ILLINOIS POLLUTION CONTROL BOARD
June 19, 1997

IN THE MATTER OF:	)	
	)	
CONFORMING AMENDMENTS FOR THE	)	R97-25
GREAT LAKES INITIATIVE: 35 ILL.	)	(Rulemaking - Water)
ADM. CODE 302.101; 302.105;	)	
302.SUBPART E; 303.443 AND 304.222	)	

Proposed Rule. First Notice.

OPINION AND ORDER OF THE BOARD (by G.T. Girard, C.A. Manning, J. Yi):

On March 21, 1997 the Illinois Environmental Protection Agency (IEPA) filed a rulemaking proposal to amend the water quality standards for the Lake Michigan Basin in conformance with the federal Great Lakes Initiative. Along with the proposal, the IEPA filed a statement of reasons (Reasons) and a certification pursuant to Section 28 of the Environmental Act (Act) (415 ILCS 5/28 (1996)) that the amendments are federally required. The IEPA also asked the Board to waive certain filing requirements. On April 3, 1997 the Board accepted the IEPA's proposal for hearing, accepted the certification that the rule was federally required, and granted the motion to waive certain filing requirements.

The first hearing was held in this matter on May 19, 1997 before Board Hearing Officer Marie Tipsord. At that hearing, the IEPA presented testimony to support the proposed rules. A second hearing is scheduled for July 28, 1997 at which additional testimony by the IEPA and testimony from other interested persons will be heard. Prefiled testimony for that hearing is due by July 14, 1997.

Today, the Board sends this proposal to first notice to expedite the rulemaking process. Based on the IEPA's proposal, the first hearing, and the two public comments filed by the IEPA[1], the Board finds that proceeding to first notice is warranted. In the sections that follow, the Board will briefly discuss the history of the Great Lakes Initiative, list the affected dischargers, summarize the proposed rule, explain the economic justification for the proposal, and proceed with arguments on the merits of the proposal. The Board has made changes to the IEPA's proposal and those changes are discussed below.

HISTORY OF THE GREAT LAKES INITIATIVE

[1] The IEPA's ERRATA SHEET NO. 1 was filed with the Board on June 12, 1997 and accepted by the Board as a public comment (PC 1). On June 16, 1997 the IEPA filed with the Board an additional copy of ERRATA SHEET NO. 1 which contained Appendices not attached to PC 1. Therefore, the Board accepted this second filing as PC 2.

The federal Clean Water Act was amended by the Great Lakes Critical Programs Act (Public Law 101-596) in 1990. In pertinent part that amendment provides that:

> Within two years after such Great Lakes guidance is published, the Great Lakes States shall adopt water quality standards, antidegredation polices and implementation procedures for waters within the Great Lakes System which are consistent with such guidance. If a Great Lakes State fails to adopt such standard, policies and procedures, the Administrator shall promulgate them no later than the end of such two year period.

(33 U.S.C. Section 1268(c)(2)(C).)

The United States Environmental Protection Agency (USEPA) published the Great Lakes guidance as a final rule at 60 Fed. Reg. 15366 on March 23, 1995. Thus, the state deadline to adopt conforming regulations was March 23, 1997. As stated above, the IEPA submitted the proposal to the Board on March 21, 1997 and has asked the Board to proceed expeditiously with the adoption of the rule. By today's action to adopt this rulemaking for first notice, the Board is honoring its commitment to proceed expeditiously within the framework of state laws such as the Act and the Illinois Administrative Procedure Act (APA) (5 ILCS 100\1 *et seq*.).

SUMMARY OF THE PROPOSED RULE

The proposed rules affect the Illinois portion of Lake Michigan and its drainage basin which includes about 18 dischargers to the Lake Michigan Basin. (Reasons at 3-4.) The Basin does not include the North Shore Channel, the Calumet River, and the Chicago River due to diversions away from Lake Michigan for water supply and navigation. (Reasons at 3.) The 18 dischargers are: Abbott Laboratories, Fort Sheridan, Commonwealth Edison-Waukegan, Commonwealth Edison-Zion, Lake Michigan STP, Skokie River STP, Fansteel, Inc., Gumm Frederick Chemical -Waukegan, Highwood WTP, Northwestern University, North Shore Sanitary District, Outboard Marine-Waukegan, R Lavin and Sons, Schuller International, Trigen-Peoples District Energy, USX-USS South Works, Winnetka Water & Electric, and City of Chicago. (P.C. 2 at Exh. D.)

In general, the proposal addresses the water quality criteria and methodology as well as antidegradation procedures which are required by the Great Lakes Initiative. The implementation procedures are not addressed in this proposal.[2] (Reasons at 4.) To establish numerical water quality standards and procedures for the derivation of criteria by the IEPA, the proposal follows the concepts currently in the Board's rules as adopted in R88-21A (January 25, 1990) and found at 35 Ill. Adm. Code 302.Subpart F. (Reasons at 5.) However,

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[2] The IEPA believes that the Board's existing site-specific rulemaking, adjusted standards and variance procedures are sufficient to satisfy some of the implementation procedures required by the Great Lakes Initiative. The IEPA will follow the Administrative Procedures Act (5 ILCS 100/1 *et seq*. (1996)) in a separate rulemaking under the authority of Section 39(b) of the Act (415 ILCS 5/39(b) (1996)) to propose rules to implement water quality permitting procedures for Great Lakes Basin dischargers. (Reasons at 4-5.)

there are several differences between the proposal and the existing rules. These differences include:

> A procedure for the calculation of bioaccumulation, or the increase in concentration of a substances through the food chain instead of bioconcentration, or the increase in concentration due to substances present only in the water.
>
> A definition and special provisions for "Bioaccumulative Chemicals of Concern" or "BCCs".
>
> A distinction between derivation procedures with greater available data or "Tier I" and lesser amounts of data or "Tier II" with conversion factors.
>
> A change in the measured form of metal contaminants from total to dissolved.
>
> An increase in the allowed cancer risk level for single substances from one in one million ($10.^{-6}$) to one in one hundred thousand ($10.^{-5}$) while considering the effect of mixtures of substances.
>
> Use of species representative of the Great Lakes Ecosystem, the eagle, kingfisher, gull, otter, and mink to calculate criteria.

(Reasons at 5.)

In addition to the major differences cited above, the Board renumbers certain portions of the IEPA's proposal and the existing rules to clarify the proposed rule.

The procedures to protect water quality proposed by the IEPA reflect the special concerns and scientific uniqueness of the Great Lakes Basin. The IEPA has proposed standards for several parameters which were not previously regulated by the Board. (Reasons at 6.) The new standards have been listed in four tables at Section 302.504 and are applicable to either all of the waters of the Lake Michigan Basin or to the open waters of Lake Michigan to protect drinking water uses. (*Id*.) The IEPA has proposed separate standards to protect aquatic life from acute and chronic effects, to protect wildlife, and to protect human health. (*Id*.) Although the Great Lakes Initiative has human health standards to protect against both cancer and noncancer effects for eight substances, only the cancer effects standards have been proposed by the IEPA. The IEPA proposed only these standards because the cancer effects are always lower. (Reasons at 6.)

The IEPA has proposed numeric standards for 42 parameters and 29 of these parameters are taken from the federal Great Lakes Initiative. (Reasons at 6.) Twenty parameters are listed on more than one table by applicability or to protect against more than one toxic effect. Where there are existing numerical standards in the regulations to protect general uses or public water supply uses, the proposed standard is lower than the old standard

in more than half of the parameters. In particular, pesticide standards to protect public water supply uses have been significantly lowered for many parameters in the proposed rules. (*Id.*)

The Great Lakes Initiative proposed standards were all derived by the IEPA from toxicological data for many species of organisms. (Reasons at 6-7.) For eleven single substances where the Great Lakes human health standard to protect against concern was developed, the Great Lakes Initiative risk factor of one times 10^{-5} resulted in a larger numerical standard than the existing regulation at 35 Ill. Adm. Code 302.Subpart F which used a risk factor of one times 10^{-6}. (Reasons at 7.) For seven substances, the proposed standards are expressed as an equation relating the concentrations of the substance to water hardness or pH to protect Aquatic Life. Standards for metals are all expressed as the dissolved form of the metal. (*Id.*)

The derivation procedures found in Sections 302.550, 302.555, and 302.560 of the proposal by the IEPA are similar to the procedures in 35 Ill. Adm. Code 302.Subpart F to protect Aquatic Life, Wildlife and Human Health but have been modified to conform to the federal guidance. (Reasons at 7.) The greatest change has been made to the derivation procedure by changing the bioconcentration factor to a bioaccumulation factor that is used in the Wildlife and Human Health criteria procedures. (*Id.*) Bioconcentration is the process where substances can increase in concentration in an organism through uptake from the water. Bioaccumulation is the process where substances can increase in concentration in an organism from its food in addition to the surrounding water. Since some organisms are eaten by other organisms, that in turn are eaten by other organisms, that in turn are eaten by other organisms in the food chain of life, substances of concern can reach much higher concentrations that they had only in the water or sediment. (*Id.*) These links in the food chain are called trophic levels and the proposed procedure uses data from the USEPA to calculate the increase in concentration, adjust for species specific characteristics and estimate the consumption of food from particular trophic levels. (*Id.*) This change in the procedure allows the IEPA to derive criteria or values that will be more protective of our wildlife resources and human health. (Reasons at 7.)

The proposal by IEPA, at Sections 302.533, 302.535, 302.540, 302.542, and 302.545, also contains procedures to compensate for varying amounts of data that would be relevant to the derivation of a criteria. (Reasons at 7.) A Tier I procedure is used if minimum data requirements are met. If minimum data requirements are not met, a Tier II procedure is used with a sliding scale of uncertainty factors to reach a statistical level of protection for the species.

As in the existing regulations, the proposal includes criteria or value derivation procedures to protect for short term (acute) and long term (chronic) effects and also provisions to modify the criteria or values depending on water chemistry, such as hardness or pH. (Reasons at 8.) For criteria calculated under the Tier I approach, the number of species is increased and specifically includes salmonid fish and plants. (*Id.*) The derived criteria or values are designed to protect about 95% of the aquatic species in the Lake Michigan ecosystem. For values calculated under the Tier II approach, proportional uncertainty factors

give the value more accuracy than a single factor under the existing rules. (*Id*.) However, since the available data has evolved along with the modifications to the existing procedures it is difficult to predict how much the derived criteria or values under this proposal will quantitatively change from the existing procedures. (*Id*.)

The proposed wildlife criterion derivation procedure is improved over existing procedures with respect to data requirements and use of the more accurate bioaccumulation factor. (Reasons at 8.) The proposed procedure starts with both bird and mammal toxicity data that is transformed by calculating species specific feeding and drinking rates, specific bioaccumulation factors based on diet, and a proportional uncertainty factor. Separate criteria are derived for three bird species (eagle, kingfisher and gull) and two mammalian species (otter and mink) that are representative of the Great Lakes Ecosystem. (*Id*.) The lowest geometric mean concentration of the species data of either the bird or the mammalian species becomes the criterion. (*Id*.)

