



OFFICE OF THE SECRETARY OF STATE

JESSE WHITE • Secretary of State

April 6, 2012

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CLERK'S OFFICE

APR 12 2012

STATE OF ILLINOIS
Pollution Control Board

POLLUTION CONTROL BOARD
JOHN THERRIAULT ASSISTANT CLERK
100 W RANDOLPH ST, STE 11-500
CHICAGO, IL 60601

Dear JOHN THERRIAULT ASSISTANT CLERK

Your rules Listed below met our codification standards and have been published in Volume 36, Issue 15 of the Illinois Register, dated 4/13/2012.

PROPOSED RULES

Introduction		
35 Ill. Adm. Code 301		5713
Point of Contact: Nancy Miller		
Water Quality Standards		
35 Ill. Adm. Code 302		5721
Point of Contact: Nancy Miller		
Water Use Designations and Site-Specific Water Quality Standards		
35 Ill. Adm. Code 303		5756
Point of Contact: Nancy Miller		

If you have any questions, you may contact the Administrative Code Division at (217) 782 - 7017.

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NOTICE OF PROPOSED AMENDMENT

- 10) Are there any other proposed amendments pending on this Part? No.
- 11) Statement of Statewide Policy Objectives: This proposed rule does not create or enlarge a State mandate, as defined in Section 3(b) of the State Mandates Act. [30 ILCS 805/3(b) (2010)].

- 12) Time, Place, and Manner in which interested persons may comment on this proposed rulemaking:

Interested persons may download copies of the Board's opinion and order in R11-18 from the Board's Web site at www.ipcb.state.il.us and may also request copies by calling the Clerk's office at 312-814-3620.

The Board will accept written public comment on this proposal for 45 days after the date of publication in the *Illinois Register*. Comments should refer to Docket R11-18 and be addressed to:

Clerk's Office
Illinois Pollution Control Board
100 W. Randolph St., Suite 11-500
Chicago, IL 60601

- 13) Initial Regulatory Flexibility Analysis:
- A. Types of small businesses, small municipalities and not for profit corporations affected: None
- B. Reporting, bookkeeping or other procedures required for compliance: None
- C. Types of Professional skills necessary for compliance: None
- 14) Regulatory Agenda on which this rulemaking was summarized: The most recent was 35 Ill. Reg. 20774 (Dec. 23, 2011).

The full text of the Proposed Amendment begins on the next page:

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POLLUTION CONTROL BOARD

NOTICE OF PROPOSED AMENDMENT

TITLE 35: ENVIRONMENTAL PROTECTION
SUBTITLE C: WATER POLLUTION
CHAPTER I: POLLUTION CONTROL BOARD

PART 303

WATER USE DESIGNATIONS AND SITE-SPECIFIC WATER QUALITY STANDARDS

SUBPART A: GENERAL PROVISIONS

Section	
303.100	Scope and Applicability
303.101	Multiple Designations
303.102	Rulemaking Required

SUBPART B: NONSPECIFIC WATER USE DESIGNATIONS

Section	
303.200	Scope and Applicability
303.201	General Use Waters
303.202	Public and Food Processing Water Supplies
303.203	Underground Waters
303.204	Secondary Contact and Indigenous Aquatic Life Waters
303.205	Outstanding Resource Waters
303.206	List of Outstanding Resource Waters

SUBPART C: SPECIFIC USE DESIGNATIONS AND SITE
SPECIFIC WATER QUALITY STANDARDS

Section	
303.300	Scope and Applicability
303.301	Organization
303.311	Ohio River Temperature
303.312	Waters Receiving Fluorspar Mine Drainage (<u>Repealed</u>)
303.321	Wabash River Temperature
303.322	Unnamed Tributary of the Vermilion River
303.323	Sugar Creek and Its Unnamed Tributary
303.326	Unnamed Tributary of Salt Creek, Salt Creek, and Little Wabash River
303.331	Mississippi River North Temperature
303.341	Mississippi River North Central Temperature
303.351	Mississippi River South Central Temperature

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NOTICE OF PROPOSED AMENDMENT

- 303.352 Unnamed Tributary of Wood River Creek
- 303.353 Schoenberger Creek; Unnamed Tributary of Cahokia Canal
- 303.361 Mississippi River South Temperature
- 303.400 Bankline Disposal Along the Illinois Waterway/River
- 303.430 Unnamed Tributary to Dutch Creek
- 303.431 Long Point Slough and Its Unnamed Tributary
- 303.441 Secondary Contact Waters
- 303.442 Waters Not Designated for Public Water Supply
- 303.443 Lake Michigan Basin
- 303.444 Salt Creek, Higgins Creek, West Branch of the DuPage River, Des Plaines River
- 303.445 Total Dissolved Solids Water Quality Standard for the Lower Des Plaines River
- 303.446 Boron Water Quality Standard for Segments of the Sangamon River and the Illinois River
- 303.447 Unnamed Tributary of the South Branch Edwards River and South Branch Edwards River
- 303.444 Mud Run Creek

SUBPART D: THERMAL DISCHARGES

Section

- 303.500 Scope and Applicability
- 303.501 Lake Sangchris Thermal Discharges

- 303.APPENDIX A References to Previous Rules
- 303.APPENDIX B Sources of Codified Sections

AUTHORITY: Implementing Section 13 and authorized by Sections 11(b) and 27 of the Environmental Protection Act [415 ILCS 5/13, 11(b) and 27].

SOURCE: Filed with the Secretary of State January 1, 1978; amended at 2 Ill. Reg. 27, p. 221, effective July 5, 1978; amended at 3 Ill. Reg. 20, p. 95, effective May 17, 1979; amended at 5 Ill. Reg. 11592, effective October 19, 1981; codified at 6 Ill. Reg. 7818; amended at 6 Ill. Reg. 11161, effective September 7, 1982; amended at 7 Ill. Reg. 8111, effective June 23, 1983; amended in R87-27 at 12 Ill. Reg. 9917, effective May 27, 1988; amended in R87-2 at 13 Ill. Reg. 15649, effective September 22, 1989; amended in R87-36 at 14 Ill. Reg. 9460, effective May 31, 1990; amended in R86-14 at 14 Ill. Reg. 20724, effective December 18, 1990; amended in R89-14(C) at 16 Ill. Reg. 14684, effective September 10, 1992; amended in R92-17 at 18 Ill. Reg. 2981, effective February 14, 1994; amended in R91-23 at 18 Ill. Reg. 13457, effective August 19, 1994; amended in R93-13 at 19 Ill. Reg. 1310, effective January 30, 1995; amended in R95-14 at 20 Ill. Reg. 3534, effective February 8, 1996; amended in R97-25 at 22 Ill. Reg.

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NOTICE OF PROPOSED AMENDMENT

1403, effective December 24, 1997; amended in R01-13 at 26 Ill. Reg. 3517, effective February 22, 2002; amended in R03-11 at 28 Ill. Reg. 3071, effective February 4, 2004; amended in R06-24 at 31 Ill. Reg. 4440, effective February 27, 2007; amended in R09-8 at 33 Ill. Reg. 7903 effective May 29, 2009; amended in R09-11 at 33 Ill. Reg. 12258, effective August 11, 2009; amended in R08-9(A) at 35 Ill. Reg. 15078, effective August 23, 2011; amended in R11-18 at 36 Ill. Reg. _____, effective _____

SUBPART C: SPECIFIC USE DESIGNATIONS AND SITE SPECIFIC WATER QUALITY STANDARD

Section 303.312 Waters Receiving Fluorspar Mine Drainage (Repealed)

- a) ~~The fluoride standard of Section 302.208 shall not apply to waters which:~~
- ~~1) receive effluent from the mines and mills of the fluorspar mining and concentrating industry, and~~
 - ~~2) have been designated by the Illinois State Water Survey as streams which once in ten years have an average minimum seven day low flow of zero.~~
- b) ~~Such waters shall meet the following standard with regard to fluoride:~~

CONSTITUENT	STORET NUMBER	CONCENTRATION mg/l
Fluoride	00950	5

(Source: Repealed at 36 Ill. Reg. _____, effective _____)

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NOTICE OF PROPOSED AMENDMENTS

- 1) Heading of the Part: Water Quality Standards
- 2) Code Citation: 35 Ill. Adm. Code 302
- 3) Section Numbers: Proposed Action:

302.208	Amend
302.303	Amend
302.304	Amend
302.504	Amend
302.510	Amend
302.553	Amend
302.595	Amend
302.648	Amend
302.657	Amend
302.669	Amend
- 4) Statutory Authority: Implementing Sections 22.12 and 57 - 57.19 and authorized by Sections 27 and 28 of the Environmental Protection Act [415 ILCS 5/22.12, 27, 28, and 57 - 57.19.]
- 5) A Complete Description of the Subjects and Issues Involved: A lengthy description is contained in the Board's March 15, 2012 first notice opinion and order in Board Docket R11-18 Triennial Review of Water Quality Standards for Boron, Fluoride and Manganese: Amendments to 35 Ill. Adm. Code 301.106, 302.Subparts B, C, E, F and 303.312 (Mar. 15, 2012). The Board's proposal is based on the December 2, 2010 proposal filed by the Illinois Environmental Protection Agency (Agency or IEPA) under Section 27 of the Illinois Environmental Protection Act (Act), 415 ILCS 5/27 (2010) and the Board's procedural rules at 35 Ill. Adm. Code 102. IEPA's proposal was the culmination of a recent "triennial review" of standards required by the Federal Water Pollution Control Act (FWPCA or Clean Water Act), 33 USC 1313.

