CHAPTER 7052

MINNESOTA POLLUTION CONTROL AGENCY

LAKE SUPERIOR BASIN WATER STANDARDS

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7052.0005 SCOPE.

A. This chapter establishes aquatic life, human health, and wildlife water quality standards and criteria for Great Lakes Initiative (GLI) pollutants; nondegradation standards for surface waters of the state in the Lake Superior Basin including, on a limited basis as described in item B, Class 7 waters; and implementation procedures for deriving effluent limitations from these standards and criteria. Other water quality standards, nondegradation standards, and implementation procedures applicable to the surface waters of the state in the Lake Superior Basin can be found in chapters 7050 and 7065.

B. The water quality standards, nondegradation standards, and implementation procedures in this chapter apply to discharges to Class 7 waters to the extent necessary to ensure compliance with the standards established in this chapter in any downstream Class 2 waters.

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7052.0010 DEFINITIONS.

Subpart 1. **Scope.** The terms used in this chapter have the meanings given them in this part, chapters 7001 and 7050, and Minnesota Statutes, chapter 115. If terms defined in this part conflict with the definitions in chapters 7001 and 7050, the definitions in this part govern for this chapter.

Subp. 2. **Acute toxicity.** "Acute toxicity" means a stimulus severe enough to rapidly induce a response. In toxicity tests, a response is normally observed in 96 hours or less. Acute effects are often measured in terms of mortality or other debilitating effects, represented as LC50s or EC50s, and expressed as concentrations of mass per unit volume, percent effluent, or toxic units.

Subp. 3. **Background.** "Background" means all loadings that:

A. flow from upstream waters into the specified watershed, waterbody, or waterbody segment for which a total maximum daily load (TMDL), wasteload allocation (WLA) in the absence of a TMDL or preliminary WLA for the purpose of determining the need for a water quality-based effluent limitation is being developed;

B. enter the specified watershed, waterbody, or waterbody segment through atmospheric deposition or sediment release or resuspension; or

C. occur within the specified watershed, waterbody, or waterbody segment as a result of chemical reactions.

Subp. 4. **Bioaccumulative chemical of concern or BCC.** "Bioaccumulative chemical of concern" or "BCC" means any chemical that has the potential to cause adverse effects which, upon entering the surface waters of the state, by itself or as its toxic transformation product, accumulates in aquatic organisms by a human health bioaccumulation factor (BAF) greater than 1,000, after considering metabolism and other physiochemical properties that might enhance or inhibit bioaccumulation, in accordance with the methodology in part 7052.0110, subpart 3. Chemicals with half-lives of less than eight weeks in the water column, sediment, and biota are not BCCs. The minimum BAF information needed to define an organic chemical as a BCC is either a field-measured BAF or a BAF derived using the biota-sediment accumulation factor (BSAF) methodology. The minimum BAF information needed to define an inorganic chemical, including an organometal, as a BCC is either a field-measured BAF or a laboratory-measured bioconcentration factor. The BCCs are a subset of the GLI pollutants, and are listed in part 7052.0350. A chemical may not be treated as a BCC for purposes of this chapter unless and until it is added to the list in part 7052.0350.

Subp. 5. **Bioaccumulative substances of immediate concern or BSICs.** "Bioaccumulative substances of immediate concern" or "BSICs" means a list of substances identified in the September 1991 Bi-National Program to Restore and Protect the Lake Superior Basin. The BSICs are a subset of the BCCs, and are listed in part 7052.0350.

Subp. 6. **Biota-sediment accumulation factor or BSAF.** "Biota-sediment accumulation factor" or "BSAF" means the ratio (in kg of organic carbon/kg of lipid) of a substance's lipid-normalized concentration in tissue of an aquatic organism to its organic carbon-normalized concentration in surface sediment, in situations where the ratio does not change substantially over time, both the organism and its food are exposed, and the surface sediment is representative of average surface sediment in the vicinity of the organism.

Subp. 7. **Chronic criterion or CC.** "Chronic criterion" or "CC" means the highest water concentration of a toxicant or effluent to which organisms can be exposed indefinitely without causing chronic toxicity.

Subp. 8. **Chronic standard or CS.** "Chronic standard" or "CS" means the highest water concentration of a toxicant to which organisms can be exposed indefinitely without causing chronic toxicity. Chronic standards are listed in parts 7050.0222 and 7052.0100.

Subp. 9. **Chronic toxicity.** "Chronic toxicity" means a stimulus that lingers or continues for a long period of time, often one-tenth the life span or more. A chronic effect can be mortality, reduced growth, reproduction impairment, harmful changes in behavior, and other nonlethal effects.

Subp. 10. **Control document.** "Control document" means a national pollutant discharge elimination system permit, a state disposal system permit, a feedlot permit issued under chapter 7020, or a Clean Water Act section 401 certification.

Subp. 11. **Criterion.** "Criterion" means a number or numbers established for a pollutant derived under parts 7050.0218, 7052.0110, or issued by the EPA, to protect aquatic life, humans, or wildlife.

Subp. 12. **Discharge-induced mixing area.** "Discharge-induced mixing area" means the area of initial mixing of an effluent with a receiving water, which is determined by the discharge velocity and the buoyancy of the effluent. Beyond the discharge-induced mixing area, mixing of the effluent with the receiving water is dependent on the mixing characteristics of the receiving water.

Subp. 13. **Economic or social development.** "Economic or social development" means the jobs, taxes, recreational opportunities, and other impacts on the public at large that will result from a new or expanded discharge.

Subp. 14. **Effluent design flow.** "Effluent design flow" means the annual average dry weather flow for publicly owned mechanical wastewater disposal systems or permit-designated maximum design flows for other facilities.

Subp. 15. **Endangered or threatened species.** "Endangered or threatened species" means those species that are listed as endangered or threatened under chapter 6134 or section 4 of the Endangered Species Act, United States Code, title 16, section 1533.

Subp. 16. **Environmental Protection Agency or EPA.** "Environmental Protection Agency" or "EPA" means the United States Environmental Protection Agency.

Subp. 17. **Existing discharger.** "Existing discharger" means any building, structure, facility, or installation from which there is or may be a "discharge of pollutants," as defined in Code of Federal Regulations, title 40, section 122.2, to the Lake Superior Basin, that is not a new discharger.

Subp. 18. **Expanded discharge or expanding discharge.** "Expanded discharge" or "expanding discharge" means a discharge of a BCC to a surface water of the state in the Lake Superior Basin that changes in volume, quality, location, or any other manner due to an action or activity identified in part 7052.0310, subpart 4, after either:

A. the effective date the water was designated as an outstanding resource value water as described in parts 7050.0460 and 7050.0470; or

B. March 9, 1998, if the water was designated as an outstanding international resource water under part 7052.0300, subpart 3, or a high quality water under part 7052.0300, subpart 4.

In determining whether an increased loading would result from the change in the discharge, the agency shall compare the loading that would result from the change with the loading that exists as of the effective date specified in item A or B, whichever applies.

Subp. 19. **Final acute value or FAV.** "Final acute value" or "FAV" means an estimate of the concentration of a pollutant corresponding to the cumulative probability of 0.05 in the distribution of all the acute toxicity values for the genera or species from the acceptable acute toxicity tests conducted on a pollutant. The FAV is the acute toxicity limitation applied to mixing zones in parts 7050.0210, subpart 5, and 7052.0210, subpart 1; and to dischargers in parts 7050.0211, subpart 1; 7050.0212, subpart 6; 7050.0214, subpart 1; 7052.0200, subpart 5; 7052.0230, subpart 4; and 7052.0270, subpart 5.

Subp. 20. **GLI Guidance.** "GLI Guidance" means the Water Quality Guidance for the Great Lakes System, Code of Federal Regulations, title 40, part 132, as amended through March 12, 1997.

Subp. 21. **GLI pollutant.** "GLI pollutant" means a toxic pollutant listed as a pollutant of initial focus in the GLI Guidance, Code of Federal Regulations, title 40, part 132, Table 6, as amended through March 12, 1997.

Subp. 22. **High quality waters.** "High quality waters" means surface waters of the state in which, on a parameter by parameter basis, the quality of the waters exceeds levels necessary to support propagation of fish, shellfish, and wildlife and recreation in and on the water.

Subp. 23. **Intake pollutant.** "Intake pollutant" means a GLI pollutant that is present in the surface waters of the state in the Lake Superior Basin and groundwater as provided in part 7052.0220, subparts 5 and 6, at the time it is withdrawn from such waters by the discharger or other facility, such as a public water supply, supplying the discharger with intake water.

Subp. 24. **Lake Superior Basin.** "Lake Superior Basin" means the drainage basin of Lake Superior, including Lake Superior, within the state of Minnesota.

Subp. 25. **Load allocation or LA.** "Load allocation" or "LA" means the portion of a receiving water's loading capacity that is attributed either to one of its existing or future nonpoint sources or to natural background sources, as more fully defined at Code of Federal Regulations, title 40, part 130.2, paragraph (g). Nonpoint sources include: in-place contaminants, direct wet and dry deposition, groundwater inflow, and overland runoff.

Subp. 26. **Loading capacity.** "Loading capacity" means the greatest amount of loading that a water can receive without violating water quality standards or criteria.

Subp. 27. **Long-term average.** "Long-term average" means the projected design concentration level for an effluent or pollutant that must be maintained by a discharger in order to maintain water quality standards or criteria.

Subp. 28. **Maximum standard or MS.** "Maximum standard" or "MS" means the highest concentration of a toxicant in water to which aquatic organisms can be exposed for a brief time with zero to slight mortality. The MS equals the FAV divided by two. Maximum standards are listed in parts 7050.0222 and 7052.0100.

Subp. 29. **Method detection level or MDL.** "Method detection level" or "MDL" means the minimum concentration of an analyte (substance) that can be measured and reported with a 99 percent confidence that the analyte concentration is greater than zero as determined by the procedure in Code of Federal Regulations, title 40, part 136, Appendix B.

Subp. 30. **Minimum level or ML.** "Minimum level" or "ML" means the concentration at which the entire analytical system must give a recognizable signal and acceptable calibration point. The ML is the concentration in a sample that is equivalent to the concentration of the lowest calibration standard analyzed by a specific analytical procedure, assuming that all the method-specified sample weights, volumes, and processing steps have been followed.

Subp. 31. **Natural background.** "Natural background" means the water quality characteristics or chemical concentrations existing where there is no discernible impact from point or nonpoint source pollutants attributable to human activity or from a physical alteration of wetlands. Where water quality monitoring data are not available, natural background can be predicted based on data from a watershed with similar characteristics.

Subp. 32. **New discharge.** "New discharge" means a discharge that was not in existence either:

A. on the effective date an outstanding resource value water was designated as such as described in parts 7050.0460 and 7050.0470; or

B. on March 9, 1998, for surface waters of the state designated as outstanding international resource waters under part 7052.0300, subpart 3, or high quality waters under part 7052.0300, subpart 4.

Subp. 33. **New discharger.** "New discharger" means any building, structure, facility, or installation from which there is or may be a "discharge of pollutants," as defined in Code of Federal Regulations, title 40, section 122.2, to surface waters of the state in the Lake Superior Basin which recommenced discharging after the termination of its control document or the construction of which commenced after either:

A. the effective date an outstanding resource value water was designated as such as described in parts 7050.0460 and 7050.0470; or

B. March 9, 1998, for surface waters of the state designated as outstanding international resource waters under part 7052.0300, subpart 3, or high quality waters under part 7052.0300, subpart 4.

Subp. 34. **Outstanding international resource waters or OIRWs.** "Outstanding international resource waters" or "OIRWs" means the surface waters of the state in the Lake Superior Basin, other than Class 7 waters and those waters designated as outstanding resource value waters as described in parts 7050.0460 and 7050.0470. The OIRWs designation prohibits any new or expanded point source discharge of BSICs unless a nondegradation demonstration that includes the installation of the best technology in process and treatment is completed under part 7052.0320, and approved by the agency under part 7052.0330.

Subp. 35. **Preliminary effluent limitation or PEL.** "Preliminary effluent limitation" or "PEL" means the preliminary daily maximum water quality-based effluent limitation calculated for a GLI pollutant according to the procedure described in part 7052.0200, subpart 5, which is compared with the projected effluent quality of the GLI pollutant to determine if the pollutant has the reasonable potential to exceed water quality standards or criteria.

Subp. 36. **Projected effluent quality or PEQ.** "Projected effluent quality" or "PEQ" means the observed maximum pollutant concentration, or an expected upper bound pollutant concentration from a

statistical distribution of an effluent data set, used for comparison against a preliminary water quality-based effluent limitation calculated for that pollutant.

Subp. 37. **Quantification level.** "Quantification level" means a measurement of the concentration of a pollutant obtained by using a specified laboratory procedure calibrated at a specified concentration above the method detection level. Quantification level is considered the lowest concentration at which a particular pollutant can be quantitatively measured using a specified laboratory procedure for monitoring of the pollutant.

Subp. 38. **Reasonable potential.** "Reasonable potential" means the process for determining the possibility for a discharged pollutant to exceed water quality standards or criteria. The reasonable potential determination is described in part 7052.0220 for chemical-specific water quality-based effluent limitations, and part 7052.0240, subpart 5, for whole effluent toxicity.

Subp. 39. **Stream design flow.** "Stream design flow" means the flow that represents critical conditions for protection of aquatic life, human health, or wildlife. The stream design flow is determined upstream of the discharge point.

Subp. 40. **Tier I.** "Tier I" means the methods referenced in part 7052.0110 for developing aquatic life, human health, and wildlife standards or criteria.

Subp. 41. **Tier II.** "Tier II" means the methods referenced in part 7052.0110 for developing aquatic life and human health standards or criteria when there is not a set of data available that meets Tier I data requirements.

Subp. 42. **Total maximum daily load or TMDL.** "Total maximum daily load" or "TMDL" means the sum of the individual wasteload allocations for point sources and load allocations for nonpoint sources and natural background, as more fully defined in Code of Federal Regulations, title 40, section 130.2, paragraph (i). A TMDL sets and allocates the maximum amount of a pollutant that may be introduced into a water of the state and still assure attainment and maintenance of water quality standards.