Sections 302.565 and 302.570 of the proposed rule deal with the Human Health threshold. As in the existing Board regulations, the Human Health procedure is divided into threshold and nonthreshold approaches. (Reasons at 8.) Whereas in the existing rule at 35 Ill. Adm. Code 302.Subpart F there is a distinction between "carcinogens" and "noncarcinogens", in the proposed rule a criterion or value may be calculated on the basis of both carcinogenic or noncarcinogenic effects, if there is sufficient data. (*Id*.) However, if the substance is a carcinogen, usually the criterion or value based on this effect will be lower. Criteria or values may be derived to protect drinking water and non drinking water sources. The amounts of fish consumed by humans have been revised to reflect new data from the Great Lakes Initiative on the types of fish expected to be consumed and the differences in their pollutant concentrations. In calculating the Human Health threshold criterion or value, the method now allows consideration for other sources of the pollutant from the air or other food sources. (Reasons at 9.) The Human Health nonthreshold criterion or values will now reflect improved methods to calculate substances that bioaccumulate in organisms and will change the different risk levels for individual substances and mixtures into a consistent risk level of one in one hundred thousand or 10^{-5}.

Proposed Sections 302.511 through 302.519 improve on the existing regulations for nondegredation by prohibiting increased loading of Bioaccumulative Chemicals of Concern ("BCCs") unless there is proof that an increase is necessary for important economic or social development. (Reasons at 9.) That proof must include analysis of reasonably available and cost effective pollution prevention and enhanced treatment options before the increase would be allowed.

FIRST NOTICE PROPOSAL

On June 12, 1997 the IEPA filed with the Board Errata Sheet No. 1 (PC 1) "to correct various typographical, stylistic, and conceptual errors" brought to the attention of the IEPA. (PC 1 at 1.) After reviewing the IEPA's comment and the proposal, the Board has made several changes to the proposal which the Board will adopt for first notice. We will first

discuss the general changes and then follow with a more detailed section by section breakdown of the changes.

The most significant change made by the Board involves the reorganization of the rule and tables within Section 302.504. The Board moved the definitions from proposed Section 302.510 to Section 302.501 and renamed that section. The Board moved the incorporations by reference from Section 302.531 to Section 302.510. The Board also reorganized that section. The remaining sections were renumbered as follows:

IEPA PROPOSED	RENUMBERED
302.510	302.501
302.511	302.515
302.512	302.520
302.513	302.525
302.515	302.530
302.517	302.535
302.519	302.540
302.525	302.545
302.527	302.550
302.531	302.510
302.533	302.553
302.535	302.555
302.540	302.560
302.542	302.563
302.545	302.565
302.550	302.570
302.555	302.575
302.560	302.580
302.565	302.585
302.570	302.590
302.575	302.595

In addition to the reorganization, the Board has changed “shall” to “must” where appropriate. The Board has also reviewed the citations to the Code of Federal Regulations and the Illinois Administrative Code for consistency.

Most of the changes suggested by the IEPA in PC 1 can be characterized as clarifications in response to questions raised at the first hearing. In addition to clarifications of language, the changes suggested by the IEPA also add some definitions and cross-references. The discussion that follows details the changes proposed by the IEPA which the Board has accepted.

In the Scope and Applicability Sections 302.101 and 302.501, the Board amended the existing language to insure consistency between Sections 302.501 and 302.101. The Board

also agrees with the suggested language from the IEPA and will include the language in the first notice proposal. (PC 1 at 1.) The Board also amended the title of Section 302.501 to reflect the definitions being added to the this section and moved the definitions to Section 302.501(b).

In Section 302.504 Chemical Constituents, the Board has reorganized the tables so that the tables are consistent with the tables in other Subparts of Part 302. The Board has not made substantive changes in the tables, but merely organized the tables in a manner consistent with other Board rules. Also in Section 302.504, the IEPA has proposed amending the introductory sentence and subsection (a) to cross reference the mixing zone and supplemental mixing considerations for bioaccumulative chemical of concern. The amended language also specifies the applicability of the acute and chronic standards to parallel the General Use Water Quality Standards at 302.208. (PC 1 at 1-2.) The Board will amend the language as suggested by the IEPA.

In response to a question at hearing (Tr. at 92), the IEPA reexamined the acute standard constant B for cadmium (dissolved) found at Section 302.504(a). The IEPA stated that the constant B is correctly stated as 1.128, but suggested that the table be reformatted to clarify that constant A (-3.6867) is a negative number. (PC 1 at 2.) The Board accepts this change. The Board will further amend the language in subsection (a) by changing "concentrations" to "standards" to be consistent with the usage in this subsection.

In Section 302.504(b), the Board will also change the word "concentrations" to "standards" to be consistent with the usage in this subsection. In addition, the Board amends the language by deleting the word "superseded" and replacing it with the language "a standard is specified under." The Board made this change as the word "superseded" does not accurately reflect the intent of that Section.

The IEPA also suggested language changes to subsection (c) and (d) of Section 302.504. (PC 1 at 2-3.) A cross-reference to the definition of Open waters of Lake Michigan (Renumbered to Section 302.501) was added and punctuation was corrected in subsection (c). Subsection (d) was modified to reflect the supplemental antidegradation provisions of 302.512 (Renumbered to 302.520). The suggested language also cross-references the prohibition against mixing zones at Section 302.515 (Renumbered to 302.530) for BCCs from new discharges and eventual prohibition after March 23, 2007 for discharges of BCCs from any discharger unless the special conditions at subsection (c) and (d) are met. The Board accepts the suggested language.

The IEPA suggested several changes to the definitions at Section 302.510 (Renumbered to Section 302.501). The introductory sentence was modified to reflect the sole applicability of these definitions to the Lake Michigan Basin (PC 1 at 3) in response to a question at hearing. (Tr. at 100-101.) In response to another hearing question (Tr. at 101), the IEPA noted that definitions for three concepts, "acute toxicity," "adverse effect," and "chronic toxicity" differ slightly in the proposed Lake Michigan Basin definitions at Section 302.510 from the existing definition at Section 302.100. The IEPA would prefer to use the proposed

definitions derived from the Great Lakes Initiative to simplify the federal review process and, further, does not believe that there is a significant difference in these definitions between the two Sections. (PC 1 at 3.) With regard to BCCs, the IEPA clarified "that the definition for bioaccumulative chemical of concern ("BCCs") is self-implementing, *i.e.* that chemicals satisfying the characteristic of the definition are BCCs and that the list of chemicals presently meeting the definition is for the convenience of the regulated community." (PC 1 at 3.) The definition for Tier II value was pluralized and modified to clarify that it is a criteria used to implement the narrative water quality criteria but it is called a value to reflect that it is derived through Tier II methodology. (PC 1 at 4.) The IEPA proposed that a definition of the "Open waters of Lake Michigan" be included to clarify that only waters outside of constructed breakwaters be considered Open waters of Lake Michigan. This definition is necessary because the Great Lakes Initiative drinking water standards in 302.504(c) only apply outside breakwaters where drinking water is withdrawn. The waters within breakwaters and the other waters of the Lake Michigan Basin are protected for wildlife and aquatic life, and from the effects of BCCs by the standards in Section 302.504(a)(b) and (d). (PC 1 at 4.) Finally, the IEPA suggested that definitions for the following acronyms or terms be added to Section 302.510 (Renumbered to Section 302.501): ASTM, GPO, NTIS, Standard Methods, and USEPA. (PC 1 at 4.) The Board accepts these clarifications except that the Board will not include ASTM, GPO, and NTIS in the definitions as those acronyms are not used in the rule and are therefore unnecessary.

The IEPA has suggested the addition of some cross-references in Section 302.512 (Renumbered to Section 302.520) Supplemental Antidegradation Provisions for BCCs. (PC 1 at 4-5.) The text of subsection (a) was amended with a reference to the definition of BCC in Section 302.510 (Renumbered to Section 302.501).[3] In subsections (a), (a)(4), and (a)(5) a reference was included to the joint permit issued by the IEPA and the Illinois Department of Transportation for dredging or depositing material in Lake Michigan required by Section 39(n) of the Act (415 ILCS 5/39(n) (1996)). The language in Section 302.512 (b) (Renumbered to Section 302.520(b)) was amended to reflect that the specified actions are exempt from the antidegradation provisions of Section 302.512(a) (Renumbered to Section 302.520(a)) unless the Agency determines that the individual circumstances of a particular situation warrant application of the Section 302.512(a) (Renumbered to Section 302.520(a)) provisions to adequately protect water quality. The Board accepts the proposed changes.

In Section 302.515 (Renumbered to Section 302.530) Supplemental Mixing Provisions for BCCs, the IEPA suggested that the text cross reference the definition of BCCs in Section 302.510 (Renumbered to Section 302.501) and change the rule's effective date from March 23, 1997 to the date when these rules become effective. (PC 1 at 6.) The Board accepts these changes.

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[3] The Board notes that in PC 1 at page 5 the IEPA refers to the definition of BCC in Section 302.501 of the IEPA's proposed rules. The Board will assume that the IEPA was referring to the definitions at Section 302.510 of the IEPA proposal in the several instances in PC 1 where a reference is made to a definition Section at 302.501.

In Section 302.517 (Renumbered to Section 302.535) Ammonia Nitrogen, the IEPA amended the text and equation of subsection (c) to include a reference to un-ionized ammonia nitrogen as N. Also, brackets were added to complete the equations. (PC 1 at 6-7.) The Board accepts the proposed changes.

The IEPA suggested several changes to Section 302.519 (Renumbered to Section 302.540) Other Toxic Substances. (PC 1 at 7.) The third subparagraph of subsection (b) was labeled (3) and the text was amended to approve the use of other common species as specified. The text of subsection (f) was amended to reflect that the procedures are only applicable to Subpart E. And an introductory sentence was added to subsection (g). The Board accepts these suggestions. In addition, the Board has reworded subsection (g)(2) to eliminate redundancy and to insure consistency with the Act.

The Board has decided not to propose Section 302.523 Mathematical Abbreviations for first notice. Many of the abbreviations are defined in the sections where the abbreviations are used and to repeat the definitions here is redundant. Further, the abbreviations which are not defined are commonly used and need no definition. Therefore, the Board will not propose this section for first notice.

The IEPA suggests that Section 302.529 References to Other Sections is redundant with proposed Section 302.101, and therefore should be deleted from the list of Sections affected in the Illinois Register Notice, from the Table of Contents, and from the proposed text. (PC 1 at 8.) The Board will do so.

The IEPA suggested that the abbreviations in Section 302.531 Incorporations by Reference should be moved to Section 302.510 Definitions, and the remaining subsections in 302.531 should be renumbered. (PC 1 at 8-9.) The Board accepts these suggestions in that the Board moved the abbreviations for USEPA and Standard Methods to the definitions Section 302.501(b). However, the Board deleted the remaining abbreviations from the rule. The Board also reorganized the incoporations by references to be more consistent with other Board regulations

The IEPA suggested minor changes such as word choice, capitalization, and underlining to reflect a new table in Sections 302.533 (Renumbered to Section 302.553), 302.542 (Renumbered to Section 302.563), and 303.443. (PC 1 at 9-10.) The Board accepts those changes.

Finally, the IEPA amended title and text of subsections (a), (b), and (c) of Section 302.575 (Renumbered to Section 302.595) Listing of Derived Criteria and Values to reflect the intention that the definition of a BBC is self-implementing, such that if a chemical meets the definition, it is a BCC. The Agency notes that the list of specific chemicals included in the definition is for the convenience of the public. (PC 1 at 9-10.) The Board will make the suggested changes in the order.

ECONOMIC JUSTIFICATION

The federal Great Lakes Initiative considered the economic costs and benefits upon the entire Great Lake watershed. The results indicate an annualized cost between $61 million to $376 million with monetized health benefits between $6.6 to $60.1 million. (Reasons at 9, Exhibits to the Proposal L and M.) The costs are based on extrapolations from a survey that did not include any Illinois dischargers and applied to the thousands of dischargers in the Great Lakes states. (*Id*.) The benefits are based on case studies of sport fishermen and, again, these case studies did not include any Illinois subjects. (*Id*.) The IEPA maintains that the costs to Illinois dischargers would be a small fraction of the costs estimates while the benefits would be greater. (Reasons at 10.) The IEPA opined that the procedures proposed in this rule are not "so significantly different than existing procedures to protect the Lake Michigan Basin as to cause significant cost increases." (Reasons at 10.) The IEPA also points out that adjustments can be made on a case by case basis if the costs of these procedures create an unreasonable hardship. (*Id*.)

