

ILLINOIS POLLUTION CONTROL BOARD

June 17, 1999

IN THE MATTER OF:)
)
PERMITTING PROCEDURES FOR THE) R99-8
LAKE MICHIGAN BASIN: 35 ILL. ADM.) (Rulemaking - Water)
CODE 301, 302, AND 309.141)

Proposed Rule. Second Notice.

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

On July 28, 1998, the Illinois Environmental Protection Agency (Agency) filed a rulemaking proposal which amends the Board's water regulations concerning permitting procedures for the Lake Michigan Basin. The proposed rules amend portions of the Board's rules dealing with the issuance of National Pollutant Discharge Elimination System (NPDES) permits and are necessary to implement the federal Great Lakes Initiative (GLI) which was previously adopted by the Board. See, In the Matter of: Conforming Amendments for the Great Lakes Initiative: 35 Ill. Adm. Code 302.101; 302.105; 302.Subpart E; 303.443 and 304.222, (December 18, 1997) R97-25. The proposal was filed pursuant to Section 27 of the Environmental Protection Act (Act) (415 ILCS 5/27 (1996)) and was accompanied by a statement of reasons (Reasons). The Board accepted this proposal on August 6, 1998. On March 4, 1999, the Board sent the proposal to first notice pursuant to the Illinois Administrative Procedures Act (5 ILCS 100\1-1 *et seq.*) (IAPA).

Two hearings have been held in this matter before Hearing Officer Marie Tipsord. The first hearing was held on October 5, 1998, in Chicago, Illinois (Tr.1). At that hearing, the Agency submitted testimony in support of the proposal. A second hearing was held on December 8, 1998, in Springfield, Illinois (Tr.2). The Agency presented additional testimony and testimony was offered by Mr. William Seith on behalf of the Illinois Attorney General's Office (Attorney General). A deadline of January 14, 1999, was set for posthearing comments to be submitted. The Board has received only one posthearing comment. During the first notice period the Board received an additional three comments.

Today, the Board sends this proposal to second notice. Based on the record before the Board, the Board finds that proceeding to second notice is warranted. In the sections that follow, the Board will briefly discuss the procedural history, then the proposed rule, followed by the public comments.

PROCEDURAL HISTORY

The genesis of this rulemaking was an agreement between the Attorney General and the Agency to present this rulemaking proposal to the Board. Tr.2 at 28. The Attorney General wanted to ensure enforceability of the Great Lakes Initiative (GLI) water regulations and enforceability of the State of Illinois NPDES program. Tr.2 at 30-31.

Prior to filing this proposal with the Board, the Agency promulgated regulations at 35 Ill. Adm. Code 352 to implement procedures necessary for the issuance of NPDES permits in the Lake Michigan Basin. Reasons at 3. The Part 352 regulations were intended by the Agency to implement the Board's GLI regulations promulgated in R97-25. During the Agency's Part 352 rulemaking the Attorney General asserted that certain portions of the Agency's Part 352 rules were not authorized by the Board and moreover were more properly within the statutory authority of the Board to promulgate. Upon review, the Joint Committee on Administrative Rules (JCAR) of the Illinois Legislature recommended that the Agency and the Attorney General "work together to more clearly determine the relative jurisdiction of the" Agency. *Id.* The Agency submitted this proposal (R99-8) to the Board in response to the issues raised by the Attorney General. *Id.*

The Agency stated that the proposal was submitted to determine whether the Agency's regulations adopted at 35 Ill. Adm. Code 352 are consistent with the Board's regulations and, if they are not consistent, to determine which regulations should be amended. *Id.* The Agency also submitted these amendments to "determine the limits" of the Agency's and the Board's "rulemaking authority." *Id.*

On December 17, 1998, the Board denied a motion to dismiss R99-8 filed by the Illinois Environmental Regulatory Group (IERG) and supported by the Chemical Industry Council of Illinois (CICI) (PC 1). In that order, the Board found that the Board does not need to decide the Agency's authority for rulemaking in this proceeding. Section 13 of the Act (415 ILCS 5/13 (1996)) clearly grants the Board the authority to adopt rules. The Agency's rulemaking proposal contains proposed amendments to the Board's water rules that will clarify implementation of the federally required Great Lakes Initiative. The Board further found that the Board can adopt or not adopt the proposed rules on the merits based on the Board's own authority to adopt the rules proposed by the Agency.

In denying IERG's motion to dismiss, the Board considered testimony from the December 8, 1998 hearing. At that hearing, Seith of the Attorney General's Office testified that the Board need not "deal with" the issue of the Agency's authority to promulgate Regulations because "this Board clearly does have the authority to promulgate these regulations." Tr.2 at 28. Based on the Attorney General's experience with enforcement actions in similar cases, Seith stated that the Board should adopt the proposed rules to ensure enforceability of the GLI program and the limitations written into permits for individual dischargers. Tr. 2 at 31-33. The Board also relied upon a decision by the Illinois Supreme Court which discussed the rulemaking roles of the Board and the Agency in the context of water regulations (Granite City Division of National Steel Company v. Illinois Pollution Control Board, 155 Ill. 2d 149, 613 N.E.2d 719 (1993)).

PROPOSED RULE

The proposed rule would adopt certain permit requirements necessary to implement the federal GLI. The states are required to adopt regulations to conform with the federal guidance for water quality standards in the Great Lakes pursuant to the Clean Water Act. 33 U.S.C. §1268(c)(2)(C). The federal guidance was published at 60 Fed. Reg. 15366 on March 23,

1995. In 1997, the Agency proposed rules to the Board which implement the federal guidance and the Board adopted these rules in R97-25. See In the Matter of: Conforming Amendments for the Great Lakes Initiative: 35 Ill. Adm. Code 302.101; 302.105; 302.Subpart E; 303.443 and 304.222 (December 18, 1997), R97-25. The requirements in this proposed rule are in addition to those adopted by the Board in R97-25 and should be read in conjunction with that rulemaking. In the Matter of: Conforming Amendments for the Great Lakes Initiative: 35 Ill. Adm. Code 302.101; 302.105; 302.Subpart E; 303.443 and 304.222 (December 18, 1997), R97-25.

The Board's rules are being amended by updating the citation to the *Code of Federal Regulations* at Section 301.105, adding specialized definitions that are contained in the Agency's rule at Section 352.104 and adding implementation procedures under Section 309.141(h). The amendments to the incorporations by reference under Section 301.105(c) update the citation to 40 C.F.R. 136 to reflect the 1996 edition of the federal rules, which contain the approved test methods, and add a new incorporation by reference to a test procedure specified in 40 C.F.R. 132.

The definitions proposed today at 35 Ill. Adm. Code 301 are, for the most part, derived from the federal GLI regulations at 40 C.F.R. 132.2. These include definitions of the terms "bioaccumulative chemicals of concern," "method detection level," "minimum level," "quantification level," "total maximum daily load," "wasteload allocation" and "wet weather point source." In addition, the order includes definitions of certain terms used in the implementation procedures.

The procedures for the implementation of the federal GLI are set forth under a new subsection at 35 Ill. Adm. Code 309.141(h). These procedures are intended to be used by the Agency when issuing NPDES permits to Lake Michigan Basin Dischargers. Section 309.141(h)(1) provides that the Total Maximum Daily Load (TMDL) or the Waste Load Allocations (WLA) will be set through either the Lake Michigan Lakewide Management Plan (LaMP) or the remedial action plan (RAP) for an Area of Concern. Reasons at 5. This provision is consistent with the federal GLI procedure concerning TMDL and WLA at 40 C.F.R. 132 Appendix F, Procedure 3. If neither the LaMP or a RAP has been completed the effluent limits shall be established pursuant to the remaining sections of Section 309.141. *Id.* If it is expected that these limits will be superseded upon completion of the TMDL or WLA process, these limits shall be set as interim and the permit shall include a reopener clause, which would be triggered by the completion of TMDL or WLA. *Id.*

Section 309.141(h)(2) specifies an acceptable risk level of one in 100,000 for establishing Tier I criteria and Tier II values for combination of substances exhibiting carcinogenic or other nonthreshold toxic mechanism.

The proposed risk level of 1 in 100,000, which is recommended by the federal GLI guidelines, was adopted by the Board in R97-25 (In the Matter of: Conforming Amendments for the Great Lakes Initiative: 35 Ill. Adm. Code 302.101; 302.105; 302.Subpart E; 303.443 and 304.222 (December 18, 1997), R97-25); 35 Ill. Adm. Code 302.590. In addition, Sections 309.141(h)(2)(A) and (h)(2)(B) set forth specific requirements for the consideration of

additive effects of two classes of substances known as the chlorinated dibenzo-p-dioxins (CDD) and chlorinated dibenzofurans (CDF). Reasons at 5. These procedures are derived from the federal GLI at 40 C.F.R. 132 Appendix F, Procedure 4. In both CDD and CDF, the arrangement of the atoms in the molecule can vary, creating congeners which have different levels of toxic effects from molecule to molecule. *Id.* The proposed procedure assigns specific conversion factors to the congeners that allows a permit writer to calculate the additive effect on a consistent basis. The proposed procedure also requires the Agency to consider the cumulative risk from a combination of carcinogenic or other nonthreshold toxic substances under specified conditions.

