ILLINOIS POLLUTION CONTROL BOARD
March 15, 2012

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 303.312	)	R11-18
	)	(Rulemaking - Water)
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Proposed Rule. First Notice.

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

Today the Board proposes amendments to update 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. First-notice publication of these amendments will be made in the *Illinois Register*, as required by the Administrative Procedure Act (APA), 5 ILCS 100/1-1 (2010.). 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 conducted two public hearings on the IEPA proposal, and received five public comments. The Board is adopting for first notice the amendments proposed by IEPA with minor changes, based on the Board's consideration of the entire record, including the public comments and IEPA's revisions to its proposal.

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. As discussed below, the Board is adding cyanide test methods to the incorporations by reference in Parts 301 and 302. 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*, but not in precisely the way requested by the Agency.

Publication of these proposed amendments in the *Illinois Register* will begin a 45-day public comment period under the APA. As further explained below, the Board presently intends to schedule one additional public hearing.

In this opinion, the Board first provides the procedural history of this rulemaking. The Board then gives background on the existing water quality standards. Next, the Board discusses the proposal and the key issues raised at hearing and in public comment. The first-notice amendments themselves are set forth in the order following this opinion.

PROCEDURAL MATTERS

Procedural History

On December 2, 2010, IEPA filed a rulemaking proposal to amend the Board's water quality standards regulations pursuant to the general rulemakings provisions of 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 consists of a Statement of Reasons (SR), supporting technical documents, and proposed amended rule text, all accompanied by a motion for acceptance.

In a December 16, 2011 order, the Board accepted the proposal for hearing. To assure that all affected entities received information concerning the proposal and its contents, the Board included on the notice list all the entities listed in IEPA's proposal under Attachment 1, Exh. D "Site-specific relief granted by the IPCB for boron and fluoride to date" and Attachment 7 "Facilities with NPDES [National Pollutant Discharge Elimination System] Permit Limits Based on the Incorrect Chronic Standard for Zinc". *See* 35 Ill. Adm. Code 102.422 "Notice and Service Lists."

In addition to the IEPA proposal, the record for consideration includes transcripts of public hearings, exhibits accepted at hearing, and public comments.[1] The Board held two public hearings in this rulemaking on June 21, 2011, in Springfield and on July 26, 2011, in Chicago.[2] Two persons testified at first hearing in Springfield: Brian Koch on behalf of IEPA and James Machin on behalf of Marathon Petroleum Company. One person testified at the second hearing in Chicago: Leonard Hopkins on behalf of Southern Illinois Power Cooperative. The hearing officer entered 8 hearing exhibits into the record.[3]

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[1] Citations to the hearing record appear as follows. Hearing exhibits are cited as "Exh. _ at _." The hearing transcripts are cited as "Tr.1 at _" for the first hearing and "Tr.2 at _" for the second hearing, ". Public comments are cited as "PC _ at _."

[2] The transcripts of the Springfield and Chicago hearings were received by the Board on July 1, 2011 and August 9, 2011, respectively, and promptly placed in the Clerk's Office On Line (COOL) on the Board's Web site at www.ipcb.state.il.us. Many other documents from this rulemaking are available through COOL, including Board opinions and orders, hearing officer orders, prefiled testimony, and public comments.

[3] The hearing exhibits are listed here, as some of them are referenced in the discussion of the IEPA proposal. The exhibits are:

The Board received five public comments from: the IEPA (PC 1); James W. Arndt, City of Effingham (PC 2); the City of Springfield, Office of Public Utilities (PC 3); James L. Machin on behalf of Marathon Petroleum Company; and (5) IEPA (PC 5).

REGULATORY BACKGROUND AND IEPA PROPOSAL

In this portion of the opinion, the Board provides background on the existing water quality standards for boron, fluoride and manganese and an overview of the IEPA's proposal.

Background on the Existing Standards

By way of background, in its statement of reasons accompanying the proposal IEPA explained that the Board's existing General Use and Lake Michigan Basin standards for boron, fluoride, and manganese were adopted by the Board in 1972 and have not been updated since. *See*, In the Matters of: Effluent Criteria; Water Quality Standards Revisions; Water Quality Standards Revisions for Intrastate Waters (SB-14), R70-8/R71-14/R71/20 (cons.) (Mar. 7, 1972). SR at 3. The Board stated in its adopting opinion that, in addition to some new regulations, these standards were

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Exhibit 1: Testimony of Brian Koch, toxicologist, Water Quality Standards Section of the Division of Water Pollution Control, Illinois Environmental Protection Agency (IEPA) (12 unnumbered pages, prefiled 5/23/2011; admitted into record as if read);

Exhibit 2: IEPA Tables (1 & 2) Identifying Existing and Proposed Water Quality Standards for Boron, Fluoride and Manganese (1 page);

Exhibit 3: Questions of the City of Springfield, Office of Public Utilities [a/k/a City Water, Light, and Power or CWLP], for IEPA Witness Brian Koch, pre-filed 6/13/11 (6 pages);

Exhibit 4: 6/14/11 Hearing Officer Order Transmitting Written Questions of Board Staff to IEPA (6 pages);

Exhibit 5: IEPA Response to Question 6 (of Exh. 4 Re Existing Board Relief Orders Re Boron and Fluoride) (1 page);

Exhibit 6: IEPA List of Water Segments Listed as Impaired on the draft 2010 [CWA Section] 303(d) List for Public and Food Processing Water Supply Use due to manganese Present in Excess of 150 mg/L (1 page);

Exhibit 7: Testimony from James L. Machin, P.E. on Behalf of Marathon Petroleum Company (with revised tables), prefiled 5/26/11 (4 pages); and

Exhibit 8: Testimony of Leonard Hopkins, Environmental & Fuel Manager (Marion Station), Southern Illinois Power Cooperative (SIPC) prefiled 7/5/2011; admitted into record as if read (4-page testimony, with attached Board opinion and order in Petition of Southern Illinois Power Cooperative (Marion Power) for Adjusted Standard from 35 Ill. Adm. Code 302.208(e), AS 92-10 (July 1, 1993)).

> a codification of existing water quality standards and associated standards that [were then] scattered throughout a number of separate regulations that we [the Board] inherited from the [predecessor] Sanitary Water Board. R70-8/R71-14/R71/20 (cons.), slip op. at 1.

The existing General Use and Lake Michigan Basin water quality standards for the parameters boron, fluoride, and manganese in Part 302.Subparts B and E were set for the protection of irrigated crops (boron), aquatic life (fluoride and manganese), and human health (fluoride). The Open Waters of Lake Michigan standards in Part 302.504(c) and (d) were set based on background conditions. The Public and Food Processing Water Supply standards in Part 302.Subpart C include manganese, which was set based on aesthetics rather than human health, but do not include boron and fluoride, for which the General Use standards apply. SR at 5-6, Att. 1. Table 1 below summarizes the existing numeric standards. PC 1 at 2.

Table 1: Existing Numeric Water Quality Standards (in mg/L[4])

Parameter	General Use	Non-open Lake Michigan Basin	Open Lake Michigan Basin	Secondary Contact and Indigenous Aquatic Life Standards[5]	Public and Food Processing Water Supply
Boron	1.0	1.0	1.0	None set	None set[6]
Fluoride	1.4	1.4	1.4	15	None set
Manganese	1.0	1.0	0.15	1.0	0.15

Overview of IEPA's Proposal

As stated above, the existing General Use and Lake Michigan standards for boron, fluoride, and manganese were adopted in 1972. SR at 3, Exh. 1 Koch PFT at 2. In 1985, the United States Environmental Protection Agency (USEPA) published guidelines for developing

[4] Standards are expressed in milligrams per liter (mg/L).

[5] No changes were proposed in this docket by IEPA because:

> At this time, the Agency intends to address all standards for Secondary Contact and Indigenous Aquatic Life Use water in the Use Attainability Analysis of the Des Plaines and Chicago Waterways" rulemaking. *See*, R08-09 (Sub-Docket D). SR. at 4.

[6] In the absence of a Public and Food Processing Water Supply Standard, the General Use Standards of 1.0 mg/L boron and 1.4 mg/L fluoride apply to these waters. *See*, 35 Ill. Adm. Code 302.301.

water quality standards [7], and the quality and amount of toxicity data for these parameters has improved. The standards proposed here are based on the USEPA guidelines and are a collaborative effort between IEPA, USEPA, Dr. David Soucek of the Illinois Natural History Survey (INHS), and the Great Lakes Environmental Commission (GLEC). SR at 7 and Exh. 1 at 1.

IEPA's proposal would update the Board's water quality standards for boron, fluoride and manganese. The proposal amends the General Use standards, the Public and Food Processing Water Supply standards, and the Lake Michigan standards set forth at 35 Ill. Adm. Code 302 Subparts B, C and E. SR at 4. In addition to the water quality standards update, IEPA's proposal also includes minor amendments concerning publication of water quality criteria, correction of errors and cross-references, elimination of STORET[8] references, and clarification of references to cyanide, mercury, chloride and toluene water quality standards. Finally, IEPA's proposal repeals a site-specific fluoride standard. IEPA's proposal is summarized below.