CONCLUSION

The Board will proceed to first notice with the proposal in substantial part as proposed by the IEPA. The Board has made changes to reflect Board style, corrected typographical errors, corrected inconsistencies in the proposal, and incorporated clarifications suggested by IEPA's Errata Sheet No. 1 (PC 1). The Board has also renumbered the entire Subpart E portion of 35 Ill. Adm. Code 302. The Board believes that such renumbering is necessary to develop clear and concise rules.

The Board has received comments in this rulemaking only from the IEPA. To meet its commitment to proceed expeditiously in this rulemaking, the Board must move to first notice with the understanding that changes may be necessary at second notice as the record expands. However, based on the record before the Board at this juncture, the Board is convinced that this proposal is economically reasonable and technically feasible. Therefore the Board will adopt the proposal with the above mentioned changes for first notice.

ORDER

The Board directs the Clerk to cause the filing of the following with the Secretary of State for first notice publication in the *Illinois Register*:

TITLE 35: ENVIRONMENTAL PROTECTION
SUBTITLE C: WATER POLLUTION
CHAPTER I: POLLUTION CONTROL BOARD
PART 302
WATER QUALITY STANDARDS

SUBPART A: GENERAL WATER QUALITY PROVISIONS

SUBPART B: GENERAL USE WATER QUALITY STANDARDS

SUBPART C: PUBLIC AND FOOD PROCESSING WATER SUPPLY STANDARDS

SUBPART D: SECONDARY CONTACT AND INDIGENOUS AQUATIC LIFE STANDARDS

SUBPART E: LAKE MICHIGAN BASIN WATER QUALITY STANDARDS

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

SUBPART F: PROCEDURES FOR DETERMINING WATER QUALITY CRITERIA

Section

AUTHORITY: Implementing Section 13 and authorized by Sections 11(b) and 27 of the Environmental Protection Act [415 ILCS 5/11(b), 13 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. 3326, effective December 23, 1996; amended in R97-25 at 21 Ill. Reg. _____, effective _____.

Section 302.101 Scope and Applicability

a) This Part contains schedules of water quality standards which are applicable throughout the State as designated in 35 Ill. Adm. Code 303. Site specific water quality standards are found with the water use designations in 35 Ill. Adm. Code 303.

b) Subpart B contains general use water quality standards which must be met in waters of the State for which there is no specific designation (35 Ill. Adm. Code 303.201).

c) Subpart C contains the public and food processing water supply standards. These are cumulative with Subpart B and must be met by all designated waters at the point at which is drawn for treatment and distribution as a potable supply or for food processing (35 Ill. Adm. Code 303.202).

d) Subpart D contains the secondary contact and indigenous aquatic life standards. These standards must be met only by certain waters designated in 35 Ill. Adm. Code 303.204 and 303.441.

e) Subpart E contains the Lake Michigan Basin water quality standards. These ~~are cumulative with the Subpart B and C standards and~~ must be met ~~by~~ in the waters of the Lake Michigan Basin ~~and such other waters~~ as ~~may be~~ designated in 35 Ill. Adm. Code 303~~ (35 Ill. Adm. Code 303~~.443~~)~~.

f) Subpart F contains the procedures for determining each of the criteria designated in Section 302.210.

g) Unless the contrary is clearly indicated, all references to "Parts" or "Sections" are to Ill. Adm. Code, Title 35: Environmental Protection. For example, "Part 309" is 35 Ill. Adm. Code 309, and "Section 309.101" is 35 Ill. Adm. Code 309.101.

(Source: Amended at 21 Ill. Reg. _____, effective _____.)

Section 302.105 Nondegradation

Except as otherwise provided in Section 302.520, ~~Waters~~ waters whose existing quality is better than the established standards at their date of adoption will be maintained in their present high quality. Such waters will not be lowered in quality unless and until it is affirmatively demonstrated that such change will not interfere with or become injurious to any appropriate beneficial uses made of, or presently possible in, such waters and that such change is justifiable as a result of necessary economic or social development.

(Source: Amended at 21 Ill. Reg. _____, effective _____.)

SUBPART E: LAKE MICHIGAN BASIN WATER QUALITY STANDARDS

Section 302.501 Scope, ~~and~~ Applicability, and Definitions

a) Subpart E contains the Lake Michigan Basin water quality standards. These ~~are cumulative with the general use and public water supply standards of Subparts B and C. They~~ must be met in the waters of the Lake Michigan Basin ~~and such additional waters~~ as ~~may be~~ designated in ~~Part 303 (~~35 Ill. Adm. Code ~~Section~~ 303.443~~)~~.

b) In addition to the definitions provided at 35 Ill. Adm. Code 301.200 through 301.444, and in place of conflicting definitions at Section 302.100, the following terms have the meanings specified for the Lake Michigan Basin:

"Acceptable daily exposure" or "ADE" means an estimate of the maximum daily dose of a substance which is not expected to result in adverse noncancer effects to the general human population, including sensitive subgroups.

"Acceptable endpoints" for the purpose of wildlife criteria derivation, means acceptable subchronic and chronic endpoints which affect reproductive or developmental success, organismal viability or growth, or any other endpoint which is, or is directly related to, parameters that influence population dynamics.

"Acute to chronic ratio" or "ACR" is the standard measure of the acute toxicity of a material divided by an appropriate measure of the chronic toxicity of the same material under comparable conditions.

"Acute toxicity" means adverse effects that result from an exposure period which is a small portion of the life span of the organism.

"Adverse effect" means any deleterious effect to organisms due to exposure to a substance. This includes effects which are or may become debilitating, harmful or toxic to the normal functions of the organism, but does not include

non-harmful effects such as tissue discoloration alone or the induction of enzymes involved in the metabolism of the substance.

"Baseline BAF" for organic chemicals, means a BAF that is based on the concentration of freely dissolved chemical in the ambient water and takes into account the partitioning of the chemical within the organism; for inorganic chemicals, a BAF that is based on the wet weight of the tissue.

"Baseline BCF" for organic chemicals, means a BCF that is based on the concentration of freely dissolved chemical in the ambient water and takes into account the partitioning of the chemical within the organism; for inorganic chemicals, a BAF that is based on the wet weight of the tissue.

"Bioaccumulative chemical of concern" or "BCC" is any chemical that has the potential to cause adverse effects which, upon entering the surface waters, by itself or as its toxic transformation product, accumulates in aquatic organisms by a human health bioaccumulation factor greater than 1,000, after considering metabolism and other physicochemical properties that might enhance or inhibit bioaccumulation, in accordance with the methodology in Section 302.570. In addition, the half life of the chemical in the water column, sediment or biota must be greater than eight weeks. BCCs include, but are not limited to, the following substances:

Chlordane
4,4'-DDD; p,p'-DDD; 4,4'-TDE; p,p'-TDE
4,4'-DDE; p,p'-DDE
4,4'-DDT; p,p'-DDT
Dieldrin
Hexachlorobenzene
Hexachlorobutadiene; Hexachloro-1,3-butadiene
Hexachlorocyclohexanes; BHCs
alpha- Hexachlorocyclohexane; alpha-BHC
beta- Hexachlorocyclohexane; beta-BHC
delta- Hexachlorocyclohexane; delta-BHC
Lindane; gamma- Hexachlorocyclohexane; gamma-BHC
Mercury
Mirex
Octachlorostyrene
PCBs; polychlorinated biphenyls
Pentachlorobenzene
Photomirex
2,3,7,8-TCDD; Dioxin
1,2,3,4-Tetrachlorobenzene
1,2,4,5-Tetrachlorobenzene
Toxaphene

"Bioaccumulation" is the net accumulation of a substance by an organism as a result of uptake from all environmental sources.

"Bioaccumulation factor" or "BAF" is the ratio (in L/kg) of a substance's concentration in the tissue of an aquatic organism to its concentration in the ambient water, in situations where both the organism and its food are exposed and the ratio does not change substantially over time.

"Bioconcentration Factor" or "BCF" is the ratio (in L/kg) of a substance's concentration in tissue of an aquatic organism to its concentration in the ambient water, in situations where the organism is exposed through the water only and the ratio does not change substantially over time.

"Biota-sediment accumulation factor" or "BSAF" means the ratio (in kg of organic carbon/kg of lipid) of a substance's lipid-normalized concentration in tissue of an aquatic organism to its organic carbon-normalized concentration in surface sediment, in situations where the ratio does not change substantially over time, both the organism and its food are exposed, and the surface sediment is representative of average surface sediment in the vicinity of the organism.

"Carcinogen" means a substance which causes an increased incidence of benign or malignant neoplasms, or substantially decreases the time to develop neoplasms, in animals or humans. The classification of carcinogens is determined by the procedures in section II.A of appendix C to 40 CFR 132 (1996) incorporated by reference in Section 302.510.

"Chronic effect" means an adverse effect that is measured by assessing an acceptable endpoint, and results from continual exposure over several generations, or at least over a significant part of the test species' projected life span or life stage.

"Chronic toxicity" means adverse effects that result from an exposure period which is a large portion of the life span of the organism.

"Dissolved organic carbon" or "DOC" means organic carbon which passes through a 1 μm pore size filter.

"Dissolved metal" means the concentration of a metal that will pass through a 0.45 μm pore size filter.

"Food chain" means the energy stored by plants is passed along through the ecosystem through trophic levels in a series of steps of eating and being eaten also known as a food web.

"Food chain multiplier" or "FCM" means the ratio of a BAF to an appropriate BCF.

"Linearized multi-stage model" means a mathematical model for cancer risk assessment. This model fits linear dose-response curves to low doses. It is consistent with a no-threshold model of carcinogenesis.

"Lowest observed adverse effect level" or "LOAEL" means the lowest tested dose or concentration of a substance which results in an observed adverse effect in exposed test organisms when all higher doses or concentrations results in the same or more severe effects.

"No observed adverse effect level" or "NOAEL" means the highest tested dose or concentration of a substance which results in no observed adverse effect in exposed test organisms where higher doses or concentrations result in an adverse effect.

"Octanol water partition coefficient" or "Kow" is the ratio of the concentration of a substance in the n-octanol phase to its concentration in the aqueous phase in an equilibrated two-phase octanol water system. For log Kow, the log of the octanol water partition coefficient is a base 10 logarithm.

"Open waters of Lake Michigan" means all of the waters within Lake Michigan in Illinois jurisdiction lakeward from a line drawn across the mouth of tributaries to the Lake Michigan, but not including waters enclosed by constructed breakwaters.

"Particulate organic carbon" or "POC" means organic carbon which is retained by a 1 μm pore size filter

"Relative Source Contribution" or "RSC" means the percent of total exposure which can be attributed to surface water through water intake and fish consumption.

"Resident or Indigenous Species" means species which currently live a substantial portion of their life cycle, or reproduce, in a given body of water, or which are native species whose historical range includes a given body of water.

"Risk associated dose" or "RAD" means a dose of a known or presumed carcinogenic substance in (mg/kg/day) which, over a lifetime of exposure, is estimated to be associated with a plausible upper bound incremental cancer risk equal to one in 100,000.

"Slope factor" or "q_1*" is the incremental rate of cancer development calculated through use of a linearized multistage model or other appropriate model. It is expressed in (mg/kg/day) of exposure to the chemical in question.