Subp. 43. **Trophic level.** "Trophic level" means the food web level in an ecosystem that is occupied by an organism or group of organisms because of what they eat and how they are related to the rest of the food web. For example, trophic level 3 in an aquatic ecosystem consists of small fish such as bluegills, crappies, and smelt and trophic level 4 consists of larger carnivorous fish such as walleye, salmon, and northern pike.

Subp. 44. **Uncertainty factor or UF.** "Uncertainty factor" or "UF" means one of several numeric factors used in operationally deriving criteria from experimental data to account for the quality or quantity of the available data.

Subp. 45. **Wasteload allocation or WLA.** "Wasteload allocation" or "WLA" means the portion of a receiving water's loading capacity that is allocated to one of its existing or future point sources of pollution, as more fully defined in Code of Federal Regulations, title 40, section 130.2, paragraph (h). In the absence of a TMDL approved by EPA under Code of Federal Regulations, title 40, section 130.7, or an assessment and remediation plan developed and approved according to part 7052.0200, subpart 1, item C, a WLA is the allocation for an individual point source that ensures that the level of water quality to be achieved by the point source is derived from and complies with all applicable water quality standards and criteria.

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7052.0015 INCORPORATIONS BY REFERENCE.

The documents in items A to D are adopted and incorporated by reference into this chapter. The documents, including future amendments, in items E to G are adopted and incorporated by reference and are not subject to frequent change.

A. Great Lakes Water Quality Initiative Methodologies for Development of Aquatic Life Criteria and Values, Code of Federal Regulations, title 40, part 132, Appendix A, as amended through March 12, 1997.

B. Great Lakes Water Quality Initiative Methodology for Deriving Bioaccumulation Factors, Code of Federal Regulations, title 40, part 132, Appendix B, as amended through March 12, 1997.

C. Great Lakes Water Quality Initiative Methodology for Development of Human Health Criteria and Values, Code of Federal Regulations, title 40, part 132, Appendix C, as amended through March 12, 1997.

D. Great Lakes Water Quality Initiative Methodology for the Development of Wildlife Criteria, Code of Federal Regulations, title 40, part 132, Appendix D, as amended through March 12, 1997.

E. EPA Technical Support Document for Water Quality-based Toxics Control issued by the U.S. EPA, Office of Water, as publication EPA-505-2-90-001 (Washington D.C., March 1991). The technical support document is available through the Minitex interlibrary loan system. It is not subject to frequent change.

F. The Metals Translator: Guidance for Calculating a Total Recoverable Permit Limit from a Dissolved Criterion issued by the U.S. EPA, Office of Water, as publication EPA-823-B-96-007 (Washington D.C., June 1996). The metals translator guidance is available through the Minitex interlibrary loan system. It is not subject to frequent change.

G. Chapter 3 of the U.S. EPA Water Quality Standards Handbook, Second Edition issued by the U.S. EPA, Office of Science and Technology, as publication EPA-823-B-94-005a (Washington D.C., August 1994). The handbook is available through the Minitex interlibrary loan system. It is not subject to frequent change.

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WATER QUALITY STANDARDS AND CRITERIA, AND BIOACCUMULATION FACTORS

7052.0100 WATER QUALITY STANDARDS.

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

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

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

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

Substance	Units	Aquatic Life Chronic Standard	Aquatic Life Maximum Standard	Aquatic Life Final Acute Value	Human Health Chronic Standard	Wildlife Chronic Standard	Applicable Chronic Standard
Arsenic, total	ug/l	148	340	680	2†		2
Benzene	ug/l				10		10
Cadmium, total (TH)	ug/l	subp 6	subp 6	subp 6			subp 6
Chlordane	pg/l				40		40
Chlorobenzene	ug/l	10†	423†	846†	278		10
Chromium III, total (TH)	ug/l	subp 6	subp 6	subp 6			subp 6
Chromium VI, total	ug/l	11	16	32			11
Copper, total (TH)	ug/l	subp 6	subp 6	subp 6			subp 6
Cyanide, free	ug/l	5.2	22	44	596		5.2
DDT	pg/l				25	11	11

Dieldrin	pg/l	56000	240000	480000	1.2		1.2
2,4-Dimethylphenol	ug/l	21	137	274	368		21
2,4-Dinitrophenol	ug/l	71	379	758	53		53
Endrin	ug/l	0.036	0.086	0.17	0.0039†		0.0039
Hexachlorobenzene	pg/l				74		74
Hexachloroethane	ug/l				1.0		1.0
Lindane	ug/l		0.95	1.9	0.08		0.08
Mercury, total	ug/l	0.91	1.7	3.4	0.00153	0.0013	0.0013
Methylene Chloride	ug/l				46		46
Nickel, total (TH)	ug/l	subp 6	subp 6	subp 6			subp 6
Parathion	ug/l	0.013	0.065	0.13			0.013
PCBs (class)	pg/l				4.5	122	4.5
Pentachlorophenol (pH)	ug/l		subp 6	subp 6	0.93†		0.93
Selenium, total	ug/l	5.0	20†	40†			5.0
2,3,7,8-TCDD	pg/l				0.0014	0.0031	0.0014
Toluene	ug/l	253†	1352†	2703†	3725		253
Toxaphene	pg/l				11		11
Trichloroethylene	ug/l				22		22
Zinc, total (TH)	ug/l	subp 6	subp 6	subp 6			subp 6

†this standard or FAV was derived under chapter 7050.

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

Substance	Units	Aquatic Life Chronic Standard	Aquatic Life Maximum Standard	Aquatic Life Final Acute Value	Human Health Chronic Standard	Wildlife Chronic Standard	Applicable Chronic Standard
Arsenic, total	ug/l	148	340	680	2†		2
Benzene	ug/l				11		11
Cadmium, total (TH)	ug/l	subp 6	subp 6	subp 6			subp 6
Chlordane	pg/l				56		56
Chlorobenzene	ug/l	10†	423†	846†	324		10
Chromium III, total (TH)	ug/l	subp 6	subp 6	subp 6			subp 6
Chromium VI, total	ug/l	11	16	32			11
Copper, total (TH)	ug/l	subp 6	subp 6	subp 6			subp 6
Cyanide, free	ug/l	5.2	22	44	596		5.2
DDT	pg/l				35	11	11
Dieldrin	pg/l	56000	240000	480000	1.6		1.6
2,4-Dimethylphenol	ug/l	21	137	274	391		21
2,4-Dinitrophenol	ug/l	71	379	758	53		53
Endrin	ug/l	0.036	0.086	0.17	0.0039†		0.0039
Hexachlorobenzene	pg/l				105		105
Hexachloroethane	ug/l				1.5		1.5
Lindane	ug/l		0.95	1.9	0.11		0.11
Mercury, total	ug/l	0.91	1.7	3.4	0.00153	0.0013	0.0013

Methylene Chloride	ug/l				46		46
Nickel, total (TH)	ug/l	subp 6	subp 6	subp 6			subp 6
Parathion	ug/l	0.013	0.065	0.13			0.013
PCBs (class)	pg/l				6.3	122	6.3
Pentachlorophenol (pH)	ug/l		subp 6	subp 6	0.93†		0.93
Selenium, total	ug/l	5.0	20†	40†			5.0
2,3,7,8-TCDD	pg/l				0.0020	0.0031	0.0020
Toluene	ug/l	253†	1352†	2703†	4214		253
Toxaphene	pg/l				15		15
Trichloroethylene	ug/l				24		24
Zinc, total (TH)	ug/l	subp 6	subp 6	subp 6			subp 6

†this standard or FAV was derived under chapter 7050.

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

Substance	Units	Aquatic Life Chronic Standard	Aquatic Life Maximum Standard	Aquatic Life Final Acute Value	Human Health Chronic Standard	Wildlife Chronic Standard	Applicable Chronic Standard
Arsenic, total	ug/l	148	340	680	2†		2
Benzene	ug/l				12		12
Cadmium, total (TH)	ug/l	subp 6	subp 6	subp 6			subp 6
Chlordane	pg/l				225		225
Chlorobenzene	ug/l	10†	423†	846†	461		10

Chromium III, total (TH)	ug/l	subp 6	subp 6	subp 6			subp 6
Chromium VI, total	ug/l	11	16	32			11
Copper, total (TH)	ug/l	subp 6	subp 6	subp 6			subp 6
Cyanide, free	ug/l	5.2	22	44	596		5.2
DDT	pg/l				142	11	11
Dieldrin	pg/l	56000	240000	480000	6.5		6.5
2,4-Dimethylphenol	ug/l	21	137	274	441		21
2,4-Dinitrophenol	ug/l	71	379	758	55		55
Endrin	ug/l	0.036	0.086	0.17	0.016†		0.016
Hexachlorobenzene	pg/l				418		418
Hexachloroethane	ug/l				5.0		5.0
Lindane	ug/l		0.95	1.9	0.43		0.43
Mercury, total	ug/l	0.91	1.7	3.4	0.00153	0.0013	0.0013
Methylene Chloride	ug/l				47		47
Nickel, total (TH)	ug/l	subp 6	subp 6	subp 6			subp 6
Parathion	ug/l	0.013	0.065	0.13			0.013
PCBs (class)	pg/l				25.2	122	25.2
Pentachlorophenol (pH)	ug/l		subp 6	subp 6	1.9†		1.9
Selenium, total	ug/l	5.0	20†	40†			5.0
2,3,7,8-TCDD	pg/l				0.0080	0.0031	0.0031
Toluene	ug/l	253†	1352†	2703†	5517		253

Toxaphene	pg/l				62		62
Trichloroethylene	ug/l				29		29
Zinc, total (TH)	ug/l	subp 6	subp 6	subp 6			subp 6

†this standard or FAV was derived under chapter 7050.

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

Substance	Units	Aquatic Life Chronic Standard	Aquatic Life Maximum Standard	Aquatic Life Final Acute Value	Human Health Chronic Standard	Wildlife Chronic Standard	Applicable Chronic Standard
Arsenic, total	ug/l	148	340	680	53†		53
Benzene	ug/l	114†	4487†	8974†	237		114
Cadmium, total (TH)	ug/l	subp 6	subp 6	subp 6			subp 6
Chlordane	pg/l				225		225
Chlorobenzene	ug/l	10†	423†	846†	2916		10
Chromium III, total (TH)	ug/l	subp 6	subp 6	subp 6			subp 6
Chromium VI, total	ug/l	11	16	32			11
Copper, total (TH)	ug/l	subp 6	subp 6	subp 6			subp 6
Cyanide, free	ug/l	5.2	22	44	30240		5.2
DDT	pg/l				142	11	11
Dieldrin	pg/l	56000	240000	480000	6.5		6.5
2,4-Dimethylphenol	ug/l	21	137	274	7182		21
2,4-Dinitrophenol	ug/l	71	379	758	1982		71

Endrin	ug/l	0.036	0.086	0.17	0.016†		0.016
Hexachlorobenzene	pg/l				419		419
Hexachloroethane	ug/l				6.2		6.2
Lindane	ug/l		0.95	1.9	0.46		0.46
Mercury, total	ug/l	0.91	1.7	3.4	0.00153	0.0013	0.0013
Methylene Chloride	ug/l	1561†	9600†	19200†	1994		1561
Nickel, total (TH)	ug/l	subp 6	subp 6	subp 6			subp 6
Parathion	ug/l	0.013	0.065	0.13			.013
PCBs (class)	pg/l				25.2	122	25.2
Pentachlorophenol (pH)	ug/l	subp 6	subp 6	subp 6	5.5†		subp 6
Selenium, total	ug/l	5.0	20†	40†			5.0
2,3,7,8-TCDD	pg/l				0.0080	0.0031	0.0031
Toluene	ug/l	253†	1352†	2703†	45679		253
Toxaphene	pg/l				62		62
Trichloroethylene	ug/l				330		330
Zinc, total (TH)	ug/l	subp 6	subp 6	subp 6			subp 6

†this standard or FAV was derived under chapter 7050.

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

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

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

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

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

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

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

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

		Example standards at pH of:				
Pentachlorophenol	Formula, results in ug/l	6.5	7.0	7.5	8.0	8.5
Maximum standard	exp.(1.005[pH]-4.869)	5.3	8.7	14	24	39
Final acute value	exp.(1.005[pH]-4.175)	11	17	29	48	79

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

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

Statutory Authority: *MS s 115.03; 115.44*

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7052.0110 METHODOLOGIES FOR DEVELOPMENT OF TIER I AND TIER II STANDARDS AND CRITERIA, AND BIOACCUMULATION FACTORS.

Subpart 1. **Applicability.** This part identifies the methods that must be used to develop Tier I and Tier II standards and criteria. Subparts 3 and 4 also list exceptions to some of the assumptions used in the GLI Guidance methods. These exceptions are based on Minnesota-specific data.

Subp. 2. **Aquatic life.** All Tier I and Tier II aquatic life standards were developed and all criteria must be developed using the methodologies provided by Code of Federal Regulations, title 40, part 132, Appendix A, entitled "Great Lakes Water Quality Initiative Methodologies for Development of Aquatic Life Criteria and Values," as amended through March 12, 1997, which is adopted and incorporated by reference in part 7052.0015, item A.

Subp. 3. **Bioaccumulation factors.** Bioaccumulation factors (BAFs) for calculating human health and wildlife standards were developed and BAFs for calculating criteria must be developed using the methodology provided by Code of Federal Regulations, title 40, part 132, Appendix B, entitled "Great Lakes Water Quality Methodology for Deriving Bioaccumulation Factors," as amended through March 12, 1997, which is adopted and incorporated by reference in part 7052.0015, item B, except that for human health standards and criteria, the baseline BAF is multiplied by the following lipid fractions which apply to fish in both trophic levels 3 and 4:

A. 0.085 for Lake Superior;

B. 0.06 for Class 2A waters other than Lake Superior; and

C. 0.015 for Class 2B, 2Bd, 2C, and 2D waters.

Subp. 4. **Human health.** All Tier I and Tier II human health standards were developed and all criteria must be developed using the methodology provided by Code of Federal Regulations, title 40, part 132, Appendix C, entitled "Great Lakes Water Quality Initiative Methodology for Development of Human Health Criteria and Values," as amended through March 12, 1997, which is adopted and incorporated by reference in part 7052.0015, item C, except that the daily human consumption of fish caught in the Lake Superior Basin is assumed to be 0.030 kg/day (0.0072 kg/day for trophic level 3 fish plus 0.0228 kg/day for trophic level 4 fish).

