

ILLINOIS POLLUTION CONTROL BOARD

June 20, 2002

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

Proposed Rule. First Notice.

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

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

The Board held two hearings on this matter and has received 21 public comments. The hearings were held before Board Hearing Officer Marie Tipsord on January 29, 2002, in Chicago, and March 6, 2002, in Springfield.¹ Testimony at the two hearings was heard from the Agency, Galesburg Sanitary District, the Environmental Groups,² Illinois Association of Wastewater Agencies (IAWA), and Rock River Water Reclamation District.

The Board today proposes for first notice amendments to the Board's water rules. The Board's proposed rule is similar to the Agency's proposal in many areas, but after consideration of the record, the Board's proposal differs from the Agency's proposal on several issues. Those differences will be discussed in detail below. The Board will first discuss the Agency's proposal and then discuss the remaining issues before the Board. The testimony and comments will be included where appropriate.

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

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

BACKGROUND

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

AGENCY PROPOSAL

As a part of the triennial review, the Agency proposed changes in five areas of the State's regulations. First, the Agency proposed new aquatic life acute and chronic numeric General Use Water Quality Standards and Lake Michigan Water Quality Standards for benzene, ethyl benzene, toluene, and xylene (BETX). Prop. at 8. Second, the Agency proposed revised General Use Water Quality Standards for zinc, nickel, and cyanide. *Id.* Third, the Agency proposed changing the General Use Water Quality Standards for metals from total to dissolved form. Prop. at 8-9. Fourth, the Agency proposed corrections to the Lake Michigan water rules adopted in Conforming Amendments for the Great Lakes Initiative: 35 Ill. Adm. Code 302.101; 302.105; 302.Subpart E; 303.443 And 304.222, R97-25, (Dec. 18, 1997) (GLI). Prop. at 9. Fifth, the Agency proposed amendments to allow the Agency to use five-day carbonaceous biochemical oxygen demand (CBOD₅) instead of five-day biochemical oxygen demand (BOD₅) in National Pollutant Discharge Elimination System (NPDES) permits. *Id.* The following discussion will detail the Agency's specific proposals.

BETX

BETX substances are currently regulated using water quality criteria derived from 35 Ill. Adm. Code 302.210 and Subpart F. Prop. at 10. These water quality criteria have changed over the years due to new toxicity data in literature, recalculations of criteria and correction of errors in the database. *Id.* BETX substances are frequently regulated in NPDES permits using the derived water quality standards. Therefore, the Agency proposed for adoption new numeric General Use Water Quality Standards and Lake Michigan Water Quality Standards for the BETX compounds at 35 Ill. Adm. Code 302.208(e) and (f) and 302.504(a). *Id.*

Zinc, Nickel, and Cyanide

The Agency stated that the single number General Use Water Quality Standards for zinc and nickel "are outdated" and do not conform to the current method of designating acute and chronic values for protection of aquatic life. Prop. at 10. The Agency proposes revising the

acute and chronic standards for zinc and nickel in this rulemaking. The Agency developed the revised General Use Water Quality Standards using the United States Environmental Protection Agency's (USEPA) national criteria documents and new information. *Id.* The amendments to the General Use Water Quality Standards can be found at 35 Ill. Adm. Code 302.208(g).

The Agency also proposes for amendment the acute and chronic General Use Water Quality Standards for "general use weak acid dissociable cyanide" (cyanide). Prop. at 10. The Agency indicates that the standard as originally adopted in Amendments to Title 35, Subtitle C (Toxics Control), R88-21, (Jan. 25, 1990) were derived using cold-water species. *Id.* The Agency maintains that the standards are applied to waters which contain only warm water or in some cases cool-water species. *Id.* The Agency proposes a standard that "corrects this error" and is intended to be protective of all species found in General Use waters. *Id.*

Dissolved Metal Standards

The Agency proposes the conversion of General Use Water Quality Standards for metals from total to dissolved form found at Section 302.208. Prop. at 11. The Agency makes this suggestion because of USEPA's recommendation and the national consensus that only the dissolved fraction of metal present in a solution is the toxic component. *Id.* The dissolved metal water quality standards require the use of a metals translator procedure (attached to the proposal at Exhibit A) to set NPDES permit limits for metal in total form. *Id.* The NPDES permit limits for total metals must however ensure protection of the dissolved metal water quality standard in the stream. The Agency proposes Section 309.157 which will allow a permit applicant to request that the Agency set permit limits based on site-specific metal data. *Id.* The Agency indicates that it will draft an implementation rule to allow the administration for the metals translator process for determining water quality-based permit limitations for NPDES discharges to general use waters. *Id.*

Corrections to GLI

The Agency's proposal amends the Lake Michigan water standards in Section 302.504 for arsenic, cadmium, lead, and other metals to the dissolved conversion factor based on the previous discussion. Prop. at 11. In addition, the Agency is correcting the calculation of the total species value (TSV) equation. *Id.* The Agency also "elected" to use a new conversion factor in some cases rather than the GLI values. *Id.* Finally, the provisions of the new section 309.157 will also apply to Lake Michigan. *Id.*

CBOD₅ instead of BOD₅

The Board's water rules at Section 304.120 provide general effluent standards for deoxygenating wastes. According to the current rules, effluent limits are stated in numerical units (mg/l) of biochemical oxygen demand (BOD₅). BOD₅ measures the carbonaceous demand in a sample to measure the efficiency of a treatment process. Tr.1 at 36-37. The Agency is proposing additional language at Section 304.120(g) which would require

compliance with the BOD₅ numerical standards in Section 304.120 to be determined by analyzing carbonaceous biochemical oxygen demand (CBOD₅) in the effluent. The Agency is proposing changing the rule to allow for the regulation of CBOD₅ instead of BOD₅ in NPDES permits. Prop. at 12. The CBOD₅ method provides a more direct reliable measure of carbonaceous oxygen demand according to the Agency and has been allowed by federal regulations adopted in 1984. See 40 C.F.R. 133. *Id.* The Agency has used CBOD₅ in setting permit limits for effluent since 1986, but has not updated the Board's rules until now. *Id.*; Tr. 1 at 35.

PUBLIC COMMENTS

The Board received 21 public comments in this matter. The following table lists all the comments.

1	Metropolitan Water Reclamation District of Greater Chicago submitted by Michael G. Rosenberg
2	Illinois Environmental Regulatory Group submitted by Robert A. Messina
3	Wheaton Sanitary District submitted by Robert L. Clavel, P.E. Engineer – Manager
4	Lake in the Hills Sanitary District submitted by Ross Nelson, District Manager
5	Greater Peoria Sanitary District submitted by Stanton A. Browning, Executive Director
6	Springfield Metro Sanitary District submitted by Robert A. Alvey, Director/Engineer
7	Fox Metro Water Reclamation District submitted by Thomas F. Muth, District Manager
8	Rock River Water Reclamation District submitted by Dean Faulkner, District Manager
9	City of Elmhurst submitted by Dennis Streicher, Director of Water & Wastewater
10	Urbana & Champaign Sanitary District submitted by Dennis Schmidt, Executive Director
11	Glenbard Wastewater Authority submitted by William E. Kuzia, P.E., Utilities Manager
12	North Shore Sanitary District submitted by Joseph T. Robinson for Brian Jensen, General Manager
13	Rochelle Municipal Utilities submitted by Kathy Cooper Superintendent Water/Water Reclamation
14	City of Naperville Department of Public Utilities submitted by Allen F. Panek, Assistant Director
15	Downers Grove Sanitary District submitted by Lawrence C. Cox, General Manager
16	DeKalb Sanitary District submitted by Stephen N. Haughey
17	Thorn Creek Basin Sanitary District submitted by James L. Daugherty, Plant Manager
18	Post Hearing Comments of Environmental Law and Policy Center, Prairie Rivers Network, and the Sierra Club submitted by Albert F. Ettinger

19	Dr. Brian D. Anderson of Department of Natural Resources submitted by Stanley Yonkauski, Jr.
20	Illinois Association of Wastewater Agencies submitted by Sheila H. Deeley
21	Environmental Protection Agency submitted by Sanjay K. Sofat

DISCUSSION

The Agency proposed changes in five areas to the Board's water regulations. Those areas are: BETX; changes to General Use Water Quality Standards for zinc, nickel and cyanide; the dissolved metals standard; GLI corrections; and a change from regulating BOD₅ to CBOD₅. The following discussion will summarize the support in the record for the addition of BETX substances, the change to the Zinc and Nickel General Use Water Quality Standards, and the changes based on GLI. These proposed changes are unopposed by the participants. Next, the Board will elaborate on the issues surrounding dissolved metals, cyanide and dissolved oxygen and explain the Board's decision on each of those issues.

