

1 Pollution Control Agency

2 Water Quality Division

3

4 Adopted Permanent Rules Relating to Water Quality Program

5 Development

6

7 Rules as Adopted

8 7050.0130 DEFINITIONS.

9 The terms "waters of the state," "sewage," "industrial
10 wastes," and "other wastes," as well as any other terms for
11 which definitions are given in the pollution control statutes,
12 as used herein have the meanings ascribed to them in Minnesota
13 Statutes, sections 115.01 and 115.41, with the exception that
14 disposal systems or treatment works operated under permit or
15 certificate of compliance of the agency shall not be construed
16 to be "waters of the state."

17 "Commissioner" means the commissioner of the Minnesota
18 Pollution Control Agency or the commissioner's designee.

19 "Nonpoint source" means a land management or land use
20 activity that contributes or may contribute to ground and
21 surface water pollution as a result of runoff, seepage, or
22 percolation and that is not defined as a point source under
23 Minnesota Statutes, section 115.01, subdivision 15.

24 "Surface waters" means waters of the state excluding
25 groundwater as defined in Minnesota Statutes, section 115.01,
26 subdivision 21.

27 Other terms and abbreviations used herein which are not
28 specifically defined in applicable federal or state law shall be
29 construed in conformance with the context, and in relation to
30 the applicable section of the statutes pertaining to the matter
31 at hand, and current professional usage.

32 7050.0150 DETERMINATION OF COMPLIANCE.

33 In making tests or analyses of the waters of the state,
34 sewage, industrial wastes, or other wastes to determine
35 compliance with the standards, samples shall be collected in a



1 manner and place, and of such type, number, and frequency as may
2 be considered necessary by the agency from the viewpoint of
3 adequately reflecting the condition of the waters, the
4 composition of the effluents, and the effects of the pollutants
5 upon the specified uses. Reasonable allowance will be made for
6 dilution of the effluents, which are in compliance with part
7 7050.0211, subpart 1, following discharge into waters of the
8 state. The agency by allowing dilution may consider the effect
9 on all uses of the waters of the state into which the effluents
10 are discharged. The extent of dilution allowed regarding any
11 specific discharge shall not violate the applicable water
12 quality standards. The samples shall be preserved and analyzed
13 according to procedures in Code of Federal Regulations, title
14 40, part 136. The agency may accept or may develop other
15 methods, procedures, guidelines, or criteria for measuring,
16 analyzing, and collecting samples.

17 7050.0180 NONDEGRADATION FOR OUTSTANDING RESOURCE VALUE WATERS.

18 [For text of subpart 1, see M.R.]

19 Subp. 2. Definitions. For the purpose of this part, the
20 following terms have the meanings given them:

21 [For text of item A, see M.R.]

22 B. "New discharge" means a discharge that was not in
23 existence on the effective date the outstanding resource value
24 water was designated as described in parts 7050.0460 and
25 7050.0470.

26 C. "Expanded discharge" means a discharge that
27 changes in volume, quality, location, or any other manner after
28 the effective date the outstanding resource value water was
29 designated as described in parts 7050.0460 and 7050.0470, such
30 that an increased loading of one or more pollutants results. In
31 determining whether an increased loading of one or more
32 pollutants would result from the proposed change in the
33 discharge, the agency shall compare the loading that would
34 result from the proposed discharge with the loading allowed by
35 the agency as of the effective date of outstanding resource

1 value water designation.

2 [For text of subps 3 to 6a, see M.R.]

3 Subp. 6b. **Calcareous fens.** The following calcareous fens
4 are designated outstanding resource value waters:

- 5 A. Spring Creek fen, Becker County;
6 B. B-B Ranch fen, Clay County;
7 C. Barnesville WMA fen, Clay County;
8 D. Felton fen, Clay County;
9 E. Spring Prairie fen, Clay County;
10 F. Clearbrook fen, Clearwater County;
11 G. Fort Snelling State Park fen, Dakota County;
12 H. Minnesota Valley fen, Dakota County;
13 I. Nicols Meadow, Dakota County;
14 J. Perched Valley WMA fen, Goodhue County;
15 K. Heron Lake fen, Jackson County;
16 L. Thompson fen, Jackson County;
17 M. Fish Hatchery fen, Le Sueur County;
18 N. St. Peter fen, Le Sueur County;
19 O. Altona State Wildlife Management Area fen, Lincoln
20 and Pipestone Counties;
21 P. Waubun fen, Mahnommen County;
22 Q. Truman fen, Martin County;
23 R. Fort Ridgely fen, Nicollet County;
24 S. Le Sueur fen, Nicollet County;
25 T. Adrian fen, Nobles County;
26 U. Primula Meadow (Faith fen), Norman County;
27 V. Rock Dell fen, Olmsted County;
28 W. Burke State Wildlife Management Area fen,
29 Pipestone County;
30 X. Chicog WMA fen, Polk County;
31 Y. Kertsonville WMA fen, Polk County;
32 Z. Pankratz fen (Svedarsky's fen), Polk County;
33 AA. Ordway fen, Pope County;
34 BB. Cannon River fen, Rice County;
35 CC. Savage fen, Scott County;
36 DD. Kennedy fen, Winona County; and

1 EE. Sioux Nation fen, Yellow Medicine County.

2 [For text of subps 7 to 9, see M.R.]

3 Subp. 10. **Thermal discharges.** If a thermal discharge
4 causes potential water quality impairment, the agency shall
5 implement the nondegradation policy consistent with section 316
6 of the Clean Water Act, United States Code, title 33, section
7 1326.

8 7050.0185 NONDEGRADATION FOR ALL WATERS.

9 [For text of subpart 1, see M.R.]

10 Subp. 2. **Definitions.** For the purpose of this part, the
11 following terms have the meanings given them:

12 [For text of items A to E, see M.R.]

13 F. "Toxic pollutant" means a pollutant listed as
14 toxic under section 307(a)(1) of the Clean Water Act, United
15 States Code, title 33, section 1317~~(b)~~(a)(1), or as defined by
16 Minnesota Statutes, section 115.01, subdivision 14.

17 [For text of item G, see M.R.]

18 [For text of subps 3 to 8, see M.R.]

19 7050.0210 GENERAL STANDARDS FOR DISCHARGERS TO WATERS OF THE
20 STATE.

21 [For text of subpart 1, see M.R.]

22 Subp. 2. **Nuisance conditions prohibited.** No sewage,
23 industrial waste, or other wastes shall be discharged from
24 either point or nonpoint sources into any waters of the state so
25 as to cause any nuisance conditions, such as the presence of
26 significant amounts of floating solids, scum, visible oil film,
27 excessive suspended solids, material discoloration, obnoxious
28 odors, gas ebullition, deleterious sludge deposits, undesirable
29 slimes or fungus growths, aquatic habitat degradation, excessive
30 growths of aquatic plants, or other offensive or harmful effects.

31 [For text of subps 3 and 4, see M.R.]

32 Subp. 5. **Mixing zones.** Means for expediting mixing and
33 dispersion of sewage, industrial waste, or other waste effluents
34 in the receiving waters are to be provided so far as practicable
35 when deemed necessary by the agency to maintain the quality of

1 EE. Sioux Nation fen, Yellow Medicine County.

2 [For text of subps 7 to 9, see M.R.]

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14 toxic under section 307(a)(1) of the Clean Water Act, United
15 States Code, title 33, section 1317~~(b)~~(a)(1), or as defined by
16 Minnesota Statutes, section 115.01, subdivision 14.

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29 slimes or fungus growths, aquatic habitat degradation, excessive
30 growths of aquatic plants, or other offensive or harmful effects.

31 [For text of subps 3 and 4, see M.R.]

32 Subp. 5. **Mixing zones.** Means for expediting mixing and
33 dispersion of sewage, industrial waste, or other waste effluents
34 in the receiving waters are to be provided so far as practicable
35 when deemed necessary by the agency to maintain the quality of

1 the receiving waters in accordance with applicable standards.
 2 Mixing zones must be established by the agency on an individual
 3 basis, with primary consideration being given to the following
 4 guidelines:

5 A. mixing zones in rivers shall permit an acceptable
 6 passageway for the movement of fish;

7 B. the total mixing zone or zones at any transect of
 8 the stream should contain no more than 25 percent of the cross
 9 sectional area and/or volume of flow of the stream, and should
 10 not extend over more than 50 percent of the width;

11 C. mixing zone characteristics shall not be lethal to
 12 aquatic organisms;

13 D. for contaminants other than heat, the FAV, as
 14 defined in part 7050.0218, subpart 5 3, item M O, for toxic
 15 substances pollutants should not be exceeded as a one-day mean
 16 concentration at any point in the mixing zone;

17 E. mixing zones should be as small as possible, and
 18 not intersect spawning or nursery areas, migratory routes, water
 19 intakes, nor mouths of rivers; and

20 F. overlapping of mixing zones should be minimized
 21 and measures taken to prevent adverse synergistic effects.

22 This subpart applies in cases where a Class 7 water is
 23 tributary to a Class 2 water.

24 [For text of subps 6c to 12, see M.R.]

25 Subp. 13. **Pollution prohibited.** No sewage, industrial
 26 waste, or other wastes shall be discharged from either a point
 27 or a nonpoint source into the waters of the state in such
 28 quantity or in such manner alone or in combination with other
 29 substances as to cause pollution as defined by law. ~~No-sewage,~~
 30 ~~industrial-waste,-or-other-wastes-shall-be-discharged-from~~
 31 ~~either-point-or-nonpoint-sources-into-any-waters-of-the-state-so~~
 32 ~~as-to-cause-any-material-change-in-any-substances-or~~
 33 ~~characteristics-that-may-impair-the-beneficial-uses,-defined-in~~
 34 ~~part-7050.0200,-for-which-the-waters-of-the-state-are~~
 35 ~~protected.~~ In any case where the waters of the state into which
 36 sewage, industrial waste, or other waste effluents discharge are

1 assigned different standards than the waters of the state into
2 which the receiving waters flow, the standards applicable to the
3 waters into which the sewage, industrial waste, or other wastes
4 discharged shall be supplemented by the following:

5 The quality of any waters of the state receiving sewage,
6 industrial waste, or other waste effluents shall be such that no
7 violation of the standards of any waters of the state in any
8 other class shall occur by reason of the discharge of the
9 sewage, industrial waste, or other waste effluents.

10 Subp. 14. [See Repealer.]

11 [For text of subps 15 to 18, see M.R.]

12 7050.0211 FACILITY STANDARDS.

13 Subpart 1. Minimum secondary treatment for municipal point
14 source and other point source dischargers of sewage. It is
15 established that the agency shall require secondary treatment as
16 a minimum for all municipal point source dischargers and other
17 point source dischargers of sewage. For purposes of this part,
18 municipal has the adjective meaning of municipality as defined
19 in part 7001.1020, subpart 18. Secondary treatment facilities
20 are defined as works which will provide effective sedimentation,
21 biochemical oxidation, and disinfection, or the equivalent,
22 including effluents conforming to the following:

23 Substance or Characteristic	Limiting Concentration or Range*
25 5-Day carbonaceous biochemical 26 oxygen demand*	25 milligrams per liter
27 Fecal coliform group 28 organisms ***	200 organisms per 100 milliliters
29 Total suspended solids*	30 milligrams per liter
30 Oil	Essentially free of visible oil
31 Phosphorus**	1 milligram per liter
32 pH range	6.0 - 9.0
33 Toxic or 34 corrosive substances pollutants	None-at-levels-that-exceed the-FAV-as-defined-in part-7050.021187-subpart-57 item-M7-or-are-acutely-toxic to-humans-or-other-animals-or plant-life7-or-directly damaging-to-real-property.

41 Concentrations of toxic or corrosive pollutants shall not
42 cause acute toxicity to humans or other animals or plant life or
43 directly damage real property or exceed the final acute value
44 unless the effluent satisfies the whole effluent toxicity test

1 below. If a whole effluent toxicity test performed on the
2 effluent results in less than 50 percent mortality of the test
3 organisms, the effluent will not be considered acutely toxic
4 unless the commissioner finds that the test species do not
5 represent sensitive organisms in the affected surface water body
6 or the whole effluent test was performed on a sample not
7 representative of the effluent quality. The final acute value
8 and whole effluent toxicity test are defined in part 7050.0218,
9 subpart 3, items O and FF, respectively.

10 *The arithmetic mean for concentrations of five-day
11 carbonaceous biochemical oxygen demand and total suspended
12 solids shall not exceed the stated values in any calendar
13 month. In any calendar week, the arithmetic mean for
14 concentrations of five-day carbonaceous biochemical oxygen
15 demand shall not exceed 40 milligrams per liter and total
16 suspended solids shall not exceed 45 milligrams per liter.

17 **Where the discharge of effluent is directly to or affects
18 a lake or reservoir, phosphorus removal to one milligram per
19 liter shall be required. In addition, removal of nutrients from
20 all wastes shall be provided to the fullest practicable extent
21 wherever sources of nutrients are considered to be actually or
22 potentially detrimental to preservation or enhancement of the
23 designated water uses. Dischargers required to control
24 nutrients by this subpart are subject to the variance provisions
25 of part 7050.0190.

26 ***Disinfection of wastewater effluents to reduce the
27 levels of fecal coliform organisms to the stated value is
28 required from March 1 through October 31 (Class 2 waters) and
29 May 1 through October 31 (Class 7 waters) except that where the
30 effluent is discharged 25 miles or less upstream of a water
31 intake supplying a potable water system, the reduction to the
32 stated value is required year around. The stated value is not
33 to be exceeded in any calendar month as determined by the
34 geometric mean of all the samples collected in a given calendar
35 month. The application of the fecal coliform group organism
36 standards shall be limited to sewage or other effluents

1 containing admixtures of sewage and shall not apply to
2 industrial wastes except where the presence of sewage, fecal
3 coliform organisms, or viable pathogenic organisms in such
4 wastes is known or reasonably certain. Analysis of samples for
5 fecal coliform group organisms by either the multiple tube
6 fermentation or the membrane filter techniques is acceptable.

7 [For text of subps 2 and 3, see M.R.]

8 7050.0212 REQUIREMENTS FOR POINT SOURCE DISCHARGERS OF
9 INDUSTRIAL OR OTHER WASTES.

10 [For text of subps 1 to 5, see M.R.]

11 Subp. 6. **Toxic or corrosive substances pollutants**. In
12 addition to the requirements of subpart 1, a person discharging
13 industrial or other wastes from a point source shall comply with
14 the control requirements of part 7050.0211, subpart 1, for toxic
15 or corrosive **substances pollutants**.

16 7050.0214 REQUIREMENTS FOR POINT SOURCE DISCHARGERS TO LIMITED
17 RESOURCE VALUE WATERS.

18 Subpart 1. **Effluent limitations**. For point source
19 discharges of sewage, industrial, or other wastes to surface
20 waters classified as limited resource value waters pursuant to
21 parts 7050.0200, number 7 and 7050.0400 to 7050.0470, the agency
22 shall require treatment facilities which will provide effluents
23 conforming to the following limitations:*

24	Substance or Characteristic	Limiting Concentration
25		
26	5-Day carbonaceous biochemical	15 milligrams per liter
27	oxygen demand	(arithmetic mean of all
28		samples taken during
29		any calendar month)

30 *All effluent limitations specified in part 7050.0211,
31 subpart 1, shall also be applicable to dischargers of sewage to
32 Class 7 waters, provided that toxic or corrosive **substances**
33 **pollutants** shall be limited to the extent necessary to protect
34 the designated uses of the receiving water or affected
35 downstream waters.

36 [For text of subps 2 to 4, see M.R.]

37 7050.0217 OBJECTIVES FOR PROTECTION OF SURFACE WATERS FROM TOXIC

1 POLLUTANTS.

2 Subpart 1. Purpose and applicability. The purpose of
3 parts 7050.0217 and 7050.0218 are to establish methods for
4 developing site-specific water quality criteria for toxic
5 pollutants in the absence of numerical standards listed in part
6 7050.0220. The site-specific numerical criteria established by
7 these methods protect Class 1 surface waters for public and
8 private domestic consumption and Class 2 waters for the
9 propagation and maintenance of fish and aquatic life, the
10 consumption of fish and edible aquatic life by humans, and the
11 consumption of aquatic organisms by wildlife. These criteria
12 also protect the uses assigned to Class 7, limited resource
13 value, waters as described in part 7050.0220.

14 Subp. 2. Objectives. Protection of the aquatic community
15 from the toxic effects of pollutants means the protection of no
16 less than 95 percent of all the species in any aquatic
17 community. Greater protection may be applied to a community if
18 economically, recreationally, or ecologically important species
19 are very sensitive.

20 Protection of human consumers of fish, other edible aquatic
21 organisms, and water for drinking from surface waters means that
22 exposure from noncarcinogenic chemicals shall be below levels
23 expected to produce known adverse effects; and the incremental
24 cancer risk from exposure to carcinogenic chemicals, singly or
25 in mixtures, shall not exceed one in 100,000. The combined risk
26 from mixtures of carcinogens will be determined as described in
27 part 7050.0220, subpart 3, item G.

28 Protection of wildlife that eat aquatic organisms means the
29 protection of the most sensitive wildlife species or populations.
30 Greater protection may be applied if the exposed animals include
31 endangered or threatened wildlife species listed in chapter
32 6134, or in the Code of Federal Regulations, title 50, part 17,
33 under the Endangered Species Act of 1973, United States Code,
34 title 16, sections 1531 to 1543.

35 7050.0218 METHODS FOR DETERMINING PROTECTION OF SURFACE WATER

1 STANDARDS FOR WATERS FROM TOXIC SUBSTANCES POLLUTANTS FOR WHICH
2 NUMERICAL STANDARDS NOT PROMULGATED.

3 ~~Subpart 1.--Purpose and applicability.--The purpose of this~~
4 ~~part is to establish methods for developing water quality~~
5 ~~standards for toxic substances.--The standards established by~~
6 ~~these methods protect Class 1 surface waters for public and~~
7 ~~private domestic consumption, and Class 2 waters for the~~
8 ~~propagation and maintenance of fish and aquatic life, the~~
9 ~~consumption of fish and edible aquatic life by humans, and the~~
10 ~~consumption of aquatic organisms by wildlife.--The standards~~
11 ~~also protect the uses assigned to Class 7, limited resource~~
12 ~~value, waters described in part 7050.0200.~~

13 ~~Subp. 2.--Policy.--The standards established under this~~
14 ~~part, together with other provisions in this chapter, shall~~
15 ~~prevent the discharge of sewage, industrial waste, or other~~
16 ~~wastes from point or nonpoint sources into the waters of the~~
17 ~~state in amounts that impair the quality of the waters of the~~
18 ~~state or the aquatic community, or in any manner render the~~
19 ~~aquatic community unsuitable or objectionable for fishing, fish~~
20 ~~culture, or recreational uses.~~

21 ~~Protection of the aquatic community from the toxic effects~~
22 ~~of substances means the protection of no less than 95 percent of~~
23 ~~all the species in any aquatic community.--Greater protection~~
24 ~~may be applied to a community if economically, recreationally,~~
25 ~~or ecologically important species are very sensitive.~~

26 ~~Protection of human consumers of fish, other edible aquatic~~
27 ~~organisms, and water for drinking from surface waters means that~~
28 ~~exposure from noncarcinogenic chemicals shall be below levels~~
29 ~~expected to produce known adverse effects, and the incremental~~
30 ~~cancer risk from exposure to carcinogenic chemicals, singly or~~
31 ~~in mixtures, shall not exceed one in 100,000.--The combined risk~~
32 ~~from mixtures of carcinogens shall be determined as described in~~
33 ~~subpart 12, item E.~~

34 ~~Protection of wildlife that eat aquatic organisms means the~~
35 ~~protection of the most sensitive wildlife species or populations.~~
36 ~~Greater protection may be applied if the exposed animals include~~

1 ~~endangered-or-threatened-wildlife-species-listed-in-chapter~~
 2 ~~6134, or in Code of Federal Regulations, title 50, part 17~~
 3 ~~under the Endangered Species Act of 1973, United States Code,~~
 4 ~~title 16, sections 1531 to 1543.~~

5 ~~Subp. 3. Adoption of new standards. The agency may adopt~~
 6 ~~new standards according to Minnesota Statutes, chapter 14, to~~
 7 ~~replace those listed in part 7050.0220 that are more stringent~~
 8 ~~or less stringent if new scientific evidence shows that a change~~
 9 ~~in the standard is justified.~~

10 ~~Subp. 4. Standards for substances not listed in part~~
 11 ~~7050.0220. Standards for toxic substances not listed in part~~
 12 ~~7050.0220 shall be derived by the commissioner using the~~
 13 ~~procedures in this part. Numerical standards so derived have~~
 14 ~~the same authority as standards listed in part 7050.0220. Any~~
 15 ~~effluent limitation determined to be necessary based on~~
 16 ~~standards derived under this subpart shall only be required~~
 17 ~~after the discharger has been given notice of the specific~~
 18 ~~effluent limitations and an opportunity for public hearing. The~~
 19 ~~requirements in chapter 7001 regarding notice of National~~
 20 ~~Pollutant Discharge Elimination System and State Disposal System~~
 21 ~~permits can satisfy the notice and opportunity for hearing~~
 22 ~~requirements in this subpart.~~

23 Subpart 1. Purpose. The numerical water quality standards
 24 for toxic pollutants in part 7050.0220 do not address all
 25 pollutants which may be discharged to surface waters and cause
 26 toxic effects. Therefore, methods are established in this part
 27 to address on a site-by-site and case-by-case basis the
 28 discharge into surface waters of toxic pollutants not listed in
 29 part 7050.0220.

30 The agency may also adopt new standards according to
 31 Minnesota Statutes, chapter 14, to replace those listed in part
 32 7050.0220 that are more stringent or less stringent if new
 33 scientific evidence shows that a change in the standard is
 34 justified.

35 Subp. 2. Site-specific criteria for pollutants not listed
 36 in part 7050.0220. Site-specific criteria for toxic pollutants

1 ~~endangered-or-threatened-wildlife-species-listed-in-chapter~~
 2 ~~61347-or-in-Code-of-Federal-Regulations7-title-507-part-177~~
 3 ~~under-the-Endangered-Species-Act-of-19737-United-States-Code7~~
 4 ~~title-167-sections-1531-to-1543.~~

5 ~~Subp.-3.--Adoption-of-new-standards.--The-agency-may-adopt~~
 6 ~~new-standards-according-to-Minnesota-Statutes7-chapter-147-to~~
 7 ~~replace-those-listed-in-part-7050.0220-that-are-more-stringent~~
 8 ~~or-less-stringent-if-new-scientific-evidence-shows-that-a-change~~
 9 ~~in-the-standard-is-justified.~~

10 ~~Subp.-4.--Standards-for-substances-not-listed-in-part~~
 11 ~~7050.0220.--Standards-for-toxic-substances-not-listed-in-part~~
 12 ~~7050.0220-shall-be-derived-by-the-commissioner-using-the~~
 13 ~~procedures-in-this-part.--Numerical-standards-so-derived-have~~
 14 ~~the-same-authority-as-standards-listed-in-part-7050.0220.--Any~~
 15 ~~effluent-limitation-determined-to-be-necessary-based-on~~
 16 ~~standards-derived-under-this-subpart-shall-only-be-required~~
 17 ~~after-the-discharger-has-been-given-notice-of-the-specific~~
 18 ~~effluent-limitations-and-an-opportunity-for-public-hearing.--The~~
 19 ~~requirements-in-chapter-7001-regarding-notice-of-National~~
 20 ~~Pollutant-Discharge-Elimination-System-and-State-Disposal-System~~
 21 ~~permits-can-satisfy-the-notice-and-opportunity-for-hearing~~
 22 ~~requirements-in-this-subpart.~~

23 Subpart 1. Purpose. The numerical water quality standards
 24 for toxic pollutants in part 7050.0220 do not address all
 25 pollutants which may be discharged to surface waters and cause
 26 toxic effects. Therefore, methods are established in this part
 27 to address on a site-by-site and case-by-case basis the
 28 discharge into surface waters of toxic pollutants not listed in
 29 part 7050.0220.

30 The agency may also adopt new standards according to
 31 Minnesota Statutes, chapter 14, to replace those listed in part
 32 7050.0220 that are more stringent or less stringent if new
 33 scientific evidence shows that a change in the standard is
 34 justified.

35 Subp. 2. Site-specific criteria for pollutants not listed
 36 in part 7050.0220. Site-specific criteria for toxic pollutants

1 not listed in part 7050.0220 shall be derived by the
2 commissioner using the procedures in this part.

3 A. A site-specific criterion so derived is specific
4 to the point source being addressed. Any effluent limitation
5 derived from a site-specific criterion under this subpart shall
6 only be required after the discharger has been given notice of
7 the specific proposed effluent limitations and an opportunity to
8 request a hearing as provided in parts 7000.1000 and 7001.0130.

9 B. A site-specific criterion so derived for remedial
10 action cleanup activities is specific to the affected surface
11 water body.

12 Subp. ~~5~~ 3. Definitions. For the purposes of
13 parts ~~7050-0218~~ 7050.0217 to 7050.0220, the following terms have
14 the meanings given them.

15 A. "Acute-chronic ratio" or "ACR" means the ratio of
16 the acute toxicity, expressed as a LC50 or EC50, of a toxicant
17 to its chronic toxicity expressed as the chronic value. The ACR
18 is used as a factor for estimating chronic toxicity on the basis
19 of acute toxicity.

20 B. "Acute toxicity" means a stimulus severe enough to
21 rapidly induce a response. In toxicity tests, a response is
22 normally observed in 96 hours or less. Acute effects are often
23 measured in terms of mortality or other debilitating effects.

24 C. "Available scientific data" means information
25 derived from scientific literature including: published
26 literature in peer reviewed scientific journals, USEPA ambient
27 water quality criteria documents, and other reports or documents
28 published by the USEPA or other governmental agencies.

29 D. "Bioaccumulation factor" or "BAF" means the
30 concentration of a ~~substance~~ pollutant in one or more tissues of
31 an aquatic organism, exposed from any source of the ~~substance~~
32 pollutant but primarily from the diet and bottom sediments in
33 addition to the water column, divided by the average
34 concentration in the solution in which the organism had been
35 living.

36 ~~D~~ E. "Bioconcentration factor" or "BCF" means the

1 concentration of a substance pollutant in one or more tissues of
2 an aquatic organism, exposed only to the water as the source of
3 the substance pollutant, divided by the average concentration in
4 the solution in which the organism had been living.

