u>--</u>	<u>--</u>	<u>NA</u>

Designated cisco lakes in the Northern Lakes and Forests and Northern Minnesota Wetlands Ecoregions (cisco lakes support populations of cisco, *Coregonus artedii*):

<u>Phosphorus, total</u>	<u>µg/L</u>	<u>20</u>	<u>NA</u>	<u>--</u>	<u>--</u>	<u>NA</u>
<u>Chlorophyll-a</u>	<u>µg/L</u>	<u>9</u>	<u>NA</u>	<u>--</u>	<u>--</u>	<u>NA</u>
<u>Secchi disk transparency</u>	<u>meters</u>	<u>No less than 1.8</u>	<u>NA</u>	<u>--</u>	<u>--</u>	<u>NA</u>

Designated cisco lakes in all other ecoregions (cisco lakes support populations of cisco, *Coregonus artedii*):

<u>Phosphorus, total</u>	<u>µg/L</u>	<u>25</u>	<u>NA</u>	<u>--</u>	<u>--</u>	<u>NA</u>
<u>Chlorophyll-a</u>	<u>µg/L</u>	<u>12</u>	<u>NA</u>	<u>--</u>	<u>--</u>	<u>NA</u>
<u>Secchi disk transparency</u>	<u>meters</u>	<u>No less than 1.3</u>	<u>NA</u>	<u>--</u>	<u>--</u>	<u>NA</u>

Designated ~~stream~~ trout lakes in all ecoregions, ~~except lake trout lakes~~ (stream trout lakes support or are managed for stream trout species, such as brook trout, rainbow trout, and brown trout, or trout hybrids, such as splake):

Phosphorus, total	µg/L	20 <u>15</u>	NA	--	--	NA
Chlorophyll-a	µg/L	6	NA	--	--	NA
Secchi disk transparency	meters	No less than 2.5	NA	--	--	NA

Eutrophication standards for recreation assigned to class 2A lakes and reservoirs.

Lakes and reservoirs in the Northern Lakes and Forest and Northern Minnesota Wetlands Ecoregions:

<u>Phosphorus, total</u>	<u>µg/L</u>	<u>20</u>	<u>NA</u>	<u>--</u>	<u>--</u>	<u>NA</u>
<u>Chlorophyll-a</u>	<u>µg/L</u>	<u>9</u>	<u>NA</u>	<u>--</u>	<u>--</u>	<u>NA</u>
<u>Secchi disk transparency</u>	<u>meters</u>	<u>No less than 1.8</u>	<u>NA</u>	<u>--</u>	<u>--</u>	<u>NA</u>

Lakes and reservoirs in the North Central Hardwood Forest Ecoregion:

<u>Phosphorus, total</u>	<u>µg/L</u>	<u>40</u>	<u>NA</u>	<u>--</u>	<u>--</u>	<u>NA</u>
<u>Chlorophyll-a</u>	<u>µg/L</u>	<u>14</u>	<u>NA</u>	<u>--</u>	<u>--</u>	<u>NA</u>
<u>Secchi disk transparency</u>	<u>meters</u>	<u>No less than 1.4</u>	<u>NA</u>	<u>--</u>	<u>--</u>	<u>NA</u>

Additional narrative eutrophication standards for class 2A lakes and reservoirs are found under subpart 2a.

Eutrophication standards for class 2A rivers and streams.

North River Nutrient Region:

Phosphorus, total	µg/L	less than or equal to 50
Chlorophyll-a (seston)	µg/L	less than or equal to 7
Diel dissolved oxygen flux	mg/L	less than or equal to 3.0
Biochemical oxygen demand (BOD ₅)	mg/L	less than or equal to 1.5

Central River Nutrient Region:

Phosphorus, total	µg/L	less than or equal to 100
Chlorophyll-a (seston)	µg/L	less than or equal to 18
Diel dissolved oxygen flux	mg/L	less than or equal to 3.5
Biochemical oxygen demand (BOD ₅)	mg/L	less than or equal to 2.0

South River Nutrient Region:

Phosphorus, total	µg/L	less than or equal to 150
Chlorophyll-a (seston)	µg/L	less than or equal to 35
Diel dissolved oxygen flux	mg/L	less than or equal to 4.5
Biochemical oxygen demand (BOD ₅)	mg/L	less than or equal to 3.0

Additional narrative eutrophication standards for class 2A rivers and streams are found under subpart 2b.

Substance, Characteristic, or Pollutant (Class 2A)	Units	CS	Basis for CS	MS	FAV	Basis for MS, FAV
Fluoranthene	µg/L	1.9	Tox	3.5	6.9	Tox
Heptachlor (c)	ng/L	0.10	HH	260*	520*	Tox
Heptachlor epoxide (c)	ng/L	0.12	HH	270*	530*	Tox
Hexachlorobenzene (c)	ng/L	0.061	HH	--*	--*	Tox
Lead, total	µg/L	equation	Tox	equation	equation	Tox

The CS, MS, and FAV vary with total hardness and are calculated using the following equations:

The CS in µg/L shall not exceed: $\exp.(1.273[\ln(\text{total hardness mg/L})]-4.705)$

The MS in µg/L shall not exceed: $\exp.(1.273[\ln(\text{total hardness mg/L})]-1.460)$

The FAV in µg/L shall not exceed: $\exp.(1.273[\ln(\text{total hardness mg/L})]-0.7643)$

Where: exp. is the natural antilogarithm (base e) of the expression in parenthesis.

For hardness values greater than 400 mg/L, 400 mg/L shall be used to calculate the standard.

Example of total lead standards for five total hardness values:

TH in mg/L	50	100	200	300	400
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Lead, total

CS µg/L	1.3	3.2	7.7	13	19
MS µg/L	34	82	197	331	477
FAV µg/L	68	164	396	663	956

Substance, Characteristic, or Pollutant (Class 2A)	Units	CS	Basis for CS	MS	FAV	Basis for MS, FAV
Lindane (c) (Hexachlorocyclohexane, gamma-)	µg/L	0.0087	HH	1.0*	2.0*	Tox
Mercury, total in water	ng/L	6.9	HH	2,400*	4,900*	Tox
Mercury, total in edible fish	mg/kg ppm	0.2	HH	NA	NA	NA
Methylene chloride (c) Dichloromethane)	µg/L	45	HH	13,875*	27,749*	Tox
Metolachlor	µg/L	23	Tox	271	543	Tox
Naphthalene	µg/L	65	HH	409	818	Tox
Nickel, total	µg/L	equation	Tox/HH	equation	equation	Tox

The CS, MS, and FAV vary with total hardness and are calculated using the following equations:

The CS shall not exceed the human health-based standard of 297 µg/L. For waters with total hardness values less than 212 mg/L, the CS in µg/L is toxicity-based and shall not exceed: $\exp.(0.846[\ln(\text{total hardness mg/L})]+1.1645)$

The MS in µg/L shall not exceed: $\exp.(0.846[\ln(\text{total hardness mg/L})]+3.3612)$

The FAV in µg/L shall not exceed: $\exp.(0.846[\ln(\text{total hardness mg/L})]+4.0543)$

Where: exp. is the natural antilogarithm (base e) of the expression in parenthesis.

For hardness values greater than 400 mg/L, 400 mg/L shall be used to calculate the standard.

Example of total nickel standards for five total hardness values:

TH in mg/L	50	100	200	300	400
Nickel, total					
CS µg/L	88	158	283	297	297
MS µg/L	789	1,418	2,549	3,592	4,582
FAV µg/L	1,578	2,836	5,098	7,185	9,164

Substance, Characteristic, or Pollutant (Class 2A)	Units	CS	Basis for CS	MS	FAV	Basis for MS, FAV
Oil	µg/L	500	NA	5,000	10,000	NA
Oxygen, dissolved	mg/L	See below	NA	--	--	NA

7.0 mg/L as a daily minimum. This dissolved oxygen standard requires compliance with the standard 50 percent of the days at which the flow of the receiving water is equal to the 7Q₁₀.

<u>Oxythermal habitat (T_{DO3})</u>	<u>°C</u>	<u>See below</u>	<u>NA</u>	<u>--</u>	<u>--</u>	<u>NA</u>
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An average T_{DO3} (temperature at 3 mg/L of dissolved oxygen) sufficient to support coldwater fish species must be maintained during the summer season. The following are specific to lakes supporting different coldwater fish species:

8.8°C for designated lake trout (*Salvelinus namaycush*) lakes.

17.2°C for designated lake whitefish (*Coregonus clupeaformis*) lakes.

21.2°C for designated cisco (*Coregonus artedii*) lakes.

Parathion	µg/L	0.013	Tox	0.07	0.13	Tox
Pentachlorophenol	µg/L	0.93	HH	equation	equation	Tox

The MS and FAV vary with pH and are calculated using the following equations:

The MS in µg/L shall not exceed: $\exp.(1.005[pH]-4.830)$

The FAV in µg/L shall not exceed: $\exp.(1.005[pH]-4.1373)$

Where: exp. is the natural antilogarithm (base e) of the expression in parenthesis.

For pH values less than 6.0, 6.0 shall be used to calculate the standard and for pH values greater than 9.0, 9.0 shall be used to calculate the standard.

Example of pentachlorophenol standards for five pH values:

pH su	6.5	7.0	7.5	8.0	8.5
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Pentachlorophenol

CS µg/L	0.93	0.93	0.93	0.93	0.93
MS µg/L	5.5	9.1	15	25	41
FAV µg/L	11	18	30	50	82

Substance, Characteristic, or Pollutant (Class 2A)	Units	CS	Basis for CS	MS	FAV	Basis for MS, FAV
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pH, minimum	su	6.5	NA	--	--	NA
pH, maximum	su	8.5	NA	--	--	NA
Phenanthrene	µg/L	3.6	Tox	32	64	Tox
Phenol	µg/L	123	Tox	2,214	4,428	Tox
Polychlorinated biphenyls, total (c)	ng/L	0.014	HH	1,000*	2,000*	Tox
Radioactive materials	NA	See below	NA	See below	See below	NA

Not to exceed the lowest concentrations permitted to be discharged to an uncontrolled environment as permitted by the appropriate authority having control over their use.

Selenium, total	µg/L	5.0	Tox	20	40	Tox
Silver, total	µg/L	0.12	Tox	equation	equation	Tox

The MS and FAV vary with total hardness and are calculated using the following equations:

The MS in µg/L shall not exceed: $\exp.(1.720[\ln(\text{total hardness mg/L})]-7.2156)$

The FAV in µg/L shall not exceed: $\exp.(1.720[\ln(\text{total hardness mg/L})]-6.520)$

Where: exp. is the natural antilogarithm (base e) of the expression in parenthesis.

For hardness values greater than 400 mg/L, 400 mg/L shall be used to calculate the standard.

Example of silver standards for five total hardness values:

TH in mg/L	50	100	200	300	400
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Silver, total

CS µg/L	0.12	0.12	0.12	0.12	0.12
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MS µg/L	1.0	2.0	6.7	13	22
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FAV µg/L	1.2	4.1	13	27	44
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Substance, Characteristic,	Units	CS	Basis for CS	MS	FAV	Basis for
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**or Pollutant
(Class 2A)****MS,
FAV**

Temperature	°C or °F	No material increase	NA	--	--	NA
1,1,2,2-Tetrachloroethane (c)	µg/L	1.1	HH	1,127*	2,253*	Tox
Tetrachloroethylene (c)	µg/L	3.8	HH	428*	857*	Tox
Thallium, total	µg/L	0.28	HH	64	128	Tox
Toluene	µg/L	253	Tox	1,352	2,703	Tox
Toxaphene (c)	ng/L	0.31	HH	730*	1,500*	Tox
1,1,1-Trichloroethane	µg/L	329	Tox	2,957	5,913	Tox
1,1,2-Trichloroethylene (c)	µg/L	25	HH	6,988*	13,976*	Tox
2,4,6-Trichlorophenol	µg/L	2.0	HH	102	203	Tox
Total suspended solids (TSS)	mg/L	10	NA	--	--	NA
TSS standards for class 2A may be exceeded for no more than ten percent of the time. This standard applies April 1 through September 30						
Vinyl chloride (c)	µg/L	0.17	HH	--*	--*	NA
Xylene, total m,p,o	µg/L	166	Tox	1,407	2,814	Tox
Zinc, total	µg/L	equation	Tox	equation	equation	Tox

The CS, MS, and FAV vary with total hardness and are calculated using the following equations:

The CS in µg/L shall not exceed: $\exp.(0.8473[\ln(\text{total hardness mg/L})]+0.7615)$

The MS in µg/L shall not exceed: $\exp.(0.8473[\ln(\text{total hardness mg/L})]+0.8604)$

The FAV in µg/L shall not exceed: $\exp.(0.8473[\ln(\text{total hardness mg/L})]+1.5536)$

Where: exp. is the natural antilogarithm (base e) of the expression in parenthesis.

For hardness values greater than 400 mg/L, 400 mg/L shall be used to calculate the standard.

Example of zinc standards for five total hardness values:

TH in mg/L	50	100	200	300	400
Zinc, total					
CS µg/L	59	106	191	269	343
MS µg/L	65	117	211	297	379
FAV µg/L	130	234	421	594	758

[For text of subparts 2a and 2b, see Minnesota Rules]

Subp. 2c. **Beneficial use definitions for lotic coldwater aquatic life and habitats (class 2A).**

A. Subitems (1) to (5) apply to the beneficial uses in items B and C:

[For text of subitem (1), see Minnesota Rules]

(2) The attributes of species composition, diversity, and functional organization are measured using:

(a) the fish IBI for lotic habitats as defined in Fish Data Collection Protocols for Lotic Waters in Minnesota (2017); ~~or~~

(b) the macroinvertebrate IBI for lotic habitats as defined in Macroinvertebrate Data Collection Protocols for Lotic Waters in Minnesota (2017); or

(c) the fish IBI for lentic habitats as defined in Manual of Instructions for Lake Survey (2017) and Lake Index of Biological Integrity (IBI) Nearshore Sampling Manual (2022).

(3) Water body types ~~for streams and rivers~~ are defined in the documents referenced in subitem (2).

(4) The following documents are incorporated by reference and are not subject to frequent change:

(a) Calibration of the Biological Condition Gradient for Streams of Minnesota, Gerritsen et al. (2012). The document is available on the agency's website at ~~www.pca.state.mn.us/regulations/minnesota-rulemaking~~
<https://www.pca.state.mn.us/get-engaged/incorporations-by-reference>;

(b) Fish Data Collection Protocols for Lotic Waters in Minnesota, Minnesota Pollution Control Agency (2017). The document is available on the agency's website at ~~www.pca.state.mn.us/regulations/minnesota-rulemaking~~
<https://www.pca.state.mn.us/get-engaged/incorporations-by-reference>;

(c) Macroinvertebrate Data Collection Protocols for Lotic Waters in Minnesota, Minnesota Pollution Control Agency (2017). The document is available on the agency's website at ~~www.pca.state.mn.us/regulations/minnesota-rulemaking~~
<https://www.pca.state.mn.us/get-engaged/incorporations-by-reference>; and

(d) Development of Biological Criteria for Tiered Aquatic Life Uses, Minnesota Pollution Control Agency (2016). The document is available on the agency's website at ~~www.pca.state.mn.us/regulations/minnesota-rulemaking~~
<https://www.pca.state.mn.us/get-engaged/incorporations-by-reference>;

(e) Biological Condition Gradient (BCG) Assessment Models for Lake Fish Communities of Minnesota, Gerritsen and Stamp (2014). The document is available on the agency's website at
<https://www.pca.state.mn.us/get-engaged/incorporations-by-reference>;

(f) Manual of Instructions for Lake Survey, Minnesota Department of Natural Resources (2017). The document is available on the agency's website at
<https://www.pca.state.mn.us/get-engaged/incorporations-by-reference>;

(g) Lake Index of Biological Integrity (IBI) Nearshore Sampling Manual, Minnesota Department of Natural Resources (2022). The document is available on the agency's website at <https://www.pca.state.mn.us/get-engaged/incorporations-by-reference>; and

(h) Development of Fish-Based Indices of Biological Integrity for Minnesota Lakes, Bacigalupi et al. (2021). The document is available on the agency's website at <https://www.pca.state.mn.us/get-engaged/incorporations-by-reference>.

(5) The beneficial use subclass designators "e" and "g" are added to the class 2A designator as specific additional designators. The additional subclass designators do not replace the class 2A designator. All requirements for class 2A coldwater ~~stream and river~~ habitats in parts 7050.0222 and 7052.0100 continue to apply in addition to requirements for class 2Ae or class 2Ag coldwater ~~stream and river~~ habitats in part 7050.0222. ~~These subclass designators are applied to lotic waters only.~~

B. "Exceptional coldwater aquatic life and habitat" or "class 2Ae" is a beneficial use that means waters capable of supporting and maintaining an exceptional and balanced, integrated, adaptive community of coldwater aquatic organisms having a species composition, diversity, and functional organization comparable to the 75th percentile of biological condition gradient level 3 as established in Calibration of the Biological Condition Gradient for Streams of Minnesota, Gerritsen et al. (2012) for streams and rivers and in Biological Condition Gradient (BCG) Assessment Models for Lake Fish Communities of Minnesota, Gerritsen and Stamp (2014) for lakes.

C. "General coldwater aquatic life and habitat" or "class 2Ag" is a beneficial use that means waters capable of supporting and maintaining a balanced, integrated, adaptive community of coldwater aquatic organisms having a species composition, diversity, and functional organization comparable to the median of biological condition gradient level 4 as established in Calibration of the Biological Condition Gradient for Streams of Minnesota,

Gerritsen et al. (2012) for streams and rivers and in Biological Condition Gradient (BCG) Assessment Models for Lake Fish Communities of Minnesota, Gerritsen and Stamp (2014) for lakes.

Subp. 2d. **Biological criteria for lotic coldwater aquatic life and habitats (class 2A).**

Water Body Type	Tier	Class	Assemblage	Biocriterion
Southern coldwater streams	Exceptional	2Ae	Fish	82
	General	2Ag	Fish	50
Northern coldwater streams	Exceptional	2Ae	Fish	60
	General	2Ag	Fish	35
Northern coldwater streams	Exceptional	2Ae	Macroinvertebrates	52
	General	2Ag	Macroinvertebrates	32
Southern coldwater streams	Exceptional	2Ae	Macroinvertebrates	72
	General	2Ag	Macroinvertebrates	43
<u>Deep, complex lakes</u>	<u>Exceptional</u>	<u>2Ae</u>	<u>Fish</u>	<u>64</u>
	<u>General</u>	<u>2Ag</u>	<u>Fish</u>	<u>45</u>
<u>Deep, moderately complex lakes</u>	<u>Exceptional</u>	<u>2Ae</u>	<u>Fish</u>	<u>59</u>
	<u>General</u>	<u>2Ag</u>	<u>Fish</u>	<u>38</u>
<u>Moderately deep lakes</u>	<u>General</u>	<u>2Ag</u>	<u>Fish</u>	<u>24</u>
<u>Shallow lakes</u>	<u>General</u>	<u>2Ag</u>	<u>Fish</u>	<u>36</u>

The biological criteria for lotic coldwater aquatic life and habitats (class 2A) are applicable to perennial and intermittent waters that allow for colonization of fish or macroinvertebrates.

Subp. 3. **Class 2Bd waters.** The quality of class 2Bd surface waters shall be such as to permit the propagation and maintenance of a healthy community of cool or warm water aquatic biota and their habitats according to the definitions in subpart 3c. These waters shall be suitable for aquatic recreation of all kinds, including bathing, for which the waters may be usable. This class of surface waters is also protected as a source of drinking water. The applicable standards are given below. Abbreviations, acronyms, and symbols are explained in subpart 1.

Substance, Characteristic, or Pollutant (Class 2Bd)	Units	CS	Basis for CS	MS	FAV	Basis for MS, FAV
Acenaphthene	µg/L	20	HH	56	112	Tox
Acetochlor	µg/L	3.6	Tox	86	173	Tox
Acrylonitrile (c)	µg/L	0.38	HH	1,140*	2,281*	Tox
Alachlor (c)	µg/L	4.2	HH	800*	1,600*	Tox
Aluminum, total	µg/L	125	Tox	1,072	2,145	Tox
Ammonia un-ionized as N	µg/L	40	Tox	--	--	NA

The percent un-ionized ammonia can be calculated for any temperature and pH by using the following equation taken from Emerson, K., R.C. Russo, R.E. Lund, and R.V. Thurston, Aqueous ammonia equilibrium calculations; effect of pH and temperature. Journal of the Fisheries Research Board of Canada 32: 2379-2383 (1975):

$$f = 1 / (10^{(pK_a - pH)} + 1) \times 100$$

where: f = the percent of total ammonia in the un-ionized state

$pK_a = 0.09 + (2730/T)$ (dissociation constant for ammonia)

T = temperature in degrees Kelvin (273.16° Kelvin = 0° Celsius)

Substance, Characteristic,	Units	CS	Basis for CS	MS	FAV	Basis for
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**or Pollutant
(Class 2Bd)****MS,
FAV**

Anthracene	µg/L	0.035	Tox	0.32	0.63	Tox
Antimony, total	µg/L	5.5	HH	90	180	Tox
Arsenic, total	µg/L	2.0	HH	360	720	Tox
Atrazine (c)	µg/L	3.4	HH	323	645	Tox
Benzene (c)	µg/L	6.0	HH	4,487*	8,974*	Tox
Bromoform	µg/L	41	HH	2,900	5,800	Tox
Cadmium, total	µg/L	equation	Tox	equation	equation	Tox

The CS, MS, and FAV vary with total hardness and are calculated using the following equations:

The CS in µg/L shall not exceed: $\exp.(0.7852[\ln(\text{total hardness mg/L})]-3.490)$

The MS in µg/L shall not exceed: $\exp.(1.128[\ln(\text{total hardness mg/L})]-1.685)$

The FAV in µg/L shall not exceed: $\exp.(1.128[\ln(\text{total hardness mg/L})]-0.9919)$

Where: exp. is the natural antilogarithm (base e) of the expression in parenthesis.

