

ILLINOIS POLLUTION CONTROL BOARD  
February 7, 2013

IN THE MATTER OF: )  
)  
TECHNICAL CORRECTIONS TO ) R11-18(B)  
TRIENNIAL REVIEW OF WATER ) (Rulemaking - Water)  
QUALITY STANDARDS AMENDMENTS )  
FOR FLUORIDE AND MANGANESE: )  
AMENDMENTS TO 35 ILL. ADM. CODE )  
302.208 (b) and (e). )

Proposed Rule. First Notice. Opinion and Order.

OPINION AND ORDER OF THE BOARD (by C.K. Zalewski):

Today the Board opens a subdocket B in this proceeding and proposes technical corrections to recently-adopted amendments to 35 Ill. Adm. Code 302.208, published in the *Illinois Register* at 36 Ill. Reg. 18863 (Dec. 28, 2012). See In the Matter of: 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, R11-18 (Nov. 15, 2012). This docket is opened for the limited purpose of making two changes to Section 302.208, to correct scrivener's errors that occurred during the rulemaking process. The errors occur in the reporting requirements for the fluoride and manganese water quality standards. The Board believes that failure to promptly propose correction the standards could result in unintended problems for dischargers in monitoring, reporting, and demonstrating compliance with rules that are arguably ambiguous.

Docket R11-18 updated the Board's water quality standards for boron, fluoride, and manganese, as well as various other regulations codified at 35 Ill. Adm. Code Parts 301, 302 and 303. The Board's adopted rules are 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.

Following two public hearings, the Board adopted a first notice proposal on March 15, 2012, and those proposed amendments appeared at 36 Illinois Register 5713 (Apr. 13, 2012). After an additional hearing, the final rules were adopted on November 15, 2012, and were published at 36 Ill. Reg. 18863 (Dec. 28, 2012). The unintended errors occurred between the two publications.<sup>1</sup>

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<sup>1</sup>By way of explanation, the Board notes that it underwent a major computer system conversion following its November 15, 2012 meeting, leading to some difficulties with rule text accuracy.

**Fluoride: 25 Ill. Adm. Code 302.208(b)**

The first error, concerning fluoride, appears in the fourth sentence of Section 302.208(b). The word “metals” is not stricken in its first usage, as it is consistently throughout the rest of the subsection. The rule should correctly read, in its entirety:

- 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. 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 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 sample was collected. To calculate attainment status of chronic ~~metals~~ standards, the concentration of the chemical constituent 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.

The language as shown above was the language discussed in the Board’s public hearings in this matter, and the Board intended no change in the language as proposed. Prior to the Board’s adoption of the Agency’s proposed amendments in the R11-18 rulemaking, the language was limited to metals with chronic standards based on hardness. While R11-18 added a fluoride standard based on hardness, fluoride is not a metal. The Board is proposing this correction to ensure that there is no question as to whether fluoride dischargers are able to utilize this rule segment when demonstrating compliance with the fluoride standard.

**Manganese: 35 Ill. Adm. Code 302.208(e)**

The second error, concerning manganese, occurs where its listing appears in the table in sentence of Section 302.208(e). The Agency proposal was for a dissolved manganese standard; the word “dissolved” was inadvertently omitted in the table listing the standard. The manganese listing should correctly read:

Manganese  
(dissolved)

$$e^{A+B\ln(H)} \times 0.9812* \_$$

where  $A = 4.9187$

and  $B = 0.7467$

$$e^{A+B\ln(H)} \times 0.9812* \_$$

where  $A = 4.0635$

and  $B = 0.7467$

Absent this correction, a discharger could assume that it must report “total,” rather than “dissolved,” manganese. All of the testimony and comments in this record were based on a

dissolved manganese standard. An analysis for total manganese would yield a higher result than would analysis for just the dissolved portion. In effect, a result for total manganese could unfairly tip the scales to show a lack of compliance, where the Board and Agency's intent was to measure only the smaller, dissolved portion.

The Board has already held the hearings required under Section 27 of the Environmental Protection Act, 5 ILCS 5/100 et al. seq. (2010). The sole purpose of this subdocket B is to have the adopted amendments comport with the rulemaking record on which they are based. Based on the record in this proceeding to date, the Board finds that the adopted amendments are technically feasible and economically reasonable and will not have an adverse economic impact on the People of Illinois. *See* 415 ILCS 5/27(a), (b) (2010).