"Standard Methods" means "Standard Methods for the Examination of Water and Wastewater", available from the American Public Health Association

"Subchronic effect" means an adverse effect, measured by assessing an acceptable endpoint, resulting from continual exposure for a period of time less than that deemed necessary for a chronic test.

"Target species" is a species to be protected by the criterion.

"Target species value" is the criterion value for the target species.

"Test species" is a species that has test data available to derive a criterion.

"Test Dose" or "TD" is a LOAEL or NOAEL for the test species.

"Tier I criteria" are numeric values derived by use of the Tier I methodologies that either have been adopted as numeric criteria into a water quality standard or are used to implement narrative water quality criteria.

"Tier II values" are numeric values derived by use of the Tier II methodologies that are used to implement narrative water quality criteria. They are applied as criteria, have the same effect, and subject to the same appeal rights as criteria.

"Trophic level" means a functional classification of taxa within a community that is based on feeding relationships. For example, aquatic green plants and herbivores comprise the first and second trophic levels in a food chain.

"Toxic Unit Acute" or "Tu_a" is the reciprocal of the effluent concentration that causes 50 percent of the test organisms to die by the end of the acute exposure period which is 48 hours for invertebrates and 96 hours for vertebrates.

"Toxic Unit Chronic" or "Tu_c" is the reciprocal of the effluent concentration that causes no observable effect on the test organisms by the end of the chronic exposure period which is at least seven days for *Ceriodaphnia,* fathead minnow and rainbow trout.

"Uncertainty factor" or "UF" is one of several numeric factors used in deriving criteria from experimental data to account for the quality or quantity of the available data.

"USEPA" means United States Environmental Protection Agency.

(Source: Amended at 21 Ill. Reg. _____, effective _____.)

Section 302.502 Dissolved Oxygen

Dissolved oxygen (STORET number 00300) ~~shall~~ must not be less than 90% saturation except due to natural causes in the Open waters of Lake Michigan as defined at Section 302.501. The other waters of the Lake Michigan basin must not be less than 6.0 mg/L during at least 16 hours of any 24 hour period, nor less than 5.0 mg/L at any time.

(Source: Amended at 21 Ill. Reg. _____, effective _____.)

Section 302.503 pH

pH (STORET number 00400) ~~shall~~ must be within the range of 7.0 to 9.0 except for natural causes in the Open waters of Lake Michigan as defined at Section 302.501. Other waters of the basin must be within the range of 6.5 to 9.0 except for natural causes.

(Source: Amended at 21 Ill. Reg. _____, effective _____.)

Section 302.504 Chemical Constituents

The following levels of chemical constituents ~~shall~~ must not be exceeded except as provided in Sections 302.102 and 302.530:

~~CONSTITUENT~~	~~STORET NUMBER~~	~~CONCENTRATION mg/l~~
~~Ammonia Nitrogen~~	~~00610~~	~~0.02~~
~~Chloride~~	~~00940~~	~~12.0~~
~~Sulfate~~	~~00945~~	~~24.0~~
~~Phosphorus (as P)~~	~~00665~~	~~0.007~~
~~Total Solids (Dissolved)~~	~~70300~~	~~180.0~~

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 Section 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 representative of the sampling period.

Constituent	STORET Number	Unit	AS	CS	HHS
Arsenic (Trivalent, dissolved)	22680	µg/L	340	148	NA
Cadmium (dissolved)	01025	µg/L	exp[A + Bln(H)] A = -3.6867 B = 1.128	exp[A + Bln(H)] A = -2.715 B = 0.7852	NA
Chromium (Hexavalent, total)	01032	µg/L	16	11	NA
Chromium (Trivalent, dissolved)	80357	µg/L	exp[A + Bln(H)] A = 3.7256 B = 0.819	exp[A + Bln(H)] A = 0.6848 B = 0.819	NA
Copper (dissolved)	01040	µg/L	exp[A + Bln(H)] A = -1.700 B = 0.9422	exp[A + Bln(H)] A = -1.702 B = 0.8545	NA
Cyanide (Weak Acid Dissociable)	00718	µg/L	22	5.2	NA
Lead (dissolved)	01049	µg/L	exp[A + Bln(H)] A = -1.055 B = 1.273	exp[A + Bln(H)] A = -4.003 B = 1.273	NA
Nickel (dissolved)	01065	µg/L	exp[A + Bln(H)] A = 2.255 B = 0.846	exp[A + Bln(H)] A = 0.0584 B = 0.846	NA

Constituent	STORET Number	Unit	AS	CS	HHS
Selenium (dissolved)	01145	µg/L	Awaiting new value	5.0	NA
TRC	50060	µg/L	19	11	NA
Zinc (dissolved)	01090	µg/L	exp[A + Bln(H)] A = 0.884 B = 0.8473	exp[A + Bln(H)] A = 0.884 B = 0.8473	NA
Benzene	34030	µg/L	NA	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
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) A = -4.869 B = 1.005	exp B ([pH] + A) A = -5.134 B = 1.005	NA
Toluene	78131	mg/L	NA	NA	51.0
Trichloroethylene	39180	µg/L	NA	NA	370

Where:

NA = Not Applied

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

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

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).

Constituent	STORET Number	Unit	Water Quality Standard
Barium (total)	01007	mg/L	5.0
Boron (total)	01022	mg/L	1.0
Chloride (total)	00940	mg/L	500
Fluoride	00951	mg/L	1.4
Iron (dissolved)	01046	mg/L	1.0
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), the following standards must not be exceeded in any individual sample in the Open waters of Lake Michigan as defined in Section 302.501.

Constituent	STORET Number	Unit	Water Quality Standard
Arsenic (total)	01002	µg/L	50 0

Constituent	STORET Number	Unit	Water Quality Standard
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
Benzene	34030	µg/L	12.0
Chlorobenzene	34301	µg/L	470.0
2,4-Dimethylphenol	34606	µg/L	450 0
2,4-Dinitrophenol	03757	µg/L	55.0
Hexachloroethane (total)	34396	µg/L	5.30
Lindane	39782	µg/L	0.47
Methylene chloride	34423	µg/L	47.0
Oil (hexane solubles or equivalent)	00550, 00556 or 00560	mg/L	0.10

Constituent	STORET Number	Unit	Water Quality Standard
Phenols	32730	µg/L	1.0
Toluene	78131	mg/L	5.60
Trichloroethylene	39180	µg/L	29.0

d) 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 which assures an average representative of the sampling period.

Constituent)	STORET Number	Units	AS	CS	HHS	WS
Mercury (total)	71900	ng/L	1,700	910	1.8	1.3
Chlordane	39350	ng/L	NA	NA	0.25	NA
DDT and metabolites	39370	pg/L	NA	NA	150	11.0
Dieldrin	39380	ng/L	240	56	0.0065	NA
Hexachlorobenzene	39700	ng/L	NA	NA	0.45	NA
Lindane	39782	µg/L	0.95	NA	0.5	NA
PCBs (class)	79819	pg/L	NA	NA	6.7	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 21 Ill. Reg. _____, effective _____.)

Section 302.505 Fecal Coliform

Based on a minimum of five samples taken over not more than a 30-day period, fecal coliform (STORET number 31616) ~~shall~~ must not exceed a geometric mean of 20 per 100 ml~~L~~ in the Open waters of Lake Michigan as defined in Section 302.501. The remaining waters of the Lake Michigan basin must not exceed a geometric mean of 200 per 100 ml, nor shall more than 10% of the samples during any 30 day period exceed 400 per 100 ml.

(Source: Amended at 21 Ill. Reg. _____, effective _____.)

Section 302.507 Existing Sources on January 1, 1971

~~a)~~ All sources of heated effluents in existence as of January 1, 1971 shall meet the following restrictions outside of a mixing zone which shall be no greater than a circle with a radius of 305 m (1000 feet) or a equal fixed area of simple form.

a~~1~~) There shall be no abnormal temperature changes that may affect aquatic life.

b~~2~~) The normal daily and seasonal temperature fluctuations that existed before the addition of heat shall be maintained.

c~~3~~) The maximum temperature rise at any time above natural temperatures shall not exceed 1.7° (3° F). In addition, the water temperature shall not exceed the maximum limits indicated in the following table:

	°C	°F		°C	°F
JAN.	7	45	JUL.	27	80
FEB.	7	45	AUG.	27	80
MAR.	7	45	SEPT.	27	80
APR.	13	55	OCT.	18	65
MAY	16	60	NOV.	16	60
JUN.	21	70	DEC.	10	50

~~b)~~ ~~The owner or operator of a source of heated effluent which discharges 150 megawatts (0.5 billion British Thermal Units per hour) or more shall demonstrate in a hearing before this Board not less than 5 nor more than six years after the adoption of this regulation, that discharges from that source have not caused and cannot be reasonably expected in future to cause significant ecological damage to the lake. If such proof is not made to the satisfaction of the Board, backfitting of alternative cooling devices shall be accomplished within a reasonable time as determined by the Board.~~

(Source: Amended at 21 Ill. Reg. _____, effective _____.)

Section 302.508 Sources Under Construction But Not In Operation on January 1, 1971

Any effluent source under construction but not in operation on ~~as of~~ January 1, 1971 ~~but not in operation, shall~~ must meet all the requirements of Section 302.507 and in addition ~~shall~~ must meet the following restrictions:

a) Neither the bottom, the shore, the hypolimnion, nor the thermocline shall be affected by any heated effluent.

b) No heated effluent shall affect spawning grounds or fish migration routes.

c) Discharge structures shall be so designed as to maximize short-term mixing and thus to reduce the area significantly raised in temperature.

d) No discharge shall exceed ambient temperatures by more than 11°C (20°F).

e) Heated effluents from more than one source shall not interact.

f) All reasonable steps shall be taken to reduce the number of organisms drawn into or against the intakes.

~~g)~~ ~~Cleaning of condensers shall be accomplished by mechanical devices. If chemicals must be used to supplement mechanical devices, the concentration shall be subject to this Subpart at the point of discharge shall not exceed the 96-hour TL_m for fresh water organisms.~~

(Source: Amended at 21 Ill. Reg. _____, effective _____.)

Section 302.510 Incorporations by Reference

a) 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, 18th Edition, 1996. Available from the American Public Health Association, 1015 Fifteenth St., NW, Washington, D.C. 20005. (202) 789-5600.

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

40 CFR 136 (1996)
40 CFR 141 (1988)
40 CFR 302.4 (1988)
The Sections of 40 CFR 132 (1996) listed below:

Appendix A

Section I A
Section II
Section III C
Section IV D, E, F, G, H, and I
Section V C
Section VI A, B, C, D, E, and F
Section VIII
Section XI
Section XVII

Appendix B

Section III
Section VII B and C
Section VIII

Appendix C

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

Appendix D

Section III C, D, and E
Section IV

d) This Section incorporates no future editions or amendments.

(Source: Added at 21 Ill. Reg. _____, effective _____.)

Section 302.515 Offensive Conditions

Waters of the Lake Michigan Basin must be free from sludge or bottom deposits, floating debris, visible oil, odor, plant or algal growth, color or turbidity of other than natural origin. The allowed mixing provisions of Section 302.102 shall not be used to comply with the provisions of this Section.

(Source: Added at 21 Ill. Reg. _____, effective _____.)