5 E. F. "Cancer potency factor" or "ql*" means a factor
6 indicative of a chemical's human cancer causing potential. The
7 ql* is the upper 95 percent confidence limit (one-sided) of the
8 slope from a linear nonthreshold dose-response model used by the
9 USEPA to provide an upper bound estimate of incremental cancer
10 risk. The ql* assumes a lifetime exposure and is expressed in
11 days times milligram-toxicant-per kilogram body weight per
12 milligram toxicant (d x kg/mg).

13 F. G. "Chronic toxicity" means a stimulus that
14 lingers or continues for a long period of time, often one-tenth
15 the life span or more. A chronic effect can be mortality,
16 reduced growth, reproduction impairment, harmful changes in
17 behavior, and other nonlethal effects.

18 G. H. "Chronic criterion" or "CC" means the highest
19 water concentration of a toxicant to which organisms can be
20 exposed indefinitely without causing chronic toxicity.

21 I. "Chronic standard" or "CS" means the highest water
22 concentration of a toxicant to which organisms can be exposed
23 indefinitely without causing chronic toxicity. Chronic
24 standards are listed in part 7050.0220, subpart 3.

25 H. J. "Chronic value" means the geometric mean of the
26 highest tested concentration that did not cause an unacceptable
27 adverse effect and the lowest tested concentration that did
28 cause an unacceptable adverse effect, and in which all higher
29 test values cause an effect, in an approved chronic test.

30 I. K. "Cold water fisheries" means a community of
31 fish including species of trout and salmon from the Salmonidae
32 family that inhabit trout waters as defined in part 7050.0420.

33 J. L. "Criterion" means a number or numbers
34 established for a substance pollutant derived under this part,
35 or issued by the USEPA, to protect aquatic life, humans, or
36 wildlife.

1 K. M. "Duration" means the time over which the
2 instream concentration of a ~~substance~~ pollutant is averaged for
3 comparison with the standard or criterion.

4 E. N. "Effect concentration" or "EC50" means the
5 toxicant concentration that causes equilibrium loss,
6 immobilization, mortality, or other debilitating effects in 50
7 percent of the exposed organisms during a specific time of
8 observation.

9 M. O. "Final acute value" or "FAV" means an estimate
10 of the concentration of a ~~material~~ pollutant corresponding to
11 the cumulative probability of 0.05 in the distribution of all
12 the acute toxicity values for the genera or species from the
13 acceptable acute toxicity tests conducted on a ~~substance~~
14 pollutant. The FAV is the acute toxicity limitation applied to
15 mixing zones in part 7050.0210, subpart 5; and to dischargers in
16 parts 7050.0211, subpart 1; 7050.0212, subpart 6; and 7050.0214,
17 subpart 1.

18 N. P. "Genus mean acute value" or "GMAV" means the
19 geometric mean of the SMAVs available for the genus.

20 O. Q. "K value" means the fraction of the total
21 allowable daily dose of a toxic ~~substance~~ pollutant that is
22 attributed to drinking water and fish consumption relative to
23 other sources of the ~~substance~~ pollutant to humans, such as air
24 or food, in the calculation of criteria. In the absence of
25 sufficient data to establish a chemical-specific K value, the K
26 value will be 0.2.

27 P. R. "Lethal concentration" or "LC50" means the
28 toxicant concentration killing 50 percent of the exposed
29 organisms in a specific time of observation.

30 Q. S. "Lowest observable adverse effect level" or
31 "LOAEL" means the lowest tested concentration that caused a
32 statistically significant occurrence of an adverse effect in
33 comparison with a control when all higher test concentrations
34 caused adverse effects.

35 R. T. "Maximum criterion" or "MC" means the highest
36 concentration of a toxicant in water to which aquatic organisms

1 can be exposed for a brief time with zero to slight mortality.

2 The MC equals the FAV divided by two.

3 U. "Maximum standard" or "MS" means the highest
4 concentration of a toxicant in water to which aquatic organisms
5 can be exposed for a brief time with zero to slight mortality.
6 The MS equals the FAV divided by two. Maximum standards are
7 listed in part 7050.0220, subpart 3.

8 S. V. "National methods" means the methods the USEPA
9 uses to develop aquatic life criteria as described in Stephan,
10 C.E., D.J. Mount, D.J. Hansen, J.H. Gentile, G.A. Chapman, and
11 W.A. Brungs, 1985, "Guidelines for deriving numerical national
12 water quality criteria for the protection of aquatic organisms
13 and their uses," USEPA, Office of Research and Development,
14 Environmental Research Laboratories, Duluth MN; Narragansett,
15 RI, Corvallis, OR. 98 p; available through the National
16 Technical Information Service, Springfield, VA.

17 ¶. W. "No observable adverse effect level" or "NOAEL"
18 means the highest tested concentration that did not cause a
19 statistically significant occurrence of an adverse effect in
20 comparison with a control when no lower test concentration
21 caused an injurious or adverse effect.

22 ¶. X. "Octanol to water partition coefficient" or
23 " K_{OW} " means the ratio of the concentration of a substance in the
24 octanol phase to its concentration in the aqueous phase of a
25 two-phase octanol to water system after equilibrium of the
26 substance between the two phases has been achieved. The \log_{10}
27 K_{OW} has been shown to be proportional to the bioconcentration
28 potential of lipophilic organic chemicals.

29 ¶. Y. "Parachor" means the surface tension adjusted
30 molar volume, and specifically is the molecular weight of a
31 liquid times the fourth root of its surface tension, divided by
32 the difference between the density of the liquid and the density
33 of the vapor in equilibrium with it; essentially constant over
34 wide ranges of temperature. Parachor relates to the physical
35 properties of a molecule that affect its potential to
36 bioaccumulate in aquatic organisms.

1 W- Z. "Reference dose" or "RfD" means an estimate of
2 a daily exposure to the human population, including sensitive
3 subpopulations, that is likely to be without appreciable risk or
4 deleterious effects over a lifetime. The RfD dose is expressed
5 in units of daily dose and was formerly known as the acceptable
6 daily intake.

7 X- AA. "Species mean acute value" or "SMAV" means the
8 geometric mean of all the available and acceptable acute values
9 for a species.

10 Y- BB. "Standard" means a number or numbers
11 established for a substance pollutant or water quality
12 characteristic to protect a specified beneficial use as listed
13 in part 7050.0220. The standard for a toxic substance pollutant
14 includes the lowest-of-the-chronic-criteria, established to
15 protect-aquatic-life, humans, or wildlife, the ME, CS, MS, and
16 the FAV. Some substances pollutants do not have an ME MS or
17 an FAV due to insufficient data. For these substances
18 pollutants, the EE CS alone is the standard.

19 Z- CC. "Toxic pollutant" has the meaning given it in
20 part 7050.0185, subpart 2, item F.

21 AA- DD. "USEPA" means the United States Environmental
22 Protection Agency.

23 BB- EE. "Water quality characteristic" means a
24 characteristic of natural waters, such as total hardness or pH,
25 that can. Some water quality characteristics can affect the
26 toxicity of a-substance pollutants to aquatic organisms.

27 FF. "Whole effluent toxicity test" means the
28 aggregate toxic effect of an effluent measured directly by a
29 toxicity test.

30 Subp. 6- 4. **Adoption of USEPA national criteria.** The
31 USEPA establishes aquatic life criteria under section 304(a)(1)
32 of the Clean Water Act, United States Code, title 33, section
33 1314. The USEPA criteria, subject to modification as described
34 in this subpart, are applicable to Class 2 waters of the state.
35 The USEPA has described the national methods for developing
36 aquatic life criteria in "Guidelines for deriving national

1 numerical water quality criteria for the protection of aquatic
2 organisms and their uses," available through the National
3 Technical Information Service, Springfield, VA.

4 USEPA criteria that vary with an ambient water quality
5 characteristic such as total hardness or pH will be established
6 for specific waters or reaches using data available to the
7 commissioner. Central values such as the means or medians for
8 the characteristic will be used unless there is **sufficient**
9 evidence to support using different values. Values for water
10 quality characteristics can be estimated for specific waters or
11 reaches that have no data by using data from a nearby watershed
12 with similar chemical properties.

13 A. The USEPA criteria are adopted unchanged by the
14 agency, unless modified under item C, as the criteria applicable
15 to designated trout waters. Trout (Class 2A) waters are listed
16 in parts 7050.0420 and 7050.0470.

17 B. The USEPA criteria are adopted, subject to
18 modification as described in this item or item C, for
19 application to the cool and warm water fisheries habitats. Cool
20 and warm water fisheries (Class 2Bd, 2B, and 2C) waters are
21 defined in part 7050.0430 or listed in part 7050.0470.

22 (1) Acute data, in the form of the ranked genus
23 mean acute values used by the USEPA to determine the national
24 criteria, are the data used to determine the Class 2Bd, 2B, and
25 2C criteria.

26 (2) GMAVs for fish in the family Salmonidae are
27 deleted from the lowest of the ranked GMAVs so that all of the
28 lowest four GMAVs in the USEPA data set are for nonsalmonid
29 species. Following these deletions, no other salmonid GMAVs are
30 deleted. If none of the lowest four GMAVs in the USEPA data set
31 are for salmonid species, no GMAVs are deleted. The minimum of
32 eight GMAVs specified in the national methods must be met,
33 except that nonsalmonid fish can take the place of the salmonid
34 requirement if the prescribed deletions eliminate all salmonids
35 from the national data set.

36 (3) The number of GMAVs in the USEPA criteria

1 data set is reduced by the number of salmonid GMAVs deleted.

2 (4) The FAV is determined according to the
3 national methods as follows:

4 (a) for each species for which one or more
5 acute value is available, a SMAV is calculated as the geometric
6 mean of all the acceptable acute values;

7 (b) for each genus for which one or more
8 SMAV is available, a GMAV is calculated as the geometric mean of
9 all the SMAVs;

10 (c) the GMAVs are ranked from the lowest to
11 the highest;

12 (d) a rank is assigned to the GMAVs from "1"
13 for the lowest to "N" for the highest, and if two or more GMAVs
14 are identical, successive ranks are arbitrarily assigned;

15 (e) the cumulative probability (P) for each
16 GMAV is calculated as rank/(N+1);

17 (f) the four GMAVs that have cumulative
18 probabilities closest to 0.05 are selected, and if there are
19 less than 59 GMAVs, these will always be the lowest four GMAVs;
20 and

21 (g) using the selected GMAVs and their
22 respective cumulative probabilities, calculate:

$$23 \quad S^2 = \frac{\Sigma((\ln \text{GMAV})^2) - ((\Sigma(\ln \text{GMAV}))^2/4)}{24 \quad \Sigma(P) - ((\Sigma(\sqrt{P}))^2/4)}$$

$$25 \quad L = (\Sigma(\ln \text{GMAV}) - S(\Sigma(\sqrt{P}))) / 4$$

$$26 \quad A = S(\sqrt{0.05}) + L$$

$$27 \quad \text{FAV} = e^A$$

28 where: FAV = final acute value
29 N = number of GMAVs
30 P = rank/N+1
31 ln = natural logarithm
32 S, L, and A are intermediate steps

33
34 (5) If, as a result of the recalculation of the
35 USEPA criterion for application to Class 2Bd, 2B, and 2C waters,
36 the FAV for the Class 2Bd, 2B, and 2C water is lower than the
37 FAV for Class 2A waters, the Class 2Bd, 2B, and 2C FAV will be
38 changed to equal the Class 2A FAV, unless the lower Class 2Bd,

1 2B, and 2C FAV is justified based on the available toxicological
2 data.

3 (6) The MC is the FAV divided by two.

4 (7) The CC is determined using the national
5 methods. If sufficient chronic data is available to determine
6 the CC directly from chronic values, salmonid chronic values
7 will be deleted from the national data set following the same
8 procedures used for acute data in this item. If sufficient
9 chronic data is not available, the USEPA ACR, subject to
10 modification under item C, is divided into the FAV to determine
11 the CC.

12 C. If the commissioner finds that the information
13 that supports a USEPA criterion is no longer current or complete
14 for reasons including, but not limited to, changes to the
15 relationship between a water quality characteristic and
16 toxicity; the ACR; the weight given to toxicity data for a
17 commercially or recreationally important species; the RfD; the
18 ql^* ; or the BAF; then the commissioner shall evaluate all
19 available information and modify the criterion according to the
20 information and with the objectives in ~~subpart-2~~ part 7050.0217.
21 Any effluent limitation determined to be necessary based on
22 criteria derived under this item shall only be required after
23 the discharger has been given notice to the specific proposed
24 effluent limitations and an opportunity for public to request a
25 hearing as provided in parts 7000.1000 and 7001.0130. The
26 ~~requirements-in-chapter-7001-regarding-notice-of-National~~
27 ~~Pollutant-Discharge-Elimination-System-and-State-Disposal-System~~
28 ~~permits-can-satisfy-the-notice-and-opportunity-for-hearing~~
29 ~~requirements-in-this-item.~~

30 Subp. ~~7~~ 5. Toxicity-based criteria. Toxicity-based
31 aquatic life criteria shall be determined using the methods in
32 this subpart when no USEPA criterion is available.

33 A. Criteria shall be determined using the USEPA
34 national method if the minimum data required in this item and
35 item B are met. Data for saltwater organisms can be used for
36 nonionizable organic chemicals. Data for saltwater organisms

1 cannot be used for ionizable organic or inorganic chemicals.
2 Data for all North American species can be used. A minimum of
3 eight GMAVs representing the following groups must be available:

- 4 (1) species in three families in the phylum
5 Chordata, one of which must be a salmonid;
- 6 (2) a freshwater or saltwater crustacean;
- 7 (3) a freshwater cladoceran;
- 8 (4) a family in a phylum other than Chordata or
9 Arthropoda; and
- 10 (5) two other families not in the phylum Chordata.

11 B. The additional acute data requirements in subitems
12 (1) and (2) apply when developing criteria for pesticides.

13 (1) If the chemical is an insecticide, one of the
14 eight GMAVs required in item A, subitem (5), must be for an
15 insect.

16 (2) If the chemical is a herbicide, the eight
17 GMAVs required in item A must be supplemented with acute data
18 for two plant species, one of which is an algal species.

19 C. The FAV is calculated as described in subpart 6 4,
20 item B, subitem (4). No more than two of the lowest four GMAVs
21 may be for a saltwater species.

22 D. The MC is the FAV divided by two.

23 E. The CC is the FAV divided by an ACR. Available
24 chronic data are used to determine ACRs as described in item F
25 and measured chronic values are compared to the CC. If an
26 approved chronic value for a commercially, recreationally, or
27 ecologically important freshwater species is lower than the CC,
28 the CC will be set to equal that chronic value.

29 F. The ACR is determined according to subitems (1) to
30 (3).

31 (1) A measured ACR is determined by dividing the
32 acute value by the chronic value for the same species from tests
33 that meet the requirements for determining ACRs in the national
34 method. If more than one ACR is available for a species, a
35 species mean ACR is calculated as the geometric mean of the
36 available ACRs.

1 (2) A minimum of three measured ACRs, each for a
2 different species, must be available to determine a final
3 measured ACR. The final measured ACR is the geometric mean of
4 all the available species mean ACRs.

5 (3) If no measured ACRs are available, the
6 following default ACRs shall be used:

7 (a) an ACR of 20 is used with nonpesticide,
8 nonbioaccumulative organic chemicals with log K_{OW} values of
9 three or less; and

10 (b) an ACR of 55 is used with pesticides,
11 inorganic chemicals, or bioaccumulative organic chemicals with
12 log K_{OW} values greater than three.

13 (4) If two or fewer measured ACRs are available,
14 the default ACRs in subitem (3) are incorporated into the
15 calculation of the final ACR as follows:

16 (a) if two measured ACRs are available, the
17 final ACR is the geometric mean of the two measured ACRs and the
18 appropriate default ACR; and

19 (b) if one measured ACR is available, the
20 final ACR is the geometric mean of the measured ACR and two
21 appropriate default ACRs.

22 G. If the acute data available do not meet the
23 requirements in items A and B, toxicity-based criteria can be
24 determined by the method in this item. This method is not
25 applicable to ionizable organic chemicals, or to bioaccumulative
26 organic chemicals and pesticides with BCFs greater than 5,000 or
27 log K_{OW} values greater than 5.19.

28 (1) Acute data are assembled. A minimum of three
29 acute values in the following groups must be available:

30 (a) a member of the class Osteichthyes
31 (fish);

32 (b) a member of the class Crustacea, such as
33 a water flea, amphipod, or crayfish; and

34 (c) a third animal species.

35 (2) For insecticides, a fourth acute value must
36 be available for an insect species in addition to the acute

1 values required in subitem (1).

2 (3) For herbicides, two acute values for plant
3 species, one of which is an algal species, must be available in
4 addition to the acute values required in subitem (1).

5 (4) Data for saltwater species can be used for
6 nonionizable organic chemicals, except that the lowest acute
7 value must be for a North American freshwater species.

8 (5) SMAVs are calculated as the geometric mean of
9 all the acute values for one species.

10 (6) GMAVs are calculated as the geometric mean of
11 the SMAVs.

12 (7) The lowest GMAV from among the available
13 GMAVs is selected.

14 (8) The FAV is calculated by dividing the lowest
15 GMAV by the appropriate factor listed below, depending on the
16 number of GMAVs available.

17	Number of	Factor	Number of	Factor
18	GMAVs		GMAVs	
19	3	11	12	3.6
20	4	10	13	3.4
21	5	9	14	3.2
22	6	8	15	3.0
23	7	7	16	2.8
24	8	6	17	2.6
25	9	5	18	2.4
26	10	4	19	2.2
27	11	3.8	20 or more	2.0

28
29 (9) The MC is calculated by dividing the FAV by
30 two.

31 (10) A final ACR is determined as described in
32 item F.

33 (11) The CC is calculated by dividing the FAV by
34 the appropriate ACR.

35 (12) If chronic data are available, they are used
36 to determine measured ACRs as described in item F, and chronic
37 data ~~is~~ are compared to the CC.

38 Subp. 8: 6. **Human health-based criteria.** Human
39 health-based aquatic life criteria protect humans from potential
40 adverse effects of eating fish and edible aquatic organisms from
41 Class 2 waters and from the consumption of drinking water from
42 Class 1 surface waters.

1 The RfDs used to calculate criteria for noncarcinogenic
 2 chemicals and the ql*s used to calculate criteria for
 3 carcinogenic chemicals are obtained from the Integrated Risk
 4 Information System (IRIS), online, maintained and made available
 5 by the USEPA, Office of Health and Environmental Assessment,
 6 Environmental Criteria and Assessment Office, Cincinnati, OH.

7 A. Criteria for noncarcinogenic chemicals applicable
 8 to surface waters designated Class 2A or 2Bd are calculated as
 9 follows:

10
$$\text{dfCC mg/l} = \frac{\text{RfD mg/kg/day} \times 70 \text{ kg} \times K}{2 \text{ l/day} + [0.030 \text{ kg/day (BAF)}]}$$

15 where dfCC = drinking water plus fish consumption criterion
 16 in mg/l
 17 RfD = reference dose in mg/kg/day
 18 70 kg = standard weight of an adult
 19 K = exposure attributed to drinking water and fish
 20 consumption (see item E)
 21 2 l/day = two liters of water consumed per day
 22 0.030 kg/day = amount of fish assumed to be consumed
 23 per day
 24 BAF = final BAF in liters per kg.

25 B. Criteria for noncarcinogenic chemicals applicable
 26 to Class 2 2B or 2C surface waters are calculated as follows:

27
$$\text{fCC mg/l} = \frac{\text{RfD mg/kg/day} \times 70 \text{ kg} \times K}{0.01 \text{ l/day} + [0.030 \text{ kg/day (BAF)}]}$$

32 where fCC = fish consumption criterion in mg/l
 33 0.01 l/day = assumed incidental ingestion of water.

34 C. Criteria for carcinogenic chemicals applicable to
 35 surface waters designated ~~both-Class-1-and-2~~ Class 2A or 2Bd are
 36 calculated as follows:

37
$$\text{dfCC mg/l} = \frac{70 \text{ kg} \times 10^{-5}}{\text{ql}^* [2 \text{ l/day} + 0.030 \text{ kg/day (BAF)}]}$$

42 where 10^{-5} = a risk level of one chance in 100,000
 43 ql* = the cancer potency factor in days x kg/mg.

44 D. Criteria for carcinogenic chemicals applicable to
 45 Class 2 2B or 2C surface waters are calculated as follows:

46
$$\text{fCC mg/l} = \frac{70 \text{ kg} \times 10^{-5}}{\text{ql}^* [0.01 \text{ l/day} + 0.030 \text{ kg/day (BAF)}]}$$

50 E. A default exposure value (K) of 0.2 will be used

1 unless the Minnesota Department of Health uses a different
2 exposure value in the calculation of a drinking water criterion,
3 or sufficient exposure data is available to support an
4 alternative value.

5 Subp. 9~~7~~ 7. **Bioaccumulation.** A final BAF can be
6 determined either from bioaccumulation measurements in the field
7 or from laboratory bioconcentration experiments. Laboratory
8 tests should have a duration of at least 28 days, or the
9 bioconcentration should have achieved steady state.
10 Bioconcentration tests should meet the requirements in the
11 national methods.

12 If measured BAFs and BCFs are not available for lipophilic
13 ~~substances~~ organic chemicals, a final BAF can be estimated using
14 the relationship between bioconcentration and the log of the
15 octanol to water partition coefficient ($\log K_{OW}$) as described in
16 item D.

17 A. A final BAF for inorganic ~~substances~~ chemicals is
18 equal to the geometric mean of the available BCFs and BAFs. The
19 BCFs and BAFs can be for either whole body or edible tissue, or
20 both.

21 B. A final BAF for lipophilic ~~substances~~ organic
22 chemicals is determined when measured BAFs or BCFs and percent
23 lipid data are available according to subitems (1) to (10).

24 (1) Measured BAFs and BCFs are assembled from ~~the~~
25 USEPA documents, scientific literature, ~~USEPA-documents~~, and
26 other ~~credible~~ available sources of scientific data. BAFs and
27 BCFs may be for edible portions of aquatic organisms or for the
28 whole body.

29 (2) Normalized BAFs and BCFs are obtained by
30 dividing the BAFs and BCFs by the arithmetic average percent
31 lipid for the test organisms.

32 (3) Species mean BAFs are calculated as the
33 geometric mean of all the normalized BAFs for a species.
34 Species mean BCFs are calculated as the geometric mean of all
35 the normalized BCFs for a species.

36 (4) A chemical-specific mean BAF or BCF is

1 calculated as the geometric mean of the species mean BAFs or
 2 BCFs. The species mean normalized BAFs and BCFs for chemicals
 3 with log K_{OW} values less than three are averaged together. The
 4 species mean normalized BAFs and BCFs for chemicals with log K_{OW}
 5 values of three or more are averaged separately.

6 (5) A final BAF for a chemical with a log K_{OW}
 7 value of less than three is determined as follows:

8 (a) for cold water fish, the normalized mean
 9 of the combined BAFs and BCFs is multiplied by six percent
 10 lipid; and

11 (b) for cool and warm water fish, the
 12 normalized mean of the combined BAFs and BCFs is multiplied by
 13 1.5 percent lipid.

14 (6) A final BAF for a chemical with a log K_{OW}
 15 value of three or more, for which measured BAFs and percent
 16 lipid data are available, is determined by multiplying the
 17 normalized mean BAF by six percent lipid for Class 2A waters or
 18 1.5 percent lipid for Class 2Bd, 2B, and 2C waters.

19 (7) The final BAF for chemicals with a log K_{OW}
 20 value of three or more, for which BCF and percent lipid data are
 21 available, is the value determined in subitem (6), multiplied by
 22 the appropriate factor from subitem (8)7.

23 (8) The BCF to BAF adjustment factor is
 24 applicable to lipophilic organic chemicals with log K_{OW}
 25 values ~~greater than~~ of three or more, unless credible
 26 chemical-specific data indicates the application of the factor
 27 is not appropriate. A value of six is used to calculate the
 28 factor for chemicals with log K_{OW} values greater than six. The
 29 BCF to BAF adjustment factor is calculated using the following
 30 equation; the results shall not be less than one nor greater
 31 than 15: $\log_{10} (\text{BCF to BAF factor}) = \cancel{0.441} \underline{0.384} \log_{10}$
 32 $K_{OW} - \cancel{0.0017} \underline{0.00055} \text{ Parachor} - \cancel{0.686} \underline{1.128}$.

33 (9) The following are representative factors from
 34 the equation in subitem (8):

35	log K _{OW}	Factor
36		(at Parachor = 500)
37	3.0	0.6 (1.0 is used)

1	3.5	±0 0.9 (1.0 is used)
2	4.0	±7 <u>1.4</u>
3	4.5	28 <u>2.1</u>
4	5.0	47 <u>3.3</u>
5	5.5	78 <u>5.1</u>
6	6.0 and-greater	±29 <u>8.0</u>

7
 8 (10) When both measured BAFs and BCFs are
 9 available for chemicals with log K_{OW} values ~~greater-than~~ of
 10 three or more, the commissioner will evaluate both BCFs and BAFs
 11 and other ~~credible~~ available scientific ~~evidence~~ data to select
 12 the appropriate values to use.

13 C. A final BAF is determined for lipophilic
 14 ~~substances~~ organic chemicals having measured BAF or BCF data,
 15 but no percent lipid data, as follows:

16 (1) the geometric mean of the species mean BAFs
 17 is the final BAF;

18 (2) the geometric mean of the species mean BCFs
 19 and BAFs is the final BAF for chemicals having log K_{OW} values
 20 less than three; and

21 (3) the final BAF for chemicals having log K_{OW}
 22 values of three or more is the geometric mean of the species
 23 mean BCFs multiplied by the appropriate factor from the equation
 24 in item B, subitem (8). Chemicals may have both BAF and BCF
 25 data. The geometric mean BCF will be adjusted by the factor
 26 from the equation in item B, subitem (8), and the results
 27 compared to the measured BAFs. The commissioner will evaluate
 28 both BCFs and BAFs and other ~~credible~~ available scientific
 29 ~~evidence~~ data to select a final BAF. BAF data are usually
 30 preferred over BCF data.

31 D. A final BAF for lipophilic organic chemicals is
 32 determined according to subitems (1) to (4) when no measured
 33 BAFs or BCFs are available.