Subp. 5. **Wildlife.** All Tier I wildlife standards were developed and all Tier I criteria must be developed using the methodology provided by Code of Federal Regulations, title 40, part 132, Appendix D, entitled "Great Lakes Water Quality Initiative Methodology for the Development of Wildlife Criteria," as amended through March 12, 1997, which is adopted and incorporated by reference in part 7052.0015, item D.

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IMPLEMENTATION OF WATER QUALITY-BASED

EFFLUENT LIMITS

7052.0200 TOTAL MAXIMUM DAILY LOADS.

Subpart 1. **Applicability.** The provisions in this subpart apply to establishing total maximum daily loads (TMDLs) for all Great Lakes Initiative (GLI) pollutants and pollutant parameters in surface waters of the state in the Lake Superior Basin, with the exception of whole effluent toxicity (WET), which is addressed in part 7052.0240.

A. TMDLs must be established in accordance with the listing and priority-setting process provided by section 303(d) of the Clean Water Act, United States Code, title 33, section 1313(d) and Code of Federal Regulations, title 40, section 130.7. Where water quality standards are not immediately attainable, TMDLs must assure that water quality standards will be attained in a reasonable period of time. Some TMDLs may be based on attaining water quality standards over a period of time, with specific controls on individual sources being implemented in stages. Determining the reasonable period of time in which water quality standards will be met is a case-specific determination based on the following factors:

(1) receiving water characteristics;

(2) persistence, behavior, and ubiquity of GLI pollutants of concern;

(3) type of remediation activities necessary;

(4) available regulatory and nonregulatory controls;

(5) individual agency requirements for attainment of water quality standards; and

(6) technical and economic feasibility of attainment.

B. TMDLs must include the following elements, the sum of which must not exceed the loading capacity of the water for the GLI pollutants addressed by the TMDLs:

(1) waste load allocations (WLAs) for point sources;

(2) load allocations (LAs) for nonpoint sources including natural background sources; and

(3) a margin of safety (MOS), which includes a portion reserved for future growth.

C. If the agency develops an assessment and remediation plan that meets the provisions of this part, meets the public participation provisions of subpart 6, and has been approved by the EPA as meeting the requirements under Code of Federal Regulations, title 40, section 130.6, then the assessment and remediation plan may be used in lieu of a TMDL if one of the following conditions is met:

(1) the agency determines that the assessment and remediation plan will result in attainment of water quality standards in a reasonable period of time as defined in item A;

(2) concurrent pollutant reductions will result from an assessment and remediation plan used in lieu of a TMDL; or

(3) implementation costs will be reduced if an assessment and remediation plan is used in lieu of a TMDL.

Assessment and remediation plans include lakewide management plans, remedial action plans, and state water quality management plans.

Any part of an assessment and remediation plan that also satisfies one or more requirements in section 303(d) of the Clean Water Act, United States Code, title 33, section 1313(d), or implementing regulations may be incorporated by reference into a TMDL as appropriate. Assessment and remediation plans must be tailored to the level of detail and magnitude appropriate for the watershed and GLI pollutant being assessed.

Subp. 2. **Determination of TMDL allocations.** The agency must determine TMDL allocations as described in this subpart.

A. The sum of the WLAs for point sources is the portion of the loading capacity not assigned to nonpoint sources, including background, or to a MOS. Methods to apportion WLAs are identified in Table 4-1 of the EPA Technical Support Document for Water Quality-Based Toxics Control (EPA-505-2-90-001, March 1991), which is adopted and incorporated by reference in part 7052.0015, item E.

B. LAs for nonpoint sources, including natural background, must be based on:

(1) existing GLI pollutant loadings if changes in loadings are not anticipated to occur;

(2) increases in GLI pollutant loadings that are anticipated to occur; or

(3) decreases in GLI pollutant loadings if such decreased loadings are technically feasible and are anticipated to occur within a reasonable time period as a result of implementation of best management practices or other load reduction measures, considering the technical and institutional factors involved.

C. The MOS must account for technical uncertainties in establishing the TMDL and must describe the manner in which the MOS is determined and incorporated into the TMDL. The MOS may be provided by leaving a portion of the loading capacity unallocated or by using conservative modeling assumptions to establish WLAs and LAs. If a portion of the loading is left unallocated to provide a MOS, the amount left unallocated must be described. If conservative modeling assumptions are relied on to provide a MOS, the specific assumptions providing the MOS must be identified.

D. The representative background concentration for a GLI pollutant in the specified watershed, waterbody, or water segment must be established on a case-by-case basis as the geometric mean of water column data, water column concentrations estimated through the use of available caged or resident fish tissue data, or water column concentrations estimated through the use of existing or projected GLI pollutant loading data. Commonly accepted statistical techniques must be used to evaluate data sets consisting of values both above and below the detection level. If all of the available data in a data set are below the detection level for a GLI pollutant, then all the data in the data set must be assumed to be zero.

E. Where sufficient data are available to quantify the transport of GLI pollutants to sediments, TMDLs must account for and prevent such accumulations that preclude attainment of specified designated uses.

F. Where sufficient data are available to quantify loadings of GLI pollutants resulting from wet weather events, TMDLs must account for these loadings.

G. The maximum allowable loading consistent with the attainment of each standard or criterion of a given GLI pollutant is determined by multiplying the applicable standard or criterion by the stream design flow at the farthest downstream location in the tributary watershed. The loading is then compared to the loadings at discharge sites within the watershed to assure that standards or criteria for a given GLI pollutant are not exceeded. The lowest load is then selected as the loading capacity.

H. TMDLs and WLAs in the absence of a TMDL must be based on the assumption that a GLI pollutant does not degrade unless both of the following occur:

(1) field studies or other information demonstrate that degradation of the GLI pollutant is expected to occur under the full range of environmental conditions expected to be encountered; and

(2) field studies or other information address other factors that affect the level of GLI pollutants in the water column including sediment resuspension, chemical separation, and biological and chemical transformation.

I. If the agency establishes separate TMDLs for different segments of the same watershed, and if each of these separate TMDLs includes WLAs for the same GLI pollutant for one or more of the same point sources, then water quality-based effluent limits (WQBELs) for the GLI pollutant and point sources must be consistent with the most stringent of those WLAs to assure attainment of all applicable water quality standards and criteria.

Subp. 3. **Waste load allocations for GLI pollutants in the absence of a TMDL.** For purposes of determining WLAs in the absence of a TMDL or for determining the need for WQBELs, calculations must be made using the methods in items A to C.

A. The agency must develop acute and chronic WLAs for streams and rivers for each applicable aquatic life, human health, and wildlife standard and criterion using dynamic models found in chapter 4 of the EPA Technical Support Document for Water Quality-Based Toxics Control (EPA-505-2-90-001, March 1991), which is adopted and incorporated by reference in part 7052.0015, item E, or using the following equation:

$$WLA = \frac{(Qd + Qr)(Cs) - (Qr)(Cb)}{(Qd)}$$

Where:

Cs = Water quality standard or criterion developed for the GLI pollutant in question

Qr = Stream design flows for steady state models, including corresponding acute or chronic mixing zone allowances determined in part 7052.0210

Applicable flows are:

(1) the 1-day, 10-year stream design flow (1Q10) for a maximum standard or criterion;

(2) the 7-day, 10-year stream design flow (7Q10), or the 4-day, 3-year biologically based stream design flow for an aquatic life chronic standard or criterion;

(3) the 90-day, 10-year flow (90Q10) for a wildlife chronic standard or criterion; and

(4) the harmonic mean for the human health chronic standard or criterion.

Where a discharger has an intake upstream of the point of discharge, but downstream of the stream location used to determine Qr, the value of Qr must be reduced by that flow volume.

Qd = Effluent design flow

Cb = Background receiving water concentration of the GLI pollutant calculated according to subpart 2, item D.

B. For lakes, WLAs based on acute aquatic life standards or criteria must not exceed the FAV unless a mixing zone demonstration is conducted and approved under part 7052.0210. The agency must develop chronic WLAs for lakes for each applicable aquatic life, human health, and wildlife standard and criterion using the following equation:

WLA = (Cs)(X) - (Cb)(X)

Where:

Cs = Water quality standard or criterion developed for the GLI pollutant in question

Cb = Background receiving water concentration of the GLI pollutant calculated according to subpart 2, item D

X = 10, which represents a receiving water volume to effluent volume dilution ratio of 10 to 1, unless an alternative mixing zone demonstration is provided under part 7052.0210, subpart 2, that includes a dilution ratio other than 10 to 1 and results in a mixing zone that is no greater than the area of discharge-induced mixing, in which case X equals the dilution ratio established in the demonstration.

C. Where the background receiving water concentration (Cb) of a GLI pollutant exceeds the most stringent applicable water quality standard listed or referenced for that pollutant in part 7052.0100, or criterion for that pollutant developed under part 7052.0110, the intake credit provisions of part 7052.0220, subpart 5, apply.

Subp. 4. **Translating dissolved metal standards to total recoverable WQBELs for metals.** For purposes of expressing dissolved metals standards and criteria as total recoverable WQBELs, the methods in items A to C must be used.

A. WLAs determined in subpart 3 must be calculated using dissolved metal standards. Dissolved metal standards are determined by multiplying the total metal standards, listed in part 7052.0100, by the corresponding conversion factors listed in part 7050.0360. For metals not listed in part 7050.0360, the conversion factor is 1.0. Subsequent calculation of WQBELs requires the translation of the dissolved metal WLAs to total recoverable metal WLAs as described in items B and C.

B. In the absence of site-specific data, the dissolved metal WLAs are translated to total metal WLAs by dividing the dissolved metal WLAs by the corresponding conversion factors in part 7050.0360.

C. The agency must use a total metal translator based upon the collection of site-specific data if an existing or proposed discharger submits a request to the agency and the request is accompanied by a completed site-specific study conducted in accordance with the EPA guidance "The Metals Translator: Guidance for Calculating a Total Recoverable Permit Limit From a Dissolved Criterion" (EPA-823-B-96-007, June 1996), which is adopted and incorporated by reference under part 7052.0015, item F.

Upon receiving a study that the agency determines has conformed with the metals translator guidance, the agency must use the site-specific translator to convert the dissolved metal WLA into a total recoverable WLA, if the nondegradation provisions under parts 7052.0300 to 7052.0330 and antibacksliding provisions of section 402(o) of the Clean Water Act, United States Code, title 33, section 1342(o), are complied with. Subsequent WQBELs must be calculated from the total recoverable WLA.

Subp. 5. **Calculating effluent limitations from WLAs.** The agency must determine WLAs, including applicable mixing zone determinations from part 7052.0210, for aquatic life, human health, and wildlife water quality standards and criteria using the methods in subparts 2 and 3. WQBELs are calculated from these WLAs, or by using dynamic models based on methods in chapter 5 of the EPA Technical Support Document for Water Quality-Based Toxics Control (EPA-505-2-90-001, March 1991), which is adopted and incorporated by reference in part 7052.0015, item E. The agency must use the methods in items A to G to calculate WQBELs from the WLAs developed under subparts 2 and 3.

A. Assume the effluent concentrations are lognormally distributed and dominate in-stream concentrations and variability after mixing.

B. Characterize the variability of the effluent data by calculating the coefficient of variation (CV), which is the ratio of the standard deviation divided by the mean, using a 99th percentile probability basis ($z_{99} = 2.326$).

C. Calculate the long-term average (LTA) for each applicable WLA determined under subpart 2 or 3 as follows:

(1) calculate the maximum standard LTA (LTA**ms**) protective of acute aquatic life effects as follows:

$$LTA\mathbf{ms} = \exp(0.5\sigma^2 - z_{99}\sigma) \bullet WLA\mathbf{ms}$$

Where:

$\sigma^2 = \ln(CV^2 + 1)$

WLA**ms** = the maximum standard WLA

The WLA**ms** is determined under subpart 2 or 3 and is expressed as a one-day maximum;

(2) calculate the chronic standards LTA (LTA**cs**) protective of chronic aquatic life effects as follows:

$$LTA\mathbf{cs} = \exp(0.5\sigma_4^{\,2} - z_{99}\sigma_4) \bullet WLA\mathbf{cs}$$

Where:

$\sigma_4^{\,2} = \ln((CV^2/4) + 1)$

WLA**cs** = the chronic standard WLA

The WLA**cs** is determined under subpart 2 or 3 and is expressed as a four-day average; and

(3) calculate the LTA**cs** protective of chronic human health or wildlife effects as follows:

$$LTA\mathbf{cs} = \exp(0.5\sigma_{30}^{\,2} - z_{99}\sigma_{30}) \bullet WLA\mathbf{cs}$$

Where:

$\sigma_{30}^{\,2} = \ln((CV^2/30) + 1)$

The WLA**cs** is determined under subpart 2 or 3 and is expressed as a 30-day average.

D. Calculate the daily maximum and monthly average WQBELs using the lowest determined LTA calculated in item C as follows:

(1) calculate the daily maximum WQBEL as follows:

$$\text{Daily maximum} = \exp(z_{99}\sigma - 0.5\sigma^2) \bullet \text{LTA}$$

Where:

$\sigma^2 = \ln(CV^2 + 1)$; and

(2) calculate the monthly average WQBEL as follows:

$$\text{Monthly average} = \exp(z_{95}\sigma_n - 0.5\sigma_n^2) \bullet \text{LTA}$$

Where:

$\sigma_n^2 = \ln((CV^2/n) + 1)$

$z_{95} = 1.645$ (95th percentile probability basis)

n = number of samples per month.

