

ILLINOIS POLLUTION CONTROL BOARD  
October 17, 2002

IN THE MATTER OF: )  
)  
WATER QUALITY TRIENNIAL ) R02-11  
REVIEW: AMENDMENTS TO 35 ILL. ) (Rulemaking - Water)  
ADM. CODE 302.105, 302.208(e)-(g), )  
302.504(a), 302.575(d), 309.141(h); and )  
PROPOSED 35 ILL. ADM. CODE 301.267, )  
301.313, 301.413, 304.120, and 309.157 )  
)

Proposed Rule. Second Notice.

OPINION AND ORDER OF THE BOARD (by G.T. Girard, M.E. Tristano):

On November 9, 2001, the Illinois Environmental Protection Agency (Agency) filed a rulemaking proposal (Prop.) to amend the Board's water regulations at 35 Ill. Adm. Code 302.208(e)-(g), 302.504(a), 302.575(d), 303.444, 309.141(h) and to add new sections at 35 Ill. Adm. Code 301.267, 301.313, 301.413, 304.120, and 309.157. The proposed rule will update the Board's regulations pursuant to the State's triennial review of water regulations. On December 6, 2001, the Board accepted this matter for hearing.

The Board held two hearings prior to first notice. Board Hearing Officer Marie Tipsord conducted hearings on January 29, 2002, in Chicago, and on March 6, 2002, in Springfield.<sup>1</sup> At those two hearings, the Agency, Galesburg Sanitary District, the Environmental Groups,<sup>2</sup> Illinois Association of Wastewater Agencies (IAWA), and Rock River Water Reclamation District testified. The Board received 21 public comments prior to first notice. On June 20, 2002, the Board proceeded to first notice with the rule.

After first notice the Board held one additional hearing and received 7 public comments. The hearing before Board Hearing Officer Tipsord was held on July 25, 2002, in Chicago,<sup>3</sup> with testimony from the Agency and the Environmental Groups.

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<sup>1</sup> The transcript from the January 29, 2002 hearing in Chicago will be cited as "Tr.1" and the transcript from the March 6, 2002 hearing held in Springfield will be cited as "Tr.2".

<sup>2</sup> Testimony and comments were offered on behalf of the Environmental Law and Policy Center, Prairie Rivers Network, and Sierra Club. The Board will refer to them as "Environmental Groups" when discussing the comments and testimony.

<sup>3</sup> The July 25, 2002 hearing will be cited as "Tr.3".

The Board today proposes for second notice amendments to the Board's water rules. The Board's proposed rule is similar to the first-note proposal except for minor non-substantive amendments. The following opinion will explain the proposal background, summarize the first-notice proposal, present comments received during first notice, and, finally, discuss the economic reasonableness and technical feasibility of the rule.

### **BACKGROUND**

States are required to revise and update their water quality standards pursuant to the Federal Water Pollution Control Act (33 U.S.C. §§ 1251-1387 (1987)) (Clean Water Act). Prop. at 7. The update is necessary to ensure that the water quality standards protect public health and welfare, enhance the quality of water, and promote the purposes of the Clean Water Act. *Id.* This process is called a triennial water quality standards review. *Id.* citing 33 U.S.C. §1313(c)(1). One element in the triennial water quality standards review is the refining of numeric standards based on the best available current knowledge. *Id.* The Agency filed a proposal on November 9, 2001, which revised the water quality standards based on revised federal policy and new scientific information collected over the years. Prop. at 8.

### **FIRST-NOTICE PROPOSAL**

As a part of the triennial review, the Board sent to first notice a rule which proposed changes in five areas of the State's regulations. First, the proposed rule amends new aquatic life acute and chronic numeric General Use Water Quality Standards and Lake Michigan Water Quality Standards for benzene, ethyl benzene, toluene, and xylene (BETX). Second, the proposed rule revises General Use Water Quality Standards for zinc, and nickel. Third, the proposed rule changes the General Use Water Quality Standards for metals from total to dissolved form. Fourth, the proposed rule corrects the Lake Michigan water rules adopted in Conforming Amendments for the Great Lakes Initiative: 35 Ill. Adm. Code 302.101; 302.105; 302.Subpart E; 303.443 And 304.222, R97-25, (Dec. 18, 1997). Fifth, the proposed rule allows the Agency to use five-day carbonaceous biochemical oxygen demand (CBOD<sub>5</sub>) instead of five-day biochemical oxygen demand (BOD<sub>5</sub>) for measuring compliance with Section 304.120 (35 Ill. Adm. Code 304.120) in National Pollutant Discharge Elimination System (NPDES) permits.

Three areas of concern emerged prior to first notice. Those three areas were: (1) whether the Board should require the Agency to provide implementation rules regarding hardness, reasonable potential testing, dissolved oxygen and the metals translator prior to proceeding to first notice with the Agency's proposal; (2) whether the Board should adopt the revised cyanide standard proposed by the Agency; and (3) whether compliance with the BOD<sub>5</sub> effluent limits in Section 304.120 should be determined by measuring CBOD<sub>5</sub>. After careful consideration of the comments the Board addressed each of those concerns in the first-notice opinion and order. The Board also asked that the parties provide additional comments on the areas of concern during the first-notice comment period.

### **Draft Implementation Rules**

The Board proceeded to first notice even though the Agency did not provide draft implementation rules. The Board noted that in general, seeing implementation procedures for the water quality standards would be important and the Board's hearing officer had asked the Agency to provide the Board with copies of the implementation rules as a part of the Agency's comments. Tr.2 at 149. While it would be helpful to know the implementation procedures in developing comprehensive water quality regulations, in this proceeding the Board found that the Agency has sufficient federal guidance and experience to develop implementation procedures which ensure that water quality standards are protective of aquatic life. Water Quality Triennial 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 Ill. Adm. Code 301.267, 301.313, 301.413, 304.120, and 309.157 R02-11 (June 20, 2002), slip op. 7-8.

### Cyanide

At first notice, the Board decided not to proceed with the revised cyanide standards proposed by the Agency. The Agency proposed an acute standard of 49 µg/L and a chronic standard of 9.9 µg/L<sup>4</sup> which is more liberal than the current acute standard of 22 µg/L and chronic standard of 5.2 µg/L. The Board was convinced by the comments and testimony that changing the cyanide standard was not warranted at this time. The Agency based the proposed amendment of the cyanide standard on the assumption that Illinois does not have native cold-water species of fish outside of Lake Michigan. However, the Illinois Department of Natural Resources (IDNR) has indicated that stocked cold-water species have reproduced in Illinois. This is information that the Agency did not have when considering the relaxation of the standard for cyanide (*see* Tr.1 at 62). The Agency also testified that a cool-water species (a sculpin) is present in Illinois, but those streams "are not now thought to contain significant amounts of cyanide," and the Board's antidegradation rules can be used to evaluate the streams. Tr.2 at 141. The Board noted in the first notice-opinion, that while antidegradation evaluations provide additional protection to a water body in a permitting context, such an evaluation should not be used as a justification to relax water quality standards. Water Quality Triennial 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 Ill. Adm. Code 301.267, 301.313, 301.413, 304.120, And 309.157 R02-11 (June 20, 2002), slip op. 9.

The Board also expressed concern with the lack of information regarding mussels in Illinois. At this time there are no studies that either the Agency or the participants are aware of which review the effect of cyanide toxicity on mussels. The Agency, in proposing the change, relied on the fact that the United States Environmental Protection Agency (USEPA) did not use mussel data. However, the Board opined that USEPA's lack of information is not scientific support for relaxing the standard. The Board stated that there are many endangered and threatened species of mussels in Illinois and no evidence to establish that relaxation of the standard will have no effect on those species. Furthermore, the Board noted that the relaxation of the standard would not help any Illinois dischargers. Water Quality Triennial Review: Amendments To 35 Ill. Adm. Code 302.105, 302.208(e)-(g), 302.504(a), 302.575(d),

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<sup>4</sup> The Agency original proposal used the 9.9 µg/L number; however, in a subsequent comment the Agency revised that number to 11 µg/L (*see* Exh. 8).

309.141(h); and Proposed 35 Ill. Adm. Code 301.267, 301.313, 301.413, 304.120, And 309.157 R02-11 (June 20, 2002), slip op. 9.

### **CBOD<sub>5</sub>**

The Board proceeded to first notice with a provision to allow the use of CBOD<sub>5</sub> instead of BOD<sub>5</sub> for measuring compliance with Section 304.120 (35 Ill. Adm. Code 304.120) in NPDES permits. The Board noted that the Environmental Groups' primary concern is that using CBOD<sub>5</sub> to measure the efficiency of wastewater treatment facilities may not be fully protective of dissolved oxygen levels in Illinois waters, because CBOD<sub>5</sub> does not measure nitrogenous oxygen demand. However, the Board found that the evidence in the record (such as IAWA's Exhibits 14, 15 and 16) document that the BOD<sub>5</sub> test in many cases does not accurately represent wastewater treatment efficiency or the actual oxygen demand experienced in the receiving stream. The Board further found that the record supported the Agency's position that combined effluent testing for CBOD<sub>5</sub> and ammonia nitrogen provides a more representative measure of treatment efficiency. Water Quality Triennial 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 Ill. Adm. Code 301.267, 301.313, 301.413, 304.120, and 309.157, R02-11 (June 20, 2002), slip op. 11.

### **SECOND NOTICE COMMENTS AND DISCUSSION**

In the first notice opinion, the Board sought additional comments on: (1) whether the Board should require the Agency to provide implementation rules regarding hardness, reasonable potential testing, dissolved oxygen and the metals translator prior to proceeding to first notice with the Agency's proposal; (2) whether the Board should adopt the revised cyanide standard proposed by the Agency; and (3) whether compliance with the BOD<sub>5</sub> effluent limits in Section 304.120 should be determined by measuring CBOD<sub>5</sub>. During the first notice comment period, the Board only received comments on two issues: (1) the Board's decision not to amend the cyanide standards, and, (2) the Board's decision to allow the use of CBOD<sub>5</sub> to measure compliance with the BOD<sub>5</sub> standard from Section 304.120 (35 Ill. Adm. Code 304.120) in NPDES permits.

The Agency submitted testimony and comments in support of the adoption of cyanide standards as originally proposed by the Agency (PC 27). The Metropolitan Water Reclamation District (MWRD) filed a comment in support of the Agency's proposal to change the cyanide standard (PC 23), while the IDNR filed a comment opposing a change to the cyanide standard (PC 22). The Environmental Groups filed a comment supporting the Board's first-notice proposal declining to change the cyanide standard, but asking the Board to reexamine the issue of using of CBOD<sub>5</sub> to meet the BOD<sub>5</sub> requirement from Section 304.120 (35 Ill. Adm. Code 304.120) in NPDES permits (PC 25). The IAWA continued to support using CBOD<sub>5</sub> to meet the BOD<sub>5</sub> requirement from Section 304.120 (35 Ill. Adm. Code 304.120) in NPDES permits. No additional comments were received regarding the Agency's implementation procedures. The following discussion will briefly summarize the comments regarding the two remaining issues (cyanide and CBOD<sub>5</sub>).