34 (1) A BCF can be estimated based on the
 35 relationship between BCFs and the log K_{OW}. A value of six is
 36 used to calculate the BCF for chemicals with log K_{OW} values
 37 greater than six. The equation is: log₁₀ BCF = 0.79 log₁₀ K_{OW}
 38 value - 0.40.

39 Where log₁₀ K_{OW} = the log of the octanol to water partition

1 coefficient. If measured log K_{ow} values are not available in
2 the scientific literature, they may be estimated using
3 quantitative structure activity relationships. The average
4 percent lipid of the organisms used to establish this
5 relationship is 7.6.

6 (2) BCFs estimated from the equation in subitem
7 (1) are adjusted for the percent lipid of edible portions.

8 (a) The BCF for cold water fish equals the
9 estimated BCF from the equation in subitem (1) times 6/7.6.

10 (b) The BCF for cool and warm water fish
11 equals the estimated BCF from the equation in subitem (1) times
12 1.5/7.6.

13 (3) The final BAF for chemicals with log K_{ow}
14 values less than three equals the estimated BCF from subitem (2).

15 (4) The final BAF for chemicals with log K_{ow}
16 values of three or more equals the estimated BCF from subitem
17 (2), multiplied by the factor from the equation in item ~~A~~ B,
18 subitem (8).

19 Subp. ~~10~~ 8. **Taste and odor criteria.** The agency shall
20 limit the addition of pollutants to surface waters to the extent
21 necessary to protect fish and other edible freshwater organisms
22 from acquiring objectionable tastes and odors. The agency will
23 use the USEPA national organoleptic criteria, established under
24 section 304(a)(1) of the Clean Water Act, United States Code,
25 title 33, section 1314, when establishing concentrations above
26 which unacceptable tastes and odors could be imparted to aquatic
27 organisms.

28 Subp. ~~11~~ 9. **Wildlife-based criteria.** The agency shall
29 use the procedures in this subpart to establish wildlife-based
30 criteria. Wildlife criteria shall protect wildlife consumers of
31 freshwater aquatic organisms from adverse effects of toxic
32 substances pollutants. Wildlife criteria are applicable to
33 all surface waters of-the-state, subject to the exceptions in
34 subpart ~~12~~ 10, item B, subitem ~~(2)~~ (1).

35 A. Wildlife-based criteria shall be determined using
36 toxicological information from ~~scientifically-acceptable-studies~~

1 of available sources of scientific data for wildlife or domestic
 2 animal species, exposed to toxic ~~chemicals~~ pollutants through
 3 ingestion including gavage.

4 B. Wildlife-based criteria are calculated using the
 5 following formula:

$$6 \quad \text{NOAEL} \times \text{Bwt} \times \text{SSF}$$

$$7 \quad \text{WCC mg/l} = \frac{\quad}{8}$$

$$9 \quad \text{DW} + (\text{F} \times \text{BAF})$$

10
 11 where: WCC = wildlife CC mg/l
 12 NOAEL = no observable adverse effect level in mg of
 13 substance per kg of body weight per day (mg/kg BWt/day)
 14 as derived from mammalian or avian toxicity studies.
 15

16 If the NOAEL is in mg/l, the NOAEL will be multiplied
 17 by the average daily volume of water consumed by the
 18 test animals in liters per day and divided by the
 19 average weight of the test animals in kg.
 20

21 If the NOAEL is in mg/kg of food consumed, the NOAEL
 22 will be multiplied by the average amount of food
 23 consumed daily by the test animals and divided by the
 24 average weight of the test animals in kg.

25 Bwt = average body weight of test organisms in kg.
 26 SSF = species sensitivity factor to account for
 27 difference in the sensitivity in test species. This
 28 factor will vary between 1 and 0.1. The appropriate
 29 factor will be determined by the commissioner based on
 30 credible available scientific evidence data
 31 on the relative sensitivity of the test organism
 32 compared to other wildlife species.

33 DW = average volume of water consumed per day by the
 34 test animals in liters.

35 F = average amount of food consumed per day by test
 36 animals in kg.

37 BAF = BAF in liters per kg.

38 C. Drinking (DW) and feeding (F) rates for test
 39 organisms can be estimated using the following equations if
 40 these rates are not available from the original study:

41 (1) for mammalian species:

42 (a) $\text{DW} = 0.099 \times (\text{Bwt})^{0.90}$; and

43 (b) $\text{F} = 0.0687 \times (\text{Bwt})^{0.82}$; and

44 (2) for avian species:

45 (a) $\text{DW} = 0.059 \times (\text{Bwt})^{0.67}$; and

46 (b) $\text{F} = 0.058 \times (\text{Bwt})^{0.65}$.

47 D. A final BAF for calculating a wildlife chronic
 48 criterion (WCC) is determined as in subpart 9 7, except that the
 49 BCFs and BAFs are adjusted to represent whole body BCFs and BAFs.

50 (1) Normalized BCFs and BAFs are multiplied by 12
 51 percent lipid for WCC applicable to Class 2A waters.

1 (2) Normalized BCFs and BAFs are multiplied by
2 five percent lipid for WCC applicable to Class 2Bd, 2B, and 2C
3 waters.

4 (3) If percent lipid data is not available, whole
5 body BCFs and BAFs are used as reported.

6 (4) BCFs estimated using the relationship between
7 BCFs and the log K_{OW} are normalized by dividing the estimated
8 BCF by 7.6 and then multiplying by 12 for ~~cold-water-fisheries~~
9 Class 2A waters or by five for ~~cool-and-warm-water-fisheries~~
10 Class 2Bd, 2B, and 2C waters.

11 (5) Measured or estimated BCFs for lipophilic
12 organic chemicals with log K_{OW} values in the range of three or
13 more are multiplied by the factor from subpart 9 7, item B,
14 subitem (8).

15 Subp. ~~12~~ 10. Applicable standards criteria. The
16 standard criterion for a ~~substance-consists-of-three~~
17 numbers pollutant includes: the CC, the MC, and the FAV.
18 The standards criteria for toxic substances pollutants for the
19 surface waters of-the-state are the lowest of the applicable
20 criteria derived under this part. ~~Specific-standards-for-toxic~~
21 ~~substances-are-listed-in-part-7050-02207-or-may-be-derived-as~~
22 ~~required-by-the-commissioner-under-subpart-4~~.

23 A. Applicable standards criteria for Class ~~1-and-2~~
24 2A, 2Bd, 2B, and 2C surface waters are the lowest of the
25 following criteria:

26 (1) a CC and MC based on toxicity to aquatic
27 organisms from subpart 6 4 or 7 5;

28 (2) a CC based on plant toxicity from subpart 6 4
29 or 7 5;

30 (3) a dfCC or fCC from subparts 8 6 and 9 7;

31 (4) a concentration that will prevent
32 unacceptable taste or odor in water, fish, or other edible
33 aquatic organisms from subpart ~~10~~ 8; or

34 (5) a WCC from subpart ~~11~~ 9.

35 B. Applicable standards criteria for Class 7 waters
36 are the lowest of the following criteria:

1 (1) a WCC from subpart ~~11~~ 9, if aquatic organisms
2 can be sustained in the Class 7 water so that they are subject
3 to predation by wildlife; or

4 (2) other drinking water or aquatic life
5 standards for toxic ~~substances~~ pollutants, consistent with the
6 uses Class 7 waters are protected for under part 7050.0200.

7 ~~C.---To prevent acutely-toxic-conditions,~~
8 ~~concentrations-of-toxic-substances-from-point-or-nonpoint~~
9 ~~sources,-singly-or-in-mixtures,-must-not-exceed-the-FAV-as-a~~
10 ~~one-day-average-at-the-point-of-discharge-or-in-the-waters-of~~
11 ~~the-state-consistent-with-parts-7050.0210,-subpart-5,-7050.0211,~~
12 ~~subpart-1,-7050.0212,-subpart-6,-and-7050.0214,-subpart-1.~~

13 ~~Mixtures-of-substances-will-be-considered-additive-in-their~~
14 ~~acutely-toxic-effects-according-to-the-following-formula-unless~~
15 ~~an-alternative-model-is-supported-by-credible-evidence.~~

16
17
18
$$\frac{C_1}{FAV_1} + \frac{C_2}{FAV_2} + \dots + \frac{C_i}{FAV_i}$$

19 ~~-----+-----+.....+-----~~ equals a value of one or more, an
20 ~~-----+-----+.....+-----~~ acutely-toxic-condition-is-indicated
21 ~~FAV1---FAV2-----FAVi~~

22
23 ~~where:---C1-.....Ci-is-the-concentration-of-the-first-to-the-ith~~
24 ~~-----toxicant.~~
25 ~~-----FAV1-.....FAVi-is-the-FAV-for-the-first-to~~
26 ~~the-ith-toxicant.~~

27 ~~D.---To prevent chronically-toxic-conditions,~~
28 ~~concentrations-of-toxic-substances-must-not-exceed-the~~
29 ~~applicable-CE-or-MC-in-the-waters-of-the-state,-as-specified-in~~
30 ~~items-A-and-B,-averaged-over-the-following-durations:---the-MC~~
31 ~~will-be-a-one-day-average,-the-CE,-based-on-toxicity-to-aquatic~~
32 ~~life,-will-be-a-four-day-average,-and-the-CE,-based-on-human~~
33 ~~health-or-wildlife-toxicity,-will-be-a-30-day-average.~~

34 ~~E.---Concentrations-of-carcinogenic-chemicals-from~~
35 ~~point-or-nonpoint-sources,-singly-or-in-mixtures,-should-not~~
36 ~~exceed-a-risk-level-of-one-chance-in-100,000-in-the-waters-of~~
37 ~~the-state.---Carcinogenic-chemicals-will-be-considered-additive~~
38 ~~in-their-effect-according-to-the-following-formula-unless-an~~
39 ~~alternative-model-is-supported-by-credible-evidence.---The~~
40 ~~additive-formula-applies-to-chemicals-that-have-a-human~~

1 health-based standard calculated with a cancer potency factor.

2

3 $C_1 + C_2 + \dots + C_i$ equals a value of one or more, a risk
4 -----
5 ----- level greater than 10^{-2} is indicated
6 $CC_1 + CC_2 + \dots + CC_i$

7
8 where: C_1, \dots, C_i is the concentration of the first to the
9 -----
10 ----- CC_1, \dots, CC_i is the drinking water plus fish
11 consumption criterion ($dfCC$) or fish consumption
12 ----- criterion (fCC) for the first to the i th
13 ----- carcinogenic chemical.

14 F. For carcinogenic or highly bioaccumulative
15 chemicals with BCFs greater than 5,000 or $\log K_{ow}$ values greater
16 than 5.19, the human health based CC may be two or more orders
17 of magnitude smaller than the acute toxicity based MC. If the
18 commissioner finds that a very large MC and FAV, relative to the
19 CC for such substances, is not protective of the public health,
20 the MC and the FAV shall be reduced according to the following
21 guidelines:

22 If the ratio of the MC to the CC is greater than 100, the
23 CC times 100 should be substituted for the applicable MC, and
24 the CC times 200 should be substituted for the applicable FAV.
25 The agency shall provide an opportunity for a public hearing as
26 required in subpart 4 when the FAV and MC, reduced according to
27 the procedures in this item, are used as the basis for an
28 effluent limitation in a permit.

29 C. In the site-specific application of criteria
30 developed in this subpart to establish an effluent limitation
31 for National Pollutant Discharge Elimination System and State
32 Disposal System permits or to establish the degree of remedial
33 action cleanup activities, the provisions of part 7050.0220,
34 subpart 3, items E to H shall apply.

35 Subp. 13. Site-specific standards. The standards derived
36 under this part, or the standards in part 7050.0220, are subject
37 to review and modification as a result of information pertaining
38 to a specific surface water reach or segment. If substantial
39 site-specific information is available that shows that a
40 site-specific standard is more appropriate than the statewide
41 standard for a particular water or reach in question, the

1 ~~site-specific information will be the basis for the modification.~~
 2 ~~The information supporting a site-specific standard can be~~
 3 ~~provided by the commissioner, or by any person outside the~~
 4 ~~agency.--The commissioner shall evaluate all data in support of~~
 5 ~~a modified standard and determine whether a change in the~~
 6 ~~standard for a specific water or reach is justified.~~

7 ~~The agency shall provide an opportunity for a public~~
 8 ~~hearing as required in subpart 4 when a modified standard is~~
 9 ~~used as the basis for an effluent limitation in a permit.~~

10 7050.0220 SPECIFIC STANDARDS OF QUALITY AND PURITY FOR
 11 DESIGNATED CLASSES OF WATERS OF THE STATE.

12 Subpart 1. General. The numerical water quality standards
 13 in subparts 2 to 8 prescribe the qualities or properties of the
 14 waters of the state that are necessary for the designated public
 15 uses and benefits. If the standards in this part are exceeded,
 16 it is considered indicative of a polluted condition which is
 17 actually or potentially deleterious, harmful, detrimental, or
 18 injurious with respect to designated uses or established classes
 19 of the waters of the state.

20 Subp. 2. Class 1. Domestic consumption.

21 A. Class 1A. The quality of this class of the waters
 22 of the state shall be such that without treatment of any kind
 23 the raw waters will meet in all respects both the mandatory and
 24 recommended requirements of the Public Health Service Drinking
 25 Water Standards-1962 for drinking water as specified in
 26 Publication No. 956 published by the Public Health Service of
 27 the United States Department of Health, Education and Welfare,
 28 and any revisions, amendments, or supplements to it. This
 29 standard will ordinarily be restricted to underground waters
 30 with a high degree of natural protection. The basic
 31 requirements are given below:

32 Substance or Characteristic	Limit or Range
33	
34 Total coliform organisms	1 most probable number per
35	100 milliliters
36 Turbidity value	5 NTUs
37 Color value	15 Pt.-Co. units
38 Threshold odor number	3
39 Methylene blue active	0.5 milligram per liter

1	substance (MBAS)	
2	Arsenic (As)	0.01 milligram per liter
3	Chlorides (Cl)	250 milligrams per liter
4	Copper (Cu)	1 milligram per liter
5	Carbon chloroform extract	0.2 milligram per liter
6	Cyanides (CN)	0.01 milligram per liter
7	Fluorides (F)	1.5 milligrams per liter
8	Iron (Fe)	0.3 milligram per liter
9	Manganese (Mn)	0.05 milligram per liter
10	Nitrates as N	10 milligrams per liter
11	Phenol as phenol	0.001 milligram per liter
12	Sulfates (SO ₄)	250 milligrams per liter
13	Total dissolved solids	500 milligrams per liter
14	Zinc (Zn)	5 milligrams per liter
15	Barium (Ba)	1 milligram per liter
16	Cadmium (Cd)	0.01 milligram per liter
17	Chromium (Hexavalent, Cr)	0.05 milligram per liter
18	Lead (Pb)	0.05 milligram per liter
19	Selenium (Se)	0.01 milligram per liter
20	Silver (Ag)	0.05 milligram per liter
21	Radioactive material	Not to exceed the lowest
22		concentrations permitted to be
23		discharged to an uncontrolled
24		environment as prescribed by
25		the appropriate authority
26		having control over their use.
27		

28 B. Class 1B. The quality of this class of the waters
29 of the state shall be such that with approved disinfection, such
30 as simple chlorination or its equivalent, the treated water will
31 meet in all respects both the mandatory and recommended
32 requirements of the Public Health Service Drinking Water
33 Standards-1962 for drinking water as specified in Publication
34 No. 956 published by the Public Health Service of the United
35 States Department of Health, Education and Welfare, and any
36 revisions, amendments, or supplements to it. This standard will
37 ordinarily be restricted to surface and underground waters with
38 a moderately high degree of natural protection. The physical
39 and chemical standards quoted above for Class 1A waters shall
40 also apply to these waters in the untreated state.

41 C. Class 1C. The quality of this class of the waters
42 of the state shall be such that with treatment consisting of
43 coagulation, sedimentation, filtration, storage, and
44 chlorination, or other equivalent treatment processes, the
45 treated water will meet in all respects both the mandatory and
46 recommended requirements of the Public Health Service Drinking
47 Water Standards-1962 for drinking water specified in Publication
48 No. 956 published by the Public Health Service of the United
49 States Department of Health, Education and Welfare, and any

1 revisions, amendments, or supplements to it. This standard will
 2 ordinarily be restricted to surface waters, and groundwaters in
 3 aquifers not considered to afford adequate protection against
 4 contamination from surface or other sources of pollution. Such
 5 aquifers normally would include fractured and channeled
 6 limestone, unprotected impervious hard rock where water is
 7 obtained from mechanical fractures or joints with surface
 8 connections, and coarse gravels subjected to surface water
 9 infiltration. The physical and chemical standards quoted above
 10 for Class 1A waters shall also apply to these waters in the
 11 untreated state, except as listed below:

12	Substance or Characteristic	Limit or Range
13		
14	Turbidity value	25 NTUs
15		

16 D. Class 1D. The quality of this class of the waters
 17 of the state shall be such that after treatment consisting of
 18 coagulation, sedimentation, filtration, storage, and
 19 chlorination, plus additional pre, post, or intermediate stages
 20 of treatment, or other equivalent treatment processes, the
 21 treated water will meet in all respects the recommended
 22 requirements of the Public Health Service Drinking Water
 23 Standards-1962 for drinking water as specified in Publication
 24 No. 956 published by the Public Health Service of the United
 25 States Department of Health, Education and Welfare, and any
 26 revisions, amendments, or supplements to it. This standard will
 27 ordinarily be restricted to surface waters, and groundwaters in
 28 aquifers not considered to afford adequate protection against
 29 contamination from surface or other sources of pollution. Such
 30 aquifers normally would include fractured and channeled
 31 limestone, unprotected impervious hard rock where water is
 32 obtained from mechanical fractures or joints with surface
 33 connections, and coarse gravels subjected to surface water
 34 infiltration. The concentrations or ranges given below shall
 35 not be exceeded in the raw waters before treatment:

36	Substance or Characteristic	Limit or Range
37		
38	Arsenic (As)	0.05 milligram per liter
39	Barium (Ba)	1 milligram per liter
40	Cadmium (Cd)	0.01 milligram per liter

1	Chromium (Hexavalent, Cr)	0.05 milligram per liter
2	Cyanide (CN)	0.2 milligram per liter
3	Fluoride (F)	1.5 milligrams per liter
4	Lead (Pb)	0.05 milligram per liter
5	Selenium (Se)	0.01 milligram per liter
6	Silver (Ag)	0.05 milligram per liter
7	Radioactive material	Not to exceed the lowest
8		concentrations permitted to be
9		discharged to an uncontrolled
10		environment as prescribed
11		by the appropriate authority
12		having control over their
13		use.

15 In addition to the above listed standards, no sewage,
 16 industrial waste, or other wastes from point or nonpoint
 17 sources, treated or untreated, shall be discharged into or
 18 permitted by any person to gain access to any waters of the
 19 state classified for domestic consumption so as to cause any
 20 material undesirable increase in the taste, hardness,
 21 temperature, chronic toxicity, corrosiveness, or nutrient
 22 content, or in any other manner to impair the natural quality or
 23 value of the waters for use as a source of drinking water.

24 Subp. 3. Class 2. Fisheries and recreation.

25 A. Class 2A. The quality of this class of the
 26 surface waters of-the-state shall be such as to permit the
 27 propagation and maintenance of warm or cold water sport or
 28 commercial fishes and their habitats and be suitable for aquatic
 29 recreation of all kinds, including bathing, for which the waters
 30 may be usable. This class of surface waters is also protected
 31 as a source of drinking water. The applicable standards are
 32 given below, with substances considered carcinogenic and having
 33 human health-based standards followed by a (c). Part ~~7050.0218~~
 34 7050.0220, subpart ~~12~~ 3, item F H, should be referenced for
 35 FAVs and ~~ME~~ MS values noted with an asterisk (*):

36 Substance or Characteristic		Standards	
37 (c) = carcinogen	ee <u>CS</u>	ME <u>MS</u>	FAV
38			
39 Acenapthene ug/l	12	41	81
40 Acrylonitrile (c) ug/l	0.38	1140*	2281*
41 Aluminum, total ug/l	87	748	1496
42 Ammonia un-ionized			
43 as N ug/l	16	none	none

44 The percent un-ionized ammonia can be calculated for any
 45 temperature and pH by using the following formula taken
 46 from Emerson, K., R.C. Russo, R.E. Lund, and R.V. Thurston,
 47 1975. Aqueous ammonia equilibrium calculations; effect of
 48 pH and temperature. Journal of the Fisheries Board of
 49 Canada 32: 2379-2383.

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

where:

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

$$pk_a = 0.09 + \frac{2730}{T}$$

, dissociation constant for ammonia

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

Anthracene ug/l	0.029	0.78	1.6
Arsenic, total ug/l	50	360	720
Benzene (c) ug/l	5.9	4400 4487*	8800 8974*
Bromoform ug/l	103	2900	5800
Cadmium, total ug/l			

The EE CS shall not exceed: exp.(0.7852[ln(total hardness mg/l)]-3.49).

The ME MS shall not exceed: exp.(1.128[ln(total hardness mg/l)]-3.828).

The FAV shall not exceed: exp.(1.128[ln(total hardness mg/l)]-3.1349).

For hardness values greater than 400 mg/l, 400 mg/l shall be used in the calculation of the standard.

Cadmium standards in ug/l at various hardness values

	Hardness mg/l		
	50	0.66	1.8
	100	1.1	3.9
	200	2.0	8.6
Carbon tetra-			
chloride (c) ug/l	1.9	1750*	3500*
Chlordane (c) ug/l	0.000073	1.2*	2.4*
Chloride mg/l	230	860	1720
Chlorine, total residual ug/l	6	19	38

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 ug/l (Monochlorobenzene)	10	423	846
Chloroform (c) ug/l	49	2235	4471
Chlorpyrifos ug/l	0.041	0.083	0.17
Chromium +3, total ug/l			

The EE CS shall not exceed: exp.(0.819[ln(total hardness mg/l)]+1.561).

The ME MS shall not exceed: exp.(0.819[ln(total hardness mg/l)]+3.688).

The FAV shall not exceed: exp.(0.819[ln(total hardness mg/l)]+4.380).

For hardness values greater than 400 mg/l, 400 mg/l shall be used in the calculation of the standard.

1 Chromium +3 standards in ug/l at various hardness values

2	Hardness mg/l			
3				
4	50	117	984	1966
5				
6	100	207	1737	3469
7	200	365	3064	6120
8				
9	Chromium +6, total ug/l	11	16	32
10	Color value			
11	Pt.-Co. units	30	none	none
12	Copper, total ug/l			

13
14 The ~~EE~~ CS shall not exceed: $\exp.(0.62[\ln(\text{total hardness}$
15 $\text{mg/l})]-0.57)$.

16 The ~~ME~~ MS shall not exceed: $\exp.(0.9422[\ln(\text{total hardness}$
17 $\text{mg/l})]-1.464)$.

18 The FAV shall not exceed: $\exp.(0.9422[\ln(\text{total hardness}$
19 $\text{mg/l})]-0.7703)$.

20 For hardness values greater than 400 mg/l, 400 mg/l shall
21 be used in the calculation of the standard.

22 Copper standards in ug/l at various hardness values

23	Hardness mg/l			
24				
25	50	6.4	9.2	18
26	100	9.8	18	35
27	200	15	34	68
28				
29	Cyanide, free ug/l	5.2	22	45
30	Dissolved oxygen mg/l	7 as a	none	none
31		daily		
32		minimum		
33				

34 This dissolved oxygen standard requires compliance with the
35 standard 50 percent of the days at which the flow of the
36 receiving water is equal to the lowest weekly flow with a
37 once in ten-year recurrence interval (7Q10).

38	DDT (c) ug/l	0.00011	0.55*	1.1*
39	1,2-Dichloroethane (c)			
40	ug/l	3.5	45050*	90100*
41	Dieldrin (c) ug/l	0.0000065	1.25*	2.5*
42	Di-2-Ethylhexyl			
43	phthalate (c) ug/l	1.94 1.9	none	none
44	Di-n-Octyl phthalate ug/l	30	825	1650
45	Endosulfan ug/l	0.056 0.044	0.11 0.084	0.22 0.17
46	Endrin ug/l	0.0033	0.090	0.18
47		0.0039		
48	Ethylbenzene ug/l	68	1859	3717
49	Fecal coliform organisms			

50
51 Not to exceed 200 organisms per 100 milliliters as a
52 geometric mean of not less than five samples in any
53 calendar month, nor shall more than ten percent of all
54 samples taken during any calendar month individually exceed
55 400 organisms per 100 milliliters. The standard applies
56 only between March 1 and October 31.

57	Fluoranthene ug/l	1.1	199	398
58	Heptachlor (c) ug/l	0.000088	0.26*	0.52*
59		0.00010		
60	Heptachlor epoxide			
61	(c) ug/l	0.00012	0.27*	0.53*
62	Hexachlorobenzene			
63	(c) ug/l	0.000056	none	none

1 Lead, total ug/l

2

3 The EE CS shall not exceed: $\exp.(1.273[\ln(\text{total hardness}$
4 $\text{mg/l})]-4.705)$.

5 The ME MS shall not exceed: $\exp.(1.273[\ln(\text{total hardness}$
6 $\text{mg/l})]-1.460)$.

7 The FAV shall not exceed: $\exp.(1.273[\ln(\text{total hardness}$
8 $\text{mg/l})]-0.7643)$.

9 For hardness values greater than 400 mg/l, 400 mg/l shall
10 be used in the calculation of the standard.

11 Lead standard in ug/l at various hardness values

12 Hardness mg/l

13

14	50	1.3	34	68
15	100	3.2	82	164
16	200	7.7	197	396

17

18 Lindane (c) ug/l

19 (Hexachlorocyclohexane,

20 gamma-)

21 ~~0.0030~~ 1.0* 2.0*

22 0.0087

23 Mercury, total ug/l 0.0069 2.4* 4.9*

24 Methylene chloride

25 (c) ug/l (Dichloro-

26 methane) ~~44.7~~ 45 9600* 19200*

27 Nickel, total ug/l

28

29 The EE CS shall not exceed the human health-based criterion
30 of 88 ug/l. For waters with total hardness values less
31 than 50 mg/l, the EE CS shall not exceed:

32 $\exp.(0.846[\ln(\text{total hardness mg/l})]+1.1645)$.