Section 302.520 Supplemental Antidegradation Provisions for BCCs

a) Notwithstanding the provisions of Section 302.105, waters within the Lake Michigan Basin must not be lowered in quality due to new or increased loading of substances defined as bioaccumulative chemicals of concern (BCCs) in Section 302.501 from any source or activity subject to the NPDES permitting, Section 401 water quality certification provisions of the Clean Water Act (Pub. L. 92-100, as amended), or joint permits from the Agency and the Illinois Department of Transportation under Section 39(n) of the Act [415 ILCS 5/39(n)] until and unless it can be affirmatively demonstrated that such change is necessary to accommodate important economic or social development.

1) Where ambient concentrations of a BCC exceed an applicable water quality criterion, no increase in loading of that BCC is allowed.

2) Where ambient concentrations of a BCC are below the applicable water quality criterion, a demonstration to justify increased loading of that BCC must include the following:

A) Pollution Prevention Alternatives Analysis. Identify any cost-effective reasonably available pollution prevention alternatives and techniques that would eliminate or significantly reduce the extent of increased loading of the BCC.

B) Alternative or Enhanced Treatment Analysis. Identify alternative or enhanced treatment techniques that are cost effective and reasonably available to the entity that would eliminate or significantly reduce the extent of increased loading of the BCC.

C) Important Social or Economic Development Analysis. Identify the social or economic development and the benefits that would be foregone if the increased loading of the BCC is not allowed.

3) In no case shall increased loading of BCCs result in exceedence of applicable water quality criteria or concentrations exceeding the level of water quality necessary to protect existing uses.

4) Changes in loadings of any BCC within the existing capacity and processes of an existing NPDES authorized discharge, certified activity pursuant to Section 401 of the Clean Water Act, or joint permits from the Agency and the Illinois Department of Transportation under Section 39(n) of the Act are not subject to the antidegradation review of subsection (a). These changes include but are not limited to:

A) normal operational variability, including, but not limited to, intermittent increased discharges due to wet weather conditions;

B) changes in intake water pollutants;

C) increasing the production hours of the facility; or

D) increasing the rate of production.

5) Any determination to allow increased loading of a BCC pursuant to a demonstration of important economic or social development need shall satisfy the public participation requirements of 40 CFR 25 prior to final issuance of the NPDES permit, Section 401 water quality certification, or joint permits from the Agency and the Illinois Department of Transportation under Section 39(n) of the Act.

b) The following actions are not subject to the provisions of subsection (a) of this Section, unless the Agency determines the circumstances of an individual situation warrant application of those provisions to adequately protect water quality:

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); or

3) Response actions pursuant to the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA), as amended, or similar federal or State authority, undertaken to alleviate a release into the environment of hazardous substances, pollutants or contaminants which may pose danger to public health or welfare.

(Source: Added at 21 Ill. Reg. _____, effective _____.)

Section 302.525 Radioactivity

Except as provided in Section 302.102, all waters of the Lake Michigan basin must meet the following concentrations in any sample:

a) Gross beta (STORET number 03501) concentrations must not exceed 100 picocuries per liter (pCi/L).

b) Concentrations of radium 226 (STORET number 09501) and strontium 90 (STORET number 13501) must not exceed 1 and 2 picocuries per Liter, respectively.

(Source: Added at 21 Ill. Reg. _____, effective _____.)

Section 302.530 Supplemental Mixing Provisions for Bioaccumulative Chemicals of Concern (BCCs)

The General Provisions of Section 302.102 (Allowed Mixing, Mixing Zones and ZIDs) apply within the Lake Michigan Basin except as otherwise provided herein for substances defined as BCCs in Section 302.501:

a) No mixing shall be allowed for BCCs for new discharges commencing on or after the effective date of this rule.

b) Discharges of BCCs existing as of the effective date of this rule are eligible for mixing allowance consistent with Section 302.102 until March 23, 2007. After March 23, 2007 mixing for BCCs will not be allowed except as provided in subsections (c) and (d) of this Section.

c) Mixing allowance for a source in existence on the effective date of this rule may continue beyond March 23, 2007 where it can be demonstrated on a case by case basis that continuation of mixing allowance is necessary to achieve water conservation measures that result in overall reduction of BCC mass loading to the Lake Michigan Basin.

d) Mixing allowance for a source in existence on the effective date of this rule shall only continue if necessitated by technical and economic factors. Any mixing allowance continued beyond March 23, 2007 based on technical and economic factors shall be limited to not more than one NPDES permit term, and shall reflect the maximum achievable BCC loading reduction within the identified technical and economic considerations necessitating the exception. Such continued mixing allowance shall not be renewed beyond that permit term unless a new determination of technical and economic necessity is made.

(Source: Added at 21 Ill. Reg. _____, effective _____.)

Section 302.535 Ammonia Nitrogen

The Open waters of Lake Michigan as defined in Section 302.501 must not exceed 0.02 mg/L total ammonia (as N STORET Number 00610). The remaining waters of the Lake Michigan basin shall be subject to the following:

a) Total ammonia nitrogen (as N: STORET Number 00610) must in no case exceed 15 mg/L.

b) Un-ionized ammonia nitrogen (as N: STORET Number 00612) must not exceed the acute and chronic standards given below subject to the provisions of Section 302.208(a) and (b) of this Part:

1) From April through October, the Acute Standard (AS) must be 0.33 mg/L and the chronic standard (CS) must be 0.057 mg/L.

2) From November through March, the AS must be 0.14 mg/L and the CS must be 0.025 mg/L.

c) For purposes of this Section, the concentration of un-ionized ammonia nitrogen as N and total ammonia as N shall be computed according to the following equations:

$$U = \frac{N}{[0.94412(1 + 10^{x}) + 0.0559]}$$

and $N = U[0.94412(1 + 10^{x}) + 0.0559]$

where: $X = 0.09018 + \frac{2729.92}{(T + 273.16)} - pH$

U = Concentration of un-ionized ammonia as N in mg/L
N = Concentration of ammonia nitrogen as N in mg/L
T = Temperature in degrees Celsius.

(Source: Added at 21 Ill. Reg. _____, effective _____.)

Section 302.540 Other Toxic Substances

Waters of the Lake Michigan Basin must be free from any substance or any combination of substances in concentrations toxic or harmful to human health, or to animal, plant or aquatic life. The numeric standards protective of particular uses specified for individual chemical

substances in Section 302.504 are not subject to recalculation by this Section, however, where no standard is applied for a category, a numeric value may be calculated herein.

a) Any substance shall be deemed toxic or harmful to aquatic life if present in concentrations that exceed the following:

1) A Tier I Lake Michigan Basin Acute Aquatic Toxicity Criterion (LMAATC) or Tier II Lake Michigan Basin Acute Aquatic Toxicity Value (LMAATV) derived pursuant to procedures set forth in Sections 302.555, 302.560 or 302.563 at any time; or

2) A Tier I Lake Michigan Basin Chronic Aquatic Toxicity Criterion (LMCATC) or Tier II Lake Michigan Basin Chronic Aquatic Toxicity Value (LMCATV) derived pursuant to procedures set forth in Section 302.565 as an average of four samples collected on four different days.

b) Any combination of substances, including effluents, shall be deemed toxic to aquatic life if present in concentrations that exceed either subsection (1) or (2) below:

1) No sample of water from the Lake Michigan Basin collected outside of a designated zone of initial dilution shall exceed 0.3 TU_a as determined for the most sensitive species tested using acute toxicity testing methods.

2) No sample of water from the Lake Michigan Basin collected outside a designated mixing zone shall exceed 1.0 TU_c as determined for the most sensitive species tested using chronic toxicity testing methods.

3) To demonstrate compliance with subsections (1) and (2) of this subsection (b), at least two resident or indigenous species will be tested. The rainbow trout will be used to represent fishes for the Open waters of Lake Michigan and the fathead minnow will represent fishes for the other waters of the Lake Michigan basin. *Ceriodaphnia* will represent invertebrates for all waters of the Lake Michigan basin. Other common species shall be used if listed in Table I A of 40 CFR 136 incorporated by reference at Section 302.510 and approved by the Agency.

c) Any substance shall be deemed toxic or harmful to wildlife if present in concentrations that exceed a Tier I Lake Michigan Basin Wildlife Criterion (LMWLC) derived pursuant to procedures set forth in Section 302.575 as an arithmetic average of four samples collected over four different days.

d) For any substance that is only a threat to drinking water, the resulting criterion or value shall be applicable to only the Open waters of Lake Michigan. For any

substance that is determined to be a BCC, the resulting criterion shall apply in the entire Lake Michigan Basin. These substances shall be deemed toxic or harmful to human health if present in concentrations that exceed either of the following:

1) A Tier I Lake Michigan Basin Human Health Threshold Criterion (LMHHTC) or Tier II Lake Michigan Basin Human Health Threshold Value (LMHHTV) based on disease or functional impairment due to a physiological mechanism for which there is a threshold dose below which no damage occurs as derived pursuant to procedures set forth in Section 302.585 as an arithmetic average of four samples collected over four different days; or

2) A Tier I Lake Michigan Basin Human Health Nonthreshold Criterion (LMHHNC) or Tier II Lake Michigan Basin Human Health Nonthreshold Value (LMHHNV) based on disease or functional impairment due to a physiological mechanism for which any dose may cause some risk of damage as derived pursuant to procedures set forth in Section 302.590 as an arithmetic average of four samples collected over four different days.

e) The derived criteria and values apply at all points outside of any waters in which mixing is allowed pursuant to Section 302.102 or Section 302.530.

f) The procedures of this Subpart E set forth minimum data requirements, appropriate test protocols and data assessment methods for establishing criteria or values pursuant to subsections (b), (c), and (d). No other procedures may be used to establish such criteria or values unless approved by the Board in a rulemaking or adjusted standards proceeding pursuant to Title VII of the Act. The validity and applicability of these procedures may not be challenged in any proceeding brought pursuant to Titles VIII or X of the Act, although the validity and correctness of application of the numeric criteria or values derived pursuant to this Subpart may be challenged in such proceedings pursuant to subsection (g).

g) Challenges to application of criteria and values.

1) A permittee may challenge the validity and correctness of application of a criterion or value derived by the Agency pursuant to this Section only at the time such criterion or value is first applied in its NPDES permit pursuant to 35 Ill. Adm. Code 309.152 or in an action pursuant to Title VIII of the Act for violation of the toxicity water quality standard. Failure of a person to challenge the validity of a criterion or value at the time of its first application to its facility shall constitute a waiver of such

challenge in any subsequent proceeding involving application of the criterion or value to that person.

2) Consistent with subsection (g)(1), if a criterion or value is included as, or is used to derive, a condition of an NPDES discharge permit, a permittee may challenge the criterion or value in a permit appeal pursuant to 35 Ill. Adm. Code 309.181. In any such action, the Agency shall include in the record all information upon which it has relied in developing and applying the criterion or value, and whether such information was developed by the Agency or submitted by the Petitioner. THE BURDEN OF PROOF SHALL BE ON THE PETITIONER pursuant to Section 40(a)(1) of the Act.

3) Consistent with subsection (g)(1) in an action where alleged violation of the toxicity water quality standard is based on alleged excursion of a criterion or value, the person bringing such action shall have the burdens of going forward with proof and persuasion regarding the general validity and correctness of application of the criterion or value.

h) Subsections (a) through (e) do not apply to USEPA registered pesticides approved for aquatic application and applied pursuant to the following conditions:

1) Application shall be made in strict accordance with label directions;

2) Applicator shall be properly certified under the provisions of the Federal Insecticide, Fungicide, and Rodenticide Act (7 U.S.C. 135 et seq. (1972));

3) Applications of aquatic pesticides must be in accordance with the laws, regulations and guidelines of all state and federal agencies authorized by law to regulate, use or supervise pesticide applications;

4) No aquatic pesticide shall be applied to waters affecting public or food processing water supplies unless a permit to apply the pesticide has been obtained from the Agency. All permits shall be issued so as not to cause a violation of the Act or of any of the Board's rules or regulations. To aid applicators in determining their responsibilities under this subsection, a list of waters affecting public water supplies will be published and maintained by the Agency's Division of Public Water Supplies.