BETX

BETX is an acronym for four volatile organic substances commonly present in petroleum products. Those four substances are benzene, ethyl benzene, toluene, and xylenes. BETX substance found in petroleum storage facilities may endanger groundwater supplies. Prop. at Exh. F at 2. In some cases groundwater can then infiltrate into surface waters to endanger aquatic life. *Id.* The Agency proposed General Use Water Quality Standards and Lake Michigan Water Quality Standards for these substances giving both an acute and a chronic value. Tr.1 at 15. The Agency had in the past derived the standards for the BETX substances under the Board's rules at 35 Ill. Adm. Code 302.210. Tr.1 at 50. Section 302.210 does not contain specific water quality values for each of the BETX compounds, but, instead delineates procedures for determining acute and chronic toxicity values for "other toxic substances." 35 Ill. Adm. Code 302.210. However, the Agency found that these four substances were used over and over again. Tr.1 at 51. Therefore, the Agency proposed the standards be included in the Board's rules. *Id.*

The Agency developed the standards for the BETX substances using the procedures set forth in *Guidelines for Deriving Numerical National Water Quality Criteria for the Protection of Aquatic Organisms and their Uses*, USEPA 1985, NTIS PB85-227049 (Guideline). Prop. at Exh. E; Tr.1 at 25. The Agency used the Tier II procedure that involved several steps. Tr.1 at 27. First, data was obtained from a USEPA database and other sources on the substance and the data was verified using the Agency's library sources. *Id.* Next, the data was tabulated as required by the Guideline. *Id.* Statistical calculations were made and documents were prepared for each substance. Tr.1 at 27-28. The Agency provided copies of those documents to the Board as a part of the Agency's proposal. See Prop. at Exh. J, M, O, and R. The actual standards proposed by the Agency are similar to the numbers derived under 35 Ill. Adm. Code 302.210.

The Board finds that the record supports the Agency's proposed addition of water quality standards for the BETX substances. Therefore, the Board will propose for first notice the Agency's proposed changes Section 302.208(e) and 302.504(a).

Zinc, Nickel and Cyanide

One goal of triennial review is to update and review existing toxic metal standards. Tr.1 at 15-16. These metals have "one number standards" adopted in the 1970s as opposed to the "two number standards" that have been preferred method for the last fifteen years. Tr.1 at 16. Nickel and Zinc fall into this category. *Id.* Therefore, using the Guideline and the procedure discussed above, the Agency developed the proposed acute and chronic General Use Water Quality Standards for Zinc and Nickel. Tr.1 at 28; Prop. at Exh. S and V. The Board finds that the record supports the Agency's proposed addition of acute and chronic standards for Zinc and Nickel. Therefore, the Board will proceed to first notice with that proposed change in Section 302.208(e). The Agency's proposal to change the cyanide standard is more controversial, and will be discussed in detail in the issues section below.

Corrections to GLI

The Agency testified that the GLI rulemaking (R97-25) intended to list metals in the dissolved form, but the conversion factors were inadvertently left out. This proposal would correct that omission at Section 302.504. Tr.1 at 21. In addition, information was left out in Section 302.575 and that information is added here. *Id.* The Board finds that the record supports these proposed changes and will proceed to first notice with the changes.

Issues

As discussed above, three areas of concern have been raised. First is whether the Board should require the Agency to provide implementation rules regarding hardness, reasonable potential testing, dissolved oxygen and the metals translator prior to proceeding to first notice with the Agency's proposal. Second is whether the Board should adopt the cyanide standard. Third is whether compliance with the BOD₅ effluent limits in Section 304.120 should be determined by measuring CBOD₅. The public comments and testimony of the participants will be discussed where appropriate.

Agency Implementation Procedures

The Agency indicated in the proposal that the Agency would draft implementation rules to allow the administration of the metals translator process for determining water quality based permit limitations for NPDES permits. Prop. at 11. At hearing, Mr. Robert Mosher testified on behalf of the Agency that the implementation rules were still under development, and the rules would be presented at the second hearing. Tr.1 at 41. Mr. Mosher went on to testify that the Agency needs to provide instructions on several aspects of the proposed Board rules. Tr.1 at 42. Specifically, Mr. Mosher indicated that the Agency needed to provide information

on where the Agency would get “hardness data” and on how the Agency will do “a reasonable potential analysis to determine if a certain substance needs to be regulated in the NPDES permit.” Tr.1 at 42-43. Mr. Mosher also indicated the Agency will have instructions on how the Agency will do the metals translator. Tr.1 at 43-44.

At the second hearing, the Agency did not provide copies of the draft implementation rules. Tr.2 at 10. The Agency declined to provide the implementation rules for three reasons. *Id.* First, the Agency indicated that this rulemaking process should concentrate on the process used by the Agency to develop the standards. *Id.* Second, the Agency rules are still a work in progress, and third, the Agency will follow a separate public process for development of the rules. *Id.* In addition, the Agency noted that it intends to follow the procedures outlined in USEPA guidance documents³ in developing the implementation procedures. PC 21 at 4.

The Environmental Groups argue that the Board should not proceed with the proposal absent implementation rules on hardness, reasonable potential testing, dissolved oxygen, and metals translator. PC 18 at 2. The Environmental Groups argue that it is critical for the Board to see the implementation rules as such rules often make the difference as to whether the standard is protective of aquatic life, overly stringent, or useless. *Id.* The Environmental Groups use hardness as one example and note that where instream hardness is measured and what figure for hardness is used in calculating permits can make a large difference in permit limits. *Id.* Dr. Cynthia Skrukrud testified to the importance of seeing the Agency’s implementation rules. Tr.2 at 90. Dr. Skrukrud indicated that the only way to understand the proposed changes to the Board’s rules is to understand how the Agency will write the permits. *Id.*

Discussion. In general, the Board agrees that seeing implementation procedures for the water quality standards is important. The Board’s hearing officer strongly urged the Agency to provide the Board with copies of the implementation rules as a part of the Agency’s comments. Tr.2 at 149. The Agency chose not to do so. While it would be helpful to know the implementation procedures in developing comprehensive water quality regulations, in this proceeding the Board believes that the Agency has sufficient federal guidance and experience to develop implementation procedures which ensure that water quality standards are protective of aquatic life.

In this regard, the Board notes that the Agency has been issuing permits implementing the General Use Water Quality Standards, including standards based on hardness for a number of years. Further, the Agency has already developed detailed procedures for implementing the Lake Michigan Basin Water Quality Standards that address reasonable potential determination. *See* 35 Ill. Adm. Code 352. The Board expects the Agency to develop similar procedures for

³ *Technical Support Document for Water Quality Based Toxics Control*, EPA/505/2-90-001 (March 1991), and *The Metals Translator: Guidance for Calculating a Total Recoverable Permit Limit from a Dissolved Criterion*, EPA 823-B-96-007.

the implementing the General Use Water Quality Standards that are consistent with the USEPA's guidance.⁴ In light of this, the Board believes that it would be prudent to move the proposed water quality standards, with the exception of cyanide, to first notice and allow the Agency to develop their own implementation rules in a separate rulemaking.

The Board will also proceed to first notice with proposed Section 309.157. That section of the proposal addresses permit limits for total metals. Again, while the Board recognizes the Environmental Groups' concern regarding the lack of specific Agency implementation procedures for the calculation of permit limits based on site-specific data, the Board believes that the USEPA's metals translator document (Prop. at Exh. A) provides sufficient guidance for determining site-specific metals translator. In this regard, the Agency maintains that it will follow the federal guidance in developing the implementation procedures for calculating permit limits. *See* PC 21 at 4. In view of this, the Board adopts Section 309.157 with some minor clarifying changes that require the Agency to develop implementation procedures for developing site-specific metals translator that are consistent with the federal guidance. The Board invites the participants to comment on this change to proposed Section 309.157.