33 The ME MS shall not exceed: $\exp.(0.846[\ln(\text{total hardness}$
34 $\text{mg/l})]+3.3612)$.

35 The FAV shall not exceed: $\exp.(0.846[\ln(\text{total hardness}$
36 $\text{mg/l})]+4.0543)$.

37 For hardness values greater than 400 mg/l, 400 mg/l shall
38 be used in the calculation of the standard.

39 Nickel standards in ug/l at various hardness values

40 Hardness mg/l

41

41	50	88	789	1578
42	100	88	1418	2836
43	200	88	2549	5098

44

45 Oil ug/l 500 5000 10000

46 Parathion ug/l 0.013 0.07 0.13

47 Pentachlorophenol ug/l

48

49 The EE CS shall not exceed: $\exp.(1.005[\text{pH}]-5.290)$.

50 The ME MS shall not exceed: $\exp.(1.005[\text{pH}]-4.830)$.

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

52 Pentachlorophenol standards in ug/l at various pH values

53

54 pH 7.0 5.7 9.1 18

55 7.5 9.5 15 30

56 8.0 16 25 50

57 pH value not

1 less than 6.5
 2 nor greater
 3 than 8.5
 4 Phenanthrene ug/l 2.1 29 58
 5 Phenol ug/l 123 2214 4428
 6 Polychlorinated
 7 biphenyls, total (c) ug/l 0.000014 1.0* 2.0*
 8 Radioactive materials
 9
 10 Not to exceed the lowest concentrations permitted to be
 11 discharged to an uncontrolled environment as prescribed by
 12 the appropriate authority having control over their use.

13 Selenium, total ug/l 5.0 20 40
 14 Silver, total ug/l

15
 16 The EE CS shall not exceed: 0.12.

17 The ME MS shall not exceed: $\exp.(1.72[\ln(\text{total hardness}$
 18 $\text{mg/l})]-7.2156)$ and the FAV shall not exceed:
 19 $\exp.(1.72[\ln(\text{total hardness mg/l})]-6.52)$ provided that the
 20 ME MS and FAV shall be no less than 0.12 ug/l.

21 For hardness values greater than 400 mg/l, 400 mg/l shall
 22 be used in the calculation of the standard.

23 Silver standards in ug/l at various hardness values

24	Hardness mg/l			
25				
26	50	n/a	0.61	1.2
27	100	n/a	2.0	4.1
28	200	n/a	6.7	13
29				
30	Temperature			
31	No material increase			
32	2,3,7,8-Tetrachlorodibenzo			
33	-p-dioxin-(e)-picograms/±	0.0003	none	none
34	1,1,2,2-Tetrachloroethane			
35	(c) ug/l	1.1	1127*	2253*
36	Tetrachloroethylene			
37	(c) ug/l	2.9 3.8	428*	857*
38	Toluene ug/l			
39	Toxaphene (c) ug/l	0.00039	0.73*	1.5*
40		<u>0.00031</u>		
41	1,1,1-Trichloroethane			
42	ug/l	263	2628	5256
43	1,1,2-Trichloroethylene			
44	(c) ug/l	25	6988*	13976*
45	2,4,6-Trichlorophenol			
46	ug/l	2.0	102	203
47	Turbidity value NTUS			
48	Vinyl chloride (c) ug/l	0.14	none	none
49	Xylene, total m, p, and			
50	o ug/l	166	1407	2814
51	Zinc, total ug/l			

52
 53 The EE CS shall not exceed: $\exp.(0.8473[\ln(\text{total hardness}$
 54 $\text{mg/l})]+0.7615)$.

55 The ME MS shall not exceed: $\exp.(0.8473[\ln(\text{total hardness}$
 56 $\text{mg/l})]+0.8604)$.

57 The FAV shall not exceed: $\exp.(0.8473[\ln(\text{total hardness}$
 58 $\text{mg/l})]+1.5536)$.

59 For hardness values greater than 400 mg/l, 400 mg/l shall
 60 be used in the calculation of the standard.

61 Zinc standards in ug/l at various hardness values

	Hardness mg/l			
1				
2				
3	50	59	65	130
4	100	106	117	234
5	200	191	211	421
6				

7 B. Class 2Bd. The quality of this class of the
 8 surface waters of-the-state shall be such as to permit the
 9 propagation and maintenance of cool or warm water sport or
 10 commercial fishes and their habitats and be suitable for aquatic
 11 recreation of all kinds, including bathing, for which the waters
 12 may be usable. This class of surface waters are also protected
 13 as a source of drinking water. The standards for waters listed
 14 in item A shall apply to these waters except as listed below,
 15 with substances considered carcinogenic and having human
 16 health-based standards followed by a (c). Part ~~7050.0218~~
 17 7050.0220, subpart ~~2~~ 3, item ~~F~~ H, should be referenced for
 18 FAVs and ~~ME~~ MS values noted with an asterisk (*):

19 Substance or Characteristic	Standard		
20 (c) = carcinogen	EE <u>CS</u>	ME <u>MS</u>	FAV
21 Aluminum, total ug/l	125	1072	2145
22 Ammonia			
23 un-ionized as N ug/l	40	none	none
24			

25 The percent of un-ionized ammonia can be calculated for any
 26 temperature and pH as described in item A.

27 Benzene (c) ug/l	6.9	4400* <u>4487*</u>	8800* <u>8974*</u>
28 Bromoform ug/l	128	2900	5800
29 Cadmium, total ug/l			
30			

31 The ~~EE~~ CS shall not exceed: $\exp.(0.7852[\ln(\text{total hardness}$
 32 $\text{mg/l})]-3.49)$.

33 The ~~ME~~ MS shall not exceed: $\exp.(1.128[\ln(\text{total hardness}$
 34 $\text{mg/l})]-1.685)$.

35 The FAV shall not exceed: $\exp.(1.128[\ln(\text{total hardness}$
 36 $\text{mg/l})]-0.9919)$.

37 For hardness values greater than 400 mg/l, 400 mg/l shall
 38 be used in the calculation of the standard.

39 Cadmium standards in ug/l at various hardness values

40	Hardness mg/l			
41				
42	50	0.66	15	31
43	100	1.1	33	67
44	200	2.0	73	146
45				
46 Chlordane (c) ug/l	0.00029	1.2*	2.4*	
47 Chloroform (c) ug/l	55	2235	4471	
48 Dissolved oxygen mg/l	5 as a	none	none	
49	daily			
50	minimum			
51				

52 This dissolved oxygen standard requires compliance with the
 53 standard 50 percent of the days at which the flow of the

1 receiving water is equal to the lowest weekly flow with a
 2 once in ten year recurrence interval (7Q10).

3	DDT (c) ug/l	0.0017	0.55*	1.1*
4	1,2-Dichloroethane (c)			
5	ug/l	3.8	45050*	90100*
6	Dieldrin (c) ug/l	0.000026	1.25*	2.5*
7	Endosulfan ug/l	0.15	0.28	0.56
8	Endrin ug/l	0.013 <u>0.016</u>	0.090	0.18

9 Fecal coliform organisms
 10
 11 Not to exceed 200 organisms per 100 milliliters as a
 12 geometric mean of not less than five samples in any
 13 calendar month, nor shall more than ten percent of all
 14 samples taken during any calendar month individually exceed
 15 2,000 organisms per 100 milliliters. The standard applies
 16 only between March 1 and October 31.

17	Fluoranthene ug/l	4.1	199	398
18	Heptachlor (c) ug/l	0.00035	0.26*	0.52*
19		<u>0.00039</u>		
20	Heptachlor epoxide			
21	(c) ug/l	0.00048	0.27*	0.53*
22	Hexachlorobenzene			
23	(c) ug/l	0.00022	none	none
24	Lindane (c) ug/l			
25	(Hexachlorocyclohexane			
26	gamma-)	0.012 <u>0.032</u>	1.0 <u>4.4*</u>	2.0 <u>8.8*</u>
27	Methylene chloride (c)			
28	ug/l (Dichloromethane)	46	9600*	19200*
29	pH value			
30	Not less than 6.5			
31	nor greater than 9.0			
32	Polychlorinated			
33	biphenyls, total (c) ug/l	0.000029	1.0*	2.0*
34	Silver, total ug/l			

35
 36 The EE CS shall not exceed: 1.0.

37 The ME MS shall not exceed: $\exp.(1.72[\ln(\text{total hardness}$
 38 $\text{mg/l})]-7.2156)$ and the FAV shall not exceed:
 39 $\exp.(1.72[\ln(\text{total hardness mg/l})]-6.52)$ provided that the
 40 ME MS and FAV shall be no less than 1.0 ug/l.

41 For hardness values greater than 400 mg/l, 400 mg/l shall
 42 be used in the calculation of the standard.

43 Silver standards in ug/l at various hardness values

44 Hardness mg/l

45				
46	50	n/a	1.0	1.2
47	100	n/a	2.0	4.1
48	200	n/a	6.7	13

49
 50 Temperature

51 5°F above natural in streams and 3°F above natural in
 52 lakes, based on monthly average of the maximum daily
 53 temperature, except in no case shall it exceed the daily
 54 average temperature of 86°F.

55 ~~2,3,7,8-Tetrachlorodi-~~

56 ~~benzo-p-dioxin-(c)~~

57 ~~picograms/l~~

0.0012	none	none
-------------------	-----------------	-----------------

58 1,1,2,2-Tetrachloro-

59 ethane (c) ug/l

1.54	1127*	2253*
------	-------	-------

60 Toxaphene (c) ug/l

0.0016	0.73*	1.5*
-------------------	-------	------

0.0013

62 Turbidity value NTUs

25	none	none
----	------	------

63 Vinyl chloride (c) ug/l

0.15	none	none
------	------	------

1 C. Class 2B. The quality of this class of the
 2 surface waters of-the-state shall be such as to permit the
 3 propagation and maintenance of cool or warm water sport or
 4 commercial fishes and their habitats and be suitable for aquatic
 5 recreation of all kinds, including bathing, for which the waters
 6 may be usable. This class of surface water is not protected as
 7 a source of drinking water. The applicable standards are given
 8 below, with substances considered carcinogenic and having human
 9 health-based standards followed by a (c). Part ~~7050-0218~~
 10 7050.0220, subpart ~~2~~ 3, item ~~F~~ H, should be referenced for
 11 FAVs and ~~ME~~ MS values noted with an asterisk (*):

12 Substance or Characteristic	Standard		FAV
13 (c) = carcinogen	EE <u>CS</u>	ME <u>MS</u>	
14			
15 Acenaphthene ug/l	12	41	81
16 Acrylonitrile (c) ug/l	0.89	1140*	2281*
17 Aluminum, total ug/l	125	1072	2145
18 Ammonia un-ionized as			
19 N ug/l	40	none	none
20			
21 The percent un-ionized ammonia can be calculated for any			
22 temperature and pH as described in item A.			
23 Anthracene ug/l	0.029	0.78	1.6
24 Arsenic, total ug/l	70	360	720
25 Benzene (c) ug/l	111 <u>114</u>	4400 <u>4487</u>	8800 <u>8974</u>
26 Bromoform ug/l	558	2900	5800
27 Cadmium, total ug/l			
28			

29 The ~~EE~~ CS shall not exceed: $\exp.(0.7852[\ln(\text{total hardness}$
 30 $\text{mg/l})]-3.49)$.

31 The ~~ME~~ MS shall not exceed: $\exp.(1.128[\ln(\text{total hardness}$
 32 $\text{mg/l})]-1.685)$.

33 The FAV shall not exceed: $\exp.(1.128[\ln(\text{total hardness}$
 34 $\text{mg/l})]-0.9919)$.

35 For hardness values greater than 400 mg/l, 400 mg/l shall
 36 be used in the calculation of the standard.

37 Cadmium standards in ug/l at various hardness values

38	Hardness mg/l		
39	50	0.66	15
40	100	1.1	33
41	200	2.0	73
42			146
43			
44 Carbon tetra-			
45 chloride (c) ug/l	5.9	1750*	3500*
46 Chlordane (c) ug/l	0.00029	1.2*	2.4*
47 Chloride mg/l	230	860	1720
48 Chlorine, total			
49 residual ug/l	6	19	38
50			

51 Applies to conditions of continuous exposure, where
 52 continuous exposure refers to chlorinated effluents that
 53 are discharged for more than a total of two hours in any
 54 24-hour period.

1	Chlorobenzene ug/l			
2	(Monochlorobenzene)	10	423	846
3	Chloroform (c) ug/l	224	2235	4471
4	Chlorpyrifos ug/l	0.041	0.083	0.17
5	Chromium +3, total ug/l			

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

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

11 The FAV shall not exceed: $\exp.(0.819[\ln(\text{total hardness mg/l})]+4.38)$.

13 For hardness values greater than 400 mg/l, 400 mg/l shall be used in the calculation of the standard.

15 Chromium +3 standards in ug/l at various hardness values

16	Hardness mg/l			
17				
18	50	117	984	1966
19	100	207	1737	3469
20	200	365	3064	6120
21				
22	Chromium +6, total ug/l	11	16	32
23	Copper, total ug/l			

25 The \overline{CS} shall not exceed: $\exp.(0.62[\ln(\text{total hardness mg/l})]-0.57)$.

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

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

31 For hardness values greater than 400 mg/l, 400 mg/l shall be used in the calculation of the standard.

33 Copper standards in ug/l at various hardness values

34	Hardness mg/l			
35				
36	50	6.4	9.2	18
37	100	9.8	18	35
38	200	15	34	68
39				
40	Cyanide, free ug/l	5.2	22	45
41	Dissolved oxygen mg/l	5 as a	none	none
42		daily		
43		minimum		

45 This standard applies to all Class 2 waters except for the reach 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 five milligrams per liter as a daily average from April 1 through November 30, and not less than four milligrams per liter at other times.

53 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 lowest weekly flow with a once in ten year recurrence interval (7Q10).

57	DDT (c) ug/l	0.0017	0.55*	1.1*
58	1,2-Dichloroethane (c)			
59	ug/l	190	45050*	90100*

1	Dieldrin (c) ug/l	0.000026	1.25*	2.5*
2	Di-2-Ethylhexyl			
3	phthalate (c) ug/l	2.1	none	none
4	Di-n-Octyl phthalate			
5	ug/l	30	825	1650
6	Endosulfan ug/l	0.15	0.28	0.56
7	Endrin ug/l	0.013 <u>0.016</u>	0.090	0.18
8	Ethylbenzene ug/l	68	1859	3717
9	Fecal coliform organisms			
10	Not to exceed 200 organisms per 100 milliliters as a			
11	geometric mean of not less than five samples in any			
12	calendar month, nor shall more than ten percent of all			
13	samples taken during any calendar month individually exceed			
14	2,000 organisms per 100 milliliters. The standard applies			
15	only between March 1 and October 31.			

16	Fluoranthene ug/l	4.6	199	398
17	Heptachlor (c) ug/l	0.00035	0.26*	0.52*
18		<u>0.00039</u>		
19	Heptachlor epoxide (c)			
20	ug/l	0.00048	0.27*	0.53*
21	Hexachlorobenzene (c)			
22	ug/l	0.00022	none	none
23	Lead, total ug/l			
24				
25	The <u>EE CS</u> shall not exceed: $\exp.(1.273[\ln(\text{total hardness}$			
26	$\text{mg/l})]-4.705)$.			

27 The ME MS shall not exceed: $\exp.(1.273[\ln(\text{total hardness}$
 28 $\text{mg/l})]-1.460)$.

29 The FAV shall not exceed: $\exp.(1.273[\ln(\text{total hardness}$
 30 $\text{mg/l})]-0.7643)$.

31 For hardness values greater than 400 mg/l, 400 mg/l shall
 32 be used in the calculation of the standard.

33 Lead standards in ug/l at various hardness values

34	Hardness mg/l			
35				
36	50	1.3	34	68
37	100	3.2	82	164
38	200	7.7	197	396
39				

40	Lindane (c) ug/l			
41	(Hexachlorocyclohexane			
42	gamma-)	0.012 <u>0.036</u>	±0 <u>4.4*</u>	2.0 <u>8.8*</u>
43	Mercury, total ug/l	0.0069	2.4*	4.9*
44	Methylene chloride (c)			
45	ug/l (Dichloromethane)	1561	9600	19200
46	Nickel, total ug/l			
47				

48 For waters with total hardness values greater than 143
 49 mg/l, the EE CS shall not exceed the human health-based
 50 criterion of 213 ug/l. For waters with total hardness
 51 values less than 144 mg/l, the EE CS shall not exceed:
 52 $\exp.(0.846[\ln(\text{total hardness mg/l})]+1.1645)$.

53 The ME MS shall not exceed: $\exp.(0.846[\ln(\text{total hardness}$
 54 $\text{mg/l})]+3.3612)$.

55 The FAV shall not exceed: $\exp.(0.846[\ln(\text{total hardness}$
 56 $\text{mg/l})]+4.0543)$.

57 For hardness values greater than 400 mg/l, 400 mg/l shall
 58 be used in the calculation of the standard.

59 Nickel standards in ug/l at various hardness values

60 Hardness mg/l

1				
2		50	88	789
3		100	158	1418
4		200	213	2549
5				5098
6	Oil ug/l	50	500	5000
7	Parathion ug/l	0.013		0.07
8	Pentachlorophenol ug/l			0.13

9
10 The EE CS shall not exceed: $\exp.(1.005[\text{pH}]-5.290)$.

11 The ME MS shall not exceed: $\exp.(1.005[\text{pH}]-4.830)$.

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

13 Pentachlorophenol standards in ug/l at various pH values

14	pH			
15	7.0	5.7	9.1	18
16	7.5	9.5	15	30
17	8.0	16	25	50

18
19 pH value
20 not less than 6.5
21 nor greater than 9.0

22	Phenanthrene ug/l	2.1	29	58
23	Phenol ug/l	123	2214	4428
24	Polychlorinated			
25	biphenyls, total (c) ug/l	0.000029	1.0*	2.0*
26	Radioactive materials			

27
28 Not to exceed the lowest concentration permitted to be
29 discharged to an uncontrolled environment as prescribed by
30 the appropriate authority having control over their use.

31	Selenium, total ug/l	5.0	20	40
32	Silver, total ug/l			

33
34 The EE CS shall not exceed: 1.0.

35 The ME MS shall not exceed: $\exp.(1.72[\ln(\text{total hardness}$
36 $\text{mg/l})]-7.2156)$ and the FAV shall not exceed:
37 $\exp.(1.72[\ln(\text{total hardness mg/l})]-6.52)$ provided that the
38 ME MS and FAV shall be no less than 1.0 ug/l.

39 For hardness values greater than 400 mg/l, 400 mg/l shall
40 be used in the calculation of the standard.

41 Silver standards in ug/l at various hardness values

42	Hardness mg/l			
43				
44	50	n/a	1.0	1.2
45	100	n/a	2.0	4.1
46	200	n/a	6.7	13

47
48 Temperature
49 5°F above natural in streams and 3°F above natural in
50 lakes, based on monthly average of the maximum daily
51 temperature, except in no case shall it exceed the daily
52 average temperature of 86°F.

53	2,3,7,8-Tetrachlorodibenzo			
54	-p-dioxin-(c)-picograms/l	0.0012	none	none
55	1,1,2,2-Tetrachloroethane			
56	(c) ug/l	13	1127	2253
57	Tetrachloroethylene			
58	(c) ug/l	5.3	8.9	428
59	Toluene ug/l	253	1352	2703
60	Toxaphene (c) ug/l	0.0016	0.73*	1.5*
61		0.0013		

1	1,1,1-Trichloroethane			
2	ug/l	263	2628	5256
3	1,1,2-Trichloroethylene			
4	(c) ug/l	120	6988	13976
5	2,4,6-Trichlorophenol ug/l	2.0	102	203
6	Turbidity value NTUs	25	none	none
7	Vinyl chloride (c) ug/l	7.6	none	none
8	Xylene, total m, p,			
9	and o ug/l	166	1407	2814
10	Zinc, total ug/l			
11	The <u>EE CS</u> shall not exceed:	exp.(0.8473[ln(total hardness		
12	mg/l)]+0.7615).			
13	The <u>ME MS</u> shall not exceed:	exp.(0.8473[ln(total hardness		
14	mg/l)]+0.8604).			
15	The FAV shall not exceed:	exp.(0.8473[ln(total hardness		
16	mg/l)]+1.5536).			
17	<u>For hardness values greater than 400 mg/l, 400 mg/l shall</u>			
18	<u>be used in the calculation of the standard.</u>			

19 Zinc standards in ug/l at various hardness values

20	Hardness mg/l			
21				
22	50	59	65	130
23	100	106	117	234
24	200	191	211	421
25				

26 D. Class 2C. The quality of this class of the

27 surface waters ~~of-the-state~~ shall be such as to permit the

28 propagation and maintenance of rough fish or species commonly

29 inhabiting waters of the vicinity under natural conditions,

30 maintain the habitat for such fisheries, and be suitable for

31 boating and other forms of aquatic recreation for which the

32 waters may be usable. The standards for Class 2B waters listed

33 in item C shall apply to these waters except as listed below:

34	Substance or Characteristic	Standard		
35		<u>EE CS</u>	<u>ME MS</u>	FAV
36				
37	Dissolved oxygen mg/l	5 as a	none	none
38		daily		
39		minimum		
40				

41 This standard applies to all Class 2 waters except for the

42 reach of the Mississippi River from the outlet of the metro

43 wastewater treatment works in Saint Paul (River Mile 835)

44 to Lock and Dam No. 2 at Hastings (River Mile 815) and

45 except for the reach of the Minnesota River from the outlet

46 of the Blue Lake wastewater treatment works (River Mile 21)

47 to the mouth at Fort Snelling. For this reach of the

48 Mississippi River the standard is not less than five

49 milligrams per liter as a daily average from April 1

50 through November 30, and not less than four milligrams per

51 liter at other times. For the specified reach of the

52 Minnesota River the standard shall be not less than five

53 milligrams per liter as a daily average year-round.

54 This dissolved oxygen standard requires compliance with the

55 standard 50 percent of the days at which the flow of the

56 receiving water is equal to the lowest weekly flow with a

57 once in ten year recurrence interval (7Q10).

1 Temperature

2 5°F above natural in streams and 3°F above natural in
3 lakes, based on monthly average of the maximum daily
4 temperature, except in no case shall it exceed the daily
5 average temperature of 90°F.

6 For all classes of fisheries and recreation waters, the
7 aquatic habitat, which includes the waters of the state and
8 stream bed, shall not be degraded in any material manner, there
9 shall be no material increase in undesirable slime growths or
10 aquatic plants, including algae, nor shall there be any
11 significant increase in harmful pesticide or other residues in
12 the waters, sediments, and aquatic flora and fauna; the normal
13 fishery and lower aquatic biota upon which it is dependent and
14 the use thereof shall not be seriously impaired or endangered,
15 the species composition shall not be altered materially, and the
16 propagation or migration of the fish and other biota normally
17 present shall not be prevented or hindered by the discharge of
18 any sewage, industrial waste, or other wastes to the waters.

19 No sewage, industrial waste, or other wastes from point or
20 nonpoint sources shall be discharged into any of the waters of
21 this category so as to cause any material change in any other
22 substances or characteristics which may impair the quality of
23 the waters of the state or the aquatic biota of any of the above
24 listed classes or in any manner render them unsuitable or
25 objectionable for fishing, fish culture, or recreational uses.
26 Additional selective limits or changes in the discharge bases
27 may be imposed on the basis of local needs.

28 E. To prevent acutely toxic conditions,
29 concentrations of toxic pollutants from point or nonpoint
30 sources must not exceed the FAV as a one-day average at the
31 point of discharge or in the surface water consistent with parts
32 7050.0210, subpart 5; 7050.0211, subpart 1; 7050.0212, subpart
33 6; and 7050.0214, subpart 1.

34 If a discharge is composed of a mixture of more than one
35 chemical, and the chemicals have the same mode of toxic action,
36 the commissioner has the option to apply an additive model to
37 determine the toxicity of the mixture using the following
38 formula:

1 C1 C2 Cn
 2 + + + equals a value of one or more,
 3 an acutely toxic condition
 4 FAV1 FAV2 FAVn is indicated

5
 6 where: C1 Cn is the concentration of the first to the
 7 nth toxicant.
 8 FAV1 FAVn is the FAV for the first to the
 9 nth toxicant.

10 F. To prevent chronically toxic conditions,
 11 concentrations of toxic pollutants must not exceed the
 12 applicable CS or MS in surface waters outside allowable mixing
 13 zones as described in part 7050.0210, subpart 5. The CS and MS
 14 will be averaged over the following durations: the MS will be a
 15 one-day average; the CS, based on toxicity to aquatic life, will
 16 be a four-day average; and the CS, based on human health or
 17 wildlife toxicity, will be a 30-day average.

18 G. Concentrations of carcinogenic chemicals from
 19 point or nonpoint sources, singly or in mixtures, should not
 20 exceed a risk level of one chance in 100,000 in surface waters.
 21 Carcinogenic chemicals will be considered additive in their
 22 effect according to the following formula unless an alternative
 23 model is supported by available scientific evidence. The
 24 additive formula applies to chemicals that have a human
 25 health-based standard calculated with a cancer potency factor.

26 C1 C2 Cn
 27 + + + equals a value of one or more,
 28 a risk level greater than
 29 CC1 CC2 CCn 10⁻⁵ is indicated

30
 31 where: C1 Cn is the concentration of the first to the
 32 nth carcinogen.
 33 CC1 CCn is the drinking water plus fish
 34 consumption criterion (dfCC) or fish consumption
 35 criterion (fCC) for the first to nth carcinogenic
 36 chemical.

37 H. For carcinogenic or highly bioaccumulative
 38 chemicals with BCFs greater than 5,000 or log Kow values greater
 39 than 5.19, the human health-based CS may be two or more orders
 40 of magnitude smaller than the acute toxicity-based MS. If the
 41 commissioner finds that a very large MS and FAV, relative to the
 42 CS for such pollutants is not protective of the public health,
 43 the MS and FAV shall be reduced according to the following
 44 guidelines:

45 If the ratio of the MS to the CS is greater than 100, the

1 CS times 100 should be substituted for the applicable MS, and
2 the CS times 200 should be substituted for the applicable FAV.
3 Any effluent limitation derived using the procedures of this
4 item shall only be required after the discharger has been given
5 notice of the specific proposed effluent limitations and an
6 opportunity to request a hearing as provided in parts 7000.1000
7 and 7001.0130.