The Board's first notice proposal includes IEPA's proposed updates to the boron, fluoride, and manganese water quality standards under the General Use standards in 35 Ill. Adm. Code 302.Subpart B, the Public and Food Processing Water Supply standards in 35 Ill. Adm. Code 302.Subpart C, and the Lake Michigan Basin Water Quality Standards in 35 Ill. Adm. Code 302.Subpart E. The proposal also makes other clean-up amendments and updates, including the correction of the chronic zinc standard and the repeal of a site-specific fluoride standard at 35 Ill. Adm. Code 303.312. The Board is adding cyanide test methods to the incorporations by reference in Parts 301 and 302.

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NOTICE OF PROPOSED AMENDMENTS

Finally, the Board is also amending the requirements in Sections 302.595 and 302.669 that the Agency publish the derived water quality criteria in the *Illinois Register*, to require annual rather than quarterly publication (to better reflect the rate of updates to the criteria).

- 6) Published studies or reports, and sources of underlying data, used to compose this rulemaking: The rulemaking includes amendments to 35 Ill. Adm. Code Parts 301, 302, and 303. The list of documents used by IEPA to prepare this proposal is quite lengthy. As the bulk of the proposed amendments are to the Part 302 water quality standards, the Board is including that list here only:

Guidance Documents

Method OIA-1677 Available Cyanide by Flow Injection, Ligand Exchange, and Amperometry, 821-R-99-013, United States Environmental Protection Agency (August, 1999).

Standard Methods for the Examination of Water and Wastewater: Centennial Edition. 21st Edition. Eaton, AD, LS Clesceri, EW Rice, AE Greenberg, and MAR Franson (editors). ISBN: 0875530478. American Public Health Association. 2005. Washington, D.C.

Pollution Control Board Opinions: Rulemakings of General Applicability

In the Matter of Water Quality Triennial Review: Amendments to 35 Adm. Code 302.105, 302.208(e)-(g), 302.504(a), 302.575(d), 309.141 (h),- and Proposed 35 Ill. Adm. Code 301.267, 301.313, 301.413, 304.120, and 309.157, R02-11 (December 19, 2002).

In the Matter of Conforming Amendments/or the Great Lakes Initiative: 35 Ill. Adm. Code Part 302.101; 302.105; 302. Subpart E; 303.443, and 304.222, R97-25.

In the Matter of Proposed Amendments to Title 35, Subtitle C (Toxins Control), R88-21 - Docket A (January 25, 1990).

In the Matter of Water Quality Standards Revisions, R71-14 (Consolidated with R70-8 and R71-20) (March 7, 1972).

Pollution Control Board Opinions: Site Specific Rulemakings and Adjusted Standards Boron

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In the Matter of: City of Galva Site Specific Water Quality Standard for Boron Discharges to Edwards River and Mud Run Creek: 35 Ill. Adm. Code 303.447 and 303.448, R09-11 (August 6, 2009).

In the Matter of: Proposed Site Specific Rule for City of Springfield, Illinois, Office of Public Utilities, City, Water, Light and Power and Springfield Metro Sanitary District from 35 Ill. Adm. Code 302.208(g): New 35 Ill. Adm. Code 303.446, R09-8 (May 21,2009).

In the Matter of: Petition of Central Illinois Light Company (Duck Creek Station) for Adjusted Standard from 35 Ill. Adm. Code 302.208 and 35 Ill. Adm. Code 304.105 Regarding the Parameter Boron, AS96-8 (June 20, 1996).

In the Matter of: Petition of Illinois Power Company (Baldwin Power Plant) for Adjusted Standard from 35 Ill. Adm. Code 302.208 and 35 Ill. Adm. Code 304.105 Regarding the Parameter Boron, AS96- I (May 2, 1996).

In the Matter of: Petition of the City of Springfield, Office of Public Utilities for an Adjusted Standard from 35 Ill. Adm. Code 302.208(e), AS94-9 (December 1, 1994).

In the Matter of: Petition of Akzo Chemicals, Inc. for an Adjusted Standard from 35 Ill. Adm. Code 304.105 and 302.208, AS93-8 (September 1,1994) .

In the Matter of: Petition of South Illinois Power Cooperative (Marion Power) for Adjusted Standard from 35 Ill.. Adm. Code 302.208(e), AS92-10 (July 1, 1993).

In the Matter of: The Proposed Amendment to Rule 203 of the Water Pollution Regulations. R76-18 (May 25, 1 978)(Illinois Power Wood River Station).

Fluoride

In the Matter of: Granite City Division of National Steel Petition for Adjusted Standard from 35 Ill. Adm. Code 302.208: Numeric Standard for Fluoride, AS 90-4 (April 8, 1993).

In the Matter of: Petition of General Motors Corporation to Amend 35 Ill. Adm. Code 303.222 (Site Specific Regulation for Fluoride), R93-13 (January 11, 1995).

In the Matter of: Site-Specific Limitation for the Modine Manufacturing Company Facility, Ringwood, Illinois, R87-36 (May 24, 1990)

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In the Matter of: Site Specific Rule for City of Effingham Treatment Plant Fluoride Discharge, 35 Ill. Adm. Code 304.233, R03-11 (December 18,2003).

Toxicity Studies and Data used in Derivation of Proposed Water Quality standards and summarized in Attachment 1, Exhibits G, H, O, P, Q and R:

Beleau, MH and JA Bartosz. 1982. Acute toxicity of selected chemicals: data base. U.S. Fish and Wildlife Service, Colorado River Fishery Project, Report No.6. Salt Lake City, Utah. 3 :242-254.

Biesinger, KE and OM Christensen. 1972. Effects of various metals on survival, growth, reproduction, and metabolism of *Daphnia magna*. Journal of the Fisheries Research Board of Canada 29:1691-1700.

Buikema, AL, CL See, and J Cairns, Jr. 1977. Rotifer sensitivity to combinations of inorganic water pollutants. OWRT Project A-071-V A. Virginia Water Resources Research Center Bulletin No. 92. Blackburg, VA; 42 p.

Calleja, MC, G Persoone, and P Geladi. 1994. Comparative acute toxicity of the first 50 multicentre evaluation of *in vitro* cytotoxicity chemicals to aquatic non-vertebrates. Archives of Environmental Contamination and Toxicology 26:69-78.

Camargo, JA and JV Tarazona 1990. Acute toxicity to freshwater benthic macroinvertebrates of fluoride ion (F-) in soft water. Bulletin of Environmental Contamination and Toxicology 45 :883-887.

Camargo, JA and JV Tarazona. 1991. Short-term toxicity of fluoride ion (F-) in soft water to rainbow trout (*Salmo gairdneri*) and brown trout (*Salmo trutta fario*). Fluoride 24(2):76-83.

Camargo, JA, JV Ward, and KL Martin. 1992. The relative sensitivity of competing hydropsychid species to fluoride toxicity in the Cache la Poudre River (Colorado). Archives of Environmental Contamination and Toxicology 22:107-113.

Couillard Y, P Ross, and B Pinel-Alloul. 1989. Acute toxicity of six metals to the rotifer *Brachionus calyciflorus*, with comparisons to other freshwater organisms. Toxicity Assessment 4:451-462.

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NOTICE OF PROPOSED AMENDMENTS

Davies, PH and SF Brinkman. 1994. Acute and chronic toxicity of manganese to exposed and unexposed rainbow and brown trout. Federal Aid in Fish and Wildlife Restoration Job Progress Report, Colorado Division of Wildlife, Fish Research Section. Fort Collins, CO, USA. Federal Aid Project #F-243R-1.

Davies, PH and SF Brinkman. 1995. Acute and chronic toxicity of manganese to brown trout (*Salmo trutta*) in hard water. Federal Aid in Fish and Wildlife Restoration Job Progress Report, Colorado Division of Wildlife, Fish Research Section. Fort Collins, CO, USA. Federal Aid Project #F-243R-2.

Davies, PH, SF Brinkman, and M McIntyre. 1998a. Toxicity of manganese and zinc to Boreal toad tadpoles (*Bufo boreas*). In: Federal Aid in Fish and Wildlife Restoration Job Progress Final.

Report, Colorado Division of Wildlife, Fish Research Section. Fort Collins, CO, USA. Federal Aid Project #F-243R-5.

Davies, PH, SF Brinkman, and M McIntyre. 1998b. Toxicity of manganese to early-life stage and fry of brook trout (*Salvelinus fontinalis*) and rainbow trout (*Oncorhynchus mykiss*) in water hardnesses of 30 and 150 mg/L. In: Federal Aid in Fish and Wildlife Restoration Job Progress Final Report, Colorado Division of Wildlife, Fish Research Section. Fort Collins, CO, USA. Federal Aid Project #F-243R-5.