The Board does not believe that additional hearings are necessary, and accordingly does not intend to hold additional hearings, unless they are specifically requested during the first notice comment period as provided by the Administrative Procedure Act (APA), 5 ILCS 100/1-1 (2010.)

### **ORDER**

The Board directs the Clerk to submit the following rules to the Secretary of State for first notice publication in the Illinois Register. Proposed additions to existing rules are underlined, and proposed deletions are stricken. Rule text begins on the following page:

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

PART 302  
WATER QUALITY STANDARDS

SUBPART A: GENERAL WATER QUALITY PROVISIONS

Section	
302.100	Definitions
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

Section	
302.201	Scope and Applicability
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	
302.301	Scope and Applicability
302.302	Algicide Permits
302.303	Finished Water Standards
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
302.503	pH
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
302.520	Regulation and Designation of Bioaccumulative Chemicals of Concern (BCCs)
302.521	Supplemental Antidegradation Provisions for Bioaccumulative Chemicals of Concern (BCCs)
302.525	Radioactivity
302.530	Supplemental Mixing Provisions for Bioaccumulative Chemicals of Concern (BCCs)
302.535	Ammonia Nitrogen
302.540	Other Toxic Substances
302.545	Data Requirements
302.550	Analytical Testing
302.553	Determining the Lake Michigan Aquatic Toxicity Criteria or Values – General Procedures
302.555	Determining the Tier I Lake Michigan Acute Aquatic Toxicity Criterion (LMAATC): Independent of Water Chemistry
302.560	Determining the Tier I Lake Michigan Basin Acute Aquatic Life Toxicity Criterion (LMAATC): Dependent on Water Chemistry

302.563	Determining the Tier II Lake Michigan Basin Acute Aquatic Life Toxicity Value (LMAATV)
302.565	Determining the Lake Michigan Basin Chronic Aquatic Life Toxicity Criterion (LMCATC) or the Lake Michigan Basin Chronic Aquatic Life Toxicity Value (LMCATV)
302.570	Procedures for Deriving Bioaccumulation Factors for the Lake Michigan Basin
302.575	Procedures for Deriving Tier I Water Quality Criteria and Values in the Lake Michigan Basin to Protect Wildlife
302.580	Procedures for Deriving Water Quality Criteria and Values in the Lake Michigan Basin to Protect Human Health – General
302.585	Procedures for Determining the Lake Michigan Basin Human Health Threshold Criterion (LMHHTC) and the Lake Michigan Basin Human Health Threshold Value (LMHHTV)
302.590	Procedures for Determining the Lake Michigan Basin Human Health Nonthreshold Criterion (LMHHNC) or the Lake Michigan Basin Human Health Nonthreshold Value (LMHHNV)
302.595	Listing of Bioaccumulative Chemicals of Concern, Derived Criteria and Values

#### SUBPART F: PROCEDURES FOR DETERMINING WATER QUALITY CRITERIA

Section	
302.601	Scope and Applicability
302.603	Definitions
302.604	Mathematical Abbreviations
302.606	Data Requirements
302.612	Determining the Acute Aquatic Toxicity Criterion for an Individual Substance – General Procedures
302.615	Determining the Acute Aquatic Toxicity Criterion – Toxicity Independent of Water Chemistry
302.618	Determining the Acute Aquatic Toxicity Criterion – Toxicity Dependent on Water Chemistry
302.621	Determining the Acute Aquatic Toxicity Criterion – Procedure for Combinations of Substances
302.627	Determining the Chronic Aquatic Toxicity Criterion for an Individual Substance – General Procedures
302.630	Determining the Chronic Aquatic Toxicity Criterion – Procedure for Combinations of Substances
302.633	The Wild and Domestic Animal Protection Criterion
302.642	The Human Threshold Criterion
302.645	Determining the Acceptable Daily Intake
302.648	Determining the Human Threshold Criterion
302.651	The Human Nonthreshold Criterion
302.654	Determining the Risk Associated Intake
302.657	Determining the Human Nonthreshold Criterion
302.658	Stream Flow for Application of Human Nonthreshold Criterion
302.660	Bioconcentration Factor

302.663	Determination of Bioconcentration Factor
302.666	Utilizing the Bioconcentration Factor
302.669	Listing of Derived Criteria
302.APPENDIX A	References to Previous Rules
302.APPENDIX B	Sources of Codified Sections
302.APPENDIX C	Maximum total ammonia nitrogen concentrations allowable for certain combinations of pH and temperature
302.TABLE A	pH-Dependent Values of the AS (Acute Standard)
302.TABLE B	Temperature and pH-Dependent Values of the CS (Chronic Standard) for Fish Early Life Stages Absent
302.TABLE C	Temperature and pH-Dependent Values of the CS (Chronic Standard) for Fish Early Life Stages Present
302.APPENDIX D	Section 302.206(d): Stream Segments for Enhanced Dissolved Oxygen Protection

**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, 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. 18871, effective December 28, 2012; amended in R11-18 at 37 Ill. Reg. \_\_\_\_\_, effective \_\_\_\_\_.