Section 309.141(h)(3) sets forth the conversion factors to be used in translating between water quality standards, criteria or values for metals expressed in either the dissolved form or as total amount recoverable. Reasons at 6. In this regard, while many modern water quality standards are expressed in the dissolved form,¹ historical water quality and effluent data has been reported as total amount recoverable. Reasons at 6. The proposed conversion factors, which are based on the review of scientific literature, allow for the consistent translation of total recoverable metal to dissolved form. Further, the proposed provision also allows for the use of alternate site-specific conversion factor.

Section 309.141(h)(4) together with the procedures specified in 35 Ill. Adm. Code 352.Subpart D provide guidance to the Agency in choosing which pollutants require water quality based effluent limits (WQBEL) and, if required, at what level in NPDES permits. Reasons at 6. Subsection (h)(4)(A) specifies the first step in the process which involves the estimation of projected effluent quality (PEQ) of a parameter in the discharge of a facility, taking into account the chronic or acute exposure periods of the standard, criteria or value. *Id.* The proposed provision requires the PEQ to be based on representative facility specific data that reflect the upper bound of a 95% confidence level for the 95th percentile value. Subsection (h)(4)(B) provides a method of calculating the PEQ when less than ten facility specific data points are available. The PEQ or the alternate PEQ must be compared with water quality standard, criteria, or value to determine whether to impose no limit, consider dilution and mixing, or require additional monitoring. Subsection (h)(4)(C) requires the Agency to use monthly average effluent data to evaluate the need for WQBELs to meet chronic standards and daily effluent data to evaluate the need for effluent limits to meet acute standards. Reasons at 6-7. Subsection (h)(4)(D) allows alternative scientifically defensible statistical methods to calculate PEQ. Reasons at 7.

If PEQ for a parameter is greater than the water quality standard, criteria or value for that parameter, the next step involves the consideration of dilution and mixing in accordance with Section 309.141(h)(5), which allows for such consideration based on the degree of treatment. Mixing zone and dilution may be considered only if the discharger is providing treatment consistent with the best degree of treatment under 35 Ill. Adm. Code 304.102(a). Reasons at 7.

¹ The standards are expressed in dissolved form since that form was used in developing the toxicological information as being more available for absorption by aquatic life.

The next step in the process involves the comparison of PEQ of a parameter with the projected effluent limitation (PEL) for that parameter to determine the need for specifying a WQBEL in the NPDES permit. Section 309.141(h)(6) sets forth a simple mass balance formula for calculating PEL giving consideration to the water quality standard, relative flowrates of effluent and receiving water, dilution allowance and the background concentration of the parameter. Reasons at 7.

Section 309.141(h)(7) sets forth the conditions under which a WQBEL or certain monitoring requirements must be included in the NPDES permit based upon a comparison of PEQ and PEL. Reasons at 7.

The Board is also proposing amendments to 35 Ill. Adm. Code 302. The amendments are proposed because at the close of the rulemaking in R97-25 (In the Matter of: Conforming Amendments for the Great Lakes Initiative: 35 Ill. Adm. Code 302.101; 302.105; 302.Subpart E; 303.443 and 304.222 (December 18, 1997), R97-25), JCAR submitted a list of typographical errors which occurred in the text of Part 302. The Board proposes only typographical corrections and nonsubstantive amendments to Part 302.

PUBLIC COMMENTS

The Board has received a total of four public comments. The first comment (PC 1) was filed by the CICI and was filed in support of IERG's motion to dismiss and was addressed above. See Procedural History herein. The other comments included comments by the Naval Training Center Great Lakes (Navy) (PC 2), IERG (PC 3) and the Illinois Steel Group (PC 4). In the Sections below, the Board will summarize and discuss the issues raised in each public comment.

Naval Training Center Great Lakes

In PC 2, Navy argues that the proposed rule does not conform with the federal GLI in four ways. First, Navy maintains that the rule improperly permits the use of mixing zones and dilutions. Second, Navy states that the rules concerning analysis and detection below the quantification level fail to conform to GLI requirements. Third, Navy argues that the rule improperly excludes wet weather discharges. Fourth, Navy posits that the method for measurement of representative "Background" in establishing TMDLs does not conform to GLI. The issues raised by Navy are discussed below in detail and changes to the Board's proposed rules in response to Navy's comments are presented.

Board Discussion

Mixing Zones. Navy argues that the proposed rules improperly permit mixing zones and dilution bioaccumulative chemicals of concern (BCCs) without qualification. Navy asserts that the guidance for the GLI rule "explicitly says that rules implementing GLI" must prohibit creation of new mixing zones and require phase out of any existing zones by March 23, 2007. PC 2 at 1. Navy argues that the failure of the rules "to so direct" makes the rules

noncompliant with GLI and the Board's own rules at 35 Ill. Adm. Code 302.530. PC 2 at 1-2.

The mixing provision at Section 309.141(h), like the rest of the proposed permitting rules, are intended to implement the Board's GLI water quality regulations adopted in R97-25. In the Matter of: Conforming Amendments for the Great Lakes Initiative: 35 Ill. Adm. Code 302.101; 302.105; 302.Subpart E; 303.443 and 304.222 (December 18, 1997), R97-25. In R97-25, the Board specifically addressed the phase-out of mixing zones and included a prohibition on all mixing zones for BCCs after 2007. Thus, the mixing provision may be used in calculating NPDES permit levels only to the extent allowed by the Board's GLI regulations. As noted correctly by Navy, the Board's GLI regulations at Section 302.530 prohibit the creation of mixing zones for new discharges of BCCs and require the phase-out of mixing zones for existing discharges of BCCs. In light of this, the mixing provisions in the proposed rules may be used only with respect to existing discharges of BCCs or discharges of constituents that are not BCCs. Thus, the Board finds that the proposed permitting rules are consistent with the GLI regulations. However, the Board has amended Section 309.141(h)(5) by adding a new subsection (h)(5)(B) to clarify the proposed intent. Subsection (h)(5)(B) will read:

B) Bioaccumulative chemicals of concern (BCCs):

- i) No mixing shall be allowed for new discharges of BCCs commencing on or after December 24, 1997. The PEL will be set equivalent to the water quality standard.
- ii) Mixing shall be allowed for discharges of BCCs which existed as of December 24, 1997 in accordance with the requirements of 35 Ill. Adm. Code 302.530.

Analysis and Detection. Navy also comments that the definitions for both "Minimum Level" and "Quantification Level" refer only to the concentration and measurement of a concentration detected by a specific analytical method set forth in 40 C.F.R. 136. PC 2 at 2. Navy asserts this is contrary to the guidance and the Board's own rules at 35 Ill. Adm. Code 302.550. Navy argues that both the guidance and the Board's rules are written more broadly to allow the use of analytical methods or means of quantification not specifically codified by the USEPA or the Board.

The Board believes that there is some confusion in Navy's interpretation of the proposed regulations. At the outset, the Board notes that the proposed regulations do not include the GLI provision pertaining to analysis and detection below quantification level. That provision has been adopted by the Agency at 35 Ill. Adm. Code 352.700.

While the provision for addressing detection and analysis below quantification level is not proposed in this Docket, as noted by Navy, the proposal includes definition of the terms "Minimum Level" and "Quantification Level." These definitions parallel those set forth in the Federal GLI at 40 C.F.R. 132.2, except for the reference to the analytical procedures of 40

C.F.R. 136. This reference was added to provide guidance for choosing appropriate analytical procedures. However, the Board agrees with Navy that the reference to 40 C.F.R. 136 may be construed to be limiting in situations where a minimum level is not listed or a certain procedure is not specified in 40 C.F.R. 136. In light of this, the Board has amended the definition of “Minimum level” at Section 301.312 to allow the use of procedures not listed in 40 C.F.R. 136. This amendment follows the analytical testing requirements adopted by the Board at 35 Ill. Adm. Code 302.550. Along the same lines, the Board has also amended the definition of “Quantification level” at Section 301.371.

Section 301.312 Minimum Level

Minimum Level or ML is the concentration at which the entire analytical system must give a recognizable signal and acceptable calibration point. The ML is the concentration in a sample that is equivalent to the concentration of the lowest calibration standard analyzed by a specific analytical procedure approved in 40 CFR 136, assuming that all the method-specified sample weights, volumes and processing steps have been followed. The analytical procedure used for determining minimum level must be a procedure published by USEPA or nationally recognized organization, including but not limited to those methods found in 40 CFR 136, 40 CFR 132, or Standard Methods, incorporated by reference in 35 Ill. Adm. Code 302.510.