8 Subp. 3a. Site-specific modifications of standards. The
9 standards listed in subpart 3 are subject to review and
10 modification as applied to a specific surface water reach or
11 segment in the course of development of a permit effluent
12 limitation or the evaluation of a remedial action cleanup
13 activity. If site-specific information is available that shows
14 that a site-specific modification is more appropriate than the
15 statewide standard for a particular water or reach to be
16 protected by the permit or cleanup activity, the site-specific
17 information will be applied.

18 The information supporting a site-specific modification can
19 be provided by the commissioner, or by any person outside the
20 agency. The commissioner shall evaluate all data in support of
21 a modified standard and determine whether a change in the
22 standard for a specific water or reach is justified.

23 Any effluent limitation determined to be necessary based on
24 a modified standard shall only be required after the discharger
25 has been given notice to the specific proposed effluent
26 limitations and an opportunity to request a hearing as provided
27 in parts 7000.1000 and 7001.0130.

28 Subp. 4. Class 3. Industrial consumption.

29 A. Class 3A. The quality of this class of the waters
30 of the state shall be such as to permit their use without
31 chemical treatment, except softening for groundwater, for most
32 industrial purposes, except food processing and related uses,
33 for which a high quality of water is required. The quality
34 shall be generally comparable to Class 1B waters for domestic
35 consumption, except for the following:
36 Substance or Characteristic Limit or Range

1		
2	Chlorides (Cl)	50 milligrams per liter
3	Hardness, Ca + Mg as CaCO ₃	50 milligrams per liter
4	pH value	6.5 - 8.5

5

6 B. Class 3B. The quality of this class of the waters

7 of the state shall be such as to permit their use for general

8 industrial purposes, except for food processing, with only a

9 moderate degree of treatment. The quality shall be generally

10 comparable to Class 1D waters of the state used for domestic

11 consumption, except the following:

12	Substance or Characteristic	Limit or Range
13		
14	Chlorides (Cl)	100 milligrams per liter
15	Hardness, Ca + Mg as CaCO ₃	250 milligrams per liter
16	pH value	6.0 - 9.0

17

18 C. Class 3C. The quality of this class of the waters

19 of the state shall be such as to permit their use for industrial

20 cooling and materials transport without a high degree of

21 treatment being necessary to avoid severe fouling, corrosion,

22 scaling, or other unsatisfactory conditions. The following

23 shall not be exceeded in the waters of the state:

24	Substance or Characteristic	Limit or Range
25		
26	Chlorides (Cl)	250 milligrams per liter
27	Hardness, Ca + Mg as CaCO ₃	500 milligrams per liter
28	pH value	6.0 - 9.0

29

30 Additional selective limits may be imposed for any specific

31 waters of the state as needed.

32 In addition to the above listed standards, no sewage,

33 industrial waste, or other wastes from point or nonpoint

34 sources, treated or untreated, shall be discharged into or

35 permitted by any person to gain access to any waters of the

36 state classified for industrial purposes so as to cause any

37 material impairment of their use as a source of industrial water

38 supply.

39 **Subp. 5. Class 4. Agriculture and wildlife.**

40 A. Class 4A. The quality of this class of the waters

41 of the state shall be such as to permit their use for irrigation

42 without significant damage or adverse effects upon any crops or

43 vegetation usually grown in the waters or area, including truck

44 garden crops. The following concentrations or limits shall be

1 used as a guide in determining the suitability of the waters for
 2 such uses, together with the recommendations contained in
 3 Handbook 60 published by the Salinity Laboratory of the United
 4 States Department of Agriculture, and any revisions, amendments,
 5 or supplements to it:

6 Substance or Characteristic	Limit or Range
7	
8 Bicarbonates (HCO ₃)	5 milliequivalents per liter
9 Boron (B)	0.5 milligram per liter
10 pH value	6.0 - 8.5
11 Specific conductance	1,000 micromhos per centimeter
12 Total dissolved salts	700 milligrams per liter
13 Sodium (Na)	60% of total cations as
14	milliequivalents per liter
15 Sulfates (SO ₄)	10 milligrams per liter,
16	applicable to water used for
17	production of wild rice during
18	periods when the rice may be
19	susceptible to damage by high
20	sulfate levels.
21 Radioactive materials	Not to exceed the lowest
22	concentrations permitted to be
23	discharged to an uncontrolled
24	environment as prescribed
25	by the appropriate authority
26	having control over their use.
27	

28 B. Class 4B. The quality of this class of the waters
 29 of the state shall be such as to permit their use by livestock
 30 and wildlife without inhibition or injurious effects. The
 31 limits or concentrations of substances or characteristics given
 32 below shall not be exceeded in the waters of the state:

33 Substance or Characteristic	Limit or Range
34	
35 pH value	6.0 - 9.0
36 Total salinity	1,000 milligrams per liter
37 Radioactive materials	Not to exceed the lowest
38	concentrations permitted
39	to be discharged to an
40	uncontrolled environment as
41	prescribed by the appropriate
42	authority having control over
43	their use.
44 Toxic substances	None at levels harmful either
45	directly or indirectly.
46	

47 Additional selective limits may be imposed for any specific
 48 waters of the state as needed.

49 Subp. 6. Class 5. Aesthetic enjoyment and navigation.
 50 The quality of this class of the waters of the state shall be
 51 such as to be suitable for aesthetic enjoyment of scenery and to
 52 avoid any interference with navigation or damaging effects on
 53 property. The following limits or concentrations shall not be
 54 exceeded in the waters of the state:

1 Substance or Characteristic Limit or Range

2

3 pH value 6.0 - 9.0

4 Hydrogen sulfide as S 0.02 milligram per liter

5

6 Additional selective limits may be imposed for any specific
7 waters of the state as needed.

8 Subp. 7. Class 6. Other uses. The uses to be protected

9 in this class may be under other jurisdictions and in other

10 areas to which the waters of the state are tributary, and may

11 include any or all of the uses listed in the foregoing

12 categories, plus any other possible beneficial uses. The agency

13 therefore reserves the right to impose any standards necessary

14 for the protection of this class, consistent with legal

15 limitations.

16 Subp. 8. Class 7. Limited resource value waters. The

17 quality of this class of waters of the state shall be such as to

18 protect aesthetic qualities, secondary body contact use, and

19 groundwater for use as a potable water supply. Limits or

20 concentrations of substances or characteristics given below

21 shall not be exceeded in the waters:

22 Substance or Characteristic Standard

23 Fecal coliform organisms

24

25 Not to exceed 1,000 organisms per 100 milliliters in any
26 calendar month as determined by the logarithmic mean of a
27 minimum of five samples, nor shall more than ten percent of
28 all samples taken during any calendar month individually
29 exceed 2,000 organisms per 100 milliliters. The standard
30 applies only between May 1 and October 31.

31

32 pH value

33 Not less than 6.0

34 nor greater than 9.0

35 Dissolved oxygen

36 At concentrations which will

37 avoid odors or putrid

38 conditions in the receiving

39 water or at concentrations

40 at not less than 1 mg/l

41 (daily average) provided

42 that measurable concentrations

43 are present at all times.

44 Toxic Substances Pollutants

Toxic substances pollutants shall
not be allowed in such
quantities or concentrations
that will impair the specified
uses.

45

46

47

48

49 7050.0420 TROUT WATERS.

50 Trout streams and trout lakes described in Department of

51 Natural Resources Commissioner's orders 2294 (dated March 18,

1 1988) and 2230 (dated December 24, 1985) respectively are
2 classified as trout waters. Other lakes that are classified as
3 trout waters are listed in part 7050.0470. All trout waters are
4 classified 1B, 2A, 3B, 3C, 4A, 4B, 5, and 6.

5 7050.0460 WATERS SPECIFICALLY CLASSIFIED.

6 The waters of the state listed in part 7050.0470 are
7 classified as specified. The specific stretch of watercourse or
8 the location of a waterbody is described by township, range, and
9 section, abbreviated as T., R., S., respectively. Any community
10 listed in part 7050.0470 is the community nearest the water
11 classified, and is included solely to assist in identifying the
12 water.

13 Outstanding resource value waters are listed in part
14 7050.0470 and are denoted by an asterisk (*) preceding the name
15 of the water resource. Following the name is the effective date
16 the water resource was designated as an outstanding resource
17 value water and a letter code that corresponds to the applicable
18 discharge restrictions in part 7050.0180, subpart 3 or 6. The
19 letter code P corresponds to the prohibited discharges provision
20 in part 7050.0180, subpart 3. The letter code R corresponds to
21 the restricted discharges provision in part 7050.0180, subpart 6.

22 Waters listed in part 7050.0470 that are classified as
23 Class 2Bd are Class 2B waters also classified for domestic
24 consumption purposes. Applicable standards for Class 2Bd waters
25 are listed in part 7050.0220, subpart 3, item B.

26 7050.0470 CLASSIFICATIONS FOR WATERS IN MAJOR SURFACE WATER
27 DRAINAGE BASINS.

28 Subpart 1. **Lake Superior Basin.** The water use
29 classifications for the listed waters in the Lake Superior Basin
30 are as identified in items A and B:

31 A. Streams:

- 32 (1) Amenda Creek, (T.59, R.5W): 2C;
33 (2) Barber Creek (East Swan River) (Chisholm
34 Creek) Chisholm, (T.58, R.20, S.21, 22, 26, 27, 34, 35): 7;
35 (3) Boulder Creek, (T.53, 54, R.14): 2C;

- 1 (4) Brule River (excluding trout waters), (T.62,
2 63, 64, R.1W, 1E, 2E, 3E): 1B, 2Bd, 3B;
- 3 (5) Buhl Creek, Buhl, (T.58, R.19, S.20, 29):
4 7;
- 5 (6) Cranberry Creek, (T.58, R.13): 2C;
- 6 (7) Elbow Creek, Eveleth, (T.57, R.17, S.6;
7 T.57, R.18, S.1): 7;
- 8 (8) Horn Creek, (T.62, R.4W): 1B, 2Bd, 3B;
- 9 (9) Manganika Creek, Virginia, (T.58, R.17,
10 S.19; T.58, R.18, S.24): 7;
- 11 (10) Pigeon River (South of Fowl Lake to Pigeon
12 Bay of Lake Superior): 1B, 2Bd, 3A;
- 13 (11) Swan River, West, (T.55, R.20, 21): 2C;
- 14 (12) Temperance River (excluding trout waters),
15 (T.59, 60, 61, 62, R.4W): 1B, 2Bd, 3B;
- 16 (13) Trappers Creek, (T.56, R.11): 2C;
- 17 (14) Unnamed Creek, Meadowlands, (T.53, R.19,
18 S.22, 23): 7;
- 19 (15) Unnamed Ditch, Eveleth, (T.57, R.17, S.6):
20 7;
- 21 (16) Unnamed Ditch, Gilbert, (T.58, R.17, S.23,
22 24, 25, 36): 7; and
- 23 (17) *All other streams in the Boundary Waters
24 Canoe Area Wilderness [11/5/84P]: 1B, 2Bd, 3B.
- 25 B. Lakes:
- 26 (1) *Alder Lake, [11/5/84P] (T.64, R.1E): 1B,
27 2A, 3B;
- 28 (2) *Alton Lake, [11/5/84P] (T.62, 63, R.4, 5):
29 1B, 2A, 3B;
- 30 (3) Bearskin Lake, East, (T.64, R.1E, 1W): 1B,
31 2A, 3B;
- 32 (4) *Bearskin Lake, West, [3/7/88R] (T.64, 65,
33 R.1): 1B, 2A, 3B;
- 34 (5) *Birch Lake, [3/7/88R] (T.65, R.1, 2): 1B,
35 2A, 3B;
- 36 (6) Black Lake, (T.45, R.15): 1B, 2Bd, 3B;

- 1 (7) *Brule Lake, [11/5/84P] (T.63, R.2, 3): 1B,
- 2 2A, 3B;
- 3 (8) Chester Lake, (T.64, R.3E): 1B, 2A, 3B;
- 4 (9) *Clearwater Lake (Emby Lake), [11/5/84P]
- 5 (T.65, R.1E): 1B, 2A, 3B;
- 6 (10) Colby Lake, (T.58, R.14): 1B, 2Bd, 3B;
- 7 (11) *Cone Lake, North, [11/5/84P] (T.63, 64,
- 8 R.3): 1B, 2A, 3B;
- 9 (12) *Crystal Lake, [11/5/84P] (T.64, R.1E,
- 10 2E): 1B, 2A, 3B;
- 11 (13) *Daniels Lake, [11/5/84P] (T.65, R.1E,
- 12 1W): 1B, 2A, 3B;
- 13 (14) *Davis Lake, [11/5/84P] (T.64, R.3): 1B,
- 14 2A, 3B;
- 15 (15) *Devilfish Lake, [3/7/88R] (T.64, R.3E):
- 16 1B, 2A, 3B;
- 17 (16) *Duncan Lake, [11/5/84P] (T.65, R.1): 1B,
- 18 2A, 3B;
- 19 (17) *Dunn Lake, [11/5/84P] (T.65, R.1, 2): 1B,
- 20 2A, 3B;
- 21 (18) *Echo Lake, [3/7/88R] (T.59, R.6): 1B, 2A,
- 22 3B;
- 23 (19) *Esther Lake, [3/7/88R] (T.63, 64, R.3E):
- 24 1B, 2A, 3B;
- 25 (20) *Fan Lake, [11/5/84P] (T.65, R.2E): 1B,
- 26 2Bd, 3A;
- 27 (21) Flour Lake, (T.64, R.1E, 1W): 1B, 2A, 3B;
- 28 (22) Fowl Lake, North, (T.64, 65, R.3E): 1B,
- 29 2Bd, 3A;
- 30 (23) Fowl Lake, South, (T.64, 65, R.3E): 1B,
- 31 2Bd, 3A;
- 32 (24) *Gaskin Lake, [11/5/84P] (T.64, R.2): 1B,
- 33 2A, 3B;
- 34 (25) *Greenwood Lake, [3/7/88R] (T.64, R.2E):
- 35 1B, 2A, 3B;
- 36 (26) *Hungry Jack Lake, [3/7/88R] (T.64, 65,

- 1 R.1): 1B, 2A, 3B;
 2 (27) *Jim Lake (Jerry Lake), [3/7/88R] (T.64,
 3 R.1E): 1B, 2A, 3B;
 4 (28) *Kemo Lake, [3/7/88R] (T.63, R.1): 1B, 2A,
 5 3B;
 6 (29) *Lily Lakes, [11/5/84P] (T.65, R.2E): 1B,
 7 2Bd, 3A;
 8 (30) McFarland Lake, (T.64, R.3E): 1B, 2A, 3B;
 9 (31) *Misquah Lake, [11/5/84P] (T.64, R.1): 1B,
 10 2A, 3B;
 11 (32) *Moose Lake, [11/5/84P] (T.65, R.2E, 3E):
 12 1B, 2A, 3A;
 13 (33) *Morgan Lake, [11/5/84P] (T.64, R.1): 1B,
 14 2A, 3B;
 15 (34) *Moss Lake, [3/7/88R] (T.65, R.1): 1B, 2A,
 16 3B;
 17 (35) *Mountain Lake, [11/5/84P] (T.65, R.1E,
 18 2E): 1B, 2A, 3B;
 19 (36) *Musquash Lake, [3/7/88R] (T.63, R.1E):
 20 1B, 2A, 3B;
 21 (37) *Onega Lake (Omega Lake), [11/5/84P] (T.64,
 22 R.2, 3): 1B, 2A, 3B;
 23 (38) *Otto Lake, Lower, [11/5/84P] (T.64, R.2):
 24 1B, 2A, 3B;
 25 (39) *Partridge Lake, [11/5/84P] (T.65, R.1):
 26 1B, 2A, 3B;
 27 (40) *Pike Lake, West, [11/5/84P] (T.65, R.2E):
 28 1B, 2A, 3B;
 29 (41) *Pine Lake, [11/5/84P] (T.64, 65, R.1E, 2E,
 30 3E): 1B, 2A, 3B;
 31 (42) *Ram Lake, [11/5/84P] (T.63, R.1): 1B, 2A,
 32 3B;
 33 (43) *Rose Lake, [11/5/84P] (T.65, R.1): 1B,
 34 2A, 3B;
 35 (44) Saint Mary's Lake, (T.57, R.17, S.9, 16,
 36 17): 1C, 2Bd, 3B;

- 1 (45) *Sawbill Lake, [11/5/84P] (T.62, 63, R.4):
- 2 1B, 2Bd, 3B;
- 3 (46) Seven Beaver Lake, (T.58, R.11, 12): 2B,
- 4 3A;
- 5 (47) *South Lake, [11/5/84P] (T.65, R.1, 2):
- 6 1B, 2A, 3B;
- 7 (48) *State Lake, [11/5/84P] (T.63, 64, R.2):
- 8 1B, 2A, 3B;
- 9 (49) *Superior, Lake, [11/5/84R] (T.49, 50, 51,
- 10 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, R.14W-7E):
- 11 1B, 2A, 3A;
- 12 (50) *Swan Lake, [11/5/84P] (T.63, R.2): 1B,
- 13 2A, 3B;
- 14 (51) *Trout Lake, [3/7/88R] (T.62, R.2E): 1B,
- 15 2A, 3B;
- 16 (52) *Trout Lake, Little, [11/5/84P] (T.63,
- 17 R.1): 1B, 2A, 3B;
- 18 (53) *Twin Lake, Upper (Bear Lake), [3/7/88R]
- 19 (T.56, R.8): 1B, 2A, 3B;
- 20 (54) *Vista Lake, [11/5/84P] (T.64, R.1): 1B,
- 21 2A, 3B;
- 22 (55) *Wanighan Lake (Trap Lake), [11/5/84P]
- 23 (T.63, 64, R.2, 3): 1B, 2A, 3B;
- 24 (56) *Winchell Lake, [11/5/84P] (T.64, R.2, 3):
- 25 1B, 2A, 3B;
- 26 (57) *Black Lake Bog [3/7/88P] (Waters within
- 27 the Black Lake Bog Scientific and Natural Area, Pine County,
- 28 T.45, R.15, S.18, 19, 30; T.45, R.16, S.13, 24, 25): 2B, 3B;
- 29 and
- 30 (58) *All other lakes in the Boundary Waters
- 31 Canoe Area Wilderness [11/5/84P]: 1B, 2Bd, 3B.

32 Subp. 2. Lake of the Woods Basin. The water use
 33 classifications for the listed waters in Lake of the Woods Basin
 34 are as identified in items A and B:

35 A. Streams:

- 36 (1) Beaver Creek, (T.62, 63, R.20): 2C;

- 1 (2) Gardner Brook, (T.63, 64, R.23): 2C;
- 2 (3) Indian Sioux River, Little, (T.64, 65,
- 3 R.15): 1B, 2Bd, 3B;
- 4 (4) Island River, (T.61, R.7, 8): 1B, 2Bd, 3B;
- 5 (5) Kawishiwi River, (Source to Fall Lake): 1B,
- 6 2Bd, 3B;
- 7 (6) Moose River, (T.68, R.18, 19): 1B, 2Bd, 3B;
- 8 (7) Moose River, (T.64, 65, 66, R.14): 1B, 2Bd,
- 9 3B;
- 10 (8) Portage Creek, (T.65, R.21): 2C;
- 11 (9) Portage River, (T.65, 66, R.14): 1B, 2Bd,
- 12 3B;
- 13 (10) Rainy River, (Outlet of Rainy Lake to Dam
- 14 in International Falls): 1B, 2Bd, 3A;
- 15 (11) Rainy River, (Dam in International Falls to
- 16 Railroad Bridge in Baudette): 1C, 2Bd, 3A;
- 17 (12) Rainy River, (Railroad Bridge in Baudette
- 18 to Lake of the Woods): 2B, 3A;
- 19 (13) Snake River, (T.61, R.9): 1B, 2Bd, 3B;
- 20 (14) Zippel Creek, West Branch, (T.162, R.33,
- 21 34): 2C;
- 22 (15) *All other streams in the Boundary Waters
- 23 Canoe Area Wilderness [11/5/84P]: 1B, 2Bd, 3B;
- 24 (16) *Purvis Lake-Ober, [11/5/84P] (Waters
- 25 within the Purvis Lake-Ober Foundation Scientific and Natural
- 26 Area, Saint Louis County, T.62, R.13): 2B, 3B; and
- 27 (17) *All other streams in the Voyageurs
- 28 National Park [11/5/84P]: 2B, 3B.
- 29 B. Lakes:
- 30 (1) *Adams Lake, [11/5/84P] (T.64, R.6): 1B,
- 31 2A, 3B;
- 32 (2) *Agamok Lake, [11/5/84P] (T.65, R.5, 6):
- 33 1B, 2A, 3B;
- 34 (3) *Ahmakose Lake, [11/5/84P] (T.64, R.7): 1B,
- 35 2A, 3B;
- 36 (4) *Alpine Lake, [11/5/84P] (T.65, R.5): 1B,

- 1 2A, 3B;
- 2 (5) *Amoeber Lake, [11/5/84P] (T.65, R.6, 7):
- 3 1B, 2A, 3B;
- 4 (6) *Arkose Lake, [11/5/84P] (T.64, 65, R.7):
- 5 1B, 2A, 3B;
- 6 (7) *Ashdick Lake (Caribou Lake), [11/5/84P]
- 7 (T.66, R.6): 1B, 2A, 3B;
- 8 (8) *Basswood Lake, [11/5/84P] (T.64, 65, R.9,
- 9 10): 1B, 2A, 3B;
- 10 (9) *Bat Lake, [11/5/84P] (T.64, 65, R.5): 1B,
- 11 2A, 3B;
- 12 (10) *Beartrack Lake, [11/5/84P] (T.67, R.15):
- 13 1B, 2A, 3B;
- 14 (11) *Beaver Lake (Elbow Lake), [11/5/84P]
- 15 (T.63, 64, R.6, 7): 1B, 2A, 3B;
- 16 (12) *Bingshick Lake, [11/5/84P] (T.65, R.4,
- 17 5): 1B, 2A, 3B;
- 18 (13) *Brandt Lake, [11/5/84P] (T.65, R.4): 1B,
- 19 2A, 3B;
- 20 (14) *Burntside Lake, [3/7/88R] (T.63, 64, R.12,
- 21 13, 14): 1B, 2A, 3B;
- 22 (15) *Camp Lake, [11/5/84P] (T.64, R.11): 1B,
- 23 2Bd, 3B;
- 24 (16) *Caribou Lake, [3/7/88R] (T.58, R.26): 1B,
- 25 2A, 3B;
- 26 (17) *Cash Lake, [11/5/84P] (T.64, R.3): 1B,
- 27 2A, 3B;
- 28 (18) *Cherokee Lake, [11/5/84P] (T.63, 64,
- 29 R.4): 1B, 2A, 3B;
- 30 (19) *Cherry Lake, [11/5/84P] (T.65, R.6): 1B,
- 31 2A, 3B;
- 32 (20) *Crab Lake, [11/5/84P] (T.63, R.13, 14):
- 33 1B, 2A, 3B;
- 34 (21) Crab Lake, (T.65, R.2, 3): 1B, 2A, 3B;
- 35 (22) Crane Lake, (T.67, 68, R.16, 17): 1B, 2A,
- 36 3A;

- 1 (23) *Crooked Lake, [11/5/84P] (T.64, R.5): 1B,
2 2A, 3B;
- 3 (24) *Crooked Lake, [11/5/84P] (T.66, R.11,
4 12): 1B, 2A, 3B;
- 5 (25) *Cruiser Lake (Trout Lake), [11/5/84P]
6 (T.69, 70, R.19): 1B, 2A, 3B;
- 7 (26) *Eddy Lake, [11/5/84P] (T.65, R.6): 1B,
8 2A, 3B;
- 9 (27) *Ester Lake (Gnig Lake), [11/5/84P] (T.65,
10 66, R.6): 1B, 2A, 3B;
- 11 (28) *Eugene Lake, [11/5/84P] (T.67, R.15): 1B,
12 2A, 3B;
- 13 (29) *Explorer Lake (South Three Lake),
14 [11/5/84P] (T.64, R.7, 8): 1B, 2A, 3B;
- 15 (30) Fall Lake, (T.63, 64, R.11, 12): 1B, 2Bd,
16 3B;
- 17 (31) *Fat Lake, [11/5/84P] (T.67, R.15): 1B,
18 2A, 3B;
- 19 (32) *Fay Lake, [11/5/84P] (T.65, R.5): 1B, 2A,
20 3B;
- 21 (33) *Fern Lake, [11/5/84P] (T.64, R.5): 1B,
22 2A, 3B;
- 23 (34) *Fern Lake, West, [11/5/84P] (T.64, R.5):
24 1B, 2A, 3B;
- 25 (35) *Finger Lake, [11/5/84P] (T.67, R.14): 1B,
26 2A, 3B;
- 27 (36) *Fishdance Lake, [11/5/84P] (T.63, R.7):
28 1B, 2A, 3B;
- 29 (37) *Fraser Lake, [11/5/84P] (T.64, R.7): 1B,
30 2A, 3B;
- 31 (38) *French Lake, [11/5/84P] (T.64, 65, R.5):
32 1B, 2A, 3B;
- 33 (39) *Frost Lake, [11/5/84P] (T.64, R.4): 1B,
34 2A, 3B;
- 35 (40) *Gabimichigami Lake, [11/5/84P] (T.64, 65,
36 R.5, 6): 1B, 2A, 3B;