### **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) has been approved by the Agency pursuant to Section 302.102.
- 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 in which mixing is allowed pursuant to Section 302.102. 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 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 sample was collected. To calculate attainment status of chronic ~~metals~~ standards, the concentration of the chemical constituent 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 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 in which mixing is allowed pursuant to Section 302.102.
- 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 in which mixing is allowed pursuant to Section 302.102.
- e) Numeric Water Quality Standards for the Protection of Aquatic Organisms

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

Chromium (hexavalent, total)	16	11
Chromium (trivalent, dissolved)	$e^{A+B\ln(H)} \times 0.316^*$ where $A = 3.688$ and $B = 0.8190$	$e^{A+B\ln(H)} \times 0.860^*$ where $A = 1.561$ and $B = 0.8190$
Copper (dissolved)	$e^{A+B\ln(H)} \times 0.960^*$ where $A = -1.464$ and $B = 0.9422$	$e^{A+B\ln(H)} \times 0.960^*$ where $A = -1.465$ and $B = 0.8545$
Cyanide**	22	5.2
Fluoride (total)	$e^{A+B\ln(H)}$ where $A = 6.7319$ and $B = 0.5394$	$e^{A+B\ln(H)}$ , but shall not exceed 4.0 mg/L where $A = 6.0445$ and $B = 0.5394$
Lead (dissolved)	$e^{A+B\ln(H)} \times$ $\left\{ 1.46203 - \right.$ $\left. \left[ \frac{0.1457}{2} \ln(H) \right] \right\}^*$ where $A = -1.301$ and $B = 1.273$	$e^{A+B\ln(H)} \times$ $\left\{ 1.46203 - \right.$ $\left. \left[ \frac{0.145712}{2} \ln(H) \right] \right\}^*$ where $A = -2.863$ and $B = 1.273$
Manganese (dissolved)	$e^{A+B\ln(H)} \times 0.9812^*$ where $A = 4.9187$ and $B = 0.7467$	$e^{A+B\ln(H)} \times 0.9812^*$ where $A = 4.0635$ and $B = 0.7467$
Mercury (dissolved)	$2.6 \times 0.85^* = 2.2$	$1.3 \times 0.85^* = 1.1$
Nickel (dissolved)	$e^{A+B\ln(H)} \times 0.998^*$ 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	19	11

Zinc (dissolved)	$e^{A+B\ln(H)} \times 0.978^*$	$e^{A+B\ln(H)} \times 0.986^*$
	where $A = 0.9035$ and $B = 0.8473$	where $A = -0.4456$ and $B = 0.8473$
Benzene	4200	860
Ethylbenzene	150	14
Toluene	2000	600
Xylene(s)	920	360

where:

$\mu\text{g/L}$	=	microgram per liter
$e^x$	=	base of natural logarithms raised to the x-power
$\ln(H)$	=	natural logarithm of Hardness
*	=	conversion factor multiplier for dissolved metals
**	=	standard to be evaluated using either of the following USEPA 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 CFR 136.3)

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

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

where:

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

g) Single-value standards apply at the following concentrations for these substances:

Constituent	Unit	Standard
Barium (total)	mg/L	5.0

Chloride (total)	mg/L		500
Iron (dissolved)	mg/L	01046	1.0
Phenols	mg/L		0.1
Selenium (total)	mg/L		1.0
Silver (total)	µg/L		5.0

where:

mg/L = milligram per liter and

µg/L = microgram per liter

h) Water quality standards for sulfate are as follows:

- 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 CaCO<sub>3</sub>) 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 CaCO<sub>3</sub>) 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 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 37 Ill. Reg. \_\_\_\_\_, effective \_\_\_\_\_)

I, John T. Therriault, Assistant Clerk of the Illinois Pollution Control Board, certify that the Board adopted the above opinion and order on February 7, 2013 by a vote of 5-0.



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John T. Therriault, Assistant Clerk  
Illinois Pollution Control Board