E. Establish the most stringent daily maximum WQBEL from item D or the FAV applied under part 7050.0210, subpart 5; 7050.0211, subpart 1; 7050.0212, subpart 6; 7050.0214, subpart 1; 7052.0210, subpart 1; or 7052.0230, subpart 4, as the daily maximum effluent limitation in the permit. When the applicable daily maximum WQBEL determined from item D is established in the permit, the corresponding monthly average WQBEL must also be established in the permit. When the FAV is established in the permit as the daily maximum effluent limitation, no monthly average effluent limitation is established in the permit.

F. For distributions other than lognormal:

(1) apply the most stringent WLA**cs** of those determined under subpart 2 or 3 as the monthly average WQBEL;

(2) apply the more stringent of the WLA**ms** determined under subpart 2 or 3 or the FAV applied under part 7050.0210, subpart 5; 7050.0211, subpart 1; 7050.0212, subpart 6; 7050.0214, subpart 1; 7052.0210, subpart 1; or 7052.0230, subpart 4, as the daily maximum effluent limitation in the permit. When the FAV is as stringent or more stringent than the effluent limitation based on the WLA**cs** determined in subitem (1), no monthly average effluent limitation is established in the permit.

G. Whenever a WQBEL is developed, it must be expressed as both a concentration value and a corresponding mass loading rate. Both mass and concentration limits must be based on the same permit averaging periods, such as daily or monthly averages. The agency must calculate the mass loading rates using effluent flow rates that correspond to those used in establishing the WQBELs expressed in concentration, except if adjustments for wet weather flows have been accommodated in the WLA process on a case-by-case basis. If wet weather flows have been accommodated, the agency must calculate the mass loading rates using the adjusted flows.

Subp. 6. **Solicitation of public input in development of TMDLs.** The agency must provide the following public notification and opportunity for comment during the development and implementation of a TMDL:

A. a public notice and solicitation of comment on the intent of the agency to develop a TMDL for a GLI pollutant where the agency has identified impaired water quality uses;

B. a public notice and solicitation of information and comments regarding preliminary source identification and loadings for a GLI pollutant subject to a TMDL;

C. a public notice and solicitation of comment on proposed source loadings and a proposed TMDL allocation method for a reduction of loadings for a GLI pollutant subject to a TMDL; and

D. a public notice of an effluent limitation in a permit for a GLI pollutant subject to a TMDL, pursuant to the public notice requirements of parts 7001.0100 and 7001.0110.

Statutory Authority: *MS s 115.03; 115.44*

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7052.0210 MIXING ZONES.

Subpart 1. **Applicability and standards for acute and chronic mixing zones.** General provisions pertaining to mixing zones are located in part 7050.0210, subpart 5. For acute and chronic mixing zones, the conditions in items A to C apply.

A. At the edge of an acute mixing zone approved under subpart 2, acute aquatic life toxicity must not exceed the maximum standard or criterion, or 0.3 TUa for WET. If the discharger does not have an approved acute mixing zone demonstration, the agency must apply the FAV, or 1.0 TUa for WET, directly to the discharge. If acute mixing zones from two or more proximate sources interact or overlap, the combined effect must be evaluated to ensure that applicable standards and criteria will be met in the area of overlap.

B. At the edge of a chronic mixing zone, chronic toxicity must not exceed the chronic standard or criterion, or 1.0 TUc for WET. A chronic mixing zone must equal:

(1) not more than 25 percent of the applicable stream design flows listed in part 7052.0200, subpart 3, item A, unless an alternate chronic mixing zone demonstration is approved under subpart 2; or

(2) for lakes, the area of 10:1 dilution of receiving water volume to effluent volume, unless a chronic mixing zone demonstration approved under subpart 2 identifies an alternate dilution ratio in which case the chronic mixing zone must equal the area corresponding to the alternate dilution ratio. The mixing zone in lakes must not exceed the area of discharge-induced mixing.

C. Acute and chronic mixing zones must not jeopardize the continued existence of endangered or threatened species listed or proposed under chapter 6134 or section 4 of the Endangered Species Act, United States Code, title 16, section 1533, or result in the destruction or adverse modification of such species' critical habitat.

Subp. 2. **Mixing zone demonstration requirements for lakes and tributaries.** The agency shall approve an acute or chronic mixing zone demonstration if the discharger proposing a mixing zone completes a demonstration that complies with items A to N.

A. Define the mixing zone size, shape, location of the area of mixing, manner of diffusion and dispersion, and amount of dilution at the boundaries.

B. Determine the discharge-induced mixing area for lake discharges.

C. For discharge to a lake, determine the dilution ratio of receiving water volume to effluent volume. If this dilution ratio is other than 10 to 1 and results in a mixing zone that is no greater than the

area of discharge-induced mixing, the calculated ratio must be used in the WLA calculation for lakes in part 7052.0200, subpart 3, item B; in the WET reasonable potential determination for lakes in part 7052.0240, subpart 5, items B, subitem (2), and C, subitem (2); and in the WET WQBEL calculation in part 7052.0240, subpart 6, items A, subitem (2), and C.

D. Document the substrate character and geomorphology of the mixing zone.

E. Ensure that the mixing zone will maintain a zone of passage for mobile aquatic life; protect spawning, nursery areas, and migratory routes; and not intersect river mouths.

F. Ensure the mixing zone will protect the existence of threatened or endangered species.

G. Document that the mixing zone does not affect drinking water intakes.

H. Document background water quality.

I. Show that the mixing zone does not promote undesirable aquatic life or dominance of nuisance species.

J. Ensure that the mixing zone will not result in the following:

(1) objectionable deposits formed by settling;

(2) floating debris, oil, or scums;

(3) objectionable taste, odor, color, or turbidity; or

(4) attraction of organisms to the area of discharge.

K. Prevent or minimize overlapping mixing zones.

L. Document the ability of the habitat to support endemic or naturally occurring species.

M. Assume no GLI pollutant degradation unless the conditions of part 7052.0200, subpart 2, item H, are met.

N. Show that the mixing zone will not interfere with the designated or existing uses of the receiving water or downstream surface waters of the state.

Subp. 3. **Mixing zones for BCCs.** After March 9, 1998, acute and chronic mixing zones shall not be allowed for new and expanded discharges of BCCs to the Lake Superior Basin. Acute and chronic mixing zones for existing discharges of BCCs must be phased out by March 23, 2007, except under the provisions in items A to E. After March 9, 1998, for new and expanded discharges and March 23, 2007, for existing discharges, WLAs developed under part 7052.0200, subparts 2 and 3, for discharges of BCCs must be set equal to the most stringent applicable water quality standard or site-specific criterion for the BCC in question. The provisions for exceptions to the acute and chronic mixing zone phase-out for existing discharges of BCCs are in items A to E.

A. Mixing zones for BCCs shall be allowed for existing discharges after March 23, 2007, if the discharger demonstrates that the failure to maintain an existing mixing zone would preclude water conservation measures that would lead to overall load reductions in BCCs discharged.

B. Mixing zones shall be allowed for existing discharges after March 23, 2007, upon the request of the discharger if the agency determines that:

(1) the discharger is in compliance with and will continue to implement technology-based treatment and pretreatment requirements under sections 301, 302, 304, 306, 307, 401, and 402 of the Clean

Water Act, United States Code, title 33, sections 1311, 1312, 1314, 1316, 1317, 1341, and 1342, and is in compliance with its existing permit WQBELs, including those based on a mixing zone; and

(2) the discharger has reduced and will continue to reduce the loading of the BCC for which a mixing zone is requested to the maximum extent possible by the use of cost-effective controls or pollution prevention alternatives that have been adequately demonstrated and are reasonably available to the discharger.

C. In making the determination in item B, the agency must consider:

(1) the availability and feasibility, including cost-effectiveness, of additional controls or pollution prevention measures for reducing and ultimately eliminating BCCs for that discharger, including those used by similar dischargers;

(2) whether the discharger or affected communities will incur unreasonable economic effects if the mixing zone is eliminated; and

(3) the extent to which the discharger will implement an ambient monitoring plan to ensure compliance with water quality standards and criteria at the edge of any authorized mixing zone or to ensure consistency with any applicable TMDL or assessment and remediation plan consistent with part 7052.0200.

D. Any exceptions to the mixing zone phase-out provision for existing discharges of BCCs granted under this subpart must:

(1) not result in any less stringent effluent limitations than those existing on March 9, 1998, in the previous permit;

(2) not jeopardize the continued existence of any endangered or threatened species listed under chapter 6134 or section 4 of the Endangered Species Act, United States Code, title 16, section 1533, or result in the destruction or adverse modification of such species' critical habitat;

(3) be limited to one permit term unless the agency makes a new determination in accordance with this subpart for each successive permit application in which a mixing zone for the BCCs is sought;

(4) reflect all information pertaining to the size of the mixing zone considered by the agency under subpart 2;

(5) protect all designated and existing uses of the receiving water;

(6) meet all applicable aquatic life, wildlife, and human health standards and criteria at the edge of the mixing zone for a WLA in the absence of a TMDL, or, if a TMDL has been established, be consistent with any TMDL or such other strategy consistent with part 7052.0200;

(7) ensure the discharger has developed and conducted a GLI pollutant minimization program for the BCCs if required to do so under part 7052.0250, subpart 4; and

(8) ensure that alternative means for reducing BCCs elsewhere in the watershed are evaluated.

E. For each draft permit that would allow a mixing zone for one or more BCCs after March 23, 2007, the fact sheet or statement of basis for the draft permit, required to be made available through public notice under Code of Federal Regulations, title 40, section 124.6, paragraph (e), must:

(1) specify the mixing provisions used in calculating the effluent limitations; and

(2) identify each BCC for which a mixing zone is proposed.

Statutory Authority: *MS s 115.03; 115.44*

History: *22 SR 1466*

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7052.0220 REASONABLE POTENTIAL FOR CHEMICAL-SPECIFIC WQBELS.

Subpart 1. **Applicability.** Where the agency determines, using factors specified under Code of Federal Regulations, title 40, section 122.44, paragraph (d)(1)(ii), that a GLI pollutant is or may be discharged to surface waters of the state at a level which has the reasonable potential to cause or contribute to an excursion above any water quality standard listed or referenced in part 7052.0100 or water quality criterion developed according to part 7052.0110, WQBELs must be included in the permit. When facility-specific effluent monitoring data are available, the agency must make the reasonable potential determination by developing preliminary effluent limitations (PELs) and comparing them to the projected effluent quality (PEQ) as described in this part.

Subp. 2. **Developing preliminary effluent limitations.** The first step in a reasonable potential determination is to calculate a PEL. The procedures in parts 7052.0200 and 7052.0210 must be used to determine a PEL from a Tier I or Tier II standard or criterion. If the agency determines that there are insufficient data to calculate a standard or criterion, the procedure in subpart 4 must be followed to determine if data must be generated to calculate a Tier II standard or criterion.

Subp. 3. **Developing projected effluent quality.** The procedures in items A to D must be used when developing PEQ.

A. Determine the maximum concentration for each GLI pollutant from its respective data set.

B. Select the corresponding factor from part 7052.0370 using the calculated coefficient of variation from part 7052.0200, subpart 5, item B, and the number of data points in the data set. Determine the PEQ concentration by multiplying the maximum value from the data set by the selected factor.

C. If the data set in item B contains less than ten values, the coefficient of variation used in part 7052.0370 must be 0.6.

D. If the PEQ is greater than the PEL, an effluent limitation for that GLI pollutant must be established in the permit.

On a case-by-case basis, when a discharger submits and the agency determines that an alternate PEQ procedure fulfills the requirements of Code of Federal Regulations, title 40, section 122.44, paragraph (d)(1), the agency must use this procedure in lieu of items A to D.

Subp. 4. **Developing data for calculating Tier II noncancer human health and aquatic life standards and criteria.** This subpart applies when the agency determines that insufficient data currently exist to calculate Tier II standards or criteria for GLI pollutants known to be in the discharge, or suspected to be in the discharge based on knowledge of the raw materials used or internal process or waste streams.

A. The agency shall use all available toxicity information to estimate ambient screening criteria for each identified GLI pollutant which will protect humans from noncancer health effects, and aquatic life from acute and chronic effects.

B. Using the provisions in parts 7052.0200 and 7052.0210, the agency must develop PELs based on the estimated ambient screening criteria and compare the PELs with each PEQ developed under subpart 3. If the PEQ exceeds the PEL for any GLI pollutant, the agency must generate or require the permittee to generate the data necessary to derive Tier II standards or criteria to protect human health from noncancer effects and aquatic life from acute and chronic effects.

C. The agency must use the data generated according to item B to calculate Tier II standards and criteria according to the methods in part 7052.0110. The derived Tier II standards and criteria must be used to calculate PELs to determine if an effluent limitation must be established in the permit. If the PEQ exceeds the PEL for any GLI pollutant, an effluent limitation must be established in the permit.

D. For GLI pollutants other than BCCs, a WQBEL for aquatic life protection will not be established if the following conditions exist:

(1) the agency determines that insufficient data exist to calculate a standard or criterion;

(2) the permittee has completed an in-stream biological assessment that demonstrates no acute or chronic aquatic life impact in the receiving water; and

(3) there is no reasonable potential for WET determined under part 7052.0240, subpart 5.

Subp. 5. **Intake credits.** Intake pollutants must be evaluated on a pollutant-by-pollutant, outfall-by-outfall basis. The conditions in items A to I apply to the agency's consideration of intake pollutants, in the absence of a TMDL or an assessment and remediation plan approved under part 7052.0200, subpart 1, item C, when establishing effluent limitations in a permit.

A. There is no reasonable potential for the discharge of an identified intake pollutant or pollutant parameter to cause or contribute to an excursion above a water quality standard listed or referenced in part 7052.0100 or a water quality criterion developed under part 7052.0110 if a discharger demonstrates to the satisfaction of the agency that the following conditions exist:

(1) the facility withdraws 100 percent of the intake water containing the intake pollutant from the same body of water, as defined in subpart 6, into which the discharge is made;

(2) the facility does not contribute any additional mass of the identified intake pollutant to its wastewater;

(3) the facility does not alter the identified intake pollutant chemically or physically in a manner that would cause increased toxicity or bioaccumulation to occur that would not occur if the intake pollutant was left in-stream;

(4) the facility does not increase the identified intake pollutant concentration at the edge of the mixing zone, or at the point of discharge if a mixing zone is not allowed, as compared to the intake pollutant concentration in the intake water, unless the increased concentration does not cause or contribute to an excursion above an applicable water quality standard or criterion; and

(5) the timing and location of the discharge would not cause increased toxicity or bioaccumulation to occur that would not occur if the identified intake pollutant was left in-stream.

