

BEFORE THE ILLINOIS POLLUTION CONTROL BOARD

IN THE MATTER OF: )  
)  
WATER QUALITY STANDARDS AND )  
EFFLUENT LIMITATIONS FOR THE )  
CHICAGO AREA WATERWAY SYSTEM )  
AND THE LOWER DES PLAINES RIVER: )  
PROPOSED AMENDMENTS TO 35 Ill. )  
Adm. Code Parts 301, 302, 303 and 304 )

R08- 9  
(Rulemaking – Water)

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OCT 26 2007  
STATE OF ILLINOIS  
Pollution Control Board

NOTICE OF FILING

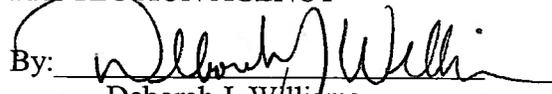
John Therriault, Clerk  
Illinois Pollution Control Board  
James R. Thompson Center  
100 West Randolph Street, Suite 11-500  
Chicago, Illinois 60601

Matthew Dunn, Chief  
Environmental Bureau  
Office of the Attorney General  
100 W. Randolph, 12<sup>th</sup> Floor  
Chicago, Illinois 60601

Bill Richardson, Chief Legal Counsel  
Illinois Department of Natural Resources  
One Natural Resources Way  
Springfield, Illinois 62702-1271

PLEASE TAKE NOTICE that I have filed today with the Illinois Pollution Control Board the Motion for Acceptance; Appearances; Motion for Waiver of Copy Requirements; Motion For Hearings to be Conducted in Chicago and Joliet; Director's Statement of Submittal; Certificate of Origination; Statement of Reasons and Attachments; and Proposed Amendments to 35 Ill. Adm. Code Parts 301, 302, 303 and 304 by the Illinois Environmental Protection Agency, a copy of which is herewith served upon you.

ILLINOIS ENVIRONMENTAL  
PROTECTION AGENCY

By:   
Deborah J. Williams  
Assistant Counsel

Dated: 10/26/07  
1021 North Grand Avenue East  
P.O. Box 19276  
Springfield, Illinois 62794-9276  
(217) 782-5544

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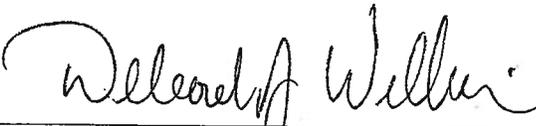
MOTION FOR ACCEPTANCE

NOW COMES the Illinois Environmental Protection Agency ("Illinois EPA"), by and through its attorneys, Stefanie N. Diers and Deborah J. Williams, and pursuant to 35 Ill. Adm. Code 102.106, 102.200, and 102.202, moves that the Illinois Pollution Control Board ("Board") accept for hearing the Illinois EPA's proposal for the adoption of amendments to 35 Ill. Adm. Code Parts 301, 302, 303 and 304. This regulatory proposal includes:

1. Notice of Filing;
2. Appearances of Attorneys for the Illinois Environmental Protection Agency;
3. Motion for Waiver of Copy Requirements;
4. Motion to Conduct Hearings in Chicago and Joliet,
5. Director Scott's Statement of Submittal;
6. Certification of Origination;
7. Statement of Reasons (including list of attachments and documents relied on);
8. Attachments to the Statement of Reasons;
9. Proposed Amendments;
10. Proof of Service;
11. Computer disc containing Proposed Amendments.

Respectfully Submitted,

ILLINOIS ENVIRONMENTAL  
PROTECTION AGENCY

By:   
Deborah J. Williams  
Assistant Counsel  
Division of Legal Counsel

Dated: 10/26/07  
1021 North Grand Avenue East  
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APPEARANCE

The undersigned, as one of its attorneys, hereby enters her appearance on behalf of the Illinois Environmental Protection Agency.

ILLINOIS ENVIRONMENTAL  
PROTECTION AGENCY

By: Stefanie N. Diers  
Stefanie N. Diers  
Assistant Counsel  
Division of Legal Counsel

Dated: 10/26/07  
1021 North Grand Avenue East  
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Springfield, Illinois 62794-9276  
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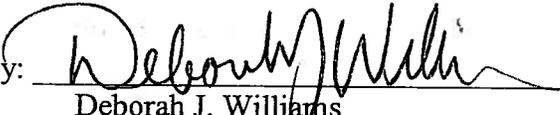
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APPEARANCE

The undersigned, as one of its attorneys, hereby enters her appearance on behalf of the Illinois Environmental Protection Agency.

ILLINOIS ENVIRONMENTAL  
PROTECTION AGENCY

By:   
Deborah J. Williams  
Assistant Counsel  
Division of Legal Counsel

Dated: 10/26/07  
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MOTION FOR WAIVER OF COPY REQUIREMENTS

NOW COMES the Proponent, the ILLINOIS ENVIRONMENTAL PROTECTION AGENCY (“Illinois EPA”), by one of its attorneys, and pursuant to 35 Ill. Adm. Code 101.500, 102.110 and 102.402, moves that the Illinois Pollution Control Board (“Board”) waive certain requirements, namely that the Illinois EPA submit the original and nine copies of all documents upon which it relied. In support of its Motion, the Illinois EPA states as follows:

Section 102.200 of the Board’s procedural rules requires that the original and nine copies of each regulatory proposal be filed with the Clerk. 35 Ill. Adm. Code 102.200. This entire regulatory proposal approaches 3,000 pages in length. Given the length of the proposal and the resources required to provide nine copies, the Illinois EPA requests that the Board waive the normal copy requirements of Section 102.200 and allow the Illinois EPA to instead file the original and four complete copies of the proposal, plus five partial copies containing the pleadings, Statement of Reasons and proposed amendments.

WHEREFORE, for the reasons set forth above, the Illinois EPA moves that the Board waive the copy requirement and allow the Illinois EPA to provide the Board with an original and four complete copies, along with five partial copies of the proposal as described *supra*.

Dated: 10/26/07  
1021 North Grand Avenue East  
P.O. Box 19276  
Springfield, Illinois 62794-9276  
(217) 782-5544

Respectfully submitted,  
ILLINOIS ENVIRONMENTAL  
PROTECTION AGENCY

By:   
Deborah J. Williams  
Assistant Counsel

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MOTION TO CONDUCT HEARINGS IN CHICAGO AND JOLIET

NOW COMES the Proponent, the ILLINOIS ENVIRONMENTAL PROTECTION AGENCY (“Illinois EPA”), by one of its attorneys, and pursuant to 35 Ill. Adm. Code 101.500, 101.502, 102.402, and 102.412, moves that the Illinois Pollution Control Board (“Board”) or the assigned Hearing Officer schedule the first required rulemaking hearing in Chicago and the second required rulemaking hearing in Joliet. In support of its Motion, the Illinois EPA states as follows:

1. Section 28 (a) of the Environmental Protection Act provides as follows: “No substantive regulation shall be adopted, amended, or repealed until after a public hearing within the area of the State concerned. In the case of state-wide regulations hearings shall be held in at least two areas.” In addition, Section 102.412 of the Board’s procedural rules states in part “...In the case of site-specific rules, a public hearing will be held in the affected county...”

2. The instant rulemaking proposal is clearly not a site-specific rulemaking proposal as it is a comprehensive water quality standards proposal impacting the entire Chicago Area Waterway System and Lower Des Plaines River from the Wilmette

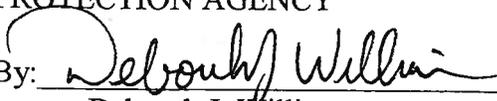
Pumping Station and Controlling Works on the North Shore Channel at Lake Michigan in Wilmette to the Interstate-55 Bridge crossing over the Lower Des Plaines River south of Joliet. This area is located in both Cook and Will counties.

3. While the instant rulemaking proposal is technically a rule of general applicability, in practice, it is primarily a proposal of regional applicability and concern. Therefore, the Agency believes the interests of the public at large are best served by conducting hearings in two areas of the State that are both located within the impacted region and are located in the county seats of the impacted counties. Conducting rulemaking hearings in downtown Chicago and Joliet will best accomplish these goals.

4. In addition, the Agency moves that the Board schedule the initial hearing dates in Chicago. Section 102.428(c) of the Board's procedural rules requires that "Proponents must present testimony in support of the proposal first." At the initial hearing, the Agency will be presenting testimony in support of this proposal and responding to questions from the public. To ensure that the greatest number of participants have access to this testimony in person and are able to ask their questions of the Agency on the record, the Agency moves the Board to conduct the first hearing in downtown Chicago.

WHEREFORE, for the reasons set forth above, the Illinois EPA moves that the Board conduct the hearings in this proceeding in Chicago and Joliet with the first hearing to be held in Chicago.

Respectfully submitted,  
ILLINOIS ENVIRONMENTAL  
PROTECTION AGENCY

By:   
Deborah J. Williams  
Assistant Counsel

Dated: 10/26/07

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DIRECTOR SCOTT'S STATEMENT OF SUBMITTAL

Pursuant to Section 27 of the Illinois Environmental Protection Act (415 ILCS 5/27), the Illinois Environmental Protection Agency hereby moves the Illinois Pollution Control Board to adopt the proposed amendments.

Respectfully Submitted,

ILLINOIS ENVIRONMENTAL  
PROTECTION AGENCY

By: *Douglas P. Scott*  
Douglas P. Scott  
Director

Dated: August 6, 2007  
1021 North Grand Avenue East  
P.O. Box 19276  
Springfield, Illinois 62794-9276  
(217) 782-5544

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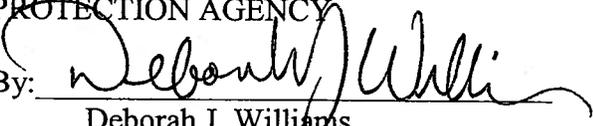
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CERTIFICATION OF ORIGINATION

NOW COMES the Illinois Environmental Protection Agency to certify in accordance with 35 Ill. Adm. Code. 102.202(i) that this proposal amends the most recent version of the Parts 301, 302, 303 and 304 of the Pollution Control Board's regulations, as published on the Board's web site, <http://www.ipcb.state.il.us/SLR/IPCBandIEPAEnvironmentalRegulations-Title35.asp>.

Respectfully Submitted,

ILLINOIS ENVIRONMENTAL  
PROTECTION AGENCY

By: 

Deborah J. Williams  
Assistant Counsel  
Division of Legal Counsel

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**STATEMENT OF REASONS**

The Illinois Environmental Protection Agency (“Illinois EPA” or “Agency”) hereby submits its Statement of Reasons for the above captioned rulemaking to the Illinois Pollution Control Board (“Board”) pursuant to Section 27 of the Environmental Protection Act (“Act”) [415 ILCS 5/27] and 35 Ill. Adm. Code 102.200 and 102.202.

**I. STATUTORY BASIS AND LEGAL FRAMEWORK**

**A. Environmental Protection Act**

Section 5(c) of the Act gives the Board “authority to act for the State in regard to the adoption of standards for submission to the United States under any federal law respecting environmental protection. Such standards shall be adopted in accordance with Title VII of the Act and upon adoption shall be forwarded to the Environmental Protection Agency for submission to the United States . . .” 415 ILCS 5/5(c)(2006). The Agency is given the responsibility under Section 4(l) of the Act to transmit the standards adopted by the Board to the United States Environmental Protection Agency (“U.S. EPA”) for approval where required by federal law. 415 ILCS 5/4(l)(2006).

In the provisions specific to protection of waters of the State, Section 13(a) of the Act provides that

The Board, pursuant to procedures prescribed in Title VII of this Act, may adopt regulations to promote the purposes and provisions of this Title. Without limiting the generality of this authority, such regulations may among other things prescribe: (1) Water quality standards specifying among other things, the maximum short-term and long-term concentrations of various contaminants in the waters, the minimum permissible concentrations of dissolved oxygen and other desirable matter in the waters, and the temperature of such waters; (2) Effluent standards specifying the maximum amounts or concentrations, and the physical, chemical, thermal, biological and radioactive nature of contaminants that may be discharged into the waters of the State...

415 ILCS 5/13(a)(2006).

Section 27(a) of the Act confers general substantive rulemaking authority upon the Board and the contents of this regulatory proposal are clearly within these general rulemaking powers of the Board as well as the specific powers outlined above. This proposal is being filed as a regulatory proposal of general applicability pursuant to Sections 27 and 28 of the Act. 415 ILCS 5/27 and 28(2006). It is not being proposed as an identical-in-substance, fast-track or federally required rulemaking. In addition, this proposal is being filed as a general (rather than emergency or preemptory) rulemaking pursuant to Section 5-40 of the Illinois Administrative Procedure Act. 5 ILCS 100/5-40. In evaluating these proposed rules, the Board is required to take into account "the existing physical conditions, the character of the area involved, including the character of surrounding land uses, zoning classifications, the nature of the existing air quality, or receiving body of water, as the case may be, and the technical feasibility and economic reasonableness of measuring or reducing the particular type of pollution." 415 ILCS 5/27(a)(2006).

## **B. Clean Water Act**

Pursuant to the Federal Water Pollution Control Act (hereinafter “Clean Water Act” or “CWA”), it is the primary responsibility of the States to set water quality standards for intrastate waters and submit changes to those standards to U.S. EPA for approval. 33 U.S.C. §1313.

Section 101(a)(2) of the CWA provides that “it is the national goal that wherever attainable, an interim goal of water quality which provides for the protection and propagation of fish, shellfish, and wildlife and provides for recreation in and on the water be achieved by July 1, 1983.” 33 U.S.C. §1251(a)(2). This goal is often paraphrased and over-simplified as the “fishable/swimmable” goal of the CWA. These simplistic terms can be misleading because the terms “fishable” and “swimmable” imply incorrectly that this goal is limited to “fishing” and “swimming” which would both be considered examples of recreational uses under the CWA. To avoid this confusion, these goals will be referred to hereinafter as the Clean Water Act aquatic life goal and the Clean Water Act recreational goal.

CWA Section 303 provides that “the State water pollution control agency . . . shall from time to time (but at least once each three year period beginning with October 18, 1972) hold public hearings for the purpose of reviewing applicable water quality standards and, as appropriate, modifying and adopting standards.” 33 U.S.C. 1313(c)(1). This requirement to periodically review and update standards is commonly referred to as the “triennial review” requirement.

Under the terminology used in the federal law the phrase “water quality standards” includes both the establishment of designated uses for all intrastate waters as well as the promulgation of criteria necessary to protect these uses. Whereas in Illinois law, the term “water quality standards” is often used to refer only to the specific numeric or narrative criteria that have

been adopted to protect the existing designated uses. The CWA describes this obligation by the states to set water quality standards as follows:

Whenever the State revises or adopts a new standard, such revised or new standard shall be submitted to the Administrator. Such revised or new water quality standard shall consist of the designated uses of the navigable waters involved and the water quality criteria for such waters based upon such uses. Such standards shall be such as to protect the public health or welfare, enhance the quality of water and *serve the purposes of this [Clean Water] Act*. Such standards shall be established taking into consideration their use and value for public water supplies, propagation of fish and wildlife, recreational purposes, and agricultural, industrial, and other purposes, and also taking into consideration their use and value for navigation. (Emphasis added).

33 U.S.C. §1313(c)(2)(A). This proposal is a culmination of the State's requirement to conduct a triennial review and includes both the designation of uses for the specified waters and establishment of numeric and narrative criteria intended to protect these designated uses.

**C. Federal Regulations Applicable to Water Quality Standards Proposals and Use Attainability Analyses**

In the federal regulations, U.S. EPA defines the meaning of "serves the purposes of this [Clean Water] Act" in the above provision (CWA Section 303(c)(2)(A)) to mean

that water quality standards should, *wherever attainable*, provide water quality for the protection and propagation of fish, shellfish and wildlife and for recreation in and on the water and take into consideration their use and value of public water supplies, propagation of fish, shellfish, and wildlife, recreation in and on the water, and agricultural, industrial, and other purposes including navigation. Such standards serve the dual purposes of establishing the water quality goals for a specific water body and serve as the regulatory basis for the establishment of water-quality-based treatment controls and strategies beyond the technology-based levels of treatment required by sections 301(b) and 306 of the [CWA]. (Emphasis added).

40 C.F.R. §131.2.

In 40 C.F.R. Part 131, U.S. EPA has established the requirements for federal approval of State water quality standards pursuant to Section 303(c) of the Clean Water Act. U.S. EPA has

provided the six minimum requirements for State water quality standards submissions in 40

C.F.R. §131.6. These six minimum elements are:

- (a) Use designations consistent with the provisions of sections 101(a)(2) and 303(c)(2) of the [Clean Water] Act.
- (b) Methods used and analyses conducted to support water quality standards revisions.
- (c) Water quality criteria sufficient to protect the designated uses.
- (d) An antidegradation policy consistent with §131.12.
- (e) Certification by the State Attorney General...that the water quality standards were duly adopted pursuant to State law.
- (f) General information which will aid [U.S. EPA] in determining the adequacy of the scientific basis of the standards which do not include the uses specified in section 101(a)(2) of the [Clean Water] Act as well as information on general policies applicable to State standards which may affect their application and implementation.

40 C.F.R. §131.6.

In addition to these general minimum requirements, U.S. EPA has outlined the procedures for designation of uses and conducting use attainability analyses in 40 C.F.R.

§131.10. States may adopt sub-categories of a use with appropriate criteria reflecting the varying needs of such sub-categories [40 C.F.R. §131.10(c)] and they may also adopt seasonal uses [40 C.F.R. §131.10(f)]. States are required to provide notice and opportunity for hearing before adding, removing or establishing sub-categories of any use. 40 C.F.R. §131.10(e).

To remove a designated use or establish sub-categories of uses other than the CWA aquatic life and recreational goals, States must follow the requirements in 40 C.F.R. §131.10(g).

These will be referred to in this proceeding as the Use Attainability Analysis (“UAA”) factors.

The six UAA factors to be considered when adopting a use other than the CWA goals are:

- (1) Naturally occurring pollutant concentrations prevent the attainment of the use; or
- (2) Natural, ephemeral, intermittent, or low flow conditions or water levels prevent the attainment of the use...; or

- (3) Human caused conditions or sources of pollution prevent the attainment of the use and cannot be remedied or would cause more environmental damage to correct than to leave in place; or
- (4) Dams, diversions or other types of hydrologic modifications preclude the attainment of the use, and it is not feasible to restore the water body to its original condition or to operate such modification in a way that would result in the attainment of the use; or
- (5) Physical conditions related to the natural features of the water body, such as the lack of a proper substrate, cover, flow, depth, pools, riffles, and the like, unrelated to water quality, preclude attainment of aquatic life protection uses; or
- (6) Controls more stringent than those required by sections 301(b) and 306 of the Act [CWA effluent standards] would result in widespread economic and social impact.

40 C.F.R. 131.10(g). When states rely on the UAA factor number six (widespread socio-economic impact), U.S. EPA has developed guidance for the appropriate analysis for the State to undertake. Interim Economic Guidance for Water Quality Standards, Workbook, Appendix M to the *Water Quality Standards Handbook – Second Edition (EPA-823-B-94-005a)*, EPA-823-B-95-002 (March 1995). (See Attachment C). In addition to the six UAA factors, 40 C.F.R. §§131.10(h) and (i) prohibit States from removing or downgrading uses that are existing uses (as of November 28, 1975), that are currently being attained or that could be attained by implementing the CWA effluent limits. 40 C.F.R. §131.10.

After designating uses, States are obligated to look to the requirements of 40 C.F.R. §131.11 to establish criteria sufficient to protect these uses. States must establish criteria, for the relevant parameter, that protect the most sensitive use and must address all parameters necessary to protect the use. 40 C.F.R. §131.11(a). In addition, States must specifically address toxic pollutants through numeric or narrative criteria. 40 C.F.R. §131.11(b). U.S. EPA also requires adoption of a statewide antidegradation policy and methods for implementing the policy. 40 C.F.R. §131.12. Illinois has a statewide antidegradation policy that can be found in the Board's

regulations at 35 Ill. Adm. Code 302.105. States may submit policies for mixing, low flows and variances to U.S. EPA for approval as part of their standards as well. 40 C.F.R. §131.13.

As with the numeric criteria or standards for particular pollutants, there is also an obligation to review the designated uses portion of State water quality standards every three years where a use has been established that does not meet the Clean Water Act aquatic life goal or recreational goal of Section 101(a)(2). 33 U.S.C. §1251(a)(2). (See 40 C.F.R. §131.20). In Illinois, the Clean Water Act goals are considered attainable in General Use Waters. The waters that were designated for Secondary Contact and Indigenous Aquatic Life Uses are considered incapable of attaining these Clean Water Act aquatic life and recreational goals. This petition proposes rulemaking changes to the Board necessary to update the designated uses and criteria necessary to protect such uses for the waters currently designated for Secondary Contact and Indigenous Aquatic Life Uses in 35 Ill. Adm. Code Part 303.<sup>1</sup> The standards adopted by the Board to protect this use are currently found in 35 Ill. Adm. Code 302, Subpart D.

#### **D. Applicable Board Regulations and Regulatory History**

Prior to adoption of the Act in 1970, water quality management activities, including establishment of water quality standards, were under the jurisdiction of the Illinois Sanitary Water Board. Pursuant to the federal Water Quality Act of 1965 (PL89-235), the Sanitary Water Board initially designated the Lower Des Plaines River as an "Industrial Water Supply Sector" with numeric and narrative criteria appropriate to such use category. SWB-8 (Adopted December 1, 1966, Approved by U.S. Department of Interior January 27, 1968, Reapproved by Sanitary Water Board March 5, 1968). (See Attachment D). Sanitary Water Board Regulation SWB-15 established the uses and numeric and narrative water quality standards applicable to the

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<sup>1</sup> This comprehensive proposal also addresses the small portion of the Chicago Area Waterway System currently designated as General Use. These segments, which are explained in detail below, include portions of North Shore Channel, Calumet River and Chicago River.

Chicago Area Waterway System (“CAWS”). SWB-15 (Adopted June 28, 1967, Approved by U.S. Department of Interior January 27, 1968 and reapproved by Sanitary Water Board on March 5, 1968). (See Attachment D). Uses specified within these classifications included “commercial vessel and barge shipping, recreational boating transit, withdrawal and return of industrial cooling and process water, and to receive effluents from industrial and domestic waste treatment facilities.” (See Attachment D). Narrative standards established minimum conditions such as freedom from unnatural bottom deposits, floating debris and nuisance or toxic conditions. Water quality standards for dissolved oxygen, pH, temperature, dissolved solids, and bacteria were also included in Rule 1.07 of SWB-8 and Rule 1.03 of SWB-15. In addition, North Shore Channel and Chicago River were also found to be used for recreational activities and Calumet Harbor was found to be used as a public water supply and for fish and aquatic life. SWB-15, Rule 1.02. Following adoption of the initial water quality criteria, the Sanitary Water Board submitted a plan for implementation of the standards applicable to the Lower Des Plaines River and the CAWS to the federal government on August 10, 1967. The U.S. Department of Interior approved these plans on January 27, 1968.

Upon enactment of the Act in 1970, the Sanitary Water Board was superseded by creation of the Board and the Illinois EPA. While Sanitary Water Board regulations remained in place on an interim basis under the new state statute; the Board and Agency focused attention almost immediately on development of new water quality standards. Draft proposed rules were published for public comment on May 12, 1971 (docketed as R71-14) and public hearings were conducted shortly thereafter.

During the R71-14 proceedings, the Board considered classifying Chicago Sanitary and Ship Canal (“CSSC”) as Restricted Use upstream of its confluence with Des Plaines River,

generally recognized as being located at Lockport, and considered placing the Lower Des Plaines River downstream from Lockport within the higher General Use designation. Restricted Use standards were provided for waters that were not protected for aquatic life and in which aquatic life standards for various toxic materials need not be met (similar to the Industrial Water Supply Sector designation under the SWB regulations). Restricted Use was later changed to the Secondary Contact and Indigenous Aquatic Life Uses contained in the current Board regulations. During these early Board proceedings, a great deal of time was spent debating where the Restricted or Secondary Contact and Indigenous Aquatic Life Use designations should end and where the General Use classification should begin.

The Commonwealth Edison power company immediately suggested that the Restricted Use designation be extended to include Des Plaines River downstream to the Interstate-55 bridge. The City of Joliet also expressed concerns that being directly downstream of the proposed use change at Lockport would force the City to comply with the more stringent General Use standards even though the waters had not come to a point of dilution. Joliet suggested the point of changeover be made at the confluence of the Des Plaines and Kankakee rivers. The United States Steel Corporation of Joliet was also concerned that the Board had overlooked that the area south of the proposed change was industrial and suggested that the Restricted Use be extended a short distance to the area near Brandon Locks. While the Will-Grundy Manufacturers' Association commented that the Restricted Use designation be "extended south at least to a point where industrial land is not a consideration."

Commonwealth Edison witnesses testified that the costs of imposing the General Use water quality standard on the Lower Des Plaines River would outweigh any benefits and that even if water quality standards could be met, the river would not be suitable for aquatic life (at

least downstream to the Interstate-55 bridge) due to heavy industrialization, barge traffic, diking of the shoreline and dredging. (Transcript, February 10, 1972 Board Hearing). Commonwealth Edison did not believe the General Use water quality standard for temperature could be met in Lower Des Plaines River upstream of its confluence with Kankakee River (five miles downstream of the Interstate-55 bridge). Arguments were also made suggesting that meeting the temperature standard was not important due to the small possibility that General Use water quality standards would be met in other aspects. Therefore, while an increased temperature standard had perceived benefits such as maintaining the river for year-round navigation and speeding up the degradation of ammonia, there would be no advantage in adopting a General Use designation because the waterway would be incapable of supporting aquatic life anyway and use of the river for recreation up to the Interstate-55 bridge was nonexistent due to industrialization. In the non-industrialized five-mile stretch, however, support for aquatic life would need to be addressed. The fish biologist called as a witness for Commonwealth Edison testified that fish would rarely be disturbed by an increased temperature standard, and on the occasions when the temperature did raise above tolerance levels, the fish would sense the rise and simply move out to other waterways until the temperature was once again suitable.

As a result of the testimony presented, the Board ultimately decided to classify the CAWS and the Lower Des Plaines River from Lockport to the Interstate-55 bridge as Restricted Use waters. (See R71-14 (March 7, 1972)). The Board again considered proposed amendments filed by Commonwealth Edison on March 30, 1972 to move the General Use boundary to the confluence with Kankakee River in rulemaking docket R72-4. In its Opinion, the Board stated that "The basis for the Board's decision to use the I-55 bridge as a boundary for the division of the Des Plaines River into restrictive and General Use is that the location of the bridge

corresponds to changes in the physical environment characteristics of the area.” R72-4, Slip Op. at 5 (November 8, 1973). The industrial characteristics described by Commonwealth Edison’s witnesses in referring to Lower Des Plaines River could not be applied to the area below the bridge. The Board also found that the five-mile stretch downstream of the Interstate-55 bridge “is capable of providing a source of recreation badly needed in the area (R. 107, 9/14/72), and is supporting a limited desirable aquatic biota.” R72-4 at 8.

Very few regulatory changes have been made to the use designations or water quality standards applicable to the CAWS and Lower Des Plaines River since 1972. One exception was when North Shore Channel from the North Side Sewage Treatment Works to Lake Michigan and Calumet River from the O’Brien Locks and Dam to Lake Michigan were upgraded from the Secondary Contact and Indigenous Aquatic Life Uses to General Use in R87-27 (May 19, 1988). While the North and South Branches of the Chicago River have consistently been designated for Secondary Contact and Indigenous Aquatic Life Uses, the main branch of the Chicago River was not included in this designation in R71-14, but was instead included in a list of waters specifically exempted from the Public and Food Processing Water Supply Use designation in Rule 303.

**E. History of Thermal Demonstrations and Thermal Adjusted Standards in the Chicago Area Waterway System and Lower Des Plaines River**

To explain the background regarding the alternative thermal standards applicable to the affected waters and the area immediately downstream of them, it is helpful to first summarize the temperature water quality standards for Secondary Contact and Indigenous Aquatic Life Uses and General Use. For Secondary Contact and Indigenous Aquatic Life Uses, temperature shall not exceed 34 degrees Celsius (93 degrees Fahrenheit) more than 5% of the time, or 37.8 degrees

Celsius (100 degrees Fahrenheit) at any time. The 5 % allowable excursion time limit represents approximately 438 hours. (*See* Attachment A at 2-83; 35 Ill. Adm. Code 302.211).

The General Use numeric standards require that the water temperature be no higher than 32 degrees Celsius (90 degrees Fahrenheit) during April through November and no higher than 16 degrees Celsius (60 degrees Fahrenheit) for the remaining months of the year. These limits cannot be exceeded for more than 1% of the hours in any 12-month period ending with any month, which is equal to approximately 88 hours. The maximum deviation from these limitations during any excursion hours is 1.7 degrees Celsius (3 degrees Fahrenheit), meaning that the maximum temperature that cannot be exceeded at any time is 93 degrees Fahrenheit (33.7 degrees Celsius) for the summer months and 63 degrees Fahrenheit (17.7 degrees Celsius) for the winter months. (*See* Attachment A at 2-82).

As explained above, the General Use standards apply in Des Plaines River downstream from the Interstate-55 bridge to its confluence with Kankakee River and downstream. Since the initial Board proceedings to establish temperature water quality standards, Commonwealth Edison (the predecessor of Midwest Generation) has come before the Board to request changes to these standards and regulatory relief from them.