IEPA's Proposed Water Quality Standards for Boron, Fluoride and Manganese

General Use Standards (Part 302, Subpart B). IEPA proposed to update the General Use water quality standards for boron, fluoride and manganese under Section 302.208 by replacing outdated single-value standards in Section 302.208(g) with acute and chronic standards in Section 302.208(e). SR at 16, Tr. 1 at 10. IEPA noted that the updated chronic and acute standards were developed in accordance with USEPA's 1985 guidelines for deriving numerical water quality criteria. SR at 6, citing Prop. Attach. 1, Exhibit F. Since fluoride and manganese toxicity is known to be influenced by water hardness, the hardness-dependent relationships were taken into consideration when IEPA proposed pH-dependent formulae for calculating acute and chronic standards. On the other hand, the boron standards were developed independent of water chemistry because studies indicated that the "influence of water chemistry on boron toxicity had confounding results." SR at 7.

IEPA explained "only data from toxicity tests conducted on appropriate organisms using valid test methods, appropriate laboratory waters, and proper endpoints were used in deriving the proposed standards." SR at 8. For each substance, Lethal Concentration 50 (LC_{50})[9] acute data for each species was used to develop a Genus Mean Acute Value (GMAV) for each genus.

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[7] "Guidelines for Deriving Numerical National Water Quality Criteria for the Protection of Aquatic Organisms and Their Uses", USEPA, 1985, PB85-227049. SR Att. 1, Exh. F.

[8] STORET refers overall to "STORage and RETrieval", USEPA's electronic data system for water quality monitoring data. STORET has taken various forms since the 1960's, and is now comprised of "Legacy STORET" (1965-2000) and "Modernized STORET" (2000-present). *See* http:www.epa.gov/storet/faq.html/ and discussion *infra* at 9.

[9] In toxicology, LC_{50} (or (Lethal Concentration 50) means the dose of a chemical required to kill half the members of a tested population after a specified test duration.

Next, the Final Acute Value (FAV) was developed by ranking GMAVs by sensitivity. Finally, the no observable adverse effect level (NOAEL) was determined by dividing FAV by a factor of 2. *Id.* IEPA noted that the chronic standards for boron and fluoride were developed using the Acute-Chronic Ratio (ACR) approach. However, IEPA stated that the ACR approach was not used for developing chronic standard for manganese because the resulting standard was not protective of *Hyalella azteca*, the most sensitive test species. *Id.* So, IEPA used the Maximum Acceptable Toxicant Concentration (MATC) for *Hyalella azteca* to develop the chronic manganese standard. *Id.*

For boron, the proposed acute and chronic General Use water quality standards are 40,100 micrograms per Liter (µg/L) and 7,600 µg/L, respectively. IEPA's Mr. Koch indicated that he contacted a few surrounding states to determine which had boron standards and what data were used to derive those standards. Tr. 1 at 32. IEPA found chronic boron standards for the Great Lakes basin in Michigan at 5.0 mg/L and in Ohio at 0.95 mg/L. In Indiana, IEPA found information listing guidelines for boron at 0.36 mg/L as an older value and 1.6 mg/L as a value "under development". PC 5 at 3-4. Mr. Koch indicated these states used the Great Lakes Initiative (GLI) methodology[10]. Tr. 1 at 34. As stated above, IEPA relied on the USEPA 1985 guidelines, which IEPA indicated is nearly identical to the GLI methodology. SR at 6, Tr. 1 at 34, PC 5 at 2-3.

Public and Food Processing Water Supply Standards (Part 302, Subpart C). IEPA observed that the existing General Use standards for boron and fluoride are applied to surface waters used for public and food processing water supply by default since no specific standards have been adopted for those constituents. SR at 4 citing R71-14 slip. op. at 9 (Mar. 7, 1972). IEPA's proposal designates the existing General Use water quality standards for boron and fluoride as Public and Food Processing Water Supply standards because the revised boron and fluoride standards being proposed for General Use waters are higher than the existing standards. Thus, the proposed Public and Food Processing Water Supply standards at Section 302.304 for boron and fluoride are 1.0 mg/L and 1.4 mg/L, respectively.

In the case of manganese, IEPA stated that the existing Public and Food Processing Water Supply standard of 0.15 mg/L is overly protective. This is because the finished water maximum contaminant level (MCL), which is also 0.15 mg/L, can be easily attained with conventional treatment when the manganese level in the surface water intake is higher than the MCL. SR at 5. IEPA observed that with the existing manganese standard of 0.15 mg/L, many surface waters in the state with higher levels of naturally occurring manganese have been listed as "impaired" under Section 303(d) of the federal Clean Water Act, triggering the Total Maximum Daily Loads (TMDL). IEPA asserted that establishing TMDLs for waters with naturally occurring manganese is unnecessary because conventional treatment can easily achieve the applicable MCL. *Id.* at 6. Using a conservative treatment efficiency of 90 percent removal for Illinois treatment plants along with an additional safety factor of 1.5, IEPA has proposed to revise the manganese Public and Food Processing Water Supply standard at Section 302.304 to 1.0 mg/L.

[10] *See* 60 FR 15365-15425 (March 23, 1995).

IEPA noted that the proposed revision will not result in an increase in manganese loadings to waters that currently meet the existing manganese standard of 0.15 mg/L because NPDES facilities are not a significant source of manganese loadings to these waters. SR Attach. 1 at 12.

Updated Lake Michigan Basin Standards (Part 302, Subpart E). IEPA proposed to update water quality standards for boron, fluoride, and manganese in both the Open Waters of Lake Michigan and the Lake Michigan Basin. For the non-open Lake Michigan Basin waters, IEPA proposed standards at 35 Ill. Adm. Code 302.504(a) that are consistent with those proposed for General Use waters. Similar to the situation for Public and Food Processing Water Supply waters, there are no specific boron or fluoride standards for the Open Waters of Lake Michigan. However, IEPA noted that the existing Lake Michigan Basin standards of 1.0 mg/L boron and 1.4 mg/L fluoride at Section 302.504(b) are currently applicable to the Open Waters. SR at 5. These standards are being proposed as the Open Waters of Lake Michigan standards at Section 302.504(c) since they provide a measure of protection against harmful loadings, and continue to protect the waters for Public and Food Processing Water Supply uses. *Id.* With regard to manganese, IEPA observed that the existing Open Waters of Lake Michigan standard of 0.15 mg/L, which is based on background conditions of the lake, will remain unchanged.

Proposed Numeric Standards. IEPA's proposed numeric standards for boron, fluoride and manganese are summarized in Table 2, below. PC1 at 2.

Table 2: Illinois EPA's Proposed Water Quality Standard Changes (in µg/l)[11]

Parameter	**General Use and Non- open Lake Michigan Basin (Acute)**	**General Use and Non-open Lake Michigan Basin (Chronic)**	**Public and Food Processing Water Supply**
Boron	40,100	7,600	1,000
Fluoride	exp[A + B ln(H)] where A = 6.7319 and B = 0.5394	exp[A + B ln(H)] but shall not exceed 4.0 mg/L where A = 6.0445 and B = 0.5394	1,400
Manganese	exp[A + B ln(H)] x 0.9812* where A = 4.9187 and B = 0.7467	exp[A + B ln(H)] x 0.9812* where A = 4.0635 and B = 0.7467	1,000

[11] Already defined existing standards with no change proposed have been omitted from Table 2.

Where:	ln(H)	=	natural logarithm of Hardness
	*	=	conversion factor multiplier for dissolved metals

IEPA Publication of Listings of Derived Water Quality Criteria Under Sections 302.595 and 302.669

The Board rules under Sections 302.595 and 302.669 require IEPA to maintain a list of water quality criteria that are derived by IEPA for the Lake Michigan Basin for bioaccumulative chemicals of concern, and for the General Use waters for toxic parameters. SR at 9. Whenever the derived criteria list is updated, but no less frequently than quarterly, the rules require IEPA to publish the list in the *Illinois Register*.

IEPA explained this requirement was established in two earlier rulemakings: R88-21(A) and R97-25[12]. IEPA is proposing to replace publication in the *Illinois Register* with publication on its website. IEPA stated that using its website instead of the *Illinois Register* would provide the public with a more user friendly list, a superior method of public notice, and cost savings for the State. Tr. 1 at 10-11. IEPA indicated the listing could be easily found by visiting its Internet homepage, but also provided the address as http://www.epa.state.il.us/water/water-quality-standards/water-quality-criteria.html IEPA was amenable to including its general the Internet address in the proposed rule (http://www.epa.state.il.us). Tr. 1 at 85, PC 5 at 11-12.