B. If the agency determines that an intake pollutant in the discharge has no reasonable potential to cause or contribute to an excursion above an applicable water quality standard or criterion, a WQBEL is not necessary and the permit must require influent, effluent, and ambient monitoring necessary to demonstrate that the conditions of item A are maintained during the term of the permit.

C. If a discharger does not demonstrate to the agency that the conditions in item A, subitems (1) to (5), are met, the agency must use the procedures under subparts 2 to 4 to determine whether the discharge has the reasonable potential to cause or contribute to an excursion above an applicable water quality standard or criterion.

D. Where the facility meets the conditions in item A, subitems (1) and (3) to (5), and the background concentration is greater than the most stringent applicable water quality standard or criterion, the agency must establish an effluent limitation for the discharge of the intake pollutant at a mass and concentration no greater than the mass and concentration identified in the facility's intake water.

E. Intake credit for an intake pollutant established in item D must be phased out and replaced by a TMDL. The agency must determine WQBELs from these TMDLs and include them in permits after March 23, 2007.

F. For pollutants contained in the intake water provided by a water system, the concentration must be determined at the point where the raw water is removed from the same body of water, except that it must be the point where the water enters the water supplier's distribution system if a water treatment system removes any of the intake pollutant from the raw water supply. Mass must be determined by multiplying the concentration of the intake pollutant by the volume of the facility's intake flow received from the water system.

G. Where the intake pollutant in a facility's discharge originates from a water that is not the same body of water, as defined in subpart 6, as the receiving water, WQBELs must be based upon the most stringent standard or criterion for that intake pollutant.

H. Where a facility discharges an intake pollutant that originates in part from the same body of water as defined in subpart 6, and in part from a different body of water, the agency must apply items C, D, and F to derive a flow-weighted average effluent limitation for each intake pollutant source.

I. Where proper operation and maintenance of a facility's treatment system results in removal of some or all of an intake pollutant, the agency must establish limitations that reflect the lower mass and/or concentration of the pollutant achieved by such treatment, taking into account the feasibility of establishing such limits.

Subp. 6. **Determination of same body of water.** An intake pollutant is considered to be from the same body of water as the discharge if the agency finds that the intake pollutant would have reached the vicinity of the outfall point in the receiving water within a reasonable period had it not been removed by the permittee. The determination of the reasonable period is a site-specific determination that is based on a comparison of the time it took the intake pollutant to reach the outfall with the time it would have taken had the intake pollutant not been removed by the permittee. The finding that an intake pollutant is from the same body of water as the discharge is established when:

A. the background concentration of the intake pollutant in the receiving water, excluding any amount of the pollutant in the facility's discharge, is similar to that in the intake water;

B. there is a direct hydrological connection between the intake and discharge points; and

C. water quality characteristics, for example, temperature, pH, hardness, are similar in the intake and receiving waters.

The agency may consider other site-specific factors affecting the transport and fate of the intake pollutant to make the finding in a particular case that an intake pollutant would or would not have reached the vicinity of the outfall point in the receiving water within a reasonable period had it not been removed

by the permittee. An intake pollutant from groundwater must be considered to be from the same body of water if the agency determines the intake pollutant would have reached the vicinity of the outfall point in the receiving water within a reasonable period had it not been removed by the permittee, except that such an intake pollutant is not from the same body of water if the groundwater contains the pollutant partially or entirely due to human activity, such as industrial, commercial, or municipal operations, disposal actions, or treatment processes.

Subp. 7. **Other applicable conditions.** If the geometric mean of a GLI pollutant in fish tissue samples collected from a waterbody exceeds the fish tissue basis of a water quality standard or criterion, after factoring in the variability of the GLI pollutant's bioaccumulation in fish, each facility that discharges detectable levels of such GLI pollutant to that water has the reasonable potential to cause or contribute to an excursion above a water quality standard or criterion. Each permit for those identified facilities must contain a WQBEL for that GLI pollutant.

Statutory Authority: *MS s 115.03; 115.44*

History: *22 SR 1466*

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7052.0230 ADDITIVITY.

Subpart 1. **Applicability.** The purpose of a determination of additivity is to address the interactive effects of multiple GLI pollutants in individual point source discharges independent of other pollutants that may be present in the receiving waters.

Subp. 2. **Carcinogenic human health GLI pollutant additivity.** The agency must calculate the additive effects of carcinogenic human health pollutants in effluents according to part 7050.0222, subpart 7, item D, for which individual WQBELs have been established under part 7052.0200, subpart 5. Cumulative incremental risk for carcinogens in the effluent must be maintained at 1×10^{-5}.

Subp. 3. **Noncarcinogenic human health GLI pollutant additivity.** The agency must determine the additive effects of noncarcinogenic human health pollutants where individual WQBELs have been established under part 7052.0200, subpart 5, and where the pollutants exhibit the same adverse effects through the same mechanisms of action.

Subp. 4. **Acute aquatic life additivity.** The additive effects of acute aquatic life toxicity of GLI pollutants in effluents where individual WQBELs have been established under part 7050.0211, subpart 1, or 7052.0200, subpart 5, as FAVs must be calculated according to part 7050.0222, subpart 7, item B.

Subp. 5. **Toxic equivalency factors and bioaccumulation equivalency factors.** The agency must calculate the potential for adverse additive cancer and noncancer human health effects in effluents for both chlorinated dibenzo-p-dioxins and chlorinated dibenzofurans listed in part 7052.0380 using the procedures in items A and B.

A. The human health cancer and noncancer standards for 2,3,7,8-TCDD must be used consistent with methods at part 7052.0200, subparts 2 and 3, to calculate total 2,3,7,8-TCDD toxicity equivalence WLAs for effluents.

B. The toxicity equivalency factors (TEFs) and bioaccumulation equivalency factors (BEFs) in part 7052.0380 must be used to calculate a 2,3,7,8-TCDD toxicity equivalence concentration for an

effluent when implementing the WLAs derived in part 7052.0200, subpart 2, item A, or 3. The equation for calculating the 2,3,7,8-TCDD toxicity equivalence concentration in an effluent is as follows:

$(TEC)_{TCDD} = \Sigma (C)_x (TEF)_x (BEF)_x$

Where:

$(TEC)_{TCDD}$ = 2,3,7,8-TCDD toxicity equivalence concentration in the effluent

$(C)_x$ = The concentration of congener x in the effluent

$(TEF)_x$ = Toxicity equivalency factor for congener x

$(BEF)_x$ = Bioaccumulation equivalency factor for congener x

Congener x = a derivative, breakdown product, or similar chemical (in structure) to 2,3,7,8-TCDD. The congeners are listed in part 7052.0380.

Statutory Authority: *MS s 115.03; 115.44*

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7052.0240 WHOLE EFFLUENT TOXICITY.

Subpart 1. **Applicability.** The agency must evaluate and apply whole effluent toxicity (WET) as WQBELs and permit conditions through the following procedures and conditions:

A. no effluent shall exceed 1.0 acute toxic unit (TUa) unless a demonstration is provided under part 7052.0210, subpart 1, that 0.3 TUa can be met at the edge of an approved acute mixing zone; and

B. no effluent shall exceed 1.0 chronic toxic unit (TUc) in the receiving water at the edge of an approved mixing zone under part 7052.0210, subpart 1.

Subp. 2. **Acute and chronic WQBELs.** WQBELs determined under subpart 6 must comply with subpart 1, items A and B, except if the agency determines on an individual permit basis that chemical-specific limitations are sufficient to ensure compliance with subpart 1, items A and B.

Subp. 3. **Permit conditions.** Where the agency determines according to subpart 5 that the WET of an effluent is or may be discharged at a level that will cause, have the reasonable potential to cause, or contribute to an excursion above any standard specified in subpart 1 or 2, the following permit conditions must be established:

A. a WQBEL developed under subpart 6;

B. a requirement that a toxicity reduction evaluation be conducted where valid toxicity data indicate exceedance of a WET limitation and when the duration, magnitude, and frequency of exceedance is sufficient to allow completion of a toxic reduction evaluation to determine the pollutant or pollutants causing the exceedance;

C. for any effluent limitation for WET established under subpart 6, a schedule of compliance consistent with part 7052.0260; and

D. a requirement that all WET tests must be conducted according to the methods established in Code of Federal Regulations, title 40, part 136.

Subp. 4. **Insufficient information.** If the agency determines that it lacks sufficient information to establish under subpart 5 whether the WET of an effluent is or may be discharged at a level that will cause, have the reasonable potential to cause, or contribute to an excursion above any standard specified in subpart 1 or 2, the following permit conditions must be established:

A. WET testing requirements to generate the data needed to characterize the toxicity of the effluent to aquatic life; and

B. a permit reopener clause to establish WET limitations if any toxicity testing data required under item A and subpart 5 indicate that the WET of an effluent is or may be discharged at a level that will cause, have the reasonable potential to cause, or contribute to an excursion above any of the conditions in subparts 1 and 2.

Subp. 5. **Reasonable potential determination.** The agency must apply the factors in Code of Federal Regulations, title 40, section 122.44, paragraph (d)(1)(ii), and use representative data to evaluate the WET of an effluent. The agency must apply the provisions in items A to C to evaluate the reasonable potential of the effluent to exceed a WQBEL.

A. The agency must determine the toxicity of the effluent using the provisions in subitems (1) to (3).

(1) Acute toxicity values collected on the same day for each species must be averaged to represent one daily value. The maximum of all daily values for the most sensitive species tested must be used in the reasonable potential determinations.

(2) Chronic toxicity values collected within the same calendar month for each species tested must be averaged to represent one monthly value. The maximum of all monthly values for the most sensitive species tested must be used in the reasonable potential determinations.

(3) Toxicity values for missing endpoints must be estimated using a default acute-chronic ratio of 10 when data exist for either acute WET or chronic WET, but not for both endpoints.

B. The WET of an effluent has the reasonable potential to cause or contribute to an excursion above 1.0 TUa at the point of discharge or 0.3 TUa at the edge of the acute mixing zone when a mixing zone demonstration has been approved under part 7052.0210 and when the effluent-specific information demonstrates that:

(1) For discharges to streams and rivers:

$$\frac{T\,(B)(Qd)}{Qd + Qr} > \text{1.0 TUa or 0.3 TUa, as applicable}$$

Where:

T = Maximum acute toxicity of the effluent measured under item A, subitem (1), in toxic units (TUa)

B = Multiplying factor from part 7052.0370, converting the measured maximum value to a 95th percentile value, except that a CV of 0.6 must be used where less than ten individual WET tests are available

Qd = Effluent design flow

Qr = Dilution flow allowed from the stream design flow specified in part 7052.0200, subpart 3, item A, subitem (1), including allowance for dilution from a mixing zone demonstration under part 7052.0210; or

(2) For discharges to lakes:

$T(B)(X) > 1.0$ TUa or 0.3 TUa, as applicable

Where:

T = Maximum acute toxicity of the effluent measured under item A, subitem (1), in toxic units (TUa)

B = Multiplying factor from part 7052.0370 converting the measured maximum value to a 95th percentile value, except that a CV of 0.6 must be used where less than ten individual WET tests are available

X = Dilution ratio established in the mixing zone demonstration under part 7052.0210, subpart 2.

C. The WET of an effluent has the reasonable potential to cause or contribute to an excursion above the chronic standard when the effluent-specific information demonstrates that:

(1) For discharges to streams and rivers:

$$\frac{T(B)(Qd)}{Qd + Qr} > 1.0 \text{ TUc}$$

Where:

T = Maximum chronic toxicity of the effluent measured under item A, subitem (2), in toxic units (TUc)

B = Multiplying factor from part 7052.0370, converting the measured maximum value to a 95th percentile value, except that a CV of 0.6 must be used where less than ten individual WET tests are available

Qd = Effluent design flow

Qr = Dilution flow allowed from the stream design flow specified in part 7052.0200, subpart 3, item A, subitem (2), including allowance for dilution from a mixing zone demonstration under part 7052.0210; or

(2) For discharges to lakes:

$T (B)(X) > 1.0$ TUc

Where:

T = Maximum chronic toxicity of the effluent measured under item A, subitem (2), in toxic units (TUc)

B = Multiplying factor from part 7052.0370 converting the measured maximum value to a 95th percentile value, except that a CV of 0.6 must be used where less than ten individual WET tests are available

X = 10, which represents a receiving water volume to effluent volume dilution ratio of 10 to 1, unless an alternative mixing zone demonstration is provided under part 7052.0210, subpart 2, that includes a dilution ratio other than 10 to 1 and results in a mixing zone that is no greater than the area of discharge-induced mixing, in which case X equals the dilution ratio established in the demonstration.

Subp. 6. **WQBELs for WET.** The agency must establish WQBELs according to the provisions in items A to D.

A. The acute WET limitation for discharges must be 1.0 TUa, applied as a daily maximum, unless provisions for an acute mixing zone under part 7052.0210 have been established that:

(1) result in compliance, at the edge of an agency-approved mixing zone for streams and rivers, with the acute WET limitation calculated as follows:

$$\text{Acute WET limitation} = \frac{T (Qd + Qr)}{Qd}$$

Where:

T = 0.3 TUa

Qd = Effluent design flow

Qr = Stream design flow specified in part 7052.0200, subpart 3, item A, subitem (1), including allowance for dilution from a mixing zone demonstration under part 7052.0210; or

(2) result in compliance, at the edge of an agency-approved mixing zone for lakes, with the acute WET limitation calculated as follows:

Acute WET limitation = T(X)

Where:

T = 0.3 TUa

X = The dilution ratio established in the mixing zone demonstration under part 7052.0210, subpart 2.