(Source: Added at 21 Ill. Reg. _____, effective _____.)

Section 302.545 Data Requirements

The Agency shall review, for validity, applicability and completeness the data used in calculating criteria or values. To the extent available, and to the extent not otherwise specified, testing procedures, selection of test species and other aspects of data acquisition must be according to methods published by USEPA or nationally recognized standards organizations, including but not limited to those methods found in Standard Methods, incorporated by reference in Section 302.510, or recommended in 40 CFR 132 and incorporated by reference in Section 302.510.

(Source: Added at 21 Ill. Reg. _____, effective _____.)

Section 302.550 Analytical Testing

All methods of sample collection, preservation, and analysis used in applying any of the requirements of this Chapter shall be consistent with USEPA's current manual of practice or with other procedures acceptable to USEPA and the Agency.

(Source: Added at 21 Ill. Reg. _____, effective _____.)

Section 302.553 Procedures for Deriving Water Quality Criteria and Values to Protect Aquatic Life in the Lake Michigan Basin - General Procedures

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

a) Tier I criteria and Tier II values to protect against acute effects in aquatic organisms will be calculated according to procedures listed at Sections 302.555, 302.560 and 302.563. The procedures of Section 302.560 shall be modified as necessary to allow for interactions with other water quality characteristics such as hardness, pH, temperature etc. Tier I criteria and Tier II values to protect against chronic effects in aquatic organisms shall be calculated according to the procedures listed at Section 302.565.

b) Minimum data requirements. In order to derive a Tier I acute or chronic criterion, data must be available for at least one species of freshwater animal in at least eight different families such that the following taxa are included:

1) The family Salmonidae in the class Osteichthyes;

2) One other family in the class Osteichthyes;

3) A third family in the phylum Chordata;

4) A planktonic crustacean;

5) A benthic crustacean;

6) An insect;

7) A family in a phylum other than Arthropoda or Chordata; and

8) A family from any order of insect or any phylum not already represented.

c) Data for tests with plants, if available, must be included in the data set.

d) If data for acute effects are not available for all the eight families listed above, but are available for the family Daphnidae, a Tier II value shall be derived according to procedures in Section 302.563. If data for chronic effects are not available for all the eight families, but there are acute and chronic data available according to Section 302.565(b) so that three acute to chronic ratios (ACRs) can be calculated, then a Tier I chronic criterion can be derived according to procedures in Section 302.565. If three ACRs are not available, then a Tier II chronic value can be derived according to procedures in Section 302.565(e).

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

(Source: Added at 21 Ill. Reg. _____, effective _____.)

Section 302.555 Determining the Tier I Acute Aquatic Life Toxicity Criterion for the Lake Michigan Basin: Independent of Water Chemistry - (LMAATC)

If the acute toxicity of the chemical has not been shown to be related to a water quality characteristic, including but not limited to, hardness, pH, or temperature, the Tier I LMAATC is calculated using the procedures below.

a) For each species for which more than one acute value is available, the Species Mean Acute Value (SMAV) is calculated as the geometric mean of the acute values from all tests.

b) For each genus for which one or more SMAVs are available, the Genus Mean Acute Value (GMAV) is calculated as the geometric mean of the SMAVs available for the genus.

c) The GMAVs are ordered from high to low in numerical order.

d) Ranks (R) are assigned to the GMAVs from "1" for the lowest to "N" for the highest. If two or more GMAVs are identical, successive ranks are arbitrarily assigned.

e) The cumulative probability, P, is calculated for each GMAV as $R/(N+1)$.

f) The GMAVs to be used in the calculations of subsection (g) must be those with cumulative probabilities closest to 0.05. If there are less than 59 GMAVs in the total data set, the values utilized must be the lowest four obtained through the ranking procedures of subsections (c) and (d).

g) Using the GMAVs identified pursuant to subsection (f) and the Ps calculated pursuant to subsection (e), the Final Acute Value (FAV) and the LMAATC are calculated as:

$$FAV = \exp(A) \text{ and}$$
$$LMAATC = FAV/2$$

Where:

$A = L + 0.2236\ S;$

$L = [\ddot{a}(\ln GMAV) - S(\ddot{a}(P^{0.5}))]/4$; and

$S = [[\ddot{a}((\ln GMAV)^{2}) - ((\ddot{a}(\ln GMAV))^{2})/4]/[\ddot{a}(P) - ((\ddot{a}(P^{0.5}))^{2})/4]]^{0.5}$.

h) If a resident or indigenous species, whose presence is necessary to sustain commercial or recreational activities, will not be protected by the calculated FAV, then the SMAV for that species is used as the FAV.

(Source: Added at 21 Ill. Reg. _____, effective _____.)

Section 302.560 Determining the Tier I Lake Michigan Basin Acute Aquatic Toxicity Criterion (LMAATC): Dependent on Water Chemistry

If data are available to show that a relationship exists between a water quality characteristic (WQC) and acute toxicity to two or more species, a Tier I LMAATC must be calculated using procedures in this Section. Although the relationship between hardness and acute toxicity is typically non-linear, it can be linearized by a logarithmic transformation (i.e. for any variable, K, f(K) = logarithm of K) of the variables and plotting the logarithm of hardness against the logarithm of acute toxicity. Similarly, relationships between acute toxicity and other water quality characteristics, such as pH or temperature, may require a transformation, including no transformation (i.e. for any variable, K, f(K) = K) for one or both variables to obtain least squares linear regression of the transformed acute toxicity values on the transformed values of the water quality characteristic. An LMAATC is calculated using the following procedures.

a) For each species for which acute toxicity values are available at two or more different values of the water quality characteristic, a linear least squares regression of the transformed acute toxicity (TAT) values on the transformed water quality characteristic (TWQC) values is performed to obtain the slope of the line describing the relationship.

b) Each of the slopes determined pursuant to subsection (a) is evaluated as to whether or not it is statistically valid, taking into account the range and number of tested values of the water quality characteristic and the degree of agreement within and between species. If slopes are not available for at least one fish and

one invertebrate species, or if the available slopes are too dissimilar or if too few data are available to define the relationship between acute toxicity and the water quality characteristic, then the LMAATC must be calculated using the procedures in Section 302.555.

c) Normalize the TAT values for each species by subtracting W, the arithmetic mean of the TAT values of a species from each of the TAT values used in the determination of the mean, such that the arithmetic mean of the normalized TAT values for each species individually or for any combination of species is zero (0.0).

d) Normalize the TWQC values for each species using X, the arithmetic mean of the TWQC values of a species, in the same manner as in subsection (c).

e) Group all the normalized data by treating them as if they were from a single species and perform a least squares linear regression of all the normalized TAT values on the corresponding normalized TWQC values to obtain the pooled acute slope, V.

f) For each species, the graphical intercept representing the species TAT intercept, f(Y), at a specific selected value, Z, of the WQC is calculated using the equation:

$$f(Y) = W - V(X - g(Z))$$

Where:

f() is the transformation used to convert acute toxicity values to TAT values:

Y is the species acute toxicity intercept or species acute intercept;

W is the arithmetic mean of the TAT values as specified in subsection (c);

V is the pooled acute slope as specified in subsection (e);

X is the arithmetic mean of the TWQC values as specified is subsection (c);

g() is the transformation used to convert the WQC values to TWQC values; and

Z is a selected value of the WQC.

g) For each species, determine the species acute intercept, Y, by carrying out an inverse transformation of the species TAT value, f(Y). For example, in the case of a logarithmic transformation, Y = antilogarithm of (f(Y)): or in the case where no transformation is used, Y = f(Y).

h) The Final Acute Intercept (FAI) is derived by using the species acute intercepts, obtained from subsection (f), in accordance with the procedures described in Section 302.555 (b) through (g), with the word "value" replaced by the word "intercept". Note that in this procedure geometric means and natural logarithms are always used.

i) The Aquatic Acute Intercept (AAI) is obtained by dividing the FAI by two.

If, for a commercially or recreationally important species the geometric mean of the acute values at Z is lower than the FAV at Z, then the geometric mean of that species must be used as the FAV instead of the FAV.

j) The LMAATC at any value of the WQC, denoted by WQCx, is calculated using the terms defined in subsection (f) and the equation:

$$LMAATC = \exp[V(g(WQCx) - g(Z)) + f(AAI)].$$

(Source: Added at 21 Ill. Reg. _____, effective _____.)

Section 302.563 Determining the Tier II Lake Michigan Basin Acute Aquatic Life Value (LMAATV)

a) If all eight minimum data requirements for calculating an FAV using Tier I procedures are not met, a Tier II LMAATV must be calculated for a substance as follows:

b) The lowest GMAV in the database is divided by the Secondary Acute Factor (SAF) corresponding to the number of satisfied minimum data requirements listed in the Tier I methodology (Section 302.553). In order to calculate a Tier II LMAATV, the data base must contain, at a minimum, a GMAV for one of the following three genera in the family Daphnidae -- *Ceriodaphnia* sp., *Daphnia* sp., or *Simocephalus* sp. The Secondary Acute Factors are:

Number of Minimum data requirements satisfied (required taxa)	Secondary Acute Factor
1	43.8
2	26.0
3	16.0
4	14.0
5	12.2
6	10.4
7	8.6

c) If dependent on a water quality characteristic, the Tier II LMAATV must be calculated according to Section 302.560.

(Source: Added at 21 Ill. Reg. _____, effective _____.)

Section 302.565 Determining the Lake Michigan Basin Chronic Aquatic Life Toxicity Criterion (LMCATC) or Lake Michigan Basin Chronic Aquatic Life Toxicity Value (LMCATV)

a) Determining Tier I LMCATC

1) When chronic toxicity data are available for at least eight resident or indigenous species from eight different North American genera of freshwater organisms as specified in Section 302.553, a Tier I LMCATC is derived in the same manner as the FAV in Sections 302.555 or 302.560 by substituting LMCATC for FAV or FAI, chronic for acute, SMCV (Species Mean Chronic Value) for SMAV, and GMCV (Genus Mean Chronic Value) for GMAV.

2) If data are not available to meet the requirements of subsection (a), a Tier I LMCATC is calculated by dividing the FAV by the geometric mean of the acute-chronic ratios (ACRs) obtained from at least one species of aquatic animal from at least three different families provided that of the three species:

A) At least one is a fish;

B) At least one is an invertebrate; and

C) At least one species is an acutely sensitive freshwater species if the other two are saltwater species).

3) The acute-chronic ratio (ACR) for a species equals the acute toxicity concentration from data considered under Sections 302.555 or 302.560, divided by the chronic toxicity concentration.

4) If a resident or indigenous species whose presence is necessary to sustain commercial or recreational activities will not be protected by the calculated LMCATC, then the SMCV for that species is used as the CATC.

B) Determining the Tier II LMCATV

1) If all eight minimum data requirements for calculating a FCV using Tier I procedures are not met, or if there are not enough data for all three ACRs, a Tier II Lake Michigan Chronic Aquatic Life Value shall be calculated using a secondary acute chronic ratio (SACR) determined as follows:

A) If fewer than three valid experimentally determined ACRs are available, use sufficient ACRs of 18 so that the total number of ACRs equals three; and

B) Calculate the Secondary Acute-Chronic Ratio as the geometric mean of the three ACRs; or

C) If no experimentally determined ACRs are available, the SACR is 18.