Correction of Error in the General Use Zinc Standard

IEPA's proposal corrects an error in the existing General Use zinc standard, which was adopted by the Board in R02-11. *See,* Water QualityTriennial Review: Amendments to 35 Ill. Adm. Code 302.105, 302.208(e)-(g). 302.504(a), 302.575(d), 309.141(h); and Proposed 35 lll. Adm. Code 301 .267, 301.313, 301.413, 304.120, and 309.157, R02-11 (Dec. 19, 2002). IEPA noted that while a number of mathematical and clerical errors were identified and corrected during the rulemaking proceeding in R02-11, IEPA has discovered an additional error in the chronic zinc standard concerning a toxicity value used for *Hyalella azteca*. SR at 9-10. IEPA explained that the error in the existing zinc chronic standard was discovered while IEPA was looking into a situation where a discharger was having difficulty meeting the limits. Tr. 1 at 75-76.

Specifically, IEPA notes that a transcription error occurred when IEPA used an incorrect value from Table 2 of "Accumulation, Regulation and Toxicity of Copper, Zinc, Lead and Mercury in *Hyalella azteca*", V.Borgmann, N.P Norwood, and C. Clarke, *Hydrobiolia* 259: 79-89 (1993). *Id.*, citing Attach. 1, Exh. W. IEPA noted that the existing zinc standard is based on a MATC value of 42.25 µg/L, which was calculated using an incorrect "no observable adverse effect level" (NOAEL) and the "lowest observable adverse effect level" (LOAEL) for zinc. SR Attach. 1 at 22. The correct MATC from the Borgmann *et al.* (1993) study should be 67.59

[12] The full captions of these dockets are: Proposed Amendments to Title 35, Subtitle C (Toxics Control), R88-21(A) (Jan 10, 1990) and Conforming Amendments for the Great Lakes Initiative: 35 Ill. Adm. Code Part 302.101; 302.105; 302.Subpart E; 303.443, and 304.222, R97-25 (Dec. 18, 1997).

µg/L, which is derived by using a NOAEL of 42.3 µg/L, and a LOAEL of 108 µg/L. Further, IEPA observed that the resulting genus mean chronic value (GMCV) of 30.08 µg/L for *Hyalella azteca* is significantly different from the existing GMCV of 18.8 µg/L. Thus, the adopted chronic value for *Hyalella azteca* resulted in a chronic zinc standard that was not representative of the true dataset. IEPA calculated the revised Final Chronic Value (FCV) at 50 mg/L hardness based on the corrected *Hyalella azteca* data to be 17.62 µg/L, which is higher than the existing FCV value of 12.16 µg/L. (IEPA noted that for typical Illinois hardness of 200 mg/L, the corresponding values would be 57µg/L and 39 µg/L). *Id.* Due to this recalculation, IEPA proposed the modification of the equation representing the chronic zinc standard.

Elimination of USEPA STORET Code Numbers As Obsolete

The STORET system is the national water quality data system of the USEPA. *See* 35 Ill. Adm. Code 301.405. IEPA observed that USEPA is now using a modernized STORET system and no longer updates the previous "legacy" STORET system. Currently, the rules reference STORET code numbers for various parameters under the "legacy" STORET system. However, IEPA explained the modernized STORET system no longer allows access to data using number codes. (But, IEPA pointed out, data can be accessed through both USEPA systems by using the parameter name, so that it is still easily accessible). SR at 10, Tr. 1 at 71, Exh. 4 at 1-2.

Under these circumstances, IEPA suggests that the STORET number codes are obsolete in the Board's rules. Therefore, IEPA has proposed to delete all STORET codes in the Board's water quality standards being amended in this rulemaking at Sections 302.208, 302.303, and 302.504. SR at 10, Tr. 1 at 71, Exh. 4 at 1-2.

Clarification and Update of References to Mercury, Chloride, and Cyanide

IEPA's proposal included a number of minor changes that clarify the applicability of water quality standards. In Section 302.208(b), IEPA has proposed to replace the term "metal" with "chemical constituent," recognizing that not all parameters regulated under Section 302.208 are metals. SR at 11, Tr. 1 at 12. Next, the proposal adds the phrase "total" in parenthesis following the chemical constituent name for chloride and mercury. IEPA stated that the proposed clarification for the chloride standard is intended to create consistency throughout the Board's water quality regulations. In the case of mercury, IEPA noted that the proposed change clarifies that the human health standard for mercury relies on total mercury, because of its potential to become methylated and subsequently bioaccumulate in aquatic life. *Id.* at 11-12.

IEPA also proposed clarifications to the Lake Michigan and General Use standards for cyanide to indicate which analytical methods should be used to determine the toxic component of cyanide for compliance. IEPA noted that while the current General Use standard does not specify the form of cyanide, the Lake Michigan standards refer to the "weak acid dissociable" (WAD) form and the Secondary Contact and Indigenous Aquatic Life standards refer to the "total" form of cyanide. SR at 12. As discussed below under "cyanide methods", IEPA modified its initial proposal for cyanide analysis, revising its original proposal at 35 Ill. Adm.

Code Sections 302.208(d) and 302.504 to articulate the two specific methods most recently approved by USEPA[13]. PC 5 at 6-7.

Repeal of Site Specific Fluoride Water Quality Standards at 35 Ill. Adm. Code 303.312

IEPA proposed repealing Section 303.312, which sets forth fluoride standards for waters receiving fluorspar mine drainage. This provision provides site-specific relief from the general use fluoride standard for two companies. The two companies, Ozark-Mahoning and Minerva Oil, performed fluorspar mining in Pope and Hardin Counties in Southern Illinois. The site specific rule was adopted in 1975. *See*, Proposed Amendments to Rules 203 and 408 of the Illinois Water Pollution Control Regulations, R73-15 (Mar. 6, 1975).

IEPA reported that both companies ceased production and terminated their discharge permits. IEPA also added that the Illinois State Geologic Survey confirmed that there are currently no companies conducting fluorspar mining in Illinois or anywhere in the United States. If anyone were to consider fluorspar mining in Illinois again in the future, IEPA indicated that the activity would likely comply with the proposed general use fluoride standard. If not, IEPA stated that the mining operation should justify any future relief to the Board based on the science of the time. SR at 24, Tr. 1 at 14.

Other Changes

IEPA has proposed clarifying changes to Section 302.208 that reorganize the various subsections to clearly identify the application of the acute, chronic, human health and single value standards. SR at 11. IEPA's proposal also includes number typographical corrections of incorrect and outdated cross-references in Sections 302.303, 302.553, 302.648, and 302.657.

Affected Facilities and IEPA Outreach

IEPA stated that the proposed amendments could potentially affect dischargers in Illinois who have permit limits driven by water quality standards. Specifically, IEPA observed that dischargers with regulatory relief from existing standards could be impacted by the new standards. However, IEPA maintained that dischargers in compliance with the existing standards would not be impacted by the proposed standards. IEPA provided a complete list of potentially affected facilities with current regulatory relief from the subject water quality standards. SR at 28 referring to SR Exh. D to Att. 1. The facilities are categorized below.

Site-specific relief no longer needed due to ceased operation:[14]

Fluoride	Ozark-Mahoning (R73-15) (35 IAC 303.312)
	Minerva Oil (R73-15) (35 IAC 303.312)

[13] These methods are: Available Cyanide, USEPA Method OIA-1677 or Cyanide Amenable to Chlorination, Standard Methods 4500-CN-G (40 CFR 136.3).
[14] SR at 24, 28.

Site-specific relief that will become obviously moot upon rule change:[15]

Fluoride	US Steel Corp – Granite City Works (AS 90-4)
Boron	City of Galva (Northeast Sewage Treatment Plant (STP)) (R09-11)
	City of Galva (Southwest STP) (R09-11)
	Akzo Nobel Surface Chemistry (AS 93-8)
	Ameren Energy Resources (formerly Central Illinois Light Company) (Duck Creek Station) (AS 96-8)

Site-specific relief that should no longer be necessary based on IEPA's initial analysis:[16]

Fluoride	Modine Manufacturing – McHenry (R87-36)
	City of Effingham STP (R03-11)
Boron	Springfield Metro Sanitary District, Spring Creek STP (R09-8)
	Dynegy Baldwin Station (Illinois Power) (AS 96-1)
	Dynegy Midwest Generation – Wood River Station (Illinois Power) (R76-18)

Site-specific relief that would clearly still be needed[17]**:**

Fluoride	General Motors Corporation, GM Powertrain – Danville (R93-13) SR at 30.
Boron	Springfield City Water Light and Power (AS 94-9), and
	Southern Illinois Power Cooperative (SIPC) - Marion (AS 92-10)

Facilities with NPDES Permit Limits based on Incorrect Chronic Standard for Zinc:[18]

Alcoa Extrusions Inc., Morris, IL 60450
Village of Bloomingdale – Reeves Water Reclamation Facility (WRF), Bloomingdale, IL
Village of Bolingbrook WRF #2, Bolingbrook, IL
Caseyville Township East STP, O' Fallon, IL
City of Centralia STP, Centralia, IL
Decatur SD Main STP, Decatur, IL
City of Du Quoin STP, Du Quion, IL

[15] SR at 30-31 and Exh. 5.