Dethloff, GM, WA Stubblefield, and CE Schlekat. 2009. Effects of water quality parameters on boron toxicity to *Ceriodaphnia dubia*. Archives of Environmental Contamination and Toxicology 57:60-67.

ENSR. 1990. Unpublished in-house data.

ENSR. 1992a. Acute toxicity of manganese to *Pimephales promelas* under static-renewal test conditions at four levels of water hardness. June 1992.

ENSR. 1992b. Acute toxicity of manganese to *Ceriodaphnia dubia* under static-renewal test conditions at four levels of water hardness. June 1992.

ENSR. 1992c. Chronic toxicity of manganese to *Ceriodaphnia dubia* under static-renewal test conditions at four levels of water hardness. July 1992.

ENSR. 1996e. Early life stage toxicity of manganese to the fathead minnow (*Pimephales promelas*) under flow-through test conditions. March 1996.

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Fieser, AH. 1985. Toxicity of fluorides to aquatic organisms: modeling for water hardness and temperature. Dissertation. University of Pittsburgh.

Gersich, FM. 1984. Evaluation of a static renewal chronic toxicity test method for *Daphnia magna* Straus using boric acid. Environmental Toxicology and Chemistry 3:89-94.

Great Lakes Environmental Center. October 22, 2010. Final Report on Acute and Chronic Toxicity of Nitrate, Nitrite, Boron, Manganese, Fluoride, Chloride and Sulfate to Several Aquatic Animal Species.

Hamilton, SJ. 1995. Hazard assessment of inorganics to three endangered fish in the Green River, Utah. Ecotoxicology and Environmental Safety 30:134-142.

Hamilton, SJ and KJ Buhl. 1990. Acute toxicity of boron, molybdenum and selenium to fry of chinook salmon and coho salmon. Archives of Environmental Contamination and Toxicology 19(6):366-373.

Hamilton, SJ and KJ Buhl. 1997. Hazard evaluation of inorganics, singly and in mixtures to Flannelmouth Sucker, *Catostomus lalipinnis*, in the San Juan River, New Mexico. Ecotoxicology and Environmental Safety 38:296-308.

Harding ESE, Inc. 2001. Acute toxicity of strontium to *Oncorhynchus mykiss*, and manganese to *Physa integra*, under static test conditions. Laboratory Project ID: 311213.0100. September 2001.

Herbert, DWM and DS Shurben. 1964. The toxicity of fluoride to rainbow trout. Water and Waste Treatment. Sept/Oct 1964, pp.141 - 142.

Hickey, CWO 1989. Sensitivity of four New Zealand cladoceran species and *Daphnia magna* to aquatic toxicants. New Zealand Journal of Marine and Freshwater Research 23:131-137.

Keller, AE and T Augspurger. 2005. Toxicity of fluoride to the endangered unionid mussel, *Alasmidonta raveneliana*, and surrogate species. Bulletin of Environmental Contamination and Toxicology 74:242-249.

Khangarot, BS. 1991. Toxicity of metals to a freshwater tubificid worm, *Tubifex tubi/ex* (Muller). Bulletin of Environmental Contamination and Toxicology. 46:906-912.

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Lasier PJ, PV Winger, and K.J Bogenrieder. 2000. Toxicity of manganese to *Ceriodaphnia dubia* and *Hyalella azteca*. Archives of Environmental Contamination and Toxicology 38(3):298-304.

Lewis, M. 1978. Acute toxicity of copper, zinc, and manganese in single and mixed salt solutions to juvenile longfin dace, *Agosia chrysogaster*. Journal of Fish Biology 13:695-700.

Lewis, MA and LC Valentine. 1981. Acute and chronic toxicities of boric acid to *Daphnia magna* Straus. Bulletin of Environmental Contamination and Toxicology 27:309-315.

Maier, KJ and AW Knight. 1991. The toxicity of waterborne boron to *Daphnia magna* and *Chironomus decorus* and the effects of water hardness and sulfate on boron toxicity. Archives of Environmental Contamination and Toxicology 20:282-287.

Metcalf-Smith, JL, KE Holtze, GR Sirota, JJ Reid, and SR De Solla. 2003 . Toxicity of aqueous and sediment-associated fluoride to freshwater organisms. Environmental Toxicology and Chemistry 22: 161-166.

Office of Pesticide Programs. 2000. Pesticide Ecotoxicity Database (Formerly: Environmental Effects Database (EEDB)). Environmental Fate and Effects Division, U.S. EPA, Washington, D.C.

Pimentel, R and RV Bulkley. 1983. Influence of Water Hardness on Fluoride Toxicity to Rainbow Trout. Environmental Toxicology and Chemistry 2(4):381-386.

Rathore, RS and BS Khangarot. 2003. Effects of water hardness and metal concentration on a freshwater *Tubifex tubifex* Muller. Water, Air, and Soil Pollution 142:341-356.

Reimer, PS. 1999. Environmental effects of manganese and proposed guidelines to protect freshwater life in British Columbia. Unpubl. Master's Thesis, Univ. British Columbia.

Sanders and Associates, LLC. 2007. Toxicity of boron to the aquatic organisms - *Hyalella azteca* (benthic crustacean), *Dugesia tigrina* (flatworm), *Ceriodaphnia dubia* (water flea) and *Pimephales promelas* (fathead minnow). Report to Michigan Department of Environmental Quality. April 30, 2007.

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Sanders, D. 1998. Tier II boron value data supplement. Rept., RMT Applied Biology, Appleton, WI. August 7, 1998.

Sanders, D. 1999. Tier II boron value data supplement. Rept., RMT Applied Biology, Appleton, WI. February 15, 1999.

Smith, LR, TM Holsen, and NC Ibay. 1985. Studies on the acute toxicity of fluoride ion to stickleback, fathead minnow and rainbow trout. *Chemosphere* 14: 1383-1389.

Soucek, DJ and A Dickinson. 2010. Acute and Chronic Toxicity of Boron, Fluoride, and Manganese to Freshwater Organisms. Illinois Natural History Survey, Institute of Natural Resource Sustainability. University of Illinois, Urbana-Champaign. Champaign, IL. Report to Illinois Environmental Protection Agency. October 5, 2010.

The Advent Group, Inc. 2000. Toxicity Test Results: Fluoride Water Quality Criteria. Prepared for U.S. Steel, Gary Works, by The Advent Group, Inc. Unpublished data.

Other Documents Relied On

Casale, RJ, MW LeChevallier, and FW Pontius. Review of Manganese Control and Related Manganese Issues. American Water Works Association (AWWA) Research Foundation and AWWA. Denver, CO, 2002.

East Fork LaMoine River Watershed TMDL Report. Illinois Environmental Protection Agency, IEPAIBOW/07-016. August, 2007.

Eckhert, CD. 1998. Boron stimulates embryonic trout growth. *Journal of Nutrition* 128:2488-2493.

Fort, DJ, TL Propst, EL Stover, FJ Murray, and PL Strong. 1999. Adverse effects from low dietary and environmental boron exposure on reproduction, development, and maturation in *Xenopus laevis*. *The Journal of Trace Elements in Experimental Medicine* 12:175-185.

Hamann, PE Jr., JB McEwen, and AG Meyers. 1990. Guide to Selection of Water Treatment Processes. In *Water Quality and Treatment: A Handbook of Community Water Supplies*. 4th Edition. American Water Works Association, McGraw-Hill, USA, pp 157-187.

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Kohl, PM, and SJ Medlar. Occurrence of Manganese in Drinking Water and Manganese Control. American Water Works Association (AWWA) Research Foundation and AWWA. Denver, CO, 2006.

Loewengart, G. 2001. Toxicity of boron to rainbow trout: A weight-of-the-evidence assessment. Environmental Toxicology and Chemistry 20(4):796-803.

Rowe, RI, C Bouzan, S Nabili, and CD Eckhert. 1998. The response of trout and zebrafish embryos to low and high boron concentrations is U-shaped. Biological Trace Element Research 66:261-270.

U.S. Environmental Protection Agency Legacy STORET Data Center Database at <http://www.epa.gov/storpublllegacy/gateway.htm>.

- 7) Will these proposed amendments replace an emergency rule currently in effect? No.
- 8) Does this rulemaking contain an automatic repeal date? No.
- 9) Do these proposed amendments contain incorporations by reference? Yes. The materials incorporated by reference are listed in the central incorporations by reference section for this Subchapter C at 35 Ill. Adm. Code 301.106.
- 10) Are there any other proposed amendments pending on this Part? No.
- 11) Statement of Statewide Policy Objectives: This proposed rule does not create or enlarge a State mandate, as defined in Section 3(b) of the State Mandates Act. [30 ILCS 805/3(b) (2010)].
- 12) Time, Place, and Manner in which interested persons may comment on this proposed rulemaking:

Interested persons may download copies of the Board's opinion and order in R11-18 from the Board's Web site at www.ipcb.state.il.us and may also request copies by calling the Clerk's office at 312-814-3620.