Cyanide

As indicated above the Agency proposed for amendment the acute and chronic water quality standards for cyanide in Section 302.208. Prop. at 10. The Agency indicates that while the standard as originally adopted was derived using cold-water species, the standard is being applied to Illinois waters that do not support cold water species. *Id.* The Agency proposes a standard that "corrects this error" and is intended to be protective of all species found in General Use waters. *Id.*

The Environmental Groups are joined by the Illinois Department of Natural Resources (IDNR) in opposition to the change proposed for cyanide. The Environmental Groups point out that Mr. Mosher testified that the Agency knows of no discharger who will be helped by adopting the "less protective standard" proposed. PC 18 at 3, citing Tr.2 at 61. The Environmental Groups agree that adjusting a national criteria to eliminate protection for species that do not live in Illinois makes sense "when there is relevant data for all of the more sensitive species in Illinois." PC 18 at 3. And as long as the relevant data indicates that the resulting standard will still be protective of the species in Illinois. *Id.* The Environmental Groups point to the testimony of Agency witness Clark Olsen that there is no data on cyanide toxicity to mussels, and the Agency is proceeding with the standard without knowing if the standard will protect endangered and threatened mussels in Illinois. *Id.*

The Environmental Groups are also concerned that no cool-water fish have been taken into account, even though the fish may be present in Illinois. PC 18 at 4. The Environmental

⁴ *The Metals Translator: Guidance for Calculating a Total Recoverable Permit Limit from a Dissolved Criterion*, EPA 823-B-96-007 (1996).

Groups also feel that the Agency reliance on the antidegradation rules to protect these species may be misplaced. *Id.*

IDNR maintains that there is not enough scientific evidence that the proposed cyanide standard will be protective of all species in General Use Waters, including cool-water fishes, and unionid mussels. PC 19 at 3. IDNR comments that cool-water species rainbow trout (*Oncorhynchus mykiss*) and brown trout (*Salmo trutta*) have been stocked to maintain recreational fisheries in Illinois. PC 19 at 1. Rainbow trout have reproduced at a lake in southern Illinois and brown trout may have reproduced in an Illinois stream. PC 19 at 1. According to IDNR, there are a number of fish species in northern Illinois that could be considered cool-water species, and therefore, cyanide toxicity test data on cool-water species, such as trout, would be more appropriate in developing a protective cyanide standard. PC 19 at 1-2. IDNR also has concerns based on the USEPA document, *Ambient Water Quality Criteria for Cyanide – 1984*, which is the source of the cyanide standard. PC 19 at 2. First, no data on cyanide toxicity for unionid mussels was used in setting the cyanide standard, yet, IDNR notes that Illinois has 27 species of unionid mussels that are listed as state or federal endangered or threatened species. PC 19 at 2. Second, the USEPA document references a study which found adverse effects on bluegill (*Lepomis macrochirus*) spawning for cyanide concentrations near the range of the proposed standard. PC 19 at 2. For the reasons listed above, IDNR opposes the change to the cyanide standard.

Mr. Mosher testifying on behalf of the Agency concedes that to the best of the Agency's knowledge there are no studies which evaluate the effect of cyanide on mussels. Tr.2 at 139. Mr. Mosher further testified that "in the science of aquatic life toxicity testing, studies on mussels are not yet an established and reliable procedure." *Id.* Mr. Mosher stated that there is no approved methodology for conducting toxicity tests on mussels, however the USEPA has been experimenting with mussel toxicity testing. *Id.* The USEPA does not "require or endorse the use of mussel toxicity data at this time," according to Mr. Mosher. Tr.2 at 139-140. Mr. Mosher testified that if toxicity testing for mussels becomes an approved and standardized process, the USEPA will incorporate mussel data into national criteria and the states will be "obliged" to use mussel data. Tr.2 at 140. When and if this occurs Mr. Mosher indicated that Illinois can update the water quality rules in Illinois to reflect the new data. *Id.* Mr. Mosher stated that until then, the Agency must use approved data in deriving the water quality standards. *Id.*

Discussion. The Board is convinced by the comments and testimony regarding the relaxation of the cyanide standard that such a relaxation is not warranted at this time. The Agency based the proposed amendment of the cyanide standard on the assumption that Illinois does not have native cold-water species of fish outside of Lake Michigan. However, IDNR has indicated that stocked cold-water species have reproduced in Illinois. This is information that the Agency did not have when considering the relaxation of the standard for cyanide (*see* Tr.1 at 62). The Agency also testified that a cool-water species (sculpin) are present in Illinois, but those streams "are not now thought to contain significant amounts of cyanide," and the Board's antidegradation rules can be used to evaluate the streams. Tr.2 at 141. The

Board notes that while antidegradation evaluations provide additional protection to a water body in a permitting context, such an evaluation should not be used as a justification to relax water quality standards.

The Board is also concerned with the lack of information regarding mussels in Illinois. At this time there are no studies that either the Agency or the participants are aware of which review the effect of cyanide toxicity on mussels. The Agency relies on the fact that the USEPA does not use mussel data to support the Agency's proposal. However, USEPA's lack of information is not scientific support for relaxing the standard. There are many endangered and threatened species of mussels in Illinois and no evidence to establish that relaxation of the standard will have no effect on those species. Furthermore, the relaxation of the standard will not help any Illinois dischargers. Therefore, the Board at this time finds that the proposed cyanide standard is not justified, and the Board will not proceed with the change. In addition, the Board will not proceed with the Agency's proposed repeal of Section 303.444, and the caption will be amended to reflect that change.

CBOD₅ Instead of BOD₅

The Agency's proposal amends Section 304.120 of the Board's regulations to allow the use of CBOD₅ instead of BOD₅ in NPDES permits. The Agency asserts that this amendment will ensure compliance with the effluent limitations provided under Sections 301 and 302 of the Clean Water Act. Prop at 9. The purpose of the BOD₅ test is to measure the efficiency of the wastewater treatment process. Tr.1 at 36. The Agency argues that the BOD₅ test may not provide useful information on the removal efficiency of the treatment process. Tr.1 at 37. The testimony of Michael Callahan, on behalf of IAWA (Tr.2 at 114), and the three attachments to his testimony (Exh. 14, 15, and 16) provide considerable scientific evidence to support the Agency's position. The Agency maintains that the most logical way to measure the quality of the effluent is to assess and control components individually. Therefore the Agency testified that using the CBOD₅ test "to measure carbonaceous demand and where ammonia nitrogen effluent standards are appropriate[,] use the ammonia nitrogen test to measure nitrogenous demand" is appropriate. Tr.1 at 38.

The BOD₅ test is designed to measure the carbonaceous oxygen demand in a sample and to measure the efficiency of a treatment process by comparing the carbonaceous oxygen demand before and after the treatment process. Tr.1 at 36-37. In treatment processes that do not nitrify or completely nitrify the use of the BOD₅ test on both influent and effluent will provide information on the efficiency of the treatment process. Tr.1 at 37. However, if the system only partially nitrifies, the use of the BOD₅ test will compare the carbonaceous demand in the influent with both the carbonaceous and nitrogenous oxygen demand in the effluent. *Id.* This does not provide useful information on the removal efficiency of the treatment process. *Id.*

The Agency suggests that the best way to judge the quality of the effluent is to use the BOD₅ test on influent and, on the effluent, the CBOD₅ test to measure carbonaceous oxygen

demand and the ammonia nitrogen test to measure nitrogenous demand. Tr.1 at 38. The Agency also believes this procedure is more logical than trying to measure the combined carbonaceous oxygen demand and nitrogenous oxygen demand with the BOD₅ test which has proven to provide misleading and inconsistent results. Tr.1 at 38. In 1984, the USEPA amended the federal regulations to allow for the use of CBOD₅ and since 1986 the Agency has used CBOD₅, in lieu of BOD₅ in NPDES permits. Tr.1 at 35. The Agency also incorporates ammonia nitrogen water quality based effluent limits where appropriate. Tr.1 at 35-36.

The Environmental Groups oppose the proposed change to CBOD₅ from BOD₅ because they believe CBOD₅ does not measure the total oxygen demand of the discharge. PC 18 at 5. Specifically, the Environmental Groups are concerned that dissolved oxygen standards are being violated in Illinois and will continue to be violated with this change in standard. PC 18 at 6. The Environmental Groups are also concerned that the proposal ignores nitrogenous oxygen demand. PC 18 at 7.