[16] SR at 31, Hearing Exh. 5, Tr. 1 at 69-70.

[17] SR at 31-32 and Exh. 8 at 3-4.

[18] SR Att. 7.

City of Effingham STP, Effingham, IL
Village of Hanover Park STP , Hanover Park, IL
City of Highland Water Reclamation, Highland, IL
Village of Itasca STP, Itasca, IL
City of Joliet East STP, Joliet, IL
Lake County Public Works Department, Des Plaines River STP, Libertyville, IL
Marathon Ashland Petroleum, Robinson Refinery, Robinson, IL
City of Metropolis STP, Metropolis, IL 62960
City of Monmouth North STP, Monmouth, IL
NL Properties, LLC, Northlake, IL
Nucor Steel Inc.-Bourbonnais, Bourbonnais, IL
City of O' Fallon STP, O' Fallon, IL
Rock Island SW STP, Rock Island, IL
Village of Roselle-J Botterman STP, Roselle, IL
Scott Air Force Base, Scott Air Force Base, IL
US Steel Corp Granite City Works, Granite City, IL
Village of Itasca, Itasca, IL

IEPA conducted stakeholder outreach to seek input on the proposed standards prior to filing the proposal with the Board. In September 2009, a copy of the draft rulemaking proposal was provided to 120 stakeholders, including representatives of state and federal government agencies, universities, environmental groups, industrial dischargers, municipal dischargers, trade associations, and consulting engineers. SR at 32. To explain the draft proposal and respond to questions and comments, IEPA then held a public meeting on October 19, 2009, which was attended by approximately 25 stakeholder representatives. SR at 32. IEPA followed up with the stakeholders regarding progress on the proposal via email in July and November 2010. SR at 33.

IEPA stressed that the proposal should have no impact on dischargers that are currently in compliance with the existing water quality standards for boron, fluoride and manganese. SR at 27. The only negative impact IEPA identified would be on a facility discharging 1.0 mg/L or more of manganese as a long term average to waters with hardness of 45 mg/L or less. According to IEPA, the ambient water quality monitoring network has rarely reported hardness levels less than 90 mg/L and never below 45 mg/L. SR at 27-28.[19]

HEARING TESTIMONY AND PUBLIC COMMENTS

As previously stated, two persons testified at first hearing in Springfield: Brian Koch on behalf of IEPA (Exh. 1) and James Machin on behalf of Marathon Petroleum Company (Marathon)(Exh. 7). One person testified at the second hearing in Chicago: Leonard Hopkins on behalf of Southern Illinois Power Cooperative (SIPC) (Exh. 8). In addition to IEPA, Marathon, and SIPC, persons attending and participating in the hearings included representatives of the City

[19] The Board notes that all of the facilities IEPA identified as potentially affected facilities have been included on the Notice List for this rulemaking. SR Exh. D to Att. 1, SR Att. 7.

of Springfield, City Water Light & Power (CWLP), Weaver Boos Consultants, and the Sierra Club.

Public comments were received from IEPA (PC 1 and PC 5), City of Effingham (PC 2), the City of Springfield CWLP (PC 3), and Marathon (PC 4). The Board appreciates the participants' involvement in this rulemaking and thanks them for their comments. While some concerns were raised regarding IEPA's proposal, the Board notes that the testimony and comments are generally supportive of IEPA's proposal. A summary of the testimony and comments are provided below.

IEPA

IEPA's Toxicologist, Mr. Brian Koch, testified in support of IEPA's proposal. His prefiled testimony summarized the procedures utilized to derive the water quality standards for boron, fluoride and manganese, as well as the correction to the General Use zinc water quality standards. Exh. 1. Mr. Koch's testimony reiterated many of the points made in the statement of reasons and the technical support documents. Since the Board has already summarized the salient points on the derivation of the proposed standards, the Board will not repeat those points here. However, the Board will summarize IEPA's testimony, and comments addressing issues raised at hearing. These issues include standards based on 1) hardness, 2) waters impaired for manganese, 3) Lake Michigan standards, 4) IEPA publication of listing of derived water quality criteria, 5) cyanide analytical methods and 6) antidegradation.

Standards based on Hardness

IEPA testified that the average hardness for Illinois streams is 298 mg/L. Tr. 1 at 72. To provide a general perspective, IEPA calculated the proposed water quality standards based on the average hardness as follows:

Fluoride (Acute)	18.1 mg/L
Fluoride (Chronic)	4.0 mg/L
Manganese (Acute)	9.6 mg/L
Manganese (Chronic)	4.1 mg/L
Zinc (Acute)	0.31 mg/L
Zinc (Chronic)	0.08 mg/L *Id.*

The proposed fluoride chronic standard at Sections 302.208(e) and 302.504 "shall not exceed 4.0 mg/L". SR at 15, 19. Mr. Koch testified that a limit of 4.0 mg/L was proposed for protection of wildlife, livestock, and human health. Exh. 1 at 6. IEPA stated that 64 mg/L hardness is the highest hardness value for the proposed fluoride chronic standard in Section 302.208(e) that would yield a result that does not exceed 4.0 mg/L. Tr. 1 at 73. IEPA testified that only 2 out of 210 stream network stations have hardness values that would result in fluoride chronic standards of less than 4.0 mg/L. For the other 99 percent of Illinois streams, the fluoride chronic standard would be capped at 4.0 mg/L. Tr. 1 at 73-75.

When asked how the chronic zinc standard would change with the proposed correction based on the average hardness value of 298 mg/L, IEPA responded that calculations based on the

current erroneous zinc chronic standard would yield 0.055 mg/L, whereas those based on the revised standard would yield 0.08 mg/L. Tr. 1 at 75.

Waters Impaired for Manganese

The IEPA proposal stated that manganese often occurs in concentrations greater than the existing Public and Food Processing Water Supply standard of 0.15 mg/L. Consequently, IEPA has been forced to list these waters as "impaired" on the Clean Water Act Section 303(d) list. SR at 5.

IEPA provided a list of water segments listed as impaired for manganese (>0.15 mg/L) on the draft 2010 Section 303(d) List for Public and Food Processing Water Supply sources. Exh. 6. Since the list appears only in the hearing exhibit, it is summarized here. The list consisted of 30 segments in the Little Wabash River, Skillet Fork, Fox River, Illinois River, East Fork La Moine River, South Fork Sangamon River, Kankakee River, Mississippi River, Chain o Rocks Canal, Kaskaskia River, and Shoal Creek Lake. The list also included the following lakes or reservoirs: Lake of Egypt, Vienna Correctional Center, Bloomfield, Paris Twin-East, Olney East Fork, Sara, Mattoon, Paradise (Coles), Altamont-New, and Wayne City Scr, Fairfield, Canton, Otter, Carlinville, Vermont City, Pittsfield, Spring (McDonough), Greenfield, Sparta New, Sparta Old, Mt. Olive New, Mt. Olive Old, Holiday Shores, Carthage, Rend, Pinckneyville, Carbondale City Lake, Marion, Washington County, Herrin-New, Little Cedar, Carlyle, Pana, Centralia, Raccoon, Glenn Shoals, Lou Yaeger, Nashville City, Gov Bond (Greenville), Salem, Hillsboro Old, Coulterville, Highland Silver, Kinmundy Old, Kinmundy New, Waverly, Mauvaisse Terre, Gillespie-New, Ashland-New, Lake Farina, and Sparta NW. Exh. 6.

If the proposed manganese standards are adopted, IEPA estimated that each water segment on the list in Exh. 6 could be delisted, with one exception. The segment designated "IL_O-20 Kaskaskia River" was the only segment that had a result greater than 1.0 mg/L manganese, according to data IEPA examined from 2009. Tr. 1 at 79.

When asked if any of the listed public water supplies are currently treating to remove manganese and if the proposal would affect treatment operations, IEPA responded that all of the water providers reviewed use conventional treatment, which included no special treatment to remove manganese. Tr. 1 at 80. IEPA provided a list entitled, "Manganese removal estimations at conventional utilities located on impaired Public and Food Processing Water Supply Waters with Mn [Manganese] exceeding 150 μg/L." SR Att. 1, Exh. E. IEPA indicated that all of those public water supplies were removing manganese in compliance with the drinking water Maximum Contaminant Level (MCL). Tr. 1 at 79. In response to questions from the Sierra Club about the cost of manganese removal for public water supplies, IEPA stated that it does not anticipate its proposal will require any new technology upgrades or additional treatment costs. Tr. 2 at 12-13, SR at 27, PC 5 at 17.