The Board will accept written public comment on this proposal for 45 days after the date of publication in the *Illinois Register*. Comments should refer to Docket R11-18 and be addressed to:

ILLINOIS REGISTER

POLLUTION CONTROL BOARD

NOTICE OF PROPOSED AMENDMENTS

Clerk's Office
Illinois Pollution Control Board
100 W. Randolph St., Suite 11-500
Chicago, IL 60601

- 13) Initial Regulatory Flexibility Analysis:
- A. Types of small businesses, small municipalities and not for profit corporations affected: Any small businesses, small municipalities and not for profit corporations that discharge wastewaters into "waters of the State" (usually under their National Pollutant Discharge and Elimination System (NPDES) permits).
 - B. Reporting, bookkeeping or other procedures required for compliance: Those needed to comply with current permit requirements.
 - C. Types of Professional skills necessary for compliance: Wastewater treatment plant staff, possibly an environmental engineer.
- 14) Regulatory Agenda on which this rulemaking was summarized: July 2011

The full text of the Proposed Amendments begins on the next page:

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NOTICE OF PROPOSED AMENDMENTS

TITLE 35: ENVIRONMENTAL PROTECTION
SUBTITLE C: WATER POLLUTION
CHAPTER I: POLLUTION CONTROL BOARD

PART 302
WATER QUALITY STANDARDS

SUBPART A: GENERAL WATER QUALITY PROVISIONS

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302.101	Scope and Applicability
302.102	Allowed Mixing, Mixing Zones and ZIDs
302.103	Stream Flows
302.104	Main River Temperatures
302.105	Antidegradation

SUBPART B: GENERAL USE WATER QUALITY STANDARDS

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302.202	Purpose
302.203	Offensive Conditions
302.204	pH
302.205	Phosphorus
302.206	Dissolved Oxygen
302.207	Radioactivity
302.208	Numeric Standards for Chemical Constituents
302.209	Fecal Coliform
302.210	Other Toxic Substances
302.211	Temperature
302.212	Total Ammonia Nitrogen
302.213	Effluent Modified Waters (Ammonia)(Repealed)

SUBPART C: PUBLIC AND FOOD PROCESSING WATER SUPPLY STANDARDS

Section	
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302.302	Algicide Permits
302.303	Finished Water Standards

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302.304	Chemical Constituents
302.305	Other Contaminants
302.306	Fecal Coliform
302.307	Radium 226 and 228

SUBPART D: SECONDARY CONTACT AND INDIGENOUS AQUATIC LIFE STANDARDS

Section	
302.401	Scope and Applicability
302.402	Purpose
302.403	Unnatural Sludge
302.404	pH
302.405	Dissolved Oxygen
302.406	Fecal Coliform (Repealed)
302.407	Chemical Constituents
302.408	Temperature
302.409	Cyanide
302.410	Substances Toxic to Aquatic Life

SUBPART E: LAKE MICHIGAN BASIN WATER QUALITY STANDARDS

Section	
302.501	Scope, Applicability, and Definitions
302.502	Dissolved Oxygen
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302.504	Chemical Constituents
302.505	Fecal Coliform
302.506	Temperature
302.507	Thermal Standards for Existing Sources on January 1, 1971
302.508	Thermal Standards for Sources Under Construction But Not In Operation on January 1, 1971
302.509	Other Sources
302.510	Incorporations by Reference
302.515	Offensive Conditions
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AUTHORITY: Implementing Section 13 and authorized by Sections 11(b) and 27 of the Environmental Protection Act [415 ILCS 5/13, 11(b), and 27]

SOURCE: Filed with the Secretary of State January 1, 1978; amended at 2 Ill. Reg. 44, p. 151, effective November 2, 1978; amended at 3 Ill. Reg. 20, p. 95, effective May 17, 1979; amended at 3 Ill. Reg. 25, p. 190, effective June 21, 1979; codified at 6 Ill. Reg. 7818; amended at 6 Ill. Reg. 11161, effective September 7, 1982; amended at 6 Ill. Reg. 13750, effective October 26,

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1982; amended at 8 Ill. Reg. 1629, effective January 18, 1984; peremptory amendments at 10 Ill. Reg. 461, effective December 23, 1985; amended at R87-27 at 12 Ill. Reg. 9911, effective May 27, 1988; amended at R85-29 at 12 Ill. Reg. 12082, effective July 11, 1988; amended in R88-1 at 13 Ill. Reg. 5998, effective April 18, 1989; amended in R88-21(A) at 14 Ill. Reg. 2899, effective February 13, 1990; amended in R88-21(B) at 14 Ill. Reg. 11974, effective July 9, 1990; amended in R94-1(A) at 20 Ill. Reg. 7682, effective May 24, 1996; amended in R94-1(B) at 21 Ill. Reg. 370, effective December 23, 1996; expedited correction at 21 Ill. Reg. 6273, effective December 23, 1996; amended in R97-25 at 22 Ill. Reg. 1356, effective December 24, 1997; amended in R99-8 at 23 Ill. Reg. 11249, effective August 26, 1999; amended in R01-13 at 26 Ill. Reg. 3505, effective February 22, 2002; amended in R02-19 at 26 Ill. Reg. 16931, effective November 8, 2002; amended in R02-11 at 27 Ill. Reg. 166, effective December 20, 2002; amended in R04-21 at 30 Ill. Reg. 4919, effective March 1, 2006; amended in R04-25 at 32 Ill. Reg. 2254, effective January 28, 2008; amended in R07-9 at 32 Ill. Reg. 14978, effective September 8, 2008; amended in R11-18 at 36 Ill. Reg. _____, effective _____.

SUBPART B: GENERAL USE WATER QUALITY STANDARDS

Section 302.208 Numeric Standards for Chemical Constituents

- a) The acute standard (AS) for the chemical constituents listed in subsection (e) shall not be exceeded at any time except for those waters for which a zone of initial dilution (ZID) applies pursuant to Section 302.102~~as provided in subsection (d)~~.
- b) The chronic standard (CS) for the chemical constituents listed in subsection (e) shall not be exceeded by the arithmetic average of at least four consecutive samples collected over any period of at least four days, except for those waters in which the Agency has approved a mixing zone or allowed mixing pursuant to Section 302.102~~as provided in subsection (d)~~. The samples used to demonstrate attainment or lack of attainment with a CS must be collected in a manner that assures an average representative of the sampling period. For the chemical constituents ~~metals~~ that have water quality based standards dependent upon hardness, the chronic water quality standard will be calculated according to subsection (e) using the hardness of the water body at the time the ~~metals~~ sample was collected. To calculate attainment status of chronic ~~metals~~ standards, the concentration of the chemical constituent ~~metal~~ in each sample is divided by the calculated water quality standard for the sample to determine a quotient. The water quality standard is attained if the mean of the sample quotients is less than or equal to one for the duration of the averaging period.
- c) The human health standard (HHS) for the chemical constituents listed in

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subsection (f) shall not be exceeded when the stream flow is at or above the harmonic mean flow pursuant to Section 302.658 nor shall an annual average, based on at least eight samples, collected in a manner representative of the sampling period, exceed the HHS except for those waters in which the Agency has approved a mixing zone or allowed mixing pursuant to Section 302.102 as provided in subsection (d).

d) The standard for the chemical constituents of subsections (g) and (h) shall not be exceeded at any time except for those waters in which the Agency has approved a mixing zone or allowed mixing pursuant to Section 302.102. In waters where mixing is allowed pursuant to Section 302.102, the following apply:

- 1) ~~The AS shall not be exceeded in any waters except for those waters for which the Agency has approved a zone of initial dilutions (ZID) pursuant to Section 302.102.~~
- 2) ~~The CS shall not be exceeded outside of waters in which mixing is allowed pursuant to Section 302.102.~~
- 3) ~~The HHS shall not be exceeded outside of waters in which mixing is allowed pursuant to Section 302.102.~~

e) Numeric Water Quality Standards for the Protection of Aquatic Organisms

Constituent	STORET Number	AS (µg/L)	CS (µg/L)
Arsenic (trivalent, dissolved)	22680	$360 \times 1.0^* = 360$	$190 \times 1.0^* = 190$
<u>Boron (total)</u>		<u>40,100</u>	<u>7,600</u>
Cadmium (dissolved)	01025	$e^{A+B \ln(H)} \times \left\{ \frac{1.138672 -}{[(\ln H)(0.041838)]} \right\}^*$	$e^{A+B \ln(H)} \times \left\{ \frac{1.101672 -}{[(\ln H)(0.041838)]} \right\}^*$
		where $A = -2.918$ and $B = 1.128$	where $A = -3.490$ and $B = 0.7852$