For hardness values greater than 400 mg/L, 400 mg/L shall be used to calculate the standard.

Example of total cadmium standards for five hardness values:

TH in mg/L	50	100	200	300	400
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Cadmium, total

CS µg/L	0.66	1.1	2.0	2.7	3.4
MS µg/L	15	33	73	116	160
FAV µg/L	31	67	146	231	319

**Substance,
Characteristic,
or Pollutant
(Class 2Bd)**

Units	CS	Basis for CS	MS	FAV	Basis for
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**MS,
FAV**

Carbon tetrachloride (c)	µg/L	1.9	HH	1,750*	3,500*	Tox
Chlordane (c)	ng/L	0.29	HH	1,200*	2,400*	Tox
Chloride	mg/L	230	Tox	860	1,720	Tox
Chlorine, total residual	µg/L	11	Tox	19	38	Tox

Chlorine standard applies to conditions of continuous exposure, where continuous exposure refers to chlorinated effluents that are discharged for more than a total of two hours in any 24-hour period.

Chlorobenzene (Monochlorobenzene)	µg/L	20	HH	423	846	Tox
Chloroform (c)	µg/L	53	HH	1,392	2,784	Tox
Chlorpyrifos	µg/L	0.041	Tox	0.083	0.17	Tox
Chromium +3, total	µg/L	equation	Tox	equation	equation	Tox

The CS, MS, and FAV vary with total hardness and are calculated using the following equations:

The CS in µg/L shall not exceed: $\exp.(0.819[\ln(\text{total hardness mg/L})]+1.561)$

The MS in µg/L shall not exceed: $\exp.(0.819[\ln(\text{total hardness mg/L})]+3.688)$

The FAV in µg/L shall not exceed: $\exp.(0.819[\ln(\text{total hardness mg/L})]+4.380)$

Where: exp. is the natural antilogarithm (base e) of the expression in parenthesis.

For hardness values greater than 400 mg/L, 400 mg/L shall be used to calculate the standard.

Example of total chromium +3 standards for five total hardness values:

TH in mg/L	50	100	200	300	400
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Chromium +3, total

CS µg/L	117	207	365	509	644
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MS µg/L	984	1,737	3,064	4,270	5,405
FAV µg/L	1,966	3,469	6,120	8,530	10,797

Substance, Characteristic, or Pollutant (Class 2Bd)	Units	CS	Basis for CS	MS	FAV	Basis for MS, FAV
Chromium +6, total	µg/L	11	Tox	16	32	Tox
Cobalt, total	µg/L	2.8	HH	436	872	Tox
Copper, total	µg/L	equation	Tox	equation	equation	Tox

The CS, MS, and FAV vary with total hardness and are calculated using the following equations:

The CS in µg/L shall not exceed: $\exp.(0.620[\ln(\text{total hardness mg/L})]-0.570)$

The MS in µg/L shall not exceed: $\exp.(0.9422[\ln(\text{total hardness mg/L})]-1.464)$

The FAV in µg/L shall not exceed: $\exp.(0.9422[\ln(\text{total hardness mg/L})]-0.7703)$

Where: exp. is the natural antilogarithm (base e) of the expression in parenthesis.

For hardness values greater than 400 mg/L, 400 mg/L shall be used to calculate the standard.

Example of total copper standards for five total hardness values:

TH in mg/L	50	100	200	300	400
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Copper, total

CS µg/L	6.4	9.8	15	19	23
MS µg/L	9.2	18	34	50	65
FAV µg/L	18	35	68	100	131

Substance, Characteristic, or Pollutant (Class 2Bd)	Units	CS	Basis for CS	MS	FAV	Basis for MS, FAV
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Cyanide, free	µg/L	5.2	Tox	22	45	Tox
DDT (c)	ng/L	1.7	HH	550*	1,100*	Tox
1,2-Dichloroethane (c)	µg/L	3.8	HH	45,050*	90,100*	Tox
Dieldrin (c)	ng/L	0.026	HH	1,300*	2,500*	Tox
Di-2-ethylhexyl phthalate (c)	µg/L	1.9	HH	--*	--*	NA
Di-n-octyl phthalate	µg/L	30	Tox	825	1,650	Tox
Endosulfan	µg/L	0.029	HH	0.28	0.56	Tox
Endrin	µg/L	0.016	HH	0.090	0.18	Tox
<i>Escherichia (E.) coli</i>	See below	See below	HH	See below	See below	NA

Not to 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.

Ethylbenzene	µg/L	68	Tox	1,859	3,717	Tox
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Substance, Characteristic, or Pollutant (Class 2Bd)	Units	CS	Basis for CS	MS	FAV	Basis for MS, FAV
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Eutrophication standards for class 2Bd lakes, ~~shallow lakes~~, and reservoirs.

Dimictic Lakes, ~~Shallow Lakes~~, and Reservoirs in Northern Lakes and Forest Ecoregion
Forests and Northern Minnesota Wetlands Ecoregions:

Phosphorus, total	µg/L	30 <u>20</u>	NA	--	--	NA
Chlorophyll-a	µg/L	9	NA	--	--	NA
Secchi disk transparency	meters	Not less than 2.0 <u>1.8</u>	NA	--	--	NA

Dimictic Lakes and Reservoirs in North Central Hardwood ~~Forest~~ Forests Ecoregion:

Phosphorus, total	µg/L	40	NA	--	--	NA
Chlorophyll-a	µg/L	14	NA	--	--	NA
Secchi disk transparency	meters	Not less than 1.4	NA	--	--	NA

Dimictic Lakes and Reservoirs in Western Corn Belt Plains and Northern Glaciated Plains Ecoregions:

Phosphorus, total	µg/L	65	NA	--	--	NA
Chlorophyll-a	µg/L	22	NA	--	--	NA
Secchi disk transparency	meters	Not less than 0.9	NA	--	--	NA

Polymictic Lakes in Northern Lakes and Forests and Northern Minnesota Wetlands

Ecoregions:

<u>Phosphorus, total</u>	<u>µg/L</u>	<u>32</u>	<u>NA</u>	<u>--</u>	<u>--</u>	<u>NA</u>
<u>Chlorophyll-a</u>	<u>µg/L</u>	<u>18</u>	<u>NA</u>	<u>--</u>	<u>--</u>	<u>NA</u>
<u>Secchi disk transparency</u>	<u>meters</u>	<u>Not less than 0.9</u>	<u>NA</u>	<u>--</u>	<u>--</u>	<u>NA</u>

~~Shallow~~ Polymictic Lakes in North Central Hardwood Forest Forests Ecoregion:

Phosphorus, total	µg/L	60	NA	--	--	NA
Chlorophyll-a	µg/L	20	NA	--	--	NA
Secchi disk transparency	meters	Not less than 1.0	NA	--	--	NA

~~Shallow~~ Polymictic Lakes in Western Corn Belt Plains and Northern Glaciated Plains Ecoregions:

Phosphorus, total	µg/L	90	NA	--	--	NA
Chlorophyll-a	µg/L	30	NA	--	--	NA
Secchi disk transparency	meters	Not less than 0.7	NA	--	--	NA

Additional narrative eutrophication standards for class 2Bd lakes, ~~shallow lakes~~, and reservoirs are found under subpart 3a.

Eutrophication standards for class 2Bd rivers and streams.

North River Nutrient Region:

Phosphorus, total	µg/L	less than or equal to 50
Chlorophyll-a (seston)	µg/L	less than or equal to 7
Diel dissolved oxygen flux	mg/L	less than or equal to 3.0
Biochemical oxygen demand (BOD ₅)	mg/L	less than or equal to 1.5

Central River Nutrient Region:

Phosphorus, total	µg/L	less than or equal to 100
Chlorophyll-a (seston)	µg/L	less than or equal to 18
Diel dissolved oxygen flux	mg/L	less than or equal to 3.5
Biochemical oxygen demand (BOD ₅)	mg/L	less than or equal to 2.0

South River Nutrient Region:

Phosphorus, total	µg/L	less than or equal to 150
Chlorophyll-a (seston)	µg/L	less than or equal to 35
Diel dissolved oxygen flux	mg/L	less than or equal to 4.5
Biochemical oxygen demand (BOD ₅)	mg/L	less than or equal to 3.0

Additional narrative eutrophication standards for class 2Bd rivers and streams are found under subpart 3b.

Substance, Characteristic, or Pollutant (Class 2Bd)	Units	CS	Basis for CS	MS	FAV	Basis for MS, FAV
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Fluoranthene	µg/L	1.9	Tox	3.5	6.9	Tox
Heptachlor (c)	ng/L	0.39	HH	260*	520*	Tox
Heptachlor epoxide (c)	ng/L	0.48	HH	270*	530*	Tox
Hexachlorobenzene (c)	ng/L	0.24	HH	--*	--*	Tox
Lead, total	µg/L	equation	Tox	equation	equation	Tox

The CS, MS, and FAV vary with total hardness and are calculated using the following equations:

The CS in µg/L shall not exceed: $\exp.(1.273[\ln(\text{total hardness mg/L})]-4.705)$

The MS in µg/L shall not exceed: $\exp.(1.273[\ln(\text{total hardness mg/L})]-1.460)$

The FAV in µg/L shall not exceed: $\exp.(1.273[\ln(\text{total hardness mg/L})]-0.7643)$

Where: exp. is the natural antilogarithm (base e) of the expression in parenthesis.

For hardness values greater than 400 mg/L, 400 mg/L shall be used to calculate the standard.

Example of total lead standards for five total hardness values:

TH in mg/L	50	100	200	300	400
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Lead, total

CS µg/L	1.3	3.2	7.7	13	19
MS µg/L	34	82	197	331	477
FAV µg/L	68	164	396	663	956

Substance, Characteristic, or Pollutant (Class 2Bd)	Units	CS	Basis for CS	MS	FAV	Basis for MS, FAV
Lindane (c) (Hexachlorocyclohexane, gamma-)	µg/L	0.032	HH	4.4*	8.8*	Tox
Mercury, total in water	ng/L	6.9	HH	2,400*	4,900*	Tox

Mercury, total in edible fish tissue	mg/kg ppm	0.2	HH	NA	NA	NA
Methylene chloride (c) (Dichloromethane)	µg/L	46	HH	13,875*	27,749*	Tox
Metolachlor	µg/L	23	Tox	271	543	Tox
Naphthalene	µg/L	81	Tox	409	818	Tox
Nickel, total	µg/L	equation	Tox/HH	equation	equation	Tox

The CS, MS, and FAV vary with total hardness and are calculated using the following equations:

The CS shall not exceed the human health-based standard of 297 µg/L. For waters with total hardness values less than 212 mg/L, the CS in µg/L is toxicity-based and shall not exceed: $\exp.(0.846[\ln(\text{total hardness mg/L})]+1.1645)$

The MS in µg/L shall not exceed: $\exp.(0.846[\ln(\text{total hardness mg/L})]+3.3612)$

The FAV in µg/L shall not exceed: $\exp.(0.846[\ln(\text{total hardness mg/L})]+4.0543)$

Where: exp. is the natural antilogarithm (base e) of the expression in parenthesis.

For hardness values greater than 400 mg/L, 400 mg/L shall be used to calculate the standard.

Example of total nickel standards for five total hardness values:

TH in mg/L	50	100	200	300	400
Nickel, total					
CS µg/L	88	158	283	297	297
MS µg/L	789	1,418	2,549	3,592	4,582
FAV µg/L	1,578	2,836	5,098	7,185	9,164

Substance, Characteristic, or Pollutant (Class 2Bd)	Units	CS	Basis for CS	MS	FAV	Basis for MS, FAV

Oil	µg/L	500	NA	5,000	10,000	NA
Oxygen, dissolved	mg/L	See below	NA	--	--	NA

5.0 mg/L as a daily minimum. This dissolved oxygen standard may be modified on a site-specific basis according to part 7050.0220, subpart 7, except that no site-specific standard shall be less than 5 mg/L as a daily average and 4 mg/L as a daily minimum. Compliance with this standard is required 50 percent of the days at which the flow of the receiving water is equal to the $7Q_{10}$.

Parathion	µg/L	0.013	Tox	0.07	0.13	Tox
Pentachlorophenol	µg/L	1.9	HH	equation	equation	Tox

The MS and FAV vary with pH and are calculated using the following equations:

The MS in µg/L shall not exceed: $\exp.(1.005[\text{pH}]-4.830)$

The FAV in µg/L shall not exceed: $\exp.(1.005[\text{pH}]-4.1373)$

Where: exp. is the natural antilogarithm (base e) of the expression in parenthesis.

For pH values less than 6.0, 6.0 shall be used to calculate the standard and for pH values greater than 9.0, 9.0 shall be used to calculate the standard.

Example of pentachlorophenol standards for five pH values:

pH su	6.5	7.0	7.5	8.0	8.5
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Pentachlorophenol

CS µg/L	1.9	1.9	1.9	1.9	1.9
MS µg/L	5.5	9.1	15	25	41
FAV µg/L	11	18	30	50	82

Substance, Characteristic, or Pollutant (Class 2Bd)	Units	CS	Basis for CS	MS	FAV	Basis for MS, FAV
pH, minimum	su	6.5	NA	--	--	NA
pH, maximum	su	9.0	NA	--	--	NA

Phenanthrene	µg/L	3.6	Tox	32	64	Tox
Phenol	µg/L	123	Tox	2,214	4,428	Tox
Polychlorinated biphenyls, total (c)	ng/L	0.029	HH	1,000*	2,000*	Tox
Radioactive materials	NA	See below	NA	See below	See below	NA

Not to exceed the lowest concentrations permitted to be discharged to an uncontrolled environment as permitted by the appropriate authority having control over their use.

Selenium, total	µg/L	5.0	Tox	20	40	Tox
Silver, total	µg/L	1.0	Tox	equation	equation	Tox

The MS and FAV vary with total hardness and are calculated using the following equations:

The MS in µg/L shall not exceed: $\exp.(1.720[\ln(\text{total hardness mg/L})]-7.2156)$

The FAV in µg/L shall not exceed: $\exp.(1.720[\ln(\text{total hardness mg/L})]-6.520)$

Where: exp. is the natural antilogarithm (base e) of the expression in parenthesis.

For hardness values greater than 400 mg/L, 400 mg/L shall be used to calculate the standard.

Example of total silver standards for five total hardness values:

TH in mg/L	50	100	200	300	400
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Silver, total

CS µg/L	1.0	1.0	1.0	1.0	1.0
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MS µg/L	1.0	2.0	6.7	13	22
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FAV µg/L	1.2	4.1	13	27	44
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Substance, Characteristic, or Pollutant (Class 2Bd)	Units	CS	Basis for CS	MS	FAV	Basis for MS, FAV
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Temperature	°F	See below	NA	--	--	NA
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5°F above natural in streams and 3°F above natural in lakes, based on monthly average of the maximum daily temperatures, except in no case shall it exceed the daily average temperature of 86°F.

1,1,2,2-Tetrachloroethane (c)	µg/L	1.5	HH	1,127*	2,253*	Tox
Tetrachloroethylene (c)	µg/L	3.8	HH	428*	857*	Tox
Thallium, total	µg/L	0.28	HH	64	128	Tox
Toluene	µg/L	253	Tox	1,352	2,703	Tox
Toxaphene (c)	ng/L	1.3	HH	730*	1,500*	Tox
1,1,1-Trichloroethane	µg/L	329	Tox	2,957	5,913	Tox
1,1,2-Trichloroethylene (c)	µg/L	25	HH	6,988*	13,976*	Tox
2,4,6-Trichlorophenol	µg/L	2.0	HH	102	203	Tox
Total suspended solids (TSS)						
North River Nutrient Region	mg/L	15	NA	-	-	NA
Central River Nutrient Region	mg/L	30	NA	-	-	NA
South River Nutrient Region	mg/L	65	NA	-	-	NA
Red River mainstem - headwaters to border	mg/L	100	NA	-	-	NA

TSS standards for the class 2Bd North, Central, and South River Nutrient Regions and the Red River mainstem may be exceeded for no more than ten percent of the time. This standard applies April 1 through September 30

Total suspended solids
(TSS), summer average

Lower Mississippi River
mainstem - Pools 2 through

4	mg/L	32	NA	-	-	NA
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Lower Mississippi River
mainstem below Lake
Pepin

mg/L	30	NA	-	-	NA
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TSS standards for the class
2Bd Lower Mississippi
River may be exceeded for
no more than 50 percent of
the time. This standard
applies June 1 through
September 30

**Substance,
Characteristic,
or Pollutant
(Class 2Bd)**

Units

CS

**Basis
for
CS**

MS

FAV

**Basis
for
MS,
FAV**

Vinyl chloride (c)	µg/L	0.18	HH	--*	--*	NA
Xylene, total m,p,o	µg/L	166	Tox	1,407	2,814	Tox
Zinc, total	µg/L	equation	Tox	equation	equation	Tox

The CS, MS, and FAV vary with total hardness and are calculated using the following equations:

The CS in µg/L shall not exceed: $\exp.(0.8473[\ln(\text{total hardness mg/L})]+0.7615)$

The MS in µg/L shall not exceed: $\exp.(0.8473[\ln(\text{total hardness mg/L})]+0.8604)$

The FAV in µg/L shall not exceed: $\exp.(0.8473[\ln(\text{total hardness mg/L})]+1.5536)$

Where: exp. is the natural antilogarithm (base e) of the expression in parenthesis.

For hardness values greater than 400 mg/L, 400 mg/L shall be used to calculate the standard.

Example of total zinc standards for five total hardness values:

TH in mg/L	50	100	200	300	400
Zinc, total					
CS µg/L	59	106	191	269	343
MS µg/L	65	117	211	297	379
FAV µg/L	130	234	421	594	758

Subp. 3a. Narrative eutrophication standards for class 2Bd lakes, ~~shallow lakes,~~ and reservoirs.

A. Eutrophication standards applicable to lakes, ~~shallow lakes,~~ and reservoirs that lie on the border between two ecoregions or that are in the Red River Valley (also referred to as Lake Agassiz Plains), Northern Minnesota Wetlands, or Driftless Area Ecoregion must be applied on a case-by-case basis. The commissioner shall use the standards applicable to adjacent ecoregions as a guide.

[For text of item B, see Minnesota Rules]

C. It is the policy of the agency to protect all lakes, ~~shallow lakes,~~ and reservoirs from the undesirable effects of cultural eutrophication. Lakes, ~~shallow lakes,~~ and reservoirs with a baseline quality better than the numeric eutrophication standards in subpart 3 must be maintained in that condition through the strict application of all relevant federal, state, and local requirements governing antidegradation, the discharge of nutrients from point and nonpoint sources, and the protection of lake, ~~shallow lake,~~ and reservoir resources, including, but not limited to:

[For text of subitems (1) to (7), see Minnesota Rules]

D. Lakes, ~~shallow lakes,~~ and reservoirs with a baseline quality that is poorer than the numeric eutrophication standards in subpart 3 must be considered to be in compliance with the standards if the baseline quality is the result of natural causes. The commissioner

shall determine baseline quality and compliance with these standards using data and the procedures in part 7050.0150, subpart 5.

[For text of item E, see Minnesota Rules]

[For text of subpart 3b, see Minnesota Rules]

Subp. 3c. **Beneficial use definitions for lotic warm or cool water aquatic life and habitats (class 2Bd).**

A. Subitems (1) to (5) apply to the beneficial uses in items B to D:

[For text of subitem (1), see Minnesota Rules]

(2) The attributes of species composition, diversity, and functional organization are measured using:

(a) the fish IBI as defined in Fish Data Collection Protocols for Lotic Waters in Minnesota (2017); ~~or~~

(b) the macroinvertebrate IBI as defined in Macroinvertebrate Data Collection Protocols for Lotic Waters in Minnesota (2017); or

(c) the fish IBI for lentic habitats as defined in Manual of Instructions for Lake Survey (2017) and Lake Index of Biological Integrity (IBI) Nearshore Sampling Manual (2022).