## Cyanide

The Agency continues to urge the relaxation of the cyanide standard. Tr.3, Exh. 17. The Agency disagrees with the comments of IDNR and the Agency maintains that the Agency conformed to USEPA methodology when deriving the standard for cyanide. Tr.3, Exh. 17 at 6. The Agency also disagrees that the two instances of reproduction of a cold-water species in Illinois is a sufficient basis to reject the cyanide standard. *Id.* The Agency also argues that mussel data is not used because there “are basic questions of science to be answered” and USEPA Region Five management has “assured the Agency that mussel data should not enter the derivation process as a driving factor” until the controversies are resolved. Tr.3, Exh. 17 at 8.

Regarding the Agency’s earlier assertion that there is no approved analytical method for cyanide to test reliably below 5.2 µ/L (the current standard), the Environmental Groups presented at hearing a new USEPA approved test method, OIA-1677, capable of testing for cyanide below the current standard. Tr.3 at 21 and PC 25 at 3-4. While the Agency was not aware of the new test method earlier in the proceeding, the Agency notes that it examined the capabilities of the new method since the first notice hearing. PC 27 at 3.

Based on its review, the Agency states that the new method has sufficient benefits over the current weak acid dissociable (WAD) test method, including less interference and lower detection limit. PC 27 at 5. The Agency recommends that the new cyanide test method be referenced along with the WAD test method in the Board’s cyanide standard. PC 27 at 5. The Agency states that although most commercial laboratories in Illinois are not equipped to run the new test, given an option to use the new test method, dischargers may begin to demand the laboratories to use the new method instead of the WAD test method.

The MWRD also urged the Board to adopt the cyanide standard as proposed by the Agency. PC 23. The MWRD maintains that the standard is based on sound science and proven USEPA methodology. *Id.*

At hearing and in subsequent comments, the Environmental Groups supported the Board’s first-notice decision of not relaxing the cyanide standard. They stated that their concern regarding the effect of cyanide on Illinois’ endangered mussels continues to exist, since no toxicity testing information is available. PC 25 at 1. The IDNR echoes the Environmental Groups’ concern regarding the protection of certain endangered aquatic species. The IDNR argues, “an existing standard, one that may not currently be protective of an important group of animals (many of them federally or state-listed threatened or endangered species), should not be further loosened.” PC 22 at 2.

IDNR further commented that the testimony of Mr. Mosher “only reinforces the concerns” of IDNR originally expressed to the Board prior to first notice. PC 22 at 1. IDNR indicated that it is IDNR’s belief that the triennial review process was intended to “be an incentive to both the regulated community and regulators to conduct additional toxicological research to determine sensitivities of a broader range of species.” *Id.* IDNR maintains that using the lack of data as justification for weakening a standard “seems inconsistent” with the goals of the Clean Water Act. *Id.*

The Board is unconvinced by the additional comments of the Agency and the MWRD that the relaxation of the cyanide standard should be proposed at this time. The Board finds that there is insufficient evidence to support changing to an acute standard of 49  $\mu\text{/L}$  and a chronic standard of 11  $\mu\text{/L}$  rather than the current acute standard of 22  $\mu\text{/L}$  and chronic standard of 5.2  $\mu\text{/L}$  for cyanide. However, regarding the new test method, the Board agrees with the Environmental Groups and the Agency that the new test method has significant benefits over the current WAD test method. However, the Board believes that there is no need to amend the water quality regulations in order to encourage dischargers/laboratories to use the new test method to show compliance with the cyanide water quality standard. In this regard, the Board notes that the current analytical testing requirements for both the General Use waters, and the Lake Michigan waters allow the use of test methods that are consistent with the USEPA's current manual of practice or with other procedures acceptable to USEPA and the Agency. *See* 35 Ill. Adm. Code 301.104 and 302.550. Since the new cyanide test method, OIM-1677, has been approved by the USEPA, the Agency may require the dischargers/laboratories to use the new cyanide test method to show compliance or notify the dischargers/laboratories that the new cyanide test method is the preferred method.

### CBOD<sub>5</sub>

The Environmental Groups maintain that CBOD<sub>5</sub> should not be used to measure compliance with the BOD<sub>5</sub> standard in Section 304.120 (35 Ill. Adm. Code 304.120) in NPDES permits. PC 25 at 3. The Environmental Groups assert that the dissolved oxygen standards are being violated in Illinois waters. Tr.3, Exh. 20 at 2. The Environmental Groups do concede that the cause for the violation of the standards is not known; however “many of the affected waters receive significant discharge” from sewage treatment plants. *Id.* The Environmental Groups do not object to using CBOD<sub>5</sub> rather than BOD<sub>5</sub> as a test for determining whether sewage treatment plants are meeting the secondary treatment requirements. PC 25 at 3. The Environmental Groups argue that the proposal ratifies a decision to measure CBOD<sub>5</sub> rather than BOD<sub>5</sub> with regard to dischargers covered by 35 Ill. Adm. Code 304.120(b) and (c). *Id.* According to the Environmental Groups, these two provisions are the only mechanisms Illinois has established to protect waters where secondary treatment is not adequate to protect water quality. *Id.* The Environmental Groups argue that because CBOD<sub>5</sub> is less than BOD<sub>5</sub> by definition, the proposal has the effect of allowing more deoxygenating waste to be discharged than under current Board rules. PC 25 at 3-4.

The Agency and IAWA both support the Board's proposal on the use of CBOD<sub>5</sub> rather than BOD<sub>5</sub> to measure compliance with Section 304.120 (35 Ill. Adm. Code 304.120) in NPDES permits. PC 27 at 1; PC 26. The IAWA indicates that the IAWA has been concerned with the definition of BOD from the outset of these proceedings. PC 26 at 1. IAWA maintains that the use of CBOD recognizes the current USEPA position that CBOD is a more accurate parameter for determining the effectiveness of secondary treatment. *Id.* The IAWA urges the Board to proceed with the rule as proposed. PC 26 at 5.

The Board appreciates the additional comment on the issue of using CBOD<sub>5</sub> rather than BOD<sub>5</sub> in NPDES permits. However, the Board finds that the additional comments are not

sufficient to warrant a change in the Board's position. Therefore, the Board will not make any changes to the first-notice proposal concerning the use of CBOD<sub>5</sub> rather than BOD<sub>5</sub> to measure compliance with Section 304.120 (35 Ill. Adm. Code 304.120) in NPDES permits.

### **ECONOMIC REASONABLENESS AND TECHNICAL FEASIBILITY OF THE PROPOSAL**

At first notice, the Board found that the rule was economically reasonable and technically feasible. The Board has received no additional comments discussing economic reasonableness and technical feasibility of the proposed rule. On March 12, 2002, pursuant to Section 27(b) of the Act (415 ILCS 5/27(b) (2000)), the Board requested that the Department of Commerce and Community Affairs (DCCA) conduct an economic impact study on the proposed rule. The request letter referenced a letter, dated March 10, 2000, from DCCA. The March 10, 2000 letter informed the Board that DCCA would not be doing economic impact studies. At the July 25, 2002 hearing the Board provided copies of the DCCA letter and the Board's March 12, 2002 letter. The Board received no comments on the letter.

### **CONCLUSION**

The Board today proposes for second notice amendments to the Board's water rules. The Board is adopting the proposed rule with only minor changes from the first-notice proposal.

### **ORDER**

The Board directs that the following rule be filed with the Joint Committee on Administrative Rules for second-notice review.

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

PART 301  
INTRODUCTION

Section	
301.101	Authority
301.102	Policy
301.103	Repeals
301.104	Analytical Testing
301.105	References to Other Sections
301.106	Incorporations by Reference
301.107	Severability
301.108	Adjusted Standards
301.200	Definitions

301.205	Act
301.210	Administrator
301.215	Agency
301.220	Aquatic Life
301.221	Area of Concern
301.225	Artificial Cooling Lake
301.230	Basin
301.231	Bioaccumulative Chemicals of Concern
301.235	Board
301.240	CWA
301.245	Calumet River System
301.250	Chicago River System
301.255	Combined Sewer
301.260	Combined Sewer Service Area
301.265	Construction
<u>301.267</u>	<u>Conversion Factor</u>
301.270	Dilution Ratio
301.275	Effluent
301.280	Hearing Board
301.285	Industrial Wastes
301.290	Institute
301.295	Interstate Waters
301.300	Intrastate Waters
301.301	Lake Michigan Lakewide Management Plan
301.305	Land Runoff
301.310	Marine Toilet
301.311	Method Detection Level
301.312	Minimum Level
<u>301.313</u>	<u>Metals Translator</u>
301.315	Modification
301.320	New Source
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
<u>301.413</u>	<u>Total Metal</u>
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

#### APPENDIX References to Previous Rules

##### A

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 \_\_\_\_ 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., 1015 Fifteenth Street, N.W.,  
Washington, D.C. 20005

Standard Methods for the Examination of Water and Wastewater, 16th  
Edition, 1985

ASTM. American Society for Testing and Materials, 100 Barr Harbor Drive,  
West Conshohocken, PA 19428-2959 (610) 832-9585 ~~1976 Race Street,  
Philadelphia, PA 19013 (215) 299-5400~~

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.

- 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 \_\_\_\_\_ Ill. Reg. \_\_\_\_\_, effective \_\_\_\_\_)

Section 301.267 Conversion Factor

“Conversion Factor” means the fraction of the total metal found as dissolved in the toxicity tests used to derive the water quality standards of 35 Ill. Adm. Code 302. The conversion factors are used to convert total metals water quality standards to dissolved standards.

(Source: Added at \_\_\_\_\_ Ill. Reg. \_\_\_\_\_, effective \_\_\_\_\_)

Section 301.313 Metals Translator

“Metals Translator” means the fraction of total metal that is dissolved in the effluent or downstream water. The metals translator calculates a total metal permit limit from a dissolved metal water quality standard. In the absence of site-specific data for the effluent or receiving water, the metals translator is the reciprocal of the conversion factor.

(Source: Added at \_\_\_\_\_ Ill. Reg. \_\_\_\_\_, effective \_\_\_\_\_)

Section 301.413 Total Metal

“Total Metal” means the dissolved fraction of metal in a solution plus the suspended fraction.