- 1 (41) *Ge-Be-On-Equat Lake, [11/5/84P] (T.67,
2 R.14): 1B, 2A, 3B;
- 3 (42) *Gijikiki Lake (Cedar Lake), [11/5/84P]
4 (T.65, 66, R.6): 1B, 2A, 3B;
- 5 (43) *Gillis Lake, [11/5/84P] (T.64, 65, R.5):
6 1B, 2A, 3B;
- 7 (44) *Gordon Lake, [11/5/84P] (T.64, R.4): 1B,
8 2A, 3B;
- 9 (45) *Gun Lake, [11/5/84P] (T.67, 68, R.15):
10 1B, 2A, 3B;
- 11 (46) *Gunflint Lake, [3/7/88R] (T.65, R.2, 3,
12 4): 1B, 2A, 3B;
- 13 (47) Gunflint Lake, Little, (T.65, R.2): 1B,
14 2Bd, 3B;
- 15 (48) *Hanson Lake, [11/5/84P] (T.65, 66, R.6):
16 1B, 2A, 3B;
- 17 (49) *Holt Lake, [11/5/84P] (T.65, R.6): 1B,
18 2A, 3B;
- 19 (50) *Howard Lake, [11/5/84P] (T.65, R.5): 1B,
20 2A, 3B;
- 21 (51) *Hustler Lake, [11/5/84P] (T.66, 67,
22 R.14): 1B, 2A, 3B;
- 23 (52) *Ima Lake (Slate Lake), [11/5/84P] (T.64,
24 R.7, 8): 1B, 2A, 3B;
- 25 (53) *Jasper Lake, [11/5/84P] (T.65, R.5): 1B,
26 2A, 3B;
- 27 (54) *Johnson Lake, [3/7/88R] (T.67, 68, R.17,
28 18): 1B, 2A, 3B;
- 29 (55) *Kabetogama Lake, [11/5/84P] (T.69, 70,
30 R.20, 21, 22): 1B, 2Bd, 3A;
- 31 (56) *Karl Lake, [11/5/84P] (T.64, R.3, 4): 1B,
32 2A, 3B;
- 33 (57) *Kek Lake, Little, [11/5/84P] (T.65, R.6,
34 7): 1B, 2A, 3B;
- 35 (58) *Kekekabic Lake, [11/5/84P] (T.64, 65, R.6,
36 7): 1B, 2A, 3B;

- 1 (59) *Knife Lake, [11/5/84P] (T.65, R.7, 8):
2 1B, 2A, 3B;
- 3 (60) *Lake of the Clouds Lake (Dutton Lake),
4 [11/5/84P] (T.65, R.6): 1B, 2A, 3B;
- 5 (61) *Larson Lake, [3/7/88R] (T.61, R.24): 1B,
6 2A, 3B;
- 7 (62) *Long Island Lake, [11/5/84P] (T.64, R.3,
8 4): 1B, 2A, 3B;
- 9 (63) *Loon Lake, [3/7/88R] (T.65, R.3): 1B, 2A,
10 3B;
- 11 (64) *Loon Lake, [11/5/84P] (T.66, 67, R.15):
12 1B, 2A, 3B;
- 13 (65) *Lunar Lake (Moon Lake), [11/5/84P] (T.65,
14 R.6): 1B, 2A, 3B;
- 15 (66) *Lynx Lake, [11/5/84P] (T.66, R.14, 15):
16 1B, 2A, 3B;
- 17 (67) *Magnetic Lake, [3/7/88R] (T.65, R.3, 4):
18 1B, 2A, 3B;
- 19 (68) *Makwa Lake (Bear Lake), [11/5/84P] (T.64,
20 R.6): 1B, 2A, 3B;
- 21 (69) *Marble Lake, [11/5/84P] (T.64, R.6): 1B,
22 2A, 3B;
- 23 (70) *Mayhew Lake, [3/7/88R] (T.65, R.2): 1B,
24 2A, 3B;
- 25 (71) *Mesaba Lake, [11/5/84P] (T.63, R.5): 1B,
26 2A, 3B;
- 27 (72) *Missionary Lake (East Three Lake),
28 [11/5/84P] (T.64, R.7, 8): 1B, 2A, 3B;
- 29 (73) *Moose Lake, [11/5/84P] (T.64, R.9, 10):
30 1B, 2Bd, 3B;
- 31 (74) *Mora Lake, [11/5/84P] (T.64, R.5): 1B,
32 2A, 3B;
- 33 (75) *Mukooda Lake, [11/5/84P] (T.68, R.17):
34 1B, 2A, 3B;
- 35 (76) *Namakan Lake, [11/5/84P] (T.69, R.17, 18,
36 19): 1B, 2Bd, 3A;

- 1 (77) *North Lake, [3/7/88R] (T.65, R.2): 1B,
 2 2A, 3B;
- 3 (78) North Lake, Little, (T.65, R.2): 1B, 2Bd,
 4 3B;
- 5 (79) *Ogishkemuncie Lake, [11/5/84P] (T.65,
 6 R.6): 1B, 2A, 3B;
- 7 (80) *Ojibway Lake (Upper Twin), [3/7/88R]
 8 (T.63, R.9, 10): 1B, 2A, 3B;
- 9 (81) *Owl Lake, [11/5/84P] (T.64, R.5): 1B, 2A,
 10 3B;
- 11 (82) *Oyster Lake, [11/5/84P] (T.66, R.14): 1B,
 12 2A, 3B;
- 13 (83) *Peter Lake, [11/5/84P] (T.64, 65, R.5):
 14 1B, 2A, 3B;
- 15 (84) *Portage Lake, [11/5/84P] (T.65, R.8): 1B,
 16 2A, 3B;
- 17 (85) *Powell Lake, [11/5/84P] (T.64, 65, R.5):
 18 1B, 2A, 3B;
- 19 (86) *Rabbit Lake, [11/5/84P] (T.66, R.6): 1B,
 20 2A, 3B;
- 21 (87) *Rainy Lake, [11/5/84P] (T.70, 71, R.18,
 22 19, 20, 21, 22, 23): 1B, 2Bd, 3A;
- 23 (88) *Raven Lake (Lynx Lake), [11/5/84P] (T.64,
 24 R.6): 1B, 2A, 3B;
- 25 (89) *Red Rock Lake, [11/5/84P] (T.65, 66,
 26 R.5): 1B, 2A, 3B;
- 27 (90) *Ruby Lake, Big, [11/5/84P] (T.66, R.14):
 28 1B, 2A, 3B;
- 29 (91) *Saganaga Lake, [11/5/84P] (T.66, 67, R.4,
 30 5): 1B, 2A, 3B;
- 31 (92) *Saganaga Lake, Little, [11/5/84P] (T.64,
 32 R.5, 6): 1B, 2A, 3B;
- 33 (93) *Sand Point Lake, [11/5/84P] (T.68, 69,
 34 R.16, 17): 1B, 2A, 3A;
- 35 (94) *Sea Gull Lake, [11/5/84P] (T.65, 66, R.4,
 36 5): 1B, 2A, 3B;

- 1 (95) *Sema Lake (Coon Lake), [11/5/84P] (T.65,
2 R.7): 1B, 2A, 3B;
- 3 (96) *Snowbank Lake, [11/5/84P] (T.63, 64, R.8,
4 9): 1B, 2A, 3B;
- 5 (97) *Spoon Lake (Fames Lake), [11/5/84P] (T.65,
6 R.7): 1B, 2A, 3B;
- 7 (98) *Spring Lake, [3/7/88R] (T.68, R.18): 1B,
8 2A, 3B;
- 9 (99) *Strup Lake, [11/5/84P] (T.64, R.7): 1B,
10 2A, 3B;
- 11 (100) *Sumpet Lake, [11/5/84P] (T.61, R.7): 1B,
12 2Bd, 3B;
- 13 (101) *Takucmich Lake, [11/5/84P] (T.67, 68,
14 R.14): 1B, 2A, 3B;
- 15 (102) *Tarry Lake, [11/5/84P] (T.64, R.5): 1B,
16 2A, 3B;
- 17 (103) *Thomas Lake, [11/5/84P] (T.63, 64, R.7):
18 1B, 2A, 3B;
- 19 (104) *Thumb Lake, [11/5/84P] (T.67, R.14): 1B,
20 2A, 3B;
- 21 (105) *Topaz Lake (Star Lake), [11/5/84P] (T.65,
22 R.6): 1B, 2A, 3B;
- 23 (106) *Town Lake, [11/5/84P] (T.63, 64, R.3,
24 4): 1B, 2A, 3B;
- 25 (107) *Trout Lake, Big, [11/5/84P] (T.63, 64,
26 R.15, 16): 1B, 2A, 3B;
- 27 (108) *Trout Lake, Little (Pocket Lake),
28 [11/5/84P] (T.68, R.17): 1B, 2A, 3B;
- 29 (109) *Tucker Lake, [11/5/84P] (T.64, R.3): 1B,
30 2Bd, 3B;
- 31 (110) *Tuscarora Lake, [11/5/84P] (T.64, R.4,
32 5): 1B, 2A, 3B;
- 33 (111) *Vera Lake, [11/5/84P] (T.64, R.8): 1B,
34 2A, 3B;
- 35 (112) *Virgin Lake, [11/5/84P] (T.64, R.5): 1B,
36 2A, 3B;

- 1 (113) *Wine Lake, [11/5/84P] (T.63, R.5): 1B,
 2 2A, 3B;
- 3 (114) *Wisini Lake, [11/5/84P] (T.64, R.7): 1B,
 4 2A, 3B;
- 5 (115) Lake of the Woods, (T.161, 162, 163, 164,
 6 165, 166, 167, 168, R.30, 31, 32, 33, 34, 35): 1B, 2Bd, 3A;
- 7 (116) Unnamed Swamp, Winton, (T.63, R.11, S.19;
 8 T.63, R.12, S.24): 7;
- 9 (117) *All other lakes in the Boundary Waters
 10 Canoe Area Wilderness [11/5/84P]: 1B, 2Bd, 3B; and
- 11 (118) *All other lakes in the Voyageurs National
 12 Park [11/5/84P]: 2B, 3B.
- 13 Subp. 3. Red River of the North Basin. The water use
 14 classifications for the listed waters in the Red River of the
 15 North Basin are as identified in items A, B, and C:
- 16 A. Streams:
- 17 (1) Badger Creek, (T.149, 150, 151, R.42, 43,
 18 44): 2C;
- 19 (2) Barnums Creek (Burnham Creek), (T.148, 149,
 20 150, R.44, 45, 46, 47, 48): 2C;
- 21 (3) Bois de Sioux River, (Mud Lake outlet to
 22 Breckenridge): 2C;
- 23 (4) County Ditch No. 6A-2, Rothsay, (T.135,
 24 R.45, S.21, 28, 33): 7;
- 25 (5) County Ditch No. 32, Sabin, (T.138, R.48,
 26 S.13, 14, 15, 16, 17, 18): 7;
- 27 (6) County Ditch No. 65, New York Mills, (T.135,
 28 R.37, S.18; T.135, R.38, S.13): 7;
- 29 (7) Deerhorn Creek, (T.136, R.44, 45, 46): 2C;
- 30 (8) Doran Slough, (T.131, 132, R.46, 47): 2C;
- 31 (9) Eighteen Mile Creek, (T.127, R.46, 47): 2C;
- 32 (10) Five Mile Creek, (T.127, 128, R.45): 2C;
- 33 (11) Gentilly River, (T.149, 150, R.45): 2C;
- 34 (12) Hay Creek, (T.137, 138, R.44, 45, 46): 2C;
- 35 (13) Hay Creek, (T.161, 162, 163, R.37, 38, 39):
 36 2C;

- 1 (14) Hill River, (T.148, 149, 150, R.39, 40, 41,
2 42): 2C;
- 3 (15) Hoover Creek (excluding trout waters),
4 (T.152, 153, 154, R.29, 30): 2C;
- 5 (16) Joe River, (T.162, 163, 164, R.49, 50):
6 2C;
- 7 (17) Joe River, Little, (T.163, R.47, 48): 2C;
- 8 (18) Judicial Ditch No. 13, Goodridge, (T.154,
9 R.40, S.16, 17, 18): 7;
- 10 (19) Judicial Ditch No. 18, Goodridge, (T.154,
11 R.40, S.18, 19, 27, 28, 29, 30; T.154, R.41, S.13, 14, 15, 16,
12 17, 18; T.154, R.42, S.7, 8, 13, 14, 15, 16; T.154, R.43, S.9,
13 10, 11, 12, 16): 7;
- 14 (20) Maple Creek, (T.147, 148, R.44, 45, 46):
15 2C;
- 16 (21) Marsh Creek, (T.144, 145, 146, R.41, 42,
17 43): 2C;
- 18 (22) Mustinka River, (T.127, 128, R.45, 46, 47):
19 2C;
- 20 (23) Mustinka River, West Branch, (T.125, 126,
21 127, 128, R.45, 46, 47): 2C;
- 22 (24) Otter Tail River, (Height of Land Lake to
23 mouth): 1C, 2Bd, 3B;
- 24 (25) Rabbit River, (T.130, 131, R.45, 46, 47):
25 2C;
- 26 (26) Rabbit River, South Fork, (T.130, R.45, 46):
27 2C;
- 28 (27) Red Lake River, (Outlet of Lower Red Lake
29 to mouth): 1C, 2Bd, 3B;
- 30 (28) Red River of the North, (Breckenridge to
31 Canadian border): 1C, 2Bd, 3B;
- 32 (29) Roy Creek (Roy Lake Creek), (T.144, 145,
33 R.39): 2C;
- 34 (30) Spring Creek, (T.145, 146, R.45, 46, 47):
35 2C;
- 36 (31) Spring Creek, (T.142, R.41, 42): 2C;

- 1 (32) Stony Creek, (T.137, R.45, 46): 2C;
2 (33) Sucker Creek, (T.160, 161, R.39): 2C;
3 (34) Tamarack River (Source to Stephen), (T.157,
4 158, R.45, 46, 47, 48): 1C, 2Bd, 3B;
5 (35) Twelve Mile Creek (excluding Class 7
6 segment), (T.126, 127, R.45): 2C;
7 (36) Twelve Mile Creek (County Ditch No. 1),
8 Donnelly, (T.126, R.43, S.16, 17, 18, 19, 21, 22, 25, 26, 27;
9 T.126, R.44, S.23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33;
10 T.126, R.45, S.25, 26, 27, 28, 36): 7;
11 (37) Twelve Mile Creek, East Fork, (T.125, 126,
12 R.44, 45): 2C;
13 (38) Twelve Mile Creek, West Fork, (T.125, 126,
14 R.44, 45): 2C;
15 (39) Twin Lake Creek, (T.144, 145, R.40): 2C;
16 (40) Two Rivers, Middle Branch, (Source to
17 Hallock): 1C, 2Bd, 3B;
18 (41) Two Rivers, South Branch, (T.161, R.41-49):
19 1C, 2Bd, 3B;
20 (42) Unnamed Creek, Rothsay, (T.135, R.45, S.21,
21 22, 23, 25, 26): 7;
22 (43) Unnamed Creek, Shevlin, (T.147, R.36, S.17,
23 18; T.147, R.37, S.11, 12, 13, 14): 7;
24 (44) Unnamed Ditch, Audubon, (T.139, R.42, S.4,
25 9): 7;
26 (45) Unnamed Ditch, Lake Park, (T.139, R.43,
27 S.4; T.140, R.43, S.33): 7;
28 (46) Unnamed Ditch, Glyndon, (T.139, R.47, S.1,
29 2, 12; T.140, R.47, S.35): 7;
30 (47) Unnamed Ditch, Callaway, (T.140, R.41, S.6;
31 T.140, R.42, S.1, 2, 10, 11): 7;
32 (48) Unnamed Ditch, Gary, (T.145, R.44, S.22,
33 27, 34): 7;
34 (49) Unnamed Ditch, Erskine, (T.149, R.42, S.34,
35 35): 7;
36 (50) Unnamed Ditch, Thief River Falls, (T.154,

1 R.43, S.31, 32, 33): 7;
 2 (51) Unnamed Ditch, Warroad, (T.163, R.37, S.19,
 3 20, 21, 22, 23; T.163, R.38, S.19, 20, 21, 22, 23, 24, 30;
 4 T.163, R.39, S.25, 31, 32, 33, 34, 35, 36): 7;
 5 (52) Whiskey Creek, (T.137, R.44, 45, 46): 2C;
 6 (53) Whiskey Creek, (T.133, 134, R.47, 48): 2C;
 7 (54) White Earth River, (T.143, 144, R.40, 41,
 8 42): 2C;
 9 (55) Willow Creek, New York Mills, (T.135, R.38,
 10 S.13, 14, 15, 16, 17, 18): 7; and
 11 (56) Wolverton Creek, (T.135, 136, 137, R.48):
 12 2C.

13 B. Lakes:

14 (1) Lake Bronson, (T.160, 161, R.46): 1C, 2Bd,
 15 3B;
 16 (2) Twin Lake, East, (T.138, R.41): 1B, 2A, 3B;
 17 (3) Unnamed Slough, Vergas, (T.137, R.40, S.18;
 18 T.137, R.41, S.13, 24): 7; and
 19 (4) *Green Water Lake, [11/5/84P] (Waters within
 20 the Green Water Lake Scientific and Natural Area, Becker County,
 21 T.141, R.38, S.28, 33, 34): 2B, 3B.

22 C. Fens:

23 (1) *B-B Ranch fen, [3/7/88R] (T.141, R.46,
 24 S.13): 2B, 3B;
 25 (2) *Barnesville WMA fen, [3/7/88R] (T.137,
 26 R.45, S.1): 2B, 3B;
 27 (3) *Chicog WMA fen, [3/7/88R] (T.148, R.45,
 28 S.20, 29, 33): 2B, 3B;
 29 (4) *Clearbrook fen, [3/7/88R] (T.149, R.37,
 30 S.17): 2B, 3B;
 31 (5) *Felton fen, [3/7/88R] (T.142, R.46, S.36):
 32 2B, 3B;
 33 (6) *Kertsonville WMA fen, [3/7/88R] (T.149,
 34 R.45, S.16): 2B, 3B;
 35 (7) *Pankratz fen (Svedarsky's fen), [3/7/88R]
 36 (T.149, R.45, S.17): 2B, 3B;

1 (8) *Pembina Trail Preserve, [3/7/88P] (Waters
2 within the Pembina Trail Preserve Scientific and Natural Area,
3 Polk County, S.1, 2, T.148, R.45; S.18, 19, 30, 31, T.149, R.44;
4 S.13, 24, 25, 36, T.149, R.45): 2B, 3B;

5 (9) *Primula Meadow (Faith fen), [3/7/88R]
6 (T.144, R.43, S.25): 2B, 3B;

7 (10) *Spring Creek fen, [3/7/88R] (T.142, R.42,
8 S.13): 2B, 3B;

9 (11) *Spring Prairie fen, [3/7/88R] (T.140,
10 R.46, S.11): 2B, 3B; and

11 (12) *Waubun fen, [3/7/88R] (T.143, R.42,
12 S.25): 2B, 3B.

13 Subp. 4. **Upper Mississippi River Basin.** The water use
14 classifications for the listed waters in the Upper Mississippi
15 River Basin are as identified in items A and B:

16 A. Streams:

- 17 (1) Alcohol Creek, (T.143, 144, R.34): 2C;
18 (2) Arramba Creek, (T.40, R.30): 2C;
19 (3) Basswood Creek, (T.141, 142, R.36): 2C;
20 (4) Battle Brook, (T.35, R.26, 27): 2C;
21 (5) Battle Creek, (T.120, R.30, 31): 2C;
22 (6) Bear Brook, (T.144, R.27): 2C;
23 (7) Bear Creek, (T.145, R.36): 2C;
24 (8) Beautiful Creek, (T.127, R.31): 2C;
25 (9) Beaver Creek, (T.136, 137, R.32, 33): 2C;
26 (10) Belle Creek, (T.117, 118, R.32): 2C;
27 (11) Birch Brook, (T.141, R.25): 2C;
28 (12) Black Brook, (T.41, 42, R.26): 2C;
29 (13) Black Brook, (T.42, 43, R.30): 2C;
30 (14) Blackwater Creek, (T.55, R.26): 2C;
31 (15) Blueberry River, (T.138, 139, R.35, 36):
32 2C;
33 (16) Bluff Creek, (T.135, 136, R.36, 37): 2C;
34 (17) Bogus Brook (excluding Class 7 segment),
35 (T.37, 38, R.26): 2C;
36 (18) Bogus Brook, Bock, (T.38, R.26, S.13, 14):

- 1 7;
- 2 (19) Buckman Creek (excluding Class 7 segment),
3 (T.39, 40, R.30, 31): 2C;
- 4 (20) Buckman Creek, Buckman, Buckman Coop Cry.,
5 (T.39, R.30, S.4, 5, 6, 9; T.39, R.31, S.1, 2, 10, 11; T.40,
6 R.30, S.31; T.40, R.31, S.36): 7;
- 7 (21) Cat River (excluding trout waters), (T.136,
8 137, R.33, 34, 35): 2C;
- 9 (22) Chase Brook, (T.38, 39, R.27): 2C;
- 10 (23) Clearwater Creek, (T.56, 57, R.24, 25):
11 2C;
- 12 (24) Coon Creek, (T.43, R.29, 30): 2C;
- 13 (25) County Ditch No. 15 (Bear Creek), Bertha,
14 (T.132, R.35, S.2; T.133, R.34, S.7; T.133, R.35, S.12, 13, 24,
15 25, 26, 35): 7;
- 16 (26) County Ditch No. 23, Garfield, (T.129,
17 R.38, S.26, 27): 7;
- 18 (27) County Ditch No. 23A, Willmar, (T.119,
19 R.34, S.29, 30; T.119, R.35, S.23, 25, 26): 7;
- 20 (28) County Ditch No. 42, McGregor, (T.48, R.23,
21 S.29, 32): 7;
- 22 (29) County Ditch No. 63, Near Hutchinson, West
23 Lynn Coop Cry., (T.116, R.30, S.19, 20, 21, 28, 33): 7;
- 24 (30) County Ditch No. 132, Lakeside, Lakeside
25 Coop Cry., (T.116, R.31, S.16, 21): 7;
- 26 (31) Crane Creek (excluding Class 7 segment),
27 (T.116, 117, R.26, 27): 2C;
- 28 (32) Crane Creek, Winsted, (T.117, R.27, S.14,
29 20, 21, 22, 23, 24, 25): 7;
- 30 (33) *Crow River, North Fork, [11/5/84R] (From
31 the Lake Koronis outlet to the Meeker - Wright County line):
32 2B, 3B;
- 33 (34) Dagget Brook, (T.43, R.29, 30): 2C;
- 34 (35) Eagle Creek, (T.120, R.29): 2C;
- 35 (36) Elk River, Little, (T.130, 131, R.30, 31):
36 2C;

- 1 (37) Elk River, South Branch, Little, (T.130,
2 R.30, 31, 32): 2C;
- 3 (38) Estes Brook, (T.36, 37, 38, R.27, 28): 2C;
- 4 (39) Everton Creek, (T.149, R.30): 2C;
- 5 (40) Farley Creek, (T.147, R.28): 2C;
- 6 (41) Fish Creek, (T.28, R.22): 2C;
- 7 (42) Fletcher Creek, (T.42, R.31): 2C;
- 8 (43) Foley Brook, (T.141, R.25): 2C;
- 9 (44) Frederick Creek, (T.119, R.25): 2C;
- 10 (45) Frontenac Creek, (T.145, R.34): 2C;
- 11 (46) Hanson Brook, (T.40, R.27): 2C;
- 12 (47) Hay Creek, (T.43, 44, R.30, 31): 2C;
- 13 (48) Hazel Creek, (T.127, R.29, 30): 2C;
- 14 (49) Hennepin Creek (excluding trout waters),
15 (T.144, 145, 146, R.34, 35): 2C;
- 16 (50) Indian Creek, (T.141, 142, R.36, 37): 2C;
- 17 (51) Irish Creek, (T.129, R.31): 2C;
- 18 (52) Iron Creek, (T.135, R.32): 2C;
- 19 (53) Jewett Creek, (T.119, 120, R.30, 31): 2C;
- 20 (54) Johnson Creek, (T.137, R.28): 2C;
- 21 (55) Judicial Ditch No. 1, Lakeside, Lakeside
22 Coop Cry., (T.116, R.31, S.28, 33): 7;
- 23 (56) Judicial Ditch No. 15, Buffalo Lake, Iowa
24 Pork Industries, Hector, (T.115, R.31, S.15, 16, 20, 21, 29, 30;
25 T.115, R.32, S.22, 25, 26, 27, 28, 32, 33): 7;
- 26 (57) Kettle Creek, (T.138, R.35, 36, 37): 2C;
- 27 (58) Kitchi Creek, (T.146, 147, R.29, 30): 2C;
- 28 (59) Kitten Creek, (T.137, R.34, 35): 2C;
- 29 (60) LaSalle Creek (excluding trout waters),
30 (T.143, 144, R.35): 2C;
- 31 (61) LaSalle River, (T.144, 145, R.35): 2C;
- 32 (62) Laura Brook, (T.141, R.26): 2C;
- 33 (63) Meadow Creek, (T.128, R.30): 2C;
- 34 (64) Mike Drew Brook, (T.38, 39, R.26, 27): 2C;
- 35 (65) Mink Creek, Big, (T.41, 42, R.30, 31): 2C;
- 36 (66) Mink Creek, Little, (T.41, 42, R.29, 30,

- 1 31): 2C;
- 2 (67) *Mississippi River, [11/5/84R] (From Lake
3 Itasca to Fort Ripley): 2B, 3B;
- 4 (68) *Mississippi River, [11/5/84R] (From Fort
5 Ripley to the southerly ~~border~~ boundary of Morrison County):
6 1C, 2Bd, 3B;
- 7 (69) Mississippi River, (From the southerly
8 boundary of Morrison County to County State Aid Highway 7 bridge
9 in Saint Cloud): 1C, 2Bd, 3B;
- 10 (70) *Mississippi River, [11/5/84R] (County
11 State Aid Highway 7 bridge in Saint Cloud to the northwestern
12 city limits of Anoka): 1C, 2Bd, 3B;
- 13 (71) Mississippi River, (From the northwestern
14 city limits of Anoka to the Upper Lock and Dam at Saint Anthony
15 Falls in Minneapolis): 1C, 2Bd, 3B;
- 16 (72) Mississippi River, (Outlet of Metro
17 Wastewater Treatment Works in Saint Paul to river mile 830, Rock
18 Island RR Bridge): 2C, 3B;
- 19 (73) Northby Creek, (T.140, R.27): 2C;
- 20 (74) Norway Brook, (T.139, R.30): 2C;
- 21 (75) O'Brien Creek, (T.56, 57, R.22): 2C;
- 22 (76) O'Neill Brook, (T.38, R.26): 2C;
- 23 (77) Oak Ridge Creek (Oak Creek), (T.133, 134,
24 R.36): 2C;
- 25 (78) Pigeon River, (T.147, R.27): 2C;
- 26 (79) Pike Creek (~~except~~ excluding Class 7
27 segment), (T.129, R.30): 2C;
- 28 (80) Pike Creek, Flensburg, (T.129, R.30, S.17,
29 18, 19, 20): 7;
- 30 (81) Pillager Creek, (T.133, R.30): 2C;
- 31 (82) Pioneer Creek, (T.118, R.24): 2C;
- 32 (83) Prairie Brook, (T.36, R.27): 2C;
- 33 (84) Rat Creek, (T.144, 145, R.34): 2C;
- 34 (85) Rice Creek, (T.30, 31, 32, R.22, 23, 24):
35 1C, 2Bd, 3B;
- 36 (86) Rice Creek, (T.35, R.29): 2C;