2) Calculate the Tier II LMCATV using one of the following equations:

A) Tier II LMCATV = FAV / SACR

B) Tier II LMCATV = SAV / FACR

C) Tier II LMCATV = SAV / SACR

Where:

the SAV equals 2 times the value of the Tier II LMAATV calculated in Section 302.563.

3) If, for a commercially or recreationally important species, the SMCV is lower than the calculated Tier II LMCATV, then the SMCV must be used as the Tier II LMCATV.

(Source: Added at 21 Ill. Reg. _____, effective _____.)

Section 302.570 Procedures for Deriving Bioaccumulation Factors for the Lake Michigan Basin

A bioaccumulation factor (BAF) is used to relate the concentration of a substance in an aquatic organism to the concentration of the substance in the waters in which the organism resides when all routes of exposure (ambient water and food) are included. A BAF is used in the derivation of water quality criteria to protect wildlife and criteria and values to protect human health.

a) Selection of data. BAFs can be obtained or developed from one of the following methods, listed in order of preference.

1) Field-measured BAFs.

2) Field-measured biota-sediment accumulation factor (BSAF).

3) Laboratory-measured Bioconcentration Factor (BCF).
The concentration of particulate organic carbon (POC) and dissolved organic carbon (DOC) in the test solution shall be either measured or reliably estimated.

4) Predicted BCFs.
Predicted baseline BCF = Kow.

b) Calculation of baseline BAFs for organic chemicals.
The most preferred BAF or BCF from above is used to calculate a baseline BAF which in turn is utilized to derive a human health or wildlife specific BAF.

1) Procedures for determining the necessary elements of baseline calculation.

A) Lipid normalization. The lipid-normalized concentration, C_l, of a chemical in tissue is defined using the following equation:

$$C_l = C_b / f_l$$

Where:

C_b = concentration of the organic chemical in the tissue of aquatic biota (either whole organism or specified tissue) (µg/g).
f_l = fraction of the tissue that is lipid.

B) Bioavailability.

The fraction of the total chemical in the ambient water that is freely dissolved, f_{fd}, shall be calculated using the following equation:

$f_{fd} = 1 / \{ 1 + [(DOC)(Kow)/10] + [(POC)(Kow)] \}$

Where:

DOC = concentration of dissolved organic carbon, kg of dissolved organic carbon/L of water.
Kow = octanol-water partition coefficient of the chemical.
POC = concentration of particulate organic carbon, kg of particulate organic carbon/L of water.

C) Food Chain Multiplier (FCM). For an organic chemical, the FCM used shall be derived from Table B-1 in 40 CFR 132. Appendix B (1996) incorporated by reference at Section 302.510.

2) Calculation of baseline BAFs.

A) From field-measured BAFs:

Baseline BAF = $\{ [\text{measured } BAF_{fT} / f_{fd}] - 1 \} \{ 1 / f_l \}$

Where:

BAF_{fT} = BAF based on total concentration in tissue and water of study organism and site.
f_l = fraction of the tissue of study organism that is lipid.
f_{fd} = fraction of the total chemical that is freely dissolved in the ambient water.

B) From a field measured sediment Biosediment accumulation factor (BSAF)

$(\text{Baseline BAF})_i =$

$$(\text{baseline BAF})_r \, (BSAF)_i \, (Kow)_i / (BSAF)_r \, (Kow)_r$$

Where:

$(BSAF)_i$ = BSAF for chemical "$_i$".
$(BSAF)_r$ = BSAF for the reference chemical "$_r$".
$(Kow)_i$ = octanol-water partition coefficient for chemical "$_i$".

$(Kow)_r$ = octanol-water partition coefficient for the reference chemical "$_r$".

i) A BSAF shall be calculated using the following equation:

$$BSAF = C_l / C_{soc}$$

Where:

C_l = the lipid-normalized concentration of the chemical in tissue.
C_{soc} = the organic carbon-normalized concentration of the chemical in sediment.

ii) The organic carbon-normalized concentration of a chemical in sediment, C_{soc}, shall be calculated using the following equation:

$$C_{soc} = C_s / f_{oc}$$

Where:

C_s = concentration of chemical in sediment (µg/g sediment).
f_{oc} = fraction of the sediment that is organic carbon.

C) From a laboratory-measured BCF:

baseline BAF = (FCM) { [measured BCF_{fT} / f_{fd}] - 1 } { 1 /f_l }

Where:

BCF_{fT} = BCF based on total concentration in tissue and water.
f_l = fraction of the tissue that is lipid.
f_{fd} = fraction of the total chemical in the test water that is freely dissolved.
FCM = the food-chain multiplier obtained from Table B-1 in 40 CFR 132, Appendix B incorporated by reference at Section 302.510 by linear interpolation for trophic level 3 or 4, as necessary.

D) From a predicted BCF:

baseline BAF =

(FCM) (predicted baseline BCF) = (FCM)(Kow)

Where:

FCM = the food-chain multiplier obtained from Table B-1 in 40 CFR 132, Appendix 5, incorporated by reference at Section 302.510 by linear interpolation for trophic level 3 or 4, as necessary.
Kow = octanol-water partition coefficient.

c) Human health and wildlife BAFs for organic chemicals:

1) Fraction freely dissolved (f_{fd}). By using the equation in Subsection (b)(1)(B) of this Section the f_{fd} to be used to calculate human health and wildlife BAFs for an organic chemical shall be calculated using a standard POC concentration of 0.00000004 kg/L and a standard DOC concentration of 0.000002 kg/L:

$$f_{fd} = 1 / [1 + (0.00000024 \text{ kg/L})(Kow)]$$

2) Human health BAF. The human health BAFs for an organic chemical shall be calculated using the following equations:

A) For trophic level 3:

$$\text{Human Health BAF}_{HHTL3} = [(\text{baseline BAF})(0.0182) + 1] (f_{fd})$$

B) For trophic level 4:

$$\text{Human Health BAF}_{HHTL4} = [(\text{baseline BAF}) (0.0310) + 1] (f_{fd})$$

Where:

0.0182 and 0.0310 are the standardized fraction lipid values for trophic levels 3 and 4, respectively, that are used to derive human health criteria and values.

3) Wildlife BAF. The wildlife BAFs for an organic chemical shall be calculated using the following equations:

A) For trophic level 3:

$$\text{Wildlife BAF}_{WLTL3} = [(\text{baseline BAF})(0.0646) + 1] (f_{fd})$$

B) For trophic level 4:

Wildlife $BAF_{WLTL4} = [(\text{baseline BAF})(0.1031) + 1] (f_{fd})$

Where:

0.0646 and 0.1031 are the standardized fraction lipid values for trophic levels 3 and 4, respectively, that are used to derive wildlife criteria.

d) Human health and wildlife BAFs for inorganic chemicals. For inorganic chemicals the baseline BAFs for trophic levels 3 and 4 are both assumed to equal the BCF determined for the chemical with fish.

1) Human health. Measured BAFs and BCFs used to determine human health BAFs for inorganic chemicals shall be based on concentration in edible tissue (e.g. muscle) of freshwater fish.

2) Wildlife. Measured BAFs and BCFs used to determine wildlife BAFs for inorganic chemicals shall be based on concentration in the whole body of freshwater fish and invertebrate.

(Source: Added at 21 Ill. Reg. _____, effective _____.)

Section 302.575 Procedures for Deriving Tier I Water Quality Criteria 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 Lake Michigan and from ingestion of aquatic prey organisms taken from surface waters of Lake Michigan. 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. This method shall also be used for non-BCCs except that different target species will be chosen if scientifically justified.

a) Procedure for Bioaccumulative Chemicals of Concern (BCCs).

1) Representative Avian Target Species:

A) Bald Eagle;

B) Herring Gull; and

C) Belted Kingfisher.

2) Representative Mammalian Target Species:

A) River Otter; and

B) Mink.

3) Minimum data requirements:

A) Test dose. In order to calculate a LMWC the following minimal data base is required:

i) 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

ii) There must be at least one data set showing dose-response for oral, subchronic, or chronic exposure of 90 days for one mammal species.

B) Bioaccumulation Factor (BAF) data requirements:

i) For any chemical with a BAF of less than 125 the BAF may be obtained by any method; and

ii) For chemicals with a BAF of greater than 125 the BAF must come from a field measured BAF or BSAF.

b) 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) Intermittent exposure correction. 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_l). For those substances effect level (LOAEL) has been derived, the UF_1 shall not be less than one and should not exceed 10.

C) Correction for subchronic to chronic extrapolation (UF_s). In instances where only subchronic data are available, the TD may be derived from subchronic data. In such cases, the TD shall be divided by a UF_s to extrapolate from subchronic to chronic levels. 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 equation below.

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

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

Where:

TSV = target species value in milligrams of substance per liter (mg/L).
TD = toxic dose to the test species, either NOAEL or LOAEL.
UF_a = 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_l = the uncertainty factor for extrapolation from LOAEL to NOAEL.
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);\.
BAF_{WLTLi} = Aquatic life Bioaccumulation Factor with units of liter per kilogram (L/kg), as derived in Section 302.570.

d) 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: Added at 21 Ill. Reg. _____, effective _____.)

Section 302.580 Procedures for Deriving Water Quality Criteria and Values in the Lake Michigan Basin to Protect Human Health-General

a) The Lake Michigan Basin human health criteria or values for a substance are those concentrations at which humans are protected from adverse effects resulting from incidental exposure to, or ingestion of, the waters of Lake Michigan and from ingestion of aquatic organisms taken from the waters of Lake Michigan. A Lake Michigan Human Health Threshold Criterion (LMHHTC) or Lake Michigan Human Health Threshold Value (LMHHTV), will be calculated for all substances according to Section 302.585, if data is available. Water quality criteria or values for substances are, or may be, carcinogenic to humans will also be calculated according to procedures for the Lake Michigan Human Health Nonthreshold Criterion (LMHHNC) or the Lake Michigan Human Health Nonthreshold Value (LMHHNV) in Section 302.590.

b) Minimal data requirements for BAFs for Lake Michigan Basin human health criteria:

1) Tier I.

A) For all organic chemicals, either a field-measured BAF or a BAF derived using the BSAF methodology is required unless the chemical has a BAF less than 125, then a BAF derived by any methodology is required; and

B) For all inorganic chemicals, including organometals such as mercury, either a field-measured BAF or a laboratory-measured BCF is required.

2) Tier II.

A) For organic chemicals with a BAF of greater than 125, a BAF derived from a measured BCF or calculated BCF is required; and

B) For inorganic chemicals, a BAF derived from a calculated BCF shall be used.

(Source: Added at 21 Ill. Reg. _____, effective _____.)

Section 302.585 Procedures for Determining the Lake Michigan Basin Human Health Threshold Criterion (LMHHTC) and the Lake Michigan Basin Human Health Threshold Value (LMHHTV)

The LMHHTC or LMHHTV is derived for all toxic substances from the most sensitive end point for which there exists a threshold dosage or concentration below which no adverse effect or response is likely to occur.

a) Minimum data requirements:

1) Tier I. The minimum data set sufficient to derive a Tier I LMHHTC shall include at least one epidemiological study or one animal study of greater than 90 days duration; and

2) Tier II. When the minimum data for deriving Tier I criteria are not available, a more limited database consisting of an animal study of greater than 28 days duration shall be used.

b) Principles for development of Tier I criteria and Tier II values:

1) The experimental exposure level representing the highest level tested at which no adverse effects were demonstrated (NOAEL) shall be used for calculation of a criterion or value. In the absence of a NOAEL, a LOAEL shall be used if it is based on relatively mild and reversible effects;

2) Uncertainty factors (UFs) shall be used to account for the uncertainties in predicting acceptable dose levels for the general human population based upon experimental animal data or limited human data:

A) An UF of 10 shall be used when extrapolating from experimental results of studies on prolonged exposure to average healthy humans;

B) An UF of 100 shall be used when extrapolating from results of long-term studies on experimental animals;

C) An UF of up to 1000 shall be used when extrapolating from animal studies for which the exposure duration is less than chronic, but greater than subchronic;

D) An UF of up to 3000 shall be used when extrapolating from animal studies for which the exposure duration is less than subchronic;

E) An additional UF of between one and ten shall be used when deriving a criterion from a LOAEL. The level of additional uncertainty applied shall depend upon the severity and the incidence of the observed adverse effect;

F) An additional UF of between one and ten shall be applied when there are limited effects data or incomplete sub-acute or chronic toxicity data.