(3) Water body types ~~for streams and rivers~~ are defined in the documents referenced in subitem (2).

(4) The following documents are incorporated by reference and are not subject to frequent change:

(a) Calibration of the Biological Condition Gradient for Streams of Minnesota, Gerritsen et al. (2012). The document is available on the agency's website at

~~www.pca.state.mn.us/regulations/minnesota-rulemaking~~

~~https://www.pca.state.mn.us/get-engaged/incorporations-by-reference;~~

(b) Fish Data Collection Protocols for Lotic Waters in Minnesota, Minnesota Pollution Control Agency (2017). The document is available on the agency's website at ~~www.pca.state.mn.us/regulations/minnesota-rulemaking~~
~~https://www.pca.state.mn.us/get-engaged/incorporations-by-reference;~~

(c) Macroinvertebrate Data Collection Protocols for Lotic Waters in Minnesota, Minnesota Pollution Control Agency (2017). The document is available on the agency's website at ~~www.pca.state.mn.us/regulations/minnesota-rulemaking~~
~~https://www.pca.state.mn.us/get-engaged/incorporations-by-reference;~~ ~~and~~

(d) Development of Biological Criteria for Tiered Aquatic Life Uses, Minnesota Pollution Control Agency (2016). The document is available on the agency's website at ~~www.pca.state.mn.us/regulations/minnesota-rulemaking~~
~~https://www.pca.state.mn.us/get-engaged/incorporations-by-reference;~~

(e) Biological Condition Gradient (BCG) Assessment Models for Lake Fish Communities of Minnesota, Gerritsen and Stamp (2014). The document is available on the agency's website at
~~https://www.pca.state.mn.us/get-engaged/incorporations-by-reference;~~

(f) Manual of Instructions for Lake Survey, Minnesota Department of Natural Resources (2017). The document is available on the agency's website at
~~https://www.pca.state.mn.us/get-engaged/incorporations-by-reference;~~

(g) Lake Index of Biological Integrity (IBI) Nearshore Sampling Manual, Minnesota Department of Natural Resources (2022). The document is available on the agency's website at ~~https://www.pca.state.mn.us/get-engaged/incorporations-by-reference;~~
and

(h) Development of Fish-Based Indices of Biological Integrity for Minnesota Lakes, Bacigalupi et al. (2021). The document is available on the agency's website at <https://www.pca.state.mn.us/get-engaged/incorporations-by-reference>.

(5) The beneficial use subclass designators "e," "g," and "m" are added to the class 2Bd designator as specific additional designators. The additional subclass designators do not replace the class 2Bd designator. All requirements for class 2Bd warm or cool water ~~stream and river~~ habitats in parts 7050.0222 and 7052.0100 continue to apply in addition to requirements for class 2Bde, class 2Bdg, or class 2Bdm warm or cool water ~~stream and river~~ habitats in part 7050.0222. ~~These~~ The "m" subclass designators are designator is applied to lotic waters only.

B. "Exceptional cool and warm water aquatic life and habitat, also protected as a source for drinking water" or "class 2Bde" is a beneficial use that means waters capable of supporting and maintaining an exceptional and balanced, integrated, adaptive community of warm or cool water aquatic organisms having a species composition, diversity, and functional organization comparable to the 75th percentile of biological condition gradient level 3 as established in Calibration of the Biological Condition Gradient for Streams of Minnesota, Gerritsen et al. (2012) for streams and rivers and in Biological Condition Gradient (BCG) Assessment Models for Lake Fish Communities of Minnesota, Gerritsen and Stamp (2014) for lakes.

C. "General cool and warm water aquatic life and habitat, also protected as a source for drinking water" or "class 2Bdg" is a beneficial use that means waters capable of supporting and maintaining a balanced, integrated, adaptive community of warm or cool water aquatic organisms having a species composition, diversity, and functional organization comparable to the median of biological condition gradient level 4 as established in Calibration of the Biological Condition Gradient for Streams of Minnesota, Gerritsen et al. (2012) for

streams and rivers and in Biological Condition Gradient (BCG) Assessment Models for Lake Fish Communities of Minnesota, Gerritsen and Stamp (2014) for lakes.

[For text of item D, see Minnesota Rules]

Subp. 3d. **Biological criteria for lotie warm or cool water aquatic life and habitats (class 2Bd).**

Water Body Type	Tier	Class	Assemblage	Biocriterion
Southern rivers	Exceptional	2Bde	Fish	71
	General	2Bdg	Fish	49
Southern streams	Exceptional	2Bde	Fish	66
	General	2Bdg	Fish	50
	Modified	2Bdm	Fish	35
Southern headwaters	Exceptional	2Bde	Fish	74
	General	2Bdg	Fish	55
	Modified	2Bdm	Fish	33
Northern rivers	Exceptional	2Bde	Fish	67
	General	2Bdg	Fish	38
Northern streams	Exceptional	2Bde	Fish	61
	General	2Bdg	Fish	47
	Modified	2Bdm	Fish	35
Northern headwaters	Exceptional	2Bde	Fish	68
	General	2Bdg	Fish	42
	Modified	2Bdm	Fish	23
Low gradient	Exceptional	2Bde	Fish	70
	General	2Bdg	Fish	42
	Modified	2Bdm	Fish	15
Northern forest rivers	Exceptional	2Bde	Macroinvertebrates	77

	General	2Bdg	Macroinvertebrates	49
Prairie and southern forest rivers	Exceptional	2Bde	Macroinvertebrates	63
	General	2Bdg	Macroinvertebrates	31
High-gradient northern forest streams	Exceptional	2Bde	Macroinvertebrates	82
	General	2Bdg	Macroinvertebrates	53
Low-gradient northern forest streams	Exceptional	2Bde	Macroinvertebrates	76
	General	2Bdg	Macroinvertebrates	51
	Modified	2Bdm	Macroinvertebrates	37
High-gradient southern streams	Exceptional	2Bde	Macroinvertebrates	62
	General	2Bdg	Macroinvertebrates	37
	Modified	2Bdm	Macroinvertebrates	24
Low-gradient southern forest streams	Exceptional	2Bde	Macroinvertebrates	66
	General	2Bdg	Macroinvertebrates	43
	Modified	2Bdm	Macroinvertebrates	30
Low-gradient prairie streams	Exceptional	2Bde	Macroinvertebrates	69
	General	2Bdg	Macroinvertebrates	41
	Modified	2Bdm	Macroinvertebrates	22
<u>Deep, complex lakes</u>	<u>Exceptional</u>	<u>2Ae</u>	<u>Fish</u>	<u>64</u>
	<u>General</u>	<u>2Ag</u>	<u>Fish</u>	<u>45</u>
<u>Deep, moderately complex lakes</u>	<u>Exceptional</u>	<u>2Ae</u>	<u>Fish</u>	<u>59</u>
	<u>General</u>	<u>2Ag</u>	<u>Fish</u>	<u>38</u>

Moderately deep
lakes

<u>General</u>	<u>2Ag</u>	<u>Fish</u>	<u>24</u>
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Shallow lakes

<u>General</u>	<u>2Ag</u>	<u>Fish</u>	<u>36</u>
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The biological criteria for lotic warm or cool water aquatic life and habitats (class 2Bd) are applicable to perennial and intermittent waters that allow for colonization of fish or macroinvertebrates.

Subp. 4. **Class 2B waters.** The quality of class 2B surface waters shall be such as to permit the propagation and maintenance of a healthy community of cool or warm water aquatic biota, and their habitats according to the definitions in subpart 4c. These waters shall be suitable for aquatic recreation of all kinds, including bathing, for which the waters may be usable. This class of surface water is not protected as a source of drinking water. The applicable standards are given below. Abbreviations, acronyms, and symbols are explained in subpart 1.

Substance, Characteristic, or Pollutant (Class 2B)	Units	CS	Basis for CS	MS	FAV	Basis for MS, FAV
Acenaphthene	µg/l	20	HH	56	112	Tox
Acetochlor	µg/L	3.6	Tox	86	173	Tox
Acrylonitrile (c)	µg/l	0.89	HH	1,140*	2,281*	Tox
Alachlor (c)	µg/L	59	Tox	800	1,600	Tox
Aluminum, total	µg/L	125	Tox	1,072	2,145	Tox
Ammonia un-ionized as N	µg/L	40	Tox	--	--	NA

The percent un-ionized ammonia can be calculated for any temperature and pH by using the following equation taken from Emerson, K., R.C. Russo, R.E. Lund, and R.V. Thurston, Aqueous ammonia equilibrium calculations; effect of pH and temperature. Journal of the Fisheries Research Board of Canada 32: 2379-2383 (1975):

$$f = 1/(10^{(pK_a - pH)} + 1) \times 100$$

where: f = the percent of total ammonia in the un-ionized state

$pK_a = 0.09 + (2730/T)$ (dissociation constant for ammonia)

T = temperature in degrees Kelvin (273.16° Kelvin = 0° Celsius)

Substance, Characteristic, or Pollutant (Class 2B)	Units	CS	Basis for CS	MS	FAV	Basis for MS, FAV
Anthracene	µg/L	0.035	Tox	0.32	0.63	Tox
Antimony, total	µg/L	31	Tox	90	180	Tox
Arsenic, total	µg/L	53	HH	360	720	Tox
Atrazine (c)	µg/L	10	Tox	323	645	Tox
Benzene (c)	µg/L	98	HH	4,487	8,974	Tox
Bromoform	µg/L	466	HH	2,900	5,800	Tox
Cadmium, total	µg/L	equation	Tox	equation	equation	Tox

The CS, MS, and FAV vary with total hardness and are calculated using the following equations:

The CS in µg/L shall not exceed: $\exp.(0.7852[\ln(\text{total hardness mg/L})]-3.490)$

The MS in µg/L shall not exceed: $\exp.(1.128[\ln(\text{total hardness mg/L})]-1.685)$

The FAV in µg/L shall not exceed: $\exp.(1.128[\ln(\text{total hardness mg/L})]-0.9919)$

Where: exp. is the natural antilogarithm (base e) of the expression in parenthesis.

For hardness values greater than 400 mg/L, 400 mg/L shall be used to calculate the standard.

Example of total cadmium standards for five hardness values:

TH in mg/L	50	100	200	300	400
Cadmium, total					
CS µg/L	0.66	1.1	2.0	2.7	3.4

MS µg/L	15	33	73	116	160
FAV µg/L	31	67	146	231	319

Substance, Characteristic, or Pollutant (Class 2B)	Units	CS	Basis for CS	MS	FAV	Basis for MS, FAV
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Carbon tetrachloride (c)	µg/L	5.9	HH	1,750*	3,500*	Tox
Chlordane (c)	ng/L	0.29	HH	1,200*	2,400*	Tox
Chloride	mg/L	230	Tox	860	1,720	Tox
Chlorine, total residual	µg/L	11	Tox	19	38	Tox

Chlorine standard applies to conditions of continuous exposure, where continuous exposure refers to chlorinated effluents that are discharged for more than a total of two hours in any 24-hour period.

Chlorobenzene (Monochlorobenzene)	µg/L	20	HH	423	846	Tox
Chloroform (c)	µg/L	155	Tox	1,392	2,784	Tox
Chlorpyrifos	µg/L	0.041	Tox	0.083	0.17	Tox
Chromium +3, total	µg/L	equation	Tox	equation	equation	Tox

The CS, MS, and FAV vary with total hardness and are calculated using the following equations

The CS in µg/L shall not exceed: $\exp.(0.819[\ln(\text{total hardness mg/L})]+1.561)$

The MS in µg/L shall not exceed: $\exp.(0.819[\ln(\text{total hardness mg/L})]+3.688)$

The FAV in µg/L shall not exceed: $\exp.(0.819[\ln(\text{total hardness mg/L})]+4.380)$

Where: exp. is the natural antilogarithm (base e) of the expression in parenthesis.

For hardness values greater than 400 mg/L, 400 mg/L shall be used to calculate the standard.

Example of total chromium +3 standards for five total hardness values:

TH in mg/L	50	100	200	300	400
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Chromium +3, total

CS µg/L	117	207	365	509	644
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MS µg/L	984	1,737	3,064	4,270	5,405
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FAV µg/L	1,966	3,469	6,120	8,530	10,797
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**Substance,
Characteristic,
or Pollutant
(Class 2B)**

Units

CS

**Basis
for
CS**

MS

FAV

**Basis
for MS,
FAV**

Chromium +6, total	µg/L	11	Tox	16	32	Tox
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Cobalt, total	µg/L	5.0	Tox	436	872	Tox
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Copper, total	µg/L	equation	Tox	equation	equation	Tox
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The CS, MS, and FAV vary with total hardness and are calculated using the following equations:

The CS in µg/L shall not exceed: $\exp.(0.6200[\ln(\text{total hardness mg/L})]-0.570)$

The MS in µg/L shall not exceed: $\exp.(0.9422[\ln(\text{total hardness mg/L})]-1.464)$

The FAV in µg/L shall not exceed: $\exp.(0.9422[\ln(\text{total hardness mg/L})]-0.7703)$

Where: exp. is the natural antilogarithm (base e) of the expression in parenthesis.

For hardness values greater than 400 mg/L, 400 mg/L shall be used to calculate the standard.

Example of total copper standards for five total hardness values:

TH in mg/L	50	100	200	300	400
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Copper, total

CS µg/L	6.4	9.8	15	19	23
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MS µg/L	9.2	18	34	50	65
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FAV µg/L	18	35	68	100	131
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Substance, Characteristic, or Pollutant (Class 2B)	Units	CS	Basis for CS	MS	FAV	Basis for MS, FAV
Cyanide, free	µg/L	5.2	Tox	22	45	Tox
DDT (c)	ng/L	1.7	HH	550*	1,100*	Tox
1,2-Dichloroethane (c)	µg/L	190	HH	45,050*	90,100*	Tox
Dieldrin (c)	ng/L	0.026	HH	1,300*	2,500*	Tox
Di-2-ethylhexyl phthalate (c)	µg/L	2.1	HH	--*	--*	NA
Di-n-octyl phthalate	µg/L	30	Tox	825	1,650	Tox
Endosulfan	µg/L	0.031	HH	0.28	0.56	Tox
Endrin	µg/L	0.016	HH	0.090	0.18	Tox
<i>Escherichia (E.) coli</i>	See below	See below	HH	See below	See below	NA

Not to 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.

Ethylbenzene	µg/L	68	Tox	1,859	3,717	Tox
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Substance, Characteristic, or Pollutant (Class 2B)	Units	CS	Basis for CS	MS	FAV	Basis for MS, FAV
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Eutrophication standards for class 2B lakes, ~~shallow lakes~~, and reservoirs.

Dimictic Lakes, ~~Shallow Lakes~~, and Reservoirs in Northern Lakes and Forest Forests and Northern Minnesota Wetlands Ecoregions:

Phosphorus, total	µg/L	30 <u>20</u>	NA	--	--	NA
Chlorophyll-a	µg/L	9	NA	--	--	NA
Secchi disk transparency	meters	Not less than 2.0 <u>1.8</u>	NA	--	--	NA

Dimictic Lakes and Reservoirs in North Central Hardwood Forest Forests Ecoregion:

Phosphorus, total	µg/L	40	NA	--	--	NA
Chlorophyll-a	µg/L	14	NA	--	--	NA
Secchi disk transparency	meters	Not less than 1.4	NA	--	--	NA

Dimictic Lakes and Reservoirs in Western Corn Belt Plains and Northern Glaciated Plains Ecoregions:

Phosphorus, total	µg/L	65	NA	--	--	NA
Chlorophyll-a	µg/L	22	NA	--	--	NA
Secchi disk transparency	meters	Not less than 0.9	NA	--	--	NA

Polymictic Lakes in Northern Lakes and Forests and Northern Minnesota Wetlands Ecoregions:

<u>Phosphorus, total</u>	<u>µg/L</u>	<u>32</u>	<u>NA</u>	<u>--</u>	<u>--</u>	<u>NA</u>
<u>Chlorophyll-a</u>	<u>µg/L</u>	<u>18</u>	<u>NA</u>	<u>--</u>	<u>--</u>	<u>NA</u>
<u>Secchi disk transparency</u>	<u>meters</u>	<u>Not less than 0.9</u>	<u>NA</u>	<u>--</u>	<u>--</u>	<u>NA</u>

~~Shallow~~ Polymictic Lakes in North Central Hardwood Forest Forests Ecoregion:

Phosphorus, total	µg/L	60	NA	--	--	NA
Chlorophyll-a	µg/L	20	NA	--	--	NA
Secchi disk transparency	meters	Not less than 1.0	NA	--	--	NA

~~Shallow~~ Polymictic Lakes in Western Corn Belt Plains and Northern Glaciated Plains Ecoregions:

Phosphorus, total	µg/L	90	NA	--	--	NA
Chlorophyll-a	µg/L	30	NA	--	--	NA
Secchi disk transparency	meters	Not less than 0.7	NA	--	--	NA

Additional narrative eutrophication standards for class 2B lakes, ~~shallow lakes~~, and reservoirs are found in subpart 4a.

Substance, Characteristic, or Pollutant (Class 2B)	Units	CS	Basis for CS	MS	FAV	Basis for MS, FAV
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Eutrophication standards for class 2B rivers and streams.

North River Nutrient Region:

Phosphorus, total	µg/L	less than or equal to 50
Chlorophyll-a (seston)	µg/L	less than or equal to 7
Diel dissolved oxygen flux	mg/L	less than or equal to 3.0
Biochemical oxygen demand (BOD ₅)	mg/L	less than or equal to 1.5

Central River Nutrient Region:

Phosphorus, total	µg/L	less than or equal to 100
Chlorophyll-a (seston)	µg/L	less than or equal to 18
Diel dissolved oxygen flux	mg/L	less than or equal to 3.5
Biochemical oxygen demand (BOD ₅)	mg/L	less than or equal to 2.0

South River Nutrient Region:

Phosphorus, total	µg/L	less than or equal to 150
Chlorophyll-a (seston)	µg/L	less than or equal to 40 <u>35</u>
Diel dissolved oxygen flux	mg/L	less than or equal to 5.0 <u>4.5</u>
Biochemical oxygen demand (BOD ₅)	mg/L	less than or equal to 3.5 <u>3.0</u>

Site-specific standards for specified river reaches or other waters are:

Mississippi River Navigational Pool 1 (river miles 854.1 to 847.7 reach from Fridley Upper St. Anthony Falls to Ford Lock and Dam No. 1 in St. Paul):

Phosphorus, total	µg/L	less than or equal to 100
Chlorophyll-a (seston)	µg/L	less than or equal to 35

Mississippi River Navigational Pool 2 (river miles 847.7 to 815.2 reach from Ford Lock and Dam No. 1 to Hastings Lock and Dam No. 2):

Phosphorus, total	µg/L	less than or equal to 125
Chlorophyll-a (seston)	µg/L	less than or equal to 35

Mississippi River Navigational Pool 3 (river miles 815.2 to 796.9 reach from Hastings Lock and Dam No. 2 to Red Wing Lock and Dam No. 3):

Phosphorus, total	µg/L	less than or equal to 100
Chlorophyll-a (seston)	µg/L	less than or equal to 35

Mississippi River Navigational Pool 4 (river miles 796.9 to 752.8 reach from Red Wing Lock and Dam No. 3 to Alma Lock and Dam No. 4): Lake Pepin occupies majority of Pool 4 and Lake Pepin site-specific standards are used for this pool.

Mississippi River Navigational Pools 5 to 8 (river miles 752.8 to 679.1 Alma Lock and Dam No. 4 to Genoa Lock and Dam No. 8):

Phosphorus, total	µg/L	less than or equal to 100
Chlorophyll-a (seston)	µg/L	less than or equal to 35

Lake Pepin:

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

Crow Wing River from confluence of Long Prairie River to the mouth of the Crow Wing River at the Mississippi River:

Phosphorus, total	µg/L	less than or equal to 75
Chlorophyll-a (seston)	µg/L	less than or equal to 13

Diel dissolved oxygen flux	mg/L	less than or equal to 3.5
Biochemical oxygen demand (BOD ₅)	mg/L	less than or equal to 1.7

Crow River from the confluence of the North Fork of the Crow River and South Fork of the Crow River to the mouth of the Crow River at the Mississippi River;

Phosphorus, total	µg/L	less than or equal to 125
Chlorophyll-a (seston)	µg/L	less than or equal to 27
Diel dissolved oxygen flux	mg/L	less than or equal to 4.0
Biochemical oxygen demand (BOD ₅)	mg/L	less than or equal to 2.5

Additional narrative eutrophication standards for class 2B rivers and streams are found in subpart 4b.