In R72-4, Commonwealth Edison proposed various amendments to the temperature standards adopted in R71-14. In R72-4, the Board agreed to give some relief to Commonwealth Edison for the “five mile stretch” of Des Plaines River below the Interstate-55 bridge to its confluence with Kankakee River, but sunset this relief on July 1, 1978 “as middle ground between Edison’s proposal and the need to protect aquatic life.” R72-4 at p. 8 (November 8, 1973). In PCB 78-79, Commonwealth Edison requested a variance from the General Use temperature water quality standard, claiming that while its discharge was able to comply with the

Secondary Contact and Indigenous Aquatic Life Uses standard, it did not cool sufficiently to comply with the General Use standard at the Interstate-55 bridge. *Commonwealth Edison v. Illinois EPA*, PCB 78-79 (May 25, 1978). The Board granted Commonwealth Edison a variance until April 2, 1981 from Rule 203(i)(5) that required it to make a thermal demonstration that its discharges were not causing ecological damage and until July 1, 1981 from Rule 203(i)(4) which allowed deviation from the General Use temperature standards for the "five mile stretch." The Board gave Commonwealth Edison additional variances from the requirement to submit a thermal demonstration in PCB 81-34 (June 10, 1981) which expired on July 1, 1984 and PCB 84-33 (December 20, 1984) which expired on July 1, 1987. Another variance petition was filed but later dismissed in PCB 87-40, and Commonwealth Edison's thermal demonstration finally submitted to the Board on August 1, 1988 as part of the Record of PCB 87-93 and approved by the Board on November 15, 1989. After its thermal demonstration was approved by the Board, Commonwealth Edison was granted another thermal variance from the General Use water quality standard in PCB 91-29 (November 21, 1991) for its two Joliet facilities as well as its three facilities on the CAWS (Will County, Fisk and Crawford) from the General Use temperature water quality standards applicable at the Interstate-55 bridge. The Board also required Commonwealth Edison to conduct a study pursuant to 316(a) of the Clean Water Act to establish the appropriate thermal standards for these waters. This relief expired on November 21, 1996.

On October 3, 1996, the Board ultimately granted Commonwealth Edison an Adjusted Standard that is applicable to all five of its facilities on the CAWS and Lower Des Plaines River at the location of the Interstate-55 bridge. (See AS96-10 and Attachment A at 2-84). This Adjusted Standard sets monthly temperature limits ranging from 60 degrees Fahrenheit in

January and February to 91 degrees Fahrenheit from June 16 through August 31. These standards may be exceeded by no more than 3 degrees Fahrenheit (1.7 degrees Celsius) during 2% of the hours (about 175 hours) in the 12-month period ending December 31, except that at no time shall Midwest Generation's plants cause the water temperature at the Interstate-55 bridge to exceed 93 degrees Fahrenheit (33.9 degrees Celsius). (See Attachment A at 2-83). This relief was updated in the same docket on March 16, 2000 in which the Board granted a name change from Commonwealth Edison to Midwest Generation as the holder of the Adjusted Standard relief.

## **II. REGULATORY PROPOSAL: PURPOSE AND EFFECT**

### **A. Introduction - Description and History of the Chicago Area Waterway System and Lower Des Plaines River**

The CAWS and Lower Des Plaines River consist of portions of the Chicago, Calumet and Lower Des Plaines River drainages which were altered, in various stages during the mid 1800s on into the mid 1900s, to promote commercial navigation and to eliminate untreated sewage from flowing into Lake Michigan. Artificial waterways and controlling structures were added to CAWS to redirect its flow to Des Plaines River. Four artificial channels were dug where no major waterways existed before and five controlling structures were installed. Additionally, watercraft passage was enhanced and stream flow was altered in the redirected system by deepening, widening and channelizing various reaches, and by augmenting existing flow with navigational makeup and "discretionary diversion" from Lake Michigan. Upon completion of the alterations, flows in several of the major reaches were in a reverse direction of their original paths. With the urban development of the Chicago metropolitan area, CAWS and Lower Des Plaines River grew in importance as a storm water management system. Detail of the

waterways' bank, bed and riparian features are contained in the Lower Des Plaines River and CAWS UAA reports. (See Attachments A and B).

Because the names of the original waterways are retained to this day, it is useful to describe their pre-altered configuration and flow directions.

During early settlement of the Chicago area, Chicago River flow originated from its north and south branches. North Branch Chicago River flowed south and converged with north-flowing South Branch Chicago River to form Chicago River. Chicago River then meandered east and emptied into Lake Michigan. North Branch Chicago River received most of its flow from two forks (east and middle), and from a wetland system known as the Skokie Marsh. South Branch Chicago River headwaters included the southern and western forks. The entire drainage consisted of relatively small, sluggishly flowing prairie streams.

The Calumet River System consisted of Little Calumet River, Grand Calumet River and a vast network of wetlands. Little Calumet River began in La Porte County, Indiana, flowed west into Illinois, made a hairpin curve north and then back east, and then joined numerous wetland flows to form Grand Calumet River. Grand Calumet River flowed east and emptied into Lake Michigan in Miller, Indiana. At the same time, Lake Calumet and Calumet River had fairly undefined boundaries. Rather, there existed a complex system of marshes, dunes and swales surrounding an area of open water that sometimes flowed into Grand Calumet River and its tributary, Little Calumet River; whereas, at other times it flowed into Lake Michigan or remained stagnant and isolated. Rain events and Lake Michigan levels dictated the direction of the Lake Calumet wetland complex flow.

Lower Des Plaines River had a much smaller amount of water flowing through the system before urbanization occurred and the flow from the CAWS was redirected from Lake

Michigan to Des Plaines River. Lower Des Plaines River was modified from its original configuration to accommodate shipping traffic and the increased flow from the CAWS; it was deepened and channelized and the Lockport Lock and Power House and the Brandon Road Lock and Dam were added.

**B. Description of the Lower Des Plaines River and Chicago Area Waterway System - Reach Geography and Hydrological Function**

**1. Development of Lower Des Plaines River**

Des Plaines River originates just south of Union Grove, Wisconsin, and enters Illinois near Russell, Illinois. From Russell, Des Plaines River flows south through Lake and Cook counties. Near Lyons, Des Plaines River turns to the southwest, paralleling CSSC in DuPage and Will counties until it joins CSSC near Lockport. The drainage area of Des Plaines River excluding CSSC is 13,371 square miles; the CSSC drainage is 740 square miles. The total mainstem length of Des Plaines River in Illinois from the state border to the confluence with Kankakee River is 110.7 miles. (See Attachment A at 1-5).

For purposes of this rulemaking proposal, the portion of Des Plaines River currently designated for Secondary Contact and Indigenous Aquatic Life Uses is called "Lower Des Plaines River," which extends from the confluence with CSSC (at the E.J. & E railroad bridge at River Mile 290.1 just downstream of Lockport) downstream to the Interstate-55 bridge at River Mile 277.9. Almost the entire reach is impounded and has two morphologically different segments, the Brandon Pool above the Brandon Road Lock and Dam (River Mile 286) and the portion of the Dresden Island Pool upstream of the Interstate-55 bridge, which will be referred to in this proposal as the "Upper Dresden Island Pool." (See Attachment A at 1-7).

As identified in the UAA study and this rulemaking proposal, the Brandon Pool is four miles in length, approximately 300 feet wide and with depths of 12 to 15 feet. It is a highly

modified stream channel. CSSC contributes approximately 80 percent of the flow to the Brandon Pool downstream of the confluence of CSSC with Des Plaines River. Id.

The entire Dresden Island Pool is 14 miles long and approximately 800 feet wide, with depths of 2 to 15 feet. Upper Dresden Island Pool is defined as the 8.1 mile reach of the impoundment that is upstream of the Interstate-55 bridge and part of this UAA. Upper Dresden Island Pool is more natural than the Brandon Pool and has a fair amount of natural shoreline and side channels. Id.

Lower Des Plaines River is a part of the Upper Illinois Waterway. The Illinois Waterway is one of the busiest inland commercial navigation systems in the nation, providing a link between the Great Lakes/St. Lawrence Seaway navigation system and the Mississippi River navigation system that connects to the Gulf Intercoastal Waterway. The entire Illinois Waterway is channelized to maintain a minimum depth of 9 feet for commercial waterway transportation of bulk commodities. Id.

Historically, Lower Des Plaines River has received flows from the human-made CSSC, whose flow was determined by the treated and partially treated effluents from several Metropolitan Water Reclamation District of Greater Chicago ("MWRDGC") wastewater reclamation plants and by Combined Sewer Overflows ("CSOs"). Consequently, the environmental potential for the river was historically deemed to be limited to the point of hopelessness. The population equivalent (or P.E.) of effluent discharge carried by the canal to Des Plaines River is about 9.5 million. The now completed tunnel portion of the Tunnel and Reservoir Project (or TARP) today has significantly reduced the number of CSO discharges per year. With full implementation of the reservoir portion of the Tunnel and Reservoir Project, the frequency of overflows will be further reduced. (See Attachment A at 1-8).

## 2. Development of the Chicago Area Waterway System

The Chicago area is drained by a series of waterways, many of which were human-made in order to facilitate water flow away from Lake Michigan to protect the Lake's drinking water and recreational uses. (See Attachment B at 1-1). CAWS consists of 78 miles of human-made channels that provide an outlet for drainage of urban stormwater runoff and treated municipal wastewater effluent while supporting commercial navigation. The waterways also support recreational boating, fishing, streamside recreation and aquatic life and wildlife. Approximately 75 percent of the waterway length consists of human-made canals where no defined stream channel existed previously. The remainder is formerly natural stream channels that have been deepened, straightened or widened. The flow is artificially controlled by four hydraulic structures managed by MWRDGC. The level of water in the waterways can be lowered in the anticipation of a storm event to provide additional storage for flood control. Wastewater treatment plant effluent makes up approximately 70 percent of the annual flow going through the Lockport Powerhouse and Lock and Powerhouse facility. (See Attachment B at 1-6).

The CAWS drainage area is approximately 740 square miles and comprises the Chicago River and the Calumet River drainages. The Chicago River System, which consists of 55 miles of waterways, includes Chicago River, CSSC, North Branch Chicago River (including the North Branch Canal), North Shore Channel, South Branch Chicago River, and South Fork of South Branch Chicago River. The Calumet River System, which is 23 miles in length, includes Calumet-Sag Channel, portions of Little Calumet River, portions Grand Calumet River, Calumet River, Lake Calumet Connecting Channel and Lake Calumet. (See Attachment B at 3-2).

**C. Description of the Secondary Contact and Indigenous Aquatic Life Use Designations**

Secondary Contact and Indigenous Aquatic Life Uses were described as being intended for those waters not suited for General Use activities, but which are appropriate for all secondary contact uses and are capable of supporting indigenous aquatic life limited only by the physical configuration of the body of water, characteristics and origin of the water and the presence of contaminants in amounts that do not exceed the water quality standards in 35 Ill. Adm. Code Subpart D. Secondary Contact means any recreational or other water use in which contact with the water is incidental or accidental and in which the probability of ingesting appreciable quantities of water is minimal, such as fishing, commercial and recreational boating and any limited contact incident to shoreline activity. (See Attachment B at 1-2).

There is one basic underlying common characteristic of the water bodies that have been designated for Secondary Contact and Indigenous Aquatic Life Uses in northeastern Illinois: these water bodies were part of a massive engineering effort that reversed the flow of the Chicago River System and the Upper Illinois Waterway to allow the City of Chicago to divert its wastewater from Lake Michigan and to create a navigational connection between Illinois River and Lake Michigan. (See Attachment A at 1-20).

At the time (early 1970s) Secondary Contact Use and Indigenous Aquatic Life Use was formulated; the waters designated for these uses had the following characteristics:

1. Routinely dredged and maintained channels, including steep-sided cross-sections designed to accommodate barge traffic and optimize flow.
2. Significant sludge deposition, as a result of CSOs, industrial waste discharges and urban runoff. Sludge depth in the channel system can reach five feet or more despite dredging.
3. Flow reversal projects, such as this one, place a premium on head differential. The entire system has minimum slope and, consequently, low velocity, stagnant

flow conditions. Because of international agreements on the use of Lake Michigan water, diversion to maintain flow in the system is kept as low as possible.

4. Urban stress is significant within the entire drainage area. There was essentially no recreation potential with most adjacent property commercially owned and access limited.
5. Good physical habitat for aquatic communities in the main channel was nonexistent due to the impact of commercial and recreational watercraft use of the system as well as sludge deposition. Watercraft lockage through the Chicago River Control Works averages 25,000 vessels annually; most activity occurs during the summer months.
6. In addition to the above human-made and irretrievable modifications, the CAWS also carries a massive wastewater load including CSOs during wet weather. During the summer periods, a small “discretionary diversion” of Lake Michigan water is permitted to minimize the combined effects of waste load from the municipal and industrial discharges to the system and poor assimilative capacity.

(See Attachment A at 1-20 through 1-21).

In 1972, Congress passed the Clean Water Act Amendments to the Water Pollution Control Act. In the same year, the Board was formulating the uses of the Illinois water bodies and the appropriate standards to protect these uses. R70-8, R71-14, and R71-20 (consolidated) (March 7, 1972). In this rule, the Board defined the General Use and Restricted Uses categories of designated uses. The Board held “that all waters should be protected against nuisance and against health hazard to those near them; that all waters naturally capable of supporting aquatic life, with the exception of a few highly industrialized streams consisting primarily of effluents in the Chicago area, should be protected to support such life ...Consequently general standards for water quality are set that will protect most uses except public water supply;...and more lenient standards are set for those streams classified for restricted use.” R71-14 at 3-178 (March 7, 1972).

Establishment of the Restricted Use, later named Secondary Contact and Indigenous Aquatic Life Uses was limited to “those waters in the Chicago industrial area for which it was established that even with the most advanced treatment and with stormwater overflow control, aquatic life standards (for dissolved oxygen and perhaps ammonia) cannot be met... and that meeting the aquatic life temperature in the same areas, as well as in adjacent section of the Des Plaines River, would require cooling towers costing tens of millions of dollars and produce doubtful benefits in terms of stream improvements.” (See Attachment A at 1-22).

In the 1980s U.S. EPA re-evaluated the appropriateness of the Secondary Contact and Indigenous Aquatic Life designations for the CAWS and Lower Des Plaines River. U.S. EPA concluded in the mid 1980s that waterways designation for secondary contact use in Illinois was appropriate, in spite of the fact that no Use Attainability Analysis was submitted. U.S. EPA agreed with the Board that primary contact activities were also inappropriate for these waters due to limited access and danger associated with heavy navigation as well as general aesthetic constraints. Also in the 1980s, the Board and U.S. EPA approved elimination of the bacterial water quality standard for fecal coliform applicable to the Secondary Contact Use waters. (See 35 Ill. Adm. Code 302.406 (*Repealed at 6 Ill. Reg. 13750, effective October 26, 1982*) and Attachment A at 1-22).

**D. Pilot Use Attainability Analysis for the Lower Des Plaines River**

The pilot UAA for Lower Des Plaines River began in March 2000 by the convening of a stakeholder’s advisory group. This group comprised a cross-section of the community likely to be impacted by potential rule changes, including environmental groups, local governments, specific industries, industry trade associations and regulatory agencies. The stakeholder model developed in the Lower Des Plaines UAA was expanded for the CAWS UAA was one of the

most extensive stakeholder involvement efforts undertaken by the Agency. Planning meetings with interested stakeholders were held first on March 8, 2000. A meeting in Joliet which included a boat tour of Lower Des Plaines River, was held on May 17, 2000. The first formal UAA stakeholder group meeting with the UAA contractors took place on December 15, 2000. See Attachment E for a detailed timeline of meetings of the UAA stakeholder's advisory groups and Attachment F for a list of stakeholder's advisory group members.

The UAA for Lower Des Plaines River identified the water quality problems of Lower Des Plaines River and suggested remedies particular to each problem. It is clear from the UAA that Lower Des Plaines River continues to be a highly modified water body that does not resemble its pre-urbanized state. The main goal of the UAA was to find an ecologically and recreationally attainable state that would as closely as possible approach the aquatic life and recreational goals of the Clean Water Act without causing an adverse widespread socio-economic impact. (See Attachment A at 9-1). The UAA found that the water quality of the river has significantly improved since the 1970s when the Secondary Contact and Indigenous Aquatic Life Uses were designated by the Board for this waterbody. While there has been improvement and potential exists for additional improvement; the UAA did not find the Lower Des Plaines River to be capable of full attainment of the aquatic life and recreational goals of the Clean Water Act for un-impacted waters in the foreseeable future. Id.

**E. Use Attainability Analysis for the Chicago Area Waterway System**

The UAA for the CAWS began in September 2002 by the convening of a Stakeholders Advisory Committee. This group comprised a cross-section of the community likely to be impacted by any proposed rule changes including environmental groups, local governments, specific industries, industry trade associations and regulatory agencies. See Attachment E for a

detailed timeline of meetings of the CAWS UAA Stakeholder Advisory Committee and Attachment G for a list of Stakeholder Advisory Committee Members. The first formal stakeholder group meeting with the UAA contractors was held in April of 2003.

The UAA for the CAWS was undertaken to determine the existing and potential uses of the waterway. The project was to assess the factors limiting the potential uses and evaluate whether or not those factors can be controlled through appropriate technology and regulations. The focus of the UAA was on the Calumet and Chicago River drainage reaches that are for the most part currently designated by the Board for Secondary Contact and Indigenous Aquatic Life Uses. Three CAWS reaches are currently designated for General Use and two of the three were upgraded from their original "Restricted Use" designations in the late 1980's without a rigorous technical assessment. R87-27 (May 19, 1988). The CAWS UAA excluded Lower Des Plaines River because it was being evaluated by a separate UAA. (*See Attachment B at 2-1*). The CAWS UAA contractors focused on existing and potential uses occurring in the waterway now and that are expected to occur in the foreseeable future (ten to twenty years) to reach recommendations for proposed designated recreational and aquatic life uses for the entire CAWS study area. *Id.* at 2-1.

**F. Combined Use Designation and Water Quality Standards Proposal**

Rather than presenting the Board with separate regulatory proposals, Illinois EPA decided to combine the results of the Lower Des Plaines River Pilot UAA and the CAWS UAA into a single regulatory proposal. This proposal is intended to incorporate the policy conclusions the Agency made as a result of these years of study and the regulatory language changes that are recommended to enact these policy changes. The result is a fairly exhaustive and detailed rulemaking proposal. In order to communicate all the changes being proposed for the Board's

regulations, the Agency has structured the succeeding sections of this Statement of Reasons around the line-by-line regulatory changes being proposed. The justification will begin with Parts 301 and 303, which include the Definitions and Use Designations and the subdivision of the segments of the UAA waters into the new Use Designation Categories. Then, the summary will address the proposed changes to Part 302, Subparts A and D which replace the existing narrative and numerical water quality standards necessary to protect the Secondary Contact and Indigenous Aquatic Life Uses with new standards designed to protect newly defined uses. Finally, the justification will address proposed changes to Part 304 that address effluent limitations for bacteria discharges.

The Agency believes that this regulatory proposal establishes comprehensive stand-alone use designations and water quality standards necessary to protect those uses. The only exception would be the absence of a numeric bacteria standard to protect recreational activity, which is also explained in more detail below. These uses and standards are intended to reflect the best and most up-to-date information available and are intended to outlast the existing General Use designation and standards currently applicable in the rest of the State. When the Board is faced with a proposal to update the one-size-fits-all aquatic life use designations for the rest of the State, the Illinois EPA expects there to be no need to reopen these uses and standards designed to apply specifically to these waters.

### **III. REGULATORY PROPOSAL: REGULATORY LANGUAGE**

The Agency is proposing additions and changes to 35 Ill. Adm. Code Parts 301, 302, 303 and 304 that have resulted from the conclusions and policy judgments made by the Agency as a result of the UAA contractor reports and stakeholder process. The conclusions and proposed regulatory changes are discussed in detail in the following sections. First, the Agency will

summarize the three distinct aquatic life uses and three distinct recreational uses that are proposed for definition and designation in Parts 301 and Part 303 and the specific reaches to which each use will be applicable. Then, in subsection C below, the Agency will describe the numeric and narrative criteria being proposed to protect these uses.

**A. Part 301 Definitions**

Proposed changes to 35 Ill. Adm. Code Part 301, Definitions, are presented and explained below.

**1. Section 301.247 Chicago Area Waterway System**

“Chicago Area Waterway System” means Calumet River, Grand Calumet River, Little Calumet River downstream from the confluence of Calumet River and Grand Calumet River, Calumet-Sag Channel, Lake Calumet, Chicago River and its branches downstream from their confluence with North Shore Channel, North Shore Channel and Chicago Sanitary and Ship Canal.”

This new definition is needed to describe the specific waterway segments included within the “Chicago Area Waterway System.” The chosen segments are based on the work conducted during the UAA process and define the scope of waters to be designated for the various recreational and aquatic life uses being proposed. (See Attachment B at 1-4 through 1-6).

**2. Section 301.282 Incidental Contact Recreation**

“Incidental Contact Recreation” means any recreational activity in which human contact with the water is incidental and in which the probability of ingesting appreciable quantities of water is minimal, such as fishing; commercial boating; small craft recreational boating; and any limited contact associated with shoreline activity such as wading.

This definition is needed to describe certain recreational activities where there is a minimal probability of ingesting an appreciable amount water when an individual engages in the above listed non-primary contact activities. Recreational use surveys and other forms of research were conducted during the UAA process to determine which specific activities were taking place on the waterways and needed to be protected. (See Attachment B at 1-11).

**3. Section 301.307 Lower Des Plaines River**

“Lower Des Plaines River” means Des Plaines River from the confluence with Chicago Sanitary and Ship Canal to the Interstate 55 bridge.

This definition is needed to define the segments of Des Plaines River that are included in this regulatory proposal and covered by the water quality standards in Part 302, Subpart D. This definition was chosen to describe the waters currently classified as Secondary Contact and Indigenous Aquatic Life Use and being proposed for redesignation based on the work conducted during the Lower Des Plaines River Pilot UAA process. (*See* Attachment A at 1-6 and 1-7).

**4. Section 301.323 Non-contact Recreation**

“Non-contact Recreation” means any recreational or other water use in which human contact with the water is unlikely, such as pass through commercial or recreational navigation, and where physical conditions or hydrologic modifications make direct human contact unlikely or dangerous.

This definition is needed to describe recreational activities where human contact with the water is highly unlikely or would be dangerous to the individual. Observations were made during the UAA process outlining areas in the waterways where it is believed that human contact with the water is not occurring or should not be occurring due to safety reasons. (*See* Attachment B, Sections 4 and 5).

**5. Section 301.324 Non-recreational**

“Non-recreational” means a water body where the physical conditions or hydrologic modifications preclude primary contact, incidental contact and non-contact recreation.

This definition is needed to describe the water bodies where individuals should refrain from any type of contact due to the conditions of the water body.

**B. Part 303 - Use Designations**

In Part 303, the Agency is proposing to establish three distinct recreational uses and three distinct aquatic life uses applicable to the CAWS or Lower Des Plaines River. For each use

description, the Agency has listed the waterway segments in which the use applies. The Agency will summarize below each segment and where it begins and ends. Color-coded maps of the affected area identifying the applicable recreational use designations and identifying the applicable aquatic life use designations are included as Attachment H.

**1. Explanation of Chicago Area Waterway System and Lower Des Plaines River Reach Segments**

The CAWS and Lower Des Plaines River, as evaluated in the UAAs, consist of 13 waterbodies and five controlling structures stretching from Lake Michigan to the Interstate-55 bridge crossing Des Plaines River near Channahon. *See* Attachment I (map of CAWS and Lower Des Plaines River segments). For use designation purposes, the waterbodies are subdivided into 17 reaches. Starting at the far north end of CAWS, the UAA portion of the Chicago River drainage begins at the Wilmette Pumping Station and Controlling Works on the artificially constructed North Shore Channel at Lake Michigan in Wilmette. The southern portion of the Chicago River drainage in the UAA study area ends with the Elgin, Joliet and Eastern Railroad bridge crossing over the Des Plaines River in Joliet. The terminology used in the proposed regulatory changes to identify stream reaches within each designated use in Part 303 are explained and defined as follows:

- 1) **North Shore Channel** - North Shore Channel is a human-made channel that stretches from the Wilmette Pumping Station and Control Works south to its confluence with North Branch Chicago River, just south of Foster Avenue. The pumping station is used to divert water into North Shore Channel from Lake Michigan (navigational makeup or “discretionary diversion”) and the controlling works is used to discharge stormwater into the Lake. Flow is generally stagnant upstream of Howard Street in Skokie and flow moves south downstream of Howard Street.
- 2) **North Branch Chicago River** – The North Branch Chicago River segment begins at North Branch Chicago River’s confluence with North Shore Channel and flows south to its confluence with both Chicago River and South Branch Chicago River in downtown Chicago. For purposes of this proposal, North Branch Chicago River is divided into two reaches:

- a) the upper reach starts at the confluence with North Shore Channel and ends at the southern end of the North Avenue Turning Basin; and
  - b) the lower reach starts at the southern end of the North Avenue Turning Basin, includes the North Branch Canal (at Goose Island), and ends its confluence with Chicago River and South Branch Chicago River.
- 3) **Chicago River** – Chicago River begins at the Chicago River Lock and Controlling Works at Lake Michigan and stretches to its confluence with both the North Branch Chicago River and South Branch Chicago River. The lock is used to transfer watercraft between Lake Michigan and Chicago River and the controlling works is used either to divert lake water into the river or to discharge storm related high stage river water into the lake. Chicago River flow is generally stagnant but is subject to density currents where it meets the more saline waters of North Branch Chicago River.
- 4) **South Branch Chicago River** – South Branch Chicago River begins at its confluence with both Chicago River and North Branch Chicago River, and flows south and then west. It ends at its confluence with Chicago Sanitary and Ship Canal at Ashland Avenue in Chicago. The present flow of South Branch Chicago River has been reversed relative to its natural state.
- 5) **South Fork tributary to South Branch Chicago River** - South Fork begins at the MWRDGC Racine Avenue combined sewer pump station and ends at its confluence with South Branch Chicago River. South Fork flow is generally stagnant but has significant flow after precipitation events.
- 6) **Chicago Sanitary and Ship Canal (CSSC)** – CSSC is a human-made channel that begins at its confluence with South Branch Chicago River, flows southwest and then south and ends at its confluence with Des Plaines River. For this proposal, CSSC is divided into two reaches:
- a) the upper reach starts at the confluence with South Branch Chicago River and ends at its confluence with Calumet-Sag Channel in Willow Springs; and
  - b) the lower reach starts at the confluence with Calumet-Sag Channel and ends at the confluence with Des Plaines River near the E J & E railroad crossing.

CSSC also includes the Lockport Control Structure, which diverts stormwater from CSSC water into Des Plaines River to prevent upstream flooding and to protect the downstream lock and powerhouse. It also includes the Lockport Lock and Powerhouse which is used to transfer watercraft upstream and downstream and to generate hydroelectric power.

- 7) **Lower Des Plaines River** – For purposes of this UAA, Lower Des Plaines River segment begins at its confluence with CSSC, flows south, and ends at the Interstate-55 bridge crossing. Lower Des Plaines River is sub-divided in this proposal into two reaches:
- a) the Brandon Road Pool reach of the Lower Des Plaines River<sup>2</sup> starts at the confluence of the Lower Des Plaines River and CSSC and ends at the Brandon Road Lock and Dam in Rockdale; and
  - b) Upper Dresden Island Pool starts at the Brandon Road Lock and Dam and ends at the Interstate-55 bridge.

The Brandon Road Lock and Dam is used to transfer watercraft upstream and downstream and to control upstream stage height in the CSSC.

The following is a description of the UAA part of the Calumet River drainage which begins at Lake Michigan in Chicago, where the mostly human-made Calumet River joins the lake, and it ends where the Calumet-Sag Channel joins CSSC in Willow Springs.

- 8) **Calumet River** - Calumet River begins at Lake Michigan and ends at its confluence with both Little Calumet River and Grand Calumet River. Flow in Calumet River is variable, with periods of no flow. For this proposal, Calumet River is subdivided into two reaches:
- a) the north reach begins at Lake Michigan and ends at the Torrence Avenue crossing in Chicago; and
  - b) the south reach begins at the Torrence Avenue crossing and ends the confluence with both Little Calumet River and Grand Calumet River.

Calumet River includes the O'Brien Lock and Controlling Works. The lock is used to transfer watercraft back and forth between the Lake Michigan side and the Little Calumet River side of the Calumet River. The controlling works is used to divert Lake Michigan water into the Little Calumet River or to discharge stormwater from Little Calumet River to the Lake Michigan

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<sup>2</sup> Approximately one mile of Brandon Pool upstream of the confluence of the Des Plaines River and CSSC is considered part of CSSC. This one-mile stretch of CSSC downstream of Lockport Locks, but upstream of the confluence of CSSC and Lower Des Plaines River, is being addressed as part of the CSSC and is not considered part of the "Brandon Pool" of Lower Des Plaines River for purposes for this proposal.

side of Calumet River. The reach extending from Lake Calumet Connecting Channel to the confluence with Little and Grand Calumet rivers is human-made.

- 9) **Lake Calumet** – Lake Calumet includes the contiguous waters west of Calumet River and north of an imaginary extension of 126<sup>th</sup> Street that crosses the lake. Lake Calumet receives flow from various storm ditches and sewers and from some surrounding remnant wetlands, but is otherwise stagnant. At times it acts with Calumet River as a surge basin for Lake Michigan during wind-driven fluctuations in Lake Michigan levels.
- 10) **Lake Calumet Connecting Channel** - The term Lake Calumet Connecting Channel is being used to describe the waters beginning at the southern end of Lake Calumet and ending at the confluence with Calumet River. Lake Calumet Connecting Channel generally lacks flow.
- 11) **Grand Calumet River** - The UAA Grand Calumet River segment begins at the Illinois-Indiana state line in Burnham, flows west, and ends at its confluence with both Calumet River and Little Calumet River. The Grand Calumet River's flow is reverse of its pre-altered direction.
- 12) **Little Calumet River** – The UAA part of Little Calumet River begins at its confluence with both Calumet River and Grand Calumet River at the border of Burnham and Chicago, flows west, and the segment ends at its confluence with Calumet-Sag Channel. The Little Calumet River's flow is reverse of its pre-altered direction.
- 13) **Calumet-Sag Channel** – Calumet-Sag Channel is a human-made channel that begins at its confluence with Little Calumet River, flows west-northwest, and ends at its confluence with CSSC.

