

ILLINOIS POLLUTION CONTROL BOARD
May 16, 2013

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

Adopted Rule. Final Notice.

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

Today the Board adopts a final order in this docket that adopts minor technical corrections to the rule. On February 7, 2013, the Board opened this subdocket B and adopted proposed first notice changes to previously adopted rules. *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).* The Board's first notice proposal was published at 37 Ill. Reg. 2436 (Feb. 22, 2013). The publication commenced a 45-day public comment period, as provided by the Administrative Procedure Act (APA), 5 ILCS 100/1-1 (2010). The first notice comment period ended April 9, 2013, and the only public comment received was that filed by the Illinois Environmental Protection Agency (Agency) (PC1). The Agency agrees with the need for the changes specified in the first notice, and suggests correction of an additional typographical error appearing in a formula in Section 302.208(e) for lead (dissolved), as discussed below. The Agency did not request a public hearing. The Board agrees that this third set of changes should appropriately be made in this docket.

On April 18, 2013, the Board adopted second-notice amendments for review by the Joint Committee on Administrative Rules (JCAR). JCAR accepted the Board's Second Notice on April 19, 2013. On April 23, 2013, JCAR notified the Board of an additional typographical error that appeared in both the First Notice and Second Notice versions of the rule amendments. With this final adoption, the Board makes the additional typographical change to the second-notice rule amendments.

The Board already held the hearings required under Section 27 of the Environmental Protection Act (Act), 5 ILCS 5/100 et. 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).*

Additional hearings were not requested in this subdocket B. Therefore, the Board did not hold additional hearings. The Board now files the adopted amendments with the Secretary of State for publication in the *Illinois Register* as final rules.

THE FIRST NOTICE PROPOSAL

By order of February 7, 2013, the Board opened a subdocket B in this proceeding and proposed 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 was opened for the limited purpose of making two changes to Section 302.208, to correct scribes' errors that occurred during the rulemaking process. The errors occur in the reporting requirements for the fluoride and manganese water quality standards. The Board stated that failure to promptly propose correction of the standards could result in unintended problems for dischargers in monitoring, reporting, and demonstrating compliance with rules that are arguably ambiguous.

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 Agency under Section 27 of the Act, 415 ILCS 5/27 (2010) and the Board's procedural rules at 35 Ill. Adm. Code 102. The Agency'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.¹

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

¹By 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.

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 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 AGENCY’S COMMENT (PC 1)

Lead: 35 Ill. Adm. Code 302.208(e)

As previously stated, the Agency filed the only public comment. The substance of the Agency’s comment is that the Agency

wants to express thanks to the Board and its staff for the special efforts taken to address the minor scrivener’s errors contained in the published version of R 11-18. Part 302 of the Board’s regulations contains many complex formulas and the Agency is grateful [for] the diligence expressed by Board staff in ensuring that those formulas are accurately reflected in the regulations. In reviewing the Board’s opinion and order, the Agency identified one additional typographical error in one of the formulas in 35 Ill. Adm. Code 302.208 that the Agency would like to recommend be included in this rulemaking at Second Notice. Section 302.208(e) contains a formula for the general use acute and chronic water quality standards for lead (dissolved). In a portion of that formula the published version included the following: $A = B \ln (H)$. Instead, that formula should have been published as $A + B \ln (H)$. The Agency is requesting that the Board change the equal sign (=) in both the acute and chronic water quality standard formulas to a plus sign (+). PC 1 at 2.

The Board notes that the formula for lead (dissolved) appears immediately above that for manganese (dissolved) in Section 302.208(e), which is already open and noticed as being corrected. The error in the lead formula also appeared between first and second notice, and the Board and Agency’s intent was that the formula read “ $A + B \ln (H)$ ”. Consequently, the Board believes it appropriate to make the correction in response to the Agency’s comment.

But, the Board notes that for APA publication purposes, changes must be indicated by strike through and underlining, and the type face is very small in the exponential portion of the formula. Merely changing the single character “=” to “+” is not an effective option, since the one character change being made is not readily apparent. So, the change in the lead (dissolved) formula will appear as follows, with the entire exponential portion of the equation stricken through and the corrected portion underlined:

Lead	$e^{A=B \ln (H)}$ <u>$e^{A+B \ln (H)}$</u> ×	$e^{A=B \ln (H)}$ <u>$e^{A+B \ln (H)}$</u> ×
(dissolved)	$\left\{ 1.46203 - \frac{\quad}{[(\ln H)(0.1457 / 2)]} \right\} *$	$\left\{ 1.46203 - \frac{\quad}{[(\ln H)(0.145712)]} \right\} *$

ADDITIONAL CHANGES IN RESPONSE TO JCAR AGREEMENTS

As stated above, on April 18, 2013, the Board adopted second-notice amendments for review by the JCAR. As previously stated, on May 14, 2013, JCAR voted a certificate of “no

objection to the rules. With agreement of JCAR, the Board is now making additional changes to perfect the formulae in 35 Ill. Adm. Code 302.208 for lead and cadmium.