**Substance,
Characteristic,
or Pollutant
(Class 2B)**

	Units	CS	Basis for CS	MS	FAV	Basis for MS, FAV
Fluoranthene	µg/L	1.9	Tox	3.5	6.9	Tox
Heptachlor (c)	ng/L	0.39	HH	260*	520*	Tox
Heptachlor epoxide (c)	ng/L	0.48	HH	270*	530*	Tox
Hexachlorobenzene (c)	ng/L	0.24	HH	--*	--*	Tox
Lead, total	µg/L	equation	Tox	equation	equation	Tox

The CS, MS, and FAV vary with total hardness and are calculated using the following equations:

The CS in µg/L shall not exceed: $\exp.(1.273[\ln(\text{total hardness mg/L})]-4.705)$

The MS in µg/L shall not exceed: $\exp.(1.273[\ln(\text{total hardness mg/L})]-1.460)$

The FAV in µg/L shall not exceed: $\exp.(1.273[\ln(\text{total hardness mg/L})]-0.7643)$

Where: exp. is the natural antilogarithm (base e) of the expression in parenthesis.

For hardness values greater than 400 mg/L, 400 mg/L shall be used to calculate the standard.

Example of total lead standards for five total hardness values:

TH in mg/L	50	100	200	300	400
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Lead, total

CS µg/L	1.3	3.2	7.7	13	19
---------	-----	-----	-----	----	----

MS µg/L	34	82	197	331	477
---------	----	----	-----	-----	-----

FAV µg/L	68	164	396	663	956
----------	----	-----	-----	-----	-----

**Substance,
Characteristic,
or Pollutant
(Class 2B)**

Units	CS	Basis for CS	MS	FAV	Basis for MS, FAV
--------------	-----------	-----------------------------	-----------	------------	----------------------------------

Lindane (c) (Hexachlorocyclohexene, gamma-)	µg/L	0.036	HH	4.4*	8.8*	Tox
Mercury, total in water	ng/L	6.9	HH	2,400*	4,900*	Tox
Mercury, total in edible fish tissue	mg/kg ppm	0.2	HH	NA	NA	NA
Methylene chloride (c) (Dichloromethane)	µg/L	1,940	HH	13,875	27,749	Tox
Metolachlor	µg/L	23	Tox	271	543	Tox
Naphthalene	µg/L	81	Tox	409	818	Tox
Nickel, total	µg/L	equation	Tox	equation	equation	Tox

The CS, MS, and FAV vary with total hardness and are calculated using the following equations:

The CS in µg/L shall not exceed: $\exp.(0.846[\ln(\text{total hardness mg/L})]+1.1645)$

The MS in µg/L shall not exceed: $\exp.(0.846[\ln(\text{total hardness mg/L})]+3.3612)$

The FAV in µg/L shall not exceed: $\exp.(0.846[\ln(\text{total hardness mg/l})]+4.0543)$

Where: exp. is the natural antilogarithm (base e) of the expression in parenthesis.

For hardness values greater than 400 mg/L, 400 mg/L shall be used to calculate the standard.

Example of total nickel standards for five total hardness values:

TH in mg/L	50	100	200	300	400
Nickel, total					
CS µg/L	88	158	283	399	509
MS µg/L	789	1,418	2,549	3,592	4,582
FAV µg/L	1,578	2,836	5,098	7,185	9,164

Substance, Characteristic, or Pollutant (Class 2B)	Units	CS	Basis for CS	MS	FAV	Basis for MS, FAV
Oil	µg/l	500	NA	5,000	10,000	NA
Oxygen, dissolved	mg/L	See below	NA	--	--	NA

5.0 mg/L as a daily minimum. This dissolved oxygen standard may be modified on a site-specific basis according to part 7050.0220, subpart 7, except that no site-specific standard shall be less than 5 mg/L as a daily average and 4 mg/L as a daily minimum. Compliance with this standard is required 50 percent of the days at which the flow of the receiving water is equal to the 7Q₁₀. This standard applies to all class 2B waters except for:

- (1) those portions of the Mississippi River from the outlet of the Metro Wastewater Treatment Works in Saint Paul (River Mile 835) to Lock and Dam No. 2 at Hastings (River Mile 815). For this reach of the Mississippi River, the standard is not less than 5 mg/L as a daily average from April 1 through November 30, and not less than 4 mg/L at other times; and
- (2) the portion of the Minnesota River from the outlet of the Blue Lake wastewater treatment works (River Mile 21) to the mouth at Fort Snelling. For the specified reach of the Minnesota River, the standard is not less than 5 mg/L as a daily average year round.

Parathion	µg/L	0.013	Tox	0.07	0.13	Tox
Pentachlorophenol	µg/L	equation	Tox/HH equation	equation		Tox

The CS, MS, and FAV vary with pH and are calculated using the following equations:

For waters with pH values greater than 6.95, the CS shall not exceed the human health-based standard of 5.5 µg/L.

For waters with pH values less than 6.96, the CS in µg/L shall not exceed the toxicity-based standard of $\exp.(1.005[\text{pH}]-5.290)$

The MS in µg/L shall not exceed: $\exp.(1.005[\text{pH}]-4.830)$

The FAV in µg/L shall not exceed: $\exp.(1.005[\text{pH}]-4.1373)$

Where: exp. is the natural antilogarithm (base e) of the expression in parenthesis.

For pH values less than 6.0, 6.0 shall be used to calculate the standard and for pH values greater than 9.0, 9.0 shall be used to calculate the standard.

Example of pentachlorophenol standards for five pH values:

pH su	6.5	7.0	7.5	8.0	8.5
-------	-----	-----	-----	-----	-----

Pentachlorophenol

CS µg/L	3.5	5.5	5.5	5.5	5.5
MS µg/L	5.5	9.1	15	25	41
FAV µg/L	11	18	30	50	82

**Substance,
Characteristic,
or Pollutant
(Class 2B)**

Units	CS	Basis for CS	MS	FAV	Basis for MS, FAV
--------------	-----------	-----------------------------	-----------	------------	----------------------------------

pH, minimum	su	6.5	NA	--	--	NA
pH, maximum	su	9.0	NA	--	--	NA
Phenanthrene	µg/L	3.6	Tox	32	64	Tox
Phenol	µg/L	123	Tox	2,214	4,428	Tox

Polychlorinated biphenyls, total (c)	ng/L	0.029	HH	1,000*	2,000*	Tox
Radioactive materials	NA	See below	NA	See below	See below	NA

Not to exceed the lowest concentrations permitted to be discharged to an uncontrolled environment as permitted by the appropriate authority having control over their use.

Selenium, total	µg/L	5.0	Tox	20	40	Tox
Silver, total	µg/L	1.0	Tox	equation	equation	Tox

The MS and FAV vary with total hardness and are calculated using the following equations:

The MS in µg/L shall not exceed: $\exp.(1.720[\ln(\text{total hardness mg/L})]-7.2156)$

The FAV in µg/L shall not exceed: $\exp.(1.720[\ln(\text{total hardness mg/L})]-6.520)$

Where: exp. is the natural antilogarithm (base e) of the expression in parenthesis.

For hardness values greater than 400 mg/L, 400 mg/L shall be used to calculate the standard.

Example of total silver standards for five total hardness values:

TH in mg/L	50	100	200	300	400
------------	----	-----	-----	-----	-----

Silver, total

CS µg/L	1.0	1.0	1.0	1.0	1.0
MS µg/L	1.0	2.0	6.7	13	22
FAV µg/L	1.2	4.1	13	27	44

**Substance,
Characteristic,
or Pollutant
(Class 2B)**

Units

CS

**Basis
for
CS**

MS

FAV

**Basis
for MS,
FAV**

Temperature	°F	See below	NA	--	--	NA
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5°F above natural in streams and 3°F above natural in lakes, based on monthly average of the maximum daily temperatures, except in no case shall it exceed the daily average temperature of 86°F.

1,1,2,2-Tetrachloroethane (c)	µg/L	13	HH	1,127	2,253	Tox
Tetrachloroethylene (c)	µg/L	8.9	HH	428	857	Tox
Thallium, total	µg/L	0.56	HH	64	128	Tox
Toluene	µg/L	253	Tox	1,352	2,703	Tox
Toxaphene (c)	ng/L	1.3	HH	730*	1,500*	Tox
1,1,1-Trichloroethane	µg/L	329	Tox	2,957	5,913	Tox
1,1,2-Trichloroethylene (c)	µg/L	120	HH	6,988	13,976	Tox
2,4,6-Trichlorophenol	µg/L	2.0	HH	102	203	Tox

Total suspended solids (TSS)

North River Nutrient Region	mg/L	15	NA	--	--	NA
Central River Nutrient Region	mg/L	30	NA	--	--	NA
South River Nutrient Region	mg/L	65	NA	--	--	NA
Red River mainstem - headwaters to border	mg/L	100	NA	--	--	NA

TSS standards for the class 2B
North, Central, and South
River Nutrient Regions and
the Red River mainstem may
be exceeded for no more than
ten percent of the time. This
standard applies April 1
through September 30

Total suspended solids (TSS), summer average

Lower Mississippi River mainstem - Pools 2 through 4	mg/L	32	NA	--	--	NA
Lower Mississippi River mainstem below Lake Pepin	mg/L	30	NA	--	--	NA

TSS standards for the class 2B
Lower Mississippi River may

be exceeded for no more than 50 percent of the time. This standard applies June 1 through September 30

**Substance,
Characteristic,
or Pollutant
(Class 2B)**

**Units CS Basis
for CS MS FAV Basis
for MS,
FAV**

Vinyl chloride (c)	µg/L	9.2	HH	--*	--*	NA
Xylene, total m,p,o	µg/L	166	Tox	1,407	2,814	Tox
Zinc, total	µg/L	equation	Tox	equation	equation	Tox

The CS, MS, and FAV vary with total hardness and are calculated using the following equations:

The CS in µg/L shall not exceed: $\exp.(0.8473[\ln(\text{total hardness mg/L})]+0.7615)$

The MS in µg/L shall not exceed: $\exp.(0.8473[\ln(\text{total hardness mg/L})]+0.8604)$

The FAV in µg/L shall not exceed: $\exp.(0.8473[\ln(\text{total hardness mg/L})]+1.5536)$

Where: exp. is the natural antilogarithm (base e) of the expression in parenthesis.

For hardness values greater than 400 mg/L, 400 mg/L shall be used to calculate the standard.

Example of total zinc standards for five total hardness values:

TH in mg/L	50	100	200	300	400
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Zinc, total

CS µg/L	59	106	191	269	343
MS µg/L	65	117	211	297	379
FAV µg/L	130	234	421	594	758

Subp. 4a. **Narrative eutrophication standards for class 2B lakes, ~~shallow lakes,~~ and reservoirs.**

A. Eutrophication standards applicable to lakes, ~~shallow lakes,~~ and reservoirs that lie on the border between two ecoregions or that are in the Red River Valley (also referred to as Lake Agassiz Plains), Northern Minnesota Wetlands, or Driftless Area Ecoregion must be applied on a case-by-case basis. The commissioner shall use the standards applicable to adjacent ecoregions as a guide.

[For text of item B, see Minnesota Rules]

C. It is the policy of the agency to protect all lakes, ~~shallow lakes,~~ and reservoirs from the undesirable effects of cultural eutrophication. Lakes, ~~shallow lakes,~~ and reservoirs with a baseline quality better than the numeric eutrophication standards in subpart 4 must be maintained in that condition through the strict application of all relevant federal, state, and local requirements governing antidegradation, the discharge of nutrients from point and nonpoint sources, and the protection of lake, ~~shallow lake,~~ and reservoir resources, including, but not limited to:

[For text of subitems (1) to (7), see Minnesota Rules]

D. Lakes, ~~shallow lakes,~~ and reservoirs with a baseline quality that is poorer than the numeric eutrophication standards in subpart 4 must be considered to be in compliance with the standards if the baseline quality is the result of natural causes. The commissioner shall determine baseline quality and compliance with these standards using data and the procedures in part 7050.0150, subpart 5.

[For text of item E, see Minnesota Rules]

[For text of subpart 4b, see Minnesota Rules]

Subp. 4c. **Beneficial use definitions for lotic warm or cool water aquatic life and habitats (class 2B).**

A. Subitems (1) to (5) apply to the beneficial uses in items B to D:

[For text of subitem (1), see Minnesota Rules]

(2) The attributes of species composition, diversity, and functional organization are measured using:

(a) the fish IBI as defined in Fish Data Collection Protocols for Lotic Waters in Minnesota (2017); ~~or~~

(b) the macroinvertebrate IBI as defined in Macroinvertebrate Data Collection Protocols for Lotic Waters in Minnesota (2017); or

(c) the fish IBI for lentic habitats as defined in Manual of Instructions for Lake Survey (2017) and Lake Index of Biological Integrity (IBI) Nearshore Sampling Manual (2022).

[For text of subitem (3), see Minnesota Rules]

(4) The following documents are incorporated by reference and are not subject to frequent change:

(a) Calibration of the Biological Condition Gradient for Streams of Minnesota, Gerritsen et al. (2012). The document is available on the agency's website at ~~www.pca.state.mn.us/regulations/minnesota-rulemaking~~
<https://www.pca.state.mn.us/get-engaged/incorporations-by-reference>;

(b) Fish Data Collection Protocols for Lotic Waters in Minnesota, Minnesota Pollution Control Agency (2017). The document is available on the agency's website at ~~www.pca.state.mn.us/regulations/minnesota-rulemaking~~
<https://www.pca.state.mn.us/get-engaged/incorporations-by-reference>;

(c) Macroinvertebrate Data Collection Protocols for Lotic Waters in Minnesota, Minnesota Pollution Control Agency (2017). The document is available on the agency's website at ~~www.pca.state.mn.us/regulations/minnesota-rulemaking~~ https://www.pca.state.mn.us/get-engaged/incorporations-by-reference; ~~and~~

(d) Development of Biological Criteria for Tiered Aquatic Life Uses, Minnesota Pollution Control Agency (2016). The document is available on the agency's website at ~~www.pca.state.mn.us/regulations/minnesota-rulemaking~~ https://www.pca.state.mn.us/get-engaged/incorporations-by-reference;

(e) Biological Condition Gradient (BCG) Assessment Models for Lake Fish Communities of Minnesota, Gerritsen and Stamp (2014). The document is available on the agency's website at https://www.pca.state.mn.us/get-engaged/incorporations-by-reference;

(f) Manual of Instructions for Lake Survey, Minnesota Department of Natural Resources (2017). The document is available on the agency's website at https://www.pca.state.mn.us/get-engaged/incorporations-by-reference;

(g) Lake Index of Biological Integrity (IBI) Nearshore Sampling Manual, Minnesota Department of Natural Resources (2022). The document is available on the agency's website at https://www.pca.state.mn.us/get-engaged/incorporations-by-reference; and

(h) Development of Fish-Based Indices of Biological Integrity for Minnesota Lakes, Bacigalupi et al. (2021). The document is available on the agency's website at https://www.pca.state.mn.us/get-engaged/incorporations-by-reference.

(5) The beneficial use subclass designators "e," "g," and "m" are added to the class 2B designator as specific additional designators. The additional subclass designators do not replace the class 2B designator. All requirements for class 2B warm or cool water

~~stream and river~~ habitats in parts 7050.0222 and 7052.0100 continue to apply in addition to requirements for class 2Be, class 2Bg, or class 2Bm warm or cool water ~~stream and river~~ habitats in part 7050.0222. ~~These~~ The "m" subclass designators are designator is applied to lotic waters only.

B. "Exceptional cool and warm water aquatic life and habitat" or "class 2Be" is a beneficial use that means waters capable of supporting and maintaining an exceptional and balanced, integrated, adaptive community of warm or cool water aquatic organisms having a species composition, diversity, and functional organization comparable to the 75th percentile of biological condition gradient level 3 as established in Calibration of the Biological Condition Gradient for Streams of Minnesota, Gerritsen et al. (2012) for streams and rivers and in Biological Condition Gradient (BCG) Assessment Models for Lake Fish Communities of Minnesota, Gerritsen and Stamp (2014) for lakes.

C. "General cool and warm water aquatic life and habitat" or "class 2Bg" is a beneficial use that means waters capable of supporting and maintaining a balanced, integrated, adaptive community of warm or cool water aquatic organisms having a species composition, diversity, and functional organization comparable to the median of biological condition gradient level 4 as established in Calibration of the Biological Condition Gradient for Streams of Minnesota, Gerritsen et al. (2012) for streams and rivers and in Biological Condition Gradient (BCG) Assessment Models for Lake Fish Communities of Minnesota, Gerritsen and Stamp (2014) for lakes.

[For text of item D, see Minnesota Rules]

Subp. 4d. **Biological criteria for lotic warm or cool water aquatic life and habitats (class 2B).**

Water Body Type	Tier	Class	Assemblage	Biocriterion
Southern rivers	Exceptional 2Be	Fish		71

06/03/26	REVISOR	CKM/RC	RD4740
	General 2Bg	Fish	49
Southern streams	Exceptional 2Be	Fish	66
	General 2Bg	Fish	50
	Modified 2Bm	Fish	35
Southern headwaters	Exceptional 2Be	Fish	74
	General 2Bg	Fish	55
	Modified 2Bm	Fish	33
Northern rivers	Exceptional 2Be	Fish	67
	General 2Bg	Fish	38
Northern streams	Exceptional 2Be	Fish	61
	General 2Bg	Fish	47
	Modified 2Bm	Fish	35
Northern headwaters	Exceptional 2Be	Fish	68
	General 2Bg	Fish	42
	Modified 2Bm	Fish	23
Low gradient	Exceptional 2Be	Fish	70
	General 2Bg	Fish	42
	Modified 2Bm	Fish	15
Northern forest rivers	Exceptional 2Be	Macroinvertebrates	77
	General 2Bg	Macroinvertebrates	49
Prairie and southern forest rivers	Exceptional 2Be	Macroinvertebrates	63
	General 2Bg	Macroinvertebrates	31
High-gradient northern forest streams	Exceptional 2Be	Macroinvertebrates	82
	General 2Bg	Macroinvertebrates	53
Low-gradient northern forest streams	Exceptional 2Be	Macroinvertebrates	76

	General	2Bg	Macroinvertebrates	51
	Modified	2Bm	Macroinvertebrates	37
High-gradient southern streams	Exceptional	2Be	Macroinvertebrates	62
	General	2Bg	Macroinvertebrates	37
	Modified	2Bm	Macroinvertebrates	24
Low-gradient southern forest streams	Exceptional	2Be	Macroinvertebrates	66
	General	2Bg	Macroinvertebrates	43
	Modified	2Bm	Macroinvertebrates	30
Low-gradient prairie streams	Exceptional	2Be	Macroinvertebrates	69
	General	2Bg	Macroinvertebrates	41
	Modified	2Bm	Macroinvertebrates	22
<u>Deep, complex lakes</u>	<u>Exceptional</u>	<u>2Ae</u>	<u>Fish</u>	<u>64</u>
	<u>General</u>	<u>2Ag</u>	<u>Fish</u>	<u>45</u>
<u>Deep, moderately complex lakes</u>	<u>Exceptional</u>	<u>2Ae</u>	<u>Fish</u>	<u>59</u>
	<u>General</u>	<u>2Ag</u>	<u>Fish</u>	<u>38</u>
<u>Moderately deep lakes</u>	<u>General</u>	<u>2Ag</u>	<u>Fish</u>	<u>24</u>
<u>Shallow lakes</u>	<u>General</u>	<u>2Ag</u>	<u>Fish</u>	<u>36</u>

The biological criteria for lotic warm or cool water aquatic life and habitats (class 2B) are applicable to perennial and intermittent waters that allow for colonization of fish or macroinvertebrates.

[For text of subparts 5 to 9, see Minnesota Rules]

7050.0460 WATERS SPECIFICALLY CLASSIFIED; EXPLANATION OF LISTINGS IN PART 7050.0470.

[For text of subparts 1 and 2, see Minnesota Rules]

Subp. 3. **Abbreviations and symbols.** The listings in part 7050.0470 include the following abbreviations and symbols:

T., R., S. means township, range, and section, respectively.

An asterisk (*) preceding the name of the water body means the water body is an outstanding resource value water.

[month/day/year/letter code] ~~following the name of the outstanding resource value water in brackets~~ is the effective date the water resource was designated as an outstanding resource value water. The letter code (P or R) indicates the applicable discharge restrictions in part 7050.0265, subpart 6 or 7, or 7050.0270, subpart 5 or 6. The letter code P corresponds to the prohibited discharges provision in part 7050.0265, subpart 7, or 7050.0270, subpart 6. The letter code R corresponds to the restricted discharges provision in part 7050.0265, subpart 6, or 7050.0270, subpart 5.

[WR] ~~following the name of the water body~~ means the water body is a designated as a wild rice water in part 7050.0470, subpart 1.

[LAT] means the water body is a designated lake trout (*Salvelinus namaycush*) lake in part 7050.0470.

[LKW] means the water body is a designated lake whitefish (*Coregonus clupeaformis*) lake in part 7050.0470.

[TLC] means the water body is a designated cisco (*Coregonus artedii*) lake in part 7050.0470.

[SRT] means the water body is a designated stream trout lake in part 7050.0470.