(Source: Added at \_\_\_\_\_ 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

## Section

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

## SUBPART B: GENERAL USE WATER QUALITY STANDARDS

## Section

302.201	Scope and Applicability
302.202	Purpose
302.203	Offensive Conditions
302.204	pH
302.205	Phosphorus
302.206	Dissolved Oxygen

302.207	Radioactivity
302.208	Numeric Standards for Chemical Constituents
302.209	Fecal Coliform
302.210	Other Toxic Substances
302.211	Temperature
302.212	Ammonia Nitrogen and Un-ionized Ammonia
302.213	Effluent Modified Waters (Ammonia)

#### SUBPART C: PUBLIC AND FOOD PROCESSING WATER SUPPLY STANDARDS

Section	
302.301	Scope and Applicability
302.302	Algicide Permits
302.303	Finished Water Standards
302.304	Chemical Constituents
302.305	Other Contaminants
302.306	Fecal Coliform

#### SUBPART D: SECONDARY CONTACT AND INDIGENOUS AQUATIC LIFE STANDARDS

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

#### SUBPART E: LAKE MICHIGAN BASIN WATER QUALITY STANDARDS

Section	
302.501	Scope, Applicability, and Definitions
302.502	Dissolved Oxygen
302.503	pH
302.504	Chemical Constituents
302.505	Fecal Coliform
302.506	Temperature
302.507	Thermal Standards for Existing Sources on January 1, 1971
302.508	Thermal Standards for Sources under Construction But Not in Operation on January 1, 1971
302.509	Other Sources
302.510	Incorporations by Reference
302.515	Offensive Conditions

302.520	Regulation and Designation of Bioaccumulative Chemicals of Concern (BCCs)
302.521	Supplemental Antidegradation Provisions for BCCs
302.525	Radioactivity
302.530	Supplemental Mixing Provisions for BCCs
302.535	Ammonia Nitrogen
302.540	Other Toxic Substances
302.545	Data Requirements
302.550	Analytical Testing
302.553	Determining the Lake Michigan Aquatic Toxicity Criteria or Values - General Procedures
302.555	Determining the Tier I Lake Michigan Basin Acute Aquatic Life Toxicity Criterion (LMAATC): Independent of Water Chemistry
302.560	Determining the Tier I Lake Michigan Basin Acute Aquatic Life Toxicity Criterion (LMAATC): Dependent on Water Chemistry
302.563	Determining the Tier II Lake Michigan Basin Acute Aquatic Life Toxicity Value (LMAATV)
302.565	Determining the Lake Michigan Basin Chronic Aquatic Life Toxicity Criterion (LMCATC) or the Lake Michigan Basin Chronic Aquatic Life Toxicity Value (LMCATV)
302.570	Procedures for Deriving Bioaccumulation Factors for the Lake Michigan Basin
302.575	Procedures for Deriving Tier I Water Quality Criteria in the Lake Michigan Basin to Protect Wildlife
302.580	Procedures for Deriving Water Quality Criteria and Values in the Lake Michigan Basin to Protect Human Health – General
302.585	Procedures for Determining the Lake Michigan Basin Human Health Threshold Criterion (LMHHTC) and the Lake Michigan Basin Human Health Threshold Value (LMHHTV)
302.590	Procedures for Determining the Lake Michigan Basin Human Health Nonthreshold Criterion (LMHHNC) or the Lake Michigan Basin Human Health Nonthreshold Value (LMHHNV)
302.595	Listing of Bioaccumulative Chemicals of Concern, Derived Criteria and Values

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

Section	
302.601	Scope and Applicability
302.603	Definitions
302.604	Mathematical Abbreviations
302.606	Data Requirements
302.612	Determining the Acute Aquatic Toxicity Criterion for an Individual Substance – General Procedures
302.615	Determining the Acute Aquatic Toxicity Criterion - Toxicity Independent of Water Chemistry
302.618	Determining the Acute Aquatic Toxicity Criterion - Toxicity Dependent on Water Chemistry
302.621	Determining the Acute Aquatic Toxicity Criterion - Procedures for Combinations of Substances

- 302.627 Determining the Chronic Aquatic Toxicity Criterion for an Individual Substance - General Procedures
- 302.630 Determining the Chronic Aquatic Toxicity Criterion - Procedure for Combination of Substances
- 302.633 The Wild and Domestic Animal Protection Criterion
- 302.642 The Human Threshold Criterion
- 302.645 Determining the Acceptable Daily Intake
- 302.648 Determining the Human Threshold Criterion
- 302.651 The Human Nonthreshold Criterion
- 302.654 Determining the Risk Associated Intake
- 302.657 Determining the Human Nonthreshold Criterion
- 302.658 Stream Flow for Application of Human Nonthreshold Criterion
- 302.660 Bioconcentration Factor
- 302.663 Determination of Bioconcentration Factor
- 302.666 Utilizing the Bioconcentration Factor
- 302.669 Listing of Derived Criteria

APPENDIX A References to Previous Rules

APPENDIX B Sources of Codified Sections

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

SOURCE: Filed with the Secretary of State January 1, 1978; amended at 2 Ill. Reg. 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 21 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 \_\_\_\_\_ Ill. Reg. \_\_\_\_\_, effective \_\_\_\_\_; amended in R02-11 at \_\_\_\_\_ Ill. Reg. \_\_\_\_\_, effective \_\_\_\_\_.

#### SUBPART A: GENERAL WATER QUALITY PROVISIONS

Section 302.105 Antidegradation

The purpose of this Section is to protect existing uses of all waters of the State of Illinois, maintain the quality of waters with quality that is better than water quality standards, and prevent unnecessary deterioration of waters of the State.

a) Existing Uses

Uses actually attained in a surface water body or water body segment on or after November 28, 1975, whether or not they are included in the water quality standards, must be maintained and protected. Examples of degradation of existing uses of the waters of the State include:

- 1) an action that would result in the deterioration of the existing aquatic community, such as a shift from a community of predominantly pollutant-sensitive species to pollutant-tolerant species or a loss of species diversity;
- 2) an action that would result in a loss of a resident or indigenous species whose presence is necessary to sustain commercial or recreational activities; or
- 3) an action that would preclude continued use of a surface water body or water body segment for a public water supply or for recreational or commercial fishing, swimming, paddling or boating.

b) Outstanding Resource Waters

- 1) Waters that are designated as Outstanding Resource Waters (ORWs) pursuant to 35 Ill. Adm. Code 303.205 and listed in 35 Ill. Adm. Code 303.206 must not be lowered in quality except as provided below:
  - A) Activities that result in short-term, temporary (i.e., weeks or months) lowering of water quality in an ORW; or
  - B) Existing site stormwater discharges that comply with applicable federal and State stormwater management regulations and do not result in a violation of any water quality standards.
- 2) Any activity in subsection (b)(1)(A) or (b)(1)(B) that requires a National Pollutant Discharge Elimination System (NPDES) or a Clean Water Act (CWA) Section 401 certification must also comply with subsection (c)(2).
- 3) Any activity listed in subsection (b)(1) or any other proposed increase in pollutant loading to an ORW must also meet the following requirements:
  - A) All existing uses of the water will be fully protected; and



- B) Except for activities falling under one of the exceptions provided in subsection (b)(1)(A) or (B) above;
    - i) The proposed increase in pollutant loading is necessary for an activity that will improve water quality in the ORW; and
    - ii) The improvement could not be practicably achieved without the proposed increase in pollutant loading.
  - 4) Any proposed increase in pollutant loading requiring an NPDES permit or a CWA 401 certification for an ORW must be assessed pursuant to subsection (f) to determine compliance with this Section.
- c) High Quality Waters
- 1) Except as otherwise provided in subsection (d) of this Section, waters of the State whose existing quality is better than any of the established standards of this Part must be maintained in their present high quality, unless the lowering of water quality is necessary to accommodate important economic or social development.
  - 2) The Agency must assess any proposed increase in pollutant loading that necessitates a new, renewed or modified NPDES permit or any activity requiring a CWA Section 401 certification to determine compliance with this Section. The assessment to determine compliance with this Section must be made on a case-by-case basis. In making this assessment, the Agency must:
    - A) Consider the fate and effect of any parameters proposed for an increased pollutant loading.
    - B) Assure the following:
      - i) The applicable numeric or narrative water quality standard will not be exceeded as a result of the proposed activity;
      - ii) All existing uses will be fully protected;
      - iii) All technically and economically reasonable measures to avoid or minimize the extent of the proposed increase in pollutant loading have been incorporated into the proposed activity; and
      - iv) The activity that results in an increased pollutant loading will benefit the community at large.

- C) Utilize the following information sources, when available:
- i) Information, data or reports available to the Agency from its own sources;
  - ii) Information, data or reports supplied by the applicant;
  - iii) Agency experience with factually similar permitting scenarios; and
  - iv) Any other valid information available to the Agency.

d) Activities Not Subject to a Further Antidegradation Assessment

The following activities will not be subject to a further antidegradation assessment pursuant to subsection (c) of this Section.

- 1) Short-term, temporary (i.e., weeks or months) lowering of water quality;
- 2) Bypasses that are not prohibited at 40 CFR 122.41(m);
- 3) Response actions pursuant to the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA), as amended, corrective actions, pursuant to the Resource Conservation and Recovery Act (RCRA), as amended, or similar federal or State authority, taken to alleviate a release into the environment of hazardous substances, pollutants or contaminants which may pose a danger to public health or welfare;
- 4) Thermal discharges that have been approved through a CWA Section 316(a) demonstration;
- 5) New or increased discharges of a non-contact cooling water:
  - A) without additives, except as provided in subsection (d)(5)(B), returned to the same body of water from which it was taken, as defined by 35 Ill. Adm. Code 352.104, provided that the discharge complies with applicable Illinois thermal standards; or
  - B) containing chlorine when the non-contact cooling water is treated to remove residual chlorine, and returned to the same body of water from which it was taken, as defined in 35 Ill. Adm. Code 352.104, provided that the discharge complies with applicable Illinois thermal and effluent standards at 35 Ill. Adm. Code 302, 303, and 304;

- 6) Discharges permitted under a current general NPDES permit as provided by 415 ILCS 5/39(b) or a nationwide or regional CWA Section 404 permit are not subject to facility-specific antidegradation review; however, the Agency must assure that individual permits or certifications are required prior to all new pollutant loadings or hydrological modifications that necessitate a new, renewed or modified NPDES permit or CWA Section 401 certification that affects waters of particular biological significance. Waters of particular biological significance may include streams listed in a 1991 publication by the Illinois Department of Conservation entitled “Biologically Significant Illinois Streams”; or
- 7) Changes to or inclusion of a new permit limitation that does not result in an actual increase of a pollutant loading, such as those stemming from improved monitoring data, new analytical testing methods, new or revised technology or water quality based effluent limits.

e) Lake Michigan Basin

Waters in the Lake Michigan basin as identified in 35 Ill. Adm. Code 303.443 are also subject to the requirements applicable to bioaccumulative chemicals of concern found at Section 302.521 of this Part.

f) Antidegradation Assessments

In conducting an antidegradation assessment pursuant to this Section, the Agency must comply with the following procedures.

- 1) A permit application for any proposed increase in pollutant loading that necessitates the issuance of a new, renewed, or modified NPDES permit or a CWA Section 401 certification must include, to the extent necessary for the Agency to determine that the permit application meets the requirements of this Section, the following information:
  - A) Identification and characterization of the water body affected by the proposed load increase or proposed activity and the existing water body’s uses. Characterization must address physical, biological and chemical conditions of the water body.
  - B) Identification and quantification of the proposed load increases for the applicable parameters and of the potential impacts of the proposed activity on the affected waters.
  - C) The purpose and anticipated benefits of the proposed activity. Such benefits may include:

- i) Providing a centralized wastewater collection and treatment system for a previously unsewered community;
  - ii) Expansion to provide service for anticipated residential or industrial growth consistent with a community's long range urban planning;
  - iii) Addition of a new product line or production increase or modification at an industrial facility; or
  - iv) An increase or the retention of current employment levels at a facility.
  