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Chromium (hexavalent, total)	01032	16	11
Chromium (trivalent, dissolved)	80357	$e^{A+B \ln(H)} \times 0.316^*$ <p>where $A = 3.688$ and $B = 0.8190$</p>	$e^{A+B \ln(H)} \times 0.860^*$ <p>where $A = 1.561$ and $B = 0.8190$</p>
Copper (dissolved)	01040	$e^{A+B \ln(H)} \times 0.960^*$ <p>where $A = -1.464$ and $B = 0.9422$</p>	$e^{A+B \ln(H)} \times 0.960^*$ <p>where $A = -1.465$ and $B = 0.8545$</p>
Cyanide**	00718	22	5.2
<u>Fluoride (total)</u>		$\frac{e^{A+B \ln(H)}}{\text{where } A = 6.7319}$ <p>and $B = 0.5394$</p>	$\frac{e^{A+B \ln(H)}}{\text{where } A = 6.0445}$ <p>and $B = 0.5394$</p> <p><u>but shall not exceed 4.0 mg/L</u></p>
Lead (dissolved)	01049	$e^{A+B \ln(H)} \times \left\{ \frac{1.46203 -}{[(\ln H)(0.145712)]} \right\}^*$ <p>where $A = -1.301$ and $B = 1.273$</p>	$e^{A+B \ln(H)} \times \left\{ \frac{1.46203 -}{[(\ln H)(0.145712)]} \right\}^*$ <p>where $A = -2.863$ and $B = 1.273$</p>
<u>Manganese (dissolved)</u>		$\frac{e^{A+B \ln(H)} \times 0.9812^*}{\text{where } A = 4.9187}$ <p>and $B = 0.7467$</p>	$\frac{e^{A+B \ln(H)} \times 0.9812^*}{\text{where } A = 4.0635}$ <p>and $B = 0.7467$</p>

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Mercury (dissolved)	71890	$2.6 \times 0.85^* = 2.2$	$1.3 \times 0.85^* = 1.1$
Nickel (dissolved)	01065	$e^{A+B \ln(H)} \times 0.998^*$, where $A = 0.5173$ and $B = 0.8460$	$e^{A+B \ln(H)} \times 0.997^*$, where $A = -2.286$ and $B = 0.8460$
TRC	500600	19	11
Zinc (dissolved)	01090	$e^{A+B \ln(H)} \times 0.978^*$, where $A = 0.9035$ and $B = 0.8473$	$e^{A+B \ln(H)} \times 0.986^*$, where $A = -0.8165$ <u>$A = -0.4456$</u> and $B = 0.8473$
Benzene	78124	4200	860
Ethyl- benzene	78113	150	14
Toluene	78131	2000	600
Xylene(s)	81551	920	360

where: $\mu\text{g/L}$ = micrograms per liter
 e^x = base of natural logarithms raised to the x- power
 $\ln(H)$ = natural logarithm of Hardness (ST0RET 00900)
 $*$ = conversion factor multiplier for dissolved metals
 $**$ = Standard to be evaluated using either of the following U.S. EPA approved methods, incorporated by reference at 35 Ill. Adm. Code 301.106: Method OIA-1677, DW: Available Cyanide by Flow Injection, Ligand Exchange, and Amperometry, January 2004, Document Number EPA-821-R-04-001 or Cyanide Amenable to Chlorination, Standard Methods 4500-CN-G (40 C.F.R. 136.3).

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f) Numeric Water Quality Standard for the Protection of Human Health

Constituent	STORET Number	($\mu\text{g/L}$)
Mercury (total)	71900	0.012
Benzene	78124	310

where: $\mu\text{g/L}$ = micrograms per liter

g) Single-value standards apply at the following concentrations for these substances: ~~Concentrations of the following chemical constituents shall not be exceeded except in waters for which mixing is allowed pursuant to Section 302.102.~~

Constituent	Unit	STORET Number	Standard
Barium (total)	mg/L	01007	5.0
Boron (total)	mg/L	01022	1.0
Chloride (total)	mg/L	00940	500
Fluoride	mg/L	00951	1.4
Iron (dissolved)	mg/L	01046	1.0
Manganese (total)	mg/L	01055	1.0
Phenols	mg/L	32730	0.1
Selenium (total)	mg/L	01147	1.0
Silver (total)	$\mu\text{g/L}$	01077	5.0

where: mg/L = milligrams per liter and
 $\mu\text{g/L}$ = micrograms per liter

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- h) Water quality standards for sulfate are as follows:~~The following concentrations for sulfate must not be exceeded except in receiving waters for which mixing is allowed pursuant to Section 302.102:~~
- 1) At any point where water is withdrawn or accessed for purposes of livestock watering, the average of sulfate concentrations must not exceed 2,000 mg/L when measured at a representative frequency over a 30 day period.
 - 2) The results of the following equations provide sulfate water quality standards in mg/L for the specified ranges of hardness (in mg/L as CaCO₃) and chloride (in mg/L) and must be met at all times:
 - A) If the hardness concentration of receiving waters is greater than or equal to 100 mg/L but less than or equal to 500 mg/L, and if the chloride concentration of waters is greater than or equal to 25 mg/L but less than or equal to 500 mg/L, then:
$$C = [1276.7 + 5.508 (\text{hardness}) - 1.457 (\text{chloride})] * 0.65$$
where, C = sulfate concentration
 - B) If the hardness concentration of waters is greater than or equal to 100 mg/L but less than or equal to 500 mg/L, and if the chloride concentration of waters is greater than or equal to 5 mg/L but less than 25 mg/L, then:
$$C = [-57.478 + 5.79 (\text{hardness}) + 54.163 (\text{chloride})] * 0.65$$
where C = sulfate concentration
 - 3) The following sulfate standards must be met at all times when hardness (in mg/L as CaCO₃) and chloride (in mg/L) concentrations other than specified in (h)(2) are present:
 - A) If the hardness concentration of waters is less than 100 mg/L or chloride concentration of waters is less than 5 mg/L, the sulfate standard is 500 mg/L.
 - B) If the hardness concentration of waters is greater than 500 mg/L

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and the chloride concentration of waters is 5 mg/L or greater, the sulfate standard is 2,000 mg/L.

- C) If the combination of hardness and chloride concentrations of existing waters are not reflected in subsection (h)(3)(A) or (B), the sulfate standard may be determined in a site-specific rulemaking pursuant to section 303(c) of the Federal Water Pollution Control Act of 1972 (Clean Water Act), 33 USC 1313, and Federal Regulations at 40 CFR 131.10(j)(2).

(Source: Amended at 36 Ill. Reg. _____, effective _____)

SUBPART C: PUBLIC AND FOOD PROCESSING WATER SUPPLY STANDARDS

Section 302.303 Finished Water Standards

Water shall be of such quality that with treatment consisting of coagulation, sedimentation, filtration, storage and chlorination, or other equivalent treatment processes, the treated water shall meet in all respects the requirements of Part ~~611604~~.

(Note: Prior to codification, Table I, Rule 304 of Ch 6: Public Water Supplies.)

(Source: Amended at 36 Ill. Reg. _____, effective _____)

Section 302.304 Chemical Constituents

The following levels of chemical constituents shall not be exceeded:

CONSTITUENT	STORET NUMBER	CONCENTRATION (mg/l)
Arsenic (total)	01002	0.05
Barium (total)	01007	1.0
<u>Boron (total)</u>		<u>1.0</u>
Cadmium (total)	01027	0.010
Chloride (<u>total</u>)	00940	250-
Chromium	01034	0.05
<u>Fluoride (total)</u>		<u>1.4</u>
Iron (dissolved)	01046	0.3
Lead (total)	01051	0.05
Manganese (total)	01055	<u>1.00-15</u>
Nitrate-Nitrogen	00620	10-

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Oil (hexane-solubles or equivalent)	00550, 00556 or 00560	0.1
Organics		
Pesticides		
Chlorinated Hydrocarbon		
Insecticides		
Aldrin	39330	0.001
Chlordane	39350	0.003
DDT	39370	0.05
Dieldrin	39380	0.001
Endrin	39390	0.0002
Heptachlor	39410	0.0001
Heptachlor Epoxide	39420	0.0001
Lindane	39782	0.004
Methoxychlor	39480	0.1
Toxaphene	39400	0.005
Organophosphate Insecticides	39540	0.1
Parathion		
Chlorophenoxy Herbicides		
2,4-Dichlorophenoxyacetic acid	39730	0.1
(2,4-D)		
2-(2,4,5-Trichlorophenoxy)-	39760	0.01
propionic acid (2,4,5- TP or Silvex)		
Phenols	32730	0.001
Selenium (total)	01147	0.01
Sulfates	00945	250-
Total Dissolved Solids	70300	500-

(Source: Amended at 36 Ill. Reg. _____, effective _____)

SUBPART E: LAKE MICHIGAN BASIN WATER QUALITY STANDARDS

Section 302.504 Chemical Constituents

The following concentrations of chemical constituents must not be exceeded, except as provided in Sections 302.102 and 302.530:

- a) The following standards must be met in all waters of the Lake Michigan Basin. Acute aquatic life standards (AS) must not be exceeded at any time except for those waters for which the Agency has approved a zone of initial dilution (ZID) pursuant to Sections 302.102 and 302.530. Chronic aquatic life standards (CS)

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and human health standards (HHS) must not be exceeded outside of waters in which mixing is allowed pursuant to Section 302.102 and 302.530 by the arithmetic average of at least four consecutive samples collected over a period of at least four days. The samples used to demonstrate compliance with the CS or HHS must be collected in a manner which assures an average representation of the sampling period.