Open Waters of Lake Michigan Standards

The Sierra Club also asked about why the boron and fluoride standards are proposed to be the same for the Open Waters of Lake Michigan as for the Public and Food Processing Water Supply waters, but the proposed manganese standards would be higher in the Public and Food Processing Water Supply waters than the Open Waters of Lake Michigan. Tr. 2 at 13-14. IEPA explained that currently there are no specific standards for boron and fluoride in the Open Waters of Lake Michigan, so the Lake Michigan basin standards of 1.0 mg/L boron and 1.4 mg/L fluoride apply in the Open Waters. Since IEPA proposed to increase the boron and fluoride Lake Michigan Basin standards based on aquatic-life, relocating the 1.0 mg/L boron and 1.4 mg/L fluoride standards specifically to the Open Waters of Lake Michigan would protect against increased loadings of these substances there. In its post-hearing comments, IEPA stated,

> It was the Agency's intent to maintain the highest level of historical protection for the Open Waters of Lake Michigan, not to directly mimic or mirror the Public and Food Processing Water Supply standards." PC 5 at 18.

IEPA pointed out that no change was necessary for manganese since a standard already exists for manganese for the Open Waters of Lake Michigan. PC 5 at 18.

IEPA Publication of Listing of Derived Water Quality Criteria

Under Section 302.595 Listing of Bioaccumulative Chemicals of Concern, Derived Criteria and Values and Section 302.669 Listing of Derived Criteria, IEPA proposed to change the requirement of Agency publication of such listings in the *Illinois Register* to publication solely on the IEPA's website. SR at 22. IEPA explained that the requirement to publish in the *Illinois Register* was established in R88-21(A) and R97-25. In its post-hearing comment, IEPA stated that it has always complied with this requirement since it was adopted, even when there were no new or revised water quality criteria. PC 5 at 11. For the years 2008 through the second quarter of 2011, IEPA stated only 6 of the 14 quarters contained any changes. During the most recent 10 quarters (from the date of filing August 19, 2011 filing date of PC 5), only a single chemical was updated. PC 5 at 14. IEPA stated, "The frequency of quarterly publication is no longer justified based on the frequency of changes made." PC 5 at 14.

IEPA stated that using its website instead of the *Illinois Register* will provide the public with a more user-friendly list, a superior method of public notice, and cost savings for the State. Tr. 1 at 10-11, PC 5 at 11. IEPA indicated the listing could be easily found by visiting its Internet homepage, but also provided the following address: http://www.epa.state.il.us/water/water-quality-standards/water-quality-criteria.html. Tr. 1 at 85, PC 5 at 11. IEPA was amenable to including IEPA's general Internet address in the proposed rule (http://www.epa.state.il.us). Tr. 1 at 85, PC 5 at 12.

In contrast, IEPA stated that presently there is no "practical" way for the public to find which issues of the *Illinois Register* contain the updated listings except to search the Table of Contents of each issue. PC 5 at 13. Mr. Koch testified,

> In the past whenever someone has contacted me in regards to a criterion, they've always done it by finding it on the website itself. I don't believe anyone has ever said that they've seen something in the *Illinois Register*. . . Tr. 1 at 86.

IEPA indicated it would be willing to provide notification on its website when the listing is updated. Tr. 1 at 86-87, PC 5 at 13. IEPA pointed out that the website already indicates the dates when the criteria for each chemical was initially derived and revised. Tr. 1 at 86. IEPA would also be willing to provide an archive of prior listings of derived water quality criteria on its website. PC 5 at 13. In addition, IEPA indicated it could email the Board regarding updates to the listing to enable the Board to publish the information in its *Environmental Register*. PC 5 at 13.

IEPA cited to the findings in the Board's First Notice Opinion in R88-21 establishing the quarterly *Illinois Register* publication requirement as being "enhancement of public access to and awareness of such criteria." PC 5 at 14 quoting R88-21, slip op. at 33 (Aug. 31, 1989). IEPA argued that in 1989, the current methods of providing immediate and cost-free information sharing were not even envisioned. PC 5 at 14.

IEPA also cited to the Board's finding that "the Board had required the Agency to notify the public by publication of the notice in the *Illinois Register*, and also provided opportunity to challenge the validity of the criteria in any proceeding in which they are applied to that person." PC 5 at 15, quoting R88-21(A) slip op. at 13 (Dec. 6, 1989). On these grounds, IEPA argued,

> The special appeal rights for derived criteria that allow a criterion to be challenged for the first time when it is applied to an individual in their permit and the requirement that such appeals must go to the Board rather than directly to the courts is the key to the validity of these unique provisions. Review of the record in R88-21 and R88-21(A) indicates that the importance of the *Illinois Register* publication is in its public notice value, not in its ability to fulfill any requirements under the Administrative Procedure Act [5 ILCS5/100 et seq.]. The Agency feels it has demonstrated that use of its website is more effective at accomplishing this public notice purpose today than the *Illinois Register*. PC 5 at 15.

IEPA stated that it was willing to consider other options to address the Board's concerns expressed in R88-21(A) as long as the administrative burden on the Agency would be reduced. The Agency explained that the only option to which it is opposed is a requirement to publish in both the *Illinois Register* and its website since that would increase the administrative burden on the Agency. PC 5 at 16.

Cyanide Analytical Methods

IEPA's original proposal indicated two types of analysis that could be used to determine compliance with the cyanide water quality standard under Sections 302.208(e) and 302.504. IEPA proposed to include both the "weak acid dissociable" or "available" forms. SR at 15, 19.

IEPA indicated that both methods provide a fairly accurate determination of the toxic component of cyanide so use of either method would be acceptable to IEPA. Tr. 1 at 76.

Questions were raised at the hearings by the Board's staff and the Sierra Club about the types of cyanide analysis, use of the most recent methods, the relative percentage of different forms of cyanide, and the need for a different standard for each method. Tr. 1 at 76-77, Tr. 2 at 14.

IEPA responded by explaining,

> Because cyanide exists in many forms or species (free cyanide, cyanide complexed with various metals, cyanide incorporated in organic molecules) and only some of these forms (certainly free cyanide and also some of the more weakly bonded species) are toxic to aquatic life, matching a laboratory method to the standards is much more complex than for other substances. PC 5 at 5.

In response to questions about the relative percentage of different forms of cyanide, IEPA stated that in an effluent or ambient water sample, the toxic form available to aquatic life would be a small fraction of the total cyanide. PC 5 at 10.

In further response to questioning, IEPA found that USEPA had recently updated the *Code of Federal Regulations* at 40 CFR 136.3 (July 1, 2010), specifying cyanide laboratory methods that are USEPA-approved for NPDES permit reporting. PC 5 at 6. IEPA then proposed to clarify the methods to be used for cyanide analysis, revising its original proposal under Sections 302.208(d) and 302.504 to articulate the two specific methods most recently approved by USEPA: Available Cyanide, USEPA Method OIA-1677 or Cyanide Amenable to Chlorination, Standard Methods 4500-CN-G (40 CFR 136.3). PC 5 at 6-7.

IEPA acknowledged that the two tests might not give the exact same result. Still, IEPA does not believe establishing a different standard for each method is necessary. IEPA believes that relying on these two USEPA methods is the best way to measure the forms of cyanide that are toxic to aquatic life to assess compliance with water quality standards. PC 5 at 8.

Antidegradation

Weaver Boos Consultants asked at the first hearing if a discharger meeting the current 1.0 mg/L boron standard through treatment would have to take on the expense to make an antidegradation demonstration in order to obtain a higher permit limit based on the new standard. Tr. 1 at 60-62. IEPA responded that if the proposed rule becomes effective, IEPA will look at each discharger during the permit process to ensure that anti-backsliding issues are considered. Tr. 1 at 62-63.

Marathon Petroleum Company

Mr. James Machin of TRC in Austin, Texas provided testimony on behalf of Marathon Petroleum Company as the proposed standards relate to the conditions of Marathon's NPDES

permit. Exh. 7, Tr. 1 at 89-92. Mr. Machin indicated that Marathon supports IEPA's proposal, particularly as it relates to fluoride. Exh. 7 at 1, Tr. 1 at 90. For the sake of comparison, Mr. Machin provided a list of fluoride water quality standards in other states. Exh. 7 at 3.

Mr. Machin testified that Marathon is concerned about how soon the proposed rule will become effective. Marathon's current permit contains an effluent limit for fluoride of 1.4 mg/L based on the existing standard. To give Marathon time to reduce fluoride in its discharge and achieve compliance, the current permit sets out a 15-month compliance schedule that includes milestones for design, construction, and operation. Mr. Machin stated that the 15 month period started in December 2010. Marathon has already established an NPDES Compliance Team and implemented several process and pollution prevention initiatives to reduce fluoride in the wastewater system. Exh. 7 at 1-2.