Section 301.371 Quantification Level

Quantification Level is a measurement of the concentration of a contaminant obtained by using a specified laboratory procedure approved in 40 CFR 136 and calibrated at a specified concentration above the method detection level. It is considered the lowest concentration at which a particular contaminant can be quantitatively measured using a specified laboratory procedure for monitoring of the contaminant. The analytical procedure used for determining quantification level must be a procedure published by USEPA or nationally recognized organization, including but not limited to those methods found in 40 CFR 136, 40 CFR 132, or Standard Methods, incorporated by reference in 35 Ill. Adm. Code 302.510.

Navy raises four concerns regarding the data requirements for establishing background at Section 309.141(h)(6)(B). First, Navy states that the rules fail to require a comparison of data to “reported analytical” detection levels. In this regard, the Board disagrees and notes that Section 309.141(h)(6)(B)(ii) requires the Agency to consider the reliability of data through a comparison to “detection” and “quantification” levels, which are defined terms. The definitions of these terms include a reference to analytical methods. In light of this, the Board believes that the provision is consistent with the Federal GLI.

Second, Navy comments that the proposed rules do not allow the use of fish tissue data as a means of establishing water column concentrations. In this regard, the Board notes that the federal GLI provides a choice of three different data types for establishing the background concentration for a pollutant: acceptable water column data; water column concentrations estimated through the use of acceptable caged or resident fish tissue data; or water column concentrations estimated through use of acceptable or projected pollutant loading data. 40

C.F.R. 132, Appendix F, Procedure 3. Navy correctly notes that the proposed regulations do not explicitly provide for the use of fish tissue data. Therefore, to provide for consistency with the federal GLI on this question, the Board amends Section 309.141(h)(6)(B)(iii) to allow the use of fish tissue data as means of establishing water column concentrations.

Next, Navy questions the methodology specified at Section 309.141(h)(6)(B)(iii) for addressing data sets containing values both above and below detection level. Navy argues that the methodology is arbitrary since it is based on a false assumption that a substance below detection level would be present at half of the detection level of that substance, if the detection level is less than the lowest water quality value for that pollutant. PC 2 at 4. Navy suggests that the Board require the Agency to use “commonly accepted statistical techniques,” as required by the Federal GLI guidance. We agree with Navy’s suggestion and we will amend Section 309.141(h)(6)(B)(iii) to read:

- (iii) The representative background concentration for a pollutant in the specified watershed, water body, or water body segment shall be established on a case-by-case basis as the geometric mean of: acceptable water column data; water column concentrations estimated through use of acceptable caged or resident fish tissue data; or water column concentrations estimated through the use of acceptable or projected pollutant loading data. When determining the geometric mean of the data for a pollutant that includes values both above and below the detection level, commonly accepted statistical techniques shall be used to evaluate the data. ~~values less than the detection level shall be assumed to be present at 1/2 of the detection level if the detection level is less than the lowest water quality value for that pollutant.~~ If all of the acceptable data in a data set are below the detection level for a pollutant, then all the data for the pollutant in that data set shall be assumed to be zero. ~~If the detection level of the available data is greater than the lowest water quality value for the pollutant, then the background concentration will be determined by the Agency on a case by case basis after considering all representative data, including acceptable fish tissue data.~~

Last, Navy believes that the Board’s proposed Section 309.141(h)(6)(B)(iii) is contrary to the approach recommended by GLI guidance. That section requires the Agency to calculate background concentration if the detection level is greater than the lowest water quality level for a specific pollutant. PC 2 at 5. Navy points out that the proposed requirement allows the Agency to calculate background as it sees fit, and not by calculating the geometric mean of data sets as required by the GLI guidance. Again, the Board believes there is some confusion in the interpretation of the proposed regulations. Section 309.141(h)(6)(B)(iii) requires the Agency to determine background concentration of a pollutant on a case-by-case basis considering representative data. However, the Agency’s determination must be in accordance with the initial requirement that background concentration be established as geometric mean. In light of this, the Board believes that Section 309.141(h)(6)(B)(iii) is consistent with the GLI guidance. However, the Board has made some minor changes to Section 309.141(h)(6)(B)(iii) that parallel the Federal GLI requirement at 40 C.F.R. 132, Appendix F, Procedure 3 to clarify the proposed intent.

Wet Weather Discharge. Navy comments that the rules improperly exempt wet weather discharges. PC 2 at 3. And finally, Navy states that it is reiterating its position expressed in R97-25 (In the Matter of: Conforming Amendments for the Great Lakes Initiative: 35 Ill. Adm. Code 302.101; 302.105; 302.Subpart E; 303.443 and 304.222 (December 18, 1997), R97-25) that the rule fails to conform to GLI in detailing how background concentration is to be calculated in establishing TMDLs and WLAs.

The Board appreciates the comment of Navy on this question, but notes that the issue of wet weather discharge was addressed at length in R97-25 (In the Matter of: Conforming Amendments for the Great Lakes Initiative: 35 Ill. Adm. Code 302.101; 302.105; 302.Subpart E; 303.443 and 304.222, (December 18, 1997) R97-25). Navy's comment in this proceeding does not provide the Board with any information that it did not have when it developed the initial conforming amendments and, accordingly, does not provide the Board with any information which requires reconsideration of that issue.

Illinois Environmental Regulatory Group/Illinois Steel Group

Illinois Environmental Regulatory Group (IERG) and the Illinois Steel Group (ISG) comment that the Board should not adopt these rules based upon the argument that the record is insufficient to determine economic reasonableness and technical feasibility. As set forth in more detail in the section below, the Board disagrees.

Board Discussion

IERG cites to Granite City v. IPCB, 155 Ill. 2d 149; 613 N.E.2d 719 (1993), an Illinois Supreme Court case wherein the Board's authority to adopt rules was challenged. In Granite City, the court affirmed the Board's decision and determined that the Board adequately considered evidence concerning technical feasibility and economic reasonableness. While IERG concedes that the Act does not mandate a specific standard for the Board to use in measuring technical feasibility and economic reasonableness, IERG maintains that the Act and Granite City require that the Board develop a well-documented record in support of its promulgation of regulations." PC 3 at 3.

The Board has openly sought public comment in this proceeding and has held two public hearings. The second hearing was specifically noticed to the public as a hearing to elicit comments on DCCA's decision not to develop an economic impact statement pursuant to Section 27(b) of the Act. IERG and the ISG had every opportunity to participate fully in the examination of this rule through the Board's very public and open rulemaking process. Despite that opportunity, neither group presented the Board with any evidence, argument, or suggestion that the proposed rules were technically infeasible or economically unreasonable. Likewise, the Board has not received a single comment, including IERG's and ISG's, which makes those arguments.

Section 27(a) of the Act requires the Board:

In promulgating regulations under this Act, the Board shall take into account the existing physical conditions, the character of the area involved, including the character of surrounding land uses, zoning classifications, the nature of the existing air quality, or receiving body of water, as the case may be, and *the technical feasibility and economic reasonableness* of measuring or reducing the particular type of pollution [emphasis added]. 415 ILCS 5/27 (1996).

In Granite City the Court states that the authority granted under Section 27 of the Act is a “general grant of very broad authority and encompasses that which is necessary to achieve the broad purposes of the Act.” Granite City 115 Ill. 2d 149, 175, 613 N.E.2d 719, 734. The Court goes on to state:

Section 27(a) does not impose specific evidentiary requirements on the Board, thereby limiting its authority to promulgate only regulations that it has determined to be technically feasible and economically reasonable. Rather, Section 27(a) requires only that the Board consider or take into account the factors set forth therein. The Board must then use its technical expertise and judgment in balancing any hardship that the regulations may cause to discharges against its statutorily mandated purpose and function of protecting our environment and public health. Granite City, 115 Ill. 2d 149, 175-176; 613 N.E.2d 719, 734-735.

The Board has reviewed the entirety of the record before it. In addition, the Board has been guided by our decision in R97-25, wherein the Board found that implementation of the federal GLI was economically reasonable and technically feasible. Finally, the sworn testimony of the Agency experts and the assertions in the Statement of Reasons, absent any contrary evidence in the record, are sufficient for the Board to “take into account” economic reasonableness and technical feasibility.

The record is sufficient to support proceeding with this rule. The implementation costs of the GLI were found to be reasonable in R97-25 (In the Matter of: Conforming Amendments for the Great Lakes Initiative: 35 Ill. Adm. Code 302.101; 302.105; 302.Subpart E; 303.443 and 304.222, (December 18, 1997) R97-25). The Agency reiterated its position from R97-25 (In the Matter of: Conforming Amendments for the Great Lakes Initiative: 35 Ill. Adm. Code 302.101; 302.105; 302.Subpart E; 303.443 and 304.222 (December 18, 1997), R97-25) by stating:

It is the opinion of the Illinois Environmental Protection Agency that these proposed procedures are not so significantly different than the existing procedures to protect the Lake Michigan Basin as to cause significant cost increases. If such unreasonable cost increases are demonstrated, the Great Lakes Initiative provides for consideration of adjustments on a case by case basis to avoid hardship. Reasons at 8.