These segments, as identified and explained above, are used in the proposed changes to Part 303 to identify which segments are designated for which uses.

## 2. Section 303.102 Rulemaking Required (Repealed)

The Illinois EPA is proposing to repeal the existing Section 303.102 which required rulemaking pursuant to the Board's procedural rules for designation of waters to meet the Secondary Contact and Indigenous Aquatic Life Uses standards. Since those use designations are being proposed for elimination in their entirety this Section is no longer necessary.

### 3. Subpart B – CAWS and Lower Des Plaines River Use definitions

#### Section 303.204 Chicago Area Waterway System and Lower Des Plaines River Secondary Contact and Indigenous Aquatic Life Waters

The Chicago Area Waterway System and Lower Des Plaines River Waters which are designated to protect for incidental contact or non-contact recreational uses, except where designated as non-recreational waters; commercial activity, including navigation and industrial water supply uses; and the highest quality aquatic life and wildlife that is attainable, limited only by the physical condition of these waters and hydrologic modifications to these waters. These waters are required to meet the secondary contact and indigenous aquatic life standards contained in of Subpart D, of Part 302, but are not required to meet the general use standards or the public and food processing water supply standards of Subparts B and C, of Part 302. Designated recreational and aquatic life uses and subcategories or seasonal uses for each segment of the Chicago Area Waterway System and Lower Des Plaines River are identified in this Subpart.

In this Section, the Agency is proposing to delete the references to the current Secondary Contact and Indigenous Aquatic Life Use designation, to describe generally the uses being designated for the CAWS and Lower Des Plaines River as a whole, and to cross-reference the applicable water quality standards in Part 302 for these waters.

#### 4. New Definitions and Designations for Human-Contact Recreational Activities: Incidental Contact, Non-Contact and Non-Recreational Uses

The CAWS and Lower Des Plaines River UAA reports support the conclusion that the attainable recreational uses within the CAWS and Lower Des Plaines River are synonymous with the uses existing from the time the UAAs were performed to the present. The achievable uses for the given waterway reaches include:

- 1) Non-Recreation Use, which Illinois EPA proposes to define to include only commercial boat operations and large recreational boat passage and no human contact activity.
- 2) Non-Contact Recreation Use, which Illinois EPA proposes to define to include these Non-Recreation Uses as well as powerboat passage.
- 3) Incidental Contact Recreation Use, which Illinois EPA proposes to define to include: Non-Recreation and Non-Contact Recreation Uses as well as fishing, small craft boating and any limited contact associated with shoreline activity such as wading uses.

Conditions described in UAA factors 3 and 4 preclude other recreational uses (including primary contact recreation) from occurring:

- Factor 3 – Human caused conditions or sources of pollution prevent the attainment of the use, and cannot be remedied or would cause more environmental damage to correct than to leave in place.
- Factor 4 – Dams, diversion or other types of hydrological modifications preclude the attainment of the use and it is not feasible to restore the waterbody to its original condition or to operate such modifications in such a way that would result in the attainment of the use.

40 C.F.R. §131.10(g)(3) and (4). The factual justification for invoking these two factors is explained in the next two sections. Whereas UAA Factor 5 is also invoked in this UAA, that factor applies only to aquatic life uses, not to recreational ones.

a) UAA Factor 4: Hydrologic Modifications

The waterways currently designated for Secondary Contact and Indigenous Aquatic Life Uses have been heavily modified in order to allow for stormwater management and navigation in the Chicago area. Due to the extensive nature of these modifications, it is impossible to reverse them to allow attainment of primary contact recreational uses.

Flow and hydraulic behavior of the CAWS and Lower Des Plaines River is actively managed via a system of control structures to prevent flooding within and downstream of the basin and to maintain navigation capabilities. Flow rates and pool stages are continually monitored and managed. In advance of a storm event, the water depth in the Lockport basin which comprises the CAWS waterbodies located between the Lockport, Wilmette, Chicago River and O'Brien controlling works, is lowered by as much as 3 feet to accommodate the anticipated storm flow. This lowering is accomplished by sending CSSC flow to Des Plaines River at the Lockport controlling works. Normal storm events contribute an amount of storm water sufficient to bring the basin back up to navigational stage. Heavier storm events raise the

basin stage higher than normal navigational levels and when stage height threatens downstream structures, the basin is discharged to Lake Michigan. If storm events contribute less storm water than anticipated, navigational makeup water is discharged into the basin from Lake Michigan. As a result, it is not uncommon for some portions of CAWS to experience changes in depth of four to six feet in a 24 to 48 hour period and rapid changes in flow velocity. Such rapid fluctuations result in sediment scouring and resuspension plus alternate drying and wetting of shoreline habitat for aquatic life.

Because most of CAWS and Lower Des Plaines River is artificially channelized, it is also routinely subject to unavoidable moderate to severe watercraft passage related disturbances such as sediment scouring and wake formation that is dangerous to small watercraft and disrupts shoreline habitat for aquatic life. Wakes coupled with vertical-wall construction in many of the waterway reaches make recreational uses dangerous. Small craft can easily be capsized and persons in the water will have little if any route for escape.

In addition to flow modifications, the most severe physical barriers to waterway recreation exist in CSSC from its confluence with Calumet-Sag Channel down to its confluence with Des Plaines River. Here the waterway consists of deep-draft, vertical-walled shipping channels and terminals; the steep walls offer no human escape route from the water. Such conditions limit waterway uses to materials loading and offloading and passage of commercial and large recreational watercraft. Additionally, the land along the reach is privately owned and dominated by materials handling, chemical manufacturing, oil refining, electrical power generating and other large industrial operations; and there are no points designated for public access. The Lockport Lock and Powerhouse, the Lockport controlling works and the Aquatic Invasive Species Dispersal Barrier are located within this reach of the CSSC and present

additional dangerous conditions. Such conditions are irreversible, and in combination with other factors described herein, preclude any recreational activities from occurring. Des Plaines River from its confluence with CSSC to the Brandon Road Lock and Dam has characteristics similar to the above segment.

Many of the same deep-draft, steep-walled features described above exist in other reaches of CAWS, including Calumet River on the Lake Michigan side (north) of Torrence Avenue.

However, due to the existence of or definitive plans for nearby public-access facilities, these reaches can accommodate recreational motor-boat passage. Field observations show that such boating creates wakes dangerous to small motorized and non-motorized watercraft; in the event of a capsize, an individual would have few escape routes from the water. The UAA recreational survey team was unable to safely navigate the upper Calumet River in a 14-foot motorized johnboat. Such conditions are irreversible and in combination with other factors described, preclude any activities from occurring in these two reaches other than commercial watercraft operation and recreational powerboat passage.

The remaining reaches of CAWS and Lower Des Plaines River are more accessible to the public and support a greater variety of recreational activities. Many of the activities are promoted and occur from March through early November. They include small human-powered watercraft boating, fishing and other shoreline uses such as wading. Such activities represent incidental contact with the waters, but rarely result in intentional full body immersion. Each of the reaches possesses some physical limitations to human-contact recreation ranging from: deep-draft, steep-walled channels; to gradual sloped, manicured banks. Such limitations are irreversible in the foreseeable future but, in combination with other factors described, preclude any activities from occurring in these reaches other than those that currently exist. These

waterway reaches include those designated for Incidental Contact Recreational use in proposed Section 303.230.

b) UAA Factor 3: Human Caused Conditions or Sources of Pollution

UAA Factor 3 (40 CFR 131.10(g)(3)) allows for a lesser use than primary-contact recreation when human caused conditions or sources of pollution cannot be remedied or would cause more environmental damage to correct than to leave in place. Some of the factors discussed under UAA Factor 4 would also apply to UAA factor 3. Additional factors are provided in this Section.

Physical and flow conditions and other restrictions and opportunities dictate, from human safety and logistics standpoints, what recreational activities are achievable in and along CAWS and Lower Des Plaines River. The UAA reports in Attachments A and B identify these conditions and restrictions in greater detail. Background information gathered by the Agency from various sources describing such conditions, restrictions and opportunities are included as Attachments J, K, L, M, N, O and JJ.

It was discovered early in the UAA process that all CAWS and Lower Des Plaines River reaches are subject to an average of about fifteen CSO events per year and that neither MWRDGC nor the City of Joliet disinfects its wastewater treatment plant effluents. As a result, bacteria levels in the waterways exceed draft federal water quality criteria nearly everywhere in the waterways following CSO events. The levels also exceed draft criteria downstream of the treatment plant effluents most all other times. MWRDGC has implemented and the City of Joliet is on notice to implement CSO public notification programs to advise the public on health issues associated with CSOs; and a CAWS Health Advisory Committee designed and implemented a health advisory program to caution the public on recreating in non-disinfected effluent-

dominated waters. The CSO and Health Advisory programs include waterway sign postings, pamphlet distributions and other elements. (See Attachments N and P).

In April 2002 an electrical aquatic invasive species dispersal barrier was installed in the CSSC to prevent the passage of Asian carp and other invasive species from the Illinois River to Lake Michigan and vice versa. The barrier involves applying an electrical charge directly to the water and the charge is dangerous to humans. (See Attachment O). Therefore the electric barrier prevents humans from engaging in full-body immersion activities in the waters in and around the barrier zone.

Based on information summarized below, the Agency has concluded that primary contact recreation is not attainable in the UAA study area. Illinois EPA proposed three distinct recreational uses of Incidental Contact, Non-Contact and Non-Recreational to address the varying levels of attainable human contact uses in these waters.

c) Local Recreational Prohibitions and Future Attainability of Primary Contact Recreational Uses

During the UAAs it was discovered that wading is prohibited by MWRDGC on all of the human-made reaches of CAWS, including: North Shore Channel, the upper North Branch Chicago River, CSSC, Calumet-Sag Channel and Lake Calumet. Special Homeland Security restrictions may apply to Port District Properties. Only secondary contact recreational activities are allowed from specific points in these reaches, and in these cases only through formal permit, lease or security-clearance arrangements. Additionally, direct body contact with any waterways in Forest Preserve District of Cook County properties is prohibited by ordinance. The Coast Guard and the Chicago Police Marine Unit use their authorities to make case-by-case determinations on what activities can occur in or near all of the waterways under their

jurisdiction. Primary contact and in some cases small-watercraft activities are not allowed in reaches where power boating is occurring.

To determine whether any entities had plans for establishing additional recreational facilities on, along or within the waterways over the next 10 years, Illinois EPA made phone calls, exchanged e-mails and letters and solicited public and stakeholder input at meetings. None of the responses included definitive plans for establishing primary contact opportunities.

#### **5. Designation of Recreational Uses for the CAWS and Lower Des Plaines River**

Primary contact recreational use is the Clean Water Act recreational goal to be adopted for all waters of the U.S. unless it can be demonstrated through the performance of a UAA that one of the six UAA factors prevents full-body-contact recreation. Where one or more of the six UAA factors applies, lesser uses may be adopted. One of the goals of the CAWS and Lower Des Plaines River UAAs was to identify attainable recreational uses and set standards to protect such uses in the waterways analyzed. The UAA contractors and Illinois EPA investigated existing uses and considered attainable uses within Lower Des Plaines River and the CAWS. (See Attachments A and B). Attachments K and L contain additional supporting documentation developed by Illinois EPA regarding attainable uses in these waters. Illinois EPA has condensed the investigation findings herein to justify recreational use designation and assignment to the waterway reaches investigated and to further explain the need for the new recreational use designations identified above.

Existing uses are considered attainable uses if they occurred on or after November 28, 1975. Existing recreational uses in CAWS and Lower Des Plaines River were determined from:

- 1) Waterway surveys performed by UAA contractors and stakeholders;
- 2) Public input at UAA and other public meetings; and

- 3) Input during numerous phone, letter, e-mail, UAA website ([www.chicagoareawaterways.org](http://www.chicagoareawaterways.org)) and other meeting inquiries.

To determine whether uses other than existing uses are attainable in the foreseeable future, the UAA contractors and Illinois EPA performed a series of additional investigations including, but not limited to, the following:

- 1) Inventoried physical and flow features and conditions, and public access points along the waterways;
- 2) Sent a letter to land owners along CAWS that allow or might allow recreation to occur in, on, or along CAWS;
- 3) Reviewed local ordinances and programs pertaining to promotion or prohibition of recreational activities; and
- 4) Coordinated a Health Advisory subgroup of the UAA Stakeholder Advisory Committee, and developed a health advisory program for CAWS.

After analyzing all of the information received as a result of these efforts, the Agency concluded that each of the UAA reach segments would be placed into one of the three distinct recreational use categories explained above. The designation of CAWS and Lower Des Plaines segments for each of these use designations is explained below.

a. Incidental Contact Recreation Waters

**303.220 Incidental Contact Recreation Waters**

The following waters are designated as Incidental Contact Recreation waters and must protect for incidental contact recreational uses as defined in 35 Ill. Adm. Code 301.282.

- a) North Shore Channel;
- b) North Branch Chicago River from the confluence with North Shore Channel to the confluence with South Branch Chicago River and Chicago River;
- c) Chicago River;
- d) South Branch Chicago River and its South Fork;

- e) Chicago Sanitary and Ship Canal from the confluence with South Branch Chicago River to the confluence of Calumet-Sag Channel;
- f) Calumet River, from Torrence Avenue to the confluence with Grand Calumet River and Little Calumet River;
- g) Lake Calumet;
- h) Lake Calumet Connecting Channel;
- i) Grand Calumet River;
- j) Little Calumet River from the confluence with Calumet River and Grand Calumet River to the confluence with Calumet-Sag Channel;
- k) Calumet-Sag Channel; and
- l) Lower Des Plaines River from the Brandon Road Lock and Dam to the Interstate 55 bridge.

Incidental Contact Recreational use is any recreational activity in which human contact with the water is incidental and in which the probability of ingesting appreciable quantities of water is minimal, such as fishing; commercial boating; small craft recreational boating; and any limited contact associated with shoreline activity such as wading. The waters listed above are subject to this use designation. The waters placed in this category were determined to have the highest degree of human contact of the waters studied. In general, primary contact recreational activities were not found to be attainable uses in these waters.

A small portion of the investigated reaches are currently designated as General Use along with the presumption that primary contact recreation is a designated use. These reaches are: Chicago River, North Shore Channel from the North Side Sewage Treatment Works to Lake Michigan, and Calumet River from the O'Brien Locks and Dam to Lake Michigan. It is the Agency's intention with this rulemaking to remove these stream segments from the General Use

designation and group them with the other reaches of the CAWS and Lower Des Plaines River based on each the appropriate attainable recreational (and aquatic life) uses for each segment.

North Shore Channel from the North Side Sewage Treatment Works to Lake Michigan and Calumet River from the O'Brien Locks and Dam to Lake Michigan were designated as Secondary Contact Use waters by the Board on March 7, 1972 in combined rulemakings R70-8, R71-14, and R71-20, which were derived from Rule 1.07 of SWB-8, adopted by the Sanitary Water Board on December 1, 1966. Among other changes, R87-27 changed the designation of these two segments to General Use. It appears that the change in designated use was accomplished with little or no analysis. In R71-14, the Board did not designate Chicago River as a Restricted Use water, but the Board did designate Chicago River as the one of only two non-Restricted Use Waters not designated for use as a public and food processing water supply. The other waterbody was the non-Secondary Contact portions of Little Calumet River. R72-4 at p. 15 (Rule 303).

The CAWS UAA demonstrates through recreational surveys that primary contact does not occur in North Shore Channel and Chicago River. (See Attachment B at 4-23 & 4-24 and 4-43 thru 46). The recreational assessment conducted for Calumet River did not include a survey of recreational activity because of the dangers of traveling the area; nevertheless, no primary contact recreation is believed to occur in Calumet River. (See Attachment B at 4-86). For the Calumet River segment currently designated as General Use, the portion of Calumet River from Torrence Avenue to the O'Brien Locks and Dam is being proposed for designation as Incidental Contact Recreation, because some smaller craft recreational boating is believed to occur in this portion. The remainder (Torrence Avenue to Lake Michigan) is being designated for Non-Contact Recreation as identified below.

According to 40 CFR 131.10(g), "States may remove a designated use which is not an existing use, as defined in 40 CFR 131.3". According to 40 CFR 131.3, existing uses are those uses actually attained in the water body on or after November 28, 1975, whether or not they are included in the water quality standards. The Agency has concluded that primary contact recreation has not been an existing use on any of the UAA study segments currently designated as General Use waters.

b. Non-Contact Recreation Waters

303.225 Non-Contact Recreation Waters

Calumet River from Lake Michigan to Torrence Avenue is designated as a Non-Contact Recreation water and must protect for non-contact recreational uses as defined in 35 Ill. Adm. Code 301.323.

Non-Contact Recreational Use is any recreational or other water use in which human contact with the water is unlikely, such as pass through commercial or recreational navigation, and where physical or flow conditions make direct human contact unlikely or dangerous. The Agency has designated Calumet River from Lake Michigan to Torrence Avenue for Non-Contact Recreational use. Although this segment is currently designated as General Use, the UAA contractors and the Agency concludes that primary contact recreation is not attainable in this waterbody. In addition, the Agency has concluded that Incidental Contact Recreation is not attainable in this waterbody.

c. Non-Recreational Waters

303.227 Non-Recreational Waters

The following waters are designated as Non-Recreational waters as defined in 35 Ill. Adm. Code 301.324.

- a) Chicago Sanitary and Ship Canal from its confluence with the Calumet-Sag Channel to its confluence with Des Plaines River; and

b) Lower Des Plaines River from its confluence with Chicago Sanitary and Ship Canal to the Brandon Road Lock and Dam.

Non-Recreational Use is any water use that precludes primary contact, incidental contact and non-contact recreation due to physical or flow conditions or other restrictions and is applicable to the waters listed above. The Agency has concluded that the above portions of CSSC and the Brandon Pool cannot attain secondary contact recreational uses and need not be protected for these uses.

**6. Criteria Necessary to protect the Designated Recreational Uses**

The CAWS and Lower Des Plaines River support limited recreational activity. The level of these recreational activities has increased and it is anticipated that it will continue to grow. The current Secondary Contact classification does not include an accompanying numerical standard for any health related or indicator bacterial organism. The Agency declines to propose a numeric standard at this time. Rather, the Agency recommends to defer setting numerical standard for bacterial parameters for all three of the proposed recreational use designations proposed pending completion of additional scientific evaluations. The rationale for this deferral includes several considerations and is explained below.

In 1986, U.S. EPA published Ambient Water Quality Criteria for Bacteria-1986 (Attachment Q). This document contains U.S. EPA's current recommended water quality criteria to protect individuals from gastrointestinal illness in recreational waters. The main route of human exposure to illness-causing organisms in recreational waters is through accidental ingestion of water while engaging in activities in and on the waterway. Primary contact recreation is typically defined by States to encompass activities that could be expected to result in the ingestion of or immersion in water, such as swimming, water skiing, surfing, or any other

activity where immersion in the water is likely.<sup>3</sup> U.S. EPA conducted epidemiological studies and evaluated the use of several organisms as indicators, including fecal coliform, *Escherichia coli* ("*E. coli*") and enterococci. U.S. EPA recommended the use of *E. coli* for fresh recreational waters because levels of these organisms were more accurate predictors of acute gastrointestinal illness levels than levels of fecal coliform. In U.S. EPA's epidemiological studies, *E. coli* had exhibited the strongest correlation to swimming-associated gastroenteritis in fresh waters. U.S. EPA believed at the time that fecal coliform bacteria are sometimes detected where fecal contamination is absent, possibly resulting in inaccurate assessments of recreational safety.

In 2004, U.S. EPA indicated it intended to publish new bacteria criteria in October 2005 and the indicator organism would be neither fecal coliform nor *E. coli*. It was also unclear at that time if U.S. EPA's new bacteria criteria would only apply to Great Lake Coastal Recreation Waters or to all surface waters. As of today, U.S. EPA has not determined what the indicator organism should be. When U.S. EPA determines the indicator organism, Illinois EPA has committed to the Board to initiate another rulemaking to address U.S. EPA's decision with regard to the bacterial standard for Lake Michigan. Although U.S. EPA developed a draft guidance for implementation of its 1986 national criteria document in May 2002, that document has never been finalized by U.S. EPA.

There is currently no federal recommended bacterial criterion for non-primary contact recreational activities, and the federal criteria for primary contact activities has been criticized as an inappropriate standard to use as a basis for protection of non-immersion or secondary contact recreational activities. U.S. EPA is also currently in litigation with environmental groups regarding the requirements to complete studies and establish new criteria pursuant to the Beaches

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<sup>3</sup> Kayaking and jet skiing may be borderline recreational activities that many lump into primary contact but likely do not involve as high a likelihood of ingestion of appreciable amounts of water as swimming, waterskiing and surfing.

Environmental Assessment and Coastal Health Act of 2000 (Beach Act of 2000). As a result, U.S. EPA is embarking on a major epidemiologic study that will form the basis for new national criteria and they estimate completion of that effort and adoption of new or revised criteria by 2012. Unfortunately, U.S. EPA's work plan includes no provision to assess health risks and formulate criteria associated with any secondary or lesser exposure conditions than primary contact recreational activities.

To fill the void in scientific knowledge and lack of federal criteria recommendations for non-primary contact recreation, MWRDGC has commissioned an epidemiologic study of health risks and illness incidences associated with current recreational activities in the CAWS. This study will be undertaken by the University of Illinois at Chicago, School of Public Health and will commence this year. The study will follow peer-review standards and is being conducted in consultation with national experts including U.S. EPA and Water Environment Research Foundation affiliates. The study schedule is shorter than that of the U.S. EPA's primary contact recreation effort and should be completed with results available within an approximate 24-30 month time frame.

MWRDGC has further undertaken a risk assessment of recreational activity. The risk assessment has two distinct components: risk associated with dry-weather recreation in the CAWS and risks associated with wet weather recreation in the CAWS. Results of these studies are intended to allow comparison between the risk associated with the specific types of human contact recreation occurring in the CAWS during both dry and wet weather and the recommended risk levels of between 8 and 14 illnesses per thousand recreational users in U.S. EPA's 1986 national criteria document.

Although risk estimates during wet weather are not available yet, it is clear that as a result of CSOs during wet weather, any level of recreational activity in the waterway is unhealthy during periods when raw sewage is present. Until completion and operability of the reservoir phase of the Tunnel and Reservoir Project system, numerous CSO discharges will continue to produce highly elevated bacterial levels that likely create an unacceptably high health risk for recreational activity during and immediately following these periods. While there may be an argument that most of the current recreational activity may be reasonably attained during dry weather, conditions under wet weather are clearly incompatible with recreational activity and the recreational use is not being attained during those conditions at any reasonably acceptable risk level.

Therefore, in addition to lack of a sound scientific basis for a numeric recreational based bacteria standard, recreational uses (including primary, incidental contact and non-contact activities) are not attainable during wet weather. These recreational uses will not be attained for at least several more years until the Tunnel and Reservoir Project is complete, if not longer.

Based on the consultant's data and recommendations, the Agency has proposed appropriate recreational use designations for each reach. In the future, when it is known which indicator organism should be used and what the water quality standards should be, the numeric standards that protect each of the recreational uses can easily be inserted by initiating another rulemaking. In the meantime, the Agency is proposing a technology-based effluent disinfection requirement in Part 304. That proposal is discussed in detail below in the discussion of Part 304.

In summary, the recreational use components of this proposal include designation of non-contact and incidental contact recreational activities, with technology-based disinfection requirements for treated domestic wastewater and deferral of a numeric bacteria standard until

scientific studies currently underway yield a defensible and meaningful bacterial parameter and numeric value.

## 7. Aquatic Life Use Designations

The Illinois EPA is proposing the following regulatory language for designation of Aquatic Life Uses in the CAWS and Lower Des Plaines River:

### **303.230 Chicago Area Waterway System Aquatic Life Use A Waters**

Waters designated as Chicago Area Waterway System Aquatic Life Use A Waters are capable of maintaining aquatic-life populations predominated by individuals of tolerant or intermediately tolerant types that are adaptive to the unique physical conditions, flow patterns, and operational controls necessary to maintain navigational use, flood control, and drainage functions of the waterway system. The following waters are designated as Chicago Area Waterway System Aquatic Life Use A waters and must meet the water quality standards of 35 Ill. Adm. Code 302, Subpart D:

- a) North Shore Channel;
- b) North Branch Chicago River from its confluence with North Shore Channel to the south end of the North Avenue Turning Basin;
- c) Calumet River from Torrence Avenue to its confluence with Grand Calumet River and Little Calumet River;
- d) Lake Calumet;
- e) Grand Calumet River;
- f) Little Calumet River from its confluence with Calumet River and Grand Calumet River to its confluence with Calumet-Sag Channel; and
- g) Calumet-Sag Channel.

### **303.235 Chicago Area Waterway System and Brandon Pool Aquatic Life Use B Waters**

Waters designated as Chicago Area Waterway System and Brandon Pool Aquatic Life Use B Waters are capable of maintaining aquatic-life populations predominated by individuals of tolerant types that are adaptive to the unique physical conditions, flow patterns, and operational controls designed to maintain navigational use, flood control, and drainage functions in deep-draft, steep-walled shipping channels. The following waters are designated as Chicago Area

Waterway System and Brandon Pool Aquatic Life Use B waters and must meet the water quality standards of 35 Ill. Adm. Code 302, Subpart D:

- a) North Branch Chicago River from the south end of the North Avenue Turning Basin to its confluence with South Branch Chicago River and Chicago River;
- b) Chicago River;
- c) South Branch Chicago River and its South Fork;
- d) Chicago Sanitary and Ship Canal;
- e) Calumet River from Lake Michigan to Torrence Avenue;
- f) Lake Calumet Connecting Channel; and
- g) Lower Des Plaines River from its confluence with Chicago Sanitary and Ship Canal to the Brandon Road Lock and Dam.

**303.237 Upper Dresden Island Pool Aquatic Life Use Waters**

Lower Des Plaines River from the Brandon Road Lock and Dam to the Interstate 55 bridge shall be designated for the Upper Dresden Island Pool Aquatic Life Use. These waters are capable maintaining aquatic-life populations consisting of individuals of tolerant, intermediately tolerant and intolerant types that are adaptive to the unique flow conditions necessary to maintain navigational use and upstream flood control functions of the waterway system. These waters must meet the water quality standards of 35 Ill. Adm. Code 302, Subpart D.

Aquatic Life use attainability (i.e., biological potential) of the CAWS and Lower Des Plaines River depends primarily on physical habitat conditions. UAAs performed on the CAWS and Lower Des Plaines River show that these waterways have unique habitat conditions. Based on the findings from the UAAs and additional data, Illinois EPA is proposing definitions and designations for Aquatic Life Uses and standards to protect the designated uses.

From the information gathered, Illinois EPA determined that three levels of biological potential apply in CAWS and Lower Des Plaines River; two of the three levels representing biological conditions do not meet the Clean Water Act's aquatic life goal because of the

following two factors described in the UAAs: (1) Human caused conditions or sources of pollution prevent the attainment of the use, and cannot be remedied or would cause more environmental damage to correct than to leave in place, (2) Dams, diversion or other types of hydrological modification preclude the attainment of the use, and it is not feasible to restore the waterbody to its original condition or to operate such modifications in such a way that would result in the attainment of the use and (3) physical conditions related to the natural features of the waterbody, such as the lack of a proper substrate, cover, flow depth, pools, riffles, and the like, unrelated to water quality and preclude attainment of aquatic life protection uses. (See Attachments A, B, R and S).

Each of the three attainable levels of biological potential applies in specific waters, resulting in three designated uses: (1) the Upper Dresden Island Pool Aquatic Life Use Waters, (2) the Chicago Area Waterway System Aquatic Life Use A Waters and (3) Chicago Area Waterway System and Brandon Pool Aquatic Life Use B Waters.

The Upper Dresden Island Pool Aquatic Life Use Waters are capable of maintaining aquatic life populations consisting of individuals of tolerant, intermediately tolerant, and intolerant types that are adaptive to the unique flow conditions necessary to maintain navigational use and upstream flood-control functions of the waterway system.

The Chicago Area Waterway System Aquatic Life Use A Waters are capable of maintaining aquatic life populations predominated by individuals of tolerant or intermediately tolerant types that are adaptive to the unique physical conditions, flow patterns, and operational controls necessary to maintain navigational use, flood control, and drainage functions of the waterway system.

The Chicago Area Waterway System and Brandon Pool Aquatic Life Use B Waters are capable of maintaining aquatic life populations predominated by individuals of tolerant types that are adaptive to the unique physical conditions, flow patterns, and operational controls designed to maintain navigational use, flood control, and drainage functions in deep-draft, steep-walled shipping channels.

CAWS and Brandon Pool Aquatic Life Use B waters are artificially constructed or channelized, straight, deep-draft, steep-walled shipping channels with little or no fixed aquatic or overhanging riparian vegetation or other refugia for aquatic life from shipping traffic and predation. They are generally 15 feet or more deep and square or rectangular in cross section. The channel walls are kept in place by sheet piling, concrete, timbers or various combinations of each. Use B waterways are subject to recurring, moderate to severe anthropogenic impacts such as sediment scouring, wake disturbances of shoreline areas, and rapid changes in water levels and flow velocities; the impacts are attributable primarily to navigational uses and flood control functions.

The waterway reaches in the Lockport zone (i.e., the area bound by the Lockport lock and dam, the O' Brien lock and dam, the Chicago River lock and controlling structure and the Wilmette controlling structure); are especially subject to such impacts. The area described can be found on the map included as Attachment I. In order to ensure navigation and prevent flooding, Lockport zone stage height is dropped by as much as 3 feet in advance of a rain event and then allowed to regain navigation stage by allowing storm water and, if necessary, navigational makeup water from Lake Michigan to flow into the system. More severe storms are followed by temporary stage heights higher than required for navigational purposes and it is not uncommon for the system to fluctuate 4 to 6 feet in level over a 48-hour storm related period.