Mr. Machin pointed out that if the new standard for fluoride is not adopted in a timely manner, Marathon might be required to implement further reduction requiring treatment "that would be extremely expensive, and unnecessary in light of the proposed new standard." Exh. 7 at 2. Mr. Machin explained that Marathon could be in a position of potential non-compliance. Mr. Machin testified, "Marathon requests that consideration of this standard change be completed as expeditiously as possible so that it can adequately plan and avoid potential permit non-compliance." Exh. 7 at 2. In a post-hearing public comment, Mr. Machin added,

> In the event the entire rule package will be delayed because of issues and interest relating to boron, Marathon requests that the Board take appropriate steps to allow the process for finalizing the proposed amended rule relating to fluoride to move forward to completion without delay." PC 4.

When asked by the Board's staff at hearing whether IEPA could extend the time provided in Marathon's NPDES permit for compliance if the rule is not adopted before the 15-month time frame expires, IEPA responded that it does not consider a pending rulemaking in determining whether the compliance schedule should be extended. Tr. 1 at 69, 92. IEPA explained that factors taken into consideration include "how much time the discharger has already attempted to meet the water quality standard under prior permits, the extent to which the discharger has made good faith efforts to comply with the water quality standards and other requirements in its prior permits." Tr. 1 at 69.

City of Effingham

The City of Effingham provided public comment in this rulemaking concerning the proposed change in the fluoride standard. PC 2. The City of Effingham stated that it has discussed potential fluoride effluent limits with IEPA based on the proposed rule that might be incorporated into its NPDES permit. The City of Effingham believes the proposed fluoride standards will be beneficial to the City of Effingham and supports the proposed amendments. PC 2.

City of Springfield

The City of Springfield, City Water Light & Power pre-filed questions for and participated in the first hearing, and filed a post hearing public comment. PC 3. CWLP expressed concern regarding the proposed boron chronic standard as it relates to CWLP's existing adjusted standard (AS 94-9) and site-specific rule (R09-8) at Section 303.446. PC 3 at 1.

CWLP noted that IEPA listed CWLP as an entity that would still need site-specific relief even if the Board adopts the proposed standards for boron. PC 3 at 1. CWLP's current AS 94-9 adjusted standard and R09-8 site-specific rule applicable to discharge from its ash pond allow a boron concentration of 11.0 mg/L, which is more than the proposed chronic standard for boron of 7.6 mg/L. PC 3 at 1. CWLP reiterated that the records in both AS 94-9 and R09-8 support CWLP's position that the proposed chronic standard for boron is neither technically feasible nor economically reasonable for CWLP. PC 3 at 1. In addition, CWLP observed that market conditions and several other regulatory proposals are pending that might impact its ash pond and discharge in the near future, such as "the proposed utility MACT rule, the proposed Coal-Combustion Residual regulation and revised effluent limits for coal fired electric generation units." PC 3 at 2.

CWLP also expressed concern regarding the averaging period to determine compliance with the boron chronic standard at Section 302.208(b), suggesting that it might not be identical to the averaging period specified in NPDES permits. CWLP noted that this might confound averaging for compliance purposes. PC 3 at 2. IEPA explained at hearing that the four day averaging period under Section 302.208(b) follows the recommendation in the 1985 USEPA guidelines to protect early life stages of organisms such that an instantaneous concentration can exceed the chronic standard. But, IEPA explained, the four day exposure would not exert an effect on an organism. Tr. 1 at 42-43. IEPA clarified that sampling need not necessarily be on four consecutive days. IEPA indicated that the sampling frequencies would be set forth in the context of the NPDES permitting system, and that at least one sample per month would probably be recommended for a permit limit. Tr. 1 at 44, 93.

Southern Illinois Power Cooperative

Southern Illinois Power Cooperative (SIPC) provided testimony concerning boron in this rulemaking. Exh. 8, Tr. 2 at 8-11. Mr. Leonard Hopkins, Environmental & Fuel Manager at SIPC, testified regarding SIPC's current AS 92-10 adjusted standard for boron under applicable to SIPC's station just south of Marion, IL. Mr. Hopkins explained that SIPC's Marion Generating Station is an electric generating station with six units fueled by either bituminous coal and coal slurry or natural gas. SIPC's Outfalls 002 and 005 contain boron from settling ponds for fly ash and bottom ash that also include sources of wastewater from the station. Exh. 8 at 1, Att. 1 at 1-2 (AS 91-10 Board Opinion and Order, July 1, 1993). Mr. Hopkins recounted the terms of AS 92-10, which allows for a boron water quality standard of 9.0 mg/L. Exh. 8 at 1-2.

Under the proposed rule, Mr. Hopkins indicated that the acute boron standard of 40 mg/L would be more appropriate than the current 1.0 mg/L standard. However, Mr. Hopkins explained that with the proposed chronic standard of 7.6 mg/L, SIPC might not be able to demonstrate continuous compliance. Exh. 8 at 2. Under its current NPDES permit, SIPC is required to take at least one 8-hour composite sample for boron in its effluent per month. Under the proposed rule change, IEPA would require four samples each month to be averaged to determine monthly compliance with the chronic standards. Exh. 8 at 2. Since SIPC's discharge accounts for the majority of flow in the receiving stream and concentrations of boron in the settling ponds change very little over a month's time, averaging multiple samples taken over multiple days will not improve SIPC's changes of complying with the proposed chronic boron standard. SIPC's boron levels tend to be higher during the "shoulder" months of spring and fall when power demand is down and discharge flow is reduced. Consequently, SIPC foresees that exceedences of the proposed 7.6 mg/L chronic boron standard might occur, two or three times per year. Exh. 8 Hopkins PFT at 2-3.

Mr. Hopkins indicated that SIPC had discussed the proposed boron standard with IEPA on several occasions. Mr. Hopkins explained, "SIPC prefers to retain the effectiveness of the adjusted standard that the Board granted in AS 92-10." Exh. 8 at 3, Tr. 1 at 67, Tr. 2 at 9. SIPC requested that the Board not change the status of AS 92-10. Exh. 8 at 4, Tr. 2 at 10.

DISCUSSION AND THE BOARD'S FIRST NOTICE PROPOSAL

The Board finds that IEPA has provided sufficient technical justification to support adoption of a first notice proposal of the proposed water quality standards for boron, fluoride and manganese. Further, IEPA has adequately addressed most of the issues raised during the hearing process by providing additional testimony and comments. In this section of the opinion, the Board will address a few remaining issues before making its initial findings on the technical feasibility and economic reasonableness of the proposed amendments.

Antidegradation and Anti-backsliding

The Board agrees with the Agency that the first notice proposal does not in and of itself raise concerns about antidegradation and anti-backsliding. But, these are both issues that can and must be considered during the NPDES permitting process. The Agency has committed to doing so (Tr, 1 at 62-63), and the Board appreciates that commitment.

Publication of Listing of Derived Water Quality Criteria

As noted above, IEPA has proposed to publish the listing of derived water quality criteria or values under Sections 302.595 and 302.699 on IEPA's website instead of in the *Illinois Register*. SR at 22. IEPA stated that using its website instead of the *Illinois Register* will provide the public with a more user friendly list, a superior method of public notice, and cost savings for the State. Tr. 1 at 10-11, PC 5 at 11. While the Board agrees with IEPA that publication on IEPA's website would be easier for IEPA in some regards, the Board believes new issues may be raised by ceasing *Illinois Register* publication.

The Board finds that publication of derived criteria is an important and necessary step to properly apprise the public. The *Illinois Register* is the official rulemaking publication of the Secretary of State (SOS), and as such is maintained in the SOS archives consistent with the State Records Act, 5 ILCS 160/1 *et seq.* (2010). For purposes of enforcement, the dates on which criteria are derived are a matter of permanent, official record. The dates on which the Agency updates its website do not have the same advantage of being maintained by a third party, as is likewise the case with publication of this information in the Board's *Environmental Register*. Additionally, as the Agency noted in its public comment, derived numeric criteria may be challenged before the Board by dischargers when a criteria is first applied to a discharger. Again, the *Illinois Register* publication would provide a firm date when calculating the timeliness of any appeal.

Therefore, the Board will retain the requirement to publish the listing in the *Illinois Register*. However, the Board will revise the frequency of publication from quarterly to annually, or whenever the listing is updated (whichever first occurs). This revision will help reduce the administrative and cost burden on IEPA, and should be more consistent with the frequency of updates to the listing. The Board believes reducing the *Illinois Register* publication frequency from quarterly to annually will help to reduce the burden on IEPA.

Additionally, the Board will not require IEPA to maintain these criteria on its website, leaving that option to the Agency's judgment. But, as discussed above, IEPA was amenable to including the Internet address in the proposed rule at Sections 302.595 and 302.669. Tr. 1 at 85. The Board will include IEPA's general Internet address (http://www.epa.state.il.us) in proposed Sections 302.595 and 302.669. Since IEPA indicated members of the public have difficulty finding the correct issue of the *Illinois Register* with the listing for a particular derived criteria, the Board encourages IEPA to include such information on its website as well. The Board welcomes comments and suggestions on this issue during the first notice comment period.