- D) Assessments of alternatives to proposed increases in pollutant loading or activities subject to Agency certification pursuant to Section 401 of the CWA that result in less of a load increase, no load increase or minimal environmental degradation. Such alternatives may include:
  - i) Additional treatment levels, including no discharge alternatives;
  - ii) Discharge of waste to alternate locations, including publicly-owned treatment works and streams with greater assimilative capacity; or
  - iii) Manufacturing practices that incorporate pollution prevention techniques.
  
- E) Any additional information the Agency may request.
  
- F) Proof that a copy of the application has been provided to the Illinois Department of Natural Resources.
  
- 2) The Agency must complete an antidegradation assessment in accordance with the provisions of this Section on a case-by-case basis.
  - A) The Agency must consider the criteria stated in Section 302.105(c)(2).
  - B) The Agency must consider the information provided by the applicant pursuant to subsection (f)(1).
  - C) After its assessment, the Agency must produce a written analysis addressing the requirements of this Section and provide a decision

yielding one of the following results:

- i) If the proposed activity meets the requirements of this Section, then the Agency must proceed with public notice of the NPDES permit or CWA Section 401 certification and include the written analysis as a part of the fact sheet accompanying the public notice;
  - ii) If the proposed activity does not meet the requirements of this Section, then the Agency must provide a written analysis to the applicant and must be available to discuss the deficiencies that led to the disapproval. The Agency may suggest methods to remedy the conflicts with the requirements of this Section;
  - iii) If the proposed activity does not meet the requirements of this Section, but some lowering of water quality is allowable, then the Agency will contact the applicant with the results of the review. If the reduced loading increase is acceptable to the applicant, upon the receipt of an amended application, the Agency will proceed to public notice; or if the reduced loading increase is not acceptable to the applicant, the Agency will transmit its written review to the applicant in the context of an a NPDES permit denial or a CWA Section 401 certification denial.
- 3) The Agency will conduct public notice and public participation through the public notice procedures found in 35 Ill. Adm. Code 309.109 or CWA Section 401 certifications. The Agency must incorporate the following information into a fact sheet accompanying the public notice:
- A) A description of the activity, including identification of water quality parameters for which there will be an increased pollutant loading;
  - B) Identification of the affected surface water body or water body segment, any downstream surface water body or water body segment also expected to experience a lowering of water quality, characterization of the designated and current uses of the affected surface water body or water body segment ~~segments~~ and identification of which uses are most sensitive to the proposed load increase;
  - C) A summary of any review comments and recommendations provided by Illinois Department of Natural Resources, local or regional planning commissions, zoning boards and any other

entities the Agency consults regarding the proposal;

- D) An overview of alternatives considered by the applicant and identification of any provisions or alternatives imposed to lessen the load increase associated with the proposed activity; and
- E) The name and telephone number of a contact person at the Agency who can provide additional information.

(Amended at \_\_\_\_ 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 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 as provided in subsection (d). The samples used to demonstrate ~~attainment compliance~~ or lack of ~~attainment compliance~~ with a CS must be collected in a manner ~~that which~~ assures an average representative of the sampling period. For the 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 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 as provided in subsection (d).
- d) 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	<u>STORET</u> <del>Storet</del> Number	AS ( $\mu\text{g/L}$ ) ( <del><math>\mu\text{g/L}</math></del> )	CS ( $\mu\text{g/L}$ ) ( <del><math>\mu\text{g/L}</math></del> )
Arsenic (trivalent, dissolved) (total)	<del>22680</del> 01002	360 <del>X 1.0*=360</del>	190 <del>X 1.0*=190</del>
Cadmium (dissolved) (total)	01025 <del>01027</del>	$\exp[A+B\ln(H)] \times \{1.138672 - [(\ln H)(0.041838)]\}^*$ , but not to exceed 50 $\mu\text{g/L}$ , where A=-2.918 and B=1.128	$\exp[A+B\ln(H)] \times \{1.101672 - [(\ln H)(0.041838)]\}^*$ , where A=-3.490 and B=0.7852
Chromium (hexavalent, total) (total hexavalent)	01032	16	11
Chromium (trivalent, dissolved) (total trivalent)	<del>80357</del> 01033	$\exp[A+B\ln(H)] \times 0.316^*$ , where A=3.688 and B=0.8190	$\exp[A+B\ln(H)] \times 0.860^*$ , where A=1.561 and B=0.8190
Copper (dissolved) (total)	<del>01040</del> 01042	$\exp[A+B\ln(H)] \times 0.960^*$ , where A=-1.464 and B=0.9422	$\exp[A+B\ln(H)] \times 0.960^*$ , where A=-1.465 and B=0.8545
Cyanide	00718	22	5.2
Lead (dissolved) (total)	<del>01049</del> 01051	$\exp[A+B\ln(H)] \times \{1.46203 - [(\ln H)(0.145712)]\}^*$ , where A=-1.301 and B=1.273	$\exp[A+B\ln(H)] \times \{1.46203 - [(\ln H)(0.145712)]\}^*$ , where A=-2.863 and B=1.273
Mercury (dissolved)	<del>71890</del> 71900	2.6 <del>X 0.85*=2.2</del>	1.3 <del>X 0.85*=1.1</del>
Nickel (dissolved)	01065	$\exp[A+B\ln(H)] \times 0.998^*$ , where A=0.5173 and	$\exp[A+B\ln(H)] \times 0.997^*$ , where A=-2.286 and

		<u>B=0.8460</u>	<u>B=0.8460</u>
TRC	500600	19	11
<u>Zinc (dissolved)</u>	<u>01090</u>	<u>exp[A+Bln(H)] X</u> <u>0.978*</u>	<u>Exp[A+Bln(H)] X</u> <u>0.986*</u>
		<u>where A=0.9035 and</u>	<u>where A=-0.8165 and</u>
		<u>B=0.8473</u>	<u>B=0.8473</u>
<u>Benzene</u>	<u>78124</u>	<u>4200</u>	<u>860</u>
<u>Ethylbenzene</u>	<u>78113</u>	<u>150</u>	<u>14</u>
<u>Toluene</u>	<u>78131</u>	<u>2000</u>	<u>600</u>
<u>Xylene(s)</u>	<u>81551</u>	<u>920</u>	<u>360</u>

where:  $\mu\text{g/L}$   ~~$\mu\text{g/L}$~~  = microgram per liter,

$\exp[x]$  = base natural ~~neutral~~ logarithms raised to the x- power, and

$\ln(H)$  = natural logarithm of Hardness (STORET 00900), and

\* = conversion factor multiplier for dissolved metals

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

Constituent	STORET Number	( $\mu\text{g/L}$ ) ( <del><math>\mu\text{g/L}</math></del> )
Mercury	71900	0.012
<u>Benzene</u>	<u>78124</u>	<u>310</u>

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

g) 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
<del>Nickel (total)</del>	<del>mg/L</del>	<del>01067</del>	<del>1.0</del>
Phenols	mg/L	32730	0.1
Selenium (total)	mg/L	01147	1.0
Silver (total)	<del>μg/L</del> <del>ug/L</del>	01077	5.0
Sulfate	mg/L	00945	500-
Total Dissolved Solids	mg/L	70300	1000-
<del>Zinc (total)</del>	<del>mg/L</del>	<del>01092</del>	<del>1.0</del>

where: mg/L = milligram per liter and  
~~μg/L~~ ~~ug/L~~ = microgram per liter

(Source: Amended at \_\_\_\_\_ 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.

<u>Constituent</u>	<u>STORET Number</u>	<u>Unit</u>	<u>AS</u>	<u>CS</u>	<u>HHS</u>
Arsenic (Trivalent, dissolved)	22680	μg/L	340 <u>X</u> 1.0*= <u>340</u>	148 <u>X</u> 1.0*= <u>48</u>	NA

<u>Constituent</u>	<u>STORET Number</u>	<u>Unit</u>	<u>AS</u>	<u>CS</u>	<u>HHS</u>
Cadmium (dissolved)	01025	µg/L	$\exp[A + B \ln(H)] \underline{X}$ $\{1.138672 -$ $\frac{[(\ln H)(0.0418}{38}] \}^*$ , where A=-3.6867 and B=1.128	$\exp[A + B \ln(H)] \underline{X}$ $\{1.101672 -$ $\frac{[(\ln H)(0.0418}{38}] \}^*$ , where A=-2.715 and B=0.7852	NA
Chromium (Hexavalent, total)	01032	µg/L	16	11	NA
Chromium (Trivalent, dissolved)	80357	µg/L	$\exp[A + B \ln(H)] \underline{X}$ $0.316^*$ , where A=3.7256 and B=0.819	$\exp[A + B \ln(H)] \underline{X}$ $0.860^*$ , where A=0.6848 and B=0.819	NA
Copper (dissolved)	01040	µg/L	$\exp[A + B \ln(H)] \underline{X}$ $0.960^*$ , where A=-1.700 and B=0.9422	$\exp[A + B \ln(H)] \underline{X}$ $0.960^*$ , where A=-1.702 and B=0.8545	NA
Cyanide (Weak acid dissociable)	00718	µg/L	22	5.2	NA
Lead (dissolved)	01049	µg/L	$\exp[A + B \ln(H)] \underline{X}$ $\{1.46203 -$ $\frac{[(\ln H)(0.1457}{12}] \}^*$ , where A=-1.055 and B=1.273	$\exp[A + B \ln(H)] \underline{X}$ $\{1.46203 -$ $\frac{[(\ln H)(0.1457}{12}] \}^*$ , where A=-4.003 and B=1.273	NA
Nickel (dissolved)	01065	µg/L	$\exp[A + B \ln(H)] \underline{X}$ $0.998^*$ , where A=2.255 and B=0.846	$\exp[A + B \ln(H)] \underline{X}$ $0.997^*$ , where A=0.0584 and B=0.846	NA
Selenium	01145	µg/L	NA	5.0	NA

<u>Constituent</u>	<u>STORET Number</u>	<u>Unit</u>	<u>AS</u>	<u>CS</u>	<u>HHS</u>
(dissolved) TRC	50060	µg/L	19	11	NA
Zinc (dissolved)	01090	µg/L	$\exp[A + B \ln(H)] \times 0.978^*$ , where <u>A=0.884 and B=0.8473</u>	$\exp[A + B \ln(H)] \times 0.986^*$ , where <u>A=0.884 and B=0.8473</u>	NA
Benzene	<del>78124</del> 34030	µg/L	<del>3900</del> NA	<del>800</del> NA	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
<u>Ethylbenzene</u>	<u>78113</u>	<u>µg/L</u>	<u>150</u>	<u>14</u>	<u>NA</u>
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 <u>A=-4.869 and B=1.005</u>	$\exp B ([pH] + A)$ , where <u>A=-5.134 and B=1.005</u>	NA
Toluene	78131	mg/L	<del>2000</del> NA	<del>610</del> NA	51.0
Trichloroethylene	39180	µg/L	NA	NA	370
<u>Xylene(s)</u>	<u>81551</u>	<u>µg/L</u>	<u>1200</u>	<u>490</u>	<u>NA</u>

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

- 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.