Constituent	STORET Number	Unit	AS	CS	HHS
Arsenic (Trivalent, dissolved)	22680	µg/L	340 X 1.0*=340	148 X 1.0*=148	NA
<u>Boron (total)</u>		<u>mg/L</u>	<u>40.1</u>	<u>7.6</u>	<u>NA</u>
Cadmium (dissolved)	01025	µg/L	exp[A +Bln(H)] X {1.138672- [(lnH)(0.0418 38)]}* , where A=-3.6867 and B=1.128	exp[A +Bln(H)] X {1.101672- [(lnH)(0.0418 38)]}* , where A=-2.715 and B=0.7852	NA
Chromium (Hexavalent, total)	01032	µg/L	16	11	NA
Chromium (Trivalent, dissolved)	80357	µg/L	exp[A +Bln(H)] X 0.316* , where A=3.7256 and B=0.819	exp[A +Bln(H)] X 0.860* , where A=0.6848 and B=0.819	NA
Copper (dissolved)	01040	µg/L	exp[A +Bln(H)] X 0.960* , where A=-1.700 and B=0.9422	exp[A +Bln(H)] X 0.960* , where A=-1.702 and B=0.8545	NA

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Constituent	STORET Number	Unit	AS	CS	HHS
Cyanide** (Weak acid dissociable)	00718	µg/L	22	5.2	NA
<u>Fluoride (total)</u>		<u>µg/L</u>	<u>$\frac{\exp[A + B \ln(H)]}{6.7319}$</u> where <u>A =</u> <u>6.7319</u> and <u>B =</u> <u>0.5394</u>	<u>$\frac{\exp[A + B \ln(H)]}{6.0445}$</u> but shall not exceed 4.0 mg/L where <u>A =</u> <u>6.0445</u> and <u>B =</u> <u>0.5394</u>	<u>NA</u>
Lead (dissolved)	01049	µg/L	$\frac{\exp[A + B \ln(H)] X}{\{1.46203 - [(\ln H)(0.1457 - 12)]\}^*}$, where A=-1.055 and B=1.273	$\frac{\exp[A + B \ln(H)] X}{\{1.46203 - [(\ln H)(0.1457 - 12)]\}^*}$, where A=-4.003 and B=1.273	NA
<u>Manganese (dissolved)</u>		<u>µg/L</u>	<u>$\frac{\exp[A + B \ln(H)] X}{0.9812^*}$</u> where <u>A =</u> <u>4.9187</u> and <u>B =</u> <u>0.7467</u>	<u>$\frac{\exp[A + B \ln(H)] X}{0.9812^*}$</u> where <u>A =</u> <u>4.0635</u> and <u>B =</u> <u>0.7467</u>	<u>NA</u>
Nickel (dissolved)	01065	µg/L	$\frac{\exp[A + B \ln(H)] X}{0.998^*}$, where A=2.255 and	$\frac{\exp[A + B \ln(H)] X}{0.997^*}$, where A=0.0584 and	NA

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Constituent	STORET Number	Unit	AS	CS	HHS
			B=0.846	B=0.846	
Selenium (dissolved)	01145	µg/L	NA	5.0	NA
TRC	50060	µg/L	19	11	NA
Zinc (dissolved)	01090	µg/L	exp[A +Bln(H)] X 0.978*, where A=0.884 and B=0.8473	exp[A +Bln(H)] X 0.986*, where A=0.884 and B=0.8473	NA
Benzene	78124	µg/L	3900	800	310
Chlorobenzene	34301	mg/L	NA	NA	3.2
2,4-Dimethylphenol	34606	mg/L	NA	NA	8.7
2,4-Dinitrophenol	03756	mg/L	NA	NA	2.8
Endrin	39390	µg/L	0.086	0.036	NA
Ethylbenzene	78113	µg/L	150	14	NA
Hexachloroethane	34396	µg/L	NA	NA	6.7
Methylene chloride	34423	mg/L	NA	NA	2.6
Parathion	39540	µg/L	0.065	0.013	NA
Pentachlorophenol	03761	µg/L	exp B ([pH] +A), where A=-4.869 and	exp B ([pH] +A), where A=-5.134 and	NA

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Constituent	STORET Number	Unit	AS	CS	HHS
			B=1.005	B=1.005	
Toluene	78131	µg/L mg/L	2000	610	51.0
Trichloroethylene	39180	µg/L	NA	NA	370
Xylene(s)	81551	µg/L	1200	490	NA

Where:

NA = Not Applied

Exp[x] = base of natural logarithms
raised to the x-power

ln(H) = natural logarithm of Hardness
(STORET 00900)

* = conversion factor multiplier for dissolved metals

** Standard to be evaluated using either of the following U.S. EPA approved methods, incorporated by reference at 35 Ill. Adm. Code 302.510: Method OIA-1677, DW: Available Cyanide by Flow Injection, Ligand Exchange, and Amperometry, January 2004, Document Number EPA-821-R-04-001 or Cyanide Amenable to Chlorination, Standard Methods 4500-CN-G (40 C.F.R. 136.3).

- b) The following water quality standards must not be exceeded at any time in any waters of the Lake Michigan Basin, unless a different standard is specified under subsection (c) of this Section.

Constituent	STORET Number	Unit	Water Quality Standard
Barium (total)	01007	mg/L	5.0
Boron (total)	01022	mg/L	1.0
Chloride (total)	00940	mg/L	500

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Constituent	STORET Number	Unit	Water Quality Standard
Fluoride	00951	mg/L	1.4
Iron (dissolved)	01046	mg/L	1.0
Manganese (total)	01055	mg/L	1.0
Phenols	32730	mg/L	0.1
Sulfate	00945	mg/L	500
Total Dissolved Solids	70300	mg/L	1000

- c) In addition to the standards specified in subsections (a) and (b) of this Section, the following standards must not be exceeded at any time in the Open Waters of Lake Michigan as defined in Section 302.501.

Constituent	STORET Number	Unit	Water Quality Standard
Arsenic (total)	01002	µg/L	50.0
<u>Boron (total)</u>		<u>mg/L</u>	<u>1.0</u>
Barium (total)	01007	mg/L	1.0
Chloride (<u>total</u>)	00940	mg/L	12.0
<u>Fluoride (total)</u>		<u>mg/L</u>	<u>1.4</u>
Iron (dissolved)	01046	mg/L	0.30
Lead (total)	01051	µg/L	50.0
Manganese (total)	01055	mg/L	0.15

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Constituent	STORET Number	Unit	Water Quality Standard
Nitrate-Nitrogen	00620	mg/L	10.0
Phosphorus	00665	µg/L	7.0
Selenium (total)	01147	µg/L	10.0
Sulfate	00945	mg/L	24.0
Total Dissolved Solids	70300	mg/L	180.0
Oil (hexane solubles or equivalent)	00550, 00556 or 00560	mg/L	0.10
Phenols	32730	µg/L	1.0

- d) In addition to the standards specified in subsections (a), (b) and (c) of this Section, the following human health standards (HHS) must not be exceeded in the Open Waters of Lake Michigan as defined in Section 302.501 by the arithmetic average of at least four consecutive samples collected over a period of at least four days. The samples used to demonstrate compliance with the HHS must be collected in a manner which assures an average representation of the sampling period.

Constituent	STORET Number	Unit	Water Quality Standard
Benzene	34030	µg/L	12.0
Chlorobenzene	34301	µg/L	470.0
2,4-Dimethylphenol	34606	µg/L	450.0
2,4-Dinitrophenol	03757	µg/L	55.0

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Constituent	STORET Number	Unit	Water Quality Standard
Hexachloroethane (total)	34396	µg/L	5.30
Lindane	39782	µg/L	0.47
Methylene chloride	34423	µg/L	47.0
Toluene	78131	mg/L	5.60
Trichloroethylene	39180	µg/L	29.0

- e) For the following bioaccumulative chemicals of concern (BCCs), acute aquatic life standards (AS) must not be exceeded at any time in any waters of the Lake Michigan Basin and chronic aquatic life standards (CS), human health standards (HHS), and wildlife standards (WS) must not be exceeded in any waters of the Lake Michigan Basin by the arithmetic average of at least four consecutive samples collected over a period of at least four days subject to the limitations of Sections 302.520 and 302.530. The samples used to demonstrate compliance with the HHS and WS must be collected in a manner that assures an average representation of the sampling period.

Constituent	STORET Number	Unit	AS	CS	HHS	WS
Mercury (total)	71900	ng/L	1,700	910	3.1	1.3
Chlordane	39350	ng/L	NA	NA	0.25	NA
DDT and metabolites	39370	pg/L	NA	NA	150	11.0
Dieldrin	39380	ng/L	240	56	0.0065	NA
Hexachlorobenzene	39700	ng/L	NA	NA	0.45	NA
Lindane	39782	µg/L	0.95	NA	0.5	NA

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Constituent	STORET Number	Unit	AS	CS	HHS	WS
PCBs (class)	79819	pg/L	NA	NA	26	120
2,3,7,8-TCDD	03556	fg/L	NA	NA	8.6	3.1
Toxaphene	39400	pg/L	NA	NA	68	NA

Where: mg/L = milligrams per liter (10^{-3} grams per liter)
 µg/L = micrograms per liter (10^{-6} grams per liter)
 ng/L = nanograms per liter (10^{-9} grams per liter)
 pg/L = picograms per liter (10^{-12} grams per liter)
 fg/L = femtograms per liter (10^{-15} grams per liter)
 NA = Not Applied

(Source: Amended at 36 Ill. Reg. _____, effective _____)

Section 302.510 Incorporations by Reference

a) The Board incorporates the following publications by reference:

American Public Health Association et al., 800 I Street, N.W., Washington, D. C. 20001-3710, Standard Methods for the Examination of Water and Wastewater, 21st Edition, 2005. Available from the American Public Health Association, 800 I Street, NW, Washington, D.C. 20001-3710 (202) 777-2742.