Incorporations by Reference for Cyanide Methods

IEPA proposed to clarify the methods to be used for cyanide analysis, revising its original proposal under 302.208(d) and 302.504 to articulate two specific methods:

- Available Cyanide, USEPA Method OIA-1677 or
- Cyanide Amenable to Chlorination, Standard Methods 4500-CN-G (40 CFR 136.3) PC 5 at 6-7.

While IEPA identified the specific methods under Sections 302.208 and 302.504, IEPA did not propose the test methods to be incorporated by reference. The Board finds that the USEPA Method OIA-1677 method should be included in the incorporations by reference under Sections 301.106 and 302.510(a). The Board found a version of the USEPA method online that states the full name of the method as shown below [20].

[20] USEPA Method OIA-1677 was found at http://water.epa.gov/scitech/methods/cwa/metals/cyanide/upload/2007_08_14_methods_method_cyanide_1677-2004.pdf Last visited 2-1-2012.

The second method referenced by IEPA, "Standard Methods", is already in the incorporations by reference section. However, the Board notes that the "Standard Methods" reference in both Sections 301.106 and 302.510 needs to be updated to reflect the most recent edition. The Board will open Sections 301.106 and 302.510 at first notice to include the new and revised references and has already revised the caption for this rulemaking docket to accommodate revisions to Part 301. The Board welcomes comments on the proposed changes to the incorporations by reference. The Board proposes the following changes to Sections 301.106 and 302.510:

Section 301.106 Incorporations by Reference

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b) The Board incorporates the following publications by reference:

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American Public Health Association., 800~~1015 Fifteenth~~ I Street, N.W., Washington, D.C. 20001-3710. (202) 777-2742~~5~~

American Public Health Association et al., Standard Methods for the Examination of Water and Wastewater, 21st ~~16th~~ Edition, 2005~~1985~~

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

Section 302.510 Incorporations by Reference

a) The Board incorporates the following publications by reference:

American Public Health Association et al., ~~015 Fifteenth Street, N.W., Washington, D. C. 20001-37105,~~ Standard Methods for the Examination of Water and Wastewater, 21st ~~18th~~ Edition, 2005~~1996~~. Available from the American Public Health Association, 800 ~~1015 Fifteenth~~ I St., NW, Washington, D.C. 20001-3710~~5~~ (202) 777~~89~~-2742~~5600~~.

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

Continued Vitality of Existing Site-Specific Relief

The Board appreciates the participation of Marathon, City of Effingham, Springfield CWLP, and SIPC in this rulemaking. The Board recognizes their concerns regarding the existing adjusted standards and site-specific rules. For any still-existing entities, the Board does not plan to withdraw, rescind or repeal any of the existing adjusted standards, variances, or site-specific rules for facilities with site-specific relief identified by IEPA in the Statement of Reasons and discussed in this record. *See* SR, Att. 1, Exh. D and Att. 7.

In the interest of pruning useless material from its rulebooks, the Board will, however, propose the repeal of section 303.312 for the two fluorspar mining companies that have ceased operations. In similar vein, the Board requests any discharger which finds that current site specific relief is no longer necessary or desirable, to so notify the Board during the first notice public comment period. This will allow the Board to modify rules or take any other appropriate action.

TECHNICAL FEASIBILITY AND ECONOMIC REASONABLENESS

Section 27(a) of the Act directs the Board to take into account the "technical feasibility and economic reasonableness of measuring or reducing the particular type of pollution" when conducting a substantive rulemaking. 415 ILCS 5/27(a) (2010). Section 27(b) of the Act requires the Board to determine whether a proposed substantive regulation "has any adverse economic impact on the people of the State of Illinois." 415 ILCS 5/27(b) (2008). IEPA stated the proposed changes are clearly technically feasible and economically reasonable. SR. at 27.

Technical Feasibility

As to the new standards proposed for boron, fluoride, and manganese, IEPA summarized its efforts to investigate treatment options during its involvement in past petitions for site specific relief.

For boron and fluoride, IEPA has found that both are very soluble and not amenable to the usual method of treatment through precipitation. The only feasible methods of treatment appeared to be reverse osmosis and various non-conventional processes. IEPA indicated the drawback to reverse osmosis was the production of a high concentration waste requiring disposal, while the various non-conventional processes tended to be very expensive and not routinely used. IEPA stated,

> In every case for site-specific water quality standards or adjusted standards brought before the Board, Illinois EPA has concluded that no reasonable treatment exists for boron and fluoride to reduce effluent concentrations. SR at 25-26, Tr. 1 at 56.

For manganese, IEPA has stated that the usual method of treatment through precipitation does work. IEPA indicated there are public water supplies in Illinois that provide treatment for manganese in order to meet drinking water standards. SR at 26. IEPA explained that the Public and Food Processing Water Supply standards are intended to establish a concentration at the surface water intake that would allow attainment of the

drinking water MCL through conventional treatment. PC 5 at 16. IEPA stated that conventional treatment at Illinois utilities already removes more than 90 percent of manganese from Public and Food Processing Water Supply waters with manganese concentrations greater than the existing standard of 0.15 mg/L. PC 5 at 17, SR Exh. E of Att. 1. IEPA indicated that it "does not expect that any of these [proposed] water quality standards changes will require any new technology upgrades to achieve compliance." SR at 26.

Besides public water supplies, IEPA stated that coal mining facilities are the only other facilities it is aware of in Illinois that provide treatment for manganese. IEPA expects that the proposed change will relieve future mine outfalls from the need to implement manganese treatment. However, IEPA points out that the requirements of 35 Ill. Adm. Code.Subtitle D: Mine Related Water Pollution could dictate permit limits on manganese. SR at 26.

Based on the current record, the Board finds the revisions to the water quality standards proposed below are technically feasible.

Economic Reasonableness

IEPA recognized that the proposal reflects a number of changes for boron, fluoride, manganese, and zinc across the provisions for the Lake Michigan Basin, Public and Food Processing, and General Use water quality standards. However, IEPA stated, "these standards should not become more stringent than the existing standards in any waters of the State of Illinois." SR at 26. The only exception IEPA identified is for manganese when the ambient hardness is less than 45 mg/L, which would result in a general use water quality standard of less than the existing standard of 1.0 mg/L. SR at 26. The Board calculates that, at 45 mg/L hardness, the chronic manganese standard would be 0.98 mg/L. IEPA stated that, to date, none of the ambient water quality monitoring network stations have reported hardness less than 45 mg/L. SR at 28.

At hearing, the Sierra Club posed questions about the cost of manganese removal for public water supplies. Tr. 2 at 12-13. IEPA explained that the Public and Food Processing Water Supply standards are intended to establish a concentration at the surface water intake that would allow attainment of the drinking water MCL through conventional treatment. PC 5 at 16. IEPA found that conventional treatment at Illinois utilities removes more than 90 percent of manganese from Public and Food Processing Water Supply waters with manganese concentrations greater than 0.15 mg/L. PC 5 at 17, SR Exh. E of Att. 1. IEPA found that conventional treatment using chemical oxidation, sedimentation, and filtration

> is economically reasonable and technically feasible for any utility that requires treatment to reduce common raw water constituents, including naturally elevated concentrations of manganese in their water supply. PC 5 at 17.

IEPA does not anticipate its proposal will require any new technology upgrades or additional treatment costs. SR at 27, PC 5 at 17. IEPA recognized the possibility that some facilities that were granted regulatory relief in the past from the boron, fluoride, and manganese

standards might find their need for relief moot. Others unable to meet the new standards might not be able to demonstrate the need for regulatory relief before the Board. In such cases, IEPA stated that it "hopes these sources will come forward and address their concerns as part of the rulemaking proceeding." SR at 27.

As previously stated, the Board has included on its notice list all the facilities IEPA identified as potentially affected facilities. *See,* SR Exh. D to Att. 1, SR Att. 7. The Board thanks those who did come forward as discussed above: Marathon, City of Effingham, Springfield CWLP, and SIPC.

As required by Section 27(b) of the Act (415 ILCS 5/27(b) (2008)), the Board will request that the Department of Commerce and Economic Opportunity (DCEO) conduct an economic impact study (EcIS) on this rulemaking. The Board will give the public an opportunity to comment on DCEO's response before the Board publishes a second notice.

Based on the current record, the Board finds the revisions to the water quality standards proposed below 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). This preliminary finding does not, however, address the Economic Impact Study (EcIS) requirement of Section 27(b) of the Act.

Section 27(b) EcIS Request Requirement and Additional Hearing

Section 27(b) of the Act requires the Board to request the Department of Commerce and Economic Opportunity to conduct an economic impact study on certain proposed rules prior to adoption of those rules. (415 ILCS 5/27(b) (2010)). If DCEO chooses to conduct the economic impact study, DCEO has 30 to 45 days after such request to produce a study of the economic impact of the proposed rules. The Board must then make the economic impact study, or DCEO's explanation for not conducting the study, available to the public at least 20 days before a public hearing on the economic impact of the proposed rules.