<u>Constituent</u>	<u>STORET Number</u>	<u>Unit</u>	<u>Water Quality Standard</u>
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
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.

<u>Constituent</u>	<u>STORET Number</u>	<u>Unit</u>	<u>Water Quality Standard</u>
Arsenic (total)	01002	µg/L	50.0

<u>Constituent</u>	<u>STORET Number</u>	<u>Unit</u>	<u>Water Quality Standard</u>
Barium (total)	01007	mg/L	1.0
Chloride	00940	mg/L	12.0
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
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.

<u>Constituent</u>	<u>STORET Number</u>	<u>Unit</u>	<u>Water Quality Standard</u>
Benzene	34030	µg/L	12.0
Chlorobenzene	34301	µg/L	470.0

<u>Constituent</u>	<u>STORET Number</u>	<u>Unit</u>	<u>Water Quality Standard</u>
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.

<u>Constituent</u>	<u>STORET Number</u>	<u>Unit</u>	<u>AS</u>	<u>CS</u>	<u>HHS</u>	<u>WS</u>
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

<u>Constituent</u>	<u>STORET Number</u>	<u>Unit</u>	<u>AS</u>	<u>CS</u>	<u>HHS</u>	<u>WS</u>
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 \_\_\_\_\_ Ill. Reg. \_\_\_\_\_, effective \_\_\_\_\_)

Section 302.575 Procedures for Deriving Tier I Water Quality Criteria and Values in the Lake Michigan Basin to Protect Wildlife

The Lake Michigan Basin Wildlife Criterion (LMWC) is the concentration of a substance which if not exceeded protects Illinois wild mammal and bird populations from adverse effects resulting from ingestion of surface waters of the Lake Michigan Basin and from ingestion of aquatic prey organisms taken from surface waters of the Lake Michigan Basin. Wildlife criteria calculated under this Section protect against long-term effects and are therefore considered chronic criteria. The methodology involves utilization of data from test animals to derive criteria to protect representative or target species: bald eagle, herring gull, belted kingfisher, mink and river otter. The lower of the geometric mean of species specific criteria for bird species or mammal species is chosen as the LMWC to protect a broad range of species.

- a) This method shall also be used for non-BCCs when appropriately modified to consider the following factors:
- 1) Selection of scientifically justified target species;
  - 2) Relevant routes of chemical exposure;
  - 3) Pertinent toxicity endpoints.

- b) Minimum data requirements:
- 1) Test dose (TD). In order to calculate a LMWC the following minimal data base is required:
    - A) There must be at least one data set showing dose-response for oral, subchronic, or chronic exposure of 28 days for one bird species; and
    - B) There must be at least one data set showing dose-response for oral, subchronic, or chronic exposure of 90 days for one mammal species.
  - 2) Bioaccumulation Factor (BAF) data requirements:
    - A) For any chemical with a BAF of less than 125 the BAF may be obtained by any method; and
    - B) For chemicals with a BAF of greater than 125 the BAF must come from a field measured BAF or Biota-Sediment Accumulation Factor (BSAF).
- c) Principles for development of criteria
- 1) Dose standardization. The data for the test species must be expressed as, or converted to, the form mg/kg/d utilizing the guidelines for drinking and feeding rates and other procedures in 40 CFR 132, incorporated by reference at Section 302.510.
  - 2) Uncertainty factors (UF) for utilizing test dose data in the calculation of the target species value (TSV);
    - A) Correction for intermittent exposure. If the animals used in a study were not exposed to the toxicant each day of the test period, the no observed adverse effect level (NOAEL) must be multiplied by the ratio of days of exposure to the total days in the test period.
    - B) Correction from the lowest observed adverse effect level (LOAEL) to NOAEL (UF<sub>1</sub>). For those substances for which a LOAEL has been derived, the UF<sub>1</sub> shall not be less than one and should not exceed 10.
    - C) Correction for subchronic to chronic extrapolation (UF<sub>s</sub>). In instances where only subchronic data are available, the TD may be



derived from subchronic data. The value of the  $UF_s$  shall not be less than one and should not exceed 10.

- D) Correction for interspecies extrapolations ( $UF_a$ ). For the derivation of criteria, a  $UF_a$  shall not be less than one and should not exceed 100. The  $UF_a$  shall be used only for extrapolating toxicity data across species within a taxonomic class. A species specific  $UF_a$  shall be selected and applied to each target species, consistent with the equation in subsection (d) below.

- d) Calculation of TSV. The TSV, measured in milligrams per liter (mg/L), is calculated according to the equation:

$$TSV = \{ [TD \times Wt] / [UF_a \times UF_s \times UF_1] \} / \{ W + \sum [F_{TLi} \times BAF_{WLTLi}] \}$$

Where:

TSV = target species value in milligrams of substance per liter (mg/L).

TD = test dose that is toxic to the test species, either NOAEL or LOAEL.

$UF_a$  = the uncertainty factor for extrapolating toxicity data across species (unitless). A species-specific  $UF_a$  shall be selected and applied to each target species, consistent with the equation.

$UF_s$  = the uncertainty factor for extrapolating from subchronic to chronic exposures (unitless)

$UF_1$  = the uncertainty factor for extrapolation from LOAEL to NOAEL (unitless)

Wt = average weight in kilograms (kg) of the target species

W = average daily volume of water in liters consumed per day (L/d) by the target species

$F_{TLi}$  = average daily amount of food consumed by the target species in kilograms (kg/d) for trophic level i

$BAF_{WLTLi}$  = aquatic life bioaccumulation factor with units of liter per kilogram (L/kg), as derived from ~~in~~ Section 302.570 for trophic level i

- e) Calculation of the Lake Michigan Basin Wildlife Criterion. TSVs are obtained for each target species. The geometric mean TSVs of all mammal species is calculated and also of all bird species. The LMWC is the lower of the bird or mammal geometric mean TSV.

(Source: Amended \_\_\_\_\_ Ill. Reg. \_\_\_\_\_, effective \_\_\_\_\_)

TITLE 35: ENVIRONMENTAL PROTECTION  
SUBTITLE C: WATER POLLUTION  
CHAPTER I: POLLUTION CONTROL BOARD  
PART 304  
EFFLUENT STANDARDS

## SUBPART A: GENERAL EFFLUENT STANDARDS

Section	
304.101	Preamble
304.102	Dilution
304.103	Background Concentrations
304.104	Averaging
304.105	Violation of Water Quality Standards
304.106	Offensive Discharges
304.120	Deoxygenating Wastes
304.121	Bacteria
304.122	Total Ammonia Nitrogen (as N: STORET number 00610)
304.123	Phosphorus (STORET number 00665)
304.124	Additional Contaminants
304.125	pH
304.126	Mercury
304.140	Delays in Upgrading (Repealed)
304.141	NPDES Effluent Standards
304.142	New Source Performance Standards (Repealed)

## SUBPART B: SITE SPECIFIC RULES AND EXCEPTIONS NOT OF GENERAL APPLICABILITY

Section	
304.201	Wastewater Treatment Plant Discharges of the Metropolitan Water Reclamation District of Greater Chicago
304.202	Chlor-alkali Mercury Discharges in St. Clair County
304.203	Copper Discharges by Olin Corporation
304.204	Schoenberger Creek: Groundwater Discharges
304.205	John Deere Foundry Discharges
304.206	Alton Water Company Treatment Plant Discharges
304.207	Galesburg Sanitary District Deoxygenating Wastes Discharges
304.208	City of Lockport Treatment Plant Discharges
304.209	Wood River Station Total Suspended <del>Solid Solids</del> Discharges
304.210	Alton Wastewater Treatment Plant Discharges
304.211	Discharges From Borden Chemicals and Plastics Operating Limited Partnership Into an Unnamed Tributary of Long Point Slough
304.212	Sanitary District of Decatur Discharges
304.213	PDV Midwest Refining, L.L.C. Refinery Ammonia Discharge
304.214	Mobil Oil Refinery Ammonia Discharge
304.215	City of Tuscola Wastewater Treatment Facility Discharges
304.216	Newton Station Suspended Solids Discharges
304.218	City of Pana Phosphorus Discharge
304.219	North Shore Sanitary District Phosphorus Discharges
304.220	East St. Louis Treatment Facility, Illinois-American Water Company

- 304.221 Ringwood Drive Manufacturing Facility in McHenry County  
 304.222 Intermittent Discharge of TRC

### SUBPART C: TEMPORARY EFFLUENT STANDARDS

#### Section

- 304.301 Exception for Ammonia Nitrogen Water Quality Violations (Repealed)  
 304.302 City of Joliet East Side Wastewater Treatment Plant  
 304.303 Amerock Corporation, Rockford Facility

#### 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 2 Ill. Reg. 30, p. 343, effective July 27, 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; amended at 4 Ill. Reg. 20, p. 53 effective May 7, 1980; amended at 6 Ill. Reg. 563, effective December 24, 1981; 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 7 Ill. Reg. 3020, effective March 4, 1983; amended at 7 Ill. Reg. 8111, effective June 23, 1983; amended at 7 Ill. Reg. 14515, effective October 14, 1983; amended at 7 Ill. Reg. 14910, effective November 14, 1983; amended at 8 Ill. Reg. 1600, effective January 18, 1984; amended at 8 Ill. Reg. 3687, effective March 14, 1984; amended at 8 Ill. Reg. 8237, effective June 8, 1984; amended at 9 Ill. Reg. 1379, effective January 21, 1985; amended at 9 Ill. Reg. 4510, effective March 22, 1985; peremptory amendment at 10 Ill. Reg. 456, effective December 23, 1985; amended at 11 Ill. Reg. 3117, effective January 28, 1987; amended in R84-13 at 11 Ill. Reg. 7291 effective April 3, 1987; amended in R86-17(A) at 11 Ill. Reg. 14748, effective August 24, 1987; amended in R84-16 at 12 Ill. Reg. 2445, effective January 15, 1988; amended in R83-23 at 12 Ill. Reg. 8658, effective May 10, 1988; amended in R87-27 at 12 Ill. Reg. 9905, effective May 27, 1988; amended in R82-7 at 12 Ill. Reg. 10712, effective June 9, 1988; amended in R85-29 at 12 Ill. Reg. 12064, effective July 12, 1988; amended in R87-22 at 12 Ill. Reg. 13966, effective August 23, 1988; amended in R86-3 at 12 Ill. Reg. 20126, effective November 16, 1988; amended in R84-20 at 13 Ill. Reg. 851, effective January 9, 1989; amended in R85-11 at 13 Ill. Reg. 2060, effective February 6, 1989; amended in R88-1 at 13 Ill. Reg. 5976, effective April 18, 1989; amended in R86-17(B) at 13 Ill. Reg. 7754, effective May 4, 1989; amended in R88-22 at 13 Ill. Reg. 8880, effective May 26, 1989; amended in R87-6 at 14 Ill. Reg. 6777, effective April 24, 1990; amended in R87-36 at 14 Ill. Reg. 9437, effective May 31, 1990; amended in R88-21(B) at 14 Ill. Reg. 12538, effective July 18, 1990; amended in R84-44 at 14 Ill. Reg. 20719, effective December 11, 1990; amended in R86-14 at 15 Ill. Reg. 241, effective December 18, 1990; amended in R93-8 at 18 Ill. Reg. 267, effective December 23, 1993; amended in R87-33 at 18 Ill. Reg. 11574, effective July 7, 1994; amended in R95-14 at 20 Ill. Reg. 3528, effective February 8, 1996; amended in R94-1(B) at 21 Ill. Reg. 364, effective December 23, 1996; expedited correction in R94-1(B) at 21 Ill. Reg. 6269, effective December