When stage height endangers waterway or other basin structures, CAWS flow direction is reversed and discharged into Lake Michigan through the controlling structures.

Additionally, in April 2002 an aquatic invasive species dispersal barrier was installed in the CSSC at Romeoville to prevent Asian carp and other invasive species' passage from the Illinois River to Lake Michigan and vice versa. The barrier involves applying an electrical charge directly to the water at a rate intended to prevent any fish from passing alive.

Quality Habitat Evaluation Index (QHEI) scores in Use B waters generally are below 40, which according to a report prepared by the Center for Applied Bioassessment and Biocriteria, corresponds to a very poor to poor biological potential. (*See Attachment R*). The Ohio Boatable and Illinois EPA fish Index of Biological Integrity (IBI) scores generally are below 22, which are to be expected in waters with very poor to poor habitat attributes. (*See Attachments A, B, T and U*). Such conditions are irreversible, and in combination with other factors, prevent Use B waters from maintaining a biological condition that meets the Clean Water Act's Aquatic Life goal.

Use B waterways are: 1) North Brach Chicago River from the south end of the North Avenue Turning Basin to its confluence with Chicago River, 2) Chicago River, 3) South Branch Chicago River, 4) South Fork of South Branch Chicago River, 5) CSSC, 6) Brandon Pool-Des Plaines River from its confluence with CSSC to Brandon Road Lock and Dam, 7) Calumet River from Lake Michigan to the Torrence Avenue bridge and 8) Lake Calumet Connecting Channel.

Use A waters are artificially constructed or channelized, earthen bank reaches with some fixed aquatic or overhanging riparian vegetation and other areas of refugia. The waterways are generally less than 15 feet deep and a narrow, littoral zone flanks one or both sides of a steeper-

sloped deep midstream channel. Use A waters are also subject to some of the same routine moderate to severe navigation and other anthropogenic conditions found in Use B waters.

QHEI scores in Use A waters generally range from 40 to 55, which corresponds to a poor to fair biological potential. (See Attachment R). IBI scores generally range from 22 to 30, which is to be expected in waterways with poor to fair habitat attributes. (See Attachments A, B, T and U). Such conditions are not reversible in the foreseeable future and in combination with other factors, prevent Use A waters from maintaining a biological condition that meets the Clean Water Act's Aquatic Life goal.

Use A waters are: 1) North Shore Channel, 2) North Branch of Chicago River from its confluence with North Shore Channel to the south end of North Avenue Turning Basin, 3) Calumet River from Torrence Avenue bridge to its confluence with both Little Calumet River and Grand Calumet River, 4) Lake Calumet, 5) Grand Calumet River, 6) Little Calumet River from its confluence with both Calumet River and Grand Calumet River to its confluence with Calumet-Sag Channel, and 7) Calumet-Sag Channel.

Upper Dresden Island Pool waters have more diverse habitat conditions than Use A or Use B waters. Upper Dresden Island Pool is an earthen bank reach with fixed aquatic and overhanging riparian vegetation, and other zones of refugia for aquatic life. The midstream channel is generally about 15 feet deep and in most areas is flanked on one or both sides by littoral zones with sand-gravel substrate. It also contains some islands and shallow tributary mouths and deltas. Upper Dresden Island Pool is subject to recurring impacts from navigation use and upstream flood control functions, but to a lesser degree than found in Use A or Use B waters.

QHEI scores in Upper Dresden Island Pool range from 45 to 80, which according to the Center of Applied Bioassessment and Biocriteria, corresponds to a fair to excellent biological potential. (See Attachment R). Upper Dresden Island Pool is capable of maintaining a biological condition that minimally meets the Clean Water Act's Aquatic Life goal. However, IBI scores are generally at 20, suggesting that the existing aquatic life is not achieving the biological potential expected in waters with fair to excellent habitat. (See Attachments A, B, T, U, LL and MM).

#### **10. Section 303.441 Secondary Contact Waters Repealed**

The Illinois EPA is proposing a repealer of Section 303.441 which provided the list of waters subject to the Secondary Contact and Indigenous Aquatic Life use designation. This list is superseded by the lists in Sections 303.220 through 303.237 of this Part.

#### **C. Part 302, Subpart A**

The Agency has proposed minor changes to 35 Ill. Adm. Code 302.Subpart A to make the general requirements consistent with the proposed amendments to Part 303 and Part 302.Subpart D.

#### **1. Applicability**

Section 302.101(d) is updated to remove reference to the Secondary Contact and Indigenous Aquatic Life standards and replace them with the CAWS and Lower Des Plaines River water quality standards. This Section also contains updated cross-references to the Sections in Part 303 where these waterways are delineated and defined. It also adds a cross-reference in 302.101(f) to incorporate the applicability of the procedures in 32 Ill. Adm. Code 302.Subpart F to apply to the waterways impacted by this rulemaking. The relevant proposed language changes Section 302.101 are:

**Section 302.101 Scope and Applicability**

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d) Subpart D contains the Chicago Area Waterway System and the Lower Des Plaines River secondary contact and indigenous aquatic life standards. These standards must be met only by certain waters designated in 35 Ill. Adm. Code 303.204, 303.220, 303.225, 303.227, 303.230, 303.235 and 303.237 ~~303.441~~.

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f) Subpart F contains the procedures for determining each of the criteria designated in Sections 302.210 and 302.410.

**2. Mixing Zone Cross References**

This proposal also contains a minor change to 35 Ill. Adm. Code 302.102(c) that would update the cross-reference in that Section to require all acute toxicity standards to apply within mixing zones established for numerical standards for toxic parameters whether they were established for a standard in Subpart B or a standard established under Subpart D.

**Section 302.102 Allowed Mixing, Mixing Zones and ZIDs**

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c) All water quality standards of this Part must be met at every point outside of the area and volume of the receiving water within which mixing is allowed. The acute toxicity standards of this Part Sections 302.208 and 302.210 must be met within the area and volume within which mixing is allowed, except as provided in subsection (e).

**D. Part 302, Subpart D Chicago Area Waterway System and Lower Des Plaines River Standards**

35 Ill. Adm. Code 302.Subpart D formerly titled Secondary Contact and Indigenous Aquatic Life Standards is proposed to be changed to Chicago Area Waterway System and Lower Des Plaines River Standards to update the reference to the water quality standards contained in this Subpart.

## 1. Subpart D Scope and Applicability

Section 302.401 identifies the scope and applicability for Subpart D of 35 Ill. Adm. Code Part 302. The Agency has proposed to update this Section to eliminate the references to the secondary contact provisions and include the references to the new Chicago Area Waterway System and Lower Des Plaines River provisions. The changes proposed to Section 302.401 are reprinted below for reference.

### Section 302.401 Scope and Applicability

Subpart D contains the Chicago Area Waterway System and Lower Des Plaines River secondary contact and indigenous aquatic life standards. These must be met only by ~~certain~~ waters specifically designated in Part 303. The Subpart B general use and Subpart C public water supply standards of this Part do not apply to waters described in Section 303.204 and listed in Sections 303.220 through 303.237 of this Part as the Chicago Area Waterway System or the Lower Des Plaines River designated for secondary contact and indigenous aquatic life (Section 303.204).

## 2. Subpart D Purpose

Section 302.402 contains a statement of purpose of Subpart D of Part 302. This Section is proposed to be changed to eliminate the secondary contact and indigenous aquatic life statement of purpose and replace it with a new statement of general purpose for the waterways subject to the Subpart D water quality standards. This statement outlines generally the uses being protected by the standards in this Subpart and indicates that the standards proposed for this Subpart are the standards needed to protect these uses. More specific definitions of the uses and the subcategories of uses are provided in Part 301 (Definitions) and Part 303 (Water Use Designations). The new Purpose Section for Part 302, Subpart D reads:

### Section 302.402 Purpose

The Chicago Area Waterway System and Lower Des Plaines River standards shall protect incidental contact or non-contact recreational uses, except where designated as non-recreational waters; commercial activity, including navigation and industrial water supply uses; and the highest quality aquatic life and wildlife that is attainable, limited only by the physical condition

of these waters and hydrologic modifications to these waters. The numeric and narrative standards contained in this Part will assure the protection of the aquatic life and recreational uses of the Chicago Area Waterway System and Lower Des Plaines River as those uses are defined in 35 Ill. Adm. Code Part 301 and designated in 35 Ill. Adm. Code Part 303 ~~Secondary contact and indigenous aquatic life standards are intended for those waters not suited for general use activities but which will be appropriate for all secondary contact uses and which will be capable of supporting an indigenous aquatic life limited only by the physical configuration of the body of water, characteristics and origin of the water and the presence of contaminants in amounts that do not exceed the water quality standards listed in Subpart D.~~

### **3. Narrative Offensive Conditions Criteria**

The Agency is proposing no changes to the existing narrative standard in Subpart D.

That language is included for the Board's reference:

#### **Section 302.403 Unnatural Sludge**

Waters subject to this subpart shall be free from unnatural sludge or bottom deposits, floating debris, visible oil, odor, unnatural plant or algal growth, or unnatural color or turbidity.

The Agency recognizes that the existing history of sediment pollution in the CAWS and Lower Des Plaines River will make this standard nearly impossible to attain. However, the Illinois EPA is unaware of a narrative standard that would be approvable by U.S. EPA and would serve the necessary purpose of preventing future additional accumulations of unnatural pollutants or creation of offensive conditions in these waters other than the existing narrative standard. Historic sediment pollution presents an attainability concern for some types of aquatic life in these waters, but the Agency intends to implement the existing narrative standard to prevent additional accumulations of sediment. It is anticipated that the sediment conditions in these waters will continue to gradually improve over time as will the water chemistry impacts from these historic sediments.

### **4. Section 302.404 pH**

The current water quality standard for pH for the affected waters is 6.0 to 9.0. Illinois EPA is proposing an update to these numbers to conform the standard to the current General Use

standards of 6.5 to 9.0. The existing Secondary Contact standard may be based on the effluent limitation in 35 Ill. Adm. Code 304.125 of 6.0 to 9.0. The value of 6.5 to 9.0 is consistent with the most recent federal criteria document "Quality Criteria for Water 1986" (EPA 440/5-86-001). (See Attachment V).

It is expected that this standard will be attained at most times and in most areas of the CAWS and Lower Des Plaines River, though data from MWRDGC indicates there may be occasional pH violations below 6.5. The federal criterion states that a pH range of 6.0 - 6.5 will be unlikely to be harmful to fish unless the free carbon dioxide present is in excess of 100 part per million. Based on the Agency's request, MWRDGC derived the free carbon dioxide concentrations. In cases where pH was between 6.0 and 6.5, the free carbon dioxide level was greater than 100 ppm approximately 64 % of the time. (See Attachment W). Therefore, the Agency concluded a pH standard below 6.5 could not be supported for these waters at this time.

## 5. Dissolved Oxygen

The Illinois EPA is proposing the following dissolved oxygen standards to protect aquatic life uses:

### Section 302.405 Dissolved Oxygen

Dissolved oxygen (~~STORET number 00300~~) concentrations shall not be less than the applicable values in subsections (a), (b) and (c) of this Section ~~4.0 mg/l at any time except that the Calumet-Sag Channel shall not be less than 3.0 mg/l at any time.~~

- a) For the Upper Dresden Island Pool Aquatic Life Use waters listed in Section 303.237,
  - 1) during the period of March through July:
    - A) 6.0 mg/l as a daily mean averaged over 7 days, and
    - B) 5.0 mg/l at any time; and
  - 2) during the period of August through February:

- A) 5.5 mg/l as a daily mean averaged over 30 days,
  - B) 4.0 mg/l as a daily minimum averaged over 7 days, and
  - C) 3.5 mg/l at any time.
- b) For the Chicago Area Waterway System Aquatic Life Use A waters listed in Section 303.230,
- 1) during the period of March through July, 5.0 mg/l at any time; and
  - 2) during the period of August through February:
    - A) 4.0 mg/l as a daily minimum averaged over 7 days, and
    - B) 3.5 mg/l at any time.
- c) For the Chicago Area Waterway System and Brandon Pool Aquatic Life Use B waters listed in Section 303.235:
- 1) 4.0 mg/l as a daily minimum averaged over 7 days, and
  - 2) 3.5 mg/l at any time.
- d) Assessing attainment of dissolved oxygen minimum values.
- 1) Daily mean is the arithmetic mean of dissolved oxygen values measured in a single 24-hour calendar day.
  - 2) Daily minimum is the minimum dissolved oxygen value measured in a single 24-hour calendar day.
  - 3) The measurements of dissolved oxygen used to determine attainment or lack of attainment with any of the dissolved oxygen standards in this Section must assure daily minima and daily means that represent the true daily minima and daily means.
  - 4) The dissolved oxygen values used in calculating or determining any daily mean or daily minimum should not exceed the air-equilibrated value.

The proposed dissolved oxygen standards are based on criteria and corresponding justification in U.S. EPA's national-criteria document, Ambient Aquatic Life Water Quality

Criteria for Dissolved Oxygen (Freshwater)(1986)(Attachment X) and thus are consistent with standards already recommended to the Board by Illinois EPA. *See In the Matter of: Proposed Amendments to Dissolved Oxygen Standard*, R04-25, Exhibit 23. The Board issued a First Notice Order and Opinion in R04-25 on July 12, 2007.

The proposed dissolved oxygen standards represent minimum concentration thresholds intended to protect aquatic organisms from acutely lethal effects and from chronic, sublethal effects of low dissolved oxygen. Protection against acutely lethal effects of low dissolved oxygen is provided by the standards that represent a daily minimum. These acute standards apply to all life stages. Protection against chronic, sublethal effects—such as inhibited growth—is provided by two types of standards. One type, which applies only to life stages other than early life stages, represents a seven-day average of daily minima. This type of chronic standard is designed to prevent continuous or regularly recurring exposures to dissolved oxygen concentrations at or near the acutely lethal threshold. The other type of chronic standard represents a daily mean averaged over an extended period of either seven days (for early life stages) or 30 days (for other life stages). This chronic standard is designed to represent the threshold of average daily dissolved oxygen concentrations necessary to ensure the long-term maintenance of aquatic life.

The above proposed standards represent incremental levels of protection that are consistent with the incremental biological potential of each of the sets of waters in which the standards apply. Table 1 (found on page 60) shows the standards in this context. The standards for Upper Dresden Island Pool Aquatic Life Use Waters are identical to those already recommended by Illinois EPA for most General Use waters. *See In the Matter of: Proposed Amendments to Dissolved Oxygen Standard*, R04-25, Exhibit 23 and Attachment MM.

The standards proposed for Chicago Area Waterway System Aquatic Life Use A Waters are consistent with the lower biological potential of these waters compared to that of Upper Dresden Island Pool Aquatic Life Use Waters. (See Attachments LL and MM). For the following reasons, one of the two types of chronic standards is not being proposed for these waters because sufficient protection against harmful chronic effects of low dissolved oxygen is provided by the other proposed standards. One manifestation of the limited biological potential of Chicago Area Waterway System Aquatic Life Use A Waters is suboptimal growth conditions for fish. For sufficient protection under such limited growth situations, U.S. EPA's 1986 dissolved oxygen national criteria document provides a chronic criterion of 5.0 mg/l as a daily mean averaged over seven days, for early life stages. Attachment X. For other life stages, U.S. EPA provides an analogous criterion of 4.0 mg/l. Attachment X. The 1986 national criteria document states that these two criteria protect for "...the persistence of existing fish populations...", but allow "...considerable loss of production." Attachment X. Illinois EPA judges that this level of protection is sufficient to attain the already limited growth potential of fish in these waters. However, Illinois EPA does not propose these two chronic standards because this level of protection is already provided by the other applicable standards. Specifically, for early life stages, if dissolved oxygen concentrations remain at all times above the proposed acute standard of 5.0 mg/l, it is mathematically impossible for a daily mean averaged over seven days to be less than 5.0 mg/l. Similarly, for other life stages, if seven-day averages of daily minima remain above the proposed 4.0 mg/l standard, it is unnecessarily redundant to require that daily means averaged over seven days remain less than 4.0 mg/l. Therefore, the proposed standards based on daily minima alone provide sufficient chronic protection for all life stages in Chicago Area Waterway System Aquatic Life Use A Waters.

The dissolved oxygen standards proposed for Chicago Area Waterway System and Brandon Pool Aquatic Life Use B Waters are consistent with the incrementally lower biological potential of these waters compared to Chicago Area Waterway System Aquatic Life Use A Waters. Namely, there are no standards proposed to protect early life stages of fish because these waters do not have the potential to consistently support early life stages of fish. (See Attachment A and LL). Similar to Chicago Area Waterway System Aquatic Life Use A Waters, Chicago Area Waterway System and Brandon Pool Aquatic Life Use B Waters can attain only suboptimal growth conditions for fish. Therefore, only one of the two types of chronic standards is needed to provide sufficient chronic protection.

Table 1. Dissolved oxygen standards recommended or proposed by Illinois EPA for protecting aquatic life in specified Illinois waters. Each value is a minimum, at or above which the dissolved oxygen concentration is intended to be sufficiently protective.

Designated Waters (UAA waters specifically addressed in this Statement of Reasons are highlighted in grey)	Early Life Stages Present (March – July)		Early Life Stages Absent (August – February, except January - December for Chicago Area Waterways and Brandon Pool Aquatic Life Use B Waters)		
	Daily Minimum (mg/l)	7-Day Mean of Daily Means (mg/l)	Daily Minimum (mg/l)	7-Day Mean of Daily Minima (mg/l)	30-Day Mean of Daily Means (mg/l)
Selected subset of “General Use” waters	5.0	6.25	4.0	4.5	6.0
Most remaining “General Use” waters	5.0	6.0	3.5	4.0	5.5
Upper Dresden Island Pool Aquatic Life Waters	5.0	6.0	3.5	4.0	5.5
Chicago Area Waterway System Aquatic Life Use A Waters	5.0		3.5	4.0	
Chicago Area Waterway System and Brandon Pool Aquatic Life Use B Waters			3.5	4.0	

The existing Secondary Contact and Indigenous Aquatic Life dissolved oxygen standards applicable to these waters are 3.0 mg/L in the Calumet-Sag Channel and 4.0 mg/L in the rest of the waters, and are frequently violated during wet weather periods. During periods when wet weather causes CSO discharges to impact the CAWS and Lower Des Plaines River, dissolved oxygen levels can drop to zero. Similarly, at least until the Tunnel and Reservoir Project is complete in 2016, it is highly likely the proposed dissolved oxygen standards will be violated. It may be necessary for MWRDGC to implement additional flow augmentation and aeration treatment technologies in order to achieve compliance with these dissolved oxygen standards.

## 6. Chemical Constituents – General Terms and Requirements

The following language has been proposed for Sections 302.407:

### Section 302.407 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 or lack of attainment with a CS must be collected in a manner that 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 of this Part, the following apply:

- 1) The AS shall not be exceeded in any waters except for those waters for which a zone of initial dilution (ZID) applies pursuant to Section 302.102 of this Part.
- 2) The CS shall not be exceeded outside of waters in which mixing is allowed pursuant to Section 302.102 of this Part.
- 3) The HHS shall not be exceeded outside of waters in which mixing is allowed pursuant to Section 302.102 of this Part.

Sections 302.407(a) through (d) include the general provisions and definitions applicable to the individual numeric toxic pollutants regulated in the rest of the Section. It contains definitions for the acute, chronic and human health standards and implementation provisions specifying how the mixing zone and zone of initial dilution provisions in Section 302.102 are to be applied for acute, chronic and human health standards for these constituents. Subsections (b) and (c) address the sampling required for determining attainment with chronic and human health water quality standards and subsection (b) also provides instructions for calculating dissolved metals water quality standards that depend on hardness.

The language in these Sections was taken directly from the parallel provisions in Subpart B, Section 302.208. The only change made between Sections 302.208(a) through (d) and 302.407(a) through (d) is a minor clarification in subsection (d)(1) of this Section.

In the existing language applicable to General Use waters in Section 302.208(d)(1), it reads “The AS shall not be exceeded in any waters except for those waters for *which the Agency has approved a zone of initial dilutions (ZID) pursuant to Section 302.102.*” In the proposed Section 302.407(d)(1) the language which is bolded for emphasis, has been changed to “a zone of initial dilution (ZID) applies pursuant to Section 302.102 of this Part.” The Agency believes this revised language is clearer and more accurate than the existing language, but the proposed

language is not intended to make a substantive change in the way the regulatory language is interpreted and applied.

**7. Standards to Protect Aquatic Life: Arsenic, Cadmium, Chromium, Copper, Cyanide, Lead, Mercury, Nickel, Total Residual Chlorine, Zinc, Benzene, Ethylbenzene, Toluene, Xylene.**

The standards presented in this Section are designed to protect aquatic life from acute and chronic toxicity resulting from the effect of these toxic metals and other toxic parameters in the environment. In each case, the water quality standards being proposed are the same for the three aquatic life uses applicable to the waterways being addressed in this proposal.

**a. Chromium (Hexavalent, total), Cyanide and Total Residual Chlorine**

The chromium (hexavalent, total), cyanide and Total Residual Chlorine (or TRC) water quality standards contained in the Agency's proposal are all based on the existing General Use standards for these three parameters currently found in 35 Ill. Adm. Code 302.208. Each of these particular General Use standards is also identical to and based on the most recent U.S. EPA national criteria document for the given pollutant.

The Agency's proposed standards regulate two forms of chromium, hexavalent chromium in total form ("Hex") and trivalent chromium in the dissolved form (*see below*). Hexavalent chromium is the +6 valence cation of chromium. The General Use standard for chromium (Hex) was updated during the R88-21(A) rulemaking that was adopted by the Board on January 25, 1990. The most recent national criteria document for chromium (Hex) is 1995 Updates: Water Quality Criteria Documents for the Protection of Aquatic Life in Ambient Water (EPA-820-B-96-001). (*See Attachment Y*). The 1995 Updates for chromium update but do not supersede the January 1985 national criteria document (EPA 440/5-84-029). The proposed acute standard is 16 micrograms per liter and the chronic is 11 micrograms per liter. Under the current

regulations the total hexavalent chromium standard in 35 Ill. Adm. Code 302.407 is 0.3 mg/L. The effluent standard in Part 304 for this parameter is a monthly average of 0.1 mg/L, daily average value limit of 0.3 mg/L and an instantaneous maximum limit of 1.0 mg/L.

The proposed cyanide acute and chronic water quality standards are exactly the same as the General Use water quality standards and also match the most recent national criteria document. Cyanide was updated during the R88-21(A) rulemaking that was adopted by the Board on January 25, 1990. The most recent national criteria document for cyanide is 1995 Updates: Water Quality Criteria Documents for the Protection of Aquatic Life in Ambient Water (EPA-820-B-96-001). (See Attachment Y). The 1995 Updates for cyanide updates, but does not supersede the January 1985 national criteria document (EPA 440/5-84-028). There is currently a standard for total cyanide of 0.10 mg/L contained in two separate provisions of 35 Ill. Adm. Code 302.Subpart D. In addition to the existing cyanide standard in Section 302.407, there is a stand-alone provision for cyanide in Section 302.409 which is proposed for repeal in this rulemaking docket.

The proposed cyanide acute standard is 22 micrograms per liter and the chronic standard is 5.2 micrograms per liter. The Agency is proposing that the samples taken to measure attainment of or compliance with this standard may be taken and analyzed in either the available or weak acid dissociable (or WAD) forms. The current General Use standard does not specify the form of cyanide, but it is interpreted as allowing either of these two methods of testing for cyanide. Currently, the Lake Michigan Basin standards in Subpart E of Part 302 refer to the weak acid dissociable (WAD) form, while the total form is used in the existing Secondary Contact and Indigenous Aquatic Life standard and the effluent standard of 0.10 mg/L. Total Cyanide refers to all of the CN groups in cyanide compounds that can be determined as the

cyanide ion (CN<sup>-</sup>). Available cyanide consists of cyanide ion (CN<sup>-</sup>), hydrogen cyanide in water (HCN<sub>aq</sub>) and the cyano-complexes of zinc, copper, cadmium, mercury, nickel, and silver. Cyanide (WAD) is the hydrogen cyanide (HCN) that is liberated from a slightly acidified (pH 4.5 to 6.0) sample under the prescribed distillation conditions. Total cyanide and cyanide (WAD) are determined using standard methods, while available cyanide methods are taken from EPA-821-R-99-013 (August 1999). (See Attachment Y).

The proposed total residual chlorine (or TRC) water quality standards are also exactly the same as the General Use water quality standards and the most recent national criteria document. The total residual chlorine standard was updated during the R88-21(A) rulemaking that was adopted by the Board on January 25, 1990. The most recent national criteria document for total residual chlorine is the "Gold Book" (EPA 440/5-86-001). (See Attachment V). The proposed acute standard is 19 micrograms per liter and the proposed chronic standard is 11 micrograms per liter. There is no standard for total residual chlorine currently applicable to Lower Des Plaines River and the CAWS. There is also no effluent standard for this parameter in Part 304.

b. Arsenic (Trivalent, Dissolved) and Chromium (Trivalent, Dissolved)

The proposed arsenic (trivalent, dissolved) and chromium (trivalent, dissolved) water quality standards for all three aquatic life use designations are exactly the same as the most recent national criteria document: 1995 Updates: Water Quality Criteria Documents for the Protection of Aquatic Life in Ambient Water (EPA-820-B-96-001). (See Attachment Y). This document updates the January 1985 national criteria document for arsenic (EPA 440/5-84-033) and the January 1985 national criteria document for chromium (EPA 440/5-84-029).

The proposed water quality standards are also being updated to include a translator from total arsenic (trivalent) to dissolved arsenic (trivalent) and total chromium (trivalent) to dissolved

chromium (trivalent) based on The Metals Translator: Guidance for Calculating a Total Recoverable Permit Limit from a Dissolved Criterion (EPA 823-B-96-007 (June 1996)). (See Attachment Z). Similar changes to the General Use standards were adopted by the Board on December 19, 2002 during the R02-11 rulemaking.

c. Cadmium (dissolved)

The Agency considered basing the acute and chronic cadmium water quality standards on the recalculation procedure from the 2001 national criteria document (EPA-822-R-01-001). (See Attachment AA). To adapt the cadmium water quality standard for protection of aquatic life in these waters, all of the tests from *Table 3a Ranked Freshwater Genus Mean Acute Values with Species Mean Acute-Chronic Ratios* of the 2001 NCD (pages 83-88) were used with the following exceptions. The following species were removed from the acute database along with their Genus Mean Acute Value (GMAV) and Species Mean Acute Value (SMAV) because they are not representative of the aquatic life in the subject waters. Brown trout, brook trout, bull trout, coho salmon, Chinook salmon and rainbow trout are not found in Illinois waters outside of Lake Michigan. Colorado squawfish and northern pike minnow are only found in western states and flagfish are located in coastal swamps and lagoons from Florida to the Yucatan in Mexico.

GMAV	Species	SMAV
1.613	Brown trout, <i>Salmo trutta</i>	1.613
< 1.963	Brook trout, <i>Salvelinus fontinalis</i>	< 1.791
	Bull trout, <i>Salvelinus confluentus</i>	2.152
3.836	Coho salmon, <i>Oncorhynchus kisutch</i>	6.221
	Chinook salmon, <i>Oncorhynchus tshawytscha</i>	4.305
	Rainbow trout, <i>Oncorhynchus mykiss</i>	2.108
22.54	Colorado squawfish, <i>Ptychocheilus lucius</i>	22.54
	Northern pike minnow, <i>Ptychocheilus oregonensis</i>	2,221
2,847	Flagfish, <i>Jordanella floridae</i>	2,847

The acute standard was based on the final acute value divided by two (FAV/2) and the chronic standard was not changed from the criteria document. The acute formula from the NCD would be  $\text{Exp}[A + B\ln(H)] \times \{1.138672 - [(\ln H)(0.041838)]\}^*$ , where  $A = 1.743$  and  $B = 1.0166$  and the chronic formula would be  $\text{Exp}[A + B\ln(H)] \times \{1.101672 - [(\ln H)(0.041838)]\}^*$ , where  $A = 4.719$  and  $B = 0.7409$ .

In determining the appropriate water quality standard for cadmium, the Agency looked to data collected by MWRDGC and then evaluated whether a criteria based on the federal national criteria document would be met and why. (See Attachment BB). Based on MWRDGC's stream data, the chronic criteria could not be met. MWRDGC collects cadmium data once per month at 26 stream locations and the data indicates that the chronic criteria would be exceeded periodically. (See Attachment BB).

The Agency reviewed the data and noted that the violations of the national criteria would occur mostly in the summer months. The data indicated that cadmium was usually not detectable in the winter months when barge traffic was minimal. The Agency reviewed the stream data where there was not a known point source of cadmium. The Agency reviewed the data and determined that the exceedances of the chronic criteria were most likely the result of contaminated sediment, but could not rule out point sources that were not quantified, such as CSOs. Contaminated sediment is scoured and resuspended by barge traffic. The Agency has photos showing the plume from sediment scoured and resuspended in the waterway. (See Attachment CC).

On page 3-41 of the Lower Des Plaines River UAA report, the authors state that "Toxic metals do not appear to be a toxicity problem with the exception of cadmium in the RM 286+ (just upstream of the Brandon Road Lock and Dam) depositional zone." (See Attachment A).