- 1 (87) *Rum River, [11/5/84P] (From the Ogechie
2 Lake spillway to the northernmost confluence with Lake Onamia):
3 2B, 3B;
- 4 (88) *Rum River, [11/5/84R] (From the State
5 Highway 27 bridge in Onamia to Madison and Rice Streets in
6 Anoka): 2B, 3B;
- 7 (89) Seven Mile Creek, (T.133, 134, R.30, 31):
8 2C;
- 9 (90) Six Mile Brook, (T.143, 144, R.26, 27):
10 2C;
- 11 (91) Skimmerhorn Creek, (T.149, R.30): 2C;
- 12 (92) Skunk Creek, (T.144, R.34): 2C;
- 13 (93) Skunk River (Co. Dt. No. 37) (Co. Dt. No.
14 29), Brooten, (T.123, R.35, S.4, 5, 9; T.123, R.35, S.9, 10, 11,
15 12; T.123, R.34, S.3, 4, 5, 6, 7, 8): 7;
- 16 (94) Snowball Creek, (T.56, R.23): 2C;
- 17 (95) Split Hand Creek, (T.53, R.24): 2C;
- 18 (96) Stag Brook, (T.121, 122, R.30, 31): 2C;
- 19 (97) Stanchfield Brook, Lower Braham, (T.37,
20 R.23, S.3, 10, 15, 22): 7;
- 21 (98) Stocking Creek, (T.138, R.35): 2C;
- 22 (99) Stony Brook (Stoney Brook), Foley, (T.36,
23 R.29, S.2, 9, 10, 11, 16; T.37, R.29, S.35, 36): 7;
- 24 (100) Stony Creek, (T.140, R.28): 2C;
- 25 (101) Stony Point Brook, (T.147, R.28): 2C;
- 26 (102) Sucker Creek (Gould Creek) (excluding
27 trout waters), (T.143, 144, R.36): 2C;
- 28 (103) Swamp Creek, Big, (T.137, 138, 139, R.32,
29 33): 2C;
- 30 (104) Swamp Creek, Little, (T.136, 137, R.33):
31 2C;
- 32 (105) Swan Creek, (T.134, 135, R.32): 2C;
- 33 (106) Swan Creek, Little, (T.135, R.32): 2C;
- 34 (107) Swift River, (T.142, R.27): 2C;
- 35 (108) Taylor Creek, (T.128, R.31): 2C;
- 36 (109) Ted Brook Creek, (T.130, R.31): 2C;

- 1 (110) Tibbits Brook, (T.33, 34, R.26, 27): 2C;
2 (111) Tibbetts Creek (Tibbetts Brook), (T.39,
3 40, R.27, 28): 2C;
4 (112) Tower Creek, (T.135, R.32, 33): 2C;
5 (113) Two Rivers, South Branch, Albany, (T.125,
6 R.31, S.21, 22, 23): 7;
7 (114) Unnamed Creek, Calumet, (T.56, R.23,
8 S.21): 7;
9 (115) Unnamed Creek, Hiller Mobile Home Court,
10 (T.119, R.26, S.22, 26, 27, 35): 7;
11 (116) Unnamed Creek, Grove City, (T.120, R.32,
12 S.34, 35, 36): 7;
13 (117) Unnamed Creek, Albertville, (T.121, R.23,
14 S.30; T.121, R.24, S.25, 36): 7;
15 (118) Unnamed Creek, Eden Valley, Ruhland Feeds,
16 (T.121, R.31, S.2; T.122, R.31, S.35): 7;
17 (119) Unnamed Creek, Lake Henry, (T.123, R.33,
18 S.11, 14): 7;
19 (120) Unnamed Creek, Miltona, (T.129, R.36, S.6;
20 T.130, R.36, S.30, 31): 7;
21 (121) Unnamed Ditch, Braham, (T.37, R.23, S.2,
22 3): 7;
23 (122) Unnamed Ditch, Ramey, Ramey Farmers Coop
24 Cry., (T.38, R.28, S.4, 5; T.39, R.28, S.29, 30, 32; T.39, R.29,
25 S.25, 26, 27, 28): 7;
26 (123) Unnamed Ditch, McGregor, (T.48, R.23,
27 S.31, 32): 7;
28 (124) Unnamed Ditch, Nashwauk, (T.56, R.22, S.4,
29 5; T.57, R.22, S.32): 7;
30 (125) Unnamed Ditch, Taconite, (T.56, R.24,
31 S.22): 7;
32 (126) Unnamed Ditch, Glencoe, Green Giant,
33 (T.115, R.28, S.21, 22, 27, 28): 7;
34 (127) Unnamed Ditch, Glencoe, Green Giant,
35 (T.115, R.28, S.14, 23): 7;
36 (128) Unnamed Ditch, Winsted, Green Giant,

- 1 (T.117, R.27, S.10, 11): 7;
 2 (129) Unnamed Ditch, Hiller Mobile Home Court,
 3 (T.119, R.26, S.34, 35): 7;
 4 (130) Unnamed Ditch, Kandiyohi, (T.119, R.34,
 5 S.10, 15, 21, 22, 28, 29, 32): 7;
 6 (131) Unnamed Ditch, Belgrade, (T.123, R.34,
 7 S.19, 30): 7;
 8 (132) Unnamed Ditch, Flensburg, (T.129, R.30,
 9 S.30; T.129, R.31, S.25): 7;
 10 (133) Unnamed Ditch, Miltona, (T.130, R.36,
 11 S.30; T.130, R.37, S.25, 36): 7;
 12 (134) Unnamed Stream, Winsted, (T.117, R.27,
 13 S.11, 12): 7;
 14 (135) Unnamed Stream, Flensburg, (T.129, R.30,
 15 S.19, 30): 7;
 16 (136) Vandell Brook, (T.37, 38, R.26): 2C;
 17 (137) Welcome Creek, (T.56, 57, R.22): 2C;
 18 (138) Whitney Brook, (T.39, R.26, 27): 2C;
 19 (139) Willow River, North Fork, (T.142, R.25):
 20 2C;
 21 (140) Willow River, South Fork, (T.142, R.25):
 22 2C;
 23 (141) Wilson Creek, (T.137, R.30): 2C;
 24 (142) Wolf Creek, (T.42, R.30): 2C;
 25 (143) *Itasca Wilderness Sanctuary, [11/5/84P]
 26 (Waters within the Itasca Wilderness Sanctuary, Clearwater
 27 County, T.143, R.36): 2B, 3B;
 28 (144) *Iron Springs Bog, [11/5/84P] (Waters
 29 within the Iron Springs Bog Scientific and Natural Area,
 30 Clearwater County, T.144, R.36): 2B, 3B;
 31 (145) *Pennington Bog, [11/5/84P] (Waters within
 32 the Pennington Bog Scientific and Natural Area, Beltrami County,
 33 T.146, R.30): 2B, 3B; and
 34 (146) *Wolsfeld Woods, [11/5/84P] (Waters within
 35 the Wolsfeld Woods Scientific and Natural Area, Hennepin County,
 36 T.118, R.23): 2B, 3B.

- 1 B. Lakes:
- 2 (1) Bald Eagle Lake, (T.30, 31, R.21, 22): 1C,
- 3 2Bd, 3B;
- 4 (2) Benedict Lake, (T.142, R.32): 1B, 2A, 3B;
- 5 (3) *Blue Lake, [3/7/88R] (T.46, 47, R.27): 1B,
- 6 2A, 3B;
- 7 (4) *Blue Lake, [3/7/88R] (T.141, R.34): 1B,
- 8 2A, 3B;
- 9 (5) *Bluewater Lake, [3/7/88R] (T.57, R.25):
- 10 1B, 2A, 3B;
- 11 (6) Centerville Lake, (T.31, R.22): 1C, 2Bd,
- 12 3B;
- 13 (7) Charley Lake, (T.30, R.23): 1C, 2Bd, 3B;
- 14 (8) Deep Lake, (T.30, R.22): 1C, 2Bd, 3B;
- 15 (9) Hay Lake, Lower, (T.137, R.28, 29): 1B, 2A,
- 16 3B;
- 17 (10) *Kabekona Lake, [3/7/88R] (T.142, 143,
- 18 R.32, 33): 1B, 2A, 3B;
- 19 (11) Kennedy Lake, (T.58, R.23): 1B, 2A, 3B;
- 20 (12) LaSalle Lake, Lower, (T.145, R.35): 1B,
- 21 2A, 3B;
- 22 (13) Otter Lake, (T.30, 31, R.22): 1C, 2Bd, 3B;
- 23 (14) Pleasant Lake, (T.30, R.22, 23): 1C, 2Bd,
- 24 3B;
- 25 (15) *Pokegama Lake, [3/7/88R] (T.54, 55, R.25,
- 26 26): 1B, 2A, 3B;
- 27 (16) *Roosevelt Lake, [3/7/88R] (T.138, 139,
- 28 R.26): 1B, 2A, 3B;
- 29 (17) Sucker Lake, (T.30, R.22): 1C, 2Bd, 3B;
- 30 (18) *Trout Lake, [3/7/88R] (T.55, 56, R.24):
- 31 1B, 2A, 3B;
- 32 (19) *Trout Lake, Big, [3/7/88R] (T.57, 58,
- 33 R.25): 1B, 2A, 3B;
- 34 (20) *Trout Lake, Big, [3/7/88R] (T.137, 138,
- 35 R.27, 28): 1B, 2A, 3B;
- 36 (21) *Trout Lake, Little, [3/7/88R] (T.57,

1 R.25): 1B, 2A, 3B;

2 (22) Unnamed Swamp, Flensburg, (T.129, R.31,

3 S.25): 7;

4 (23) Unnamed Slough, Miltona, (T.130, R.37,

5 S.26, 35, 36): 7;

6 (24) Unnamed Swamp, Staples, (T.133, R.33, S.1):

7 7;

8 (25) Unnamed Swamp, Taconite, (T.56, R.24, S.22):

9 7;

10 (26) Vadnais Lake, (T.30, R.22): 1C, 2Bd, 3B;

11 (27) Wabana Lake, (T.57, R.25): 1B, 2A, 3B;

12 (28) Watab Lake, Big, (T.124, R.30): 1B, 2A,

13 3B; and

14 (29) Wilkinson Lake, (T.30, R.22): 1C, 2Bd, 3B.

15 Subp. 5. **Minnesota River Basin.** The water use

16 classifications for the listed waters in the Minnesota River

17 Basin are as identified in items A, B, and C:

18 A. Streams:

19 (1) Altermatts Creek (County Ditch No. 39),

20 Comfrey, (T.108, R.33, S.17, 19, 20, 30; T.108, R.34, S.24, 25,

21 35, 36): 7;

22 (2) Badger Creek, (T.101, 102, R.28): 2C;

23 (3) Beaver Creek, East Fork (County Ditch No.

24 63), Olivia, Olivia Canning Company, (T.115, R.34, S.1, 2, 3, 4,

25 5, 6; T.115, R.35, S.1, 12, 13, 14, 23, 24, 25, 26; T.116, R.34,

26 S.16, 20, 21, 28, 29, 30, 32, 33, 34, 35): 7;

27 (4) Blue Earth River, East Fork, (Brush Creek to

28 mouth): 2C, 3B;

29 (5) Blue Earth River, West Fork, (Iowa border to

30 mouth): 2C, 3B;

31 (6) Boiling Spring Creek (excluding Class 7

32 segment), (T.113, 114, R.37, 38): 2C;

33 (7) Boiling Springs Creek (County Ditch No. 1B),

34 Echo, (T.113, R.38, S.5, 8; T.114, R.37, S.19, 30; T.114, R.38,

35 S.25, 26, 27, 32, 33, 34): 7;

36 (8) Boot Creek (excluding Class 7 segment),

- 1 (T.105, 106, R.22, 23): 2C;
- 2 (9) Boot Creek, New Richland, (T.105, R.22, S.6,
- 3 7; T.105, R.23, S.12, 13, 24): 7;
- 4 (10) Brafees Creek, (T.116, 117, R.40): 2C;
- 5 (11) Brush Creek, (Iowa border to mouth): 2C,
- 6 3B;
- 7 (12) Bull Run Creek, Little, (T.106, R.24, 25):
- 8 2C;
- 9 (13) Butterfield Creek, (T.106, 107, R.31, 32,
- 10 33): 2C;
- 11 (14) Canby Creek (excluding trout waters),
- 12 (South Dakota border to mouth): 2C, 3B;
- 13 (15) Cedar Run Creek, (T.103, 104, R.32, 33):
- 14 2C;
- 15 (16) Cherry Creek, Cleveland, (T.110, R.25, S.7,
- 16 8, 16, 17; T.110, R.26, S.12): 7;
- 17 (17) Chetomba Creek (exluding Class 7 segment),
- 18 (T.116, 117, R.36, 37, 38): 2C;
- 19 (18) Chetomba Creek, Prinsburg, (T.116, R.36,
- 20 S.6, 7, 18, 19; T.116, R.37, S.8, 9, 14, 15, 16, 23, 24; T.117,
- 21 R.36, S.8, 9, 16, 17, 21, 28, 29, 30, 31, 32): 7;
- 22 (19) Cobb Creek, Freeborn, (T.104, R.23, S.7, 8,
- 23 17; T.104, R.24, S.11, 12): 7;
- 24 (20) Cobb Creek Ditch, Freeborn, (T.103, R.23,
- 25 S.2; T.104, R.23, S.14, 15, 16, 23, 26, 35): 7;
- 26 (21) Cobb River, Big, (T.104, 105, 106, 107,
- 27 R.23, 24, 25, 26): 2C;
- 28 (22) Cobb River, Little, (T.105, 106, R.23, 24,
- 29 25, 26): 2C;
- 30 (23) Cottonwood Creek (excluding trout waters),
- 31 (T.119, 120, 121, R.41, 42): 2C;
- 32 (24) County Ditch No. 1, Echo, (T.113, R.38,
- 33 S.8, 9): 7;
- 34 (25) County Ditch No. 4, Arco, (T.110, R.44,
- 35 S.5; T.111, R.44, S.32, 33): 7;
- 36 (26) County Ditch No. 4, Norwood, (T.115, R.25,

- 1 S.30; T.115, R.26, S.13, 14, 24, 25): 7;
- 2 (27) County Ditch No. 5, Marietta, (T.117, R.45,
3 S.6, 7, 18; T.117, R.46, S.1; T.118, R.46, S.23, 25, 26, 36):
4 7;
- 5 (28) County Ditch No. 6 (Judicial Ditch No. 11),
6 Janesville, (T.107, R.24, S.4, 8, 9, 17, 18; T.107, R.25,
7 S.13): 7;
- 8 (29) County Ditch No. 7, Lowry, (T.126, R.39,
9 S.25, 26): 7;
- 10 (30) County Ditch No. 12 (County Ditch No. 45),
11 Waseca, (T.107, R.23, S.22, 23): 7;
- 12 (31) County Ditch No. 12 (Rice Creek), Belview,
13 (T.113, R.36, S.7, 8, 18, 19; T.113, R.37, S.15, 21, 22, 23,
14 24): 7;
- 15 (32) County Ditch No. 14, Tyler, (T.109, R.43,
16 S.18; T.109, R.44, S.2, 3, 11, 13, 14; T.110, R.44, S.33, 34):
17 7;
- 18 (33) County Ditch No. 22, Montgomery, Green
19 Giant Company, (T.111, R.23, S.4, 9, 10; T.112, R.23, S.33): 7;
- 20 (34) County Ditch No. 27, Madison, (T.117, R.43,
21 S.3, 4, 5, 6; T.117, R.44, S.1; T.118, R.43, S.34; T.118, R.44,
22 S.35, 36): 7;
- 23 (35) County Ditch No. 28, Marietta, (T.118,
24 R.46, S.22, 23, 26): 7;
- 25 (36) County Ditch No. 38, Storden, (T.107, R.37,
26 S.28, 29): 7;
- 27 (37) County Ditch No. 40A, Lafayette, (T.111,
28 R.29, S.8, 14, 15, 16, 17, 23, 24): 7;
- 29 (38) County Ditch No. 42, Winthrop, (T.112,
30 R.29, S.6, 7): 7;
- 31 (39) County Ditch No. 44, Bricelyn, Owatonna
32 Canning Company, (T.101, R.25, S.7, 8, 16, 17; T.101, R.26, S.1,
33 12; T.102, R.26, S.36): 7;
- 34 (40) County Ditch No. 45, Renville, (T.114,
35 R.36, S.5, 6, 7, 18; T.114, R.37, S.13; T.115, R.36, S.7, 18,
36 19, 29, 30, 32): 7;

- 1 (41) County Ditch No. 46, Willmar, (T.119, R.35,
2 S.19, 20, 29): 7;
- 3 (42) County Ditch No. 51, Le Center, (T.110,
4 R.24, S.5, 6; T.111, R.24, S.31, 32; T.111, R.25, S.26, 35, 36):
5 7;
- 6 (43) County Ditch No. 54, Montgomery, (T.112,
7 R.23, S.26, 33, 34, 35): 7;
- 8 (44) County Ditch No. 60 (Chippewa River),
9 Millerville, Millerville Coop Cry., (T.130, R.39, S.14, 22, 23,
10 27, 28, 32, 33): 7;
- 11 (45) County Ditch No. 61, Kerhoven, (T.120,
12 R.37, S.21, 22): 7;
- 13 (46) County Ditch No. 63, Hanska, (T.108, R.30,
14 S.11, 12, 14, 17, 18, 19, 20, 21, 22, 23, 27, 28): 7;
- 15 (47) County Ditch No. 66, Bird Island, (T.115,
16 R.34, S.15, 16, 17, 18, 22, 23): 7;
- 17 (48) County Ditch No. 87, Wells, (T.103, R.24,
18 S.6; T.104, R.24, S.31; T.104, R.25, S.36): 7;
- 19 (49) County Ditch No. 104, Sacred Heart, (T.114,
20 R.38, S.1, 2; T.115, R.37, S.7, 18; T.115, R.38, S.13, 24, 25,
21 35, 36): 7;
- 22 (50) County Ditch No. 109, Morgan, (T.111, R.34,
23 S.4, 5, 8, 17; T.112, R.34, S.22, 23, 27, 28, 33): 7;
- 24 (51) Crow Creek, (T.112, R.35): 2C;
- 25 (52) Dry Creek, (T.108, 109, R.36): 2C;
- 26 (53) Dry Weather Creek, (T.117, 118, R.39, 40,
27 41): 2C;
- 28 (54) Dry Wood Creek, (T.122, R.42, 43): 2C;
- 29 (55) Echo Creek, (T.114, R.37): 2C;
- 30 (56) Eight Mile Creek, (T.111, 112, 113, R.31):
31 2C;
- 32 (57) Elm Creek, North Fork, (T.104, R.34): 2C;
- 33 (58) Elm Creek, South Fork, (T.103, R.34): 2C;
- 34 (59) Emily Creek, (T.118, 119, R.43): 2C;
- 35 (60) Fish Creek, (T.123, 124, R.47, 48): 2C;
- 36 (61) Five Mile Creek, (T.120, R.44): 2C;

- 1 (62) Florida Creek, (South Dakota border to
2 mouth): 2C, 3B;
- 3 (63) Foster Creek (excluding Class 7 segment),
4 (T.102, 103, R.24): 2C;
- 5 (64) Foster Creek, Alden, (T.103, R.23, S.31;
6 T.103, R.24, S.25, 36): 7;
- 7 (65) Hassel Creek, (T.122, 123, R.38, 39): 2C;
- 8 (66) Hawk Creek (County Ditch No. 10),
9 Willmar/Pennock, (T.118, R.36, S.2, 3, 8, 10, 15, 16, 17, 18,
10 19; T.118, R.37, S.5, 6, 7, 8, 9, 14, 15, 16, 18, 19, 23, 24,
11 30, 31; T.119, R.35, S.19; T.119, R.36, S.24, 25, 26, 35): 7;
- 12 (67) Hazel Run, (T.115, R.39, 40, 41, 42): 2C;
- 13 (68) Iosco Creek, (T.108, R.23): 2C;
- 14 (69) Judicial Ditch No. 1, Delavan, (T.104,
15 R.27, S.23, 25, 26, 36): 7;
- 16 (70) Judicial Ditch No. 1A, Lafayette, (T.111,
17 R.27, S.5, 6, 7; T.111, R.28, S.10, 11, 12, 15, 16, 17, 18, 19;
18 T.111, R.29, S.24): 7;
- 19 (71) Judicial Ditch No. 5, Murdock, (T.120,
20 R.38, S.4, 5, 6, 9, 10, 11; T.120, R.39, S.1, 4, 9, 10, 11, 12):
21 7;
- 22 (72) Judicial Ditch No. 6, Hanska, (T.107, R.30,
23 S.4; T.108, R.30, S.28, 33): 7;
- 24 (73) Judicial Ditch No. 10, Hanska, (T.108,
25 R.30, S.1; T.109, R.30, S.35, 36): 7;
- 26 (74) Judicial Ditch No. 12, Tyler, (T.109, R.43,
27 S.9, 15, 16, 17, 18): 7;
- 28 (75) Judicial Ditch No. 29, Arco, (T.111, R.44,
29 S.21, 28, 33): 7;
- 30 (76) Judicial Ditch No. 30, Sleepy Eye, Del
31 Monte Corporation, (T.109, R.32, S.4, 5, 6; T.110, R.32, S.31):
32 7;
- 33 (77) Judicial Ditch No. 49 (Providence Creek),
34 Amboy, (T.105, R.27, S.18, 19; T.105, R.28, S.13): 7;
- 35 (78) Lac qui Parle River, (Lake Hendricks outlet
36 to Minnesota River): 2C, 3B;

- 1 (79) Lac qui Parle River, West Fork, (South
2 Dakota border to mouth): 2C, 3B;
- 3 (80) Lazarus Creek, (South Dakota border to
4 Canby Creek): 2C, 3B;
- 5 (81) Le Sueur River, Little, (T.106, R.22): 2C;
- 6 (82) Lone Tree Creek, Tracy, (T.109, R.39, S.2,
7 3, 4, 7, 8, 9; T.110, R.38, S.19, 20, 30; T.110, R.39, S.25, 34,
8 35, 36): 7;
- 9 (83) Middle Creek, (T.113, 114, R.36): 2C;
- 10 (84) Mink Creek, (T.104, R.30, 31): 2C;
- 11 (85) Minneopa Creek, Lake Crystal, (T.108, R.28,
12 S.26, 27, 32, 33, 34): 7;
- 13 (86) Minnesota River, (Big Stone Lake outlet to
14 the Lac qui Parle dam): 1C, 2Bd, 3B;
- 15 (87) *Minnesota River, [11/5/84R] (Lac qui Parle
16 dam to Granite Falls): 1C, 2Bd, 3B;
- 17 (88) *Minnesota River, [11/5/84R] (Granite Falls
18 to Redwood County State Aid Highway 11 bridge): 2B, 3B;
- 19 (89) Minnesota River, (River Mile 22 to mouth):
20 2C, 3B;
- 21 (90) Minnesota River, Little, (South Dakota
22 border crossing to Big Stone Lake): 2C, 3B;
- 23 (91) Morgan Creek, (T.109, R.29, 30): 2C;
- 24 (92) Mud Creek, (T.114, R.43, 44, 45): 2C;
- 25 (93) Mud Creek, DeGraff/Murdock, (T.121, R.37,
26 S.31; T.121, R.38, S.18, 19, 20, 28, 29, 33, 34, 35, 36; T.121,
27 R.39, S.11, 12, 13): 7;
- 28 (94) Muddy Creek (Mud Creek) (County Ditch No.
29 2) (County Ditch No. 4), Chokio, (T.124, R.42, S.6, 7, 15, 16,
30 17, 18, 21, 22, 23; T.124, R.43, S.1, 4, 5, 6, 7, 8; T.124,
31 R.44, S.1, 2, 3, 12; T.125, R.43, S.34, 35, 36): 7;
- 32 (95) Palmer Creek, (T.116, 117, 118, R.39): 2C;
- 33 (96) Pelican Creek, (T.130, R.41, 42): 2C;
- 34 (97) Pell Creek, Walnut Grove, (T.109, R.38,
35 S.25, 26, 27, 28): 7;
- 36 (98) Perch Creek, (T.104, 105, 106, R.29, 30):

- 1 2C;
- 2 (99) Rice Creek, See County Ditch No. 12;
- 3 (100) Rush River, Middle Branch, Winthrop,
- 4 (T.112, R.27, S.16, 19, 20, 21, 30; T.112, R.28, S.18, 19, 20,
- 5 21, 22, 25, 26, 27; T.112, R.29, S.7, 8, 9, 13, 14, 15, 16, 17,
- 6 18): 7;
- 7 (101) Saint James Creek (excluding Class 7
- 8 segment), (T.105, 106, R.31, 32, 33): 2C;
- 9 (102) Saint James Creek, Saint James, (T.106,
- 10 R.31, S.5, 7, 8, 18; T.107, R.31, S.21, 22, 28, 32, 33): 7;
- 11 (103) Shakopee Creek, (T.119, 120, R.36, 37, 38,
- 12 39, 40): 2C;
- 13 (104) Silver Creek, (T.108, R.23, 24): 2C;
- 14 (105) Smith Creek, (T.113, R.35, 36): 2C;
- 15 (106) South Creek, (T.102, 103, R.28, 29, 30):
- 16 2C, 3B;
- 17 (107) Spring Branch Creek, (T.106, R.29, 30):
- 18 2C;
- 19 (108) Spring Creek, (T.110, 111, R.32, 33, 34):
- 20 2C;
- 21 (109) Spring Creek, (T.117, R.40): 2C;
- 22 (110) Stony Run, (T.121, 122, R.45, 46): 2C;
- 23 (111) Stony Run Creek, (T.116, R.40): 2C;
- 24 (112) Three Mile Creek, (T.112, R.33): 2C;
- 25 (113) Timms Creek, (T.114, 115, R.36): 2C;
- 26 (114) Unnamed Creek, Green Isle, (T.114, R.26,
- 27 S.2, 3, 4, 8, 9, 17): 7;
- 28 (115) Unnamed Creek, Pennock, (T.118, R.37, S.2,
- 29 3, 4, 5; T.119, R.36, S.4, 5, 6, 7, 18, 19; T.119, R.37, S.24,
- 30 25, 26, 35): 7;
- 31 (116) Unnamed Creek, Murdock, (T.120, R.38, S.1,
- 32 2; T.121, R.38, S.35): 7;
- 33 (117) Unnamed Ditch, Burnsville Freeway Sanitary
- 34 Landfill, (T.27, R.24, S.28, 33): 7;
- 35 (118) Unnamed Ditch, Bricelyn, Owatonna Canning
- 36 Company, (T.101, R.25, S.10): 7;