Class 2Bd waters are class 2B waters also protected for domestic consumption purposes (class 1). Applicable standards for class 2Bd waters are listed in part 7050.0222, subparts 3 and 3a.

7050.0470 CLASSIFICATIONS FOR SURFACE WATERS IN MAJOR DRAINAGE BASINS.

Subpart 1. **Lake Superior basin.** The water-use classifications for the stream reaches within each of the major watersheds in the Lake Superior basin listed in item A are found in tables entitled "Beneficial Use Designations for Stream Reaches" published on the website of the Minnesota Pollution Control Agency at ~~www.pca.state.mn.us/regulations/incorporations-reference~~ <https://www.pca.state.mn.us/get-engaged/incorporations-by-reference>. The tables are incorporated by reference and are not subject to frequent change. The date after each watershed listed in item A is the publication date of the applicable table. The water-use classifications for the other listed waters in the Lake Superior basin are as identified in items B to D. See part 7050.0415 for the classifications of waters not listed. Designated use information for water bodies can also be accessed through the agency's Environmental Data Access (<http://www.pca.state.mn.us/quick-links/eda-surface-water-data>). For an explanation of listings and abbreviations, see part 7050.0460.

[For text of item A, see Minnesota Rules]

B. Lakes (by eight-digit hydrologic unit code):

- (1) 04010101 Lake Superior - North (November 2025);
- (2) 04010102 Lake Superior - South (November 2025);
- (3) 04010201 St. Louis River (November 2025);
- (4) 04010202 Cloquet River (November 2025); and
- (5) 04010301 Nemadji River (November 2025).

- (1) ~~*Alder Lake, 16-0114-00, [11/5/84P] (T.64, R.1E): 1B, 2A, 3, 4A, 4B, 5, 6;~~
- (2) ~~*Alton Lake, 16-0622-00, [11/5/84P] (T.62, 63, R.4, 5): 1B, 2A, 3, 4A, 4B, 5, 6;~~
- (3) ~~Artichoke Lake, 69-0623-00, [WR] (T.52, R.17, S.17, 18, 19, 20): 2B, 3, 4A, 4B, 5, 6;~~
- (4) ~~Bath Lake, 16-0164-00, (T.62, R.1W, S.5, 6; T.63, R.1W, S.31, 32): 1B, 2A, 3, 4A, 4B, 5, 6;~~
- (5) ~~Bean Lake (lower Twin), 38-0409-00, (T.56, R.8W, S.25, 26): 1B, 2A, 3, 4A, 4B, 5, 6;~~
- (6) ~~Bear Lake (see Twin Lake, upper);~~
- (7) ~~Bearskin Lake, East, 16-0146-00, (T.64, R.1E, 1W): 1B, 2A, 3, 4A, 4B, 5, 6;~~
- (8) ~~*Bearskin Lake, West, 16-0228-00, [3/7/88R] (T.64, 65, R.1): 1B, 2A, 3, 4A, 4B, 5, 6;~~
- (9) ~~*Bench Lake, 16-0063-00, [11/5/84P] (T.64, 2E, S.6): 1B, 2A, 3, 4A, 4B, 5, 6;~~
- (10) ~~Benson Lake, 38-0018-00, (T.58, R.6W, S.29): 1B, 2A, 3, 4A, 4B, 5, 6;~~
- (11) ~~*Birch Lake, 16-0247-00, [3/7/88R] (T.65, R.1, 2): 1B, 2A, 3, 4A, 4B, 5, 6;~~
- (12) ~~*Black Lake, 58-0001-00, [3/7/88P] (T.45, R.15): 1B, 2Bd, 3, 4A, 4B, 5, 6;~~

- (13) ~~Bluebill Lake, 38-0261-00, [WR] (T.59, R.7, S.15): 2B, 3, 4A, 4B, 5, 6;~~
- (14) ~~Bogus Lake, 16-0050-00, (T.62, R.2E, S.12): 1B, 2A, 3, 4A, 4B, 5, 6;~~
- (15) ~~Bone Lake, 38-0065-00, (T.61, R.6W, S.13, 14): 1B, 2A, 3, 4A, 4B, 5, 6;~~
- (16) ~~Bow Lake, 16-0211-00, (T.64, R.1W, S.15): 1C, 2Bd, 3, 4A, 4B, 5, 6;~~
- (17) ~~Boys Lake, 16-0044-00, (T.62, R.2E, S.5, 8): 1B, 2A, 3, 4A, 4B, 5, 6;~~
- (18) ~~Breda Lake, 69-0037-00, [WR] (T.56, R.12, S.16): 2B, 3, 4A, 4B, 5, 6;~~
- (19) ~~Briar Lake, 69-0128-00, (T.53, R.13W, S.14, 15, 23): 1B, 2A, 3, 4A, 4B, 5, 6;~~
- (20) ~~*Brule Lake, 16-0348-00, [11/5/84P] (T.63, R.2, 3): 1B, 2A, 3, 4A, 4B, 5, 6;~~
- (21) ~~Cabin Lake, 38-0260-00, [WR] (T.59, R.7, S.13, 14, 23, 24): 2B, 3, 4A, 4B, 5, 6;~~
- (22) ~~Canton Mine Pit Lake, 69-1294-00, (T.58, R.16, S.2, 3): 1C, 2Bd, 3, 4A, 4B, 5, 6;~~
- (23) ~~Caribou Lake, 16-0360-00, [WR] (T.60, R.3W, S.1, 2, 11, 12; T.61, R.3W, S.35, 36): 2B, 3, 4A, 4B, 5, 6;~~
- (24) ~~Carrot Lake, 16-0071-00, (T.64, R.2E, S.17): 1B, 2A, 3, 4A, 4B, 5, 6;~~
- (25) ~~Cedar Lake, 69-0431-00, (T.58, R.15W, S.20): 1B, 2Bd, 3, 4A, 4B, 5, 6;~~
- (26) ~~Chester Lake, 69-0033-00, (T.64, R.3E, S.32, 33): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(27) Christine Lake, 16-0373-00, [WR] (T.61, R.3W, S.28, 29, 32): 2B, 3, 4A, 4B, 5, 6;~~

~~(28) Clearwater Lake (Clear Lake), 69-0397-00, (T.52, R.15W, S.23): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(29) *Clearwater Lake (Emby Lake), 16-0139-00, [11/5/84P] (T.65, R.1E): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(30) Colby Lake, 69-0249-00, (T.58, R.14): 1B, 2Bd, 3, 4A, 4B, 5, 6;~~

~~(31) *Cone Lake, 16-0412-00, North, [11/5/84P] (T.63, 64, R.3): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(32) Corona Lake, 09-0048-00, (T.48, R.19W, S.11, 12): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(33) Corsica Mine Pit Lake, 69-1316-00, (T.58, R.16, S.18): 1C, 2Bd, 3, 4A, 4B, 5, 6;~~

~~(34) Crosseut Lake, 38-0257-00, (T.59, R.7W, S.7, 18): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(35) *Crystal Lake, 16-0090-00, [11/5/84P] (T.64, R.1E, 2E): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(36) *Daniels Lake, 16-0150-00, [11/5/84P] (T.65, R.1E, 1W): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(37) *Davis Lake, 16-0435-00, [11/5/84P] (T.64, R.3): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(38) Devilfish Lake, 16-0029-00, (T.64, R.3E): 1B, 2A, 3, 4A, 4B, 5, 6;~~

- (39) ~~Divide (Towhey) Lake, 38-0256-00, (T.59, R.7W, S.7, 8): 1B, 2A, 3, 4A, 4B, 5, 6;~~
- (40) ~~Duke Lake, 16-0111-00, (T.63, R.1E, S.30): 1B, 2A, 3, 4A, 4B, 5, 6;~~
- (41) ~~*Duncan Lake, 16-0232-00, [11/5/84P] (T.65, R.1): 1B, 2A, 3, 4A, 4B, 5, 6;~~
- (42) ~~*Dunn Lake, 16-0245-00, [11/5/84P] (T.65, R.1, 2): 1B, 2A, 3, 4A, 4B, 5, 6;~~
- (43) ~~East Lake, 38-0020-00, (T.59, R.6W, S.1, 2): 1B, 2A, 3, 4A, 4B, 5, 6;~~
- (44) ~~*Echo Lake, 38-0028-00, [3/7/88R] (T.59, R.6, S.14, 15, 22, 23): 1B, 2A, 3, 4A, 4B, 5, 6;~~
- (45) ~~Elbow Lake, Little, 69-1329-00, (T.57, R.18W, S.9, 10, 16): 1B, 2A, 3, 4A, 4B, 5, 6;~~
- (46) ~~Embarrass Mine Pit (Sabin Lake or Lake Mine), 69-0429-00, (T.58, R.15W, S.5, 6): 1B, 2A, 3, 4A, 4B, 5, 6~~
- (47) ~~Esther Lake, 16-0023-00, (T.63, R.3E, S.6; T.64, R.3E, S.31): 1B, 2A, 3, 4A, 4B, 5, 6;~~
- (48) ~~*Fan Lake (West Lily), 16-0084-00, [11/5/84P] (T.65, R.2E): 1B, 2Bd, 3, 4A, 4B, 5, 6;~~
- (49) ~~Feather Lake, 16-0905-00, (T.61, R.5W, S.35): 1B, 2A, 3, 4A, 4B, 5, 6;~~
- (50) ~~Flour Lake, 16-0147-00, (T.64, R.1E, 1W): 1B, 2A, 3, 4A, 4B, 5, 6;~~
- (51) ~~Fourmile Lake, 16-0639-00, [WR] (T.60, R.5W, S.4, 8, 9, 10, 16, 17): 2B, 3, 4A, 4B, 5, 6;~~

~~(52) Fowl Lake, North, 16-0036-00, (T.64, 65, R.3E): 1B, 2Bd, 3, 4A, 4B, 5, 6;~~

~~(53) Fowl Lake, South, 16-0034-00, (T.64, 65, R.3E): 1B, 2Bd, 3, 4A, 4B, 5, 6;~~

~~(54) Fraser Mine Pit Lake, (T.58, R.20, S.23): 1C, 2Bd, 3, 4A, 4B, 5, 6, until the city of Chisholm no longer uses Fraser Mine Pit Lake as a water supply source for its public water system, and then the classification is identified in part 7050.0415, subpart 4;~~

~~(55) *Gadwall Lake (Gadwell Lake), 16-0060-00, [11/5/84P] (T.64, R.2E, S.3): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(56) *Gaskin Lake, 16-0319-00, [11/5/84P] (T.64, R.2): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(57) *Gogebie Lake, 16-0087-00, [11/5/84P] (T.65, R.2E, S.30, 31): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(58) Goldeneye (Duck) Lake, 38-0029-00, (T.59, R.6W, S.15): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(59) *Greenwood Lake, 16-0077-00, [3/7/88R] (T.64, R.2E): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(60) Hay Lake, 69-0435-00, [WR] (T.59, R.15, S.8): 2B, 3, 4A, 4B, 5, 6;~~

~~(61) Hungry Jack Lake, 16-0227-00, (T.64, 65, R.1): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(62) Jim Lake (Jerry Lake), 16-0135-00, (T.64, R.1E): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(63) Judson Mine Pit, 69-1295-00, (T.58, R.19W, S.20, 29): 1B, 2A, 3, 4A, 4B, 5, 6;~~

(64) ~~Juneo Lake, 16-0159-00, (T.62, R.1W, S.11, 12, 13): 1B, 2A, 3, 4A, 4B, 5, 6;~~

(65) ~~*Kemo Lake, 16-0188-00, [3/7/88R] (T.63, R.1): 1B, 2A, 3, 4A, 4B, 5, 6;~~

(66) ~~Kimball Lake, 16-0045-00, (T.62, R.2E, S.7, 8, 17): 1B, 2A, 3, 4A, 4B, 5, 6;~~

(67) ~~Leo Lake, 16-0198-00, (T.64, R.1W, S.4, 5): 1B, 2A, 3, 4A, 4B, 5, 6;~~

(68) ~~Lieung (Lieuna) Lake, 69-0123-00, [WR] (T.53, R.13, S.3, 4, 9, 10): 2B, 3, 4A, 4B, 5, 6;~~

(69) ~~*Lily Lakes (Vaseux Lake and Fan Lake), 16-0083-00 and 16-0084-00, [11/5/84P] (T.65, R.2E): 1B, 2Bd, 3, 4A, 4B, 5, 6;~~

(70) ~~Lima Lake, 16-0226-00, (T.64, R.1W, S.35): 1B, 2A, 3, 4A, 4B, 5, 6;~~

(71) ~~*Lizz Lake, 16-0199-00, [11/5/84P] (T.64, R.1W, S.7, 18): 1B, 2A, 3, 4A, 4B, 5, 6;~~

(72) ~~Loaine (Sand) Lake, 69-0016-00, (T.54, R.12W, S.16, 17): 1B, 2A, 3, 4A, 4B, 5, 6;~~

(73) ~~Loft Lake, 16-0031-00, (T.64, R.3E, S.21): 1B, 2A, 3, 4A, 4B, 5, 6;~~

(74) ~~Long Lake, 69-0044-00, [WR] (T.57, R.12, S.4, 5; T.58, R.12, S.32, 33): 2B, 3, 4A, 4B, 5, 6;~~

(75) ~~Margaret Lake, 16-0896-00, (T.64, R.3E, S.27, 28, 33, 34): 1B, 2A, 3, 4A, 4B, 5, 6;~~

(76) ~~Marsh Lake, 16-0488-00, [WR] (T.62, R.4W, S.22, 23, 27, 28): 2B, 3, 4A, 4B, 5, 6;~~

- (77) ~~McFarland Lake, 16-0027-00, (T.64, R.3E): 1B, 2A, 3, 4A, 4B, 5, 6;~~
- (78) ~~Mesabi (Missabe) Mountain Mine Pit Lake, 69-1292-00, (T.58, R.17, S.8): 1C, 2Bd, 3, 4A, 4B, 5, 6;~~
- (79) ~~Mink Lake, 16-0046-00, (T.62, R.2E, S.8): 1B, 2A, 3, 4A, 4B, 5, 6;~~
- (80) ~~Mirror Lake, 69-0234-00, (T.52, R.14W, S.19, 30): 1B, 2A, 3, 4A, 4B, 5, 6;~~
- (81) ~~*Misquah Lake, 16-0225-00, [11/5/84P] (T.64, R.1): 1B, 2A, 3, 4A, 4B, 5, 6;~~
- (82) ~~Moore Lake, 16-0489-00, [WR] (T.62, R.4W, S.23, 24): 2B, 3, 4A, 4B, 5, 6;~~
- (83) ~~Moosehorn Lake, 16-0015-00, (T.63, R.3E, S.36; T.63, R.4E, S.31): 1B, 2A, 3, 4A, 4B, 5, 6;~~
- (84) ~~*Moose Lake, 16-0043-00, [11/5/84P] (T.65, R.2E, 3E): 1B, 2A, 3, 4A, 4B, 5, 6;~~
- (85) ~~Morton Mine Pit Lake, 69-1310-00, (T.57, R.21, S.10, 11, 14): 1C, 2Bd, 3, 4A, 4B, 5, 6;~~
- (86) ~~*Moss Lake, 16-0234-00, [3/7/88R] (T.65, R.1): 1B, 2A, 3, 4A, 4B, 5, 6;~~
- (87) ~~*Mountain Lake, 16-0093-00, [11/5/84P] (T.65, R.1E, 2E): 1B, 2A, 3, 4A, 4B, 5, 6;~~
- (88) ~~Muckwa Lake, 16-0105-00, (T.63, R.1E, S.21, 28): 1B, 2A, 3, 4A, 4B, 5, 6;~~

- (89) ~~*Mulligan Lake, 16-0389-00, [11/5/84P] (T.63, R.3W, S.1, 12): 1B, 2A, 3, 4A, 4B, 5, 6;~~
- (90) ~~Musquash Lake, 16-0104-00, (T.63, R.1E, S.20, 28, 29): 1B, 2A, 3, 4A, 4B, 5, 6;~~
- (91) ~~Normanna Lake, 69-0122-00, (T.52, R.13W, S.7, 8): 1B, 2A, 3, 4A, 4B, 5, 6;~~
- (92) ~~Northern Light Lake, 16-0089-00, [WR] (T.63, R.2E, S.29, 30, 31, 32, 33; T.63, R.1E, S.25): 2B, 3, 4A, 4B, 5, 6;~~
- (93) ~~Olga Lake, 16-0024-00, (T.63, R.3E, S.6; T.64, R.3E, S.31): 1B, 2A, 3, 4A, 4B, 5, 6;~~
- (94) ~~Olson Lake, 16-0158-00, (T.62, R.1W, S.9, 16): 1B, 2A, 3, 4A, 4B, 5, 6;~~
- (95) ~~*Onega Lake (Omega Lake), 16-0353-00, [11/5/84P] (T.64, R.2, 3): 1B, 2A, 3, 4A, 4B, 5, 6;~~
- (96) ~~*Otto Lake, lower (South Otto), 16-0323-00, [11/5/84P] (T.64, R.2): 1B, 2A, 3, 4A, 4B, 5, 6;~~
- (97) ~~Pancore (Lost) Lake, 16-0475-00, (T.61, R.4W, S.22, 27): 1B, 2A, 3, 4A, 4B, 5, 6;~~
- (98) ~~Papoose Lake, 69-0024-00, [WR] (T.55, R.12, S.9): 2B, 3, 4A, 4B, 5, 6;~~
- (99) ~~*Partridge Lake, 16-0233-00, [11/5/84P] (T.65, R.1): 1B, 2A, 3, 4A, 4B, 5, 6;~~
- (100) ~~*Pemmican Lake, 16-0085-00, [11/5/84P] (T.65, R.2E, S.22): 1B, 2A, 3, 4A, 4B, 5, 6;~~

- (101) ~~*Pike Lake, West, 16-0086-00, [11/5/84P] (T.65, R.2E): 1B, 2A, 3, 4A, 4B, 5, 6;~~
- (102) ~~Pine Lake, 16-0194-00, (T.63, R.1W, S.35, 36): 1B, 2A, 3, 4A, 4B, 5, 6;~~
- (103) ~~*Pine Lake, 16-0041-00, [11/5/84P] (T.64, 65, R.1E, 2E, 3E): 1B, 2A, 3, 4A, 4B, 5, 6;~~
- (104) ~~Pine Mountain Lake, 16-0108-00, (T.63, R.1E, S.26, 27, 34, 35): 1B, 2A, 3, 4A, 4B, 5, 6;~~
- (105) ~~Poplar Lake, 16-0239-00, (T.64N, R.1, 2W): 1C, 2Bd, 3, 4A, 4B, 5, 6;~~
- (106) ~~*Ptarmigan Lake, 16-0183-00, [11/5/84P] (T.63, R.1, S.20, 29): 1B 2Bd, 3, 4A, 4B, 5, 6;~~
- (107) ~~*Ram Lake, 16-0174-00, [11/5/84P] (T.63, R.1W, S.9, 10): 1B, 2A, 3, 4A, 4B, 5, 6;~~
- (108) ~~Rice Lake, 16-0453-00, [WR] (T.61 R.3W, S.7; T.61, R.4W, S.2, 11, 12): 2B, 3, 4A, 4B, 5, 6;~~
- (109) ~~*Rose Lake, 16-0230-00, [11/5/84P] (T.65, R.1): 1B, 2A, 3, 4A, 4B, 5, 6;~~
- (110) ~~Round Island Lake, 38-0417-00 [WR] (T.59, R.8, S.12): 2B, 3, 4A, 4B, 5, 6;~~
- (111) ~~Round Lake, 69-0048-00, [WR] (T.58, R.12, S.25, 26): 2B, 3, 4A, 4B, 5, 6;~~
- (112) ~~St. James Mine Pit, 69-0428-00, (T.58, R.15W, S.3, 4): 1C, 2Bd, 3, 4A, 4B, 5, 6;~~