This statement may have been based on meeting the General Use standard. Probable effects concentration (PEC) and effects range - median (ER-M) are both presumed to be toxic and threshold effects concentration (TEC) and effects range – low (ER-L) are possibly toxic. According to the CAWS UAA, all of the streams for which sediment data was available exceeded the threshold effects concentration (TEC) and effects range – low (ER-L) or Probable effects concentration (PEC) and effects range - median (ER-M). Three of the five stations on North Shore Channel exceeded the TEC/ER-L. (See Attachment A at 4-36). Chicago River and South Fork both exceeded the TEC/ER-L and Upper North Branch, Lower North Branch, and South Branch exceeded the PEC/ER-M. (See Attachment B at 4-53). CSSC and Collateral Channel exceed the PEC/ER-M. (See Attachment B at 4-76). Calumet River and Little Calumet (East) exceeded the TEC and Grand Calumet, Little Calumet River (West) and Calumet-Sag Channel exceeded the PEC/ER-M. (See Attachment B at 4-91). Based on all of the above information, the Agency believes that sediment is the primary reason that the chronic national criterion cannot be met in these waters.

Therefore, the Agency's proposal is using "Human caused conditions or sources of pollution prevent the attainment of the use and cannot be remedied or would cause more environmental damage to correct than to leave in place" (40 CFR 131.10(g)(3)) to adjust the water quality standard for cadmium from the recalculation of the national criteria document described above.

Based on the above factors, the proposed cadmium (dissolved) water quality standards are exactly the same as the General Use water quality standards. Cadmium (dissolved) was updated during the R88-21(A) rulemaking that was adopted by the Board on January 25, 1990 and updated to include a translator from total cadmium to dissolved cadmium during the R02-11

rulemaking that was adopted by the Illinois Pollution Control Board on December 19, 2002. The Metals Translator: Guidance for Calculating a Total Recoverable Permit Limit from a Dissolved Criterion (EPA 823-B-96-007 (June 1996)). (See Attachment Z).

It was noted in the Lower Des Plaines UAA study that the concentrations of the contaminants in the sediment have been decreasing over time. (See Attachment A at 3-19). It is believed that these concentrations will continue to decrease as contaminated sediment either stabilizes or is covered by cleaner sediments.

d. Lead (dissolved)

The proposed lead (dissolved) water quality standards for the three aquatic life uses are exactly the same as the General Use water quality standards. Lead (dissolved) was updated during the R94-1(A) rulemaking that was adopted by the Board on May 16, 1996 and further updated to include a translator from total lead to dissolved lead during the R02-11 rulemaking that was adopted by the Board on December 19, 2002. There are no national criteria updates for lead more current than those that the Agency is proposing in this rulemaking and U.S. EPA has approved the existing General Use standard. This water quality standards revision was approved by Region V of U.S. EPA on December 1, 1999.

e. Benzene, Ethylbenzene, Toluene, Xylene, Nickel (Dissolved), Zinc (Dissolved)

The proposed nickel (dissolved), zinc (dissolved), benzene, ethylbenzene, toluene and xylene(s) water quality standards are exactly the same as the General Use water quality standards. Nickel (dissolved), zinc (dissolved), benzene, ethylbenzene, toluene, and xylene(s) were updated during the R02-11 rulemaking that was adopted by the Board on December 19, 2002. The technical support for these updates to the federal criteria documents is found in the docket for that rulemaking. There are no national criteria updates for any of these parameters

that are more up-to-date than those that the Agency is proposing in this rulemaking. U.S. EPA approval of these standards is pending.

f. Mercury (Dissolved)

The proposed mercury (dissolved) water quality standard for the protection of aquatic life uses is based on the most recent national criteria document 1995 Updates: Water Quality Criteria Documents for the Protection of Aquatic Life in Ambient Water (EPA-820-B-96-001). (See Attachment Y). This document updates the January 1985 national criteria document for mercury (EPA 440/5-84-026). The proposed water quality standard for mercury is also being updated to include a translator from total mercury to dissolved mercury based on The Metals Translator: Guidance for Calculating a Total Recoverable Permit Limit from a Dissolved Criterion (EPA 823-B-96-007 (June 1996)). (See Attachment Z). The General Use standard was updated to reflect this change during the R02-11 rulemaking that was adopted by the Board on December 19, 2002.

g. Copper (Dissolved)

The acute and chronic copper water quality standards in this proposal are based on the recalculation procedure established in the 1995 national criteria document (EPA-820-B-96-001). (See Attachment Y). This document updates the January 1985 copper national criteria document (EPA 440/5-84-031). The proposed water quality standards for these waters are also being updated to include a translator from total copper to dissolved copper based on The Metals Translator: Guidance for Calculating a Total Recoverable Permit Limit from a Dissolved Criterion (EPA 823-B-96-007 (June 1996)). (See Attachment Z). This translator was adopted by the Board for the General Use copper water quality standard in R02-11 (effective December 19, 2002).

All of the tests from Tables 1, 2, and 3 of the 1995 national criteria document were used in selecting the water quality standard for this proposal with the following exceptions from Table 3. (See Attachment Y at E3 through E8). The following species were removed from the acute database along with their Genus Mean Acute Value (GMAV) and Species Mean Acute Value (SMAV) because they are not representative of the aquatic life in the subject waters. The northern squawfish and chiselmouth are only found in the western states. Coho salmon, sockeye salmon, cutthroat trout, Chinook salmon, rainbow trout, Atlantic salmon and brook trout are not found in Illinois outside of Lake Michigan.

GMAV	Species	SMAV
16.74	Northern squawfish, <i>Ptychocheilus oregonensis</i>	16.74
73.99	Coho salmon, <i>Oncorhynchus kisutch</i>	87.1
	Sockeye salmon, <i>Oncorhynchus nerka</i>	233.8
	Cutthroat trout, <i>Oncorhynchus clarki</i>	66.26
	Chinook salmon, <i>Oncorhynchus tshawtscha</i>	42.26
	Rainbow trout, <i>Oncorhynchus mykiss</i>	38.89
109.9	Atlantic salmon, <i>Salmo salar</i>	109.9
110.4	Brook trout, <i>Salvelinus fontinalis</i>	110.4
133	Chiselmouth, <i>Acrocheilus alutaceus</i>	133

The acute standard was based on the final acute value divided by two (FAV/2) and the chronic standard was based on FAV/FACR. FAV stands for the final acute value and FACR stands for the final acute-chronic ratio.

On February 22, 2007, U.S. EPA finalized a national criterion update for copper. (See 72 Fed. Reg. 7983). Illinois EPA has not chosen to incorporate the 2007 criterion because it is based on a Biotic Ligand Model. This new methodology is quite complex and requires the ability to measure the presence of additional parameters that would impact copper's toxicity such as dissolved organics. This new methodology would be a significant departure from the way copper water quality standards have been used in the past. Illinois EPA will continue to evaluate

whether this model is useful for General Use waters and the waters impacted by this proposal and will consider updating or supplementing the copper standards as appropriate.

In the Lower Des Plaines River UAA study, copper was identified as a parameter that did not meet the water quality standards at the locations on the Lower Des Plaines River analyzed by the MWRDGC while the Illinois EPA location indicated compliance. Copper compliance was not found to be a concern in the CAWS.

Aqua Nova and Hey & Associates recommended developing a metals translator and/or a Water Effects Ratios (WER) for copper in order to propose water quality standards that would be met in the receiving stream, based on the toxicity difference between the waters of the Lower Des Plaines River and the laboratory water for which standards were developed in the laboratory.

Based on the compliance of the Agency samples and the closeness to compliance of the MWRDGC data, the Agency recommends that the water quality standard be set at the existing General Use standard.

#### **8. Standards to Protect Human Health: Mercury, Benzene**

Since this system is not designated as source water for public water supply and food processing, human health exposure to environmental conditions of the waterway is primarily, if not exclusively, attributable to exposure through consumption of fish from the system that by bioaccumulation of substances from the waterway are toxic to humans. Mercury and benzene are such substances and therefore the Agency is proposing standards for the protection of human health from fish consumption for these parameters. Both standards mirror the existing provisions in Subpart B of Part 302.

**a. Mercury Human Health Standard**

The proposed mercury water quality standard for the protection of human health is exactly the same as the existing General Use standard of 0.012 micrograms per liter. The mercury human health standard was updated during the R94-1(A) rulemaking that was adopted by the Board on May 16, 1996. There are no national criteria documents for mercury for the protection of human health that are more current than those that the Agency is proposing in this rulemaking other than the standards applicable to the Great Lakes Initiative waters of Lake Michigan. The General Use standard was approved by U.S. EPA on December 1, 1999.

**b. Benzene Human Health Standard**

The proposed benzene water quality standard for the protection of human health is exactly the same as the human health General Use standard of 310 micrograms per liter. The General Use standard was adopted by the Board in R02-11 on December 19, 2002. There are no national criteria documents for this parameter that are more up-to-date than what the Agency is proposing in this rulemaking. U.S. EPA approval of these standards is pending.

**9. Other Standards: Chloride, Iron, Silver, Selenium, Sulfate**

**a. Iron (Dissolved)**

The current Secondary Contact water quality standard for iron is 2.0 mg/L total iron. Illinois EPA is proposing to replace this standard with a dissolved iron standard of 1.0 mg/L for the protection of the three aquatic life uses. If adopted, this standard would be identical to the one found in the Subpart B General Use water quality standards. Iron (dissolved) was updated during the R88-21(B) rulemaking that was adopted by the Board on June 21, 1990. The only U.S. EPA national criteria document for iron is based on total iron and is contained in the July 1976 "Red Book" (EPA 440/9-76-023). (See Attachment DD). The Board changed the General

Use standard from total to dissolved in R88-21(B) and Illinois EPA proposes that the Board do the same for these waters.

b. Silver (dissolved)

The existing silver standard is presented in the total form and is 1.1 mg/L. The proposed silver (dissolved) water quality standard is exactly the same as the most recent national criteria document Ambient Water Quality Criteria for Silver (EPA 440/5-80-071)(October 1980). (See Attachment EE). The metals translator value of 0.85 was taken from The Metals Translator: Guidance For Calculating A Total Recoverable Permit Limit From A Dissolved Criterion (EPA 823-B-96-007)(June 1996). (See Attachment Z). This standard is more up to date than the General Use standard of 5.0 micrograms per liter.

The equation being proposed is as follows:  $\text{Silver (dissolved)} = \exp[A + B \ln(H)] \times 0.85^*$  where  $A = -6.52$ ,  $B = 1.72$ ,  $\exp[x]$  = base natural logarithms raised to the x- power,  $\ln(H)$  = natural logarithm of Hardness in milligrams per liter, and  $*$  = conversion factor multiplier for dissolved metals. Current data from MWRDGC indicates that this standard is being met in the CAWS.

c. Selenium (total)

The proposed selenium (total) water quality standard is exactly the same as the existing Secondary Contact and General Use water quality standards of 1.0 mg/L. These standards have not been updated since the original adoption. The most recent national criteria document for selenium (total) was published in 1987 (EPA 440/5-87-006). U.S. EPA made minor adjustments in the criteria concentrations when it converted the selenium criteria from a total recoverable measurement basis to a dissolved measurement basis in 60 FR 15366, March 23,

1995, only for the Great Lakes Initiative and in 64 FR 19781, April 22, 1999, *optionally* for freshwater nationwide. (See Attachment Y at Section N).

U.S. EPA proposed updating its 1987 national criteria document for selenium on December 17, 2004. (See 69 Fed. Reg. 75541-75546). This proposal has never been finalized and has been the subject of a good deal of controversy. It is a fish tissue-based criterion that is designed to protect waterfowl that feed on fish. This methodology has not been utilized in General Use water quality standards in Illinois to date. It is not expected that the CAWS or the Lower Des Plaines River will have issues with elevated selenium levels as might be found in western states with large ore mining industries.

Illinois EPA has chosen not to use the U.S. EPA criteria for selenium at this time. This decision is based on the current uncertainty surrounding the science used in developing the last final and current draft standards. In the event a federal national criteria document for this parameter is finalized, Illinois EPA will review the final document and may propose additional or modified rules in a future Board regulatory proceeding.

d. Sulfate and Chloride

Currently, there are no sulfate or chloride ambient water quality standards applicable to the CAWS and the Lower Des Plaines River. The Agency proposed changes to the General Use water quality standards for sulfate and total dissolved solids in docket R07-09 which was filed with the Board on October 23, 2006. The proposal in this rulemaking to address these parameters in the Chicago Area Waterway System and the Lower Des Plaines River is patterned after the proposal currently before the Board in R07-09. It was also developed prior to a First Notice Opinion by the Board in that proceeding.

While the proposed sulfate water quality standard in this rulemaking is based primarily on the proposal in R07-09, the instant proposal does not include the limit of 2,000 mg/L for protection of livestock watering since this is not a designated use of the CAWS or Lower Des Plaines River. In addition, the Agency's proposal does not include provisions for instances when hardness is less than 100 mg/L or chloride is less than 5 mg/L since these conditions do not exist in the CAWS or Lower Des Plaines River. Instream monitoring data collected by MWRDGC supporting this conclusion is contained in Attachment W. There are currently no applicable national criteria for sulfate.

There is currently no chloride standard applicable to the Secondary Contact and Indigenous Aquatic Life Uses segments of the CAWS and Lower Des Plaines River. The proposed chloride water quality standard is exactly the same as the current General Use water quality standard of 500 mg/L. The General Use chloride standard has not been updated since the original adoption. The national criteria document (EPA 440/5-88-001) recommends a Criterion Maximum Concentration (CMC) of 860 mg/L and a Criterion Chronic Concentration (CCC) of 230 mg/L. Illinois EPA is proposing to maintain the General Use water quality standard in these waters of a single value of 500 mg/L. This is the value that has been used by scientists in evaluating the toxicity of sulfate and chloride as the key toxic components of the total dissolved solids standard and it would be inconsistent with the results of that research to convert to the federal methodology which contains an acute value that is less restrictive than the Illinois EPA's General Use standard and a chronic value that may be more restrictive than the Agency's General Use standard. The Illinois EPA expects that there will be violations of the chloride standard during the winter months when road salting takes place to address winter weather events and the safety of Illinois motorists. This problem is not unique to the CAWS and Lower

Des Plaines River and the Illinois EPA has issued National Pollutant Discharge Elimination System stormwater permits to municipalities requiring the implementation of best management practices and other programs to minimize storm related water quality impacts from salts and other contaminants. The Agency hopes to continue to work with state and local government entities to mitigate the potential harm to aquatic life from these practices.

**10. Standards being eliminated or moved from chemical tables:  
ammonia, barium, fluoride, manganese, oil/fat/grease, phenols, TDS**

Illinois EPA is proposing to eliminate several parameters from the current Chemical Constituent tables in Section 302.407. In the case of ammonia, Illinois EPA is moving the ammonia standard to a stand-alone Section 302.412 to accommodate the more intricate provisions of the updated standard. *See, below.* For the other parameters, Illinois EPA has determined the parameter itself or the value it was based on are not necessary for the protection of the aquatic life uses of these waters and in most cases the limits are equal to or less stringent than the technology based effluent limitations in Part 304.

Barium, fluoride, manganese, oil/fat/grease, phenols and TDS (total dissolved solids) are all being eliminated as out-of-date water quality standards. U.S. EPA has not adopted a federal national criteria document for the protection of aquatic life for any of these parameters. The basis for elimination of these six parameters as water quality standards is explained in more detail individually below.

The Agency looked for guidance other than U.S. EPA criteria documents for an aquatic life ambient standard for manganese, because the only available information from U.S. EPA was criteria developed based on the protection of domestic water supplies and shellfish consumption in the "Gold Book." EPA440/5-86-001 (May 1, 1986)(Attachment V). The most up to date information has been developed by Colorado. *See Derivation of a Colorado State Manganese*

Table Value Standard For The Protection of Aquatic Life (July 2000)(Attachment FF). Colorado

has developed a hardness based acute and chronic water quality standards for total manganese.

Hardness (mg/L)	Acute (mg/L)	Chronic (mg/L)
50	2.37	1.31
100	2.986	1.65
200	3.76	2.078
400	4.738	2.618

Illinois EPA was not able to directly use the data developed by Colorado because the most sensitive species utilized by Colorado (such as rainbow trout) are not typically found in Illinois waters other than Lake Michigan. However, when Illinois evaluated this data and removed the four species non-native to Illinois from the twelve species used by Colorado, the result was a slightly higher final acute value (FAV) which would have resulted in an even less stringent standard than Colorado. Because the hardness values for the CAWS and Lower Des Plaines River typically range from 187 mg/L to 218 mg/L, it is likely that even the chronic standard applicable to this system would be significantly higher than the effluent limitation of 1.0 mg/L contained in Part 304. Therefore, Illinois EPA has determined a water quality standard for manganese is not necessary to protect aquatic life in the effluent dominated CAWS and Lower Des Plaines River.

The scientific basis for the elimination of the total dissolved solids standard is found in the Record of R07-09. Scientific research has indicated (and testimony confirmed in the March 7, 2007 Board hearing) that total dissolved solids is not a parameter indicative of toxicity to aquatic life since the quantities of its individual constituents are more relevant to toxicity than their simple sum. R07-09, March 7, 2002 Hearing Transcript at pages 14-15. Toxicity is always associated with either sulfate, chloride or their combination; accordingly, water samples with identical total dissolved solids concentrations can range from nontoxic to acutely toxic to aquatic

life because of variances in respective chloride and sulfate concentrations. Toxicity resulting from other major ions included in total dissolved solids has not proven significant in the determination of total toxicity to aquatic life; therefore, the total dissolved solids standard results in unnecessary restrictions that do not enhance protection for aquatic life. (R07-09, Agency Rulemaking Petition, Exhibit I, pages 15-16). As explained above, Illinois EPA is including updated chloride and sulfate standards in this proposal to protect the aquatic life uses. This eliminates the need for the surrogate total dissolved solids standard which is currently 1,500 mg/L in these waters. The only federal guidance related to dissolved solids is found in the “Gold Book” and is applicable to domestic water supplies. (See Attachment V).

In the case of fluoride, manganese, oil/fat/grease and phenols the current standards are identical to the existing effluent limitations in Section 304.124. These values are 15.0 mg/L, 1.0 mg/L, 14.0 mg/L and 0.3 mg/L respectively. Because no discharger into the CAWS or Lower Des Plaines River can exceed these effluent limitations regardless of the available assimilative capacity of the waterbody, these numbers are duplicative and unnecessary as water quality standards in these waters.

In addition to the existing effluent standard in Part 304, oil/fat/grease are regulated most effectively through a narrative standard. The existing narrative standard in Section 302.403 will continue to prohibit “unnatural sludge or bottom deposits, floating debris, visible oil, odor, unnatural plant or algal growth, or unnatural color or turbidity” in these waters. The Illinois EPA believes this narrative standard is more effective than a water quality standard at protection of any potential impacts to aquatic life of these pollutants.

Phenols are regulated primarily for their organoleptic effects (taste and odor) and because the CAWS and Lower Des Plaines River are not being designated for public water supply or

food processing uses the 0.3 mg/L value from the “Gold Book” is not an appropriate water quality standard for these waters. (See Attachment V).

U.S. EPA has not developed a national criteria document for fluoride for the protection of aquatic life or human consumption uses. Illinois has regulated fluoride in General Use waters to protect downstream drinking water supplies from potential human health effects from the consumption of excessive amounts of fluoride. Because these waters are not designated for use as a public water supply, the Illinois EPA does not believe a water quality standard for fluoride is appropriate for the CAWS and Lower Des Plaines River. Dischargers to the CAWS and Lower Des Plaines River would not be permitted to cause violations of the existing General Use standards at downstream public water supply intake points.

In the case of barium, the existing effluent limitation is actually lower than the existing water quality standard. The effluent limitation is 2.0 mg/L, while the Secondary Contact and Indigenous Aquatic Life Uses standard is 5.0 mg/L. General Use on the other hand, has a water quality standard of 1.0 mg/L. This value is derived from the “Gold Book” and was developed for the protection of the domestic water supply use, which is not a designated use in the CAWS and Lower Des Plaines River. (See Attachment V). There are no aquatic life criteria for barium and the Illinois EPA does not believe a water quality standard for barium is necessary in these waters.

## 11. Temperature

The proposed temperature water quality standards were based on the report by Midwest Biodiversity Institute (MBI) and Center for Applied Bioassessment and Biocriteria (CABB) titled *Temperature Criteria Options for the Lower Des Plaines River* (October 11, 2005). (See Attachment GG). A correction to Table 3 of the above report is submitted as Attachment HH.

The correction was for the thermal limits for the Secondary Contact/Indigenous Aquatic Life category as identified in the 2005 document. The MBI author is Chris O. Yoder and the CABB author is Edward T. Rankin. U.S. EPA Region 5 and Illinois EPA requested this study to develop technical support and temperature criteria options for Lower Des Plaines River. The Agency then used the conclusions and options presented in this report to develop temperature standards for the CAWS and Lower Des Plaines River.

The principle objective of this project was to develop seasonal temperature criteria options that protect representative biological assemblages. The approach uses published data from the thermal effects literature to create a thermal-effects database for freshwater fish. These thermal effects data are then used to calculate four behavioral and physiological thresholds for a list of specified representative fish species called Representative Aquatic Species (or RAS) that are intended to represent the fish assemblage of a particular river or river segment. Ohio EPA used this approach to set temperature criteria for inland waters and Lake Erie in the 1978 revisions to the Ohio water quality standards and the Ohio River Valley Water Sanitation Commission used it to adopt the current Ohio River temperature criteria in 1984. These are the criteria currently applicable to the Ohio River stream segments in Illinois.

Four thermal input variables are used to determine the summer (for purposes of this standard, June 16 – September 15) average and daily maximum temperature criteria. However, in developing the baseline input variables, up to six thermal parameters were first considered. Of the six thermal parameters that were inventoried for each fish species, the upper incipient lethal temperature (UILT), chronic thermal maximum (ChTM), and the critical thermal maximum (CTM) are considered lethal thresholds and the remaining four (optimum, final preferendum, growth, and upper avoidance) are considered sublethal thresholds. The Yoder report had three

main categories with some subcategories; General Use, Modified Use, and Secondary Contact/Indigenous Aquatic Life with 49, 27, and 8 RAS respectively. The categories are modeled after existing aquatic life uses in Illinois and Ohio's modified use, but should not be interpreted as being equivalent to existing Illinois and Ohio use labels. These labels were only used to show the variety of possible choices for setting thermal water quality standards. The methodology then uses the RAS to develop summer daily maximum and period average criteria.

The Agency determined that the Chicago Area Waterway System and Brandon Pool Aquatic Life Use B waters listed in 35 IAC 303.235 should use the option of 8 RAS (Secondary Contact/Indigenous Aquatic Life) to determine the summer daily maximum and period average. This decision was made based on the aquatic life and habitat in the affected stream reaches. It is believed that those eight species are representative of the species that would be found in water capable of maintaining aquatic life populations predominated by individuals of tolerant types that are adaptive to the unique physical conditions, flow patterns and operational controls designed to maintain navigational use, flood control and drainage functions in deep-draft, steep-walled shipping channels.

Based on the fact that white sucker was present in certain waters, the Agency determined the Chicago Area Waterway System Aquatic Life Use A waters listed in 35 IAC 303.230 should use the option of 8 RAS (Secondary Contact/Indigenous Aquatic Life) plus white sucker to determine the summer daily maximum and period average. This decision was made based on the aquatic life and habitat in the affected stream reaches. It is believed that those nine species are representative of the species that would be found in water capable of maintaining aquatic life populations predominated by individuals of tolerant or intermediately tolerant types that are

adaptive to the unique physical conditions, flow patterns, and operational controls necessary to maintain navigational use, flood control, and drainage functions of this waterway system.

Based on the fact Des Plaines River between the Brandon Road Lock and Dam and the I-55 bridge has incrementally more diverse aquatic life and higher quality habitat than the rest of the CAWS and Lower Des Plaines River, the Agency determined it was appropriate to use the option of 27 RAS "Modified Use" to determine the summer daily maximum and period average for the Upper Dresden Island Pool waters.

Criteria for non-summer periods are derived to maintain seasonal norms and cycles of increasing and decreasing temperatures. Seasonal ambient temperature data were analyzed from eight locations in the CAWS and Lower Des Plaines River for the period, 1998 through 2004. The data from these stations is contained in the MBI/CAAB report. (See Attachment GG). The monitoring location at Route 83 on CSSC was used as the "background" location because it was not directly influenced by thermal sources such as cooling water or Lake Michigan and was believed to be representative of "background" temperatures. Because the background waters of the CAWS are composed of the MWRDGC water reclamation plant effluents, in the periods of January, February, October 1-15, November, and December, the Agency used the effluent temperature from the MWRDGC's Northside, Calumet, and Stickney facilities as the background temperature instead of using temperatures at the Route 83 CSSC station.

The Agency used the 75<sup>th</sup> percentile as the monthly average to ensure that the seasonal norms are preserved in the system. The daily maximum of the summer months was preserved for the entire year to ensure that no acute lethal temperatures are present. The Route 83 CSSC station data can be found in the MBI/CAAB report and the effluent data submitted by

MWRDGC was e-mailed to the Agency on May 22, 2007 and can be found in Attachments II and W.

The following language is being proposed for the temperature water quality standards for the three aquatic life use designations proposed for the CAWS and Lower Des Plaines River:

**Section 302.408      Temperature**

- a) Water temperature shall not exceed the maximum limits in the applicable table that follows during more than two percent of the hours in the 12-month period ending with any month. Moreover, at no time shall the water temperature at such locations exceed the maximum limits in the applicable table that follows by more than 2° C (3.6° F).
  
- b) Water temperature in the Chicago Area Waterway System Aquatic Life Use A waters listed in 35 Ill. Adm. Code 303.230 shall not exceed the period average limits in the following table during any period on an average basis.

<u>Months – dates</u>	<u>Period Average (°F)</u>	<u>Daily Maximum (°F)</u>
<u>January 1-31</u>	<u>54.3</u>	<u>88.7</u>
<u>February 1-28</u>	<u>53.6</u>	<u>88.7</u>
<u>March 1-31</u>	<u>57.2</u>	<u>88.7</u>
<u>April 1-15</u>	<u>60.8</u>	<u>88.7</u>
<u>April 16-30</u>	<u>62.1</u>	<u>88.7</u>
<u>May 1-15</u>	<u>69.2</u>	<u>88.7</u>
<u>May 16-31</u>	<u>71.4</u>	<u>88.7</u>
<u>June 1-15</u>	<u>74.2</u>	<u>88.7</u>
<u>June 16-30</u>	<u>85.1</u>	<u>88.7</u>
<u>July 1-31</u>	<u>85.1</u>	<u>88.7</u>
<u>August 1-31</u>	<u>85.1</u>	<u>88.7</u>
<u>September 1-15</u>	<u>85.1</u>	<u>88.7</u>
<u>September 16-30</u>	<u>77.0</u>	<u>88.7</u>
<u>October 1-15</u>	<u>73.2</u>	<u>88.7</u>
<u>October 16-31</u>	<u>69.6</u>	<u>88.7</u>
<u>November 1-30</u>	<u>66.2</u>	<u>88.7</u>
<u>December 1-31</u>	<u>59.9</u>	<u>88.7</u>

- c) Water temperature in the Chicago Area Waterway System and Brandon Pool Aquatic Life Use B waters listed in 303.325, shall not exceed the period average limits in the following table during any period on an average basis.

<u>Months – dates</u>	<u>Period Average (°F)</u>	<u>Daily Maximum (°F)</u>
<u>January 1-31</u>	<u>54.3</u>	<u>90.3</u>
<u>February 1-28</u>	<u>53.6</u>	<u>90.3</u>
<u>March 1-31</u>	<u>57.2</u>	<u>90.3</u>
<u>April 1-15</u>	<u>60.8</u>	<u>90.3</u>
<u>April 16-30</u>	<u>62.1</u>	<u>90.3</u>
<u>May 1-15</u>	<u>69.2</u>	<u>90.3</u>
<u>May 16-31</u>	<u>71.4</u>	<u>90.3</u>
<u>June 1-15</u>	<u>74.2</u>	<u>90.3</u>
<u>June 16-30</u>	<u>86.7</u>	<u>90.3</u>
<u>July 1-31</u>	<u>86.7</u>	<u>90.3</u>
<u>August 1-31</u>	<u>86.7</u>	<u>90.3</u>
<u>September 1-15</u>	<u>86.7</u>	<u>90.3</u>
<u>September 16-30</u>	<u>77.0</u>	<u>90.3</u>
<u>October 1-15</u>	<u>73.2</u>	<u>90.3</u>
<u>October 16-31</u>	<u>69.6</u>	<u>90.3</u>
<u>November 1-30</u>	<u>66.2</u>	<u>90.3</u>
<u>December 1-31</u>	<u>59.9</u>	<u>90.3</u>

d) Water temperature for the Upper Dresden Island Pool, as defined in 35 Ill. Adm. Code 303.237, shall not exceed the period average limits in the following table during any period on an average basis.

<u>Months – dates</u>	<u>Period Average (°F)</u>	<u>Daily Maximum (°F)</u>
<u>January 1-31</u>	<u>54.3</u>	<u>88.7</u>
<u>February 1-28</u>	<u>53.6</u>	<u>88.7</u>
<u>March 1-31</u>	<u>57.2</u>	<u>88.7</u>
<u>April 1-15</u>	<u>60.8</u>	<u>88.7</u>
<u>April 16-30</u>	<u>62.1</u>	<u>88.7</u>
<u>May 1-15</u>	<u>69.2</u>	<u>88.7</u>
<u>May 16-31</u>	<u>71.4</u>	<u>88.7</u>
<u>June 1-15</u>	<u>74.2</u>	<u>88.7</u>
<u>June 16-30</u>	<u>85.1</u>	<u>88.7</u>
<u>July 1-31</u>	<u>85.1</u>	<u>88.7</u>
<u>August 1-31</u>	<u>85.1</u>	<u>88.7</u>
<u>September 1-15</u>	<u>85.1</u>	<u>88.7</u>
<u>September 16-30</u>	<u>77.0</u>	<u>88.7</u>
<u>October 1-15</u>	<u>73.2</u>	<u>88.7</u>
<u>October 16-31</u>	<u>69.6</u>	<u>88.7</u>
<u>November 1-30</u>	<u>66.2</u>	<u>88.7</u>
<u>December 1-31</u>	<u>59.9</u>	<u>88.7</u>

~~Temperature (STORET number (°F) 00011 and (°C) 00010) shall not exceed 34° C (93° F) more than 5% of the time, or 37.8° C (100° F) at any time.~~

The proposed thermal water quality standards have a period average as well as a daily maximum temperature limit, where the current standards only have a daily maximum. The rationale for the period average as opposed to a daily, weekly, or monthly average is in recognition of the realities of within season temperature variations and the thermal tolerances of fish. The proposed thermal water quality standards are more stringent than the current Secondary Contact and Indigenous Aquatic Life for all months. The proposed thermal water quality standards are more stringent than the current General Use standards for the months April through November, especially when considering the period average. The remaining months, the proposed standards are approximately equivalent. The proposed thermal water quality standards are more stringent than the current Adjusted Water Quality Standards at Interstate-55 for all of the months, especially when considering the period average.