B. The chronic WET limitation for discharges to streams and rivers, applied as a monthly average, must be calculated as follows:

$$\text{Chronic WET limitation} = \frac{T\,(Qd + Qr)}{Qd}$$

Where:

T = 1.0 TUc

Qd = Effluent design flow

Qr = Stream design flow specified in part 7052.0200, subpart 3, item A, subitem (2), including allowance for dilution from a mixing zone demonstration under part 7052.0210.

C. The chronic WET limitation for discharges to lakes, applied as a monthly average, must be calculated as follows:

Chronic WET limitation = T (X)

Where:

T = 1.0 TUc

X = 10, which represents a receiving water volume to effluent volume dilution ratio of 10 to 1, unless an alternative mixing zone demonstration is provided under part 7052.0210, subpart 2, that includes a dilution ratio other than 10 to 1 and results in a mixing zone that is no greater than the area of discharge-induced mixing, in which case X equals the dilution ratio established in the demonstration.

D. The agency must establish, on an individual permit basis, a monitoring frequency to evaluate compliance with WET limitations.

Statutory Authority: *MS s 115.03; 115.44*

History: *22 SR 1466*

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7052.0250 WQBELS BELOW QUANTIFICATION LEVEL.

Subpart 1. **Applicability.** The agency must establish in the permit the WQBEL exactly as calculated when a WQBEL for a GLI pollutant is calculated to be less than the quantification level.

Subp. 2. **Analytical method and quantification level used to assess compliance.** The agency must use the provisions in items A to D when assessing compliance with a WQBEL below the quantification level.

A. The agency must identify in the permit the analytical method that must be used to monitor for the presence and amount of the GLI pollutant in an effluent for which the WQBEL is established. The analytical method specified must be the most sensitive, applicable, analytical method specified in or approved under Code of Federal Regulations, title 40, part 136, or other agency-approved method if one is not available under Code of Federal Regulations, title 40, part 136.

B. The quantification level shall be the minimum level specified in or approved under Code of Federal Regulations, title 40, part 136, for the method for that GLI pollutant. If no such minimum level exists, or if the method is not specified or approved under Code of Federal Regulations, title 40, part 136, the quantification level shall be the lowest quantifiable level approved by the agency. The agency must specify a higher quantification level if the permittee demonstrates that a higher quantification level is appropriate because of effluent-specific matrix interference.

C. For the purpose of compliance assessment, the analytical method specified in the permit must be used to monitor the amount of a GLI pollutant in an effluent down to the quantification level, provided that the analyst has complied with the specified quality assurance and quality control procedures in the relevant method.

D. The agency must use commonly accepted statistical procedures to average and account for monitoring data. The agency must specify in the permit the value to be substituted for sample results when the results are below the quantification level, and how the value will be used in calculations for an average.

Subp. 3. **Special conditions.** If the concentration of a pollutant in an effluent is so low that it cannot be quantified under subpart 2, the agency must include special conditions in the permit to assess the level of the pollutant in the effluent. The permit must also contain a reopener clause authorizing modification or revocation and reissuance of the permit if any information generated as a result of special conditions included in the permit indicates the presence of the GLI pollutant in the discharge at levels above the WQBEL. The following special conditions must be included in the permit under the conditions specified:

A. results of fish tissue sampling when human health or wildlife limitations are included in the permit;

B. WET tests when aquatic life limitations are included in the permit;

C. internal waste stream monitoring requirement when the agency determines, based on knowledge of the facility, that quantifiable levels of the pollutant can be measured in an internal waste stream; and

D. monitoring for surrogate waste stream parameters when the agency determines the surrogate parameter is quantifiable and correlated to the concentration of the pollutant in the effluent.

Subp. 4. **GLI pollutant minimization program.** The agency shall include a condition in the permit requiring the permittee to develop and conduct a GLI pollutant minimization program for each GLI pollutant with a WQBEL below the quantification level. The goal of the GLI pollutant minimization program is to reduce all sources of the GLI pollutant to maintain the effluent at or below the WQBEL. The GLI pollutant minimization program must include at least the following:

A. an annual review and periodic monitoring of potential GLI pollutant sources which may include fish tissue monitoring or other bio-uptake sampling as necessary to assess progress toward attainment of the WQBEL;

B. periodic monitoring of wastewater treatment system influent as necessary to assess progress toward attainment of the WQBEL;

C. submittal of a control strategy to reduce GLI pollutant loading to the industrial or municipal wastewater treatment system influent or to the effluent if there is no discrete treatment system;

D. implementation of cost-effective controls when sources of GLI pollutants are found; and

E. submission of an annual status report to the agency that includes the following:

(1) all minimization program monitoring results for the previous year;

(2) a list of potential sources of the GLI pollutant; and

(3) a summary of all actions taken to reduce identified sources of the GLI pollutant.

Statutory Authority: *MS s 115.03; 115.44*

History: *22 SR 1466*

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7052.0260 COMPLIANCE SCHEDULES.

Subpart 1. **Applicability.** This part applies to the schedules of compliance in permits for new and existing dischargers for the standards and limitations developed in this chapter.

Subp. 2. **New dischargers.** When a permit containing a WQBEL for a GLI pollutant is issued to a new discharger, the permittee must comply with such limitation upon commencement of the discharge. Compliance schedules must be included for new or more stringent WQBELs and for new or improved analytical methods or new lower quantification levels that are contained in any subsequently modified or reissued permit.

Subp. 3. **Existing dischargers.** An existing permit that is reissued or modified, on or after March 9, 1998, to contain a new or more stringent WQBEL, a new or improved analytical method, or a new lower quantification level for a GLI pollutant must have a compliance schedule for the permittee to comply with that limitation. A compliance schedule may go beyond the term of the permit. The compliance schedule must not extend beyond five years from the date of permit issuance or modification.

When the compliance schedule goes beyond the term of the permit, an interim permit limitation effective upon the expiration date must be included in the permit and addressed in the permit's fact sheet or statement of basis. The administrative record for the permit must reflect the final limitation and its compliance date.

Where a schedule of compliance is established that exceeds one year from the permit issuance or modification date, the schedule must provide interim requirements and dates for their achievement. The

time between interim dates may not exceed one year. If the time necessary for completion of any interim requirement is more than one year and is not readily divisible into stages for completion, the permit must require specific dates for annual submission of progress reports on the status of any interim requirements.

Subp. 4. **Tier II standard or criterion delayed effectiveness dates.** Whenever a WQBEL for a GLI pollutant is based upon a Tier II standard or criterion and is included in a reissued or modified permit for an existing discharger, and studies are going to be conducted to generate sufficient data to revise the Tier II standard or criterion or develop a Tier I standard or criterion, the permit must provide a period of time, up to two years, in which to provide the additional studies. In such cases, the permit must require compliance with the Tier II limitation no later than five years after permit issuance or modification, and contain a reopener clause.

Subp. 5. **Revision of a WQBEL.** The reopener clause identified in subpart 4 must authorize the agency to make permit modifications if additional data have been provided during the time allowed to provide the studies identified in subpart 4, and the permittee or a third party demonstrates through the studies that a revised WQBEL for a GLI pollutant is necessary due to a modification of a standard or criterion under subpart 4. The revised WQBEL must be incorporated through a permit modification and a compliance schedule of up to five years must be allowed. If incorporated prior to the compliance date of the original Tier II limitation, any revised WQBEL must not be considered less stringent for purposes of the antibacksliding provisions of section 402(o) of the Clean Water Act, United States Code, title 33, section 1342(o). If the specified studies have been completed and do not demonstrate the need to modify a standard or criterion under subpart 4, and therefore a revised WQBEL is not necessary, the agency must provide an additional time period, not to exceed five years, to achieve compliance with the original WQBEL. Where a permit is modified to include new or more stringent effluent limitations, on a date within five years of the permit expiration date, the compliance schedules may extend beyond the term of a permit consistent with subpart 3.

Subp. 6. **Decreasing stringency of a WQBEL.** If future studies, other than those conducted under subparts 4 and 5, result in a Tier II standard or criterion being changed to a less stringent Tier I or Tier II standard or criterion after the effective date of a Tier II-based WQBEL for that GLI pollutant, the existing Tier II-based WQBEL may be revised to be less stringent if the following provisions are met:

A. the revised WQBEL complies with section 402(o)(2) and (3) of the Clean Water Act, United States Code, title 33, section 1342(o)(2) and (3);

B. the revised WQBEL will ensure compliance with water quality standards and criteria in nonattainment waters; or

C. the revised WQBEL complies with nondegradation standards and implementation procedures in parts 7050.0180, 7050.0185, 7052.0300, 7052.0310, 7052.0320, and 7052.0330, in attained waters.

Statutory Authority: *MS s 115.03; 115.44*

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7052.0270 SITE-SPECIFIC WATER QUALITY STANDARDS OR CRITERIA.

Subpart 1. **Applicability.** This part applies when a discharger requests a site-specific criterion or a site-specific modification to a standard, or the agency determines that a site-specific criterion or modification is necessary to protect endangered or threatened species under subpart 5, or highly exposed

subpopulations under subpart 7. Site-specific criteria or modifications to standards must be protective of designated uses and aquatic life, wildlife, and human health. Site-specific criteria or modifications must be preceded by a site-specific study of the effects of local environmental conditions on aquatic life, human health, or wildlife toxicity, and how these effects relate to the calculation of standards or criteria. The study must be conducted according to the EPA methods in chapter 3 of the U.S. EPA Water Quality Standards Handbook, Second Edition (EPA-823-B-94-005a, August 1994), which is adopted and incorporated by reference in part 7052.0015, item G. The agency must approve the site-specific study and, upon approval, the agency must use the study data to develop each site-specific criterion or standard, which then must be submitted to EPA for approval.

Subp. 2. **Considerations for endangered and threatened species.** The agency must apply the provisions in items A to C when modifying a standard or developing a site-specific criterion.

A. Any site-specific modifications that result in less stringent standards or site-specific criteria must not jeopardize the continued existence of endangered or threatened species listed or proposed under chapter 6134 or section 4 of the Endangered Species Act (ESA), United States Code, title 16, section 1533, or result in the destruction or adverse modification of such species' critical habitat.

B. More stringent modifications or site-specific criteria must be developed to protect endangered or threatened species listed or proposed under chapter 6134 or section 4 of the ESA where the water quality jeopardizes the continued existence of such species or results in the destruction or adverse modification of such species' critical habitat.

C. More stringent modifications or site-specific criteria must also be developed to protect candidate (C1) species being considered by the United States Fish and Wildlife Service for listing under section 4 of the ESA, where such modifications are necessary to protect such species.

Subp. 3. **Aquatic life.** The agency must modify an aquatic life standard to a more stringent or less stringent site-specific standard, or determine a site-specific criterion, based upon the results of a site-specific study completed according to subpart 1 if the study demonstrates that:

A. the local water quality characteristics, such as pH, hardness, temperature, and color, alter the biological availability or toxicity of a GLI pollutant;

B. local physical and hydrological conditions exist that alter the toxicity of a GLI pollutant; or

C. the sensitivity of the aquatic organisms that occur at that site differs from the species actually used in developing the standards or criteria. The taxa that occur at the site cannot be determined merely by sampling downstream and/or upstream of the site at one point in time. The phrase "occur at the site" does not include taxa that were once present at the site but cannot exist at the site now due to permanent physical alteration of the habitat at the site. It does include the species, genera, families, orders, classes, and phyla that:

(1) are usually present at the site;

(2) are present at the site only seasonally due to migration;

(3) are present intermittently because they periodically return to or extend their ranges into the site;

(4) were present at the site in the past, are not currently present at the site due to degraded conditions, and are expected to return to the site when conditions improve; or

(5) are present in nearby bodies of water, are not currently present at the site due to degraded conditions, and are expected to be present at the site when conditions improve.

If item A, B, or C indicates that the GLI pollutant is more toxic at the site or organisms are more sensitive, or if additional protection is necessary to maintain designated aquatic life uses, the agency must calculate a more stringent site-specific standard or criterion. If item A, B, or C indicates that the GLI pollutant is less toxic at the site or organisms are less sensitive than those used in the calculation of the standard or criterion, and neither item A, B, nor C indicate greater toxicity, the agency must calculate a less stringent site-specific standard or criterion.

Subp. 4. **Wildlife.** The agency must modify a wildlife standard to a more stringent or less stringent site-specific standard, or determine a site-specific criterion, based upon the results of a site-specific study completed according to subpart 1. More stringent site-specific water quality standards or criteria must be developed when a site-specific bioaccumulation factor (BAF) is derived which is higher than the systemwide BAF derived under part 7052.0110. Less stringent site-specific water quality standards or criteria must be developed when a site-specific BAF is derived which is lower than the systemwide BAF derived under part 7052.0110. The agency's modification evaluation must evaluate both the mobility of the prey organisms and wildlife populations in defining the site for which the criteria or modified standards are developed. In addition, for less stringent site-specific water quality standards or criteria to be applied in a permit there must be a demonstration by either the discharger or the agency that:

A. any increased uptake of the toxicant by prey species utilizing the site will not cause adverse effects in wildlife populations; and

B. wildlife populations utilizing the site or downstream surface waters of the state will continue to be fully protected.

Subp. 5. **Site-specific modifications to protect threatened or endangered species.** The agency must modify both aquatic life and wildlife standards or develop criteria on a site-specific basis to protect threatened or endangered species where the water quality jeopardizes the continued existence of such species or results in the destruction or adverse modification of such species' critical habitat. The provisions in items A and B apply to site-specific standards or criteria to protect endangered or threatened species.

A. Site-specific modifications to aquatic life standards, or site-specific criteria, must be calculated by the agency when one of the following methods is applicable:

(1) If the species mean acute value for a listed or proposed species, or an applicable surrogate of such species, is lower than the calculated FAV, the lower species mean acute value must be used instead of the calculated FAV in developing the site-specific criterion or standard.

(2) The site-specific criterion or standard must be calculated using the recalculation procedure for site-specific modifications when the sensitivities of organisms used to derive the GLI pollutant standard or criterion are different from the sensitivities of the organisms that occur at the site. The recalculation procedure is described in chapter 3 of the U.S. EPA Water Quality Standards Handbook, Second Edition (EPA-823-B-94-005a, August 1994), which is adopted and incorporated by reference in part 7052.0015, item G.