As to the technical feasibility of the proposal, Mr. Toby Frevert and Mr. Tom McSwiggin testified on behalf of the Agency, that the procedures are technically feasible. See

Tr.2 at 14-19. Specifically, Frevert stated that the procedures are “generally feasible” and constitute “a default procedure that we [the Agency] would essentially put the world on notice we [the Agency] intend to operate by, unless somebody can propose or substantiate some other procedure.” Tr.2 at 15.

Frevert testified that the procedures proposed by the Agency are reasonable to establish permit limits that are adequate to protect water quality, yet do not have such extreme conservatism that they are impracticable for an operator. Tr.2 at 14-15. He noted that the Agency used the statistical procedures recommended by the USEPA that demonstrate compliance based on upper bound 95 % confidence of the 95th percentile of the effluent concentration. Tr.2 at 15. Frevert maintained that the procedures are flexible enough to be technically feasible across the board. *Id.* He also noted that the proposed procedures are consistent with the federal GLI implementation procedures. Tr.2 at 18-19.

Based upon the record before us, and the testimony of the Agency expert witnesses, the Board finds sufficient economic and technical justification to proceed with these federally derived rules. Further, the Board is convinced that the inclusion of these amendments in the regulations implementing the Great Lakes Initiative will clarify issues and assist in the administration of the program in Illinois. Therefore the Board will proceed to second notice under the Administrative Procedure Act. 5 ILCS 100/1-1 *et seq.*

CONCLUSION

These amendments propose changes to the Board’s water regulations which implement the federal Great Lakes Initiative in the Lake Michigan Basin of Illinois. The Board notes that the proposed amendments are squarely based upon the Board’s authority under the Act to develop regulations for the protection of the waters of the State, and are necessary to implement the federal GLI in Illinois. Further, these rules clarify the Agency’s authority to carry out procedures which are necessary to implement the federal GLI. The Board believes that proceeding to second notice is appropriate at this time.

The Board finds that the rule warrants proceeding to second notice under the Illinois Administrative Procedure Act. 5 ILCS 100/1-1 *et seq.* Further, the Board finds that the proposal is economically reasonable and technically feasible.

ORDER

The Board directs the Clerk to cause the filing of the following proposal for Second Notice with the Joint Committee on Administrative Rules:

TITLE 35: ENVIRONMENTAL PROTECTION

SUBTITLE C: WATER POLLUTION

CHAPTER I: POLLUTION CONTROL BOARD

PART 301

INTRODUCTION

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<u>301.411</u>	<u>Total Maximum Daily Load</u>
301.415	Treatment Works
301.420	Underground Waters
<u>301.421</u>	<u>Wasteload Allocation</u>
301.425	Wastewater
301.430	Wastewater Source
301.435	Watercraft
301.440	Waters
<u>301.441</u>	<u>Water Quality Based Effluent Limitation</u>
<u>301.442</u>	<u>Wet Weather Point Source</u>
<u>301.443</u>	<u>Whole Effluent Toxicity</u>

APPENDIX References to Previous Rules

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

SOURCE: Filed with the Secretary of State January 1, 1978; amended at 3 Ill. Reg. 25, p. 190, effective June 21, 1979; amended at 5 Ill. Reg. 6384, effective May 28, 1981; codified

at 6 Ill. Reg. 7818; amended in R88-1 at 13 Ill. Reg. 5984, effective April 18, 1989; amended in R88-21(A) at 14 Ill. Reg. 2879, effective February 13, 1990; amended in R99-8 at 23 Ill. Reg. _____, effective _____.

Note: Capitalization denotes statutory language.

Section 301.106 Incorporations by Reference

- a) Abbreviations. The following abbreviated names are used for materials incorporated by reference:

"ASTM" means American Society for Testing and Materials

"GPO" means Superintendent of Documents, U.S. Government Printing Office

"NTIS" means National Technical Information Service

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

"USEPA" means United States Environmental Protection Agency

- b) The Board incorporates the following publications by reference:

American Public Health Association et al., 1015 Fifteenth Street, N.W., Washington, D.C. 20005

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

ASTM. American Society for Testing and Materials, 1976 Race Street, Philadelphia, PA 19013 (215) 299-5400

ASTM Standard E 724-80 "Standard Practice for Conducting Static Acute Toxicity Tests with Larvae of Four Species of Bivalve Molluscs", approved 1980.

ASTM Standard E 729-80 "Standard Practice for Conducting Static Acute Toxicity Tests with Fishes, Macroinvertebrates, and Amphibians", approved 1980.

ASTM Standard E 857-81 "Standard Practice for Conducting Subacute Dietary Toxicity Tests with Avian Species", approved 1981.

ASTM Standard E 1023-84 "Standard Guide for Assessing the Hazard of a Material to Aquatic Organisms and Their Uses", approved 1984.

ASTM Standard E 1103-86 "Method for Determining Subchronic Dermal Toxicity", approved 1986.

ASTM Standard E 1147-87 "Standard Test Method for Partition Coefficient (n-Octanol/Water) Estimation by Liquid Chromatography", approved February 27, 1987.

ASTM Standard E 1192-88 "Standard Guide for Conducting Acute Toxicity Tests on Aqueous Effluents with Fishes, Macroinvertebrates and Amphibians", approved 1988.

ASTM Standard E 1193-87 "Standard Guide for Conducting Renewal Life-Cycle Toxicity Tests with Daphnia Magna", approved 1987.

ASTM Standard E 1241-88 "Standard Guide for Conducting Early Life-Stage Toxicity Tests with Fishes", approved 1988.

ASTM Standard E 1242-88 "Standard Practice for Using Octanol-Water Partition Coefficients to Estimate Median Lethal Concentrations for Fish due to Narcosis", approved 1988.

ASTM Standard E 4429-84 "Standard Practice for Conducting Static Acute Toxicity Tests on Wastewaters with Daphnia", approved 1984.

NTIS. National Technical Information Service, 5285 Port Royal Road, Springfield, VA 22161 (703) 487-4600

SIDES: STORET Input Data Editing System, January, 1973, Document Number PB-227 052/8

Water Quality Data Base Management Systems, February, 1984, Document Number AD-P004 768/8

USEPA. United States Environmental Protection Agency, Office of Health and Environmental Assessment, Washington, D.C. 20460

Mutagenicity and Carcinogenicity Assessment for 1,3-Butadiene, September, 1985, Document Number EPA/600/8-85/004A

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

Procedure 5.b.2 of Appendix F of 40 CFR 132 (1995)
40 CFR 136 (1996~~1988~~)
40 CFR 141 (1988)
40 CFR 302.4 (1988)

d) This Section incorporates no future editions or amendments.

(Source: Amended at 23 Ill. Reg. _____, effective _____.)

Section 301.221 Area of Concern

Area of Concern or AOC is an area specially designated for remediation efforts.

(Source: Added at 23 Ill. Reg. _____, effective _____.)

Section 301.231 Bioaccumulative Chemicals of Concern

Bioaccumulative Chemicals of Concern or BCC means a chemical or class of chemicals meeting the definition at 35 Ill. Adm. Code 302.501.

(Source: Added at 23 Ill. Reg. _____, effective _____.)

Section 301.301 Lake Michigan Lakewide Management Plan

Lake Michigan Lakewide Management Plan or LaMP is a plan to manage the Illinois portion of Lake Michigan as approved by USEPA.

(Source: Added at 23 Ill. Reg. _____, effective _____.)

Section 301.311 Method Detection Level

Method Detection Level is the minimum concentration of an analyte (substance) that can be measured and reported with 99 percent confidence that the analyte concentration is greater than zero as determined by the procedure set forth in Appendix B of 40 CFR 136.

(Source: Added at 23 Ill. Reg. _____, effective _____.)

Section 301.312 Minimum Level

Minimum Level or ML is the concentration at which the entire analytical system must give a recognizable signal and acceptable calibration point. The ML is the concentration in a sample that is equivalent to the concentration of the lowest calibration standard analyzed by a specific analytical procedure, assuming that all the method-specified sample weights, volumes and processing steps have been followed. The analytical procedure used for determining minimum

level must be a procedure published by USEPA or nationally recognized organization, including but not limited to those methods found in 40 CFR 136, 40 CFR 132, or Standard Methods, incorporated by reference in 35 Ill. Adm. Code 302.510.

(Source: Added at 23 Ill. Reg. _____, effective _____.)

Section 301.331 Outlier

Outlier is a test value that is not statistically valid under tests approved in 40 CFR 136.

(Source: Added at 23 Ill. Reg. _____, effective _____.)