23, 1996; amended in R97-25 at 22 Ill. Reg. 1351, effective December 24, 1997; amended in R97-28 at 22 Ill. Reg. 3512, effective February 3, 1998; amended in R98-14 at 22 Ill. Reg. 687, effective December 31, 1998; amended in R02-19 at \_\_\_\_ Ill. Reg. \_\_\_\_\_, effective \_\_\_\_\_; amended in R02-11 at \_\_\_\_ Ill. Reg. \_\_\_\_\_, effective \_\_\_\_\_.

~~BOARD NOTE: This Part implements the Illinois Environmental Protection Act of July 1, 1994.~~

## SUBPART A: GENERAL EFFLUENT STANDARDS

### Section 304.120 Deoxygenating Wastes

Except as provided in ~~35 Ill. Adm. Code 306.SubpartC Section 306.103~~, all effluents containing deoxygenating wastes shall meet the following standards:

- a) No effluent shall exceed 30 ~~mg/L~~ ~~mg/l~~ of five day biochemical oxygen demand (BOD<sub>5</sub>) (STORET number 00310) or 30 ~~mg/L~~ ~~mg/l~~ of suspended solids (STORET number 00530), except that treatment works employing three stage lagoon treatment systems which are properly designed, maintained and operated, and whose effluent has a dilution ratio no less than five to one or who qualify for exceptions under subsection (c) shall not exceed 37 ~~mg/L~~ ~~mg/l~~ of suspended solids.
- b) No effluent from any source whose untreated waste load is 10,000 population equivalents or more, or from any source discharging into the Chicago River System or into the Calumet River System, shall exceed 20 ~~mg/L~~ ~~mg/l~~ of BOD<sub>5</sub> or 25 ~~mg/L~~ ~~mg/l~~ of suspended solids.
- c) No effluent whose dilution ratio is less than five to one shall exceed 10 ~~mg/L~~ ~~mg/l~~ of BOD<sub>5</sub> or 12 ~~mg/L~~ ~~mg/l~~ of suspended solids, except that sources employing third-stage treatment lagoons shall be exempt from this subsection (c) provided all of the following conditions are met:
  - 1) The waste source qualifies under one of the following categories:
    - A) Any wastewater treatment works with an untreated waste load less than 2500 population equivalents, which is sufficiently isolated that combining with other sources to aggregate 2500 population equivalents or more is not practicable.
    - B) Any wastewater treatment works in existence and employing third-stage treatment lagoons on January 1, 1986, whose untreated waste load is 5000 population equivalents or less and sufficiently isolated that combining to aggregate 5000 population equivalents or more is not practicable.

- C) Any wastewater treatment works with an untreated waste load of 5000 population equivalents or less, which has reached the end of its useful life by January 1, 1987, and is sufficiently isolated that combining to aggregate 5000 population equivalents or more is not practicable.
- D) Any wastewater treatment works with an untreated waste load of 5000 population equivalents or less which has reached the end of its useful life and which has received an adjusted standard determination from the Board that it qualifies for a lagoon exemption. Such a Board determination will only be made in an adjusted standard proceeding, held in accordance with Section 28.1 of the Environmental Protection Act (~~415 ILCS 5/28.1 Ill. Rev. Stat. 1987, ch. 111 ½, par. 1028.1~~) and applicable procedures set forth by 35 Ill. Adm. Code ~~104106~~.
- i) In an adjusted standard proceeding the Board may determine that the petitioning wastewater treatment source qualifies for a lagoon exemption if the wastewater treatment works proves that it is so situated that a land treatment system is not a suitable treatment alternative. Factors relevant to a suitability finding may include the following: cost; influent character; geographic characteristics; climate; soil conditions; hydrologic conditions; and the availability of irrigable land.
  - ii) For the purposes of ~~this~~ subsection ~~(c)(i)(D)~~, a land treatment system is a wastewater treatment system which does not directly discharge treated effluent to waters of the State but instead uses the treated effluent to irrigate terrestrial vegetation;-
- 2) The lagoons are properly constructed, maintained and operated; and
  - 3) The deoxygenating constituents of the effluent do not, alone or in combination with other sources, cause a violation of the applicable dissolved oxygen water quality standard.
- d) No effluent discharged to the Lake Michigan basin shall exceed 4 ~~mg/L mg/l~~ of BOD<sub>5</sub> or 5 ~~mg/L mg/l~~ of suspended solids.
- e) Compliance with the numerical standards in this Section shall be determined on the basis of the type and frequency of sampling prescribed by the NPDES permit for the discharge at the time of monitoring.

- f) For the purposes of this Section, useful life is the period of time during which it is cost effective to operate and maintain a particular wastewater treatment works under consideration. At a minimum, the following factors relating to a wastewater treatment works shall be considered in a determination of its useful life:
- 1) Structural and operational condition of components;
  - 2) Past operations and maintenance record;
  - 3) Cost for continued use; and
  - 4) Description and costs of ~~for~~ treatment alternatives.
- g) Compliance with the 5 day biochemical oxygen demand (BOD<sub>5</sub>) numerical standard in this Part will be determined by the analysis of 5 day carbonaceous biochemical oxygen demand (CBOD<sub>5</sub>) (STORET number 80082), unless federal regulations require treatment works treating industrial wastes to comply with more stringent requirements determined by the analysis of BOD<sub>5</sub>. Effluent from the treatment works subject to the requirements of Section 304.120(a) shall not exceed 25 mg/L CBOD<sub>5</sub>.

(Source: Amended at \_\_\_\_\_ Ill. Reg. \_\_\_\_\_, effective \_\_\_\_\_).

TITLE 35: ENVIRONMENTAL PROTECTION  
 SUBTITLE C: WATER POLLUTION  
 CHAPTER I: POLLUTION CONTROL BOARD  
 PART 309  
 PERMITS

SUBPART A: NPDES PERMITS

Section	
309.101	Preamble
309.102	NPDES Permit Required
309.103	Application - General
309.104	Renewal
309.105	Authority to Deny NPDES Permits
309.106	Access to Facilities and Further Information
309.107	Distribution of Applications
309.108	Tentative Determination and Draft Permit
309.109	Public Notice
309.110	Contents of Public Notice of Application
309.111	Combined Notices
309.112	Agency Action After Comment Period
309.113	Fact Sheets

309.114	Notice to Other Governmental Agencies
309.115	Public Hearings on NPDES Permit Applications
309.116	Notice of Agency Hearing
309.117	Agency Hearing
309.118	Agency Hearing File
309.119	Agency Action After Hearing
309.141	Terms and Conditions of NPDES Permits
309.142	Water Quality Standards and Waste Load Allocation
309.143	Effluent Limitations
309.144	Federal New Source Standards of Performance
309.145	Duration of Permits
309.146	Authority to Establish Recording, Reporting, Monitoring and Sampling Requirements
309.147	Authority to Apply Entry and Inspection Requirements
309.148	Schedules of Compliance
309.149	Authority to Require Notice of Introduction of Pollutants into Publicly Owned Treatment Works
309.150	Authority to Ensure Compliance by Industrial Users with Sections 204(b), 307 and 308 of the Clean Water Act
309.151	Maintenance and Equipment
309.152	Toxic Pollutants
309.153	Deep Well Disposal of Pollutants (Repealed)
309.154	Authorization to Construct
309.155	Sewage Sludge Disposal
309.156	Total Dissolved Solids Reporting and Monitoring
309.157	<u>Permit Limits for Total Metals</u>
309.181	Appeal of Final Agency Action on a Permit Application
309.182	Authority to Modify, Suspend or Revoke Permits
309.183	Revision of Schedule of Compliance
309.184	Permit Modification Pursuant to Variance
309.185	Public Access to Information
309.191	Effective Date

#### SUBPART B: OTHER PERMITS

Section	
309.201	Preamble
309.202	Construction Permits
309.203	Operating Permits; New or Modified Sources
309.204	Operating Permits; Existing Sources
309.205	Joint Construction and Operating Permits
309.206	Experimental Permits
309.207	Former Permits (Repealed)
309.208	Permits for Sites Receiving Sludge for Land Application
309.221	Applications - Contents
309.222	Applications - Signatures and Authorizations
309.223	Applications - Registered or Certified Mail

309.224	Applications - Time to Apply
309.225	Applications - Filing and Final Action <u>By</u> <del>by</del> Agency
309.241	Standards for Issuance
309.242	Duration of Permits Issued Under Subpart B
309.243	Conditions
309.244	Appeals from Conditions in Permits
309.261	Permit No Defense
309.262	Design, Operation and Maintenance Criteria
309.263	Modification of Permits
309.264	Permit Revocation
309.265	Approval of Federal Permits
309.266	Procedures
309.281	Effective Date
309.282	Severability

#### Appendix A References to Previous Rules

AUTHORITY: Implementing Sections 13 and 13.3 and authorized by Section 27 of the Environmental Protection Act [415 ILCS 5/13, 13.3 and 27].