The proposal by the Agency to replace the limits for BOD₅ with limits for CBOD₅ is supported by IAWA, Metropolitan Water Reclamation District of Greater Chicago, Wheaton Sanitary District, Lake in the Hills Sanitary District, Greater Peoria Sanitary District, Springfield Metro Sanitary District, Fox Metro Water Reclamation, Rock River Water Reclamation District, City of Elmhurst, Urbana & Champaign Sanitary District, Glenbard Wastewater Authority, North Shore Sanitary District, Rochelle Municipal Utilities, City of Naperville Department of Public Utilities, Downers Grove Sanitary District, DeKalb Sanitary District, and Thorn Creek Basin Sanitary District. Specifically, IAWA comments that the Agency's proposal is not a mechanism to relax existing effluent standards. PC 20 at 1. IAWA opines that the proposed change is an attempt to more clearly define wording and terminology of the existing rule. *Id.*

Discussion. The Environmental Groups primary concern is that using CBOD₅ to measure the efficiency of wastewater treatment facilities may not be fully protective of dissolved oxygen levels in Illinois waters, because CBOD₅ does not measure nitrogenous oxygen demand. However, the evidence in the record, such as IAWA's Exhibits 14, 15 and 16, document that the BOD₅ test in many cases does not accurately represent wastewater treatment efficiency or the actual oxygen demand experienced in the receiving stream. The record supports the Agency's position that combined effluent testing for CBOD₅ and ammonia nitrogen provides a more representative measure of treatment efficiency. In addition, the Agency has been using CBOD₅ since 1986 in NPDES permits, yet stream studies provided by the Agency indicate that streams regulated for CBOD₅ are "generally not suffering from low dissolved oxygen problems." PC 21 at 3. Furthermore, the record demonstrates that public wastewater treatment facilities throughout Illinois support this change. Therefore, the Board finds that the record supports proceeding to first notice with the change in Section 304.120 allowing the use of the CBOD₅ to determine compliance with the BOD₅ numerical standards found in Section 304.120. Participants are encouraged to provide additional comment on this change.

SECTION 302.105

The Board is opening this section to correct typographical errors from Revisions to Antidegradation Rules 35 Ill. Adm. Code 302.105, 303.205, 303.206, and 102.800-102.830 R01-13 (Feb. 21, 2002). This section is opened only to address typographical errors and no substantive changes will be considered in this rulemaking.

ECONOMIC REASONABLENESS AND TECHNICAL FEASIBILITY OF THE PROPOSAL

The Agency's proposal also addressed the economic reasonableness and technical feasibility of the proposal. The Agency indicated that this proposal contains no new regulatory requirements under the Illinois' water quality standards. Prop. at 15. The Agency maintains that the proposal revises and updates existing standards based on new scientific information. The Agency asserts that the regulated community has been complying with the BETX standards for some time. *Id.* Other than comments discussed above, the Board has received no comments which indicate that the proposal is not economically reasonable and technically feasible. Therefore, the Board finds that the rule is economically reasonable and technically feasible.

CONCLUSION

The Board today proposes for first notice amendments to the Board's water rules. The Board is adopting the proposal as filed by the Agency with minor changes except the Board will not proceed with the proposed cyanide standard. The Board will schedule an additional hearing by hearing officer order at a later date.

ORDER

The Board directs the Clerk to cause the publication of the following rule for first notice in the *Illinois Register*.

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

PART 301
INTRODUCTION

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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. 11277, effective August 26, 1999; amended in R02-11 at _____ Ill. Reg. _____, effective _____.

Section 301.106 Incorporations by Reference

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

"ASTM" means American Society for Testing and Materials

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

"NTIS" means National Technical Information Service

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

"USEPA" means United States Environmental Protection Agency

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

USEPA 1996: The Metals Translator: Guidance for Calculating a Total Recoverable Permit Limit from a Dissolved Criterion. EPA 823-B-96-007 (1996)

- e) This Section incorporates no future editions or amendments.

Section 301.267 Conversion Factor

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

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

Section 301.313 Metals Translator

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

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

Section 301.413 Total Metal

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

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

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

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302.666	Utilizing the Bioconcentration Factor
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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 21 Ill. Reg. 370, effective December 23, 1996; expedited correction at 21 Ill. Reg. 6273, effective December 23, 1996; amended in R97-25 at 21 Ill. Reg. 1356, effective December 24, 1997; amended in R99-8 at 23 Ill. Reg. 11249, effective August 26, 1999; amended in R01-13 at 26 Ill. Reg. 3505, effective February 22, 2002; amended in R02-19 at _____ Ill. Reg. _____, effective _____; amended in R02-11 at _____ Ill. Reg. _____, effective _____.

SUBPART A: GENERAL WATER QUALITY PROVISIONS

Section 302.105 Antidegradation

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

a) Existing Uses

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

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

b) Outstanding Resource Waters

- 1) Waters that are designated as Outstanding Resource Waters (ORWs) pursuant to 35 Ill. Adm. Code 303.205 and listed in 35 Ill. Adm. Code 303.206 must not be lowered in quality except as provided below:

- A) Activities that result in short-term, temporary (i.e., weeks or months) lowering of water quality in an ORW; or
 - B) Existing site stormwater discharges that comply with applicable federal and State stormwater management regulations and do not result in a violation of any water quality standards.
- 2) Any activity in subsection (b)(1)(A) or (b)(1)(B) that requires a National Pollutant Discharge Elimination System (NPDES) or a Clean Water Act (CWA) Section 401 certification must also comply with subsection (c)(2).
 - 3) Any activity listed in subsection (b)(1) or any other proposed increase in pollutant loading to an ORW must also meet the following requirements:
 - A) All existing uses of the water will be fully protected; and
 - B) Except for activities falling under one of the exceptions provided in subsection (b)(1)(A) or (B) above:
 - i) The proposed increase in pollutant loading is necessary for an activity that will improve water quality in the ORW; and
 - ii) The improvement could not be practicably achieved without the proposed increase in pollutant loading.
 - 4) Any proposed increase in pollutant loading requiring an NPDES permit or a CWA 401 certification for an ORW must be assessed pursuant to subsection (f) to determine compliance with this Section.
- c) High Quality Waters
- 1) Except as otherwise provided in subsection (d) of this Section, waters of the State whose existing quality is better than any of the established standards of this Part must be maintained in their present high quality, unless the lowering of water quality is necessary to accommodate important economic or social development.
 - 2) The Agency must assess any proposed increase in pollutant loading that necessitates a new, renewed or modified NPDES permit or any activity requiring a CWA Section 401 certification to determine compliance with this Section. The assessment to determine compliance with this Section

must be made on a case-by-case basis. In making this assessment, the Agency must:

- A) Consider the fate and effect of any parameters proposed for an increased pollutant loading.
- B) Assure the following:
 - i) The applicable numeric or narrative water quality standard will not be exceeded as a result of the proposed activity;
 - ii) All existing uses will be fully protected;
 - iii) All technically and economically reasonable measures to avoid or minimize the extent of the proposed increase in pollutant loading have been incorporated into the proposed activity; and
 - iv) The activity that results in an increased pollutant loading will benefit the community at large.
- C) Utilize the following information sources, when available:
 - i) Information, data or reports available to the Agency from its own sources;
 - ii) Information, data or reports supplied by the applicant;
 - iii) Agency experience with factually similar permitting scenarios; and
 - iv) Any other valid information available to the Agency.
- d) Activities Not Subject to a Further Antidegradation Assessment

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

- 1) Short-term, temporary (i.e., weeks or months) lowering of water quality;
- 2) Bypasses that are not prohibited at 40 CFR 122.41(m);
- 3) Response actions pursuant to the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA), as amended,

corrective actions pursuant to the Resource Conservation and Recovery Act (RCRA), as amended, or similar federal or State authority, taken to alleviate a release into the environment of hazardous substances, pollutants or contaminants which may pose a danger to public health or welfare;

- 4) Thermal discharges that have been approved through a CWA Section 316(a) demonstration;
- 5) New or increased discharges of a non-contact cooling water:
 - A) without additives, except as provided in subsection (d)(5)(B), returned to the same body of water from which it was taken, as defined by 35 Ill. Adm. Code 352.104, provided that the discharge complies with applicable Illinois thermal standards; or
 - B) containing chlorine when the non-contact cooling water is treated to remove residual chlorine, and returned to the same body of water from which it was taken, as defined in 35 Ill. Adm. Code 352.104, provided that the discharge complies with applicable Illinois thermal and effluent standards at 35 Ill. Adm. Code 302, 303, and 304;
- 6) Discharges permitted under a current general NPDES permit as provided by 415 ILCS 5/39(b) or a nationwide or regional CWA Section 404 permit are not subject to facility-specific antidegradation review; however, the Agency must assure that individual permits or certifications are required prior to all new pollutant loadings or hydrological modifications that necessitate a new, renewed or modified NPDES permit or CWA Section 401 certification that affects waters of particular biological significance. Waters of particular biological significance may include streams listed in a 1991 publication by the Illinois Department of Conservation entitled "Biologically Significant Illinois Streams; or
- 7) Changes to or inclusion of a new permit limitation that does not result in an actual increase of a pollutant loading, such as those stemming from improved monitoring data, new analytical testing methods, new or revised technology or water quality based effluent limits.