Section 301.341 Pollutant Minimization Program

Pollutant Minimization Program means a plan to achieve or maintain the goal of reducing contaminant discharges to below water quality based effluent limits.

(Source: Added at 23 Ill. Reg. _____, effective _____.)

Section 301.346 Preliminary Effluent Limitation

Preliminary Effluent Limitation or PEL is an estimate of an allowable discharge taking into consideration mixing or dilution.

(Source: Added at 23 Ill. Reg. _____, effective _____.)

Section 301.356 Projected Effluent Quality

Projected Effluent Quality or PEQ is the amount of a contaminant estimated to be discharged by a facility or activity taking into account statistical analysis of the discharge or activity.

(Source: Added at 23 Ill. Reg. _____, effective _____.)

Section 301.371 Quantification Level

Quantification Level is a measurement of the concentration of a contaminant obtained by using a specified laboratory procedure calibrated at a specified concentration above the method detection level. It is considered the lowest concentration at which a particular contaminant can be quantitatively measured using a specified laboratory procedure for monitoring of the contaminant. The analytical procedure used for determining minimum level must be a procedure published by USEPA or nationally recognized organization, including but not limited to those methods found in 40 CFR 136, 40 CFR 132, or Standard Methods, incorporated by reference in 35 Ill. Adm. Code 302.510.

(Source: Added at 23 Ill. Reg. _____, effective _____.)

Section 301.372 Reasonable Potential Analysis

Reasonable Potential Analysis or Reasonable Potential to Exceed means the procedure to predict whether an existing or future discharge would cause or contribute to a violation of water quality standards, criteria or values.

(Source: Added at 23 Ill. Reg. _____, effective _____.)

Section 301.373 Same Body of Water

Same Body of Water means that, for purposes of evaluating intake toxic substances consistent with 35 Ill. Adm. Code 352.425, the Agency will consider intake toxic substances to be from the same body of water if the Agency finds that the intake toxic substance would have reached the vicinity of the outfall point in the receiving water within a reasonable period had it not been removed by the permittee and there is a direct hydrological connection between the intake and the discharge points. Notwithstanding the provisions of this definition, an intake toxic substance shall be considered to be from the same body of water if the permittee's intake point is located on Lake Michigan and the outfall point is located on a tributary of Lake Michigan. In this situation, the background concentration of the toxic substance in the receiving water shall be similar to or greater than that in the intake water and the difference, if any, between the water quality characteristics of the intake and receiving water shall not result in an adverse impact on the receiving water.

(Source: Added at 23 Ill. Reg. _____, effective _____.)

Section 301.411 Total Maximum Daily Load

Total Maximum Daily Load or TMDL is the sum of the individual wasteload allocations for point sources and load allocations for nonpoint sources and natural background, as more fully defined at 40 CFR 130.2(i). A TMDL sets and allocates the maximum amount of a pollutant that may be introduced into a water body and still assure attainment and maintenance of water quality standards.

(Source: Added at 23 Ill. Reg. _____, effective _____.)

Section 301.421 Wasteload Allocation

Waste Load Allocation or WLA is the portion of receiving water's loading capacity that is allocated to one of its existing or future point sources of pollution, as more fully defined at 40 CFR 130.2(h). In the absence of a TMDL approved by USEPA pursuant to 40 CFR 130.7 or an assessment and remediation plan developed and approved in accordance with procedure 3.A of Appendix F of 40 CFR 132, a WLA is the allocation for an individual point source that ensures that the level of water quality to be achieved by the point source is derived from and complies with all applicable water quality standards.

(Source: Added at 23 Ill. Reg. _____, effective _____.)

Section 301.441 Water Quality Based Effluent Limitation

Water Quality Based Effluent Limitation or WQBEL is a limit imposed in a permit so that the applicable water quality standard, criteria or value is not exceeded outside of a designated mixing zone.

(Source: Added at 23 Ill. Reg. _____, effective _____.)

Section 301.442 Wet Weather Point Source

Wet Weather Point Source means any discernible, confined and discrete conveyance from which pollutants are, or may be, discharged as the result of a wet weather event. Discharges from wet weather point sources shall include only: discharges of stormwater from a municipal separate storm sewer as defined at 40 CFR 122.26(b)(8); stormwater discharge associated with industrial activity as defined at 40 CFR 122.26(b)(14); discharges of stormwater and sanitary wastewaters (domestic, commercial, and industrial) from a combined sewer overflow; or any other stormwater discharge for which a permit is required under Section 402(p) of the Clean Water Act. A stormwater discharge associated with industrial activity that is mixed with process wastewater shall not be considered a wet weather point source.

(Source: Added at 23 Ill. Reg. _____, effective _____.)

Section 301.443 Whole Effluent Toxicity

Whole Effluent Toxicity or WET means a test procedure that determines the effect of an effluent on aquatic life.

(Source: Added at 23 Ill. Reg. _____, effective _____.)

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

PART 302
WATER QUALITY STANDARDS

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 - 302.570 Procedures for Deriving Bioaccumulation Factors for the Lake Michigan Basin
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- 302.595 Listing of Bioaccumulative Chemicals of Concern, Derived Criteria and Values

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|---------|---|
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| 302.612 | Determining the Acute Aquatic Toxicity Criterion for an Individual Substance - General Procedures |
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APPENDIX A References to Previous Rules

APPENDIX B Sources of Codified Sections

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

SOURCE: Filed with the Secretary of State January 1, 1978; amended at 2 Ill. Reg. 44, p. 151, effective November 2, 1978; amended at 3 Ill. Reg. 20, p. 95, effective May 17, 1979; amended at 3 Ill. Reg. 25, p. 190, effective June 21, 1979; codified at 6 Ill. Reg. 7818; amended at 6 Ill. Reg. 11161, effective September 7, 1982; amended at 6 Ill. Reg. 13750, effective October 26, 1982; amended at 8 Ill. Reg. 1629, effective January 18, 1984; peremptory amendments at 10 Ill. Reg. 461, effective December 23, 1985; amended at R87-27 at 12 Ill. Reg. 9911, effective May 27, 1988; amended at R85-29 at 12 Ill. Reg. 12082, effective July 11, 1988; amended in R88-1 at 13 Ill. Reg. 5998, effective April 18, 1989; amended in R88-21(A) at 14 Ill. Reg. 2899, effective February 13, 1990; amended in R88-21(B) at 14 Ill. Reg. 11974, effective July 9, 1990; amended in R94-1(A) at 20 Ill. Reg. 7682, effective May 24, 1996; amended in R94-1(B) at 20 Ill. Reg. 370, effective December 23, 1996; expedited correction at 20 Ill. Reg. 6273, effective December 23, 1996; amended in R97-25 at 21 Ill. Reg. 1356, effective December 24, 1997; amended in R99-8 at 23 Ill. Reg. _____, effective _____.

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

SUBPART A: GENERAL WATER QUALITY PROVISIONS

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 water 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 must be met in the waters of the Lake Michigan Basin as designated in 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 23 Ill. Reg. _____, effective _____.)

SUBPART E: LAKE MICHIGAN BASIN WATER QUALITY STANDARDS

Section 302.501 Scope, Applicability, and Definitions

- a) Subpart E contains the Lake Michigan Basin water quality standards. These must be met in the waters of the Lake Michigan Basin as designated in 35 Ill. Adm. Code 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 ~~that~~^{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 ~~that~~^{which} affect reproductive or developmental success, organismal viability or growth, or any other endpoint ~~that~~^{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 ~~that~~^{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 ~~that~~^{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 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 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 and that, 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 physiochemical 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” means the net accumulation of a substance by an aquatic organism as a result of uptake directly from the ambient water through gill membranes or other external body surfaces.

“Bioconcentration Factor” or “BCF” 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 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 the 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 ~~that~~^{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 ~~a~~^{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 ~~that~~^{which} is a large portion of the life span of the organism.

“Dissolved organic carbon” or “DOC” means organic carbon ~~that~~^{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 ~~that~~which results in an observed adverse effect in exposed test organisms when all higher doses or concentrations result in the same or more severe effects.

“No observed adverse effect level” or “NOAEL” means the highest tested dose or concentration of a substance ~~that~~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 Lake Michigan, but not including waters enclosed by constructed breakwaters.

“Particulate organic carbon” or “POC” means organic carbon ~~that~~which is retained by a 1 μm pore size filter.

“Relative source contribution” or “RSC” means the percent of total exposure ~~that~~which can be attributed to surface water through water intake and fish consumption.

“Resident or indigenous species” means species ~~that~~which currently live a substantial portion of their life cycle, or reproduce, in a given body of water, or ~~that~~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 23 Ill. Reg. _____, effective _____.)

Section 302.502 Dissolved Oxygen

Dissolved oxygen (STORET number 00300) must not be less than 90% of 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 23 Ill. Reg. _____, effective _____.)