- (113) ~~Saint Mary's Lake, 69-0651-00, (T.57, R.17, S.9, 16, 17): 1C, 2Bd, 3, 4A, 4B, 5, 6;~~
- (114) ~~*Sawbill Lake, 16-0496-00, [11/5/84P] (T.62, 63, R.4): 1B, 2Bd, 3, 4A, 4B, 5, 6;~~
- (115) ~~Section 8 Lake, 38-0258-00, (T.59, R.7W, S.8): 1B, 2A, 3, 4A, 4B, 5, 6;~~
- (116) ~~Seven Beaver Lake, 69-0002-00, [WR] (T.58, R.11, 12): 2B, 3, 4A, 4B, 5, 6;~~
- (117) ~~Shady, North, Lake, 16-0076-00, (T.64, R.2E, S.21, 22): 1B, 2A, 3, 4A, 4B, 5, 6;~~
- (118) ~~Shoe Lake, 16-0080-00, (T.64, 2E, S.30): 1B, 2A, 3, 4A, 4B, 5, 6;~~
- (119) ~~Sled Lake, 16-0897-00, (T.63, R.1W, S.3): 1B, 2A, 3, 4A, 4B, 5, 6;~~
- (120) ~~*Sock Lake, 16-0335-00, [11/5/84P] (T.65, R.2W, S.26): 1B, 2A, 3, 4A, 4B, 5, 6;~~
- (121) ~~Sonju Lake, 38-0248-00, (T.58, R.7W, S.27, 28): 1B, 2A, 3, 4A, 4B, 5, 6;~~
- (122) ~~*South Lake, 16-0244-00, [11/5/84P] (T.65, R.1, 2): 1B, 2A, 3, 4A, 4B, 5, 6;~~
- (123) ~~Spring Hole Lake, 69-1372-00, (T.55, R.14W, S.14): 1B, 2A, 3, 4A, 4B, 5, 6;~~
- (124) ~~*State Lake, 16-0293-00, [11/5/84P] (T.63, 64, R.2): 1B, 2A, 3, 4A, 4B, 5, 6;~~
- (125) ~~Steer Lake, 38-0920-00, (T.60, R.6W, S.32): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(126) Stone Lake, 69-0686-00, [WR] (T.55, R.17, S.6; T.55, R.18, S.1; T.56, R.17, S.31; T.56, R.18, S.36): 2B, 3, 4A, 4B, 5, 6;~~

~~(127) Stone Lake (Skibo Lake), 69-0046-00, [WR] (T.58, R.12, S.17, 19, 20): 2B, 3, 4A, 4B, 5, 6;~~

~~(128) Stone Lake (Murphy Lake or Tommila Lake), 69-0035-00, [WR] (T.56, R.12, S.13, 24): 2B, 3, 4A, 4B, 5, 6;~~

~~(129) *Superior, Lake, excluding the portions identified in subitem (130) 16-0001-00, [11/5/84R] (T.49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, R.14W-7E): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(130) *Superior, Lake, 16-0001-00, [3/9/98P] (those portions of Lake Superior north of latitude 47 degrees, 57 minutes, 13 seconds, east of Hat Point, south of the Minnesota-Ontario boundary, and west of the Minnesota-Michigan boundary): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(131) Swamp River (Reservoir), 16-0901-00, [WR] (T.63, R.4E, S.4; T.64, R.4E, S.33): 2B, 3, 4A, 4B, 5, 6;~~

~~(132) *Swan Lake, 16-0268-00, [11/5/84P] (T.63, R.2): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(133) Talus Lake, 16-0187-00, (T.63, R.1W, S.26, 27): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(134) Thompson Lake, 16-0160-00, (T.62, R.1W, S.19, 20, 29, 30): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(135) Thrasher Lake, 16-0192-00, (T.63, R.1W, S.31): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(136) Thrush Lake, 16-0191-00, (T.63, R.1W, S.31): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(137) *Topper Lake, 16-0336-00, [11/5/84P] (T.65, R.2W, S.27): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(138) *Trout Lake, 16-0049-00, [3/7/88R] (T.62, R.2E): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(139) *Trout Lake, Little, 16-0170-00, [11/5/84P] (T.63, R.1): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(140) Turnip Lake, 16-0132-00, (T.64, R.1E, S.24): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(141) Twin Lake, lower, 69-0967-02, (T.50, R.14W, S.28, 33): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(142) Twin Lake, upper, 69-0967-01, (T.50, R.14W, S.28, 33): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(143) *Twin Lake, upper (Bear Lake), 38-0408-00, [3/7/88R] (T.56, R.8, S.25): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(144) unnamed lake, 16-0903-00, (T.63, R.3E, S.20, 21, 28, 29): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(145) unnamed lake, 16-0908-00, (T.63, R.1W, S.31): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(146) *unnamed lake, 16-0237-00, [11/5/84P] (T.63, R.1, S.19, 30; T.63, R.2, S.24, 25): 1B, 2Bd, 3, 4A, 4B, 5, 6;~~

~~(147) *Vale Lake, 16-0061-00, [11/5/84P] (T.64, R.2E, S.3): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(148) Vaseux Lake (East Lily), see Lily Lakes;~~

~~(149) *Vista Lake, 16-0224-00, [11/5/84P] (T.64, R.1): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(150) *Wanihigan Lake (Trap Lake), 16-0349-00, [11/5/84P] (T.63, 64, R.2, 3): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(151) *Wee Lake, 16-0183-00, [11/5/84P] (T.62, R.4W, S.13): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(152) *Wench Lake, 16-0398-00, [11/5/84P] (T.63, R.3W, S.7, 18): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(153) White Pine Lake, 16-0369-00, [WR] (T.61, R.3W, S.19, 20, 29, 30): 2B, 3, 4A, 4B, 5, 6; and~~

~~(154) *Winchell Lake, 16-0354-00, [11/5/84P] (T.64, R.2, 3): 1B, 2A, 3, 4A, 4B, 5, 6.~~

[For text of items C and D, see Minnesota Rules]

Subp. 2. **Lake of the Woods basin.** The water-use classifications for the stream reaches within each of the major watersheds in the Lake of the Woods basin listed in item A are found in tables entitled "Beneficial Use Designations for Stream Reaches" published on the website of the Minnesota Pollution Control Agency at www.pca.state.mn.us/regulations/incorporations-reference <https://www.pca.state.mn.us/get-engaged/incorporations-by-reference>. The tables are incorporated by reference and are not subject to frequent change. The date after each watershed listed in item A is the publication date of the applicable table. The water-use classifications for the other listed waters in the Lake of the Woods basin are as identified in items B to D. See part 7050.0415 for the classifications of waters not listed. Designated

use information for water bodies can also be accessed through the agency's Environmental Data Access (<http://www.pca.state.mn.us/quick-links/eda-surface-water-data>).

[For text of item A, see Minnesota Rules]

B. Lakes (by eight-digit hydrologic unit code):

(1) 09030001 Rainy River - Headwaters (November 2025);

(2) 09030002 Vermilion River (November 2025);

(3) 09030003 Rainy River - Rainy Lake (November 2025);

(4) 09030005 Little Fork River (November 2025);

(5) 09030006 Big Fork River (November 2025);

(6) 09030007 Rapid River (November 2025);

(7) 09030008 Rainy River - Lower (November 2025); and

(8) 09030009 Lake of the Woods (November 2025).

(1) ~~*Adams Lake, 38-0153-00, [11/5/84P] (T.64, R.6): 1B, 2A, 3, 4A, 4B, 5, 6;~~

(2) ~~*Agamok Lake, 38-0011-00, [11/5/84P] (T.65, R.5, 6): 1B, 2A, 3, 4A, 4B, 5, 6;~~

(3) ~~*Ahmakose Lake, 38-0365-00 [11/5/84P] (T.64, R.7): 1B, 2A, 3, 4A, 4B, 5, 6;~~

(4) ~~*Ahsab Lake, 38-0516-00, [11/5/84P] (T.64, R.8W, S.27, 28): 1B, 2A, 3, 4A, 4B, 5, 6;~~

(5) ~~*Alpine Lake, 16-0759-00, [11/5/84P] (T.65, R.5): 1B, 2A, 3, 4A, 4B, 5, 6;~~

- (6) ~~*Akruss Lake, 69-0005-00, [11/5/84P] (T.64, R.11W, S.7; T.64, R.12W, S.12): 1B, 2A, 3, 4A, 4B, 5, 6;~~
- (7) ~~*Amoeber Lake, 38-0227-00, [11/5/84P] (T.65, R.6, 7): 1B, 2A, 3, 4A, 4B, 5, 6;~~
- (8) ~~*Arkose Lake, 38-0382-00, [11/5/84P] (T.64, 65, R.7): 1B, 2A, 3, 4A, 4B, 5, 6;~~
- (9) ~~*Ashdiek Lake (Caribou Lake), 38-0210-00, [11/5/84P] (T.66, R.6): 1B, 2A, 3, 4A, 4B, 5, 6;~~
- (10) ~~*Basswood Lake, 38-0645-00, [11/5/84P] (T.64, 65, R.9, 10): 1B, 2A, 3, 4A, 4B, 5, 6;~~
- (11) ~~*Bat Lake, 16-0752-00, [11/5/84P] (T.64, 65, R.5): 1B, 2A, 3, 4A, 4B, 5, 6;~~
- (12) ~~*Beartrack Lake, 69-0480-00, [11/5/84P] (T.67, R.15): 1B, 2A, 3, 4A, 4B, 5, 6;~~
- (13) ~~*Beaver Lake (Elbow Lake), 38-0223-00, [11/5/84P] (T.63, 64, R.6, 7): 1B, 2A, 3, 4A, 4B, 5, 6;~~
- (14) ~~Beaver Hut Lake, 38-0737-00, (T.61, R.10W, S.30, 31; T.61, R.11, S.25, 36): 1B, 2A, 3, 4A, 4B, 5, 6;~~
- (15) ~~Beetle Lake, 38-0551-00, (T.60, R.9W, S.7): 1B, 2A, 3, 4A, 4B, 5, 6;~~
- (16) ~~Big Lake, 69-0190-00, (T.64, 65, R.13): 1C, 2Bd, 3, 4A, 4B, 5, 6;~~
- (17) ~~*Bingshick Lake, 16-0627-00, [11/5/84P] (T.65, R.4, 5): 1B, 2A, 3, 4A, 4B, 5, 6;~~

- (18) ~~*Brandt Lake (Brant Lake), 16-0600-00, [11/5/84P] (T.65, R.4): 1B, 2A, 3, 4A, 4B, 5, 6;~~
- (19) ~~*Burntside Lake, 69-0118-00, [3/7/88R] (T.63, 64, R.12, 13, 14): 1B, 2A, 3, 4A, 4B, 5, 6;~~
- (20) ~~Camp Four (Wessman) Lake, 69-0788-00, (T.59, R.19W, S.4): 1B, 2A, 3, 4A, 4B, 5, 6;~~
- (21) ~~*Camp Lake, 38-0789-00, [11/5/84P] (T.64, R.11): 1B, 2Bd, 3, 4A, 4B, 5, 6;~~
- (22) ~~*Caribou Lake, 31-0620-00, [3/7/88R] (T.58, R.26): 1B, 2A, 3, 4A, 4B, 5, 6;~~
- (23) ~~*Cash Lake, 16-0438-00, [11/5/84P] (T.64, R.3): 1B, 2A, 3, 4A, 4B, 5, 6;~~
- (24) ~~Cedar Lake, 38-0810-00, (T.63, R.11, 12): 1C, 2Bd, 3, 4A, 4B, 5, 6;~~
- (25) ~~Chant Lake, 69-0172-00, (T.63, R.13W, S.10): 1B, 2A, 3, 4A, 4B, 5, 6;~~
- (26) ~~*Cherokee Lake, 16-0524-00, [11/5/84P] (T.63, 64, R.4): 1B, 2A, 3, 4A, 4B, 5, 6;~~
- (27) ~~*Cherry Lake, 38-0166-00, [11/5/84P] (T.65, R.6): 1B, 2A, 3, 4A, 4B, 5, 6;~~
- (28) ~~*Conchu Lake, 38-0720-00, [11/5/84P] (T.63, R.10W, S.21, 22): 1B, 2A, 3, 4A, 4B, 5, 6;~~
- (29) ~~*Crab Lake (includes West Crab Lake, 69-0297-00), 69-0220-00, [11/5/84P] (T.63, R.13, 14): 1B, 2A, 3, 4A, 4B, 5, 6;~~
- (30) ~~Crab Lake, 16-0357-00, (T.65, R.2, 3): 1B, 2A, 3, 4A, 4B, 5, 6;~~

- (31) ~~Crane Lake, 69-0616-00, (T.67, 68, R.16, 17): 1B, 2A, 3, 4A, 4B, 5, 6;~~
- (32) ~~*Crooked Lake, 16-0723-00, [11/5/84P] (T.64, R.5): 1B, 2A, 3, 4A, 4B, 5, 6;~~
- (33) ~~*Crooked Lake, 38-0817-00, [11/5/84P] (T.66, R.11, 12): 1B, 2A, 3, 4A, 4B, 5, 6;~~
- (34) ~~*Cruiser Lake (Trout Lake), 69-0832-00, [11/5/84P] (T.69, 70, R.19): 1B, 2A, 3, 4A, 4B, 5, 6;~~
- (35) ~~Cub Lake, 69-1318-00, (T.61, R.14W, S.2): 1B, 2A, 3, 4A, 4B, 5, 6;~~
- (36) ~~Dan Lake, 38-0853-00, (T.63, R.10W, S.17): 1B, 2A, 3, 4A, 4B, 5, 6;~~
- (37) ~~Deepwater Lake, 69-0858-00, (T.59, R.20W, S.2): 1B, 2A, 3, 4A, 4B, 5, 6;~~
- (38) ~~Dry Lake, 69-0064-00, (T.63, R.12W, S.9): 1B, 2A, 3, 4A, 4B, 5, 6;~~
- (39) ~~Dry Lake, Little, 69-1040-00, (T.63, R.12W, S.9): 1B, 2A, 3, 4A, 4B, 5, 6;~~
- (40) ~~*Eddy Lake, 38-0187-00, [11/5/84P] (T.65, R.6): 1B, 2A, 3, 4A, 4B, 5, 6;~~
- (41) ~~Eikela Lake, 38-0677-00, (T.60, R.10W, S.22): 1B, 2A, 3, 4A, 4B, 5, 6;~~
- (42) ~~Ennis Lake, 38-0634-00, (T.64, R.9W, S.33): 1B, 2A, 3, 4A, 4B, 5, 6;~~
- (43) ~~Erskine Lake, 31-0311-00, (T.61, R.24W, S.2, 3): 1B, 2A, 3, 4A, 4B, 5, 6;~~
- (44) ~~*Ester Lake (Gnig Lake), 38-0207-00, [11/5/84P] (T.65, 66, R.6): 1B, 2A, 3, 4A, 4B, 5, 6;~~

- (45) ~~*Eugene Lake, 69-0473-00, [11/5/84P] (T.67, R.15): 1B, 2A, 3, 4A, 4B, 5, 6;~~
- (46) ~~*Explorer Lake (South Three Lake), 38-0399-00, [11/5/84P] (T.64, R.7, 8): 1B, 2A, 3, 4A, 4B, 5, 6;~~
- (47) ~~Extortion Lake, 16-0450-00, (T.65, R.3W, S.31, 32): 1B, 2A, 3, 4A, 4B, 5, 6;~~
- (48) ~~Fall Lake, 38-0811-00, (T.63, 64, R.11, 12): 1B, 2Bd, 3, 4A, 4B, 5, 6;~~
- (49) ~~Farm Lake, 38-0779-00, (T.62, 63, R.11): 1C, 2Bd, 3, 4A, 4B, 5, 6;~~
- (50) ~~*Fat Lake, 69-0481-00, [11/5/84P] (T.67, R.15): 1B, 2A, 3, 4A, 4B, 5, 6;~~
- (51) ~~*Fay Lake, 16-0783-00, [11/5/84P] (T.65, R.5): 1B, 2A, 3, 4A, 4B, 5, 6;~~
- (52) ~~Fenske Lake, 69-0085-00, (T.64, R.12, S.29, 30, 32): 1C, 2Bd, 3, 4A, 4B, 5, 6;~~
- (53) ~~*Fern Lake, 16-0716-00, [11/5/84P] (T.64, R.5): 1B, 2A, 3, 4A, 4B, 5, 6;~~
- (54) ~~*Fern Lake, West, 16-0718-00, [11/5/84P] (T.64, R.5): 1B, 2A, 3, 4A, 4B, 5, 6;~~
- (55) ~~*Finger Lake, 69-0348-00, [11/5/84P] (T.67, R.14): 1B, 2A, 3, 4A, 4B, 5, 6;~~
- (56) ~~*Fishdance Lake, 38-0343-00, [11/5/84P] (T.63, R.7): 1B, 2A, 3, 4A, 4B, 5, 6;~~

- (57) ~~*Found Lake, 38-0620-00, [11/5/84P] (T.64, R.9W, S.10, 15): 1B, 2A, 3, 4A, 4B, 5, 6;~~
- (58) ~~*Fraser Lake, 38-0372-00, [11/5/84P] (T.64, R.7): 1B, 2A, 3, 4A, 4B, 5, 6;~~
- (59) ~~*French Lake, 16-0755-00, [11/5/84P] (T.64, 65, R.5): 1B, 2A, 3, 4A, 4B, 5, 6;~~
- (60) ~~*Frost Lake, 16-0571-00, [11/5/84P] (T.64, R.4): 1B, 2A, 3, 4A, 4B, 5, 6;~~
- (61) ~~*Gabimichigami Lake, 16-0811-00, [11/5/84P] (T.64, 65, R.5, 6): 1B, 2A, 3, 4A, 4B, 5, 6;~~
- (62) ~~*Ge-Be-On-Equat Lake, 69-0350-00, [11/5/84P] (T.67, R.14): 1B, 2A, 3, 4A, 4B, 5, 6;~~
- (63) ~~*Gijikiki Lake (Cedar Lake), 38-0209-00, [11/5/84P] (T.65, 66, R.6): 1B, 2A, 3, 4A, 4B, 5, 6;~~
- (64) ~~*Gillis Lake, 16-0753-00, [11/5/84P] (T.64, 65, R.5): 1B, 2A, 3, 4A, 4B, 5, 6;~~
- (65) ~~Glacier Pond No. 1, 38-0712-00, (T.63, R. 10W, S.11): 1B, 2A, 3, 4A, 4B, 5, 6;~~
- (66) ~~Glacier Pond No. 2, 38-0712-02, (T.63, R.10W, S.11): 1B, 2A, 3, 4A, 4B, 5, 6;~~
- (67) ~~*Gordon Lake, 16-0569-00, [11/5/84P] (T.64, R.4): 1B, 2A, 3, 4A, 4B, 5, 6;~~
- (68) ~~Gull Lake, 16-0632-00, (T.66, R.4, 5): 1C, 2Bd, 3, 4A, 4B, 5, 6;~~

- (69) ~~*Gun Lake, 69-0487-00, [11/5/84P] (T.67, 68, R.15): 1B, 2A, 3, 4A, 4B, 5, 6;~~
- (70) ~~*Gunflint Lake, 16-0356-00, [3/7/88R] (T.65, R.2, 3, 4): 1B, 2A, 3, 4A, 4B, 5, 6;~~
- (71) ~~Gunflint Lake, Little, 16-0330-00, (T.65, R.2): 1B, 2Bd, 3, 4A, 4B, 5, 6;~~
- (72) ~~Gypsy Lake, 38-0665-00, (T.60, R.10W, S.6, 7): 1B, 2A, 3, 4A, 4B, 5, 6;~~
- (73) ~~Hanson Lake, 69-0189-00, (T.64, R.13W, S.36): 1B, 2A, 3, 4A, 4B, 5, 6;~~
- (74) ~~*Hanson Lake, 38-0206-00, [11/5/84P] (T.65, 66, R.6): 1B, 2A, 3, 4A, 4B, 5, 6;~~
- (75) ~~High Lake, 69-0071-00, (T.63, R.12W, S.3, 4, 5; T.64, R.12W, S.33, 34): 1B, 2A, 3, 4A, 4B, 5, 6;~~
- (76) ~~Hogback (Twin or Canal) Lake, 38-0057-01 and 38-0057-02, (T.60, R.6W, S.31): 1B, 2A, 3, 4A, 4B, 5, 6;~~
- (77) ~~*Holt Lake, 38-0178-00, [11/5/84P] (T.65, R.6): 1B, 2A, 3, 4A, 4B, 5, 6;~~
- (78) ~~*Howard Lake, 16-0789-00, [11/5/84P] (T.65, R.5): 1B, 2A, 3, 4A, 4B, 5, 6;~~
- (79) ~~*Hustler Lake, 69-0343-00, [11/5/84P] (T.66, 67, R.14): 1B, 2A, 3, 4A, 4B, 5, 6;~~
- (80) ~~*Ima Lake (Slate Lake), 38-0400-00, [11/5/84P] (T.64, R.7, 8): 1B, 2A, 3, 4A, 4B, 5, 6;~~