e) Lake Michigan Basin

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

f) Antidegradation Assessments

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

- 1) A permit application for any proposed increase in pollutant loading that necessitates the issuance of a new, renewed, or modified NPDES permit or a CWA Section 401 certification must include, to the extent necessary for the Agency to determine that the permit application meets the requirements of this Section, the following information:
 - A) Identification and characterization of the water body affected by the proposed load increase or proposed activity and the existing water body's uses. Characterization must address physical, biological and chemical conditions of the water body.
 - B) Identification and quantification of the proposed load increases for the applicable parameters and of the potential impacts of the proposed activity on the affected waters.
 - C) The purpose and anticipated benefits of the proposed activity. Such benefits may include:
 - i) Providing a centralized wastewater collection and treatment system for a previously unsewered community;
 - ii) Expansion to provide service for anticipated residential or industrial growth consistent with a community's long range urban planning;
 - iii) Addition of a new product line or production increase or modification at an industrial facility; or
 - iv) An increase or the retention of current employment levels at a facility.
 - D) Assessments of alternatives to proposed increases in pollutant loading or activities subject to Agency certification pursuant to Section 401 of the CWA that result in less of a load increase, no load increase or minimal environmental degradation. Such alternatives may include:
 - i) Additional treatment levels, including no discharge alternatives;
 - ii) Discharge of waste to alternate locations, including

publicly-owned treatment works and streams with greater assimilative capacity; or

- iii) Manufacturing practices that incorporate pollution prevention techniques.
 - E) Any additional information the Agency may request.
 - F) Proof that a copy of the application has been provided to the Illinois Department of Natural Resources.
- 2) The Agency must complete an antidegradation assessment in accordance with the provisions of this Section on a case-by-case basis.
- A) The Agency must consider the criteria stated in Section 302.105(c)(2).
 - B) The Agency must consider the information provided by the applicant pursuant to subsection (f)(1).
 - C) After its assessment, the Agency must produce a written analysis addressing the requirements of this Section and provide a decision yielding one of the following results:
 - i) If the proposed activity meets the requirements of this Section, then the Agency must proceed with public notice of the NPDES permit or CWA Section 401 certification and include the written analysis as a part of the fact sheet accompanying the public notice;
 - ii) If the proposed activity does not meet the requirements of this Section, then the Agency must provide a written analysis to the applicant and must be available to discuss the deficiencies that led to the disapproval. The Agency may suggest methods to remedy the conflicts with the requirements of this Section;
 - iii) If the proposed activity does not meet the requirements of this Section, but some lowering of water quality is allowable, then the Agency will contact the applicant with the results of the review. If the reduced loading increase is acceptable to the applicant, upon the receipt of an amended application, the Agency will proceed to public notice; or if the reduced loading increase is not acceptable to the applicant, the Agency will transmit its written

review to the applicant in the context of a NPDES permit denial or a CWA Section 401 certification denial.

- 3) The Agency will conduct public notice and public participation through the public notice procedures found in 35 Ill. Adm. Code 309.109 or CWA Section 401 certifications. The Agency must incorporate the following information into a fact sheet accompanying the public notice:
- A) A description of the activity, including identification of water quality parameters for which there will be an increased pollutant loading;
 - B) Identification of the affected surface water body or water body segment, any downstream surface water body or water body segment also expected to experience a lowering of water quality, characterization of the designated and current uses of the affected surface water body or water body segments and identification of which uses are most sensitive to the proposed load increase;
 - C) A summary of any review comments and recommendations provided by Illinois Department of Natural Resources, local or regional planning commissions, zoning boards and any other entities the Agency consults regarding the proposal;
 - D) An overview of alternatives considered by the applicant and identification of any provisions or alternatives imposed to lessen the load increase associated with the proposed activity; and
 - E) The name and telephone number of a contact person at the Agency who can provide additional information.

(Amended at ____ Ill. Reg. _____, effective _____)

SUBPART B: GENERAL USE WATER QUALITY STANDARDS

Section 302.208 Numeric Standards for Chemical Constituents

- a) The acute standard (AS) for the chemical constituents listed in subsection (e) shall not be exceeded at any time except as provided in subsection (d).
- b) The chronic standard (CS) for the chemical constituents listed in subsection (e) shall not be exceeded by the arithmetic average of at least four consecutive samples collected over any period of at least four days, except as provided in subsection (d). The samples used to demonstrate ~~attainment compliance~~ or lack of ~~attainment compliance~~ with a CS must be collected in a manner that which assures an average representative of the sampling period. For the metals that

have water quality based standards dependent upon hardness, the chronic water quality standard will be calculated according to subsection (e) using the hardness of the water body at the time the metals sample was collected. To calculate attainment status of chronic metals standards, the concentration of the metal in each sample is divided by the calculated water quality standard for the sample to determine a quotient. The water quality standard is attained if the mean of the sample quotients is less than or equal to one for the duration of the averaging period.

- c) The human health standard (HHS) for the chemical constituents listed in subsection (f) shall not be exceeded when the stream flow is at or above the harmonic mean flow pursuant to Section 302.658 nor shall an annual average, based on at least eight samples, collected in a manner representative of the sampling period, exceed the HHS except as provided in subsection (d).
- d) In waters where mixing is allowed pursuant to Section 302.102, the following apply:
- 1) The AS shall not be exceeded in any waters except for those waters for which the Agency has approved a ZID pursuant to Section 302.102.
 - 2) The CS shall not be exceeded outside of waters in which mixing is allowed pursuant to Section 302.102.
 - 3) The HHS shall not be exceeded outside of waters in which mixing is allowed pursuant to Section 302.102.
- e) Numeric Water Quality Standards for the Protection of Aquatic Organisms

Constituent	Storet Number	AS ($\mu\text{g/L}$) (ug/L)	CS ($\mu\text{g/L}$) (ug/L)
Arsenic (trivalent, dissolved) (total)	22680 01002	360 X 1.0* = 360	190 X 1.0* = 190
Cadmium (dissolved) (total)	01025 01027	$\exp[A + B \ln(H)] \times \{1.138672 - [(\ln H)(0.041838)]\}^*$, but not to exceed 50 $\mu\text{g/L}$, where A = -2.918 and B = 1.128	$\exp[A + B \ln(H)] \times \{1.101672 - [(\ln H)(0.041838)]\}^*$, where A = -3.490 and B = 0.7852
Chromium (hexavalent, total)	01032	16	11

(total hexavalent)

Chromium (trivalent, <u>dissolved</u>) (total trivalent)	<u>80357</u> <u>01033</u>	$\exp[A + B \ln(H)] \underline{X}$ <u>0.316*</u> where A=3.688, and B=0.8190	$\exp[A + B \ln(H)] \underline{X}$ <u>0.860*</u> where A=1.561, and B=0.8190
Copper (<u>dissolved</u>) (total)	<u>01040</u> <u>01042</u>	$\exp[A + B \ln(H)] \underline{X}$ <u>0.960*</u> where A=-1.464, and B=0.9422	$\exp[A + B \ln(H)] \underline{X}$ <u>0.960*</u> where A=-1.465, and B=0.8545
Cyanide	00718	22	5.2
Lead (<u>dissolved</u>) (total)	<u>01049</u> <u>01051</u>	$\exp[A + B \ln(H)] \underline{X}$ <u>{1.46203-</u> <u>[(lnH)(0.145712)]}</u> where A=-1.301, and B=1.273	$\exp[A + B \ln(H)] \underline{X}$ <u>{1.46203-</u> <u>[(lnH)(0.145712)]}</u> where A=-2.863, and B=1.273
Mercury (<u>dissolved</u>)	<u>71890</u> <u>71900</u>	$2.6 \underline{X} 0.85^* = 2.2$	$1.3 \underline{X} 0.85^* = 1.1$
<u>Nickel (dissolved)</u>	<u>01065</u>	$\frac{\exp[A + B \ln(H)] \underline{X}}{0.998^*}$ where A=0.5173, and <u>B=0.8460</u>	$\frac{\exp[A + B \ln(H)] \underline{X}}{0.997^*}$ where A=-2.286, and <u>B=0.8460</u>
TRC	500600	19	11
<u>Zinc (dissolved)</u>	<u>01090</u>	$\frac{\exp[A + B \ln(H)] \underline{X}}{0.978^*}$ where A=0.9035, and <u>B=0.8473</u>	$\frac{\exp[A + B \ln(H)] \underline{X}}{0.986^*}$ where A=-0.8165, and <u>B=0.8473</u>
<u>Benzene</u>	<u>78124</u>	<u>4200</u>	<u>860</u>
<u>Ethylbenzene</u>	<u>78113</u>	<u>150</u>	<u>14</u>
<u>Toluene</u>	<u>78131</u>	<u>2000</u>	<u>600</u>
<u>Xylene(s)</u>	<u>81551</u>	<u>920</u>	<u>360</u>

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

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

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

* = conversion factor multiplier for dissolved metals

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

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

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

g) Concentrations of the following chemical constituents shall not be exceeded except in waters for which mixing is allowed pursuant to Section 302.102.