Section 302.503 pH

pH (STORET number 00400) 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 23 Ill. Reg. _____, effective _____.)

Section 302.504 Chemical Constituents

The following concentrations of chemical constituents must not be exceeded, except as provided in Sections 302.102 and 302.530:

- a) The following standards must be met in all waters of the Lake Michigan Basin. Acute aquatic life standards (AS) must not be exceeded at any time except for those waters for which the Agency has approved a zone of initial dilution (ZID) pursuant to Sections 302.102 and 302.530. Chronic aquatic life standards (CS) and human health standards (HHS) must not be exceeded outside of waters in which mixing is allowed pursuant to Section 302.102 and 302.530 by the arithmetic average of at least four consecutive samples collected over a period of at least four days. The samples used to demonstrate compliance with the CS or HHS must be collected in a manner which assures an average representation of the sampling period.

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

<u>Constituent</u>	<u>STORET Number</u>	<u>Unit</u>	<u>AS</u>	<u>CS</u>	<u>HHS</u>
Cadmium (dissolved)	01025	µg/L	exp[A + 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
Selenium (dissolved)	01145	µg/L	NA	5.0	NA
TRC	50060	µg/L	19	11	NA
Zinc (dissolved)	01090	µg/L	exp[A + Bln(H)] A = 0.884	exp[A + Bln(H)] A = 0.884	NA

<u>Constituent</u>	<u>STORET Number</u>	<u>Unit</u>	<u>AS</u>	<u>CS</u>	<u>HHS</u>
			B = 0.8473	B = 0.8473	
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

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) of this Section.

<u>Constituent</u>	<u>STORET Number</u>	<u>Unit</u>	<u>Water Quality Standard</u>
Barium (total)	01007	mg/L	5.0
Boron (total)	01022	mg/L	1.0
Chloride (total)	00940	mg/L	500
Fluoride	00951	mg/L	1.4
Iron (dissolved)	01046	mg/L	1.0
Manganese (total)	01055	mg/L	1.0
Phenols	32730	mg/L	0.1
Sulfate	00945	mg/L	500
Total Dissolved Solids	70300	mg/L	1000

- c) In addition to the standards specified in subsections (a) and (b) of this Section, the following standards must not be exceeded at any time in the Open Waters of Lake Michigan as defined in Section 302.501.

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

<u>Constituent</u>	<u>STORET Number</u>	<u>Unit</u>	<u>Water Quality Standard</u>
Nitrate-Nitrogen	00620	mg/L	10.0
Phosphorus	00665	µg/L	7.0
Selenium (total)	01147	µg/L	10.0
Sulfate	00945	mg/L	24.0
Total Dissolved Solids	70300	mg/L	180.0
Oil (hexane solubles or equivalent)	00550, 00556 or 00560	mg/L	0.10
Phenols	32730	µg/L	1.0

- d) In addition to the standards specified in subsections (a), (b) and (c) of this Section, the following human health standards (HHS) must not be exceeded in the Open ~~Waters~~waters of Lake Michigan as defined in Section 302.501 by the arithmetic average of at least four consecutive samples collected over a period of at least four days. The samples used to demonstrate compliance with the HHS must be collected in a manner which assures an average representation of the sampling period.

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

<u>Constituent</u>	<u>STORET Number</u>	<u>Unit</u>	<u>Water Quality Standard</u>
Methylene chloride	34423	µg/L	47.0
Toluene	78131	mg/L	5.60
Trichloroethylene	39180	µg/L	29.0

- e) For the following bioaccumulative chemicals of concern (BCCs), acute aquatic life standards (AS) must not be exceeded at any time in any waters of the Lake Michigan Basin and chronic aquatic life standards (CS), human health standards (HHS), and wildlife standards (WS) must not be exceeded in any waters of the Lake Michigan Basin by the arithmetic average of at least four consecutive samples collected over a period of at least four days subject to the limitations of Sections 302.520 and 302.530. The samples used to demonstrate compliance with the HHS and WS must be collected in a manner that assures an average representation of the sampling period.

<u>Constituent</u>	<u>STORET Number</u>	<u>Unit</u>	<u>AS</u>	<u>CS</u>	<u>HHS</u>	<u>WS</u>
Mercury (total)	71900	ng/L	1,700	910	3.1	1.3
Chlordane	39350	ng/L	NA	NA	0.25	NA
DDT and metabolites	39370	pg/L	NA	NA	150	11.0
Dieldrin	39380	ng/L	240	56	0.0065	NA
Hexachlorobenzene	39700	ng/L	NA	NA	0.45	NA
Lindane	39782	µg/L	0.95	NA	0.5	NA
PCBs (class)	79819	pg/L	NA	NA	26	120
2,3,7,8-TCDD	03556	fg/L	NA	NA	8.6	3.1
Toxaphene	39400	pg/L	NA	NA	68	NA

Where: mg/L = milligrams per liter (10^{-3} grams per liter)

µg/L = micrograms per liter (10^{-6} grams per liter)

ng/L = nanograms per liter (10^{-9} grams per liter)

pg/L = picograms per liter (10^{-12} grams per liter)

fg/L = femtograms per liter (10^{-15} grams per liter)

NA = Not Applied

(Source: Amended at 23 Ill. Reg. _____, effective _____.)

Section 302.507 Thermal Standards for Existing Sources on January 1, 1971

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 an equal fixed area of simple form.

- a) There shall be no abnormal temperature changes that may affect aquatic life.
- b) The normal daily and seasonal temperature fluctuations that existed before the addition of heat shall be maintained.
- c) The maximum temperature rise at any time above natural temperatures shall not exceed 1.7°C (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

(Source: Amended at 23 Ill. Reg. _____, effective _____.)

Section 302.521 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 (P.L. 92-100, as amended), or joint permits from the Agency and the Illinois Department of Natural Resources 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 are equal to or 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 forgone 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 Natural Resources under Section 39(n) of the Act are not subject to the antidegradation review of subsection (a) of this Section. 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 Natural Resources 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 that which may pose danger to public health or welfare.

(Source: Amended at 23 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 Sections 302.208(a) and (b) of this Part:
 - 1) From April through October, the Acute Standard (AS) shall be 0.33 mg/L and the chronic standard (CS) shall be 0.057 mg/L.
 - 2) From November through March, the AS shall be 0.14 mg/L and the CS shall 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:

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

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

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

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: Amended at 23 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 Life Toxicity Criterion (LMAATC) or Tier II Lake Michigan Basin Acute Aquatic Life 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 Life Toxicity Criterion (LMCATC) or Tier II Lake Michigan Basin Chronic Aquatic Life 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 (b)(1) or (2) of this Section:

- 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 a threat to human health through drinking water exposure only, 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) of this Section. 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 Title 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) of this Section.
- 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 that person's 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) of this Section, 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) of this Section, 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) of this Section 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 (h), a list of waters affecting public water supplies will be published and maintained by the Agency's Division of Public Water Supplies.

(Source: Amended at 23 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 of 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: Amended at 23 Ill. Reg. _____, effective _____.)

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

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) of this Section must be those with cumulative probabilities closest to 0.05. If there are fewer 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) of this Section.
- g) Using the GMAVs identified pursuant to subsection (f) of this Section and the Ps calculated pursuant to subsection (e) of this Section, the Final Acute Value (FAV) and the LMAATC are calculated as:

$$\begin{aligned} \text{FAV} &= \exp(A) \text{ and} \\ \text{LMAATC} &= \text{FAV}/2 \end{aligned}$$

Where:

$$A = L + 0.2236 S$$

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

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

- 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: Amended at 23 Ill. Reg. _____, effective _____.)

Section 302.560 Determining the Tier I Lake Michigan Basin Acute Aquatic Life 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, $f(K) = \text{logarithm of } K$) 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 following procedures.

- a) different values of the water quality characteristic, a linear least squares regression of the transformed acute toxicity (TAT) values on the transformed the line describing the relationship.
- b) of this Section is
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 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
- c) Normalize the TAT values for each species by subtracting W, the arithmetic 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
- d) Normalize the TWQC values for each species using the TWQC values of a species, in the same manner as in subsection (c) of this
_____.
- e) species and perform a least squares linear regression of all the normalized TAT values on the corresponding normalized TWQC values to obtain the pooled
- f) For each species, the graphical intercept representing the species TAT intercept, equation:

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

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

Y is the species acute toxicity intercept or species acute intercept

Section

V is the pooled acute slope as specified in subsection (e) of this Section

X is the arithmetic mean of the TWQC values as specified in subsection (c) of this Section

g) is the transformation used to convert the WQC values to TWQC values

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, $Y = \text{antilogarithm of } (f(Y))$; 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) of this Section, 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.
- j) The LMAATC at any value of the WQC, denoted by WQCx, is calculated using the terms defined in subsection (f) of this Section and the equation:

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

(Source: Amended at 23 Ill. Reg. _____, effective _____.)