- (81) ~~Indian Lake, 38-0440-00, (T.60, R.8W, S.35): 1B, 2A, 3, 4A, 4B, 5, 6;~~
- (82) ~~*Jacob (Louis) Lake, 69-0077-00, [11/5/84P] (T.64, R.12W, S.11, 12):
1B, 2A, 3, 4A, 4B, 5, 6;~~
- (83) ~~James (Jammer) Lake, 69-0734-00, (T.60, R.18W, S.27): 1B, 2A, 3, 4A,
4B, 5, 6;~~
- (84) ~~Jasper Lake, 38-0641-00, (T.63, 64, R.9, 10): 1C, 2Bd, 3, 4A, 4B, 5, 6;~~
- (85) ~~*Jasper Lake, 16-0768-00, [11/5/84P] (T.65, R.5): 1B, 2A, 3, 4A, 4B,
5, 6;~~
- (86) ~~*Johnson Lake, 69-0691-00, [3/7/88R] (T.67, 68, R.17, 18): 1B, 2A, 3,
4A, 4B, 5, 6;~~
- (87) ~~Jouppi Lake, 38-0909-00, (T.59, R.8W, S.14, 22, 23): 1B, 2A, 3, 4A,
4B, 5, 6;~~
- (88) ~~Judd Lake, 38-0615-00, (T.63, R.9W, S.4, 5; T.64, R.9W, S.32, 33): 1B,
2A, 3, 4A, 4B, 5, 6;~~
- (89) ~~*Kabetogama Lake, 69-0845-00, [11/5/84P] (T.69, 70, R.19, 20, 21,
22): 1B, 2Bd, 3, 4A, 4B, 5, 6;~~
- (90) ~~*Karl Lake, 16-0461-00, [11/5/84P] (T.64, R.3, 4): 1B, 2A, 3, 4A, 4B,
5, 6;~~
- (91) ~~*Kek Lake, Little, 38-0228-00, [11/5/84P] (T.65, R.6, 7): 1B, 2A, 3,
4A, 4B, 5, 6;~~
- (92) ~~*Kekekabic Lake, 38-0226-00, [11/5/84P] (T.64, 65, R.6, 7): 1B, 2A,
3, 4A, 4B, 5, 6;~~

(93) ~~*Knife Lake, 38-0404-00, [11/5/84P] (T.65, R.6, 7, 8): 1B, 2A, 3, 4A, 4B, 5, 6;~~

(94) ~~*Lake of the Clouds Lake (Dutton Lake), 38-0169-00, [11/5/84P] (T.65, R.6): 1B, 2A, 3, 4A, 4B, 5, 6;~~

(95) ~~Lake of the Woods, 39-0002-00, (T.161, 162, 163, 164, 165, 166, 167, 168, R.30, 31, 32, 33, 34, 35, 36): 1B, 2Bd, 3, 4A, 4B, 5, 6;~~

(96) ~~Lake Vermilion, 69-0378-00, (T.61, 62, 63, R.14, 15, 16, 17, 18): 1C, 2Bd, 3, 4A, 4B, 5, 6;~~

(97) ~~*Larson Lake, 31-0317-00, [3/7/88R] (T.61, R.24W, S.16, 21): 1B, 2A, 3, 4A, 4B, 5, 6;~~

(98) ~~Little Long Lake, 69-0066-00, (T.63, R.12): 1C, 2Bd, 3, 4A, 4B, 5, 6;~~

(99) ~~*Long Island Lake, 16-0460-00, [11/5/84P] (T.64, R.3, 4): 1B, 2A, 3, 4A, 4B, 5, 6;~~

(100) ~~*Loon Lake, 16-0448-00, [3/7/88R] (T.65, R.3): 1B, 2A, 3, 4A, 4B, 5, 6;~~

(101) ~~*Loon Lake, 69-0470-00, [11/5/84P] (T.66, 67, R.15): 1B, 2A, 3, 4A, 4B, 5, 6;~~

(102) ~~*Lunar Lake (Moon Lake), 38-0168-00, [11/5/84P] (T.65, R.6): 1B, 2A, 3, 4A, 4B, 5, 6;~~

(103) ~~*Lynx Lake, 69-0383-00, [11/5/84P] (T.66, R.14, 15): 1B, 2A, 3, 4A, 4B, 5, 6;~~

(104) ~~*Magnetic Lake, 16-0463-00, [3/7/88R] (T.65, R.3, 4): 1B, 2A, 3, 4A, 4B, 5, 6;~~

(105) ~~*Makwa Lake (Bear Lake), 38-0147-00, [11/5/84P] (T.64, R.6): 1B, 2A, 3, 4A, 4B, 5, 6;~~

(106) ~~*Marble Lake, 38-0109-00, [11/5/84P] (T.64, R.6): 1B, 2A, 3, 4A, 4B, 5, 6;~~

(107) ~~*Mavis Lake, 16-0528-00, [11/5/84P] (T.64, R.4W, S.4): 1B, 2A, 3, 4A, 4B, 5, 6;~~

(108) ~~*Mayhew Lake, 16-0337-00, [3/7/88R] (T.65, R.2): 1B, 2A, 3, 4A, 4B, 5, 6;~~

(109) ~~*Meditation Lake, 16-0583-00, [11/5/84P] (T.65, R.4W, S.7, 8): 1B, 2A, 3, 4A, 4B, 5, 6;~~

(110) ~~*Mesaba Lake, 16-0673-00, [11/5/84P] (T.63, R.5): 1B, 2A, 3, 4A, 4B, 5, 6;~~

(111) ~~Miner's Mine Pit, 69-1293-00, (T.63, R.12W, S.26, 27, 28): 1B, 2A, 3, 4A, 4B, 5, 6;~~

(112) ~~*Missing Link Lake, 16-0529-00, [11/5/84P] (T.64, R.4W, S.4): 1B, 2A, 3, 4A, 4B, 5, 6;~~

(113) ~~*Missionary Lake (East Three Lake), 38-0398-00, [11/5/84P] (T.64, R.7, 8): 1B, 2A, 3, 4A, 4B, 5, 6;~~

(114) ~~*Moose Lake, 38-0644-00, [11/5/84P] (T.64, R.9, 10): 1B, 2Bd, 3, 4A, 4B, 5, 6;~~

(115) ~~*Mora Lake, 16-0732-00, [11/5/84P] (T.64, R.5): 1B, 2A, 3, 4A, 4B, 5, 6;~~

(116) ~~*Mukooda Lake, 69-0684-00, [11/5/84P] (T.68, R.17): 1B, 2A, 3, 4A, 4B, 5, 6;~~

(117) ~~*Namakan Lake, 69-0693-00, [11/5/84P] (T.69, 70, R.17, 18, 19): 1B, 2Bd, 3, 4A, 4B, 5, 6;~~

(118) ~~*Neglige Lake, 38-0492-00, [11/5/84P] (T.64, R.8W, S.1, 2, 11, 12): 1B, 2A, 3, 4A, 4B, 5, 6;~~

(119) ~~Nickel (Nichols) Lake, 31-0470-00, (T.59, R.25W, S.12): 1B, 2A, 3, 4A, 4B, 5, 6;~~

(120) ~~Norberg Lake, 69-1312-00, (T.61, R.14W, S.1): 1B, 2A, 3, 4A, 4B, 5, 6;~~

(121) ~~*North Lake, 16-0331-00, [3/7/88R] (T.65, R.2): 1B, 2A, 3, 4A, 4B, 5, 6;~~

(122) ~~North Lake, Little, 16-0329-00, (T.65, R.2): 1B, 2Bd, 3, 4A, 4B, 5, 6;~~

(123) ~~Norway Lake, 38-0688-00, (T.61, R.10W, S.3): 1B, 2A, 3, 4A, 4B, 5, 6;~~

(124) ~~*Ogishkemuncie Lake, 38-0180-00, [11/5/84P] (T.65, R.6): 1B, 2A, 3, 4A, 4B, 5, 6;~~

(125) ~~*Ojibway Lake (upper Twin), 38-0640-00, [3/7/88R] (T.63, R.9, 10): 1B, 2A, 3, 4A, 4B, 5, 6;~~

(126) ~~*Owl Lake, 16-0726-00, [11/5/84P] (T.64, R.5): 1B, 2A, 3, 4A, 4B, 5, 6;~~

(127) ~~*Oyster Lake, 69-0330-00, [11/5/84P] (T.66, R.14): 1B, 2A, 3, 4A, 4B, 5, 6;~~

(128) ~~*Paulson Lake, 16-0626-00, [11/5/84P] (T.65, R.4W, S.19; T.65, R.5W, S.24): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(129) Peanut Lake, 38-0662-00, (T.60, R.10W, S.5): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(130) Pelican Lake, 69-0841-00, (T.64, 65, R.19, 20, 21): 1C, 2Bd, 3, 4A, 4B, 5, 6;~~

~~(131) *Pellet Lake, 16-0592-00, [11/5/84P] (T.65, R.4, S.19, 20): 1B, 2Bd, 3, 4A, 4B, 5, 6;~~

~~(132) *Peter Lake, 16-0757-00, [11/5/84P] (T.64, 65, R.5): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(133) Pickerel Lake, 69-0934-00, (T.60, R.21W, S.17): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(134) Portage Lake, 16-0327-00, (T.64, R. 2W, S.3, 4, 5; T.65, R.2W, S.33): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(135) *Portage Lake, 38-0524-00, [11/5/84P] (T.65, R.8): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(136) Portage Lake, Little, 16-0297-00, (T.64, R.2W, S.3): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(137) *Powell Lake, 16-0756-00, [11/5/84P] (T.64, 65, R.5): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(138) *Rabbit Lake, 38-0214-00, [11/5/84P] (T.66, R.6): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(139) *Rainy Lake, 69-0694-00, [11/5/84P] (T.70, 71, R.18, 19, 20, 21, 22, 23): 1B, 2Bd, 3, 4A, 4B, 5, 6;~~

~~(140) *Raven Lake (Lynx Lake), 38-0113-00, [11/5/84P] (T.64, R.6): 1B, 2A, 3, 4A, 4B, 5, 6;~~

- (141) ~~*Red Rock Lake, 16-0793-00, [11/5/84P] (T.65, 66, R.5): 1B, 2A, 3, 4A, 4B, 5, 6;~~
- (142) ~~Regenbogen Lake, 69-0081-00, (T.64, R.12W, S.18): 1B, 2A, 3, 4A, 4B, 5, 6;~~
- (143) ~~*Rog Lake, 16-0765-00, [11/5/84P] (T.65, R.5W, S.16, 17): 1B, 2A, 3, 4A, 4B, 5, 6;~~
- (144) ~~*Ruby Lake, Big, 16-0333-00, [11/5/84P] (T.66, R.14): 1B, 2A, 3, 4A, 4B, 5, 6;~~
- (145) ~~*Saganaga Lake, 16-0633-00, [11/5/84P] (T.66, 67, R.4, 5): 1B, 2A, 3, 4A, 4B, 5, 6;~~
- (146) ~~*Saganaga Lake, Little, 16-0890-00, [11/5/84P] (T.64, R.5, 6): 1B, 2A, 3, 4A, 4B, 5, 6;~~
- (147) ~~*Sand Point Lake, 69-0617-00, [11/5/84P] (T.67, 68, 69, R.16, 17): 1B, 2A, 3, 4A, 4B, 5, 6;~~
- (148) ~~Scarp (Cliff) Lake, 38-0058-00, (T.60, R.6W, S.31, 32): 1B, 2A, 3, 4A, 4B, 5, 6;~~
- (149) ~~*Sea Gull Lake, 16-0629-00, [11/5/84P] (T.65, 66, R.4, 5): 1B, 2A, 3, 4A, 4B, 5, 6;~~
- (150) ~~*Sema Lake (Coon Lake), 38-0386-00, [11/5/84P] (T.65, R.7): 1B, 2A, 3, 4A, 4B, 5, 6;~~
- (151) ~~Shoo-fly Lake, 38-0422-00, (T.59, R.8W, S.1; T.60, R.8W, S.36): 1B, 2A, 3, 4A, 4B, 5, 6;~~
- (152) ~~*Skull Lake, 38-0624-00, [11/5/84P] (T.64, R.9W, S.14): 1B, 2A, 3, 4A, 4B, 5, 6;~~

(153) ~~*Snowbank Lake, 38-0529-00, [11/5/84P] (T.63, 64, R.8, 9): 1B, 2A, 3, 4A, 4B, 5, 6;~~

(154) ~~*Spoon Lake (Fames Lake), 38-0388-00, [11/5/84P] (T.65, R.7): 1B, 2A, 3, 4A, 4B, 5, 6;~~

(155) ~~*Spring Lake, 69-0761-00, [3/7/88R] (T.68, R.18): 1B, 2A, 3, 4A, 4B, 5, 6;~~

(156) ~~Steamhaul Lake, 38-0570-00, (T.60, R.9W, S.23): 1B, 2A, 3, 4A, 4B, 5, 6;~~

(157) ~~*Strup Lake, 38-0360-00, [11/5/84P] (T.64, R.7): 1B, 2A, 3, 4A, 4B, 5, 6;~~

(158) ~~*Sumpet Lake, 38-0283-00, [11/5/84P] (T.61, R.7): 1B, 2Bd, 3, 4A, 4B, 5, 6;~~

(159) ~~Surber Lake, 16-0343-00, (T.65, R.2W, S.34): 1B, 2A, 3, 4A, 4B, 5, 6;~~

(160) ~~*Takuemich Lake, 69-0369-00, [11/5/84P] (T.67, 68, R.14): 1B, 2A, 3, 4A, 4B, 5, 6;~~

(161) ~~*Tarry Lake, 16-0731-00, [11/5/84P] (T.64, R.5): 1B, 2A, 3, 4A, 4B, 5, 6;~~

(162) ~~*Thomas Lake, 38-0351-00, [11/5/84P] (T.63, 64, R.7): 1B, 2A, 3, 4A, 4B, 5, 6;~~

(163) ~~*Thumb Lake, 69-0352-00, [11/5/84P] (T.67, R.14): 1B, 2A, 3, 4A, 4B, 5, 6;~~

(164) ~~Tofte Lake, 38-0724-00, (T.63, R.10W, S.2, 3, 10, 11; T.64, R.10W, S.35): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(165) *Topaz Lake (Star Lake), 38-0172-00, [11/5/84P] (T.65, R.6): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(166) *Town Lake, 16-0458-00, [11/5/84P] (T.63, 64, R.3, 4): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(167) Trappers Lake, 38-0431-00, (T.60, R.8W, S.27, 34): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(168) Trip Lake, 16-0451-00, (T.65, R.3W, S.32): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(169) *Trout Lake, Big, 69-0498-00, [11/5/84P] (T.63, 64, R.15, 16): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(170) *Trout Lake, Little (Pocket Lake), 69-0682-00, [11/5/84P] (T.68, R.17): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(171) *Trygg (Twigg) Lake, 69-0389-00, [11/5/84P] (T.68, R.14W, S.31; T.68, R.15W, S.36): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(172) *Tucker Lake (Trucker Lake), 16-0417-00, [11/5/84P] (T.64, R.3): 1B, 2Bd, 3, 4A, 4B, 5, 6;~~

~~(173) *Tuscarora Lake, 16-0623-00, [11/5/84P] (T.64, R.4, 5): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(174) unnamed (Pear) lake, 38-0769-00, (T.60, R.11W, S.4): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(175) *unnamed lake, 16-0598-00, [11/5/84P] (T.65, R.4, S.29, 30): 1B, 2Bd, 3, 4A, 4B, 5, 6;~~

~~(176) unnamed swamp, Winton, (T.63, R.11, S.19; T.63, R.12, S.24): 3, 4A, 4B, 5, 6, 7;~~

- (177) ~~*Vera Lake, 38-0491-00, [11/5/84P] (T.64, R.8): 1B, 2A, 3, 4A, 4B, 5, 6;~~
- (178) ~~Vermilion, Lake, 69-0378-00, (see Lake Vermilion);~~
- (179) ~~*Virgin Lake, 16-0719-00, [11/5/84P] (T.64, R.5): 1B, 2A, 3, 4A, 4B, 5, 6;~~
- (180) ~~West Crab Lake, 69-0220-00, (see Crab Lake);~~
- (181) ~~White Iron Lake, 69-0004-00, (T.62, 63, R.11, 12): 1C, 2Bd, 3, 4A, 4B, 5, 6;~~
- (182) ~~*Wine Lake, 16-0686-00, [11/5/84P] (T.63, R.5): 1B, 2A, 3, 4A, 4B, 5, 6;~~
- (183) ~~*Wisini Lake, 38-0361-00, [11/5/84P] (T.64, R.7): 1B, 2A, 3, 4A, 4B, 5, 6; and~~
- (184) ~~Woods, Lake of the, 39-0002-00, (see Lake of the Woods).~~

[For text of items C and D, see Minnesota Rules]

Subp. 3. **Red River of the North basin.** The water-use classifications for the stream reaches within each of the major watersheds in the Red River of the North basin listed in item A are found in tables entitled "Beneficial Use Designations for Stream Reaches" published on the website of the Minnesota Pollution Control Agency at www.pca.state.mn.us/regulations/incorporations-reference <https://www.pca.state.mn.us/get-engaged/incorporations-by-reference>. The tables are incorporated by reference and are not subject to frequent change. The date after each watershed listed in item A is the publication date of the applicable table. The water-use classifications for the other listed waters in the Red River of the North basin are as identified in items B to D. See part 7050.0415 for the classifications of waters not listed. Designated

use information for water bodies can also be accessed through the agency's Environmental Data Access (<http://www.pca.state.mn.us/quick-links/eda-surface-water-data>).

[For text of item A, see Minnesota Rules]

B. Lakes (by eight-digit hydrologic unit code):

- (1) 09020101 Bois de Sioux River (November 2025);
- (2) 09020102 Mustinka River (November 2025);
- (3) 09020103 Otter Tail River (November 2025);
- (4) 09020104 Upper Red River of the North (November 2025);
- (5) 09020106 Buffalo River (November 2025);
- (6) 09020107 Red River of the North - Marsh River (November 2025);
- (7) 09020108 Wild Rice River (November 2025);
- (8) 09020301 Red River of the North - Sandhill River (November 2025);
- (9) 09020302 Upper/Lower Red Lake (November 2025);
- (10) 09020303 Red Lake River (November 2025);
- (11) 09020304 Thief River (November 2025);
- (12) 09020305 Clearwater River (November 2025);
- (13) 09020306 Red River of the North - Grand Marais Creek (November 2025);
- (14) 09020309 Snake River (November 2025);
- (15) 09020311 Red River of the North - Tamarac River (November 2025);
- (16) 09020312 Two Rivers (November 2025); and

(17) 09020314 Roseau River (November 2025).

- (1) ~~Bass Lake, 56-0722-00, (T.135, R.42W, S.10, 11): 1B, 2A, 3, 4A, 4B, 5, 6;~~
- (2) ~~Hanson Lake, 03-0177-00, (T.139, R.39W, S.6): 1B, 2A, 3, 4A, 4B, 5, 6;~~
- (3) ~~Hoot Lake, 56-0782-00, (T.133, R.42, 43): 1C, 2Bd, 3, 4A, 4B, 5, 6;~~
- (4) ~~Lake Bronson, 35-0003-00, (T.160, 161, R.46): 1C, 2Bd, 3, 4A, 4B, 5, 6;~~
- (5) ~~Twin Lake, East, 03-0362-00, (T.138, R.41): 1B, 2A, 3, 4A, 4B, 5, 6;~~
- (6) ~~unnamed slough, Vergas, (T.137, R.40, S.18; T.137, R.41, S.13, 24): 3, 4A, 4B, 5, 6, 7;~~
- (7) ~~Wapatus (Island) Lake, 15-0127-00, (T.144, R.38W, S.21, 28): 1B, 2A, 3, 4A, 4B, 5, 6; and~~
- (8) ~~Wright Lake, 56-0783-00, (T.133, R.42, 43): 1C, 2Bd, 3, 4A, 4B, 5, 6.~~

[For text of items C and D, see Minnesota Rules]

Subp. 4. **Upper Mississippi River basin (headwaters to the confluence with the St. Croix River).** The water-use classifications for the stream reaches within each of the major watersheds in the upper Mississippi River basin from the headwaters to the confluence with the St. Croix River listed in item A are found in tables entitled "Beneficial Use Designations for Stream Reaches" published on the website of the Minnesota Pollution Control Agency at ~~www.pca.state.mn.us/regulations/incorporations-reference~~ <https://www.pca.state.mn.us/get-engaged/incorporations-by-reference>. The tables are incorporated by reference and are not subject to frequent change. The date after each watershed listed in item A is the publication date of the applicable table. The water-use

classifications for the other listed waters in the upper Mississippi River basin from the headwaters to the confluence with the St. Croix River are as identified in items B to D. See part 7050.0415 for the classifications of waters not listed. Designated use information for water bodies can also be accessed through the agency's Environmental Data Access (<http://www.pca.state.mn.us/quick-links/eda-surface-water-data>).

[For text of item A, see Minnesota Rules]

B. Lakes (by eight-digit hydrologic unit code):

- (1) 07010101 Mississippi River - Headwaters (November 2025);
- (2) 07010102 Leech Lake River (November 2025);
- (3) 07010103 Mississippi River - Grand Rapids (November 2025);
- (4) 07010104 Mississippi River - Brainerd (November 2025);
- (5) 07010105 Pine River (November 2025);
- (6) 07010106 Crow Wing River (November 2025);
- (7) 07010107 Redeye River (November 2025);
- (8) 07010108 Long Prairie River (November 2025);
- (9) 07010201 Mississippi River - Sartell (November 2025);
- (10) 07010202 Sauk River (November 2025);
- (11) 07010203 Mississippi River - St. Cloud (November 2025);
- (12) 07010204 North Fork Crow River (November 2025);
- (13) 07010205 South Fork Crow River (November 2025);
- (14) 07010206 Mississippi River - Twin Cities (November 2025); and
- (15) 07010207 Rum River (November 2025).