Constituent	Unit	STORET Number	Standard
Barium (total)	mg/L	01007	5.0
Boron (total)	mg/L	01022	1.0
Chloride (total)	mg/L	00940	500.
Fluoride	mg/L	00951	1.4
Iron (dissolved)	mg/L	01046	1.0
Manganese (total)	mg/L	01055	1.0
Nickel (total)	mg/L	01067	1.0
Phenols	mg/L	32730	0.1
Selenium (total)	mg/L	01147	1.0
Silver (total)	$\mu\text{g/L}$ $\mu\text{g/L}$	01077	5.0
Sulfate	mg/L	00945	500.
Total Dissolved Solids	mg/L	70300	1000.
Zinc (total)	mg/L	01092	1.0

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

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

SUBPART E: LAKE MICHIGAN BASIN WATER QUALITY STANDARDS

Section 302.504 Chemical Constituents

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

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

<u>Constituent</u>	<u>STORET Number</u>	<u>Unit</u>	<u>AS</u>	<u>CS</u>	<u>HHS</u>
Arsenic (Trivalent, dissolved)	22680	µg/L	$340 \frac{X 1.0^*}{340} =$	$148 \frac{X 1.0^*}{148} =$	NA
Cadmium (dissolved)	01025	µg/L	$\exp[A + B \ln(H)] \frac{X}{\{1.138672 - [(\ln H)(0.041838)]\}^*}$ A = -3.6867, and B = 1.128	$\exp[A + B \ln(H)] \frac{X}{\{1.101672 - [(\ln H)(0.041838)]\}^*}$ A = -2.715, and B = 0.7852	NA
Chromium (Hexavalent, total)	01032	µg/L	16	11	NA
Chromium (Trivalent, dissolved)	80357	µg/L	$\exp[A + B \ln(H)] \frac{X}{0.316^* \text{ where}}$ A = 3.7256, and B = 0.819	$\exp[A + B \ln(H)] \frac{X}{0.860^* \text{ where}}$ A = 0.6848, and B = 0.819	NA
Copper	01040	µg/L	$\exp[A + B \ln(H)] \frac{X}{X}$	$\exp[A + B \ln(H)] \frac{X}{X}$	NA

<u>Constituent</u>	<u>STORET Number</u>	<u>Unit</u>	<u>AS</u>	<u>CS</u>	<u>HHS</u>
(dissolved)			$\frac{0.960* \text{ where}}{A = -1.700_2}$ and $B = 0.9422$	$\frac{0.960* \text{ where}}{A = -1.702_2}$ and $B = 0.8545$	
Cyanide (Weak acid dissociable)	00718	µg/L	22	5.2	NA
Lead (dissolved)	01049	µg/L	$\frac{\exp[A + \text{Bln}(H)] \underline{X}}{\{1.46203 -$ $\frac{[(\ln H)(0.1457}{12})]\}^* \text{ where}}$ $A = -1.055_2$ and $B = 1.273$	$\frac{\exp[A + \text{Bln}(H)] \underline{X}}{\{1.46203 -$ $\frac{[(\ln H)(0.1457}{12})]\}^* \text{ where}}$ $A = -4.003_2$ and $B = 1.273$	NA
Nickel (dissolved)	01065	µg/L	$\frac{\exp[A + \text{Bln}(H)] \underline{X}}{0.998* \text{ where}}$ $A = 2.255_2$ and $B = 0.846$	$\frac{\exp[A + \text{Bln}(H)] \underline{X}}{0.997* \text{ where}}$ $A = 0.0584_2$ and $B = 0.846$	NA
Selenium (dissolved)	01145	µg/L	NA	5.0	NA
TRC	50060	µg/L	19	11	NA
Zinc (dissolved)	01090	µg/L	$\frac{\exp[A + \text{Bln}(H)] \underline{X}}{0.978* \text{ where}}$ $A = 0.884_2$ and $B = 0.8473$	$\frac{\exp[A + \text{Bln}(H)] \underline{X}}{0.986* \text{ where}}$ $A = 0.884_2$ and $B = 0.8473$	NA
Benzene	<u>78124</u> <u>34030</u>	µg/L	<u>3900</u> NA	<u>800</u> NA	310
Chlorobenzene	34301	mg/L	NA	NA	3.2

<u>Constituent</u>	<u>STORET Number</u>	<u>Unit</u>	<u>AS</u>	<u>CS</u>	<u>HHS</u>
2,4-Dimethylphenol	34606	mg/L	NA	NA	8.7
2,4-Dinitrophenol	03756	mg/L	NA	NA	2.8
Endrin	39390	µg/L	0.086	0.036	NA
<u>Ethylbenzene</u>	<u>78113</u>	<u>µg/L</u>	<u>150</u>	<u>14</u>	<u>NA</u>
Hexachloroethane	34396	µg/L	NA	NA	6.7
Methylene chloride	34423	mg/L	NA	NA	2.6
Parathion	39540	µg/L	0.065	0.013	NA
Pentachlorophenol	03761	µg/L	exp B ([pH] +A) where A = -4.869, and B = 1.005	exp B ([pH] +A) where A = -5.134, and B = 1.005	NA
Toluene	78131	mg/L	<u>2000</u> NA	<u>610</u> NA	51.0
Trichloroethylene	39180	µg/L	NA	NA	370
<u>Xylene(s)</u>	<u>81551</u>	<u>µg/L</u>	<u>1200</u>	<u>490</u>	<u>NA</u>

Where:

NA = Not Applied

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

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

* = conversion factor multiplier for dissolved metals

- b) The following water quality standards must not be exceeded at any time in any waters of the Lake Michigan Basin, unless a different standard is specified under subsection (c) of this Section.

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

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

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

<u>Constituent</u>	<u>STORET Number</u>	<u>Unit</u>	<u>Water Quality Standard</u>
Lindane	39782	µg/L	0.47
Methylene chloride	34423	µg/L	47.0
Toluene	78131	mg/L	5.60
Trichloroethylene	39180	µg/L	29.0

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

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

Where: mg/L = milligrams per liter (10^{-3} grams per liter)
 µg/L = micrograms per liter (10^{-6} grams per liter)
 ng/L = nanograms per liter (10^{-9} grams per liter)
 pg/L = picograms per liter (10^{-12} grams per liter)
 fg/L = femtograms per liter (10^{-15} grams per liter)
 NA = Not Applied

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

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

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

- a) This method shall also be used for non-BCCs when appropriately modified to consider the following factors:
 - 1) Selection of scientifically justified target species;
 - 2) Relevant routes of chemical exposure;
 - 3) Pertinent toxicity endpoints.
- b) Minimum data requirements:
 - 1) Test dose (TD). In order to calculate a LMWC the following minimal data base is required:

- A) There must be at least one data set showing dose-response for oral, subchronic, or chronic exposure of 28 days for one bird species; and
 - B) There must be at least one data set showing dose-response for oral, subchronic, or chronic exposure of 90 days for one mammal species.
- 2) Bioaccumulation Factor (BAF) data requirements:
- A) For any chemical with a BAF of less than 125 the BAF may be obtained by any method; and
 - B) For chemicals with a BAF of greater than 125 the BAF must come from a field measured BAF or BSAF.
- c) Principles for development of criteria
- 1) Dose standardization. The data for the test species must be expressed as, or converted to, the form mg/kg/d utilizing the guidelines for drinking and feeding rates and other procedures in 40 CFR 132, incorporated by reference at Section 302.510.
 - 2) Uncertainty factors (UF) for utilizing test dose data in the calculation of the target species value (TSV).
 - A) Correction for intermittent exposure. If the animals used in a study were not exposed to the toxicant each day of the test period, the no observed adverse effect level (NOAEL) must be multiplied by the ratio of days of exposure to the total days in the test period.
 - B) Correction from the lowest observed adverse effect level (LOAEL) to NOAEL (UF_1). For those substances for which a LOAEL has been derived, the UF_1 shall not be less than one and should not exceed 10.
 - C) Correction for subchronic to chronic extrapolation (UF_s). In instances where only subchronic data are available, the TD may be derived from subchronic data. The value of the UF_s shall not be less than one and should not exceed 10.
 - D) Correction for interspecies extrapolations (UF_a). For the derivation of criteria, a UF_a shall not be less than one and should not exceed 100. The UF_a shall be used only for extrapolating

toxicity data across species within a taxonomic class. A species specific UF_a shall be selected and applied to each target species, consistent with the equation below.