(3) If the methods in subitems (1) and (2) are both applicable, the agency must follow both methods to calculate site-specific modifications to aquatic life standards or site-specific criteria, then compare the results and apply the more stringent standards or criteria.

B. For any modifications to wildlife standards or criteria, the agency must evaluate both the mobility of prey organisms and wildlife populations in defining the site for which standards or criteria are developed and must use the following method to calculate site-specific standards or criteria:

(1) substitute appropriate species-specific toxicological, epidemiological, or exposure information, including changes to the BAF, used in the GLI Guidance methodology referenced in part 7052.0110, subpart 5;

(2) use an interspecies uncertainty factor of 1 where epidemiological data are available for the species in question. If applicable, species-specific exposure parameters must be derived using the GLI Guidance methodology referenced in part 7052.0110, subpart 5;

(3) apply an intraspecies sensitivity factor to the denominator in the effect part of the wildlife equation in the GLI Guidance methodology referenced in part 7052.0110, subpart 5, in accordance with the other uncertainty factors described in that method; and

(4) compare the resulting wildlife criterion or standard for the species in question to the class-specific avian and mammalian wildlife values previously calculated under part 7052.0110, subpart 5, and apply the lowest of the three as the site-specific standard or criterion.

Subp. 6. **Bioaccumulation factors.** The agency must modify BAFs on a site-specific basis to larger values if data from the study approved under subpart 1 show that a bioaccumulation value derived from local bioaccumulation data is greater than the systemwide value. Site-specific BAFs must be derived using the GLI Guidance methodology referenced in part 7052.0110, subpart 3. The agency must modify BAFs on a site specific basis to lower values if:

A. the fraction of the total chemical freely dissolved in the ambient water is less than that used to derive the systemwide BAFs;

B. input parameters of the Gobas model, such as the input structure of the aquatic food web and the disequilibrium constant, are different at the site than those used to derive the systemwide BAFs;

C. the percent lipid of the aquatic organisms that are consumed and occur at the site is lower than that used to derive the systemwide BAFs; or

D. site-specific, field measured BAFs or biota-sediment accumulation factors are determined.

Subp. 7. **Human health.** The agency must modify human health standards or determine criteria on a site-specific basis to provide additional protection necessary for highly exposed subpopulations. A subpopulation is highly exposed if the dosage of the GLI pollutant is greater for the subpopulation due to increased fish consumption rates, increased water ingestion rates, or an increased BAF. The agency must develop less stringent site-specific human health standards or criteria if the study approved under subpart 1 demonstrates that:

A. local fish consumption rates are lower than the rate used in deriving human health standards or criteria in part 7052.0110, subpart 4; or

B. a site-specific BAF is derived under subpart 6 which is lower than that used in deriving human health standards or criteria in part 7052.0110, subpart 4.

Statutory Authority: *MS s 115.03; 115.44*

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7052.0280 VARIANCES FROM WATER QUALITY STANDARDS OR CRITERIA.

Subpart 1. **Applicability.** This part applies to GLI pollutant-specific variance requests from individual point source dischargers to surface waters of the state in the Lake Superior Basin for WQBELs which are included in a permit. This part does not apply to new dischargers, unless the proposed discharge is necessary to alleviate an imminent and substantial danger to public health and welfare. A water quality standards or criteria variance must not be granted if any of the following conditions exist:

A. if it would jeopardize the continued existence of any endangered or threatened species listed under chapter 6134 or section 4 of the Endangered Species Act, United States Code, title 16, section 1533, or result in destruction or adverse modification of such species' critical habitat; or

B. if standards or criteria will be attained by implementing effluent limitations required under sections 301(b) and 306 of the Clean Water Act, United States Code, title 33, sections 1311(b) and 1316, and by the permittee implementing cost-effective and reasonable best management practices for nonpoint source control.

Subp. 2. **Maximum time frame.** A variance must not exceed five years or the term of the permit, whichever is less.

Subp. 3. **Conditions to grant a variance.** The agency must grant a variance if the following conditions are met:

A. the permittee demonstrates to the agency that attaining the water quality standard or criterion is not feasible because:

(1) naturally occurring GLI pollutant concentrations prevent attainment of the water quality standard or criterion;

(2) natural, ephemeral, intermittent, or low-flow conditions or water levels prevent the attainment of water quality standards or criteria, unless these conditions may be compensated for by discharging sufficient volume of effluent to enable water quality standards or criteria to be met without violating the water conservation requirements of Minnesota Statutes, chapter 103G;

(3) human-caused conditions or sources of pollution prevent the attainment of water quality standards or criteria and cannot be remedied, or would cause more environmental damage to correct than to leave in place;

(4) dams, diversions, or other types of hydrologic modifications preclude the attainment of water quality standards or criteria, and it is not feasible to restore the waterbody to its original condition or to operate the modification in a way that would result in attainment of the water quality standard;

(5) physical conditions related to the natural features of the waterbody, such as the lack of a proper substrate cover, flow, depth, pools, riffles, and the like, unrelated to chemical water quality, preclude attainment of water quality standards or criteria; or

(6) controls more stringent than those required under sections 301(b) and 306 of the Clean Water Act, United States Code, title 33, sections 1311(b)and 1316, would result in substantial and widespread economic and social impact;

B. the permittee shows that the variance conforms with agency nondegradation procedures; and

C. the permittee characterizes the extent of any increased risk to human health and the environment associated with granting the variance, such that the agency is able to conclude that any increased risk is consistent with the protection of the public health, safety, and welfare.

Subp. 4. **Variance application submittal, public notice of preliminary determination, and notice requirements.** Variance application submittal, public notice of preliminary determination, and notice requirements must conform to part 7000.7000.

Subp. 5. **Agency final decision; variance requirements.** The agency must issue a final decision regarding the variance request that conforms to the procedural requirements in part 7000.7000. If a variance is granted, it must include and incorporate into the permit the following conditions:

A. an effluent limitation representing currently achievable treatment conditions based on discharge monitoring which is no less stringent than that achieved under the previous permit;

B. a schedule of compliance activities for attaining water quality standards or criteria;

C. an effluent limitation sufficient to meet the underlying water quality standard or criterion, upon the expiration of the variance, when the duration of the variance is shorter than the duration of the permit;

D. a provision allowing the agency to reopen and modify the permit based on agency triennial water quality standards revisions applicable to the variance; and

E. for BCCs, a GLI pollutant minimization program consistent with part 7052.0250, subpart 4.

Subp. 6. **Renewal of variance.** The renewal of a variance is subject to the requirements of subparts 1 to 5.

Subp. 7. **Notice of variances.** The agency must list all variances to state water quality standards as required in part 7050.0190, subpart 2.

Statutory Authority: *MS s 115.03; 115.44*

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NONDEGRADATION

7052.0300 NONDEGRADATION STANDARDS.

Subpart 1. **Applicability.** This part and parts 7050.0180 and 7050.0185 establish the nondegradation standards and implementation procedures for surface waters of the state in the Lake Superior Basin. For the purposes of this part and parts 7052.0310 to 7052.0330, lowering of water quality means a new or expanded point source discharge of a BSIC to an outstanding international resource water, or a new or expanded point or nonpoint source discharge, for which there is a control document, of a BCC to a high quality water. The nondegradation standards established in this part and parts 7050.0180 and 7050.0185 for surface waters of the state in the Lake Superior Basin apply as follows:

A. Parts 7052.0300 to 7052.0330 apply to the following discharges:

(1) new and expanded point source discharges of BSICs to waters designated as outstanding international resource waters (OIRWs) under subpart 3; and

(2) new and expanded point and nonpoint source discharges of BCCs to waters designated as high quality waters under subpart 4.

B. Part 7050.0180 applies to new or expanded discharges of any pollutant to surface waters of the state designated as ORVWs as described in parts 7050.0460 and 7050.0470. Part 7050.0180, subpart 9, applies to new and expanded discharges upstream of an ORVW. For discharges of BCCs directly to ORVWs or upstream of ORVWs in the Lake Superior Basin, the actions or activities that may trigger a nondegradation demonstration are listed in part 7052.0310, subpart 4, and actions or activities that are exempt from nondegradation requirements are listed in part 7052.0310, subpart 5.

C. Part 7050.0185 applies to the discharge of non-BCCs to all surface waters of the state in the Lake Superior Basin not designated as ORVWs, and to the discharge of BCCs to waters not designated as ORVWs or high quality waters. Part 7050.0185 also applies to the discharge of pollutants to Class 7 waters, except that the following requirements also apply in the indicated circumstances:

(1) any new or expanded discharge to a Class 7 water upstream of an ORVW must meet the requirements of part 7050.0180, subpart 9; and

(2) any new or expanded discharge to a Class 7 water upstream of an OIRW or a high quality water must meet the requirements of parts 7052.0310 to 7052.0330 as necessary to ensure compliance with the standards established in subparts 3 and 4.

Subp. 2. **Maintenance of existing water quality.** Existing water uses under part 7050.0185 and the level of water quality necessary to protect existing uses must be maintained and protected. Where designated uses of the waterbody are impaired, there must be no lowering of the water quality with respect to the GLI pollutants causing the impairment.

Subp. 3. **Outstanding international resource waters.** All surface waters of the state in the Lake Superior Basin, other than Class 7 waters and designated ORVWs as described in parts 7050.0460 and 7050.0470, are designated as OIRWs. Any new or expanding point source discharge of a BSIC to an OIRW must comply with the implementation requirements of part 7052.0310 and the demonstration requirements of part 7052.0320, subparts 2 and 3.

Subp. 4. **High quality waters.** Where, for any individual BCC, the water quality of an OIRW is better than the quality necessary to support the propagation of fish, shellfish, and wildlife and recreation in and on the water, that water shall be considered high quality for that BCC and the quality must be maintained and protected under the implementation and demonstration requirements of parts 7052.0310 and 7052.0320. On a pollutant-specific basis, the agency shall allow a lowering of water quality if it determines the lowering of water quality is necessary to accommodate important economic or social development in the area in which the water is located, in accordance with part 7052.0310, subpart 3. If a lowering of water quality is allowed, existing and designated uses must be fully protected.

Subp. 5. **Thermal discharges.** The agency's nondegradation determination associated with a potential lowering of water quality due to a thermal discharge must be consistent with section 316 of the Clean Water Act, United States Code, title 33, section 1326.

Statutory Authority: *MS s 115.03; 115.44*

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7052.0310 NONDEGRADATION IMPLEMENTATION.

Subpart 1. **Applicability.** This part identifies the implementation requirements for new and expanded discharges of BSICs to OIRWs and of BCCs to high quality waters.

Subp. 2. **Outstanding international resource waters.** Actions or activities that result in a new or expanded point source discharge of a BSIC to an OIRW are prohibited unless the agency has received and approved a nondegradation demonstration that meets the requirements of part 7052.0320, subparts 2 and 3, including an identification of the best technology in process and treatment to be employed by the discharger at the facility. Subpart 4 lists the types of actions or activities that may trigger a nondegradation demonstration, and subpart 5 lists actions and activities that do not trigger a nondegradation demonstration.

Subp. 3. **High quality waters.** On a pollutant-specific basis, actions or activities that result in a new or expanded point or nonpoint source discharge of an individual BCC to a surface water of the state in the Lake Superior Basin designated under part 7052.0300, subpart 4, as a high quality water for that BCC are prohibited unless the agency has received and approved a nondegradation demonstration that meets the requirements of part 7052.0320, subpart 2. New or expanded point source discharges of BSICs must also meet the requirements of part 7052.0320, subpart 3. This subpart only applies to dischargers for which there is a control document. Subpart 4 lists the types of actions or activities that may trigger a nondegradation demonstration, and subpart 5 lists actions and activities that do not trigger a nondegradation demonstration.

Subp. 4. **Nondegradation demonstration triggers.** The following actions or activities require a nondegradation demonstration if they result in a new or expanded point source discharge of a BSIC to an OIRW, or a new or expanded point or nonpoint source discharge, for which there is a control document, of a BCC to a high quality water:

A. construction of a new facility or modification of an existing facility such that a new or modified control document is required;

B. modification of an existing facility operating under a current control document such that the production capacity of the facility is increased;

C. addition of a new source of untreated or pretreated effluent containing or expected to contain any BCC to an existing wastewater treatment works, whether public or private;

D. a request for an increased limitation in an applicable control document; or

E. other discharger-induced actions or activities that, based on the information available, could be reasonably expected to result in an increased loading of any BCC to any surface waters of the state in the Lake Superior Basin.

Subp. 5. **Actions and activities that do not trigger a nondegradation demonstration.** The actions and activities in items A to E do not require a nondegradation demonstration.

A. Changes in loading of any BCC within the existing capacity and processes covered by an applicable control document. These changes include:

(1) normal operational variability;

(2) changes in intake water pollutants;

(3) increasing the production hours of a facility;

(4) increases in the rate of production; or

(5) new effluent limitations based on improved monitoring data or new water quality standards or criteria that are not a result of changes in pollutant loading.

B. New or expanded discharges of a BCC when the facility withdraws intake water containing the BCC from the same body of water as defined in part 7052.0220, subpart 6, and the new or expanded discharge of the BCC is due solely to the presence of the BCC in the intake.

C. New or expanded discharges of noncontact cooling water that will not result in an increased loading of a BCC.

D. Increasing the sewage loading to an existing, publicly owned wastewater treatment works provided that the increase is within the permitted design flow of the facility, there is no increased loading of BCCs from industrial and other wastes, and no significant change is expected in the characteristics of the wastewater discharged.

E. New or expanded discharges of construction or industrial storm water subject to a general NPDES permit.

Subp. 6. **Notification.** The control document regulating the discharge of any BCC, including BSICs, from point and nonpoint sources must include a requirement that the discharger notify the agency of any increased loadings of BCCs where the increase is above normal variability. The control document must also include a monitoring requirement for any BCC known or believed to be present in the discharge. Notification is not required for the exemptions in subpart 7.