In this first notice order, the Board has refined the Agency proposal and made determinations as to the continued vitality of site-specific relief granted by the Board from existing rules. The Board finds that the time is now appropriate to make the request to DCEO to determine whether to conduct an EcIS on this first notice proposal. Upon receiving a response from DCEO, the Board will schedule and conduct a hearing for the purpose of providing an opportunity for the public to comment on DCEO's response. The Board will also consider any other comments participants may wish to make concerning this first notice proposal.

Filing of First Notice Public Comments

First-notice publication in the *Illinois Register* of these proposed rule changes will start a period of at least 45 days during which anyone may file a public comment with the Board, regardless of whether the person has already filed a public comment. The Board encourages persons to file public comments on these proposed amendments. The docket number for this rulemaking, R11-18, should be indicated on the public comment.

Public comments must be filed with the Clerk of the Board. Public comments may be filed at the following address:

Pollution Control Board
John Therriault, Assistant Clerk
JRTC
100 W. Randolph Street, Suite 11-500
Chicago, IL 60601

In addition, public comments may be filed electronically through COOL at www.ipcb.state.il.us. Any questions about electronic filing through COOL should be directed to the Clerk's Office at (312) 814-3629.

CONCLUSION

The Board is proposing amendments to 35 Ill. Adm. Code 301.106, 302 Subparts B, C, E, F and 303.312 for first notice publication in the *Illinois Register*. These amendments update the current General Use and Lake Michigan Basin water quality standards for boron, fluoride, and manganese, and correct a significant error in the derivation of the zinc chronic standard. In addition, the first notice proposal adds incorporations by reference to cyanide test methods, amends requirements for publication of water quality criteria, corrects errors and cross-references, eliminates STORET references, and clarifies references to cyanide, mercury, chloride and toluene water quality standards. Finally, the Board repeals an obsolete site-specific fluoride standard. Essentially, the Board is adopting IEPA's proposal to update and correct the standards with minor modifications and additions.

Based on the record to date in this proceeding, the Board finds that the amendments proposed today 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 will now request DCEO to determine whether to conduct an EcIS concerning these proposed rules, and will schedule a hearing to receive comments concerning DCEO's EcIS or other response.

ORDER

The Board directs the Clerk to file the following proposed amendments with the Office of the Secretary of State for publication of first notice in the *Illinois Register*. Proposed additions to Part 301, 302, and 303 are underlined and proposed deletions appear stricken.

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

PART 301
INTRODUCTION

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
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. 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 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 (1996).

e) This Section incorporates no future editions or amendments.

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

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

PART 302
WATER QUALITY STANDARDS

SUBPART A: GENERAL WATER QUALITY PROVISIONS

SUBPART B: GENERAL USE WATER QUALITY STANDARDS

SUBPART C: PUBLIC AND FOOD PROCESSING WATER SUPPLY STANDARDS

SUBPART D: SECONDARY CONTACT AND INDIGENOUS AQUATIC LIFE STANDARDS

SUBPART E: LAKE MICHIGAN BASIN WATER QUALITY STANDARDS

SUBPART F: PROCEDURES FOR DETERMINING WATER QUALITY CRITERIA

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 R-11-18 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 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,	~~22680~~	$360 \times 1.0^* = 360$	$190 \times 1.0^* = 190$

dissolved)			
Boron (total)		40,100	7,600
Cadmium (dissolved)	~~01025~~	$e^{A+B\ln(H)} \times \left\{1.138672 - [(\ln H)(0.041838)]\right\}$*, where $A = -2.918$ and $B = 1.128$	$e^{A+B\ln(H)} \times \left\{1.101672 - [(\ln H)(0.041838)]\right\}$*, where $A = -3.490$ and $B = 0.7852$
Chromium (hexavalent, total)	~~01032~~	16	11
Chromium (trivalent, dissolved)	~~80357~~	$e^{A+B\ln(H)} \times 0.316$*, 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)	~~01040~~	$e^{A+B\ln(H)} \times 0.960$*, 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**	~~00718~~	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)	~~01049~~	$e^{A+B\ln(H)} \times \left\{1.46203 - [(\ln H)(0.145712)]\right\}$*, where $A = -1.301$ and $B = 1.273$	$e^{A+B\ln(H)} \times \left\{1.46203 - [(\ln H)(0.145712)]\right\}$*, where $A = -2.863$ and $B = 1.273$
Manganese		$e^{A+B\ln(H)}$ X 0.9812*	$e^{A+B\ln(H)}$ X 0.9812*

(dissolved)		where $A = 4.9187$ and $B = 0.7467$	where $A = 4.0635$ and $B = 0.7467$
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 ~~$A = -0.8165$~~ $A = -0.4456$ and $B = 0.8473$
Benzene	~~78124~~	4200	860
Ethyl-benzene	~~78113~~	150	14
Toluene	~~78131~~	2000	600
Xylene(s)	~~81551~~	920	360

where: µg/L = micrograms per liter

e^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 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).

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

Constituent	~~STORET Number~~	(µg/L)
Mercury (total)	~~71900~~	0.012
Benzene	~~78124~~	310

where: µg/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)	µg/L	~~01077~~	5.0

where: mg/L = milligrams per liter and
µg/L = micrograms per liter

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 $CaCO_3$) 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 (hardness) – 1.457 (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 (hardness) + 54.163 (chloride)] * 0.65

where C = sulfate concentration

3) The following sulfate standards must be met at all times when hardness (in mg/L as $CaCO_3$) 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 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 611~~604~~.
(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
Boron (total)		1.0
Cadmium (total)	~~01027~~	0.010
Chloride (total)	~~00940~~	250~~.~~
Chromium	~~01034~~	0.05
Fluoride (total)		1.4
Iron (dissolved)	~~01046~~	0.3
Lead (total)	~~01051~~	0.05
Manganese (total)	~~01055~~	1.0~~0.15~~
Nitrate-Nitrogen	~~00620~~	10~~.~~
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 (2,4-D)	~~39730~~	0.1
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) 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)(0.041838)]}*, where A=-3.6867 and B=1.128	exp[A +Bln(H)] X {1.101672-[(lnH)(0.041838)]}*, where A=-2.715 and B=0.7852	NA
Chromium (Hexavalent, total)	~~01032~~	µg/L	16	11	NA

Constituent	~~STORET Number~~	Unit	AS	CS	HHS
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
Cyanide** (~~Weak acid dissociable~~)	~~00718~~	µg/L	22	5.2	NA
Fluoride (total)		µg/L	exp[A +Bln(H)] where *A* = 6.7319 and *B* = 0.5394	exp[A +Bln(H)], but shall not exceed 4.0 mg/L where *A* = 6.0445 and *B* = 0.5394	NA
Lead (dissolved)	~~01049~~	µg/L	exp[A +Bln(H)] X {1.46203-[(lnH)(0.145712)]}*, where A=-1.055 and B=1.273	exp[A +Bln(H)] X {1.46203-[(lnH)(0.145712)]}*, where A=-4.003 and B=1.273	NA
Manganese (dissolved)		µg/L	exp[A +Bln(H)] X 0.9812* where *A* = 4.9187 and *B* =	exp[A +Bln(H)] X 0.9812* where *A* = 4.0635 and *B* =	NA

Constituent	~~STORET Number~~	Unit	AS	CS	HHS
			0.7467	0.7467	
Nickel (dissolved)	~~01065~~	µg/L	exp[A +Bln(H)] X 0.998*, where A=2.255 and B=0.846	exp[A +Bln(H)] X 0.997*, where A=0.0584 and B=0.846	NA
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	exp B ([pH] +A), where	NA

Constituent	~~STORET Number~~	Unit	AS	CS	HHS
			A=-4.869 and B=1.005	A=-5.134 and 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
~~Fluoride~~	~~00951~~	~~mg/L~~	~~1.4~~
Iron (dissolved)	~~01046~~	mg/L	1.0

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

Constituent	~~STORET Number~~	Unit	Water Quality Standard
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
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
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, 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 - 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

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 x BCF)]

Where:

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

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:

HNC = RAI/[W + (F x 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;

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 _____)

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

SUBPART D: THERMAL DISCHARGES

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. 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 STANDARDS

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.~~

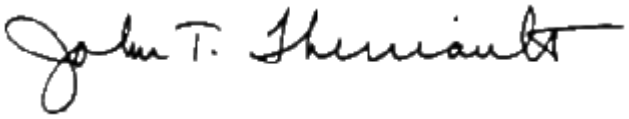
~~b) Such waters shall meet the following standard with regard to fluoride:~~

~~CONSTITUENT~~	~~STORET NUMBER~~	~~CONCENTRATION mg/l~~
~~Fluoride~~	~~00950~~	~~5~~

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

IT IS SO ORDERED.

I, John T. Therriault, Assistant Clerk of the Illinois Pollution Control Board, certify that the Board adopted the above opinion and order on March 15, 2012, by a vote of 5-0



_____

John T. Therriault, Assistant Clerk
Illinois Pollution Control Board