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

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

Where:

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

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

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

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

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

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

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

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

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

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

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

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

SUBPART A: GENERAL EFFLUENT STANDARDS

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SUBPART C: TEMPORARY EFFLUENT STANDARDS

Section

304.301 Exception for Ammonia Nitrogen Water Quality Violations (Repealed)
 304.302 City of Joliet East Side Wastewater Treatment Plant
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Appendix A References to Previous Rules

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

SOURCE: Filed with the Secretary of State January 1, 1978; amended at 2 Ill. Reg. 30, p. 343, effective July 27, 1978; amended at 2 Ill. Reg. 44, p. 151, effective November 2, 1978; amended at 3 Ill. Reg. 20, p. 95, effective May 17, 1979; amended at 3 Ill. Reg. 25, p. 190, effective June 21, 1979; amended at 4 Ill. Reg. 20, p. 53 effective May 7, 1980; amended at 6 Ill. Reg. 563, effective December 24, 1981; codified at 6 Ill. Reg. 7818; amended at 6 Ill. Reg. 11161, effective September 7, 1982; amended at 6 Ill. Reg. 13750, effective October 26, 1982; amended at 7 Ill. Reg. 3020, effective March 4, 1983; amended at 7 Ill. Reg. 8111, effective June 23, 1983; amended at 7 Ill. Reg. 14515, effective October 14, 1983; amended at 7 Ill. Reg. 14910, effective November 14, 1983; amended at 8 Ill. Reg. 1600, effective January 18, 1984; amended at 8 Ill. Reg. 3687, effective March 14, 1984; amended at 8 Ill. Reg. 8237, effective June 8, 1984; amended at 9 Ill. Reg. 1379, effective January 21, 1985; amended at 9 Ill. Reg. 4510, effective March 22, 1985; peremptory amendment at 10 Ill. Reg. 456, effective December 23, 1985; amended at 11 Ill. Reg. 3117, effective January 28, 1987; amended in R84-13 at 11 Ill. Reg. 7291 effective April 3, 1987; amended in R86-17(A) at 11 Ill. Reg. 14748, effective August 24, 1987; amended in R84-16 at 12 Ill. Reg. 2445, effective January 15, 1988; amended in R83-23 at 12 Ill. Reg. 8658, effective May 10, 1988; amended in R87-27 at 12 Ill. Reg. 9905, effective May 27, 1988; amended in R82-7 at 12 Ill. Reg. 10712, effective June 9, 1988; amended in R85-29 at 12 Ill. Reg. 12064, effective July 12, 1988; amended in R87-22 at 12 Ill. Reg. 13966, effective August 23, 1988; amended in R86-3 at 12 Ill. Reg. 20126, effective November 16, 1988; amended in R84-20 at 13 Ill. Reg. 851, effective January 9, 1989; amended in R85-11 at 13 Ill. Reg. 2060, effective February 6, 1989; amended in R88-1 at 13 Ill. Reg. 5976, effective April 18, 1989; amended in R86-17(B) at 13 Ill. Reg. 7754, effective May 4, 1989; amended in R88-22 at 13 Ill. Reg. 8880, effective May 26, 1989; amended in R87-6 at 14 Ill. Reg. 6777, effective April 24, 1990; amended in R87-36 at 14 Ill. Reg. 9437, effective May 31, 1990; amended in R88-21(B) at 14 Ill. Reg. 12538, effective July 18, 1990; amended in R84-44 at 14 Ill. Reg. 20719, effective December 11, 1990; amended in R86-14 at 15 Ill. Reg. 241, effective December 18, 1990; amended in R93-8 at 18 Ill. Reg. 267, effective December 23, 1993; amended in R87-33 at 18 Ill. Reg. 11574, effective July 7, 1994; amended in R95-14 at 20 Ill. Reg. 3528, effective February 8, 1996; amended in R94-1(B) at 21 Ill. Reg. 364, effective December 23, 1996; expedited

correction in R94-1(B) at 21 Ill. Reg. 6269, effective December 23, 1996; amended in R97-25 at 22 Ill. Reg. 1351, effective December 24, 1997; amended in R97-28 at 22 Ill. Reg. 3512, effective February 3, 1998; amended in R98-14 at 22 Ill. Reg. 687, effective December 31, 1998; amended in R02-19 at _____ Ill. Reg. _____, effective _____; amended in R02-11 at _____ Ill. Reg. _____, effective _____.

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

Section 304.120 Deoxygenating Wastes

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

- a) No effluent shall exceed 30 mg/l of five day biochemical oxygen demand (BOD₅) (STORET number 00310) or 30 mg/l of suspended solids (STORET number 00530), except that treatment works employing three stage lagoon treatment systems which are properly designed, maintained and operated, and whose effluent has a dilution ratio no less than five to one or who qualify for exceptions under subsection (c) shall not exceed 37 mg/l of suspended solids.
- b) No effluent from any source whose untreated waste load is 10,000 population equivalents or more, or from any source discharging into the Chicago River System or into the Calumet River System, shall exceed 20 mg/l of BOD₅ or 25 mg/l of suspended solids.
- c) No effluent whose dilution ratio is less than five to one shall exceed 10 mg/l of BOD₅ or 12 mg/l of suspended solids, except that sources employing third-stage treatment lagoons shall be exempt from this subsection (c) provided all of the following conditions are met:
 - 1) The waste source qualifies under one of the following categories:
 - A) Any wastewater treatment works with an untreated waste load less than 2500 population equivalents, which is sufficiently isolated that combining with other sources to aggregate 2500 population equivalents or more is not practicable.
 - B) Any wastewater treatment works in existence and employing third-stage treatment lagoons on January 1, 1986, whose untreated waste load is 5000 population equivalents or less and sufficiently isolated that combining to aggregate 5000 population equivalents or more is not practicable.

- C) Any wastewater treatment works with an untreated waste load of 5000 population equivalents or less, which has reached the end of its useful life by January 1, 1987, and is sufficiently isolated that combining to aggregate 5000 population equivalents or more is not practicable.
- D) Any wastewater treatment works with an untreated waste load of 5000 population equivalents or less which has reached the end of its useful life and which has received an adjusted standard determination from the Board that it qualifies for a lagoon exemption. Such a Board determination will only be made in an adjusted standard proceeding, held in accordance with Section 28.1 of the Environmental Protection Act (Ill. Rev. Stat. 1987, ch. 111 ½, par. 1028.1) and applicable procedures set forth by 35 Ill. Adm. Code 106.
 - i) In an adjusted standard proceeding the Board may determine that the petitioning wastewater treatment source qualifies for a lagoon exemption if the wastewater treatment works proves that it is so situated that a land treatment system is not a suitable treatment alternative. Factors relevant to a suitability finding may include the following: cost; influent character; geographic characteristics; climate; soil conditions; hydrologic conditions; and the availability of irrigable land.
 - ii) For the purposes of this subsection (D), a land treatment system is a wastewater treatment system which does not directly discharge treated effluent to waters of the State but instead uses the treated effluent to irrigate terrestrial vegetation
- 2) The lagoons are properly constructed, maintained and operated; and
- 3) The deoxygenating constituents of the effluent do not, alone or in combination with other sources, cause a violation of the applicable dissolved oxygen water quality standard.
- d) No effluent discharged to the Lake Michigan basin shall exceed 4 mg/l of BOD₅ or 5 mg/l of suspended solids.
- e) Compliance with the numerical standards in this Section shall be determined on the basis of the type and frequency of sampling prescribed by the NPDES permit for the discharge at the time of monitoring.

- f) For the purposes of this Section, useful life is the period of time during which it is cost effective to operate and maintain a particular wastewater treatment works under consideration. At a minimum, the following factors relating to a wastewater treatment works shall be considered in a determination of its useful life:
- 1) Structural and operational condition of components;
 - 2) Past operations and maintenance record;
 - 3) Cost for continued use; and
 - 4) Description and costs for treatment alternatives.
- g) Compliance with the 5 day biochemical oxygen demand (BOD₅) numerical standard in this Part will be determined by the analysis of 5 day carbonaceous biochemical oxygen demand (CBOD₅) (STORET number 80082), unless federal regulations require treatment works treating industrial wastes to comply with more stringent requirements determined by the analysis of BOD₅. Effluent from the treatment works subject to the requirements of Section 304.120(a) shall not exceed 25 mg/L CBOD₅.