The Agency is proposing to allow excursions from the proposed criteria two percent of the time. This is between the one percent for General Use and five percent for the existing Secondary Contact and Indigenous Aquatic Life Standards. Currently, the excursion hours allowed under Midwest Generation's thermal adjusted standard at the I-55 bridge also allow two percent excursion hours.

The Agency is also proposing to allow excursions up to 2 °C (3.6 °F). This is between the 1.7 °C (3 °F) for General Use and 3.8 °C (7 °F) for the existing Secondary Contact and Indigenous Aquatic Life Standards. Mr. Yoder will present testimony to the Board about the basis for the temperature criteria methodology and the lack of a scientific foundation for the use

in older temperature standards of prohibition against a 5 degree °F increase in temperature above natural conditions.

**12. Cyanide deleted from stand-alone section and moved to chemical tables**

**Section 302.409 Cyanide (Repealed)**

**Cyanide (total) shall not exceed 0.10 mg/l**

As explained above, the existing Secondary Contact and Indigenous Aquatic Life standards have a cyanide standard listed in both the table of chemical constituent standards in Section 302.407 and as a stand-alone provision in Section 302.409. The proposal would repeal Section 302.409.

**13. Section 302.410 Substances Toxic to Aquatic life**

The Agency is proposing the following language changes to Section 302.410:

**Section 302.410 Substances Toxic to Aquatic Life**

Any substance or combination of substances toxic to aquatic life not listed in Section 302.407 shall not be present in amounts toxic to aquatic life or wildlife exceed one half of the 96-hour median tolerance limit (96-hour TLM) for native fish or essential fish food organisms.

- a) Any substance or combination of substances shall be deemed to be toxic or harmful to aquatic life if present in concentrations that exceed the following:
  - 1) An Acute Aquatic Toxicity Criterion (AATC) validly derived and correctly applied pursuant to procedures set forth in Sections 302.612 through 302.618 or in Section 302.621; or
  - 2) A Chronic Aquatic Toxicity Criterion (CATC) validly derived and correctly applied pursuant to procedures set forth in Sections 302.627 or 302.630.
  
- b) Any substance or combination of substances shall be deemed to be toxic or harmful to wild or domestic animal life if present in concentrations that exceed any Wild and Domestic Animal Protection Criterion (WDAPC) validly derived and correctly applied pursuant to Section 302.633.

- c) The most stringent criterion of subsections (a) and (b) shall apply at all points outside of any waters within which, mixing is allowed pursuant to Section 302.102. In addition, the AATC derived pursuant to subsection (a)(1) shall apply in all waters except that it shall not apply within a ZID that is prescribed in accordance with Section 302.102.
- d) The procedures of Subpart F set forth minimum data requirements, appropriate test protocols and data assessment methods for establishing criteria pursuant to subsections (a) and (b). No other procedures may be used to establish such criteria unless approved by the Board in a rulemaking or adjusted standard proceeding pursuant to Title VII of the Act. The validity and applicability of the Subpart F procedures may not be challenged in any proceeding brought pursuant to Titles VIII or X of the Act, although the validity and correctness of application of the numeric criteria derived pursuant to Subpart F may be challenged in such proceedings pursuant to subsection (e).
- e) Agency derived criteria may be challenged as follows:
- 1) A permittee may challenge the validity and correctness of application of a criterion derived by the Agency pursuant to this Section only at the time such criterion is first applied in an NPDES permit pursuant to 35 Ill. Adm. Code 309.152 or in an action pursuant to Title VIII of the Act for violation of the toxicity water quality standard. Failure of a person to challenge the validity of a criterion at the time of its first application shall constitute a waiver of such challenge in any subsequent proceeding involving application of the criterion to that person.
  - 2) Consistent with subsection (e)(1), if a criterion is included as, or is used to derive, a condition of an NPDES discharge permit, a permittee may challenge the criterion in a permit appeal pursuant to Section 40 of the Act and 35 Ill. Adm. Code 309.181. In any such action, the Agency shall include in the record all information upon which it has relied in developing and applying the criterion, whether such information was developed by the Agency or submitted by the Petitioner. THE BURDEN OF PROOF SHALL BE ON THE PETITIONER TO DEMONSTRATE THAT THE CRITERION-BASED CONDITION IS NOT NECESSARY TO ACCOMPLISH THE PURPOSES OF SUBSECTION (a) (Section 40(a)(1) of the Act), but there is no presumption in favor of the general validity and correctness of the application of the criterion as reflected in the challenged condition.
  - 3) Consistent with subsection (e)(1), in an action where alleged violation of the toxicity water quality standard is based on alleged excursion of a criterion, the person bringing such action shall have the burdens of going forward with proof and of persuasion regarding the general validity and correctness of application of the criterion.

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

- 1) Application shall be made in strict accordance with label directions;
- 2) Applicator shall be properly certified under the provisions of the Federal Insecticide, Fungicide, and Rodenticide Act (7 U.S.C. 135 et seq. (1972));
- 3) Applications of aquatic pesticides must be in accordance with the laws, regulations and guidelines of all state and federal agencies authorized by law to regulate, use or supervise pesticide applications.

As explained earlier, the Clean Water Act requires states to protect aquatic life and wildlife against toxic pollutants or other harmful effects of with ambient standards. These standards must be either in the form of specific numerical criteria or narrative criteria. In addition, U.S. EPA has sanctioned the use of derived criteria for toxic parameters. The procedures for calculating derived criteria are in Subpart F of Part 302. The changes being proposed to Section 302.410 are intended to update the existing narrative toxic standard and to make the derived criteria procedures and methods in Subpart F applicable to the water quality standards in Subpart D.

The Agency made minor deviations from the General Use language in this proposal. The introductory paragraph is worded slightly different than the introductory paragraph in 302.210 to accommodate the differing terminology and language being amended. An introductory phrase "Agency derived criteria may be challenged as follows:" was also added to Section 302.410(e). The Agency believes it is necessary to include the Wild and Domestic Animal Protection Criterion references in these standards, but has not proposed to incorporate use of the Human Health Threshold and Non-Threshold Criterion because these waters are not being designated for public or food processing water supply uses. This change affected the introductory paragraph language and also allowed the Agency to exclude the language in Section 302.210(c) regarding

derivation of Human Health Threshold and Non-Threshold Criterion. Excluding the language in Section 302.210(c) also made it necessary to change certain internal cross-references to match the revised language.

Subsection (f) of this Section [or Subsection (g) of 302.210] refers to the exemption of certain U.S. EPA registered pesticide applications from these requirements. In adopting the requirements, the following cross reference has been deleted because it is out of date and unnecessary: "*among which is included the Department of Energy and Natural Resources pursuant to Section 3 of 'AN ACT in relation to natural resources, research, data collection and environmental studies', Ill. Rev. Stat. 1987 ch. 96 1/2, para. 7403.*" Finally, the Agency is not proposing inclusion of the language currently found in 302.210(g)(4) in this proposal because it addresses the application of pesticides to waters used for public or food-processing water supplies.

#### 14. Ammonia

The Illinois EPA is proposing that the Board adopt a new stand-alone Section 302.412 entitled Total Ammonia Nitrogen. As explained above, the Agency has also proposed removing Ammonia from the table of water quality standards for chemical constituents, in 302.407. The language proposed for the updated ammonia standard mirrors the existing General Use standard in Section 302.212, which was adopted by the Board in rulemaking docket R02-19 (October 17, 2002). The standards adopted in R02-19 and proposed today for these waters are also based on the most recent national criteria document for ammonia. See 1999 Update of Ambient Water Quality Criteria for Ammonia, U. S. EPA Office of Water (EPA-822-R-99-014)(December 1999). (See Attachment KK).

The ammonia standards proposed herein differ from the existing General Use standard only for the CAWS and Brandon Pool Aquatic Life Use B waters. Namely, for these waters, the same standards apply year round rather than two different standards applying seasonally. The language being proposed for subsection (e) of the ammonia nitrogen standards applicable to the CAWS and Lower Des Plaines River is reproduced below:

**Section 302.412 Total Ammonia Nitrogen**

\*\*\*\*

e) The Early Life Stage Present period occurs from March through October. All other periods are subject to the Early Life Stage Absent period, except that waters listed in Section 303.235 are not subject to Early Life Stage Present ammonia limits at any time.

This language differs slightly from the language in 302.212(e) in order to address the applicability of the early life stage absent numbers year round to the waters listed in Section 303.235 and designated as Chicago Area Waterway System and Brandon Pool Aquatic Life Use B Waters. Also, the following sentence from Section 302.212(e) is not proposed for inclusion in the CAWS and Lower Des Plaines River standards "In addition, during any other period when early life stages are present, and where the water quality standard does not provide adequate protection for these organisms, the water body must meet the Early Life Stage Present water quality standard." This sentence was inserted in the General Use water quality standards to provide a heightened level of conservatism or an additional safety factor to the General Use water quality standards to address any unknown organisms that may be found to spawn extremely early or extremely late in the year. Illinois EPA is confident this language is not necessary to protect the aquatic life uses designated for these waters and is unaware of any instance in which it has been proven to protect aquatic life anywhere in the State. Chicago Area Waterway Aquatic Life Use Waters, Chicago Area Waterway and Brandon Pool Aquatic Life

Use B Waters and the Upper Dresden Island Pool Aquatic Life Use Waters will be fully protected by the adoption of the ammonia water quality standards proposed by the Agency.

**E. Effluent Standards, Part 304 – Effluent Bacteria Standard**

As part of this water quality standards proposal to the Board, the Agency is also proposing one addition to the Effluent Standards in 35 Ill. Adm. Code Part 304. This proposal would create an effluent disinfection requirement for dischargers to the waters proposed for designation as Incidental Contact Recreation waters or as Non-Contact Recreation waters. The following language is being proposed for the new Section 304.224.

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

**304.224 Effluent Bacteria Standards for Discharges to the Chicago Area Waterway System and Lower Des Plaines River**

Effluents discharged to the Incidental Contact Recreation waters listed in 35 Ill. Adm. Code 303.220 and the Non-Contact Recreation waters listed in 35 Ill. Adm. Code 303.225 shall not exceed 400 fecal coliforms per 100 ml during the recreational season lasting from March 1 through November 30. All effluents in existence on or before the effective date of this Section shall meet these standards by March 1, 2011. All new discharges shall meet these standards upon the initiation of discharge.

This language establishes an effluent bacteria standard for certain dischargers impacted by this proposal of 400 fecal coliforms per 100 milliliters. This standard mirrors the existing standard for dischargers to General Use waters that have not been granted a disinfection exemption found in 35 Ill. Adm. Code 304.121(a). The numerical limitation in this proposal and the existing requirement is a technology-based value designed to assure that disinfection technologies are functioning properly. This will require active disinfection as an element of the wastewater treatment process for affected facilities during the months of March through November. It was noted at stakeholder meetings that there were activities, such as sculling,

being performed as early as March and as late as November. It was determined that disinfection needed to correspond to these known recreational activities. (See Attachment K).

The recreational value to the public of these waterways is increasing. Accordingly, current projects to maintain or enhance this value include construction of the reservoir phase of TARP as driven by the Combined Sewer Overflow controls (Long Term Control Plan in federal nomenclature). Another major step to expand protection is establishing enforceable disinfection requirements for sewage treatment facilities discharging into the waterway, as proposed in Section 304.224 of this petition.

In the proposal, the Agency included an effluent standard for the disinfection of all existing effluents discharged to Incidental Contact Recreation waters and Non-Contact Recreation waters by the recreational season 2011 as specified in the language above.

No other changes are being proposed for Part 304. Depending on the outcome of this proceeding, the parties may need to revisit the existing site specific rulemaking applicable to MWRDGC's Northside and Calumet treatment plants in 35 Ill. Adm. Code 304.201 and the City of Lockport's treatment plant in 35 Ill. Adm. Code 304.208.

#### **IV. FACTS IN SUPPORT**

The proposal before the Board relies on numerous studies and reports. In particular, the UAA reports contained in Attachments A and B summarize the available data and make certain recommendations. The Agency relied extensively on the recommendations of the Midwest Biodiversity Institute ("MBI") and Center for Applied Bioassessment and Biocriteria ("CABB") contained in Attachment GG in developing temperature criteria protective of the aquatic life use designations of these waters.

**A. Lower Des Plaines UAA Study Findings and Recommendations**

This study found that at least three of the six UAA factors are applicable to portions of this waterway. The Agency is proposing (as recommended in this study) to upgrade the designated uses in these waters to incrementally higher uses than their current classification.

The consultant recommended setting a bacteria standard to protect the use of the Brandon Pool for non-contact recreation such as boating, fishing and aesthetic enjoyment of the river and providing adequate protection for incidental contact with the water. After consideration, the Agency decided that the Brandon Pool warranted no protection of recreational use because of the risks associated with any type of recreation in the Brandon Pool caused by the safety concerns of limited access and barge traffic. However, if recreational opportunities are enhanced, the recreational use designation will need to be reevaluated.

For the Upper Dresden Island Pool, the consultant recommended that it should not be considered as a prime zone for primary contact recreation. The report states that, primary contact recreation should be infrequent or accidental because of the effluent dominated nature of the river and the risks associated with navigation. The Agency adopted this recommendation by designating the Upper Dresden Island Pool as Incidental Contact Recreation water.

The consultants recommended that the Agency adopt the reduced biotic integrity status for the Upper Dresden Island Pool and develop a new "Modified Impounded Use Designation" for the Brandon Pool along with a dissolved oxygen standard recognizing the severity and irreversibility of the physical structure of the channel. The Agency's proposed aquatic life use designations are consistent with these recommendations.

## **B. CAWS UAA Study Findings and Recommendations**

The CDM portion of the CAWS UAA involved analyzing CAWS data and coordinating a stakeholder advisory group to determine attainable uses and management strategies for achieving such uses. CDM was also responsible for presenting the UAA to the public at large.

In their final report, CDM concludes that while CAWS water quality was for the most part meeting Illinois' General Use standards, none of the waterbodies could achieve Clean Water Act goals due to habitat and safety limitations described in the six UAA factors. The primary parameters not meeting General Use standards in most reaches of CAWS are temperature, dissolved oxygen, bacteria. As a result, CDM recommends two aquatic life and two recreational uses for assignment to the waterways. The recommended recreational uses are: "Limited Contact Recreation" for CAWS reaches where hand-powered boating and wading take place; and "Recreational Navigation" for CAWS reaches where only commercial and power boating may safely occur. The recommended aquatic life uses are: "Modified Warm-water Aquatic Life" where a fisheries consisting of some important sport fish species could exist; and "Limited Warm-water Aquatic Life" where straight-walled, deep-draft shipping channels limit the fisheries to predominantly tolerant species.

CDM further concludes that several management options would need to be implemented before all of CAWS could achieve the recommended attainable uses:

- 1) Supplemental aeration and/or flow augmentation would be needed to meet dissolved oxygen standards in the Chicago River System.
- 2) Effluent disinfection at the MWRDGC Calumet, Stickney and North Side treatment plants would be required to meet bacteria standards during dry and wet weather in most of CAWS.
- 3) CSO controls beyond what is existing would be needed to meet bacteria standards during wet weather in most of CAWS. CDM recommends that the completion of TARP should be the first step in controlling CSOs.

- 4) Evaluation of temperature control at the Midwest Generation power plants would be needed to meet temperature standards in the Chicago River System.

**C. Midwest Biodiversity Institute and Center for Applied Bioassessment and Biocriteria Recommendations**

Due to extreme differences of opinion in the temperature discussions, the Agency engaged an independent temperature expert to offer a recommendation on the appropriate temperature criteria necessary to protect the aquatic life uses of the Lower Des Plaines River. Through funding from U.S. EPA, the Center for Applied Bioassessment and Biocriteria (CABB) was requested to develop temperature criteria options for the Lower Des Plaines River. The report, "Temperature Criteria Options for the Lower Des Plaines River" can be found in Attachment GG and a discussion on the Agency's decisions regarding the options that the Agency selected can be found in the temperature section of this report.

**D. Other Facts in Support**

In addition to the three primary contracted studies performed specifically to support this rulemaking, the Agency also received many comments and suggestions from members of the two stakeholders advisory committees. These comments were incorporated into the final UAA studies and this rulemaking proposal.

The Agency relied on numerous U.S. EPA criteria documents to determine what criteria are needed to protect the designated uses being proposed. The Agency summarized the documents, data and other facts relied on in support of the recommended water quality standards for specific parameters in the above summaries of each individual parameter. Citations to these documents are provided in this Statement of Reasons and many of the relevant documents or portions thereof are provided as Attachments to this rulemaking proposal. A comprehensive list

of Attachments relied upon in developing this rulemaking proposal is provided at the end of this Statement of Reasons.

## **V. TECHNICAL FEASIBILITY AND ECONOMIC JUSTIFICATION**

### **A. Introduction**

Section 27 of the Act requires the Board to consider the technical feasibility and economic reasonableness of all rulemaking proposals. The Agency's proposal can be split into three distinct categories for this purpose. First, the Agency has proposed six new use designations in Part 303. Second, the Agency has proposed appropriate water quality standards for the protection of these uses. Finally, in the absence of sufficient information to propose water quality standards for the protection of the designated recreational uses, the Agency has proposed a technology based effluent limitation in Part 304 that requires wastewater treatment plant effluent disinfection for dischargers to two of the three designations for recreational use waters. The technical and economic analysis is slightly differently for each of these components of the proposal in addition to the impact of the proposal as a whole.

### **B. Technical Feasibility**

The technical feasibility of the use designations proposed in Part 303 and the accompanying definitions of Part 301 is inherent in the UAA conducted to develop these designated uses. In proposing these uses, the Agency relied on three UAA factors: Factor 3 (human caused conditions or sources of pollution); Factor 4 (dams, diversions or other types of hydrologic modifications) and Factor 5 (physical conditions related to the natural features of the water body). 40 CFR §131.10(g)(3), (4) and (5). Each of these factors takes into account the technical feasibility of influencing the limitations of the waterway that prevent attaining aquatic life and recreational uses at levels consistent with the Clean Water Act aquatic life and

recreational goals. In order to conclude that one of these three UAA factors is applicable, the State must conclude that it is technically infeasible to overcome the limiting factor.

In Part 304, the Agency is proposing a technology-based effluent limitation that mandates disinfection by dischargers to the majority of the affected waters. Technology-based disinfection has been a long standing requirement applied to numerous wastewater facilities throughout the State, dating back to the original 1970s Board regulations. 35 Ill. Adm. Code 304.121. The Agency believes strongly that effluent disinfection is technically feasible and that this long history of use of disinfection technologies supports this conclusion. The most common and widely accepted disinfection technologies are chlorination, ozonation, and ultra violet (UV) radiation. MWRDGC has indicated if they were to undertake disinfection at some of their facilities they would likely use UV treatment, but would be free to select between any available technologies that would meet the 400 fecal coliforms per 100 ml requirement of 304.224. (See Attachment NN).

In addition to bacterial standards to protect human health, the Agency has proposed comprehensive numeric and narrative water quality standards to protect the aquatic life. In the case of two specific parameters (dissolved oxygen and temperature) the Agency is aware that, if adopted, these standards would require installation of additional treatment technology by some dischargers. For dissolved oxygen, it is expected that MWRDGC will need to consider additional supplemental aeration and/or flow augmentation technologies to comply with the water quality standard. Supplemental aeration is currently used by MWRDGC to increase the dissolved oxygen concentrations in portions of the CAWS and is clearly technically feasible. (See Attachments OO and QQ). The feasibility of flow augmentation was also the subject of a study by MWRDGC. (See Attachments PP and QQ).

With regard to temperature water quality standards, the proposed rulemaking will require Midwest Generation to control the temperature of their effluent by installing cooling towers and/or instituting closed-cycle cooling or some combination of open and closed-cycle cooling at five of their facilities: Crawford, Fisk, Will County and both Joliet facilities. Cooling towers and closed-cycle cooling are also widely used and accepted treatment technologies that are clearly technologically feasible. Various factors will impact which technology will be more appropriate for each facility. In particular, Midwest Generation will have to study the best way to provide cooling at its smaller, older facilities where the availability of additional land may determine how much cooling capacity can be installed. As the Board is already aware, Midwest Generation is currently considering whether to close its Will County, Crawford and Fisk facilities. (*See Attachment RR*).

Ultimately, if these studies lead Midwest Generation to conclude that it is technically infeasible (or economically unreasonable) to install additional cooling capacity at these facilities, Section 316 of the Clean Water Act allows Midwest Generation to petition for relief from these requirements.

### **C. Economic Justification**

In addition to technical feasibility, the Board is required to examine the economic impacts of any new technology required by this rulemaking proposal. Regarding the cost of technology required to comply with the temperature standards of this proposed rulemaking, Midwest Generation has provided the Agency with only one statement of the estimated cost of the technology needed to control the temperature of their effluent at all five of their facilities in the affected waterways (Crawford, Fisk, Will County, and Joliet 9 and 29 facilities). A cost estimate of between \$559 million and \$790 million was provided in a power point presentation at

the March 20 and 22, 2007 stakeholder advisory committee outreach meetings on this rulemaking proposal. (See Attachment SS).

The proposed effluent disinfection requirement in Section 304.224 would require MWRDGC to disinfect their effluent at three facilities: North Side, Stickney, and Calumet. In the August 26, 2005 report "Technical Memorandum 1WQ: Disinfection Evaluation," MWRDGC provided a cost estimate to disinfect the effluent at the Northside, Stickney and Calumet treatment plants of total present worth between \$963 million and \$2,702 million for capital costs and operation and maintenance costs. (See Attachment NN). In addition to these MWRDGC facilities, the city of Joliet will need to disinfect two facilities (Joliet-East and Joliet-West) to comply with proposed Section 304.224; no cost estimate is available at this time.

The proposal will also require MWRDGC to address dissolved oxygen levels in the North Branch Chicago River, South Branch Chicago River, upper North Shore Channel, and South Fork of the South Branch Chicago River (Bubbly Creek). Controlling the dissolved oxygen level of the stream may be done by using aeration and/or flow augmentation. In the January 12, 2007 report "Technical Memorandum 4WQ: Supplemental Aeration of the North and South Branches of the Chicago River," MWRDGC provided a cost estimate for supplemental aeration of the North Branch Chicago River and South Branch Chicago River of total present worth from \$47.4 million to \$132.6 million." (See Attachment OO). MWRDGC provided a cost estimate for flow augmentation in the upper North Shore Channel of total present worth from \$74.9 million to \$447 million in the January 12, 2007 report "Technical Memorandum 5WQ: Flow Augmentation of the Upper North Shore Channel." (See Attachment PP). MWRDGC provided a cost estimate for flow augmentation and aeration in the South Fork of the South Branch Chicago River (Bubbly Creek) of total present worth from \$81.9 million to

\$145 million in the January 12, 2007 report "Technical Memorandum 6WQ: Flow Augmentation and Supplemental Aeration of the South Fork of the South Branch of the Chicago River (Bubbly Creek)." (See Attachment QQ).

The Agency is not aware of any water quality standards except dissolved oxygen and temperature that would require specific technology upgrades to achieve compliance and no effluent limitations are being proposed except for disinfection. The Agency is not aware of any facilities other than those discussed above that will be required to install upgrades to achieve compliance with this proposal, though there may be smaller dischargers impacted by one of these standards and limitations. A complete list of potentially affected facilities is provided as Attachment TT.

The Agency believes it is clear that the technologies required by this proposal are technically feasible and, to assist the Board in evaluating the economic reasonableness, the Agency has provided the cited additional cost estimates and Attachments.

## **VI. AFFECTED FACILITIES AND OUTREACH**

### **A. Affected Facilities**

#### **1. Municipal Facilities**

This rulemaking proposal focuses primarily on ambient water quality standards for the CAWS and Lower Des Plaines River, rather than on effluent standards or other requirements for specific facilities. However, the proposal also includes a technology-based treatment requirement on effluents from sources containing domestic sewage, a potential source of bacteria. Municipal sources specifically affected by the bacteria effluent limit include three of the four facilities of the MWRDGC: the Stickney, Calumet and North Side Water Reclamation plants. The Calumet Plant has a Design Average Flow ("DAF") of 354 million gallons per day

("MGD") and a Design Maximum Flow ("DMF") of 430 MGD, the Stickney Plant has a DAF of 1,200 MGD and a DMF of 1,440 MGD and the North Side Plant has a DAF of 333 MGD and DMF of 450 MGD. The relatively small Lemont Plant with a DAF of 2.3 MGD and a DMF of 4.0 MGD would not be subject to the effluent disinfection requirement because it currently discharges to a waterway designated as Non-Recreational. The MWRDGC Lemont Publicly Owned Treatment Works ("POTW") is located on CSSC.

The effluent bacteria standards will also affect the East and West Sewage Treatment plants of the City of Joliet. The Lower Des Plaines River receives the discharge directly from the Joliet-West POTW. While the Joliet-East POTW discharges into Hickory Creek immediately upstream from the Lower Des Plaines River. Additionally, any small industrial and miscellaneous facilities containing bacteria that discharge along the system would also be affected. The proposal includes a schedule to allow time for design and construction of controls to meet this new requirement.

In addition to the POTW discharging into this system, there are approximately 250 CSOs that discharge directly into CAWS and Lower Des Plaines River. Direct discharge CSO owners include the City of Chicago, MWRDGC, Wilmette, Evanston, Skokie, Lincolnwood, Stickney, Forest View, Summit, Burnham, Dolton, Riverdale, Calumet City, Calumet Park, Blue Island and Posen.

## **2. Industrial Dischargers**

Beyond the direct impact of an effluent bacteria limitation on domestic wastewater effluents, the proposed modifications to water quality standards potentially have an indirect impact on new or existing sources discharging in the system. Although this rulemaking affects a relatively small percentage of the surface waters of the State, there are a significant number of

large and important facilities that discharge into it. The Lower Des Plaines River and CSSC in particular receive discharges from a large number of significant industrial facilities. One primary and noteworthy group of sources are thermal discharges (Midwest Generation electric generating stations and a few other industrial operations discharging cooling water, grain processing and petroleum refining). The Midwest Generation coal-fired power plants discharging into these waters include the Joliet 9 and 29 facilities on the Upper Dresden Island Pool, the Will County/Romeoville, Crawford and Fisk plants which discharge, respectively into the CSSC and the South Branch of the Chicago River in CAWS. They are potentially affected by new temperature standards being proposed. Beyond that however, virtually any source that has permit limits driven by water quality standards rather than or in addition to technology based limits could potentially be affected by one or more of the various standards being proposed. Other potentially impacted industrial facilities are the oil refineries currently owned by Citgo and Exxon-Mobil. There are numerous small industrial and commercial facilities that discharge non-contact cooling water and other pollutants to CAWS. A comprehensive list of all currently permitted sources discharging within CAWS and Lower Des Plaines River is included as Attachment TT to this Statement of Reasons.

## **B. Outreach – stakeholder groups and meetings**

### **1. Lower Des Plaines Pilot stakeholder workgroup**

The pilot UAA for the Lower Des Plaines River began in 2000 with the meeting of the Stakeholders Advisory Group. This group comprised a cross-section of the community likely to be impacted by these rules, including environmental groups, local governments, specific industries, industry trade associations and regulatory agencies. Planning meetings with interested stakeholders were held first on March 8, 2000 and a second meeting was held in Joliet

with a boat tour of the Lower Des Plaines River on May 17, 2000. The first official Lower Des Plaines Stakeholder Advisory Group meeting was held on December 15, 2000 after selection of the UAA contractors. A detailed timeline of events and activities of the Stakeholder's Group is included as Attachment E.

The model begun in the Lower Des Plaines River UAA process and expanded for the Chicago Area Waterways Stakeholder Advisory Committee was one of the most extensive stakeholder involvement efforts ever undertaken by the Agency. A list of participants and members of the Lower Des Plaines Stakeholder Advisory Committee is attached as Attachment F. Input received by Illinois EPA from the members of the Stakeholder Advisory Committees was incorporated into the final UAA studies and this rulemaking proposal to the Board.

## **2. Lower Des Plaines UAA Biological Subcommittee**

During the course of the meetings to address the findings and conclusions of the UAA contractors explained above, it became clear that a separate forum was appropriate for the discussion and consensus decision-making regarding the use of available biological data. A subcommittee was formed with members representing various government, environmental, industry and consultant stakeholders to achieve this purpose. Subcommittee members were selected or volunteered based on their expertise in biology (fish or macroinvertebrates). The subcommittee members were made up of representatives from Illinois EPA, the University of Wisconsin-Milwaukee, consulting engineering firms, MWRDGC, Midwest Generation, Illinois Environmental Regulatory Group, Chemical Industry Council of Illinois, Exxon/Mobil, Sierra Club, Environmental Law and Policy Center, Illinois Department of Natural Resources, U.S. EPA and Midwest Biodiversity Institute, AquaNova International and Hey & Associates (the consultants for the UAA and temperature studies). This group met numerous times between

May 2001 and June 2002. The results of this process are incorporated in Chapters 4, 5 and 6 of the final UAA and attached comments disputing certain findings in those Chapters by Midwest Generation. (See Attachment UU).