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

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:

- a) 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
---	------------------------

2	
3	16.0
	14.0
5	
6	10.4
	8.6

b) calculated according to Section 302.560.

(Source: Amended at 23 Ill. Reg. _____, effective _____.)

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

Determining Tier I LMCATC

1) _____ le for at least eight resident or indigenous species from eight different North American genera of _____ is derived in the same manner as the FAV in Section 302.555 or 302.560 by substituting LMCATC for FAV or FAI, chronic for acute, SMCV (Chronic Value) for GMAV.

2) _____ of this Section geometric mean of the acute-chronic ratios (ACRs) obtained from at _____ provided that of the three species:

A)

B) At least one is an invertebrate; and

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

The acute-chronic ratio (ACR) for a species equals the acute toxicity concentration from data considered under Section 302.555 or 302.560,

- 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 Toxicity 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:
 - i) Use sufficient ACRs of 18 so that the total number of ACRs equals three; and
 - ii) Calculate the Secondary Acute-Chronic Ratio as the geometric mean of the three ACRs; or
 - B) 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: Amended at 23 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

(LMHHTC) or Lake Michigan Human Health Threshold Value (LMHHTV) will be calculated for all substances according to Section 302.585, if data is

carcinogenic to humans will also be calculated according to procedures for the Lake Michigan Human Health Nonthreshold Criterion (LMHHNC) or the Lake

b) Minimum data requirements for criteria:

1)

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

For all inorganic chemicals, including organometals such as BCF is required.

2) bioaccumulation factor method in Section 302.570(a) may be used to derive a Tier II criterion_

(Source: Amended at 23 Ill. Reg. _____, effective _____.)

TITLE 35 ENVIRONMENTAL PROTECTION

CHAPTER I: POLLUTION CONTROL BOARD

PART 309

SUBPART A: NPDES PERMITS

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Appendix A References to Previous Rules

Environmental Protection Act [415 ILCS 5/13, 13.3 and 27].

SOURCE: Adopted in R71-14, at 4 PCB 3, March 7, 1972; amended in R73-11, 12, at 14

20, 1977; amended in R73-11, 12, at 29 PCB 477, at 2 Ill. Reg. 16, p. 20, effective April 20, 1978; amended in R79-13, at 39 PCB 263, at 4 Ill. Reg. 34, p. 159, effective August 7, 1980;

in R76-21, at 44 PCB 203, at 6 Ill. Reg. 563, effective December 24, 1981; codified at 6 Ill. Reg. 7818; amended in R82-5, 10, at 54 PCB 411, at 8 Ill. Reg. 1612, effective January 18,

at 13 Ill. Reg. 5993, effective April 18, 1989; amended in R88-21(A) at 14 Ill. Reg. 2892, effective February 13, 1990; amended in R91-5 at 16 Ill. Reg. 7339, effective April 27, 1992;

Reg. _____, effective _____.

SUBPART A: NPDES PERMITS

Section 309.141 Terms and Conditions of NPDES Permits

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

- a) Effluent limitations under ~~Sections~~Section 301 and 302 of the CWA;
- b) Standards of performance for new sources under Section 306 of the CWA;
- c) Effluent standards, effluent prohibitions, and pretreatment standards under Section 307 of the CWA;
- d) Any more stringent limitation, including those:
 - 1) necessary to meet water quality standards, treatment standards, or schedules of compliance, established pursuant to any Illinois statute or regulation (under authority preserved by Section 510 of the CWA),
 - 2) necessary to meet any other federal law or regulation, or
 - 3) required to implement any applicable water quality standards; such limitations to include any legally applicable requirements necessary to implement total maximum daily loads established pursuant to Section 303(d) of the CWA and incorporated in the continuing planning process approved under Section 303(e) of the CWA and any regulations or guidelines issued pursuant thereto;
- e) Any more stringent legally applicable requirements necessary to comply with a plan approved pursuant to Section 208(b) of the CWA;
- f) Prior to promulgation by the Administrator of the U.S. Environmental Protection Agency of applicable effluent standards and limitations pursuant to Sections 301, 302, 306 and 307 of the CWA, such conditions as the Agency determines are necessary to carry out the provisions of the CWA¹; ~~and~~
- g) If the NPDES Permit is for the discharge of pollutants into navigable waters from a vessel or other floating craft (except that no NPDES Permit shall be issued for the discharge of pollutants from a vessel or other floating craft into Lake Michigan) any applicable regulations promulgated by the Secretary of the Department in which the Coast Guard is operating, establishing specifications for safe transportation, handling, carriage, storage and stowage of pollutants; and-

¹Section 309.141(f) was declared invalid in *Peabody Coal Co. v. PCB*, 3 Ill. App. 3d 5 (5th 1977).

h) If the NPDES Permit is for the discharge of pollutants from other than wet weather point sources into the Lake Michigan Basin as defined at 35 Ill. Adm.

1) (TMDLs) and Waste Load Allocation (WLA) will be established through either the LaMP or a RAP for an adopted, effluent limits shall be established consistent with the other provisions of this Section, including, but not limited to, Intake Pollutants, Loading Limits, Level of Detection/Level of Quantification and Compliance Schedules. When calculation of TMDLs established through other provisions will be superseded upon completion of the TMDL or Waste Load Allocation process, those limits shall be triggered by completion of a TMDL or WLA determination. Any new limits brought about through exercise of the reopener clause shall be consistent with Section 39(b) of the Act [415 ILCS 5/39(b)], 35 Ill. Adm. Code 309.148, and 35 Ill. Adm. Code 352.Subpart H.

35 Ill. Adm. Code 302.590 establishes an acceptable risk level of one in 100,000 (10⁻⁵) for establishing Tier I criteria and Tier II values for nonthreshold toxic mechanism. For those discharges containing multiple nonthreshold substances application of this additive standard shall be

A) For discharges in the Lake Michigan basin containing one or 2,3,7,8-substituted dibenzofurans, the tetrachloro dibenzo-p-(TEC_{TCDD}) (h)(2)(B).

B) determine the 2,3,7,8-TCDD toxicity equivalence concentrations using the following equation:

$$\text{TCDD} = \text{Sigma}(C) (\text{TEF})_x \quad x$$

WHERE:

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

$(C)_x = \frac{\text{Concentration of total chemical x in effluent}}{}$

$(TEF)_x = \frac{\text{TCDD toxicity equivalency factor for x}}{}$

$(BEF)_x = \frac{\text{TCDD bioaccumulation equivalency factor for x}}{}$

TABLE

<u>Congener</u>	<u>TEF</u>	<u>BEF</u>
2,3,7,8-TCDD	1.0	1.0
1,2,3,7,8-PeCdd	0.5	0.9
1,2,3,4,7,8-HxCDD	0.1	0.3
1,2,3,6,7,8-HxCDD	0.1	0.1
1,2,3,7,8,9-HxCDD	0.1	0.1
1,2,3,4,6,7,8-HpCDD	0.01	0.05
OCDD	0.001	0.01
2,3,7,8-TCDF	0.1	0.8
1,2,3,7,8-PeCDF	0.05	0.2
2,3,4,7,8-PeCDF	0.5	1.6
1,2,3,4,7,8-HxCDF	0.1	0.08
1,2,3,6,7,8-HxCDF	0.1	0.2
2,3,4,6,7,8-HxCDF	0.1	0.7
1,2,3,7,8,9-HxCDF	0.1	0.6
1,2,3,4,6,7,8-HpCDF	0.01	0.01
1,2,3,4,7,8,9-HpCDF	0.01	0.4
OCDF	0.001	0.02

- C) Any combination of carcinogenic or otherwise nonthreshold toxic substances shall be assessed on a case by case basis. The Agency shall only consider such additivity for chemicals that exhibit the same type of effect and the same mechanism of toxicity, based on available scientific information that supports a reasonable assumption of additive effects.
- 3) Conversion factors for determining the dissolved concentration of metals from the total recoverable concentration.
- A) The numeric standards for certain metal parameters in 35 Ill. Adm. Code 302.504 are established as dissolved forms of the substance since the dissolved form more closely relates to the toxicology literature utilized in deriving the standard. However, most discharge monitoring data used in deriving a PEQ will be from a total recoverable analytical method and permit limits if and when established will be set at total recoverable to accommodate the total recoverable analytical method. The Agency will use a conversion factor to determine the amount of

water quality standard set at dissolved concentration. In the absence of facility specific data the following default conversion

WQBELs. The conversion factor represents the portion of the total recoverable metal presumed to be in dissolved form. The

the appropriate total recoverable metal concentration to obtain a corresponding dissolved concentration that then may be compared

may be divided by the conversion factor to obtain a corresponding total metal value that will generally be the metal

<u>Metal</u>	<u>Conversion Factor</u>	
<u>Arsenic</u>	<u>1.000</u>	<u>_____</u>
<u>Cadmium</u>	<u>0.850</u>	<u>_____</u>
<u>Chromium (Trivalent)</u>	<u>0.316</u>	<u>_____</u>
<u>Chromium (Hexavalent)</u>	<u>_____</u>	<u>0.962</u>
<u>Copper</u>	<u>_____</u>	<u>0.960</u>
<u>Mercury</u>	<u>_____</u>	<u>0.850</u>
<u>Nickel</u>	<u>_____</u>	<u>0.997</u>
<u>Selenium</u>	<u>_____</u>	<u>0.922</u>
<u>Zinc</u>	<u>_____</u>	<u>0.986</u>

B)

particular site specific application. The request must contain sufficient site specific data, or other data that is representative of

to the total recoverable fraction of the metal in the receiving water body at the edge of the mixing zone. If a site specific

derivation and establishment of a WQBEL in lieu of its default counterpart in subsection (h)(3)(A).