- 1 (119) Unnamed Ditch, Alden, (T.102, R.23, S.4,
2 5; T.103, R.23, S.31, 32): 7;
- 3 (120) Unnamed Ditch, Truman, (T.104, R.30, S.2,
4 11; T.105, R.30, S.25, 26, 35): 7;
- 5 (121) Unnamed Ditch (County Ditch No. 47), New
6 Richland, (T.105, R.22, S.17, 18, 19; T.105, R.23, S.24): 7;
- 7 (122) Unnamed Ditch, Lewisville, (T.105, R.30,
8 S.3; T.106, R.30, S.14, 23, 26, 34, 35): 7;
- 9 (123) Unnamed Ditch, Waldorf, (T.106, R.24,
10 S.34): 7;
- 11 (124) Unnamed Ditch (County Ditch No. 45),
12 Waseca, (T.107, R.23, S.14, 23): 7;
- 13 (125) Unnamed Ditch, Jeffers, (T.107, R.36,
14 S.21): 7;
- 15 (126) Unnamed Ditch, Storden, (T.107, R.37,
16 S.19, 30): 7;
- 17 (127) Unnamed Ditch, Eagle Lake, (T.108, R.25,
18 S.18, 19; T.108, R.26, S.13): 7;
- 19 (128) Unnamed Ditch, Walnut Grove, (T.109, R.38,
20 S.28): 7;
- 21 (129) Unnamed Ditch, Tracy, (T.109, R.39, S.18;
22 T.109, R.40, S.13): 7;
- 23 (130) Unnamed Ditch, Wabasso, (T.110, R.36, S.3;
24 T.111, R.36, S.18, 19, 20, 28, 29, 33, 34; T.111, R.37, S.13):
25 7;
- 26 (131) Unnamed Ditch, Lafayette, (T.111, R.29,
27 S.6, 7, 8; T.111, R.30, S.12): 7;
- 28 (132) Unnamed Ditch, Wabasso, (T.111, R.37,
29 S.13, 24): 7;
- 30 (133) Unnamed Ditch, Montgomery, (T.112, R.23,
31 S.33): 7;
- 32 (134) Unnamed Ditch, Near Fernando, Round Grove
33 Coop Cry., (T.113, R.30, S.5; T.114, R.29, S.19, 20, 30; T.114,
34 R.30, S.25, 26, 27, 28, 29, 32): 7;
- 35 (135) Unnamed Ditch, Green Isle, (T.114, R.26,
36 S.19; T.114, R.27, S.11, 12, 13, 14, 24): 7;

- 1 (136) Unnamed Ditch, Porter, (T.114, R.44, S.21,
2 28): 7;
- 3 (137) Unnamed Ditch, Bongards, Bongards
4 Creameries, (T.115, R.25, S.9, 16): 7;
- 5 (138) Unnamed Ditch, Clarkfield, (T.115, R.41,
6 S.16): 7;
- 7 (139) Unnamed Ditch, Clarkfield, (T.115, R.41,
8 S.16, 21): 7;
- 9 (140) Unnamed Ditch, Madison, (T.118, R.44,
10 S.27, 28, 34, 35): 7;
- 11 (141) Unnamed Ditch, Pennock, (T.119, R.36, S.2,
12 3, 4, 9, 10): 7;
- 13 (142) Unnamed Ditch, DeGraff, (T.121, R.38,
14 S.19, 29, 30): 7;
- 15 (143) Unnamed Ditch, Hancock, (T.122, R.40, S.6;
16 T.122, R.41, S.1, 12; T.123, R.40, S.18, 19, 30, 31; T.123,
17 R.41, S.11, 12): 7;
- 18 (144) Unnamed Ditch, Alberta, (T.124, R.43, S.3,
19 4): 7;
- 20 (145) Unnamed Ditch, Farwell, Farwell Coop Cry.
21 Assn., (T.126, R.39, S.6): 7;
- 22 (146) Unnamed Ditch, Lowry, (T.126, R.39, S.26,
23 35): 7;
- 24 (147) Unnamed Ditch, Brandon, (T.129, R.39,
25 S.21, 22): 7;
- 26 (148) Unnamed Ditch, Evansville, (T.129, R.40,
27 S.10, 11): 7;
- 28 (149) Unnamed Dry Run, Near Minneopa, Blue Earth
29 - Nicollet Electric, (T.108, R.27, S.16): 7;
- 30 (150) Unnamed Dry Run, Mankato, Southview
31 Heights Coop Association, (T.108, R.26, S.19, 30; T.108, R.27,
32 S.24): 7;
- 33 (151) Unnamed Stream, Mankato, Midwest Electric
34 Products, (T.109, R.26, S.20, 21, 28): 7;
- 35 (152) Unnamed Stream, Savage, (T.115, R.21, S.8,
36 9): 7;

- 1 (153) Unnamed Stream, Dawson, Dawson Mills Soy
 2 Isolate, (T.117, R.43, S.22): 7;
- 3 (154) Wabasha Creek, (T.112, R.34): 2C;
- 4 (155) Whetstone River, (South Dakota border to
 5 mouth): 2C, 3B;
- 6 (156) Old Whetstone River Channel, Ortonville,
 7 Big Stone Canning Company, (T.121, R.46, S.16, 21): 7;
- 8 (157) Willow Creek, (T.104, 105, R.31, 32): 2C;
- 9 (158) Wood Lake Creek, (T.113, 114, R.38, 39):
 10 2C;
- 11 (159) Yellow Bank River, North Fork, (South
 12 Dakota border to mouth): 2C, 3B;
- 13 (160) Yellow Bank River, South Fork, (South
 14 Dakota border to mouth): 2C, 3B; and
- 15 (161) Yellow Medicine River, North Fork, (South
 16 Dakota border to mouth): 2C, 3B.
- 17 B. Lakes:
- 18 (1) Amber Lake, (T.102, R.30): 1C, 2Bd, 3B;
- 19 (2) Bardwell Lake, (T.102, R.30): 1C, 2Bd, 3B;
- 20 (3) Budd Lake, (T.102, R.30): 1C, 2Bd, 3B;
- 21 (4) George Lake, (T.102, R.30): 1C, 2Bd, 3B;
- 22 (5) Hall Lake, (T.102, R.30): 1C, 2Bd, 3B;
- 23 (6) Mud Lake, (T.102, R.30): 1C, 2Bd, 3B;
- 24 (7) One Hundred Acre Slough, Saint James,
 25 (T.106, R.31, S.7): 7;
- 26 (8) Silver Lake, North, (T.101, R.30): 1C, 2Bd,
 27 3B;
- 28 (9) Sisseton Lake, (T.102, R.30): 1C, 2Bd, 3B;
- 29 (10) Unnamed Marsh, Barry, (T.124, R.47, S.8):
 30 7;
- 31 (11) Unnamed Slough, Kensington, (T.127, R.40,
 32 S.34): 7;
- 33 (12) Unnamed Slough, Brandon, (T.129, R.39,
 34 S.21, 22): 7;
- 35 (13) Unnamed Swamp, Minnesota Lake, (T.104,
 36 R.25, S.3, 4): 7;

1 (14) Unnamed Swamp, Storden, (T.107, R.37, S.30):
2 7;

3 (15) Unnamed Swamp, Sunburg, Sunburg Coop Cry.,
4 (T.122, R.36, S.30): 7;

5 (16) Unnamed Swamp, Lowry, (T.126, R.39, S.35,
6 36): 7; and

7 (17) Wilmert Lake, (T.101, R.30): 1C, 2Bd, 3B.

8 C. Fens:

9 (1) *Blackdog Preserve, [3/7/88P] (Waters within
10 the Blackdog Preserve Scientific and Natural Area, Dakota
11 County, T.27, R.24, S.27, 34): 2B, 3B;

12 (2) *Fish Hatchery fen, [3/7/88R] (T.110, R.26,
13 S.14): 2B, 3B;

14 (3) *Fort Ridgely fen, [3/7/88R] (T.111, R.32,
15 S.6): 2B, 3B;

16 (4) *Fort Snelling State Park fen, [3/7/88R]
17 (T.27, R.23, S.4): 2B, 3B;

18 (5) *Le Sueur fen, [3/7/88R] (T.111, R.26,
19 S.16): 2B, 3B;

20 (6) *Minnesota Valley fen, [3/7/88R] (T.27,
21 R.24, S.27, 34): 2B, 3B;

22 (7) *Nicols Meadow fen, [3/7/88R] (T.27, R.23,
23 S.18): 2B, 3B;

24 (8) *Ordway fen, [3/7/88R] (T.123, R.36, S.30):
25 2B, 3B;

26 (9) *St. Peter fen, [3/7/88R] (T.110, R.26,
27 S.11): 2B, 3B;

28 (10) *Savage fen, [3/7/88R] (T.115, R.21, S.16,
29 17): 2B, 3B;

30 (11) *Sioux Nation fen, [3/7/88R] (T.114, R.46,
31 S.17): 2B, 3B; and

32 (12) *Truman fen, [3/7/88R] (T.104, R.30, S.7):
33 2B, 3B.

34 Subp. 6. Saint Croix River Basin. The water use
35 classifications for the listed waters in the Saint Croix River
36 Basin are as identified in items A and B:

- 1 A. Streams:
- 2 (1) Bear Creek, (T.43, R.23, 24): 2C;
- 3 (2) Bergman Brook, (T.42, 43, R.23, 24): 2C;
- 4 (3) Groundhouse River, West Fork, (T.39, 40,
- 5 R.26): 2C;
- 6 (4) Hay Creek, (T.42, 43, 44, R.15, 16): 1B,
- 7 2Bd, 3B;
- 8 (5) *Kettle River, [11/5/84R] (From the north
- 9 Pine County line to the dam at Sandstone): 2B, 3B;
- 10 (6) *Kettle River, [11/5/84P] (From the dam at
- 11 Sandstone to its confluence with the Saint Croix River): 2B,
- 12 3B;
- 13 (7) King Creek, (T.47, R.19): 2C;
- 14 (8) Mission Creek (excluding trout waters),
- 15 (T.39, 40, 41, R.20, 21): 1B, 2Bd, 3B;
- 16 (9) Rock Creek, (T.37, 38, R.20, 21): 1B, 2Bd,
- 17 3B;
- 18 (10) Rush Creek, (T.37, R.20, 21): 1B, 2Bd, 3B;
- 19 (11) *Saint Croix River, [11/5/84R] (Wisconsin
- 20 border crossing to Taylors Falls): 1B, 2Bd, 3B;
- 21 (12) *Saint Croix River, [11/5/84R] (Taylors
- 22 Falls to mouth): 1C, 2Bd, 3B;
- 23 (13) Sunrise River, West Branch, (T.34, R.21,
- 24 22): 1B, 2Bd, 3B;
- 25 (14) Tamarack River, Lower, (Hay Creek to
- 26 mouth): 1B, 2Bd, 3B;
- 27 (15) Tamarack River, Upper (Spruce River),
- 28 (T.42, R.15, 16): 1B, 2Bd, 3B;
- 29 (16) Unnamed Ditch, Chisago City, (T.34, R.20,
- 30 S.19, 29, 30, 31, 32): 7;
- 31 (17) Unnamed Ditch, Almelund, Almelund Coop
- 32 Cry., (T.35, R.20, S.25): 7;
- 33 (18) Unnamed Ditch, Moose Lake, (T.46, R.19,
- 34 S.30): 7;
- 35 (19) Unnamed Dry Run, Wahkon, (T.41, R.25, S.3;
- 36 T.42, R.25, S.29, 32, 33, 34): 7;

1 (20) Unnamed Stream, Shafer, (T.34, R.19, S.32,
2 33, 34): 7; and

3 (21) *Kettle River, [11/5/84P] (Waters within
4 the Kettle River Scientific and Natural Area, Pine County, T.41,
5 R.20): 2B, 3B.

6 B. Lakes:

7 (1) *Grindstone Lake, [3/7/88R] (T.42, R.21):
8 1B, 2A, 3B;

9 (2) Unnamed Swamp, Shafer, (T.34, R.19, S.31,
10 32): 7; and

11 (3) *Boot Lake, [11/5/84P] (Waters within the
12 Boot Lake Scientific and Natural Area, Anoka County, T.33,
13 R.22): 2B, 3B.

14 Subp. 7. Lower Mississippi River Basin. The water use
15 classifications for the listed waters in the Lower Mississippi
16 River Basin are as identified in items A, B, and C:

17 A. Streams:

18 (1) Albany Creek, West, (T.110, 111, R.12, 13):
19 2C;

20 (2) Bear Creek (excluding trout waters), (T.107,
21 R.9): 2C;

22 (3) Brush Valley Creek, (T.104, R.5): 2C;

23 (4) *Cannon River, [11/5/84R] (From the northern
24 city limits of Faribault to its confluence with the Mississippi
25 River): 2B, 3B;

26 (5) Carters Creek, Wykoff, (T.103, R.12, S.4, 9,
27 15, 16, 22): 7;

28 (6) Chub Creek, North Branch, (T.112, 113,
29 R.19): 2C;

30 (7) Cold Creek, (T.110, 111, R.14): 2C;

31 (8) County Ditch No. 15, Kilkenny, (T.110, R.23,
32 S.22, 23): 7;

33 (9) Crane Creek, (T.107, 108, R.20, 21, 22):
34 2C;

35 (10) Dakota Creek, (T.105, R.5): 2C;

36 (11) Dry Creek, (T.108, R.12, 13): 2C;

- 1 (12) Dutch Creek, (T.112, R.20, 21): 2C;
- 2 (13) Gilmore Creek (excluding trout waters),
- 3 (T.107, R.7): 2C;
- 4 (14) Harkcom Creek, (T.108, R.16): 2C;
- 5 (15) Homer Creek, (T.106, R.6): 2C;
- 6 (16) Indian Spring Creek, (T.103, R.5): 2C;
- 7 (17) Judicial Ditch No. 1, Hayfield, (T.105,
- 8 R.17, S.4, 5; T.106, R.17, S.31, 32; T.106, R.18, S.25, 26, 27,
- 9 36): 7;
- 10 (18) King Creek, (T.111, R.11, 12): 2C;
- 11 (19) Long Creek, (T.108, 109, R.12): 2C;
- 12 (20) MacKenzie Creek, (T.108, 109, R.21): 2C;
- 13 (21) Mahoney Creek, (T.103, R.10): 2C;
- 14 (22) Mound Prairie Creek, (T.104, R.5): 2C;
- 15 (23) Mud Creek, (T.108, 109, R.20, 21): 2C;
- 16 (24) Pine Creek, (T.112, 113, R.17, 18): 2C;
- 17 (25) Pleasant Valley Creek, (T.106, 107, R.6,
- 18 7): 2C;
- 19 (26) Plum Creek, (T.108, R.15): 2C;
- 20 (27) Prairie Creek, (T.110, 111, 112, R.18, 19,
- 21 20): 2C;
- 22 (28) Riceford Creek, Mabel, (T.101, R.8, S.24,
- 23 25, 26): 7;
- 24 (29) Salem Creek, (T.106, R.15, 16): 2C;
- 25 (30) Shingle Creek, (T.109, 110, R.17): 2C;
- 26 (31) Silver Creek (excluding trout waters),
- 27 (T.104, 105, R.6): 2C;
- 28 (32) Silver Spring Creek, (T.108, 109, R.13):
- 29 2C;
- 30 (33) Snake Creek, (T.109, R.10): 2C;
- 31 (34) Sugar Creek (Sugarloaf Creek), (T.111, 112,
- 32 R.12, 13): 2C;
- 33 (35) Sullivan Creek, (T.103, R.5): 2C;
- 34 (36) Trout Brook (Mazeppa Creek), Goodhue,
- 35 (T.110, R.15, S.3, 4; T.111, R.15, S.28, 33, 34): 7;
- 36 (37) Trout Creek, Little, (T.106, R.5, 6): 2C;

- 1 (38) Trout Run Creek (Trout Creek) (excluding
2 trout waters), (T.104, 105, R.10): 2C;
- 3 (39) Unnamed Creek, Canton, (T.101, R.9, S.20):
4 7;
- 5 (40) Unnamed Creek, Byron, (T.107, R.15, S.17,
6 20, 29): 7;
- 7 (41) Unnamed Creek, Plainview, (T.108, R.11,
8 S.16, 17, 20, 21, 22, 27, 34): 7;
- 9 (42) Unnamed Creek, West Concord, (T.108, R.17,
10 S.17, 20, 21): 7;
- 11 (43) Unnamed Creek, Hayfield, (T.105, R.17, S.3,
12 4): 7;
- 13 (44) Unnamed Ditch, Claremont, (T.107, R.18,
14 S.27, 34): 7;
- 15 (45) Unnamed Ditch, Lonsdale, (T.112, R.22,
16 S.25, 35, 36): 7;
- 17 (46) Unnamed Ditch, Hampton, (T.113, R.18, S.5,
18 6; T.114, R.18, S.31): 7;
- 19 (47) Unnamed Dry Run, Altura, (T.107, R.9, S.7,
20 18): 7;
- 21 (48) Unnamed Dry Run, Owatonna, Owatonna Canning
22 Company, (T.107, R.20, S.6; T.107, R.21, S.1): 7;
- 23 (49) Unnamed Dry Run, Owatonna, Owatonna Canning
24 Company, (T.107, R.20, S.6; T.107, R.21, S.1): 7;
- 25 (50) Unnamed Stream, Dodge Center, Owatonna
26 Canning Company, (T.107, R.17, S.27, 34): 7; and
- 27 (51) Whitewater River, North Fork, Elgin,
28 (T.108, R.12, S.25, 26, 27): 7.
- 29 [For text of item B, see M.R.]
- 30 C. Fens:
- 31 (1) *Cannon River fen, [3/7/88R] (T.111, R.20,
32 S.34): 2B, 3B;
- 33 (2) *Kennedy fen, [3/7/88R] (T.105, R.7, S.15):
34 2B, 3B;
- 35 (3) *Rock Dell fen, [3/7/88R] (T.105, R.15,
36 S.16): 2B, 3B; and

1 (4) *Perched Valley WMA fen, [3/7/88R] (T.112,
2 R.13, S.8): 2B, 3B.

3 Subp. 8. Cedar-Des Moines Rivers Basin. The water use
4 classifications for the listed waters in the Cedar-Des Moines
5 Rivers Basin are as identified in items A and B:

6 A. Streams:

7 (1) Bancroft Creek, (T.103, 104, R.21): 2C;

8 (2) Bear Creek (excluding Class 7 segment),
9 (Source to Iowa border): 2C, 3B;

10 (3) Bear Creek, North Spring Grove, (T.101, R.7,
11 S.26, 27, 35): 7;

12 (4) Beaver Creek, (T.101, 102, R.13, 14): 2C,
13 3B;

14 (5) Cedar River, Little, (Source to Iowa
15 border): 2C, 3B;

16 (6) Clear Creek, (T.102, R.4): 2C;

17 (7) County Ditch No. 11, Sherburne, (T.101,
18 R.32, S.4, 9, 10; T.102, R.32, S.7, 8, 16, 17, 21, 27, 28, 33,
19 34): 7;

20 (8) County Ditch No. 48, Conger, (T.102, R.22,
21 S.19, 20; T.102, R.23, S.24, 25, 26, 35): 7;

22 (9) Deer Creek, (T.101, R.19, 20): 2C, 3B;

23 (10) Dobbins Creek, (T.103, R.16, 17): 2C;

24 (11) Goose Creek, Twin Lakes, (T.101, R.20,
25 S.31; T.101, R.21, S.16, 17, 18, 21, 22, 26, 27, 35, 36; T.101,
26 R.22, S.12, 13): 7;

27 (12) Heron Lake Outlet, (T.104, 105, R.37): 2C;

28 (13) Iowa River, Little, (T.101, 102, R.14):
29 2C;

30 (14) Jack Creek, Wilmont, (T.104, R.41, S.25,
31 26, 30, 31, 32, 33, 34, 35, 36): 7;

32 (15) Lime Creek, (T.101, R.22, 23): 2C, 3B;

33 (16) Murphy Creek, (T.103, R.18): 2C;

34 (17) Okabena Creek (excluding Class 7 segment),
35 (T.102, 103, R.37, 38, 40): 2C;

36 (18) Okabena Creek, Worthington, Worthington

1 Lagoons and Allied Mills, (T.102, R.38, S.6, 7; T.102, R.39,
2 S.7, 8, 9, 10, 11, 12, 14, 15, 16, 18; T.102, R.40, S.13): 7;
3 (19) Orchard Creek, (T.102, R.18, 19): 2C;
4 (20) Pine Creek (excluding Class 7 segment),
5 (T.101, R.10): 2C, 3B;
6 (21) Pine Creek, Harmony, (T.101, R.9, S.31;
7 T.101, R.10, S.24, 25, 36): 7;
8 (22) Roberts Creek, (T.103, 104, R.16, 17, 18):
9 2C;
10 (23) Rose Creek, (T.102, 103, R.16, 17, 18):
11 2C;
12 (24) Soldier Creek, (T.101, R.32, 33): 2C, 3B;
13 (25) Turtle Creek, (T.103, R.18, 19, 20): 2C;
14 (26) Unnamed Creek, Spring Grove, (T.101, R.7,
15 S.14, 22, 23, 27): 7;
16 (27) Unnamed Creek, Emmons, (T.101, R.22, S.31):
17 7;
18 (28) Unnamed Creek, Brownsdale, (T.103, R.17,
19 S.4, 9): 7;
20 (29) Unnamed Creek, Blooming Prairie, (T.104,
21 R.18, S.5, 8, 9, 16; T.105, R.18, S.31): 7;
22 (30) Unnamed Creek, Iona, (T.105, R.41, S.3, 4,
23 9; T.106, R.40, S.19, 29, 30, 32; T.106, R.41, S.24, 25, 26, 34,
24 35): 7;
25 (31) Wapsipinicon River, (T.101, R.15): 2C, 3B;
26 (32) Waterloo Creek, (T.101, R.6, 7): 1B, 2Bd,
27 3B;
28 (33) Wildcat Creek (excluding trout waters),
29 (T.103, R.4): 2C;
30 (34) Wolf Creek, (T.103, R.16, 17, 18): 2C; and
31 (35) Woodbury Creek, (T.101, 102, R.18, 19): 2C.
32 B. Fens:
33 (1) *Heron Lake fen, [3/7/88R] (T.103, R.36,
34 S.29): 2B, 3B;
35 (2) *Prairie Bush Clover, [3/7/88P] (Waters
36 within the Prairie Bush Clover Scientific and Natural Area,

1 Jackson County, T.103, R.35, S.17): 2B, 3B; and

2 (3) *Thompson fen, [3/7/88R] (T.103, R.35,
3 S.7): 2B, 3B.

4 Subp. 9. Missouri River Basin. The water use
5 classifications for the listed waters in the Missouri River
6 Basin are as identified in items A and B:

7 A. Streams:

8 (1) Ash Creek, (T.101, R.45): 2C;

9 (2) Beaver Creek, (T.102, 103, 104, R.45, 46,
10 47): 2C, 3B;

11 (3) Flandreau Creek (excluding Class 7 segment),
12 (T.107, 108, R.46, 47): 2C, 3B;

13 (4) Flandreau Creek, Lake Benton, (T.108, R.46,
14 S.1, 2, 11; T.109, R.45, S.30, 31; T.109, R.46, S.36): 7;

15 (5) Kanaranzi Creek, (Source to Iowa border):
16 2C, 3B;

17 (6) Medary Creek, (Source to South Dakota
18 border): 2C, 3B;

19 (7) Mound Creek, (T.103, 104, R.45): 2C;

20 (8) Mud Creek, (T.101, 102, R.45, 46): 2C, 3B;

21 (9) Pipestone Creek, (Source to South Dakota
22 border): 2C, 3B;

23 (10) Rock River (excluding Class 7 segment),
24 (Source to Iowa border): 2C, 3B;

25 (11) Rock River, Holland, (T.107, R.44, S.18,
26 19, 20, 29; T.107, R.45, S.12, 13): 7;

27 (12) Rock River, Little, (Source to Iowa
28 border): 2C, 3B;

29 (13) Sioux River, Little, (Source to Iowa
30 border): 2C, 3B;

31 (14) Sioux River, West Fork Little, (Source to
32 Iowa border): 2C, 3B;

33 (15) Skunk Creek, (T.101, 102, R.37, 38, 39):
34 2C;

35 (16) Split Rock Creek, (Split Rock Lake outlet
36 to South Dakota border): 2C, 3B;

1 (17) Unnamed Creek, Jasper, (T.104, R.46, S.6):

2 7;

3 (18) Unnamed Creek, Hatfield, (T.105, R.44, S.6,

4 7, 8; T.105, R.45, S.1; T.106, R.45, S.36): 7;

5 (19) Unnamed Creek, Hatfield, (T.106, R.45,

6 S.34, 35, 36): 7;

7 (20) Unnamed Ditch, Steen, (T.101, R.45, S.31,

8 32): 7;

9 (21) Unnamed Ditch, Hills, (T.101, R.46, S.28,

10 33): 7; and

11 (22) Unnamed Ditch, Lake Benton, (T.109, R.45,

12 S.17, 19, 20): 7.

13 B. Fens:

14 (1) *Adrian fen, (T.102, R.43, S.11): 2B, 3B;

15 (2) *Burke State Wildlife Management Area fen,

16 (T.106, R.44, S.28): 2B, 3B; and

17 (3) *Altona State Wildlife Management Area fen,

18 (T.108, R.46, S.1; T.109, R.45, S.31): 2B, 3B.

19

20 REPEALER. Minnesota Rules, part 7050.0210, subpart 14, is

21 repealed.