USEPA. United States Environmental Protection Agency, Office of Health and Environmental Assessment, Washington, D.C. 20460, Method OIA-1677, DW: Available Cyanide by Flow Injection, Ligand Exchange, and Amperometry, January 2004, Document Number EPA-821-R-04-001.

b) The Board incorporates the following federal regulations by reference. Available from the Superintendent of Documents, U.S. Government Printing Office,

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Washington, D.C. 20402 (202) 783-3238:

40 CFR 136 (1996)

40 CFR 141 (1988)

40 CFR 302.4 (1988)

The Sections of 40 CFR 132 (1996) listed below:

APPENDIX A

Section I A

Section II

Section III C

Section IV D, E, F, G, H, and I

Section V C

Section VI A, B, C, D, E, and F

Section VIII

Section XI

Section XVII

APPENDIX B

Section III

Section VII B and C

Section VIII

APPENDIX C

Section II

Section III A (1 through 6 and 8), B (1 and 2)

APPENDIX D

Section III C, D, and E

Section IV

d) This Section incorporates no future editions or amendments.

(Source: Amended at 36 Ill. Reg. _____, effective _____)

Section 302.553 Determining the Lake Michigan Aquatic Toxicity Criteria or Values -

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General Procedures

The Lake Michigan Aquatic Life Criteria and Values are those concentrations or levels of a substance at which aquatic life is protected from adverse effects resulting from short or long term exposure in water.

- a) Tier I criteria and Tier II values to protect against acute effects in aquatic organisms will be calculated according to procedures listed at Sections 302.555, 302.560 and 302.563. The procedures of Section 302.560 shall be used as necessary to allow for interactions with other water quality characteristics such as hardness, pH, temperature, etc. Tier I criteria and Tier II values to protect against chronic effects in aquatic organisms shall be calculated according to the procedures listed at Section 302.565.
- b) Minimum data requirements. In order to derive a Tier I acute or chronic criterion, data must be available for at least one species of freshwater animal in at least eight different families such that the following taxa are included:
 - 1) The family Salmonidae in the class Osteichthyes;
 - 2) One other family in the class Osteichthyes;
 - 3) A third family in the phylum Chordata;
 - 4) A planktonic crustacean;
 - 5) A benthic crustacean;
 - 6) An insect;
 - 7) A family in a phylum other than Arthropoda or Chordata; and
 - 8) A family from any order of insect or any phylum not already represented.
- c) Data for tests with plants, if available, must be included in the data set.
- d) If data for acute effects are not available for all the eight families listed above, but are available for the family Daphnidae, a Tier II value shall be derived according to procedures in Section 302.563. If data for chronic effects are not available for all the eight families, but there are acute and chronic data available according to Section 302.565(b) so that three acute to chronic ratios (ACRs) can be calculated, then a Tier I chronic criterion can be derived according to procedures in Section

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302.565. If three ACRs are not available, then a Tier II chronic value can be derived according to procedures in Section 302.565**(be)**.

- e) Data must be obtained from species that have reproducing wild populations in North America except that data from salt water species can be used in the derivation of an ACR.

(Source: Amended at 36 Ill. Reg. _____, effective _____)

Section 302.595 Listing of Bioaccumulative Chemicals of Concern, Derived Criteria and Values

- a) The Agency shall maintain a listing of toxicity criteria and values derived pursuant to this Subpart. This list shall be made available to the public and updated whenever a new criterion or value is derived ~~periodically~~ but no less frequently than annually ~~quarterly~~, and shall be published when updated in the Illinois Register and the Agency's website at <http://www.iepa.state.il.us>.
- b) A criterion or value published pursuant to subsection (a) of this Section may be proposed to the Board for adoption as a numeric water quality standard.
- c) The Agency shall maintain for inspection all information including, but not limited to, assumptions, toxicity data and calculations used in the derivation of any toxicity criterion or value listed pursuant to subsection (a) of this Section until adopted by the Board as a numeric water quality standard.

(Source: Amended at 36 Ill. Reg. _____, effective _____)

SUBPART F: PROCEDURES FOR DETERMINING WATER QUALITY CRITERIA

Section 302.648 Determining the Human Threshold Criterion

The HTC is calculated according to the equation:

$$HTC = ADI/[W + (F \times BCF)]$$

Where:

HTC = Human health protection criterion in milligrams per liter (mg/L);

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ADI = Acceptable daily intake of substance in milligrams per day (mg/d) as specified in Section 302.645;

W = Per capita daily water consumption equal to 2 liters per day (L/d) for surface waters at the point of intake of a public or food processing water supply, or equal to 0.01 liters per day (L/d) which represents incidental exposure through contact or ingestion of small volumes of water while swimming or during other recreational activities for areas which are determined to be public access areas pursuant to Section ~~302.102~~~~302.201~~(b)(3), or 0.001 liters per day (L/d) for other General Use waters;

F = Assumed daily fish consumption in the United States equal to 0.020 kilograms per day (kg/d); and

BCF = Aquatic organism Bioconcentration Factor with units of liter per kilogram (L/kg) as derived in Sections 302.660 through 302.666.

(Source: Amended at 36 Ill. Reg. _____, effective _____)

Section 302.657 Determining the Human Nonthreshold Criterion

The HNC is calculated according to the equation:

$$\text{HNC} = \text{RAI} / [\text{W} + (\text{F} \times \text{BCF})]$$

Where:

HNC = Human Nonthreshold Protection Criterion in milligrams per liter (mg/L);

RAI = Risk Associated Intake of a substance in milligrams per day (mg/d) which is associated with a lifetime cancer risk level equal to a ratio of one to 1,000,000 as derived in Section 302.654;

W = Per capita daily water consumption equal to 2 liters per day (L/d) for surface waters at the point of intake of a public or food processing water supply, or equal to 0.01 liters per day (L/d) which represents incidental exposure through contact or ingestion of small volumes of water while swimming or during other recreational activities for areas which are determined to be public access areas pursuant to Section ~~302.102~~~~302.201~~(b)(3), or 0.001 liters per day (L/d) for other General Use waters;

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F = Assumed daily fish consumption in the United States equal to 0.020 kilograms per day (kg/d); and

BCF = Aquatic Life Bioconcentration Factor with units of liter per kilogram (L/kg) as derived in Section 302.663.

(Source: Amended at 36 Ill. Reg. _____, effective _____)

Section 302.669 Listing of Derived Criteria

- a) The Agency shall develop and maintain a listing of toxicity criteria pursuant to this Subpart. This list shall be made available to the public and updated whenever a new criterion is derived ~~periodically~~ but no less frequently than annually ~~quarterly~~ or, and shall be published when updated in the Illinois Register and the Agency's website at <http://www.iepa.state.il.us>.
- b) A criterion published pursuant to subsection (a) may be proposed to the Board for adoption as a numeric water quality standard.
- c) The Agency shall maintain for inspection all information including, but not limited to, assumptions, toxicity data and calculations used in the derivation of any toxicity criterion listed pursuant to subsection (a) until adopted by the Board as a water quality standard.

(Source: Amended at 36 Ill. Reg. _____, effective _____)

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- 1) Heading of the Part: Introduction
- 2) Code Citation: 35 Ill. Adm. Code 301
- 3) Section Numbers: Proposed Action:
 301.106 Amend
- 4) Statutory Authority: Implementing Sections 22.12 and 57 - 57.19 and authorized by Sections 27 and 28 of the Environmental Protection Act [415 ILCS 5/22.12, 27, 28, and 57 - 57.19.]
- 5) A Complete Description of the Subjects and Issues Involved: A lengthy description is contained in the Board's March 15, 2012 first notice opinion and order in Board Docket R11-18 Triennial Review of Water Quality Standards for Boron, Fluoride and Manganese: Amendments to 35 Ill. Adm. Code 301.106, 302.Subparts B, C, E, F and 303.312 (Mar. 15, 2012). The Illinois Environmental Protection Agency (IEPA) filed this.

The Board proposes to amend the materials incorporated by reference in Section 301.06 to include an updated methodology concerning cyanide used to determine compliance with the water quality standards in 35 Ill. Adm. Code Part 302 (described elsewhere in this issue of the *Illinois Register*). No one has objected to the proposed update at the two public hearings held, or in written public comment.

- 6) Published studies or reports, and sources of underlying data, used to compose this rulemaking: The rulemaking includes amendments to 35 Ill. Adm. Code Parts 301, 302, and 303. The list of documents used by IEPA to prepare this proposal is quite lengthy. As the bulk of the proposed amendments are to the Part 302 water quality standards, the Board is including that list only in the notice pages for Part 302.
- 7) Will this proposed amendment replace an emergency rule currently in effect? No.
- 8) Does this rulemaking contain an automatic repeal date? No.
- 9) Does this proposed amendment contain incorporations by reference? Yes. Section 301.106 is the central incorporations by reference section for 35 Ill. Adm. Code. Subchapter C at 35 Ill. Adm. Code 301.106.
- 10) Are there any other proposed amendments pending on this Part? No.