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

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

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

Appendix A References to Previous Rules

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

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

SUBPART A: NPDES PERMITS

Section 309.141 Terms and Conditions of NPDES Permits

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

- a) Effluent limitations under Sections 301 and 302 of the CWA;

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

provisions of this Section, including, but not limited to, Additivity, Intake Pollutants, Loading Limits, Level of Detection/Level of Quantification and Compliance Schedules. When calculation of TMDLs or a Waste Load Allocation is incomplete and it is expected that limits established through other provisions will be superseded upon completion of the TMDL or Waste Load Allocation process, those limits shall be identified as interim and the permit shall include a reopener clause triggered by completion of a TMDL or WLA determination. Any new limits brought about through exercise of the reopener clause shall be eligible for delayed compliance dates and compliance schedules consistent with Section 39(b) of the Act [415 ILCS 5/39(b)], 35 Ill. Adm. Code 309.148, and 35 Ill. Adm. Code 352.Subpart H.

2) 35 Ill. Adm. Code 302.590 establishes an acceptable additive risk level of one in 100,000 (10⁻⁵) for establishing Tier I criteria and Tier II values for combinations of substances exhibiting a carcinogenic or other nonthreshold toxic mechanism. For those discharges containing multiple nonthreshold substances application of this additive standard shall be consistent with this subsection.

A) For discharges in the Lake Michigan basin containing one or more 2,3,7,8-substituted chlorinated dibenzo-p-dioxins or 2,3,7,8-substituted dibenzofurans, the tetrachloro dibenzo-p-dioxin 2,3,7,8-(TCDD) toxicity equivalence concentration (TEC_{TCDD}) shall be determined as outlined in subsection (h)(2)(B).

B) The values listed in the following Table shall be used to determine the 2,3,7,8-TCDD toxicity equivalence concentrations using the following equation:

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

WHERE:

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

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

(TEF)_x = TCDD toxicity equivalency factor for x

(BEF)_x = TCDD bioaccumulation equivalency factor for x

TABLE

Congener	TEF	BEF
2,3,7,8-TCDD	1.0	1.0
1,2,3,7,8-PeCdd	0.5	0.9

1.2.3.4.7.8-HxCDD	0.1	0.3
1.2.3.6.7.8-HxCDD	0.1	0.1
1.2.3.7.8.9-HxCDD	0.1	0.1
1.2.3.4.6.7.8-HpCDD	0.01	0.0
OCDD	0.001	0.0
2.3.7.8-TCDF	0.1	0.8
1.2.3.7.8-PeCDF	0.05	0.2
2.3.4.7.8-PeCDF	0.5	1.6
1.2.3.4.7.8-HxCDF	0.1	0.0
1.2.3.6.7.8-HxCDF	0.1	0.2
2.3.4.6.7.8-HxCDF	0.1	0.7
1.2.3.7.8.9-HxCDF	0.1	0.6
1.2.3.4.6.7.8-HpCDF	0.01	0.0
1.2.3.4.7.8.9-HpCDF	0.01	0.4
OCDF	0.001	0.0

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

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

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

corresponding total metal value that will generally be the metal form regulated in NPDES permits.

Metal	Conversion Factor	
	Acute Standard	Chronic Standard
Arsenic	1.000	1.000
Cadmium	0.850	0.850
Chromium (Trivalent)	0.316	0.860
Chromium (Hexavalent)	0.982	0.962
Copper	0.960	0.960
Mercury	0.850	0.850
Nickel	0.998	0.997
Selenium	0.922	0.922
Zinc	0.978	0.986

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

3-4) Reasonable potential to exceed.

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

around the 95th percentile value through a multiplier from the following table applied to the maximum value in the data set that has its quality assured consistent with 35 Ill. Adm. Code 352.410 as appropriate for acute and chronic data sets.

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

Coefficient of Variation

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

- i) If the PEQ is less than or equal to the water quality standard, there is no reasonable potential and no limit will be established in the permit.
- ii) If the PEQ is more than the water quality standard, the Agency will proceed to consideration of dilution and mixing pursuant to subsection (h)(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.
- 4 5) If the PEQ for a parameter is greater than the particular water quality standard, criteria or value for that parameter, the Agency will assess the level of treatment being provided by the discharger. If the discharger is providing (or will be providing) a level of treatment consistent with the best degree of treatment required by 35 Ill. Adm. Code 304.102(a), the PEQ derived under subsection (h)(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) Direct discharges to the Open Waters of Lake Michigan shall have a default mixing allowance of 2:1 for acute standards, criteria or values and 10:1 for chronic standards, criteria or values if the discharge configuration indicates that the effluent readily and rapidly mixes with the receiving waters. If ready and rapid mixing is in doubt the Agency shall deny any default dilution or mixing allowance and require a mixing or dispersion study to determine the proper dilution allowance. If the discharger applies for more than the default dilution or mixing allowance, it must submit a mixing or dispersion study to justify its request. Whenever a mixing or dispersion study is available, it

shall be used to determine dilution or mixing allowance in lieu of the default allowance.

5 6) Preliminary effluent limitations calculations.

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

$$WQS = [(Q_e)(PEL) + (Q_d)(C_d)] / [Q_e + Q_d] \text{ or}$$

$$PEL = [WQS(Q_e + Q_d) - (Q_d)(C_d)] / Q_e$$

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) When determining what available data are acceptable for use in calculating background, the Agency shall use its best professional judgment, including consideration of the sampling location and the reliability of the data through comparison, in part, to detection and quantification levels. When data in more than 1 of the data sets or categories described in subsection (h)(6)(B)(iii) exists, best professional judgment shall be used to select the data that most accurately reflects or estimates background concentrations. Pollutant degradation and transport information may be considered when using pollutant loading data to estimate a water column concentration.

- (iii) The representative background concentration for a pollutant in the specified watershed, water body, or water body segment shall be established on a case-by-case basis as the geometric mean of: acceptable water column data; water column concentrations estimated through use of acceptable caged or resident fish tissue data; or water column concentrations estimated through the use of acceptable or projected pollutant loading data. When determining the geometric mean of the data for a pollutant that includes values both above and below the detection level, commonly accepted statistical techniques shall be used to evaluate the data. If all of the acceptable data in a data set are below the detection level for a pollutant, then all the data for the pollutant in that data set shall be assumed to be zero.

6 7) Water quality based effluent limitations.

- A) If the PEQ is less than or equal to the PEL, it will be concluded that there is no reasonable potential to exceed. Under such circumstances a permit limit for that contaminant will not be set unless otherwise justified under one or more provisions of 35 Ill. Adm. Code 352.430.
- B) If the PEQ is equal to or greater than the PEL, and the PEQ was calculated using a data set of more than 10 values, a water quality based effluent limitation (WQBEL) will be included in the permit. If the PEQ was calculated using a data set of less than or equal to 10 values, and the alternative PEQ calculated under subsection (h)(4)(B) also exceeds the PEL, a WQBEL will be included in the permit.
- C) If the PEQ was calculated using a data set of less than or equal to 10 values, and the PEQ is greater than the PEL but the alternative PEQ is less than the PEL, the Agency will either establish a WQBEL in the permit or incorporate a monitoring requirement and reopener clause to reassess potential to exceed within a specified time schedule, not to exceed one year. In determining which of these options to use in any individual application, the Agency shall consider the operational and economic impacts on the permittee and the effect, if any, deferral of a final decision would have on an ultimate compliance schedule if a permit limit were subsequently determined to be necessary.

- D) The WQBEL will be set at the PEL, unless the PEL is appropriately modified to reflect credit for intake pollutants when the discharged water originates in the same water body to which it is being discharged. Consideration of intake credit will be limited to the provisions of 35 Ill. Adm. Code 352.425.
- E) The reasonable potential analysis shall be completed separately for acute and chronic aquatic life effects. When WQBELs are based on acute impacts, the limit will be expressed as a daily maximum. When the WQBEL is based on chronic effects, the limit will be expressed as a monthly average. Human health and wildlife based WQBELs will be expressed as monthly averages. If circumstances warrant, the Agency shall consider alternatives to daily and monthly limits.

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

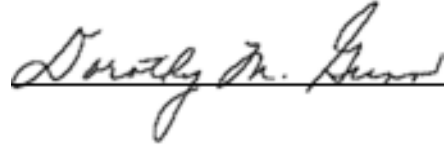
Section 309.157 Permit Limits for Total Metals

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

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

IT IS SO ORDERED.

I, Dorothy M. Gunn, Clerk of the Illinois Pollution Control Board, certify that the Board adopted the above opinion and order on June 20, 2002, by a vote of 7-0.

A handwritten signature in cursive script, reading "Dorothy M. Gunn", written over a horizontal line.

Dorothy M. Gunn, Clerk
Illinois Pollution Control Board