Lead

On April 23, 2013, JCAR notified the Board of an additional typographical error also located in Section 302.208(e) of the Board's regulations. The JCAR suggestion states: "In the same 'Lead (dissolved)' [equation] where EPA wanted to change the '=' to a '+', management notes that in the AS column, 3rd line, PCB has '(0.1457 / 2)', while in the CS column it has '(0.145712)'." The need for these changes is the result of scrivener's errors that could have significant consequences if not corrected. The error appears in both the first and second notice in the same lead equation of Section 302.208(e) discussed above, which is already open and noticed as being corrected. The Board has made the suggested change in the final order below.

Cadmium

In making the aforementioned change, the Board noticed another inconsistency in Section 302.208(e). While the formulas for the acute and chronic standards for cadmium (dissolved) included parenthesis around the 'H' in the hardness notation "ln(H)", the hardness notations in the formulas for the acute and chronic standards for lead (dissolved) did not include the parenthesis. In order to correct this inconsistency, this final set of amendments adds parenthesis to the hardness notation, "ln(H)" in the formulas for the acute and chronic standards for lead (dissolved). Therefore, the changes are made in the final rule as follows:

Lead (dissolved)	$e^{A=B \ln(H)}$ $\{1.46203 -$ $[(\ln H)(0.1457/2)]\}^*$ $e^{A+B \ln(H)}$ $\{1.46203 -$ $[(\ln(H))(0.145712)]\}^*$	$e^{A=B \ln(H)}$ $\{1.46203 -$ $[(\ln H)(0.145712)]\}^*$ $e^{A+B \ln(H)}$ $\{1.46203 -$ $[(\ln(H))(0.145712)]\}^*$
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ORDER

The Board adopts the following amendments to the Water Quality Standards for Fluoride, Lead, and Manganese (35 Ill. Adm. Code 302.208(b) and (d)) and directs the Clerk to submit the amendments to the Secretary of State for publication in the *Illinois Register* as final rules. Adopted additions to Part 302 are underlined and adopted deletions appear 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 12, 2012; amended in R11-18(B) at 37 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) 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)	$e^{A+B \ln(H)} \times$ $\left\{ 1.138672 - \frac{1.138672 - 1.041838}{[(\ln(H))(0.041838)]} \right\}^*$	$e^{A+B \ln(H)} \times$ $\left\{ 1.101672 - \frac{1.101672 - 1.041838}{[(\ln(H))(0.041838)]} \right\}^*$
	where $A = -2.918$ and	where $A = -3.490$ and

	$B = 1.128$	$B = 0.7852$
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)	$e^{-A+B \ln(H)}$ $\{1.46203 -$ $[(\ln H)(0.1457/2)]\}^*$ $\frac{e^{A+B \ln(H)}}{1.46203 -$ $[(\ln(H))(0.145712)]\}^*$	$e^{-A+B \ln(H)}$ $\{1.46203 -$ $[(\ln H)(0.145712)]\}^*$ $\frac{e^{A+B \ln(H)}}{1.46203 -$ $[(\ln(H))(0.145712)]\}^*$
	where $A = -1.301$ and $B = 1.273$	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)	$e^{A+B \ln(H)} \times 0.998^*$	$e^{A+B \ln(H)} \times 0.997^*$

	where $A = 0.5173$ and $B = 0.8460$	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 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 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 _____)

IT IS SO ORDERED.

Section 41(a) of the Environmental Protection Act provides that final Board orders may be appealed directly to the Illinois Appellate Court within 35 days after the Board serves the order. 415 ILCS 5/41(a) (2010); *see also* 35 Ill. Adm. Code 101.300(d)(2), 101.906, 102.706. Illinois Supreme Court Rule 335 establishes filing requirements that apply when the Illinois Appellate Court, by statute, directly reviews administrative orders. 172 Ill. 2d R. 335. The Board's procedural rules provide that motions for the Board to reconsider or modify its final orders may be filed with the Board within 35 days after the order is received. 35 Ill. Adm. Code 101.520; *see also* 35 Ill. Adm. Code 101.902, 102.700, and 102.702.

I, John T. Therriault, Assistant Clerk of the Illinois Pollution Control Board, certify that the Board adopted the above opinion and order on May 16, 2013, by a vote of 5-0.

A handwritten signature in black ink that reads "John T. Therriault". The signature is written in a cursive style with a long horizontal flourish extending to the right.

John T. Therriault, Assistant Clerk
Illinois Pollution Control Board