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11) Statement of Statewide Policy Objectives: This proposed rule does not create or enlarge a State mandate, as defined in Section 3(b) of the State Mandates Act. [30 ILCS 805/3(b) (2010)].

12) Time, Place, and Manner in which interested persons may comment on this proposed rulemaking:

Interested persons may download copies of the Board's opinion and order in R11-18 from the Board's Web site at www.ipcb.state.il.us and may also request copies by calling the Clerk's office at 312-814-3620.

The Board will accept written public comment on this proposal for 45 days after the date of publication in the *Illinois Register*. Comments should refer to Docket R11-18 and be addressed to:

Clerk's Office
Illinois Pollution Control Board
100 W. Randolph St., Suite 11-500
Chicago, IL 60601

13) Initial Regulatory Flexibility Analysis: Part 301 itself imposes no requirements; it contains general provisions applicable to the enforcement of water quality standards in Part 302 (described elsewhere in this issue of the *Illinois Register*).

A. Types of small businesses, small municipalities and not for profit corporations affected: None

B. Reporting, bookkeeping or other procedures required for compliance: None

C. Types of Professional skills necessary for compliance: None

14) Regulatory Agenda on which this rulemaking was summarized: July 2011

The full text of the Proposed Amendment begins on the next page:

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TITLE 35: ENVIRONMENTAL PROTECTION
SUBTITLE C: WATER POLLUTION
CHAPTER I: POLLUTION CONTROL BOARD

PART 301
INTRODUCTION

Section	
301.101	Authority
301.102	Policy
301.103	Repeals
301.104	Analytical Testing
301.105	References to Other Sections
301.106	Incorporations by Reference
301.107	Severability
301.108	Adjusted Standards
301.200	Definitions
301.205	Act
301.210	Administrator
301.215	Agency
301.220	Aquatic Life
301.221	Area of Concern
301.225	Artificial Cooling Lake
301.230	Basin
301.231	Bioaccumulative Chemicals of Concern
301.235	Board
301.240	CWA
301.245	Calumet River System
301.247	Chicago Area Waterway System
301.250	Chicago River System
301.255	Combined Sewer
301.260	Combined Sewer Service Area
301.265	Construction
301.267	Conversion Factor
301.270	Dilution Ratio
301.275	Effluent
301.280	Hearing Board
301.282	Incidental Contact Recreation
301.285	Industrial Wastes
301.290	Institute
301.295	Interstate Waters

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301.300	Intrastate Waters
301.301	Lake Michigan Lakewide Management Plan
301.305	Land Runoff
301.307	Lower Des Plaines River
301.310	Marine Toilet
301.311	Method Detection Level
301.312	Minimum Level
301.313	Metals Translator
301.315	Modification
301.320	New Source
301.323	Primary Contact Recreation
301.324	Non-contact Recreation and Non-recreational
301.325	NPDES
301.330	Other Wastes
301.331	Outlier
301.335	Person
301.340	Pollutant
301.341	Pollutant Minimization Program
301.345	Population Equivalent
301.346	Preliminary Effluent Limitation
301.350	Pretreatment Works
301.355	Primary Contact
301.356	Projected Effluent Quality
301.360	Public and Food Processing Water Supply
301.365	Publicly Owned Treatment Works
301.370	Publicly Regulated Treatment Works
301.371	Quantification Level
301.372	Reasonable Potential Analysis
301.373	Same Body of Water
301.375	Sanitary Sewer
301.380	Secondary Contact
301.385	Sewage
301.390	Sewer
301.395	Sludge
301.400	Standard of Performance
301.405	STORET
301.410	Storm Sewer
301.411	Total Maximum Daily Load
301.413	Total Metal
301.415	Treatment Works

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301.420	Underground Waters
301.421	Wasteload Allocation
301.425	Wastewater
301.430	Wastewater Source
301.435	Watercraft
301.440	Waters
301.441	Water Quality Based Effluent Limitation
301.442	Wet Weather Point Source
301.443	Whole Effluent Toxicity
301.APPENDIX A	References to Previous Rules

AUTHORITY: Implementing Section 13 and authorized by Section 27 of the Environmental Protection Act [415 ILCS 5/13 and 27].

SOURCE: Filed with the Secretary of State January 1, 1978; amended at 3 Ill. Reg. 25, p. 190, effective June 21, 1979; amended at 5 Ill. Reg. 6384, effective May 28, 1981; codified at 6 Ill. Reg. 7818; amended in R88-1 at 13 Ill. Reg. 5984, effective April 18, 1989; amended in R88-21(A) at 14 Ill. Reg. 2879, effective February 13, 1990; amended in R99-8 at 23 Ill. Reg. 11277, effective August 26, 1999; amended in R02-11 at 27 Ill. Reg. 158, effective December 20, 2002; amended in R08-09(A) at 35 Ill. Reg. 15071, effective August 23, 2011; amended in R11-18 at 36 Ill. Reg. _____, effective _____.

Section 301.106 Incorporations by Reference

- a) Abbreviations. The following abbreviated names are used for materials incorporated by reference:
- "ASTM" means American Society for Testing and Materials.
 - "GPO" means Superintendent of Documents, U.S. Government Printing Office.
 - "NTIS" means National Technical Information Service.
 - "Standard Methods" means "Standard Methods for the Examination of Water and Wastewater", available from the American Public Health Association.
 - "USEPA" means United States Environmental Protection Agency.
- b) The Board incorporates the following publications by reference:
American Public Health Association et al., 800 I Street, N.W., Washington, D.C.

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20001-3710. (202) 777-2742

Standard Methods for the Examination of Water and Wastewater, 21st Edition, 2005

ASTM. American Society for Testing and Materials, 100 Barr Harbor Drive, West Conshohocken, PA 19428-2959 (610) 832-9585

ASTM Standard E 724-80 "Standard Practice for Conducting Static Acute Toxicity Tests with Larvae of Four Species of Bivalve Molluscs", approved 1980.

ASTM Standard E 729-80 "Standard Practice for Conducting Static Acute Toxicity Tests with Fishes, Macroinvertebrates, and Amphibians", approved 1980.

ASTM Standard E 857-81 "Standard Practice for Conducting Subacute Dietary Toxicity Tests with Avian Species", approved 1981.

ASTM Standard E 1023-84 "Standard Guide for Assessing the Hazard of a Material to Aquatic Organisms and Their Uses", approved 1984.

ASTM Standard E 1103-86 "Method for Determining Subchronic Dermal Toxicity", approved 1986.

ASTM Standard E 1147-87 "Standard Test Method for Partition Coefficient (n-Octanol/Water) Estimation by Liquid Chromatography", approved February 27, 1987.

ASTM Standard E 1192-88 "Standard Guide for Conducting Acute Toxicity Tests on Aqueous Effluents with Fishes, Macroinvertebrates and Amphibians", approved 1988.

ASTM Standard E 1193-87 "Standard Guide for Conducting Renewal Life-Cycle Toxicity Tests with Daphnia Magna", approved 1987.

ASTM Standard E 1241-88 "Standard Guide for Conducting Early Life-Stage Toxicity Tests with Fishes", approved 1988.

ASTM Standard E 1242-88 "Standard Practice for Using Octanol-Water

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Partition Coefficients to Estimate Median Lethal Concentrations for Fish due to Narcosis", approved 1988.

ASTM Standard E 4429-84 "Standard Practice for Conducting Static Acute Toxicity Tests on Wastewaters with Daphnia", approved 1984.

NTIS. National Technical Information Service, 5285 Port Royal Road, Springfield, VA 22161 (703) 487-4600

SIDES: STORET Input Data Editing System, January 1973, Document Number PB-227 052/8.

Water Quality Data Base Management Systems, February 1984, Document Number AD-P004 768/8.

USEPA. United States Environmental Protection Agency, Office of Health and Environmental Assessment, Washington, D.C. 20460

Mutagenicity and Carcinogenicity Assessment for 1,3-Butadiene, September 1985, Document Number EPA/600/8-85/004A.

Method OIA-1677, DW: Available Cyanide by Flow Injection, Ligand Exchange, and Amperometry, January 2004, Document Number EPA-821-R-04-001.

- c) The Board incorporates the following federal regulations by reference. Available from the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402 (202) 783-3238:

Procedure 5.b.2 of Appendix F of 40 CFR 132 (1995)
40 CFR 136 (1996)
40 CFR 141 (1988)
40 CFR 302.4 (1988)

- d) The Board incorporates the following federal regulations by reference, available from the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402 (202) 783-3238:

USEPA 1996: The Metals Translator: Guidance for Calculating a Total Recoverable Permit Limit from a Dissolved Criterion. EPA 823-B-96-007

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(1996).

e) This Section incorporates no future editions or amendments.

(Source: Amended at 36 Ill. Reg. _____, effective _____)