SOURCE: Adopted in R71-14, at 4 PCB 3, March 7, 1972; amended in R73-11, 12, at 14 PCB 661, December 5, 1974, at 16 PCB 511, April 24, 1975, and at 28 PCB 509, December 20, 1977; amended in R73-11, 12, at 29 PCB 477, at 2 Ill. Reg. 16, p. 20, effective April 20, 1978; amended in R79-13, at 39 PCB 263, at 4 Ill. Reg. 34, p. 159, effective August 7, 1980; amended in R77-12B, at 41 PCB 369, at 5 Ill. Reg. 6384, effective May 28, 1981; amended in R76-21, at 44 PCB 203, at 6 Ill. Reg. 563, effective December 24, 1981; codified at 6 Ill. Reg. 7818; amended in R82-5, 10, at 54 PCB 411, at 8 Ill. Reg. 1612, effective January 18, 1984; amended in R86-44 at 12 Ill. Reg. 2495 effective January 13, 1988; amended in R88-1 at 13 Ill. Reg. 5993, effective April 18, 1989; amended in R88-21(A) at 14 Ill. Reg. 2892, effective February 13, 1990; amended in R91-5 at 16 Ill. Reg. 7339, effective April 27, 1992; amended in R95-22 at 20 Ill. Reg. 5526, effective April 1, 1996; amended in R99-8 at 23 Ill. Reg. 11287, effective August 26, 1999; amended in R02-11 at \_\_\_\_\_ Ill. Reg. \_\_\_\_\_, effective

#### SUBPART A: NPDES PERMITS

##### Section 309.141 Terms and Conditions of NPDES Permits

In establishing the terms and conditions of each issued NPDES Permit, the Agency shall apply and ensure compliance with all of the following, whenever applicable:

- a) Effluent limitations under Sections 301 and 302 of the CWA;
- b) Standards of performance for new sources under Section 306 of the CWA;



- c) Effluent standards, effluent prohibitions, and pretreatment standards under Section 307 of the CWA;
- d) Any more stringent limitation, including those:
  - 1) necessary to meet water quality standards, treatment standards, or schedules of compliance, established pursuant to any Illinois statute or regulation (under authority preserved by Section 510 of the CWA),
  - 2) necessary to meet any other federal law or regulation, or
  - 3) required to implement any applicable water quality standards, such limitations to include any legally applicable requirements necessary to implement total maximum daily loads established pursuant to Section 303(d) of the CWA and incorporated in the continuing planning process approved under Section 303(e) of the CWA and any regulations or guidelines issued pursuant thereto;
- e) Any more stringent legally applicable requirements necessary to comply with a plan approved pursuant to Section 208(b) of the CWA;
- f) Prior to promulgation by the Administrator of the U.S. Environmental Protection Agency of applicable effluent standards and limitations pursuant to Sections 301, 302, 306 and 307 of the CWA, such conditions as the Agency determines are necessary to carry out the provisions of the CWA;
- g) If the NPDES Permit is for the discharge of pollutants into navigable waters from a vessel or other floating craft (except that no NPDES Permit shall be issued for the discharge of pollutants from a vessel or other floating craft into Lake Michigan), any applicable regulations promulgated by the Secretary of the Department in which the Coast Guard is operating, establishing specifications for safe transportation, handling, carriage, storage and stowage of pollutants; and
- h) If the NPDES Permit is for the discharge of pollutants from other than wet weather point sources into the Lake Michigan Basin as defined at 35 Ill. Adm. Code 303.443:
  - 1) Total Maximum Daily Loads (TMDLs) and Waste Load Allocation (WLA) will be established through either the LaMP or a RAP for an Area of Concern. If a LaMP or RAP has not been completed and adopted, effluent limits shall be established consistent with the other provisions of this Section, including, but not limited to, Additivity, Intake Pollutants, Loading Limits, Level of Detection/Level of Quantification and Compliance Schedules. When calculation of TMDLs or a WLA ~~Waste Load Allocation~~ is incomplete and it is expected that limits established through other provisions will be superseded upon completion of the

TMDL or ~~WLA Waste Load Allocation~~ process, those limits shall be identified as interim and the permit shall include a reopener clause triggered by completion of a TMDL or WLA determination. Any new limits brought about through exercise of the reopener clause shall be eligible for delayed compliance dates and compliance schedules consistent with Section 39(b) of the Act [415 ILCS 5/39(b)], 35 Ill. Adm. Code 309.148, and 35 Ill. Adm. Code 352.Subpart H.

- 2) 35 Ill. Adm. Code 302.590 establishes an acceptable additive risk level of one in 100,000 ( $10^5$ ~~(-5)~~) for establishing Tier I criteria and Tier II values for combinations of substances exhibiting a carcinogenic or other nonthreshold toxic mechanism. For those discharges containing multiple nonthreshold substances application of this additive standard shall be consistent with ~~this~~ subsection (h).
- A) For discharges in the Lake Michigan Basin ~~basin~~ containing one or more 2,3,7,8-substituted chlorinated dibenzo-p-dioxins or 2,3,7,8-substituted dibenzofurans, the tetrachloro dibenzo-p-dioxin 2,3,7,8-(TCDD) toxicity equivalence concentration ( $TEC_{TCDD}$ ) shall be determined as outlined in subsection (h)(2)(B).
- B) The values listed in the following Table shall be used to determine the 2,3,7,8-TCDD toxicity equivalence concentrations using the following equation:

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

WHERE:

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

$(C)_x$  = Concentration of total chemical x in effluent

$(TEF)_x$  = TCDD toxicity equivalency factor for x

$(BEF)_x$  = TCDD bioaccumulation equivalency factor for x

TABLE

Congener	TEF	BEF
2,3,7,8-TCDD	1.0	1.0
1,2,3,7,8-PeCdd	0.5	0.9
1,2,3,4,7,8-HxCDD	0.1	0.3
1,2,3,6,7,8-HxCDD	0.1	0.1
1,2,3,7,8,9-HxCDD	0.1	0.1
1,2,3,4,6,7,8-HpCDD	0.01	0.0
OCDD	0.001	0.0
2,3,7,8-TCDF	0.1	0.8
1,2,3,7,8-PeCDF	0.05	0.2

2,3,4,7,8-PeCDF	0.5	1.6
1,2,3,4,7,8-HxCDF	0.1	0.0
1,2,3,6,7,8-HxCDF	0.1	0.2
2,3,4,6,7,8-HxCDF	0.1	0.7
1,2,3,7,8,9-HxCDF	0.1	0.6
1,2,3,4,6,7,8-HpCDF	0.01	0.0
1,2,3,4,7,8,9-HpCDF	0.01	0.4
OCDF	0.001	0.0

C) Any combination of carcinogenic or otherwise nonthreshold toxic substances shall be assessed on a case-by-case basis. The Agency shall only consider such additivity for chemicals that exhibit the same type of effect and the same mechanism of toxicity, based on available scientific information that supports a reasonable assumption of additive effects.

3) ~~Conversion factors for determining the dissolved concentration of metals from the total recoverable concentration.~~

A) ~~The numeric standards for certain metal parameters in 35 Ill. Adm. Code 302.504 are established as dissolved forms of the substance since the dissolved form more closely relates to the toxicology literature utilized in deriving the standard. However, most discharge monitoring data used in deriving a PEQ will be from a total recoverable analytical method and permit limits if and when established will be set at total recoverable to accommodate the total recoverable analytical method. The Agency will use a conversion factor to determine the amount of total metal corresponding to dissolved metal for each metal with a water quality standard set at dissolved concentration. In the absence of facility specific data the following default conversion factors will be used for both PEQ derivation and establishing WQBELs. The conversion factor represents the portion of the total recoverable metal presumed to be in dissolved form. The conversion values given in the following table are multiplied by the appropriate total recoverable metal concentration to obtain a corresponding dissolved concentration that then may be compared to the acute or chronic standard. A dissolved metal concentration may be divided by the conversion factor to obtain a corresponding total metal value that will generally be the metal form regulated in NPDES permits.~~

Metal	Conversion Factor	
	Acute Standard	Chronic Standard
Arsenic	1.000	1.000
Cadmium	0.850	0.850

Chromium (Trivalent)	0.316	0.860
Chromium (Hexavalent)	0.982	0.962
Copper	0.960	0.960
Merecury	0.850	0.850
Nickel	0.998	0.997
Selenium	0.922	0.922
Zinc	0.978	0.986

~~B) A permittee may propose an alternate conversion factor for any particular site specific application. The request must contain sufficient site specific data, or other data that is representative of the site, to identify a representative ratio of the dissolved fraction to the total recoverable fraction of the metal in the receiving water body at the edge of the mixing zone. If a site specific conversion factor is approved, that factor will be used for PEQ derivation and establishment of a WQBEL in lieu of its default counterpart in subsection (h)(3)(A).~~

3-4) Reasonable potential to exceed.

A) The first step in determining if a reasonable potential to exceed the water quality standard exists for any particular pollutant parameter is the estimation of the maximum expected effluent concentration for that substance. That estimation will be completed for both acute and chronic exposure periods and is termed the PEQ. The PEQ shall be derived from representative facility specific data to reflect a 95 percent confidence level for the 95th percentile value. These data will be presumed to adhere to a lognormal distribution pattern unless the actual effluent data demonstrates a different distribution pattern. If facility specific data in excess of 10 data values is available, a coefficient of variation that is the ratio of the standard deviation to the arithmetic average shall be calculated by the Agency. The PEQ is derived as the upper bound of a 95 percent confidence bracket around the 95th percentile value through a multiplier from the following table applied to the maximum value in the data set that has its quality assured consistent with 35 Ill. Adm. Code 352.410 as appropriate for acute and chronic data sets.

$$\text{PEQ} = (\text{maximum data point})(\text{statistical multiplier})$$

Coefficient of Variation

No. Samples	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0	1.1	1.2	1.3
1	1.4	1.9	2.6	3.6	4.7	6.2	8.0	10.1	12.6	15.5	18.7	22.3	26.4
2	1.3	1.6	2.0	2.5	3.1	3.8	4.6	5.4	6.4	7.4	8.5	9.7	10.9
3	1.2	1.5	1.8	2.1	2.5	3.0	3.5	4.0	4.6	5.2	5.8	6.5	7.2
4	1.2	1.4	1.7	1.9	2.2	2.6	2.9	3.3	3.7	4.2	4.6	5.0	5.5
5	1.2	1.4	1.6	1.8	2.1	2.3	2.6	2.9	3.2	3.6	3.9	4.2	4.5
6	1.1	1.3	1.5	1.7	1.9	2.1	2.4	2.6	2.9	3.1	3.4	3.7	3.9
7	1.1	1.3	1.4	1.6	1.8	2.0	2.2	2.4	2.6	2.8	3.1	3.3	3.5
8	1.1	1.3	1.4	1.6	1.7	1.9	2.1	2.3	2.4	2.6	2.8	3.0	3.2
9	1.1	1.2	1.4	1.5	1.7	1.8	2.0	2.1	2.3	2.4	2.6	2.8	2.9
10	1.1	1.2	1.3	1.5	1.6	1.7	1.9	2.0	2.2	2.3	2.4	2.6	2.7
11	1.1	1.2	1.3	1.4	1.6	1.7	1.8	1.9	2.1	2.2	2.3	2.4	2.5
12	1.1	1.2	1.3	1.4	1.5	1.6	1.7	1.9	2.0	2.1	2.2	2.3	2.4
13	1.1	1.2	1.3	1.4	1.5	1.6	1.7	1.8	1.9	2.0	2.1	2.2	2.3
14	1.1	1.2	1.3	1.4	1.4	1.5	1.6	1.7	1.8	1.9	2.0	2.1	2.2
15	1.1	1.2	1.2	1.3	1.4	1.5	1.6	1.7	1.8	1.8	1.9	2.0	2.1
16	1.1	1.1	1.2	1.3	1.4	1.5	1.6	1.6	1.7	1.8	1.9	1.9	2.0
17	1.1	1.1	1.2	1.3	1.4	1.4	1.5	1.6	1.7	1.7	1.8	1.9	1.9
18	1.1	1.1	1.2	1.3	1.3	1.4	1.5	1.6	1.6	1.7	1.7	1.8	1.9
19	1.1	1.1	1.2	1.3	1.3	1.4	1.5	1.5	1.6	1.6	1.7	1.8	1.8
20	1.1	1.1	1.2	1.2	1.3	1.4	1.4	1.5	1.5	1.6	1.6	1.7	1.7
30	1.0	1.1	1.1	1.1	1.2	1.2	1.2	1.3	1.3	1.3	1.3	1.4	1.4
40	1.0	1.0	1.1	1.1	1.1	1.1	1.1	1.1	1.2	1.2	1.2	1.2	1.2
50	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.1	1.1	1.1	1.1	1.1	1.1
60 or greater	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0

- i) If the PEQ is less than or equal to the water quality standard, there is no reasonable potential and no limit will be established in the permit.
  - ii) If the PEQ is more than the water quality standard, the Agency will proceed to consideration of dilution and mixing pursuant to subsection (h)(45).
- B) If facility-specific data of 10 or less data values is available, an alternative PEQ shall be derived using the table in subsection (h)(34)(A) assuming a coefficient of variation of 0.6, applied to the maximum value in the data set that has its quality assured consistent with 35 Ill. Adm. Code 352.410.
- i) If the PEQ is less than or equal to the water quality standard, there is no reasonable potential and no limit will be established in the permit.