Subp. 7. **Exemptions.** Except when the agency determines on a case-by-case basis that the application of subparts 1 to 6 is required to adequately protect water quality, the procedures of this part do not apply to:

A. actions or activities resulting in a short-term, as in weeks or months, temporary lowering of water quality;

B. bypasses that are not prohibited by Code of Federal Regulations, title 40, section 122.41, paragraph (m); and

C. response actions pursuant to the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), as amended, Minnesota Statutes, chapter 115B or 115C, or similar federal authorities undertaken to alleviate a release into the environment of hazardous substances, pollutants, or contaminants which may pose an imminent and substantial danger to the public health or welfare.

Statutory Authority: *MS s 115.03; 115.44*

History: *22 SR 1466*

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7052.0320 NONDEGRADATION DEMONSTRATION.

Subpart 1. **Applicability.** For surface waters of the state designated as OIRWs under part 7052.0300, subpart 3, and high quality waters under part 7052.0300, subpart 4, the procedures in items A and B must be followed to fulfill the nondegradation requirements of part 7052.0310, subparts 2 and 3.

A. Any discharger, for which there is a control document, proposing a new or expanded discharge of a BCC from a point or nonpoint source to a water designated under part 7052.0300, subpart 3, as a high quality water for that BCC must complete the requirements in subpart 2. If the discharger is

proposing a new or expanded point source discharge of a BSIC, the requirements of subpart 3 must also be completed.

B. Any discharger proposing a new or expanded point source discharge of a BSIC to an OIRW must complete the requirements in subparts 2 and 3.

Subp. 2. **Demonstration elements.** The actions in items A to C must be completed by the discharger to provide a complete nondegradation demonstration.

A. Identify any available cost-effective pollution prevention alternatives and techniques that would eliminate or reduce the extent to which the increased loading results in a lowering of water quality.

B. Identify available cost-effective alternative or enhanced treatment techniques, beyond best available technology economically achievable, that would eliminate the lowering of water quality, and their costs relative to the cost of treatment necessary to achieve compliance with effluent limitations.

C. Identify the economic or social development and the benefits to the area in which the waters are located that will not occur if the lowering of water quality is not allowed.

In lieu of items A to C, entities proposing remedial actions pursuant to the CERCLA, as amended, corrective actions pursuant to the Resource Conservation and Recovery Act, as amended, or similar actions pursuant to other federal or state environmental statutes must submit information to the agency that demonstrates that the action utilizes the most cost-effective pollution prevention and treatment techniques available, and minimizes the necessary lowering of water quality.

Subp. 3. **Best technology in process and treatment analysis.** Dischargers proposing new or expanded loadings of BSICs in their discharge to OIRW-designated waters must provide an analysis of best technology in process and treatment (BTPT) to eliminate or reduce the extent of the new or expanded discharge in lieu of the requirements of subpart 2, item B. If the agency determines that the technologies under section 301 of the Clean Water Act, United States Code, title 33, section 1311, meet the provisions of this part, then these technologies are equivalent to BTPT. When evaluating the BTPT analysis, the agency will encourage innovative BTPT technologies. The BTPT analysis must comply with the requirements in items A to E.

A. The BTPT analysis must evaluate the opportunities and technologies the discharger has to reduce loadings and minimize the generation of BSICs including pollution prevention, minimization and toxics reduction, and state-of-the-art or advanced process technologies. The preferred opportunity or technology choice to reduce the generation and loadings of BSICs is pollution prevention, minimization, and toxics reduction.

B. The BTPT analysis must evaluate the effects of the transfer of pollutants to other media in addition to water as a result of the implementation of a process technology, pollution prevention technique, or treatment technology used to implement BTPT.

C. If a multiple BSIC discharge exists, the BTPT analysis must identify BTPT for each BSIC in the discharge. If the identified BTPT technologies are not compatible and, if implemented together, cannot minimize or treat each BSIC to levels that would be achieved if the individual BTPT technologies was implemented alone, a GLI pollutant minimization program must be implemented according to part 7052.0250, subpart 4.

D. BSICs subject to a BTPT analysis must be assumed to be present in the discharge if there is evidence of their presence at the facility in internal processes or internal waste streams, even if the effluent concentration is below analytical detection levels.

E. The BTPT proposed must be the most advanced technology available, viable in the marketplace, and compatible with existing processes where facility modifications or process technology changes are proposed.

Statutory Authority: *MS s 115.03; 115.44*

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7052.0330 NONDEGRADATION DECISION.

Once the agency determines that the information provided by the discharger proposing a new or expanding discharge is complete, the agency must use that information to determine:

A. whether the lowering of water quality is necessary because the agency determines there is no pollution prevention or alternative technology available that would avoid the lowering of water quality; and

B. if the lowering of water quality is necessary, whether or not it will support important social and economic development in the area.

If the proposed lowering of water quality is either unnecessary because of pollution prevention or alternative technology availability, or will not support important social and economic development, the agency must deny the request to lower water quality. If the lowering of water quality is necessary, and it will support important social and economic development, the agency must allow that part of the proposed lowering necessary to accommodate the important social and economic development, except that the agency must not allow water quality to be lowered below the minimum level required to fully support existing and designated uses. The preliminary decision of the agency is subject to the public notice requirements under chapter 7001.

If BTPT is required under part 7052.0310, subpart 2, for a new or expanded point source discharge of a BSIC to an OIRW, the agency must review and approve the BTPT analysis and require the discharger to install and use the BTPT. The preliminary decision of the agency is subject to the public notice requirements under chapter 7001.

Statutory Authority: *MS s 115.03; 115.44*

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7052.0350 BIOACCUMULATIVE CHEMICALS OF CONCERN.

List of Bioaccumulative Chemicals of Concern (BCCs) (* indicates those BCCs that are BSICs):

A. Chlordane*;

B. DDT and metabolites (4,4'-DDD; p,p'-DDD; 4,4'-TDE; p,p'-TDE; 4,4'-DDE; p,p'-DDE; 4,4'-DDT; p,p'-DDT)*;

C. Dieldrin*;

D. Hexachlorobenzene*;

E. Hexachlorobutadiene (hexachloro-1,3-butadiene);

F. Hexachlorocyclohexanes (BHCs);

G. alpha-Hexachlorocyclohexane (alpha-BHC);

H. beta-Hexachlorocyclohexane (beta-BHC);

I. delta-Hexachlorocyclohexane (delta-BHC);

J. Lindane; gamma-Hexachlorocyclohexane (gamma-BHC);

K. Mercury*;

L. Mirex;

M. Octachlorostyrene*;

N. PCBs (polychlorinated biphenyls)*;

O. Pentachlorobenzene;

P. Photomirex;

Q. 2,3,7,8-TCDD (dioxin)*;

R. 1,2,3,4-Tetrachlorobenzene;

S. 1,2,4,5-Tetrachlorobenzene; and

T. Toxaphene*.

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7052.0360 METAL CONVERSION FACTORS.

Metal	**Conversion Factors**	
	Acute	**Chronic**
Arsenic	1.000	1.000
Cadmium*	0.944	0.909
Chromium (III)	0.316	0.860
Chromium (VI)	0.982	0.962
Copper	0.960	0.960
Lead*	0.791	0.791
Mercury	0.85	N/A
Nickel	0.998	0.997

Silver	0.85	N/A
Zinc	0.978	0.986

*Conversion factors for cadmium and lead are hardness dependent. The values shown are for a hardness of 100 mg/L as calcium carbonate ($CaCO_3$). The methods for determining the conversion factors for cadmium and lead given the hardness are as follows:

Cadmium

Acute: Conversion Factor (CF) = 1.136672 - [ln (hardness) (0.041838)]

Chronic: CF = 1.101672 - [ln (hardness) (0.041838)]

Lead

Acute and Chronic: CF = 1.46203 - [ln (hardness) (0.145712)]

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7052.0370 REASONABLE POTENTIAL MULTIPLYING FACTORS.

	COEFFICIENT OF VARIATION									
No. of Samples	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0
1	1.4	1.9	2.6	3.6	4.7	6.2	8.0	10.1	12.6	15.5
2	1.3	1.6	2.0	2.5	3.1	3.8	4.6	5.4	6.4	7.4
3	1.2	1.5	1.8	2.1	2.5	3.0	3.5	4.0	4.6	5.2
4	1.2	1.4	1.7	1.9	2.2	2.6	2.9	3.3	3.7	4.2
5	1.2	1.4	1.6	1.8	2.1	2.3	2.6	2.9	3.2	3.6
6	1.1	1.3	1.5	1.7	1.9	2.1	2.4	2.6	2.9	3.1
7	1.1	1.3	1.4	1.6	1.8	2.0	2.2	2.4	2.6	2.8
8	1.1	1.3	1.4	1.6	1.7	1.9	2.1	2.3	2.4	2.6
9	1.1	1.2	1.4	1.5	1.7	1.8	2.0	2.1	2.3	2.4
10	1.1	1.2	1.3	1.5	1.6	1.7	1.9	2.0	2.2	2.3
11	1.1	1.2	1.3	1.4	1.6	1.7	1.8	1.9	2.1	2.2
12	1.1	1.2	1.3	1.4	1.5	1.6	1.7	1.9	2.0	2.1
13	1.1	1.2	1.3	1.4	1.5	1.6	1.7	1.8	1.9	2.0

14	1.1	1.2	1.3	1.4	1.4	1.5	1.6	1.7	1.8	1.9
15	1.1	1.2	1.2	1.3	1.4	1.5	1.6	1.7	1.8	1.8
16	1.1	1.1	1.2	1.3	1.4	1.5	1.6	1.6	1.7	1.8
17	1.1	1.1	1.2	1.3	1.4	1.4	1.5	1.6	1.7	1.7
18	1.1	1.1	1.2	1.3	1.3	1.4	1.5	1.6	1.6	1.7
19	1.1	1.1	1.2	1.3	1.3	1.4	1.5	1.5	1.6	1.6
20	1.1	1.1	1.2	1.2	1.3	1.4	1.4	1.5	1.5	1.6
30	1.0	1.1	1.1	1.1	1.2	1.2	1.2	1.3	1.3	1.3
40	1.0	1.0	1.1	1.1	1.1	1.1	1.1	1.1	1.2	1.2
50	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.1	1.1	1.1
60	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
70	1.0	1.0	1.0	1.0	1.0	0.9	0.9	0.9	0.9	0.9
80	1.0	1.0	1.0	0.9	0.9	0.9	0.9	0.9	0.9	0.9
90	1.0	1.0	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.8
100	1.0	1.0	0.9	0.9	0.9	0.9	0.9	0.8	0.8	0.8

COEFFICIENT OF VARIATION

No. of Samples	1.1	1.2	1.3	1.4	1.5	1.6	1.7	1.8	1.9	2.0
1	18.7	22.3	26.4	30.8	35.6	40.7	46.2	52.1	58.4	64.9
2	8.5	9.7	10.9	12.2	13.6	15.0	16.4	17.9	19.5	21.1
3	5.8	6.5	7.2	7.9	8.6	9.3	10.0	10.8	11.5	12.3
4	4.6	5.0	5.5	6.0	6.4	6.9	7.4	7.8	8.3	8.8
5	3.9	4.2	4.5	4.9	5.2	5.6	5.9	6.2	6.6	6.9
6	3.4	3.7	3.9	4.2	4.5	4.7	5.0	5.2	5.5	5.7
7	3.1	3.3	3.5	3.7	3.9	4.1	4.3	4.5	4.7	4.9
8	2.8	3.0	3.2	3.3	3.5	3.7	3.9	4.0	4.2	4.3
9	2.6	2.8	2.9	3.1	3.2	3.4	3.5	3.6	3.8	3.9
10	2.4	2.6	2.7	2.8	3.0	3.1	3.2	3.3	3.4	3.6
11	2.3	2.4	2.5	2.7	2.8	2.9	3.0	3.1	3.2	3.3
12	2.2	2.3	2.4	2.5	2.6	2.7	2.8	2.9	3.0	3.0
13	2.1	2.2	2.3	2.4	2.5	2.5	2.6	2.7	2.8	2.9

14	2.0	2.1	2.2	2.3	2.3	2.4	2.5	2.6	2.6	2.7
15	1.9	2.0	2.1	2.2	2.2	2.3	2.4	2.4	2.5	2.5
16	1.9	1.9	2.0	2.1	2.1	2.2	2.3	2.3	2.4	2.4
17	1.8	1.9	1.9	2.0	2.0	2.1	2.2	2.2	2.3	2.3
18	1.7	1.8	1.9	1.9	2.0	2.0	2.1	2.1	2.2	2.2
19	1.7	1.8	1.8	1.9	1.9	2.0	2.0	2.0	2.1	2.1
20	1.6	1.7	1.7	1.8	1.8	1.9	1.9	2.0	2.0	2.0
30	1.3	1.4	1.4	1.4	1.4	1.5	1.5	1.5	1.5	1.5
40	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.3	1.3
50	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1
60	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
70	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
80	0.9	0.9	0.9	0.9	0.8	0.8	0.8	0.8	0.8	0.8
90	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
100	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.7	0.7	0.7

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7052.0380 TOXICITY EQUIVALENCY FACTORS (TEFS) AND BIOACCUMULATION EQUIVALENCY FACTORS (BEFS) FOR CDDS AND CDFS.

Congener	Toxicity Equivalency Factor	Bioaccumulation Equivalency Factor
2,3,7,8-TCDD	1.0	1.0
1,2,3,7,8-PeCDD	0.5	0.9
1,2,3,4,7,8-HxCDD	0.1	0.3
1,2,3,6,7,8-HxCDD	0.1	0.1
1,2,3,7,8,9-HxCDD	0.1	0.1
1,2,3,4,6,7,8-HpCDD	0.01	0.05
OCDD	0.001	0.01
2,3,7,8-TCDF	0.1	0.8
1,2,3,7,8-PeCDF	0.05	0.2

2,3,4,7,8-PeCDF	0.5	1.6
1,2,3,4,7,8-HxCDF	0.1	0.08
1,2,3,6,7,8-HxCDF	0.1	0.2
2,3,4,6,7,8-HxCDF	0.1	0.7
1,2,3,7,8,9-HxCDF	0.1	0.6
1,2,3,4,6,7,8-HpCDF	0.01	0.01
1,2,3,4,7,8,9-HpCDF	0.01	0.4
OCDF	0.001	0.02

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