Reasonable potential to exceed.

A)

the water quality standard exists for any particular pollutant parameter is the estimation of the maximum expected effluent

60 or
greater

1.0

1.0

1.0

1.0

1.0

1.0

1.0

1.0

- i) If the PEQ is less than or equal to the water quality standard, there is no reasonable potential and no limit will be established in the permit.
- ii) If the PEQ is more than the water quality standard, the Agency will proceed to consideration of dilution and mixing pursuant to subsection (h)(5).

B) If facility-specific data of 10 or less data values is available, an alternative PEQ shall be derived using the table in subsection (h)(4)(A) assuming a coefficient of variation of 0.6, applied to the maximum value in the data set that has its quality assured consistent with 35 Ill. Adm. Code 352.410.

- i) If the PEQ is less than or equal to the water quality standard, there is no reasonable potential and no limit will be established in the permit.
- ii) If the PEQ exceeds the water quality standard, an alternative PEQ will be calculated using the maximum value in the data set and a multiplier of 1.4. If the alternative PEQ also exceeds the water quality standard, the Agency will proceed to consider dilution and mixing pursuant to subsection (h)(5).
- iii) If the PEQ exceeds the water quality standard but the alternative PEQ is less than or equal to the standard, the Agency will either proceed to consider dilution and mixing pursuant to subsection (h)(5), or will incorporate a monitoring requirement and reopener clause to reassess the potential to exceed within a specified time schedule, not to exceed one year. In determining which of these options to use in any individual application, the Agency shall consider the operational and economic impacts on the permittee and the effect, if any, deferral of a final decision would have on an ultimate compliance schedule if a permit limit were subsequently determined to be necessary.

C) The Agency shall compare monthly average effluent data values, when available, with chronic aquatic life, human health and wildlife standards to evaluate the need for monthly average

WQBELs. The Agency shall use daily effluent data values to determine whether a potential exists to exceed acute aquatic life water quality standards.

D) The Agency may apply other scientifically defensible statistical methods for calculating PEQ for use in the reasonable potential analysis as provided for in Procedure 5.b.2 of Appendix F to 40 CFR 132, incorporated by reference at 35 Ill. Adm. Code 301.106.

E) Regardless of the statistical procedure used, if the PEQ for the parameter is less than or equal to the water quality standard for that parameter, the Agency shall deem the discharge not to have a reasonable potential to exceed, and a water quality based effluent limit (WQBEL) shall not be required unless otherwise required under 35 Ill. Adm. Code 352.430.

5) If the PEQ for a parameter is greater than the particular water quality standard, criteria or value for that parameter, the Agency will assess the level of treatment being provided by the discharger. If the discharger is providing (or will be providing) a level of treatment consistent with the best degree of treatment required by 35 Ill. Adm. Code 304.102(a), the PEQ derived under subsection (h)(4) shall be compared to a preliminary effluent limitation (PEL) determined by applying an appropriate mixing zone or a default mixing zone to the discharge. Mixing opportunity and dilution credit will be considered as follows:

A) Discharges to tributaries of the Lake Michigan Basin shall be considered to have no available dilution for either acute or chronic exposures, and the PEL will be set equivalent to the water quality standard unless dilution is documented through a mixing zone study.

B) Bioaccumulative chemicals of concern (BCCs):

i) No mixing shall be allowed for new discharges of BCCs commencing on or after December 24, 1997. The PEL will be set equivalent to the water quality standard.

ii) Mixing shall be allowed for discharges of BCCs which existed as of December 24, 1997 in accordance with the requirements of 35 Ill. Adm. Code 302.530.

C)

shall have a default mixing allowance of 2:1 for acute standards, criteria or values and 10:1 for chronic

indicates that the effluent readily and rapidly mixes with the receiving waters. If ready and rapid mixing is in doubt

allowance and require a mixing or dispersion study to determine the proper dilution allowance. If the discharger

allowance, it must submit a mixing or dispersion study to justify its request. Whenever a mixing or dispersion study is available, it shall be used to determine dilution or mixing allowance in lieu of the default allowance.

6) Preliminary effluent limitations calculations.

(A) The preliminary effluent limitation (PEL) is calculated in a simple mass balance approach reflecting the dilution allowance established in subsection (h)(5):

$$\begin{aligned} \text{WQS} &= [(Q_e)(\text{PEL}) + (Q_d)(C_d)] / [Q_e + Q_d] \text{ or} \\ \text{PEL} &= [\text{WQS}(Q_e + Q_d) - (Q_d)(C_d)] / Q_e \end{aligned}$$

WHERE:

WQS = applicable water quality standard, criteria or value

Q_e = effluent flowrate

Q_d = allowable dilution flowrate

C_d = background pollutant concentration in dilution water

B) The representative background concentration of pollutants to develop TMDLs and WLAs calculated in the absence of a TMDL shall be established as follows:

i) "Background" represents all pollutant loadings, specifically loadings that flow from upstream waters into the specified watershed, water body, or water body segment for which a TMDL or WLA in the absence of a TMDL is being developed and enter the specified watershed, water body, or water body segment through atmospheric deposition, chemical reaction, or sediment release or resuspension.

(ii)

use in calculating background, the Agency shall use its best professional judgment, including consideration of the comparison, in part, to detection and quantification levels. When data in more than 1 of the data sets or categories professional judgment shall be used to select the data that most accurately reflects or estimates background information may be considered when using pollutant loading data to estimate a water column concentration.

The representative background concentration for a pollutant segment shall be established on a case-by-case basis as the geometric mean of: acceptable water column data; water caged or resident fish tissue data; or water column concentrations estimated through the use of acceptable or geometric mean of the data for a pollutant that includes values both above and below the detection level, commonly data. If all of the acceptable data in a data set are below the detection level for a pollutant, then all the data for the

7) Water quality based effluent limitations.

If the PEQ is less than or equal to the PEL, it will be concluded that there is no reasonable potential to exceed. Under such unless otherwise justified under one or more provisions of 35 Ill. Adm. Code 352.430.

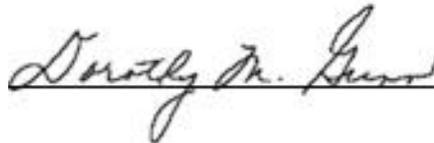
If the PEQ is equal to or greater than the PEL, and the PEQ was calculated using a data set of more than 10 values, a water quality permit. If the PEQ was calculated using a data set of less than or equal to 10 values, and the alternative PEQ calculated under included in the permit.

- C) If the PEQ was calculated using a data set of less than or equal to 10 values, and the PEQ is greater than the PEL but the alternative PEQ is less than the PEL, the Agency will either establish a WQBEL in the permit or incorporate a monitoring requirement and reopener clause to reassess potential to exceed within a specified time schedule, not to exceed one year. In determining which of these options to use in any individual application, the Agency shall consider the operational and economic impacts on the permittee and the effect, if any, deferral of a final decision would have on an ultimate compliance schedule if a permit limit were subsequently determined to be necessary.
- D) The WQBEL will be set at the PEL, unless the PEL is appropriately modified to reflect credit for intake pollutants when the discharged water originates in the same water body to which it is being discharged. Consideration of intake credit will be limited to the provisions of 35 Ill. Adm. Code 352.425.
- E) The reasonable potential analysis shall be completed separately for acute and chronic aquatic life effects. When WQBELs are based on acute impacts, the limit will be expressed as a daily maximum. When the WQBEL is based on chronic effects, the limit will be expressed as a monthly average. Human health and wildlife based WQBELs will be expressed as monthly averages. If circumstances warrant, the Agency shall consider alternatives to daily and monthly limits.

(Source: Amended at 23 Ill. Reg. _____, effective _____.)

IT IS SO ORDERED.

I, Dorothy M. Gunn, Clerk of the Illinois Pollution Control Board, hereby certify that the above opinion and order was adopted on the 17th day of June 1999 by a vote of 7-0.



Dorothy M. Gunn, Clerk
Illinois Pollution Control Board