- ii) If the PEQ exceeds the water quality standard, an alternative PEQ will be calculated using the maximum value in the data set and a multiplier of 1.4. If the alternative PEQ also exceeds the water quality standard, the Agency will proceed to consider dilution and mixing pursuant to subsection (h)(~~45~~).
  - iii) If the PEQ exceeds the water quality standard but the alternative PEQ is less than or equal to the standard, the Agency will either proceed to consider dilution and mixing pursuant to subsection (h)(~~45~~), or will incorporate a monitoring requirement and reopener clause to reassess the potential to exceed within a specified time schedule, not to exceed one year. In determining which of these options to use in any individual application, the Agency shall consider the operational and economic impacts on the permittee and the effect, if any, deferral of a final decision would have on an ultimate compliance schedule if a permit limit were subsequently determined to be necessary.
- C) The Agency shall compare monthly average effluent data values, when available, with chronic aquatic life, human health and wildlife standards to evaluate the need for monthly average water quality based effluent limitations (WQBELs). The Agency shall use daily effluent data values to determine whether a potential exists to exceed acute aquatic life water quality standards.
- D) The Agency may apply other scientifically defensible statistical methods for calculating PEQ for use in the reasonable potential analysis as provided for in Procedure 5.b.2 of Appendix F to 40 CFR 132, incorporated by reference at 35 Ill. Adm. Code 301.106.
- E) Regardless of the statistical procedure used, if the PEQ for the parameter is less than or equal to the water quality standard for that parameter, the Agency shall deem the discharge not to have a reasonable potential to exceed, and a ~~water quality based effluent limit~~ (WQBEL) shall not be required unless otherwise required under 35 Ill. Adm. Code 352.430.
- ~~4 5~~) If the PEQ for a parameter is greater than the particular water quality standard, criteria or value for that parameter, the Agency will assess the level of treatment being provided by the discharger. If the discharger is providing (or will be providing) a level of treatment consistent with the best degree of treatment required by 35 Ill. Adm. Code 304.102(a), the PEQ derived under subsection (h)(~~34~~) shall be compared to a preliminary effluent limitation (PEL) determined by applying an appropriate mixing

zone or a default mixing zone to the discharge. Mixing opportunity and dilution credit will be considered as follows:

- A) Discharges to tributaries of the Lake Michigan Basin shall be considered to have no available dilution for either acute or chronic exposures, and the PEL will be set equivalent to the water quality standard unless dilution is documented through a mixing zone study.
- B) Bioaccumulative chemicals of concern (BCCs):
  - i) No mixing shall be allowed for new discharges of BCCs commencing on or after December 24, 1997. The PEL will be set equivalent to the water quality standard.
  - ii) Mixing shall be allowed for discharges of BCCs which existed as of December 24, 1997 in accordance with the requirements of 35 Ill. Adm. Code 302.530.
- C) Direct discharges to the Open Waters of Lake Michigan shall have a default mixing allowance of 2:1 for acute standards, criteria or values and 10:1 for chronic standards, criteria or values if the discharge configuration indicates that the effluent readily and rapidly mixes with the receiving waters. If ready and rapid mixing is in doubt the Agency shall deny any default dilution or mixing allowance and require a mixing or dispersion study to determine the proper dilution allowance. If the discharger applies for more than the default dilution or mixing allowance, it must submit a mixing or dispersion study to justify its request. Whenever a mixing or dispersion study is available, it shall be used to determine dilution or mixing allowance in lieu of the default allowance.

5 ~~6~~) Preliminary effluent limitations calculations.

- (A) The preliminary effluent limitation (PEL) is calculated in a simple mass balance approach reflecting the dilution allowance established in subsection (h)~~(45)~~:

$$\text{WQS} = [(\text{Qe})(\text{PEL}) + (\text{Qd})(\text{Cd})] / [\text{Qe} + \text{Qd}] \text{ or}$$

$$\text{PEL} = [\text{WQS}(\text{Qe} + \text{Qd}) - (\text{Qd})(\text{Cd})] / \text{Qe}$$

WHERE:

WQS = applicable water quality standard, criteria or value  
 Qe = effluent flowrate

$Q_d$  = allowable dilution flowrate

$C_d$  = background pollutant concentration in dilution water

- B) The representative background concentration of pollutants to develop TMDLs and WLAs calculated in the absence of a TMDL shall be established as follows:
- i) "Background" represents all pollutant loadings, specifically loadings that flow from upstream waters into the specified watershed, water body, or water body segment for which a TMDL or WLA in the absence of a TMDL is being developed and enter the specified watershed, water body, or water body segment through atmospheric deposition, chemical reaction, or sediment release or resuspension.
  - (ii) When determining what available data are acceptable for use in calculating background, the Agency shall use its best professional judgment, including consideration of the sampling location and the reliability of the data through comparison, in part, to detection and quantification levels. When data in more than 1 of the data sets or categories described in subsection (h)(56)(B)(iii) exists, best professional judgment shall be used to select the data that most accurately reflects or estimates background concentrations. Pollutant degradation and transport information may be considered when using pollutant loading data to estimate a water column concentration.
  - (iii) The representative background concentration for a pollutant in the specified watershed, water body, or water body segment shall be established on a case-by-case basis as the geometric mean of: acceptable water column data; water column concentrations estimated through use of acceptable caged or resident fish tissue data; or water column concentrations estimated through the use of acceptable or projected pollutant loading data. When determining the geometric mean of the data for a pollutant that includes values both above and below the detection level, commonly accepted statistical techniques shall be used to evaluate the data. If all of the acceptable data in a data set are below the detection level for a pollutant, then all the data for the pollutant in that data set shall be assumed to be zero.

6 7) Water quality based effluent limitations.



- A) If the PEQ is less than or equal to the PEL, it will be concluded that there is no reasonable potential to exceed. Under such circumstances a permit limit for that contaminant will not be set unless otherwise justified under one or more provisions of 35 Ill. Adm. Code 352.430.
- B) If the PEQ is equal to or greater than the PEL, and the PEQ was calculated using a data set of more than 10 values, a ~~water quality based effluent limitation (WQBEL)~~ ~~water quality based effluent limitation (WQBEL)~~ will be included in the permit. If the PEQ was calculated using a data set of less than or equal to 10 values, and the alternative PEQ calculated under subsection (h)(4)(B) also exceeds the PEL, a WQBEL will be included in the permit.
- C) If the PEQ was calculated using a data set of less than or equal to 10 values, and the PEQ is greater than the PEL but the alternative PEQ is less than the PEL, the Agency will either establish a WQBEL in the permit or incorporate a monitoring requirement and reopener clause to reassess potential to exceed within a specified time schedule, not to exceed one year. In determining which of these options to use in any individual application, the Agency shall consider the operational and economic impacts on the permittee and the effect, if any, deferral of a final decision would have on an ultimate compliance schedule if a permit limit were subsequently determined to be necessary.
- D) The WQBEL will be set at the PEL, unless the PEL is appropriately modified to reflect credit for intake pollutants when the discharged water originates in the same water body to which it is being discharged. Consideration of intake credit will be limited to the provisions of 35 Ill. Adm. Code 352.425.
- E) The reasonable potential analysis shall be completed separately for acute and chronic aquatic life effects. When WQBELs are based on acute impacts, the limit will be expressed as a daily maximum. When the WQBEL is based on chronic effects, the limit will be expressed as a monthly average. Human health and wildlife based WQBELs will be expressed as monthly averages. If circumstances warrant, the Agency shall consider alternatives to daily and monthly limits.

(Source: Amended at \_\_\_\_\_ Ill. Reg. \_\_\_\_\_, effective \_\_\_\_\_)

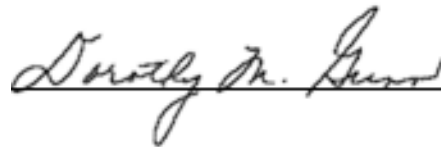
Section 309.157 Permit Limits for Total Metals

- a) The NPDES permit limits for metals must be expressed in total metals form even though the water quality standards for metals specified in Sections 302.208(e), 302.504(a), and 304.105 are in their dissolved form. The total metals permit limit shall be determined by multiplying the dissolved metals concentration and the appropriate metals translator.
- b) The Agency shall adopt procedures for determining site-specific metals translator in accordance with "The Metals Translator: Guidance for Calculating a Total Recoverable Permit Limit from a Dissolved Criterion," incorporated by reference at 35 Ill. Adm. Code 301.106.
- c) Except as otherwise specified in subsection (d) of this Section, the reciprocal of the conversion factor multiplier used for obtaining the dissolved metals standards at Sections 302.208(e), and 302.504(a) becomes the metals translator and the resulting total metals value becomes the NPDES permit limit.
- d) A permittee may request the Agency, in accordance with the procedures adopted pursuant to subsection (b) of this Section, to calculate a total metals permit limit based on a site-specific metals translator. Upon review and approval of the information submitted by the permittee, the Agency will calculate a total metals permit limit that is protective of the dissolved metals water quality standard.

(Source: Added at \_\_\_\_\_ Ill. Reg. \_\_\_\_\_, effective \_\_\_\_\_)

IT IS SO ORDERED.

I, Dorothy M. Gunn, Clerk of the Illinois Pollution Control Board, certify that the Board adopted the above opinion and order on October 17, 2002, by a vote of 6-0.



Dorothy M. Gunn, Clerk  
Illinois Pollution Control Board