- (1) ~~Allen Lake, 18-0208-00, (T.138, R.26W, S.5): 1B, 2A, 3, 4A, 4B, 5, 6;~~
- (2) ~~Bald Eagle Lake, 62-0002-00, (T.30, 31, R.21, 22): 1C, 2Bd, 3, 4A, 4B, 5, 6;~~
- (3) ~~Bee Cee Lake, 31-0443-00, (T.58, R.25W, S.28, 33): 1B, 2A, 3, 4A, 4B, 5, 6;~~
- (4) ~~Benedict Lake, 29-0048-00, (T.142, R.32): 1B, 2A, 3, 4A, 4B, 5, 6;~~
- (5) ~~Benjamin Lake, 04-0033-00, (T.148, R.30W, S.7, 18; T.148, R.31W, S.13): 1B, 2A, 3, 4A, 4B, 5, 6;~~
- (6) ~~Blacksmith Lake, 29-0275-00, (T.142, R.35W, S.13): 1B, 2A, 3, 4A, 4B, 5, 6;~~
- (7) ~~*Blue Lake, 01-0181-00, [3/7/88R] (T.46, 47, R.27): 1B, 2A, 3, 4A, 4B, 5, 6;~~
- (8) ~~*Blue Lake, 29-0184-00, [3/7/88R] (T.141, R.34): 1B, 2A, 3, 4A, 4B, 5, 6;~~
- (9) ~~*Bluestwater Lake, 31-0395-00, [3/7/88R] (T.57, R.25): 1B, 2A, 3, 4A, 4B, 5, 6;~~
- (10) ~~Cenaiko Lake (unnamed), 02-0654-00, (T.31, R.24W, S.26): 1B, 2A, 3, 4A, 4B, 5, 6;~~
- (11) ~~Centerville Lake, 02-0006-00, (T.31, R.22): 1C, 2Bd, 3, 4A, 4B, 5, 6;~~
- (12) ~~Charley Lake, 62-0062-00, (T.30, R.23): 1C, 2Bd, 3, 4A, 4B, 5, 6;~~
- (13) ~~Crappie Lake, 29-0127-00, (T.143, R.33W, S.31): 1B, 2A, 3, 4A, 4B, 5, 6;~~
- (14) ~~Deep Lake, 62-0018-00, (T.30, R.22): 1C, 2Bd, 3, 4A, 4B, 5, 6;~~

(15) ~~Diamond Lake, 11-0396-00, (T.141, R.30W, S.26, 27, 34): 1B, 2A, 3, 4A, 4B, 5, 6;~~

(16) ~~Hazel Lake, 11-0295-00, (T.141, R.29W, S.25): 1B, 2A, 3, 4A, 4B, 5, 6;~~

(17) ~~Hay Lake, lower, 18-0378-00, (T.137, R.28, 29): 1B, 2A, 3, 4A, 4B, 5, 6;~~

(18) ~~*Kabekona Lake, 29-0075-00, [3/7/88R] (T.142, 143, R.32, 33): 1B, 2A, 3, 4A, 4B, 5, 6;~~

(19) ~~Kennedy Lake, 31-0137-00, (T.58, R.23): 1B, 2A, 3, 4A, 4B, 5, 6;~~

(20) ~~Kremer Lake, 31-0645-00, (T.58, R.26W, S.33, 34): 1B, 2A, 3, 4A, 4B, 5, 6;~~

(21) ~~LaSalle Lake, lower, 29-0309-00, (T.145, R.35): 1B, 2A, 3, 4A, 4B, 5, 6;~~

(22) ~~Loon (Townline) Lake, 01-0024-00, (T.50, R.22W, S.7; T.50, R.23W, S.12, 13): 1B, 2A, 3, 4A, 4B, 5, 6;~~

(23) ~~Lucky Lake, 31-0603-00, (T.57, R.26W, S.14): 1B, 2A, 3, 4A, 4B, 5, 6;~~

(24) ~~Mallen Mine Pit, 18-0740-00, (T.46, R.29W, S.17): 1B, 2A, 3, 4A, 4B, 5, 6;~~

(25) ~~Manuel (South Yawkey) Mine Pit, 18-0435-00, (T.46, R.29W, S.1): 1B, 2A, 3, 4A, 4B, 5, 6;~~

(26) ~~Margaret Lake, 11-0045-00, (T.139, R.26W, S.16): 1B, 2A, 3, 4A, 4B, 5, 6;~~

(27) ~~Marion Lake, 11-0046-00, (T.139, R.26W, S.16, 17): 1B, 2A, 3, 4A, 4B, 5, 6;~~

(28) ~~Martin (Huntington, Feigh) Mine Pit, 18-0441-00, (T.46, R.29W, S.9, 10, 16): 1B, 2A, 3, 4A, 4B, 5, 6;~~

(29) ~~Moonshine Lake, Little (Moonshine), 31-0444-00, (T.58, R.25W, S.28, 33): 1B, 2A, 3, 4A, 4B, 5, 6;~~

(30) ~~Newman (Putnam) Lake, 29-0237-00, (T.145, R.34W, S.10, 11): 1B, 2A, 3, 4A, 4B, 5, 6;~~

(31) ~~Otter Lake, 02-0003-00, (T.30, 31, R.22): 1C, 2Bd, 3, 4A, 4B, 5, 6;~~

(32) ~~Pennington (Mahnomen, Alstead, Arco) Mine Pit, 18-0439-00, (T.46, R.29W, S.3, 9, 10, 11): 1B, 2A, 3, 4A, 4B, 5, 6;~~

(33) ~~Perch Lake, 11-0826-00, (T.139, R.31W, S.33): 1B, 2A, 3, 4A, 4B, 5, 6;~~

(34) ~~Pleasant Lake, 62-0046-00, (T.30, R.22, 23): 1C, 2Bd, 3, 4A, 4B, 5, 6;~~

(35) ~~Pleasant Lake, 18-0278-00, (T.137, R.27W, S.19): 1B, 2A, 3, 4A, 4B, 5, 6;~~

(36) ~~*Pokegama Lake, 31-0532-01 and 31-0532-02, [3/7/88R] (T.54, 55, R.25, 26): 1B, 2A, 3, 4A, 4B, 5, 6;~~

(37) ~~Portsmouth Mine Pit, 18-0437-00, (T.46, R.29W, S.1, 2, 11): 1B, 2A, 3, 4A, 4B, 5, 6;~~

(38) ~~*Roosevelt Lake, 11-0043-00, [3/7/88R] (T.138, 139, R.26): 1B, 2A, 3, 4A, 4B, 5, 6;~~

- (39) ~~Sagamore Mine Pit, 18-0523-00, (T.46, R.29W, S.19; T.46, R.30W, S.24): 1B, 2A, 3, 4A, 4B, 5, 6;~~
- (40) ~~Section 6 Mine Pit, 18-0667-00, (T.46, R.29W, S.6): 1B, 2A, 3, 4A, 4B, 5, 6;~~
- (41) ~~Snoshoe Mine Pit, 18-0524-00, (T.46, R.29W, S.17, 18): 1B, 2A, 3, 4A, 4B, 5, 6;~~
- (42) ~~Snowshoe (Little Andrus) Lake, 11-0054-00, (T.139, R.26W, S.29, 30): 1B, 2A, 3, 4A, 4B, 5, 6;~~
- (43) ~~Strawberry Lake, 18-0363-00, (T.137, R.28W, S.27, 34): 1B, 2A, 3, 4A, 4B, 5, 6;~~
- (44) ~~Sucker Lake, 62-0028-00, (T.30, R.22): 1C, 2Bd, 3, 4A, 4B, 5, 6;~~
- (45) ~~Taylor Lake, 01-0109-00, (T.52, R.25W, S.16): 1B, 2A, 3, 4A, 4B, 5, 6;~~
- (46) ~~Teepee Lake, 11-0312-00, (T.141, R.29W, S.30; T.141, R.30W, S.25): 1B, 2A, 3, 4A, 4B, 5, 6;~~
- (47) ~~Tioga Mine Pit, 31-0946-00, (T.55, R.26W, S.26): 1B, 2A, 3, 4A, 4B, 5, 6;~~
- (48) ~~Trout Lake, 31-0216-00, (T.55, 56, R.24): 1B, 2A, 3, 4A, 4B, 5, 6;~~
- (49) ~~*Trout Lake, Big, 31-0410-00, [3/7/88R] (T.57, 58, R.25): 1B, 2A, 3, 4A, 4B, 5, 6;~~
- (50) ~~*Trout Lake, Big, 18-0315-00, [3/7/88R] (T.137, 138, R.27, 28): 1B, 2A, 3, 4A, 4B, 5, 6;~~

(51) ~~*Trout Lake, Little, 31-0394-00, [3/7/88R] (T.57, R.25): 1B, 2A, 3, 4A, 4B, 5, 6;~~

(52) ~~unnamed swamp, Flensburg, (T.129, R.31, S.25): 3, 4A, 4B, 5, 6, 7;~~

(53) ~~unnamed slough, Miliona, (T.130, R.37, S.26, 35, 36): 3, 4A, 4B, 5, 6, 7;~~

(54) ~~unnamed swamp, Staples, (T.133, R.33, S.1): 3, 4A, 4B, 5, 6, 7;~~

(55) ~~unnamed swamp, Taconite, (T.56, R.24, S.22): 3, 4A, 4B, 5, 6, 7;~~

(56) ~~Vadnais Lake, 62-0038-00, (T.30, R.22): 1C, 2Bd, 3, 4A, 4B, 5, 6;~~

(57) ~~Wabana Lake, 31-0392-00, (T.57, R.25): 1B, 2A, 3, 4A, 4B, 5, 6;~~

(58) ~~Watab Lake, Big, 73-0102-00, (T.124, R.30): 1B, 2A, 3, 4A, 4B, 5, 6;~~

(59) ~~Wilkinson Lake, 62-0043-00, (T.30, R.22): 1C, 2Bd, 3, 4A, 4B, 5, 6;~~

(60) ~~Willard Lake, 11-0564-00, (T.139, R.30W, S.15): 1B, 2A, 3, 4A, 4B, 5, 6; and~~

(61) ~~Yawkey (North Yawkey) Mine Pit, 18-0434-00, (T.46, R.29W, S.1): 1B, 2A, 3, 4A, 4B, 5, 6.~~

[For text of items C and D, see Minnesota Rules]

Subp. 5. **Minnesota River basin.** The water-use classifications for the stream reaches within each of the major watersheds in the Minnesota River basin listed in item A are found in tables entitled "Beneficial Use Designations for Stream Reaches" published on the website of the Minnesota Pollution Control Agency at www.pca.state.mn.us/regulations/incorporations-reference <https://www.pca.state.mn.us/get-engaged/incorporations-by-reference>. The tables are incorporated by reference and are not subject to frequent change. The date after each

watershed listed in item A is the publication date of the applicable table. The water-use classifications for the other listed waters in the Minnesota River basin are as identified in items B to D. See part 7050.0415 for the classifications of waters not listed. Designated use information for water bodies can also be accessed through the agency's Environmental Data Access (<http://www.pca.state.mn.us/quick-links/eda-surface-water-data>).

[For text of item A, see Minnesota Rules]

B. Lakes (by eight-digit hydrologic unit code):

- (1) 07020001 Minnesota River - Headwaters (November 2025);
 - (2) 07020002 Pomme de Terre River (November 2025);
 - (3) 07020003 Lac qui Parle River (November 2025);
 - (4) 07020004 Minnesota River - Yellow Medicine River (November 2025);
 - (5) 07020005 Chippewa River (November 2025);
 - (6) 07020006 Redwood River (November 2025);
 - (7) 07020007 Minnesota River - Mankato (November 2025);
 - (8) 07020008 Cottonwood River (November 2025);
 - (9) 07020009 Blue Earth River (November 2025);
 - (10) 07020010 Watonwan River (November 2025);
 - (11) 07020011 Le Sueur River (November 2025); and
 - (12) 07020012 Lower Minnesota River (November 2025).
-
- ~~(1) Amber Lake, 46-0034-00, (T.102, R.30): 1C, 2Bd, 3, 4A, 4B, 5, 6;~~
 - ~~(2) Bardwell Lake, 46-0023-00, (T.102, R.30): 1C, 2Bd, 3, 4A, 4B, 5, 6;~~
 - ~~(3) Budd Lake, 46-0030-00, (T.102, R.30): 1C, 2Bd, 3, 4A, 4B, 5, 6;~~

- (4) ~~Courthouse Lake, 10-0005-00, (T.115, R.23W, S.9): 1B, 2A, 3, 4A, 4B, 5, 6;~~
- (5) ~~George Lake, 46-0024-00, (T.102, R.30): 1C, 2Bd, 3, 4A, 4B, 5, 6;~~
- (6) ~~Hall Lake, 46-0031-00, (T.102, R.30): 1C, 2Bd, 3, 4A, 4B, 5, 6;~~
- (7) ~~Mud Lake, 46-0035-00, (T.102, R.30): 1C, 2Bd, 3, 4A, 4B, 5, 6;~~
- (8) ~~One Hundred Acre Slough, Saint James, (T.106, R.31, S.7): 3, 4A, 4B, 5, 6, 7;~~
- (9) ~~Silver Lake, North, 46-0016-00, (T.101, R.30): 1C, 2Bd, 3, 4A, 4B, 5, 6;~~
- (10) ~~Sisseton Lake, 46-0025-00, (T.102, R.30): 1C, 2Bd, 3, 4A, 4B, 5, 6;~~
- (11) ~~unnamed marsh, Barry, (T.124, R.47, S.8): 3, 4A, 4B, 5, 6, 7;~~
- (12) ~~unnamed slough, Kensington, (T.127, R.40, S.34): 3, 4A, 4B, 5, 6, 7;~~
- (13) ~~unnamed slough, Brandon, (T.129, R.39, S.21, 22): 3, 4A, 4B, 5, 6, 7;~~
- (14) ~~unnamed swamp, Minnesota Lake, (T.104, R.25, S.3, 4): 3, 4A, 4B, 5, 6, 7;~~
- (15) ~~unnamed swamp (Skauby Lake), 17-0035-00, Storden, (T.107, R.37, S.30): 3, 4A, 4B, 5, 6, 7;~~
- (16) ~~unnamed swamp, Sunburg, Sunburg Coop Cry., (T.122, R.36, S.30): 3, 4A, 4B, 5, 6, 7;~~
- (17) ~~unnamed swamp, Lowry, (T.126, R.39, S.35, 36): 3, 4A, 4B, 5, 6, 7;~~
- and
- (18) ~~Wilmert Lake, 46-0014-00, (T.101, R.30): 1C, 2Bd, 3, 4A, 4B, 5, 6.~~

[For text of items C and D, see Minnesota Rules]

Subp. 6. **Saint Croix River basin.** The water-use classifications for the stream reaches within each of the major watersheds in the Saint Croix River basin listed in item A are found in tables entitled "Beneficial Use Designations for Stream Reaches" published on the website of the Minnesota Pollution Control Agency at ~~www.pca.state.mn.us/regulations/incorporations-reference~~ <https://www.pca.state.mn.us/get-engaged/incorporations-by-reference>. The tables are incorporated by reference and are not subject to frequent change. The date after each watershed listed in item A is the publication date of the applicable table. The water-use classifications for the other listed waters in the Saint Croix River basin are as identified in items B to D. See part 7050.0415 for the classifications of waters not listed. Designated use information for water bodies can also be accessed through the agency's Environmental Data Access (<http://www.pca.state.mn.us/quick-links/eda-surface-water-data>).

[For text of item A, see Minnesota Rules]

B. Lakes (by eight-digit hydrologic unit code):

(1) 07030001 Upper St. Croix River (November 2025);

(2) 07030003 Kettle River (November 2025);

(3) 07030004 Snake River (November 2025); and

(4) 07030005 Lower St. Croix River (November 2025).

(1) ~~*Grindstone Lake, 58-0123-00, [3/7/88R] (T.42, R.21): 1B, 2A, 3, 4A, 4B, 5, 6; and~~

(2) ~~unnamed swamp, Shafer, (T.34, R.19, S.31, 32): 3, 4A, 4B, 5, 6, 7.~~

[For text of items C and D, see Minnesota Rules]

Subp. 7. **Lower Mississippi River basin (from the confluence with the St. Croix River to the Iowa border).** The water-use classifications for the stream reaches within

each of the major watersheds in the lower Mississippi River basin from the confluence with the Saint Croix River to the Iowa border listed in item A are found in tables entitled "Beneficial Use Designations for Stream Reaches" published on the website of the Minnesota Pollution Control Agency at ~~www.pca.state.mn.us/regulations/incorporations-reference~~ <https://www.pca.state.mn.us/get-engaged/incorporations-by-reference>. The tables are incorporated by reference and are not subject to frequent change. The date after each watershed listed in item A is the publication date of the applicable table. The water-use classifications for the other listed waters in the lower Mississippi River basin from the confluence with the St. Croix River to the Iowa border are as identified in items B to D. See part 7050.0415 for the classifications of waters not listed. Designated use information for water bodies can also be accessed through the agency's Environmental Data Access (<http://www.pca.state.mn.us/quick-links/eda-surface-water-data>).

[For text of item A, see Minnesota Rules]

B. Lakes (by eight-digit hydrologic unit code):

- (1) 07040001 Mississippi River - Lake Pepin (November 2025);
 - (2) 07040002 Cannon River (November 2025);
 - (3) 07040003 Mississippi River - Winona (November 2025);
 - (4) 07040004 Zumbro River (November 2025);
 - (5) 07040006 Mississippi River - La Crescent (November 2025);
 - (6) 07040008 Root River (November 2025);
 - (7) 07060001 Mississippi River - Reno (November 2025); and
 - (8) 07060002 Upper Iowa River (November 2025).
- (1) ~~unnamed marsh, Kilkenny, (T.110, R.23, S.22, 23): 3, 4A, 4B, 5, 6, 7;~~

and

(2) ~~unnamed swamp, Hampton, (T.113, R.18, S.8): 3, 4A, 4B, 5, 6, 7.~~

[For text of items C and D, see Minnesota Rules]

Subp. 8. **Cedar-Des Moines Rivers basin.** The water-use classifications for the stream reaches within each of the major watersheds in the Cedar-Des Moines Rivers basin listed in item A are found in tables entitled "Beneficial Use Designations for Stream Reaches" published on the website of the Minnesota Pollution Control Agency at ~~www.pca.state.mn.us/regulations/incorporations-reference~~ <https://www.pca.state.mn.us/get-engaged/incorporations-by-reference>. The tables are incorporated by reference and are not subject to frequent change. The date after each watershed listed in item A is the publication date of the applicable table. The water-use classifications for the other listed waters in the Cedar-Des Moines Rivers basin are as identified in items B to D. See part 7050.0415 for the classifications of waters not listed. Designated use information for water bodies can also be accessed through the agency's Environmental Data Access (<http://www.pca.state.mn.us/quick-links/eda-surface-water-data>).

[For text of item A, see Minnesota Rules]

B. Lakes: ~~none currently listed.~~ (by eight-digit hydrologic unit code):

(1) 07080102 Upper Wapsipinicon River (November 2025);

(2) 07080201 Cedar River (November 2025);

(3) 07080202 Shell Rock River (November 2025);

(4) 07080203 Winnebago River (November 2025);

(5) 07100001 Des Moines River - Headwaters (November 2025);

(6) 07100002 Lower Des Moines River (November 2025); and

(7) 07100003 East Fork Des Moines River (November 2025).

[For text of items C and D, see Minnesota Rules]

Subp. 9. **Missouri River basin.** The water-use classifications for the stream reaches within each of the major watersheds in the Missouri River basin listed in item A are found in tables entitled "Beneficial Use Designations for Stream Reaches" published on the website of the Minnesota Pollution Control Agency at

~~www.pca.state.mn.us/regulations/incorporations-reference~~

<https://www.pca.state.mn.us/get-engaged/incorporations-by-reference>. The tables are incorporated by reference and are not subject to frequent change. The date after each watershed listed in item A is the publication date of the applicable table. The water-use classifications for the other listed waters in the Missouri River basin are as identified in items B to D. See part 7050.0415 for the classifications of waters not listed. Designated use information for water bodies can also be accessed through the agency's Environmental Data Access (<http://www.pca.state.mn.us/quick-links/eda-surface-water-data>).

[For text of item A, see Minnesota Rules]

B. Lakes: ~~none currently listed.~~ (by eight-digit hydrologic unit code):

- (1) 10170202 Upper Big Sioux River (November 2025);
- (2) 10170203 Lower Big Sioux River (November 2025);
- (3) 10170204 Rock River (November 2025); and
- (4) 10230003 Little Sioux River (November 2025).

[For text of items C and D, see Minnesota Rules]