3) The total uncertainty (ä of the uncertainty factors) shall not exceed 10,000 for Tier I criteria and 30,000 for Tier II values; and

4) All study results shall be converted to the standard unit for acceptable daily exposure of milligrams of toxicant per kilogram of body weight per day (mg/kg/day). Doses shall be adjusted for continuous exposure.

c) Tier I criteria and Tier II value derivation.

1) Determining the Acceptable Daily Exposure (ADE).

ADE = test value / ä of the UFs from subsection (b)(2) of this Section

Where:

acceptable daily exposure in milligrams toxicant per kilogram body weight per day (mg/kg/day).

2) Determining the Lake Michigan Basin Human Health Threshold Criterion (LMHHTC) or the Lake Michigan Basin Human Health Threshold Value (LMHHTV)

LMHHTC or LMHHTV =

$$\frac{\{ ADE \times BW \times RSC \}}{\{ WC + [(FC_{TL3} \times BAF_{HHTL3}) + (FC_{TL4} \times BAF_{HHTL4})] \}}$$

Where:

LMHHTC or LMHHTV is in milligrams per liter (mg/L).

ADE = acceptable daily intake in milligrams toxicant per kilogram body weight per day (mg/kg/day).
RSC = relative source contribution factor of 0.8.
BW = weight of an average human (BW = 70 kg).
WC = per capita water consumption (both drinking and incidental exposure) for surface waters classified as public water supplies = two liters/day; or per capita incidental daily water ingestion for surface waters not used as human drinking water sources = 0.01 liters/day.
FC_{TL3} = mean consumption of trophic level 3 fish by regional sport fishers of regionally caught freshwater fish = 0.0036 kg/day.
FC_{TL4} = mean consumption of trophic level 4 fish by regional sport fishers of regionally caught freshwater fish = 0.0114 kg/day.
BAF_{HHTL3} = human health bioaccumulation factor for edible portion of trophic level 3 fish, as derived using the BAF methodology in Section 302.570.
BAF_{HHTL4} = human health bioaccumulation factor for edible portion of trophic level 4 fish, as derived using the BAF methodology in Section 302.570.

(Source: Added at 21 Ill. Reg. _____, effective _____.)

Section 302.590 Procedures for Determining the Lake Michigan Basin Human Health Nonthreshold Criterion (LMHHNC) or the Lake Michigan Basin Human Health Nonthreshold Value (LMHHNV)

A LMHHNC or LMHHNV shall be derived for those toxic substances for which any exposure, regardless of extent, carries some risk of damage from cancer or a nonthreshold toxic mechanism. For single or combinations of substances, a risk level of one in one hundred thousand (1 in 100,000 or 10^{-5}) shall be used for the purposes of determination of a LMHHNC or LMHHNV.

a) Minimum data requirements. Minimal experimental or epidemiological data requirements are incorporated in the cancer classification determined by USEPA at Appendix C II A to 40 CFR 132 incorporated by reference at Section 302.510.

b) Principles for development of criteria or values:

1) Animal data are fitted to a linearized multistage computer model (Global 1986 in "Mutagenicity and Carcinogenicity Assessment for 1, 3-Butadiene" September 1985 EPA/600/8-85/004A incorporated by reference at Section 301.106 or scientifically justified equivalents). The upper-bound 95 percent confidence limit on risk at the one in one hundred thousand risk level shall be used to calculate a risk associated dose (RAD); and

2) A species scaling factor shall be used to account for differences between test species and humans. Milligrams per surface area per day is an equivalent dose between species. All doses presented in mg/kg bodyweight will be converted to an equivalent surface area dose by raising the mg/kg dose to the 3/4 power.

c) Determining the Risk Associated Dose (RAD). The RAD shall be calculated using the following equation:

$$RAD = 0.00001 / q_1^*$$

Where:

RAD = risk associated dose in milligrams of toxicant or combinations of toxicants per kilogram body weight per day (mg/kg/day).
0.00001 (1×10^{-5}) = incremental risk of developing cancer equal to one in 100,000.
q_1^* = slope factor $(mg/kg/day)^{-1}$.

d) Determining the Lake Michigan Basin Human Health Nonthreshold Criterion (LMHHNC) or the Lake Michigan Basin Human Health Nonthreshold Value (LMHHNV):

LMHHNC or LMHHNV =

$$\{RAD \times BW\} / \{WC + [(FC_{TL3} \times BAF_{HHTL3}) + (FC_{TL4} \times BAF_{HHTL4})]\}$$

Where:

LMHHNC or LMHHNV in milligrams per liter (mg/L).
RAD = Risk Associated Dose of a substance or combination of substances in milligrams per day (mg/d) which is associated with a lifetime cancer risk level equal to a ratio of one to 100,000.
BW = weight of an average human (BW = 70 kg).
WC = per capita water consumption (both drinking and incidental exposure) for surface waters classified as public water supplies = 2 liters/day, or per capita incidental daily water ingestion for surface waters not used as human drinking water sources = 0.01 liters/day.
FC_{TL3} = mean consumption of trophic level 3 of regionally caught freshwater fish = 0.0036 kg/day.
FC_{TL4} = mean consumption of trophic level 4 of regionally caught freshwater fish = 0.0114 kg/day.
BAF_{HHTL3}, BAF_{HHTL4} = bioaccumulation factor for trophic levels 3 and 4 as derived in Section 302.570.

(Source: Added at 21 Ill. Reg. _____, effective _____.)

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

a) The Agency shall maintain a listing of BCCs defined in Section 302.501 and toxicity criteria and values derived pursuant to this Subpart. This list shall be made available to the public and updated periodically but no less frequently than quarterly, and shall be published when updated in the Illinois Register.

b) A criterion or value published pursuant to subsection (a) may be proposed to the Board for adoption as a numeric water quality standard.

c) The Agency shall maintain for inspection all information including, but not limited to, assumptions, toxicity data and calculations used in the derivation of any toxicity criterion or value listed pursuant to subsection (a) until adopted by the Board as a numeric water quality standard. The Agency shall maintain for public access and inspection all physical, chemical, bioaccumulative and other information used in the definition of individual chemicals as BCCs.

(Source: Added at 21 Ill. Reg._____, effective _____.)

TITLE 35: ENVIRONMENTAL PROTECTION
SUBTITLE C: WATER POLLUTION
CHAPTER I: POLLUTION CONTROL BOARD
PART 303
WATER USE DESIGNATIONS AND SITE SPECIFIC WATER QUALITY STANDARDS

SUBPART A: GENERAL PROVISIONS

Section
303.100 Scope and Applicability
303.101 Multiple Designations
303.102 Rulemaking Required

SUBPART B: NONSPECIFIC WATER USE DESIGNATIONS

Section
303.200 Scope and Applicability

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

SUBPART D: THERMAL DISCHARGES

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

SOURCE: Filed with the Secretary of State January 1, 1978; amended at 2 Ill. Reg. 27, p. 221, effective July 5, 1978; amended at 3 Ill. Reg. 20, p. 95, effective May 17, 1979; amended at 5 Ill. Reg. 11592, effective October 19, 1981; codified at 6 Ill. Reg. 7818; amended at 6 Ill. Reg. 11161 effective September 7, 1982; amended at 7 Ill. Reg. 8111, effective June 23, 1983; amended in R87-27 at 12 Ill. Reg. 9917, effective May 27, 1988;

amended in R87-2 at 13 Ill. Reg. 15649, effective September 22, 1989; amended in R87-36 at 14 Ill. Reg. 9460, effective May 31, 1990; amended in R86-14 at 14 Ill. Reg. 20724, effective December 18, 1990; amended in R89-14(C) at 16 Ill. Reg. 14684, effective September 10, 1992; amended in R92-17 at 18 Ill. Reg. 2981, effective February 14, 1994; amended in R91-23 at 18 Ill. Reg. 13457, effective August 19, 1994; amended in R93-13 at 19 Ill. Reg. 1310, effective January 30, 1995; amended in R95-14 at 20 Ill. Reg. 3534, effective February 6, 1996; amended in R97-25 at 21 Ill. Reg. _____, effective _____.

Section 303.443 Lake Michigan Basin

The waters of the Lake Michigan Basin ~~shall~~must meet the Lake Michigan Basin water quality standards of 35 Ill. Adm. Code 302 Subpart E. Lake Michigan Basin waters under Illinois jurisdiction consist of the following:

a) The Open waters of Lake Michigan means all of the waters within Lake Michigan in Illinois jurisdiction lakeward from a line drawn across the mouth of tributaries to the Lake Michigan, but not including waters enclosed by constructed breakwaters;

b) Lake Michigan harbors and waters within breakwaters, and waters tributary to Lake Michigan including streams, sloughs and other watercourses not named elsewhere in this Part; and

c) The Chicago River, the North Shore Channel, and the Calumet River are not part of the Lake Michigan Basin.

(Source: Amended at 21 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

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

Section

SUBPART C: TEMPORARY EFFLUENT STANDARDS

Section

APPENDIX A References to Previous Rules

AUTHORITY: Implementing Section 13 and authorized by Sections 11(b) and 27 of the Environmental Protection [415 ILCS 5/13, 11(b) 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 22, 1993; amended in R87-33 at 18 Ill. Reg. 11574, effective July 7, 1994; 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 at 21 Ill. Reg. 3322, effective December 23, 1996; amended in R97-25 at 21 Ill. Reg. _____, effective _____.

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

Section 304.222 Intermittent Discharge of TRC

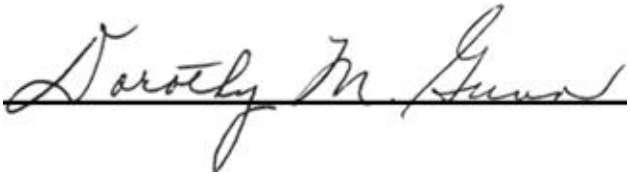
The acute TRC water quality standard of 35 Ill. Adm. Code 302.208 and 302.504(a) by operation of Section 304.105 shall not apply to any discharge which contains TRC solely as the result of intermittent usage for antifouling purposes related to the operation of condensers and cooling systems. For the purposes of this Section usage of chlorine or related substances measurable as TRC shall be deemed to be intermittent if usage is restricted to a maximum of two hours per day per condenser or cooling system unit. Discharge concentration of TRC averaged or composited over the discharge period shall not exceed 0.2 mg/l nor shall the TRC concentration exceed 0.5 mg/l at any time.

(Source: Amended at 21 Ill. Reg. _____, effective _____.)

IT IS SO ORDERED.

Board Member Kathleen M. Hennessey abstains.

I, Dorothy M. Gunn, Clerk of the Illinois Pollution Control Board, hereby certify that the above opinion and order was adopted on the 19th day of June, 1997, by a vote of 5-0.



Dorothy M. Gunn, Clerk
Illinois Pollution Control Board