### **3. CAWS Stakeholders Advisory Committee (SAC)**

During the Lower Des Plaines UAA stakeholder process, the Agency coordinated an even larger and more diverse Stakeholder Advisory Committee for the UAA for the rest of the Secondary Contact and Indigenous Aquatic Life waters. This group first met in April 2003 and typically met monthly through 2003 and 2004. The meetings continued on a less frequent basis between 2005 and early 2007. Attachment G contains a list of SAC members and Attachment E includes a detailed timeline of the activities of the committee.

### **4. CAWS Public Meetings and Other Outreach Meetings and Events**

In addition to the SAC involvement, public meetings were held to get feedback from the general public in the neighborhoods surrounding CAWS. Three separate meetings were held in Evanston, Palos Hills, on Lake Calumet in May 2003 and again in September 2003. Meetings were also held at the Thompson Center and Windjammer Marina which is located at the junction of the Calumet, Little Calumet and Grand Calumet Rivers in June 2003.

### **5. Combined Lower Des Plaines and CAWS Stakeholder meetings in Joliet and Chicago on Rulemaking Proposal**

After completion of the contractors' UAA reports and receiving extensive comments from the stakeholders, the Agency proceeded to develop a draft water quality standards rulemaking proposal incorporating the conclusions of the UAA reports, supplemental technical reports on temperature and disinfection, recommendations of the stakeholders and policy decisions made by the Agency. A draft proposal was distributed to both groups of stakeholders on January 26, 2007. Meetings to receive oral or written comments on the proposal were held in

March 2007. A meeting was held in Joliet on March 20, 2007 and in Chicago on March 22, 2007. Presentations at the Joliet meeting were made by Illinois EPA, the Alliance for the Great Lakes (on behalf of several environmental groups), MWRDGC and Midwest Generation. Each of these groups also made presentations in Chicago, but that meeting also included a formal presentation by the City of Chicago and additional information was also provided by representatives from the Wisconsin Sea Grant Institute and the School of Public Health at the University of Illinois at Chicago. A list of attendees from these meetings is included as Attachment VV.

#### **6. Additional Outreach**

In addition to the open, formal meetings discussed above, the Agency held meetings with U.S. EPA Region 5 staff and their contractor Chris Yoder (of the Midwest Biodiversity Institute) and another meeting with Midwest Generation and its consultant to obtain input primarily on the temperature component of this proposal prior to filing with the Board.

Midwest Generation also asked for and received a meeting with U.S. EPA Region 5 and U.S. EPA headquarters staff to discuss their concerns.

Throughout the process, the Agency has been receptive and responsive to outreach with individuals and groups in addition to the broader stakeholder events: numerous meetings were held with MWRDGC, the Great Lakes Alliance, Friends of the Chicago River, City of Chicago, City of Evanston and various health and safety agencies.

#### **VII. SYNOPSIS OF TESTIMONY**

Testimony will be provided by several Agencies witnesses.

**A. Toby Frevert, Manager, Division of Water Pollution Control, Bureau of Water, Illinois EPA**

Mr. Frevert will present testimony on the policy conclusions of the UAA for the CAWS and Lower Des Plaines River. He will discuss the selection and definition of the six categories of use designations. He will also discuss the Agency's decision not to propose a water quality standard for bacteria at this time and to instead propose an effluent disinfection technology-based requirement.

**B. Rob Sulski, Public Service Administrator, Division of Water Pollution Control, Bureau of Water**

Mr. Sulski will present an overview and summary of the CAWS UAA and conclusions therein. Mr. Sulski has 23 years experience in the Region and has detailed personal experience with the configurations, processes, effluent inputs and water quality of CAWS. He will discuss the use designation definitions and which segments are proposed for designation of each use. He will also provide testimony discussing certain water quality standards to protect particular uses including dissolved oxygen.

**C. Scott Twait, Environmental Protection Engineer III, Water Quality Standards Unit, Bureau of Water, Illinois EPA**

Mr. Twait's testimony will present an overview of Lower Des Plaines River Pilot Use Attainability Analysis. He will discuss the development and selection of criteria necessary to protect the uses, in particular the toxic parameters and metals. Mr. Twait's testimony will also address the temperature criteria development and how the Midwest Biodiversity Institute and Center for Applied Bioassessment and Biocriteria methodology from the report drafted by Mr. Yoder was implemented and adapted to these waters.

**D. Chris Yoder, Midwest Biodiversity Institute**

A national expert on temperature criteria development, Mr. Yoder will provide testimony to the Board on his temperature methodology and the recommendations he made to the Agency regarding the temperature criteria for the Lower Des Plaines River and how that can be applied to the other waterways in the CAWS.

**E. Roy Smogor, Public Service Administrator, Surface Water Section, Division of Water Pollution Control, Bureau of Water**

Mr. Smogor will present testimony to the Board relating to his expertise on Illinois biology and fish populations. He will present additional testimony on the proposed dissolved oxygen water quality standards and their relationship to the joint Illinois EPA/Illinois Department of Natural Resources recommended dissolved oxygen standards currently pending before the Board. He will also present testimony in support of the aquatic life use designations.

**F. Other Potential Testimony**

In addition to the above experts who will provide pre-filed testimony, other Illinois EPA staff, including field biologists, will be available to answer the Board's and public's questions.

**VIII. SUPPORTING DOCUMENTATION**

**A. Statement Regarding Compliance with 5 ILCS 100/5-40(3.5)**

Pursuant to the Illinois Administrative Procedure Act, the Board's procedural rules provide that rulemaking proponents must submit to the Board "*A descriptive title or other description of any published study or research report used in developing the rule, the identity of the person who performed such study, and a description of where the public may obtain a copy of any such study or research report. If the study was performed by an agency or by a person or entity that contracted with the agency for the performance of the study, the agency shall also make copies of the underlying data available to members of the public upon request if the data*

*are not protected from disclosure under the Freedom of Information Act [5ILCS 140]. [5 ILCS 100/5-40(3.5)].” 35 Ill. Adm. Code 102.202(e).*

To assist the Board in compliance with these requirements, the Agency has attempted to file as Attachments to this proposal the published studies and research reports relied on in developing this proposal to the Board. See Section B below for the List of Attachments which summarizes these documents and provides the relevant identifying information. In addition, the Agency has provided a second list in Section C below of documents relied upon, but not submitted to the Board as Attachments to this rulemaking proposal. These documents consist of statutes, regulations and Board opinions that are readily accessible by the Board and the public.

With regard to studies conducted by the Agency or by an entity that contracted with the Agency for performance of the study, much of the underlying data for those studies are provided in the studies themselves and included in the Attachments to this rulemaking proposal. There are additional data relied on in these studies and additional data relied on by the Agency in developing this proposal that are not included in this proposal because it is voluminous chemical, biological and habitat data. With respect to underlying data that are summarized in these documents, rather than provided in total, the Agency will provide to the Board in electronic format any of the relevant underlying data used as requested and accommodate requests from the public to post this underlying data on the website created for the CAWS UAA ([www.chicagoareawaterways.org](http://www.chicagoareawaterways.org)). In addition, the Agency will make such data available to members of the public at the following address:

Stefanie Diers, Assistant Counsel  
Division of Legal Counsel  
Mail Code #21  
Illinois Environmental Protection Agency  
1021 North Grand Avenue East  
P.O. Box 19276

Springfield, Illinois 62794-9276  
217/782-5544

For the Lower Des Plaines River UAA, a peer-reviewed article was also published by the UAA contractor as a result of the work conducted to support the UAA. That published study is included as Attachment WW.

**B. List of Attachments**

- A. Lower Des Plaines River Use Attainability Analysis Final Report. AquaNova International, Ltd. and Hey & Associates, Inc., prepared for Illinois EPA (December 2003).
- B. Chicago Area Waterway System Use Attainability Analysis Final Report. Camp, Dresser and McKee, prepared for Illinois EPA (August 2007).
- C. Interim Economic Guidance for Water Quality Standards Workbook (Appendix M to the Water Quality Standards Handbook—Second Edition, EPA -823-B-94-005b). U.S. EPA Office of Water (EPA-823-B-95-002) (March 1995).
- D. Illinois Sanitary Water Board Rules and Regulations SWB-8 Water Quality Standards, Interstate Waters, Illinois River and Lower Section of Des Plaines River (REF. 348.025 ISWB SWB-8 C.2) (Criteria Adopted December 1, 1966; Implementation Plan Submitted August 10, 1967; Approved by U.S. Dept. of Interior January 27, 1968; Sanitary Water Board Reapproved March 5, 1968).  
  
Illinois Sanitary Water Board Rules and Regulations SWB-15 Water Quality Standards, Interstate Waters, Chicago River and Calumet River System and Calumet Harbor Basin (REF. 348.025 ISWB SWB-15 C.2) (Adopted by Board June 28, 1967; Approved by U.S. Dept. of Interior January 27, 1968; Sanitary Water Board reapproval March 5, 1968).
- E. Timeline of Lower Des Plaines River and CAWS Stakeholder Advisory Committee Meetings and Outreach Activities.
- F. Lower Des Plaines UAA Stakeholder Advisory Committee Member List.
- G. CAWS UAA Stakeholder Advisory Committee Member List.
- H. Recreational Use Designations Map and Aquatic Life Use Designations Map.
- I. Map of Lower Des Plaines River and Chicago Area Waterway System.

- J. Ordinance: Code of Forest Preserve District of Cook County, Title 2: Forest Preserve District Lands and Properties, Chapter 4: Recreation in the Forest Preserve.
- K. Chicago Area Waterway System Recreational Data - Additional and Highlighted. Illinois EPA, Bureau of Water (April 15, 2007).
- L. Inventory of Public Access Locations along the Chicago Area Waterway System. Illinois EPA, Bureau of Water (May 15, 2007).
- M. Description of the Chicago Waterway System: Use Attainability Analysis Study Conducted by Illinois EPA Bureau of Water in Cooperation with MWRDGC. MWRDGC, Research and Development (May 2002).
- N. Written Notice of Wading as a Prohibited Use in Waterways. Letter from MWRDGC General Superintendent, John C. Farnan, to Illinois EPA Division of Water Pollution Control Manager, Toby Frevert (January 14, 2004).
- O. Minutes from the June 23, 2005 Dispersal Barrier Advisory Panel. Philip B. Moy, University of Wisconsin Sea Grant Institute (June 23, 2005).
- P. Chicago Area Waterways Health Precautions Pamphlet. MWRDGC, Illinois Department of Public Health, U.S. EPA, Illinois EPA (October 2003).
- Q. Ambient Water Quality Criteria for Bacteria – 1986. U.S. EPA Office of Water (EPA440/5-84-002) (January 1986).
- R. Analysis of Physical Habitat Quality and Limitations to Waterways in the Chicago Area. Center for Applied Bioassessment and Biocriteria, prepared for U.S. EPA Region 5 (2004).
- S. Aquatic Life and Habitat Data Collected in 2006 on the Illinois and Des Plaines Rivers. Midwest Biodiversity Institute, prepared for U.S. EPA Region 5 (2006).
- T. Biological Criteria for the Protection of Aquatic Life: Volume II: Users Manual for Biological and Field Assessment of Ohio Surface Waters. Ohio Environmental Protection Agency, Surface Water Section (Updated January 1, 1988).
- U. Interpreting Illinois Fish-IBI Scores, DRAFT: January 2005. Illinois EPA, Bureau of Water (January 2005).
- V. Quality Criteria for Water 1986 (gold book). U.S. EPA Office of Water (EPA 440/5-86-001) pp. 17-21, 34, 76-79, 168-171 and 253-261 (May 1, 1986).
- W. 2001-2006 Effluent Sample Results for Temperature at Water Reclamation Plants, 2005 and 2006 Water Quality Sample Results for Temperature, pH, Alkalinity and Chloride, and Calculations of H<sub>2</sub>CO<sub>3</sub> (soluble CO<sub>2</sub>) in Chicago Area Waterways in 2005 and 2006. MWRDGC, Research and Development (June 4, 2007).

- X. Ambient Water Quality Criteria for Dissolved Oxygen. U.S. EPA Office of Water Regulations and Standards. Criteria and Standards Division. Washington, D.C (EPA 440/5-86-003) (April 1986).
- Y. 1995 Updates: Water Quality Criteria Documents for the Protection of Aquatic Life in Ambient Water. U.S. EPA Office of Water 4301 (EPA-820-B-96-001) (September 1996).
- Z. The Metals Translator: Guidance for Calculating A Total Recoverable Permit Limit From A Dissolved Criterion. U.S. EPA Office of Water 4305 (EPA-823-B-96-007) (June 1996).
- AA. 2001 Update of Ambient Water Quality Criteria for Cadmium. U.S. EPA Office of Water 4304 (EPA-822-R-01-001) (April 2001).
- BB. 2005 and 2006 Water Quality Sample Results for Hardness, Cadmium, Nickel and Zinc and Calculated Compliance Rates with Proposed Chronic Standards for the Respective Metals. MWRDGC, Research and Development (April 25, 2007).  
  
2005 and 2006 Effluent Sample Results for Hardness and Cadmium at Calumet, North Side, and Stickney Water Reclamation Plants. MWRDGC, Research and Development (May 1, 2007).
- CC. Agency Photos Showing Plume from Sediment Scoured and Resuspended in Waterway.
- DD. Quality Criteria for Water. U.S. EPA (PB-263 943) pp. 152-159 (1976).
- EE. Ambient Water Quality for Silver. U.S. EPA Office of Water (EPA 440/5-80-071) (October 1980).
- FF. Derivation of a Colorado State Manganese Table Value Standard for the Protection of Aquatic Life. William A. Stubblefield and James R. Hockett. ENSR Corporation (July 2000).
- GG. Temperature Criteria Options for the Lower Des Plaines River. Chris O. Yoder, Research Director. Midwest Biodiversity Institute, Columbus, Ohio (October 11, 2005).
- HH. Letter from Chris Yoder, Midwest Biodiversity Institute, to Toby Frevert, Illinois EPA Bureau of Water (July 11, 2007).
- II. E-Mail on effluent data submitted by MWRDGC (May 22, 2007).
- JJ. Minutes from November 19, 2003 SAC Meeting on Safety and Navigational Issues Applicable to CAWS. Ron French, to Toby Frevert and Rob Sulski (November 24, 2003).
- KK. 1999 Update of Ambient Water Quality Criteria for Ammonia. U.S. EPA Office of Water (EPA-822-R-99-014) (December 1999).

- LL. The Upper Illinois Waterway Study Interim Report. 1994 Ichthyoplankton Investigation RM 276.2-321.7. EA Engineering, Science, and Technology, prepared for Commonwealth Edison Co. (April 1995).
- MM. 2004 Lower Des Plaines River Fisheries Investigation RM 274.4-285.5. EA Engineering, Science, and Technology, prepared for Midwest Generation, EME, LLC (November 2005).
- NN. Master Plan North Side Water Reclamation Plant and Surrounding Chicago Waterways, Technical Memorandum 1WQ: Disinfection Evaluation. Consoer Townsend Environdyne Engineers, Inc., prepared for MWRDGC (August 26, 2005).
- OO. Technical Memorandum 4WQ Supplemental Aeration of the North and South Branches of the Chicago River MWRDGC North Side Water Reclamation Plant, Project No. 04-014-2P. Consoer Townsend Environdyne Engineers, Inc., prepared for MWRDGC (January 12, 2007).
- PP. Technical Memorandum 5WQ Flow Augmentation of the Upper North Shore Channel MWRDGC North Side Water Reclamation Plant, Project No. 04-014-2P. Consoer Townsend Environdyne Engineers, Inc., prepared for MWRDGC (January 12, 2007).
- QQ. Technical Memorandum 6WQ Flow Augmentation and Supplemental Aeration of the South Fork of the South Branch of the Chicago River MWRDGC North Side Water Reclamation Plant, Project No. 04-014-2P. Consoer Townsend Environdyne Engineers, Inc., prepared for MWRDGC (January 12, 2007).
- RR. Memorandum of Understanding By and Between Midwest Generation LLC and Illinois Environmental Protection Agency, Revised 12/10/2006 3:21:06 PM.
- SS. Cost Estimate from Midwest Generation from power point presentation SAC Meetings (March 20 & 22, 2007).
- TT. List of Potentially Affected Facilities.
- UU. Midwest Generation Comments on Lower Des Plaines River Temperature Criteria Options Report. Letter to Toby Frevert (June 1, 2006).  
 Comments on Lower Des Plaines River Temperature Criteria Derivation Report Prepared by Chris Yoder and Ed Rankin. Letter to Toby Frevert (July 28, 2004).
- VV. List of attendees from Rulemaking Proposal Meeting.
- WW. A River is Reborn—Use Attainability Analysis for the Lower Des Plaines River, Illinois. Vladimir Novotny, Neal O'Reilly, Timothy Ehlinger, Toby Frevert and Scott Twait. Water Environment Research, Volume 79, Number 1, pp. 68-80.

### C. List of Documents Relied Upon But Not Attached

#### Statutes and Regulations

Federal Water Pollution Control Act (Clean Water Act) 33 U.S.C. §1251 *et seq.*

Beaches Environmental Assessment and Coastal Health Act 2000 (Beach Act), 33 U.S.C. §1313.

Illinois Environmental Protection Act, 415 ILCS 5/1 *et seq*

40 C.F.R. Part 131 (Water Quality Standards)

35 Illinois Administrative Code Subtitle C: Water Pollution

#### U.S. EPA Guidance Documents

Water Quality Standards Handbook: Second Edition, EPA-823-B-94-005a, U.S. EPA Office of Water (4305)(August 1994).

Guidelines for Deriving Numerical National Water Quality Criteria for the Protection of Aquatic Organisms and Their Uses, PB85-227049, U.S. EPA Office of Research and Development, Environmental Research Laboratories (1985)(reproduced by National Technical Information Service, U.S. Department of Commerce).

#### Board Opinions

*In the Matter of: Water Quality Triennial Review: Amendments to 35 Adm. Code 302.105, 302.208(e)-(g), 302.504(a), 302.575(d), 309.141(h); and Proposed 35 Ill. Adm. Code 301.267, 301.313, 301.413, 304.120, and 309.157, R02-11 (December 19, 2002).*

*In the Matter of: Proposed Amendments to Ammonia Nitrogen Standards 35 Ill. Adm. Code 302.100, 302.212, 302.213, and 304.122, R02-19 (October 17, 2002).*

*In the Matter of: Petition of Commonwealth Edison Company for an Adjusted Standard from 35 Ill. Adm. Code 302.211(d) and (e), AS96-10 (October 3, 1996) and (March 16, 2000).*

*In the Matter of: Triennial Water Quality Review: Amendments to 35 Ill. Adm. Code 302.208 and 302.407 (Lead and Mercury), R94-1(A), (May 16, 1996).*

*Commonwealth Edison Company v. Illinois EPA, PCB 91-29 (Variance – Water)(November 21, 1991).*

*In the Matter of: Proposed Amendments to Title 35, Subtitle C (Toxins Control), R88-21 – Docket B (June 21, 1990).*

*In the Matter of: Proposed Amendments to Title 35, Subtitle C (Toxins Control), R88-21 – Docket A (January 25, 1990).*

*In the Matter of: Proposed Determination of No Significant Ecological Damage for the Joliet Generating Station, PCB 87-93 (November 15, 1989).*

*In the Matter of: Water Quality and Effluent Standards Applicable to the Chicago River System and Calumet River System, R87-27 (May 19, 1988).*

*Commonwealth Edison v. Illinois EPA, PCB 87-40 (dismissed August 20, 1987).*

*Commonwealth Edison Company v. Illinois EPA, PCB 84-33 (Variance – Water) (December 20, 1984).*

*Commonwealth Edison Company v. Illinois EPA, PCB 81-34 (Variance – Water) (June 10, 1981).*

*Commonwealth Edison Company v. Illinois EPA, PCB 78-79 (Variance – Water) (May 25, 1978).*

*In the Matter of: Water Quality Standards Revisions, R72-4 (November 8, 1973).*

*In the Matter of: Water Quality Standards Revisions, R71-14 (Consolidated with R70-8 and R71-20) (March 7, 1972).*

**Pending Board Rulemaking Dockets**

*In the Matter of: Proposed Amendments to Dissolved Oxygen Standards 35 Ill. Adm. Code 302.406, R04-25 (First Notice Opinion and Order, July 12, 2007), Recommended Revisions to the Illinois General Use Water-Quality Standard for Dissolved Oxygen, Illinois EPA and Illinois Department of Natural Resources (March 31, 2006), entered as Exhibit 23.*

*In the Matter of: Triennial Review of Sulfate and Total Dissolved Solids Water Quality Standards: Proposed Amendments to 35 Ill. Adm. Code 302.102(b)(6), 302.102(b)(8), 302.102(b)(10), 302.208(g), 309.103(c)(3), 405.109(b)(2)(A), 409.109(b)(2)(B), 406.100(d); Repealer of 35 Ill. Adm. Code 406.203 and Part 407; and Proposed New 35 Ill. Adm. Code 302.208(h), R07-09 (filed with the Board on October 23, 2006).*



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

PART 301  
INTRODUCTION

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301.101	Authority
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301.103	Repeals
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301.105	References to Other Sections
301.106	Incorporations by Reference
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301.235	Board
301.240	CWA
301.245	Calumet River System
<u>301.247</u>	<u>Chicago Area Waterway System</u>
301.250	Chicago River System
301.255	Combined Sewer
301.260	Combined Sewer Service Area
301.265	Construction
301.267	Conversion Factor
301.270	Dilution Ratio
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301.280	Hearing Board
<u>301.282</u>	<u>Incidental Contact Recreation</u>
301.285	Industrial Wastes
301.290	Institute
301.295	Interstate Waters
301.300	Intrastate Waters
301.301	Lake Michigan Lakewide Management Plan
301.305	Land Runoff
<u>301.307</u>	<u>Lower Des Plaines River</u>
301.310	Marine Toilet

301.311	Method Detection Level
301.312	Minimum Level
301.313	Metals Translator
301.315	Modification
301.320	New Source
<u>301.323</u>	<u>Non-Contact Recreation</u>
<u>301.324</u>	<u>Non-Recreational</u>
301.325	NPDES
301.330	Other Wastes
301.331	Outlier
301.335	Person
301.340	Pollutant
301.341	Pollutant Minimization Program
301.345	Population Equivalent
301.346	Preliminary Effluent Limitation
301.350	Pretreatment Works
301.355	Primary Contact
301.356	Projected Effluent Quality
301.360	Public and Food Processing Water Supply
301.365	Publicly Owned Treatment Works
301.370	Publicly Regulated Treatment Works
301.371	Quantification Level
301.372	Reasonable Potential Analysis
301.373	Same Body of Water
301.375	Sanitary Sewer
301.380	Secondary Contact
301.385	Sewage
301.390	Sewer
301.395	Sludge
301.400	Standard of Performance
301.405	STORET
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301.421	Wasteload Allocation
301.425	Wastewater
301.430	Wastewater Source
301.435	Watercraft
301.440	Waters
301.441	Water Quality Based Effluent Limitation
301.442	Wet Weather Point Source
301.443	Whole Effluent Toxicity

## APPENDIX A

### References to Previous Rules

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

SOURCE: Filed with the Secretary of State January 1, 1978; amended at 3 Ill. Reg. 25, p. 190, effective June 21, 1979; amended at 5 Ill. Reg. 6384, effective May 28, 1981; codified at 6 Ill. Reg. 7818; amended in R88-1 at 13 Ill. Reg. 5984, effective April 18, 1989; amended in R88-21(A) at 14 Ill. Reg. 2879, effective February 13, 1990; amended in R99-8 at 23 Ill. Reg. 11277, effective August 26, 1999; amended in R02-11 at 27 Ill. Reg. 158, effective December 20, 2002; amended at in R08-\_\_\_\_\_ at \_\_\_\_\_ Ill. Reg. \_\_\_\_\_, effective \_\_\_\_\_.

#### **Section 301.247 Chicago Area Waterway System**

"Chicago Area Waterway System" means Calumet River, Grand Calumet River, Little Calumet River downstream from the confluence of Calumet River and Grand Calumet River, Calumet-Sag Channel, Lake Calumet, Chicago River and its branches downstream from their confluence with North Shore Channel, North Shore Channel and Chicago Sanitary and Ship Canal.

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

#### **Section 301.282 Incidental Contact Recreation**

"Incidental Contact Recreation" means any recreational activity in which human contact with the water is incidental and in which the probability of ingesting appreciable quantities of water is minimal, such as fishing; commercial boating; small craft recreational boating; and any limited contact associated with shoreline activity such as wading.

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

#### **Section 301.307 Lower Des Plaines River**

"Lower Des Plaines River" means Des Plaines River from its confluence with Chicago Sanitary and Ship Canal to the Interstate 55 bridge.

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

#### **Section 301.323 Non-Contact Recreation**

"Non-Contact Recreation" means any recreational or other water use in which human contact with the water is unlikely, such as pass through commercial or recreational

navigation, and where physical conditions or hydrologic modifications make direct human contact unlikely or dangerous.

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

**Section 301.324 Non-Recreational**

“Non-Recreational” means a water body where the physical conditions or hydrologic modifications preclude primary contact, incidental contact and non-contract recreation.

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

PART 302  
WATER QUALITY STANDARDS

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

SUBPART B: GENERAL USE WATER QUALITY STANDARDS

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302.201	Scope and Applicability
302.202	Purpose
302.203	Offensive Conditions
302.204	pH
302.205	Phosphorus
302.206	Dissolved Oxygen
302.207	Radioactivity
302.208	Numeric Standards for Chemical Constituents
302.209	Fecal Coliform
302.210	Other Toxic Substances
302.211	Temperature
302.212	Total Ammonia Nitrogen
302.213	Effluent Modified Waters (Ammonia)(Repealed)

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

Section	
302.301	Scope and Applicability
302.302	Algicide Permits
302.303	Finished Water Standards
302.304	Chemical Constituents
302.305	Other Contaminants
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**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; preemptory amendments at 10 Ill. Reg. 461, effective December 23, 1985; amended at R87-27 at 12 Ill. Reg. 9911, effective May 27, 1988; amended at R85-29 at 12 Ill. Reg. 12082, effective July 11, 1988; amended in R88-1 at 13 Ill. Reg. 5998, effective April 18, 1989; amended in R88-21(A) at 14 Ill. Reg. 2899, effective February 13, 1990; amended in R88-21(B) at 14 Ill. Reg. 11974, effective July 9, 1990; amended in R94-1(A) at 20 Ill. Reg. 7682, effective May 24, 1996; amended in R94-1(B) at 21 Ill. Reg. 370, effective December 23, 1996; expedited correction at 21 Ill. Reg. 6273,

effective December 23, 1996; amended in R97-25 at 22 Ill. Reg. 1356, effective December 24, 1997; amended in R99-8 at 23 Ill. Reg. 11249, effective August 26, 1999; amended in R01-13 at 26 Ill. Reg. 3505, effective February 22, 2002; amended in R02-19 at 26 Ill. Reg. 16931, effective November 8, 2002; amended in R02-11 at 27 Ill. Reg. 166, effective December 20, 2002; amended in R04-21 at 30 Ill. Reg. 4919, effective March 1, 2006; amended at in R08-\_\_\_\_\_ at \_\_\_\_\_ Ill. Reg. \_\_\_\_\_, effective \_\_\_\_\_.

## **SUBPART A: GENERAL WATER QUALITY PROVISIONS**

### **Section 302.101 Scope and Applicability**

- a) This Part contains schedules of water quality standards which are applicable throughout the State as designated in 35 Ill. Adm. Code 303. Site specific water quality standards are found with the water use designations in 35 Ill. Adm. Code 303.
- b) Subpart B contains general use water quality standards which must be met in waters of the State for which there is no specific designation (35 Ill. Adm. Code 303.201).
- c) Subpart C contains the public and food processing water supply standards. These are cumulative with Subpart B and must be met by all designated waters at the point at which water is drawn for treatment and distribution as a potable supply or for food processing (35 Ill. Adm. Code 303.202).
- d) Subpart D contains the Chicago Area Waterway System and the Lower Des Plaines River water quality secondary contact and indigenous aquatic life standards. These standards must be met only by certain waters designated in 35 Ill. Adm. Code 303.204, 303.220, 303.225, 303.227, 303.230, 303.235 and 303.237 ~~303.441~~.
- e) Subpart E contains the Lake Michigan Basin water quality standards. These must be met in the waters of the Lake Michigan Basin as designated in 35 Ill. Adm. Code 303.443.
- f) Subpart F contains the procedures for determining each of the criteria designated in Sections 302.210 and 302.410.
- g) Unless the contrary is clearly indicated, all references to "Parts" or "Sections" are to Ill. Adm. Code, Title 35: Environmental Protection. For example, "Part 309" is 35 Ill. Adm. Code 309, and "Section 309.101" is 35 Ill. Adm. Code 309.101.

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

**Section 302.102**

**Allowed Mixing, Mixing Zones and ZIDs**

- a) Whenever a water quality standard is more restrictive than its corresponding effluent standard, or where there is no corresponding effluent standard specified at 35 Ill. Adm. Code 304, an opportunity shall be allowed for compliance with 35 Ill. Adm. Code 304.105 by mixture of an effluent with its receiving waters, provided the discharger has made every effort to comply with the requirements of 35 Ill. Adm. Code 304.102.
- b) The portion, volume and area of any receiving waters within which mixing is allowed pursuant to subsection (a) shall be limited by the following:
  - 1) Mixing must be confined in an area or volume of the receiving water no larger than the area or volume which would result after incorporation of outfall design measures to attain optimal mixing efficiency of effluent and receiving waters. Such measures may include, but are not limited to, use of diffusers and engineered location and configuration of discharge points.
  - 2) Mixing is not allowed in waters which include a tributary stream entrance if such mixing occludes the tributary mouth or otherwise restricts the movement of aquatic life into or out of the tributary.
  - 3) Mixing is not allowed in water adjacent to bathing beaches, bank fishing areas, boat ramps or dockages or any other public access area.
  - 4) Mixing is not allowed in waters containing mussel beds, endangered species habitat, fish spawning areas, areas of important aquatic life habitat, or any other natural features vital to the well being of aquatic life in such a manner that the maintenance of aquatic life in the body of water as a whole would be adversely affected.
  - 5) Mixing is not allowed in waters which contain intake structures of public or food processing water supplies, points of withdrawal of water for irrigation, or watering areas accessed by wild or domestic animals.
  - 6) Mixing must allow for a zone of passage for aquatic life in which water quality standards are met.
  - 7) The area and volume in which mixing occurs, alone or in combination with other areas and volumes of mixing, must not intersect any area of any body of water in such a manner that the

maintenance of aquatic life in the body of water as a whole would be adversely affected.

- 8) The area and volume in which mixing occurs, alone or in combination with other areas and volumes of mixing must not contain more than 25% of the cross-sectional area or volume of flow of a stream except for those streams where the dilution ratio is less than 3:1. Mixing is not allowed in receiving waters which have a zero minimum seven day low flow which occurs once in ten years.
  - 9) No mixing is allowed where the water quality standard for the constituent in question is already violated in the receiving water.
  - 10) No body of water may be used totally for mixing of single outfall or combination of outfalls.
  - 11) Single sources of effluents which have more than one outfall shall be limited to a total area and volume of mixing no larger than that allowable if a single outfall were used.
  - 12) The area and volume in which mixing occurs must be as small as is practicable under the limitations prescribed in this subsection, and in no circumstances may the mixing encompass a surface area larger than 26 acres.
- c) All water quality standards of this Part must be met at every point outside of the area and volume of the receiving water within which mixing is allowed. The acute toxicity standards of this Part Sections 302-208 and 302-210 must be met within the area and volume within which mixing is allowed, except as provided in subsection (e).
- d) Pursuant to the procedures of Section 39 of the Act and 35 Ill. Adm. Code 309, a person may apply to the Agency to include as a condition in an NPDES permit formal definition of the area and volume of the waters of the State within which mixing is allowed for the NPDES discharge in question. Such formally defined area and volume of allowed mixing shall constitute a "mixing zone" for the purposes of 35 Ill. Adm. Code: Subtitle C. Upon proof by the applicant that a proposed mixing zone conforms with the requirements of Section 39 of the Act, this Section and any additional limitations as may be imposed by the Clean Water Act (CWA) (33 U.S.C 1251 et seq.), the Act or Board regulations, the Agency shall, pursuant to Section 39(b) of the Act, include within the NPDES permit a condition defining the mixing zone.

- e) Pursuant to the procedures of Section 39 of the Act and 35 Ill. Adm. Code 309, a person may apply to the Agency to include as a condition in an NPDES permit a ZID as a component portion of a mixing zone. Such ZID shall, at a minimum, be limited to waters within which effluent dispersion is immediate and rapid. For the purposes of this subsection, "immediate" dispersion means an effluent's merging with receiving waters without delay in time after its discharge and within close proximity of the end of the discharge pipe, so as to minimize the length of exposure time of aquatic life to undiluted effluent, and "rapid" dispersion means an effluent's merging with receiving waters so as to minimize the length of exposure time of aquatic life to undiluted effluent. Upon proof by the applicant that a proposed ZID conforms with the requirements of Section 39 of the Act and this Section, the Agency shall, pursuant to Section 39(b) of the Act, include within the NPDES permit a condition defining the ZID.
- f) Pursuant to Section 39 of the Act and 35 Ill. Adm. Code 309.103, an applicant for an NPDES permit shall submit data to allow the Agency to determine that the nature of any mixing zone or mixing zone in combination with a ZID conforms with the requirements of Section 39 of the Act and of this Section. A permittee may appeal Agency determinations concerning a mixing zone or ZID pursuant to the procedures of Section 40 of the Act and 35 Ill. Adm. Code 309.181.
- g) Where a mixing zone is defined in an NPDES permit, the waters within that mixing zone, for the duration of that NPDES permit, shall constitute the sole waters within which mixing is allowed for the permitted discharge. It shall not be a defense in any action brought pursuant to 35 Ill. Adm. Code 304.105 that the area and volume of waters within which mixing may be allowed pursuant to subsection (b) is less restrictive than the area or volume or waters encompassed in the mixing zone.
- h) Where a mixing zone is explicitly denied in a NPDES permit, no waters may be used for mixing by the discharge to which the NPDES permit applies, all other provisions of this Section notwithstanding.
- i) Where an NPDES permit is silent on the matter of a mixing zone, or where no NPDES permit is in effect, the burden of proof shall be on the discharger to demonstrate compliance with this Section in any action brought pursuant to 35 Ill. Adm. Code 304.105.

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

**SUBPART D: CHICAGO AREA WATERWAY SYSTEM AND LOWER DES  
PLAINES RIVER WATER QUALITY SECONDARY CONTACT AND  
INDIGENOUS AQUATIC LIFE STANDARDS**

**Section 302.401 Scope and Applicability**

Subpart D contains the Chicago Area Waterway System and Lower Des Plaines River water quality secondary contact and indigenous aquatic life standards. These must be met only by certain waters specifically designated in Part 303. The Subpart B general use and Subpart C public water supply standards of this Part do not apply to waters described in 35 Ill. Adm. Code 303.204 and listed in 35 Ill. Adm. Code 303.220 through 303.237 as the Chicago Area Waterway System or Lower Des Plaines River designated for secondary contact and indigenous aquatic life (Section 303.204).

**Section 302.402 Purpose**

The Chicago Area Waterway System and Lower Des Plaines River standards shall protect incidental contact or non-contact recreational uses, except where designated as non-recreational waters; commercial activity, including navigation and industrial water supply uses; and the highest quality aquatic life and wildlife that is attainable, limited only by the physical condition of these waters and hydrologic modifications to these waters. The numeric and narrative standards contained in this Part will assure the protection of the aquatic life and recreational uses of the Chicago Area Waterway System and Lower Des Plaines River as those uses are defined in 35 Ill. Adm. Code Part 301 and designated in 35 Ill. Adm. Code Part 303. Secondary contact and indigenous aquatic life standards are intended for those waters not suited for general use activities but which will be appropriate for all secondary contact uses and which will be capable of supporting an indigenous aquatic life limited only by the physical configuration of the body of water, characteristics and origin of the water and the presence of contaminants in amounts that do not exceed the water quality standards listed in Subpart D.

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

**Section 302.404 pH**

pH (~~STORET number 00400~~) shall be within the range of 6.5 ~~6.0~~ to 9.0 except for natural causes.

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

**Section 302.405 Dissolved Oxygen**

Dissolved oxygen (~~STORET number 00300~~) concentrations shall not be less than the applicable values in subsections (a), (b) and (c) of this Section 4.0 mg/l at any time except that the Calumet Sag Channel shall not be less than 3.0 mg/l at any time.

a) For the Upper Dresden Island Pool Aquatic Life Use waters listed in Section 303.237,

1) during the period of March through July:

- A) 6.0 mg/l as a daily mean averaged over 7 days, and
    - B) 5.0 mg/l at any time; and
  - 2) during the period of August through February:
    - A) 5.5 mg/l as a daily mean averaged over 30 days,
    - B) 4.0 mg/l as a daily minimum averaged over 7 days, and
    - C) 3.5 mg/l at any time.
- b) For the Chicago Area Waterway System Aquatic Life Use A waters listed in Section 303.230,
- 1) during the period of March through July, 5.0 mg/l at any time; and
  - 2) during the period of August through February:
    - A) 4.0 mg/l as a daily minimum averaged over 7 days, and
    - B) 3.5 mg/l at any time.
- c) For the Chicago Area Waterway System and Brandon Pool Aquatic Life Use B waters listed in Section 303.235,
- 1) 4.0 mg/l as a daily minimum averaged over 7 days, and
  - 2) 3.5 mg/l at any time.
- d) Assessing attainment of dissolved oxygen minimum values.
- 1) Daily mean is the arithmetic mean of dissolved oxygen values measured in a single 24-hour calendar day.
  - 2) Daily minimum is the minimum dissolved oxygen value measured in a single 24-hour calendar day.
  - 3) The measurements of dissolved oxygen used to determine attainment or lack of attainment with any of the dissolved oxygen standards in this Section must assure daily minima and daily means that represent the true daily minima and daily means.

- 4) The dissolved oxygen values used in calculating or determining any daily mean or daily minimum should not exceed the air-equilibrated value.

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

**Section 302.407 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 or lack of attainment with a CS must be collected in a manner that 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 of this Part, the following apply:
- 1) The AS shall not be exceeded in any waters except for those waters for which a zone of initial dilution (ZID) applies pursuant to Section 302.102 of this Part.
  - 2) The CS shall not be exceeded outside of waters in which mixing is allowed pursuant to Section 302.102 of this Part.
  - 3) The HHS shall not be exceeded outside of waters in which mixing is allowed pursuant to Section 302.102 of this Part.

e) Numeric Water Quality Standards for the Protection of Aquatic Organisms

<u>Constituent</u>	<u>AS</u> <u>(µg/L)</u>	<u>CS</u> <u>(µg/L)</u>
<u>Arsenic</u> <u>(trivalent, dissolved)</u>	<u>340 X 1.0*=340</u>	<u>150 X 1.0*=150</u>
<u>Benzene</u>	<u>4200</u>	<u>860</u>
<u>Cadmium</u> <u>(dissolved)</u>	<u>exp[A+Bln(H)] X</u> <u>{1.138672-</u> <u>[(lnH)(0.041838)]}* , where</u> <u>A=-2.918 and B=1.128</u>	<u>exp[A+Bln(H)] X {1.101672-</u> <u>[(lnH)(0.041838)]}* , where</u> <u>A= -3.490 and B=0.7852</u>
<u>Chromium</u> <u>(hexavalent, total)</u>	<u>16</u>	<u>11</u>
<u>Chromium (trivalent,</u> <u>dissolved)</u>	<u>exp[A+Bln(H)] X 0.316* ,</u> <u>where A=3.7256 and</u> <u>B=0.8190</u>	<u>exp[A+Bln(H)] X 0.860* ,</u> <u>where A=0.6848 and</u> <u>B=0.8190</u>
<u>Copper</u> <u>(dissolved)</u>	<u>exp[A+Bln(H)] X 0.960* ,</u> <u>where A=-1.645 and</u> <u>B=0.9422</u>	<u>exp[A+Bln(H)] X 0.960* ,</u> <u>where A=-1.646 and</u> <u>B=0.8545</u>
<u>Cyanide**</u>	<u>22</u>	<u>5.2</u>
<u>Ethylbenzene</u>	<u>150</u>	<u>14</u>
<u>Lead</u> <u>(dissolved)</u>	<u>exp[A+Bln(H)] X {1.46203-</u> <u>[(lnH)(0.145712)]}* ,</u> <u>where A=-1.301 and</u> <u>B=1.273</u>	<u>exp[A+Bln(H)] X {1.46203-</u> <u>[(lnH)(0.145712)]}* ,</u> <u>where A=-2.863 and</u> <u>B=1.273</u>
<u>Mercury (dissolved)</u>	<u>1.4 X 0.85*=1.2</u>	<u>0.77 X 0.85*=0.65</u>
<u>Nickel (dissolved)</u>	<u>exp[A+Bln(H)] X 0.998* ,</u> <u>where A=0.5173 and</u> <u>B=0.8460</u>	<u>exp[A+Bln(H)] X 0.997* ,</u> <u>where A=-2.286 and</u> <u>B=0.8460</u>
<u>Toluene</u>	<u>2000</u>	<u>600</u>
<u>TRC</u>	<u>19</u>	<u>11</u>
<u>Xylene(s)</u>	<u>920</u>	<u>360</u>
<u>Zinc (dissolved)</u>	<u>exp[A+Bln(H)] X 0.978* ,</u> <u>where A=-0.9035 and</u> <u>B=0.8473</u>	<u>exp[A+Bln(H)] X 0.986* ,</u> <u>where A=-0.8165 and</u> <u>B=0.8473</u>

where: µg/L = microgram per liter,

exp[x] = base natural logarithms raised to the x- power,

ln(H) = natural logarithm of Hardness in milligrams per liter,

\* = conversion factor multiplier for dissolved metals, and

\*\* = sample may be in the available or weak acid dissociable (WAD) forms

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

<u>Constituent</u>	<u>HHS in micrograms per liter (µg/L)</u>
<u>Benzene</u>	<u>310</u>
<u>Mercury</u>	<u>0.012</u>

g) Numeric Water Quality Standards for other chemical constituents

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

<u>Constituent</u>	<u>Unit</u>	<u>Standard</u>
<u>Chloride</u>	<u>mg/L</u>	<u>500</u>
<u>Iron (dissolved)</u>	<u>mg/L</u>	<u>1.0</u>
<u>Selenium (total)</u>	<u>mg/L</u>	<u>1.0</u>
<u>Silver (dissolved)</u>	<u>µg/L</u>	<u>exp[A+Bln(H)] X 0.85*, where A=-6.52 and B=1.72</u>
<u>Sulfate (where H is ≥ 100 but ≤ 500 and C is ≥ 25 but ≤ 500)</u>	<u>mg/L</u>	<u>[1276.7+5.508(H)-1.457(C)] X 0.65</u>
<u>Sulfate (where H is ≥ 100 but ≤ 500 and C is ≥ 5 but &lt; 25)</u>	<u>mg/L</u>	<u>[-57.478 + 5.79(H) + 54.163(C)] X 0.65</u>
<u>Sulfate (where H &gt; 500 and C ≥ 5)</u>	<u>mg/L</u>	<u>2,000</u>

where: mg/L = milligram per liter,

ug/L = microgram per liter,

H = Hardness concentration of receiving water in mg/L as CaCO<sub>3</sub>,

C = Chloride concentration of receiving water in mg/L,

exp[x] = base natural logarithms raised to the x-power,

ln(H) = natural logarithm of Hardness in milligrams per liter, and

\* = conversion factor multiplier for dissolved metals

Concentrations of other chemical constituents shall not exceed the following standards:

	<u>STORET</u>	<u>-CONCENTRATION</u>
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-CONSTITUENTS	-NUMBER	-(mg/L)
Ammonia Un-ionized (as N*)	00612	-0.1
Arsenic (total)	01002	-1.0
Barium (total)	01007	-5.0
Cadmium (total)	01027	0.15
Chromium (total hexavalent)	-01032	-0.3
Chromium (total trivalent)	-01033	-1.0
Copper (total)	-01042	-1.0
Cyanide (total)	-00720	-0.10
Fluoride (total)	-00951	-15.0
Iron (total)	-01045	-2.0
Iron (dissolved)	-01046	-0.5
Lead (total)	-01051	-0.1
Manganese (total)	-01055	-1.0
Mercury (total)	-71900	-0.0005
Nickel (total)	-01067	-1.0
Oil, fats and grease	-00550, 00556 -or 00560	-15.0**
Phenols	-32730	-0.3
Selenium (total)	-01147	-1.0
Silver	-01077	-1.1
Zinc (total)	-01092	-1.0
Total Dissolved Solids	-70300	-1500

\*For purposes of this section the concentration of un-ionized ammonia shall be computed according to the following equation:

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

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

U = Concentration of un-ionized ammonia as N in mg/L

N = Concentration of ammonia nitrogen as N in mg/L  
 T = Temperature in degrees Celsius

~~\*\*Oil shall be analytically separated into polar and non polar components if the total concentration exceeds 15 mg/L. In no case shall either of the components exceed 15 mg/L (i.e., 15 mg/L polar materials and 15 mg/L non polar materials).~~

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

**Section 302.408 Temperature**

- a) Water temperature shall not exceed the maximum limits in the applicable table that follows during more than two percent of the hours in the 12-month period ending with any month. Moreover, at no time shall the water temperature at such locations exceed the maximum limits in the applicable table that follows by more than 2° C (3.6° F).
- b) Water temperature in the Chicago Area Waterway System Aquatic Life Use A waters listed in 35 Ill. Adm. Code 303.230 shall not exceed the period average limits in the following table during any period on an average basis.

<u>Months – dates</u>	<u>Period Average (°F)</u>	<u>Daily Maximum (°F)</u>
<u>January 1-31</u>	<u>54.3</u>	<u>88.7</u>
<u>February 1-28</u>	<u>53.6</u>	<u>88.7</u>
<u>March 1-31</u>	<u>57.2</u>	<u>88.7</u>
<u>April 1-15</u>	<u>60.8</u>	<u>88.7</u>
<u>April 16-30</u>	<u>62.1</u>	<u>88.7</u>
<u>May 1-15</u>	<u>69.2</u>	<u>88.7</u>
<u>May 16-31</u>	<u>71.4</u>	<u>88.7</u>
<u>June 1-15</u>	<u>74.2</u>	<u>88.7</u>
<u>June 16-30</u>	<u>85.1</u>	<u>88.7</u>
<u>July 1-31</u>	<u>85.1</u>	<u>88.7</u>
<u>August 1-31</u>	<u>85.1</u>	<u>88.7</u>
<u>September 1-15</u>	<u>85.1</u>	<u>88.7</u>
<u>September 16-30</u>	<u>77.0</u>	<u>88.7</u>
<u>October 1-15</u>	<u>73.2</u>	<u>88.7</u>
<u>October 16-31</u>	<u>69.6</u>	<u>88.7</u>
<u>November 1-30</u>	<u>66.2</u>	<u>88.7</u>
<u>December 1-31</u>	<u>59.9</u>	<u>88.7</u>

- c) Water temperature in the Chicago Area Waterway System and Brandon Pool Aquatic Life Use B waters listed in 303.325, shall not exceed the

period average limits in the following table during any period on an average basis.

<u>Months – dates</u>	<u>Period Average (°F)</u>	<u>Daily Maximum (°F)</u>
<u>January 1-31</u>	<u>54.3</u>	<u>90.3</u>
<u>February 1-28</u>	<u>53.6</u>	<u>90.3</u>
<u>March 1-31</u>	<u>57.2</u>	<u>90.3</u>
<u>April 1-15</u>	<u>60.8</u>	<u>90.3</u>
<u>April 16-30</u>	<u>62.1</u>	<u>90.3</u>
<u>May 1-15</u>	<u>69.2</u>	<u>90.3</u>
<u>May 16-31</u>	<u>71.4</u>	<u>90.3</u>
<u>June 1-15</u>	<u>74.2</u>	<u>90.3</u>
<u>June 16-30</u>	<u>86.7</u>	<u>90.3</u>
<u>July 1-31</u>	<u>86.7</u>	<u>90.3</u>
<u>August 1-31</u>	<u>86.7</u>	<u>90.3</u>
<u>September 1-15</u>	<u>86.7</u>	<u>90.3</u>
<u>September 16-30</u>	<u>77.0</u>	<u>90.3</u>
<u>October 1-15</u>	<u>73.2</u>	<u>90.3</u>
<u>October 16-31</u>	<u>69.6</u>	<u>90.3</u>
<u>November 1-30</u>	<u>66.2</u>	<u>90.3</u>
<u>December 1-31</u>	<u>59.9</u>	<u>90.3</u>

d) Water temperature for the Upper Dresden Island Pool, as defined in 35 Ill. Adm. Code 303.237, shall not exceed the period average limits in the following table during any period on an average basis.

<u>Months – dates</u>	<u>Period Average (°F)</u>	<u>Daily Maximum (°F)</u>
<u>January 1-31</u>	<u>54.3</u>	<u>88.7</u>
<u>February 1-28</u>	<u>53.6</u>	<u>88.7</u>
<u>March 1-31</u>	<u>57.2</u>	<u>88.7</u>
<u>April 1-15</u>	<u>60.8</u>	<u>88.7</u>
<u>April 16-30</u>	<u>62.1</u>	<u>88.7</u>
<u>May 1-15</u>	<u>69.2</u>	<u>88.7</u>
<u>May 16-31</u>	<u>71.4</u>	<u>88.7</u>
<u>June 1-15</u>	<u>74.2</u>	<u>88.7</u>
<u>June 16-30</u>	<u>85.1</u>	<u>88.7</u>
<u>July 1-31</u>	<u>85.1</u>	<u>88.7</u>
<u>August 1-31</u>	<u>85.1</u>	<u>88.7</u>
<u>September 1-15</u>	<u>85.1</u>	<u>88.7</u>
<u>September 16-30</u>	<u>77.0</u>	<u>88.7</u>
<u>October 1-15</u>	<u>73.2</u>	<u>88.7</u>

October 16-31	69.6	88.7
November 1-30	66.2	88.7
December 1-31	59.9	88.7

Temperature (STORET number (° F) 00011 and (° C) 00010) shall not exceed 34° C (93° F) more than 5% of the time, or 37.8° C (100° F) at any time.

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

**Section 302.409 Cyanide (Repealed)**

~~Cyanide (total) shall not exceed 0.10 mg/l~~

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

**Section 302.410 Substances Toxic to Aquatic Life**

Any substance or combination of substances toxic to aquatic life not listed in Section 302.407 shall not be present in amounts toxic to aquatic life or wildlife exceed one half of the 96-hour median tolerance limit (96-hour  $TL_m$ ) for native fish or essential fish food organisms.

- a) Any substance or combination of substances shall be deemed to be toxic or harmful to aquatic life if present in concentrations that exceed the following:
  - 1) An Acute Aquatic Toxicity Criterion (AATC) validly derived and correctly applied pursuant to procedures set forth in Sections 302.612 through 302.618 or in Section 302.621; or
  - 2) A Chronic Aquatic Toxicity Criterion (CATC) validly derived and correctly applied pursuant to procedures set forth in Sections 302.627 or 302.630.
- b) Any substance or combination of substances shall be deemed to be toxic or harmful to wild or domestic animal life if present in concentrations that exceed any Wild and Domestic Animal Protection Criterion (WDAPC) validly derived and correctly applied pursuant to Section 302.633.
- c) The most stringent criterion of subsections (a) and (b) shall apply at all points outside of any waters within which, mixing is allowed pursuant to Section 302.102. In addition, the AATC derived pursuant to subsection (a)(1) shall apply in all waters except that it shall not apply within a ZID that is prescribed in accordance with Section 302.102.

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

e) Agency derived criteria may be challenged as follows:

- 1) A permittee may challenge the validity and correctness of application of a criterion derived by the Agency pursuant to this Section only at the time such criterion is first applied in an NPDES permit pursuant to 35 Ill. Adm. Code 309.152 or in an action pursuant to Title VIII of the Act for violation of the toxicity water quality standard. Failure of a person to challenge the validity of a criterion at the time of its first application shall constitute a waiver of such challenge in any subsequent proceeding involving application of the criterion to that person.
- 2) Consistent with subsection (e)(1), if a criterion is included as, or is used to derive, a condition of an NPDES discharge permit, a permittee may challenge the criterion in a permit appeal pursuant to Section 40 of the Act and 35 Ill. Adm. Code 309.181. In any such action, the Agency shall include in the record all information upon which it has relied in developing and applying the criterion, whether such information was developed by the Agency or submitted by the Petitioner. THE BURDEN OF PROOF SHALL BE ON THE PETITIONER TO DEMONSTRATE THAT THE CRITERION-BASED CONDITION IS NOT NECESSARY TO ACCOMPLISH THE PURPOSES OF SUBSECTION (a) (Section 40(a)(1) of the Act), but there is no presumption in favor of the general validity and correctness of the application of the criterion as reflected in the challenged condition.
- 3) Consistent with subsection (e)(1), in an action where alleged violation of the toxicity water quality standard is based on alleged excursion of a criterion, the person bringing such action shall have the burdens of going forward with proof and of persuasion regarding the general validity and correctness of application of the criterion.

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

- 1) Application shall be made in strict accordance with label directions;
- 2) Applicator shall be properly certified under the provisions of the Federal Insecticide, Fungicide, and Rodenticide Act (7 U.S.C. 135 et seq. (1972));
- 3) Applications of aquatic pesticides must be in accordance with the laws, regulations and guidelines of all state and federal agencies authorized by law to regulate, use or supervise pesticide applications.

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

**Section 302.412 Total Ammonia Nitrogen**

- a) Total ammonia nitrogen must in no case exceed 15 mg/L.
- b) The total ammonia nitrogen acute, chronic, and sub-chronic standards are determined by the equations given in subsections (b)(1) and (b)(2) of this Section. Attainment of each standard must be determined by subsections (c) and (d) of this Section in mg/L.

1) The acute standard (AS) is calculated using the following equation:

$$AS = \frac{0.411}{1 + 10^{7.204 - \text{pH}}} + \frac{58.4}{1 + 10^{\text{pH} - 7.204}}$$

2) The chronic standard (CS) is calculated using the following equations:

A) During the Early Life Stage Present period, as defined in subsection (e) of this Section:

i) When water temperature is less than or equal to 14.51°C:

$$CS = \left\{ \frac{0.0577}{1 + 10^{7.688 - \text{pH}}} + \frac{2.487}{1 + 10^{\text{pH} - 7.688}} \right\} (2.85)$$

ii) When water temperature is above 14.51°C:

$$CS = \frac{\left\{ \frac{0.0577}{1 + 10^{7.688 - \text{pH}}} + \frac{2.487}{1 + 10^{\text{pH} - 7.688}} \right\} (1.45 * 10^{0.028 * (25 - T)})}{1}$$

Where T = Water Temperature, degrees Celsius

B) During the Early Life Stage Absent period, as defined in subsection (e) of this Section:

i) When water temperature is less than or equal to 7°C:

$$CS = \frac{\left\{ \frac{0.0577}{1 + 10^{7.688 - \text{pH}}} + \frac{2.487}{1 + 10^{\text{pH} - 7.688}} \right\} (1.45 * 10^{0.504})}{1}$$

ii) When water temperature is greater than 7°C:

$$CS = \frac{\left\{ \frac{0.0577}{1 + 10^{7.688 - \text{pH}}} + \frac{2.487}{1 + 10^{\text{pH} - 7.688}} \right\} (1.45 * 10^{0.028 * (25 - T)})}{1}$$

Where T = Water Temperature, degrees Celsius

3) The sub-chronic standard is equal to 2.5 times the chronic standard.

c) Attainment of the Total Ammonia Nitrogen Water Quality Standards

1) The acute standard for total ammonia nitrogen (in mg/L) must not be exceeded at any time except in those waters for which the Agency has approved a ZID pursuant to Section 302.102 of this Part.

2) The 30-day average concentration of total ammonia nitrogen (in mg/L) must not exceed the chronic standard (CS) except in those waters in which mixing is allowed pursuant to Section 302.102 of this Part. Attainment of the chronic standard (CS) is evaluated pursuant to subsection (d) of this Section by averaging at least four samples collected at weekly intervals or at other sampling intervals that statistically represent a 30-day sampling period. The samples must be collected in a manner that assures a representative sampling period.

3) The 4-day average concentration of total ammonia nitrogen (in mg/L) must not exceed the sub-chronic standard except in those waters in which mixing is allowed pursuant to Section 302.102. Attainment of the sub-chronic standard is evaluated pursuant to subsection (d) of this Section by averaging daily sample results

collected over a period of four consecutive days within the 30-day averaging period. The samples must be collected in a manner that assures a representative sampling period.

- d) The water quality standard for each water body must be calculated based on the temperature and pH of the water body measured at the time of each ammonia sample. The concentration of total ammonia in each sample must be 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.
- e) The Early Life Stage Present period occurs from March through October. All other periods are subject to the Early Life Stage Absent period, except that waters listed in Section 303.235 are not subject to Early Life Stage Present ammonia limits at any time.

BOARD NOTE: Acute and chronic standard concentrations for total ammonia nitrogen (in mg/L) for different combinations of pH and temperature are shown in Appendix C.

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

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

PART 303  
WATER USE DESIGNATIONS AND SITE SPECIFIC WATER QUALITY  
STANDARDS

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303.101	Multiple Designations
303.102	Rulemaking Required ( <u>Repealed</u> )

SUBPART B: NONSPECIFIC WATER USE DESIGNATIONS

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303.200	Scope and Applicability
303.201	General Use Waters
303.202	Public and Food Processing Water Supplies
303.203	Underground Waters
303.204	<u>Chicago Area Waterway System and Lower Des Plaines River Secondary Contact and Indigenous Aquatic Life Waters</u>

303.205	Outstanding Resource Waters
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303.225	<u>Non-Contact Recreation Waters</u>
303.227	<u>Non-Recreational Waters</u>
303.230	<u>Chicago Area Waterway System Aquatic Life Use A Waters</u>
303.235	<u>Chicago Area Waterway System and Brandon Pool Aquatic Life Use B Waters</u>
303.237	<u>Upper Dresden Island Pool Aquatic Life Use Waters</u>

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

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303.300	Scope and Applicability
303.301	Organization
303.311	Ohio River Temperature
303.312	Waters Receiving Fluorspar Mine Drainage
303.321	Wabash River Temperature
303.322	Unnamed Tributary of the Vermilion River
303.323	Sugar Creek and Its Unnamed Tributary
303.326	Unnamed Tributary of Salt Creek, Salt Creek, and Little Wabash River
303.331	Mississippi River North Temperature
303.341	Mississippi River North Central Temperature
303.351	Mississippi River South Central Temperature
303.352	Unnamed Tributary of Wood River Creek
303.353	Schoenberger Creek; Unnamed Tributary of Cahokia Canal
303.361	Mississippi River South Temperature
303.400	Bankline Disposal Along the Illinois Waterway/River
303.430	Unnamed Tributary to Dutch Creek
303.431	Long Point Slough and Its Unnamed Tributary
303.441	Secondary Contact Waters ( <u>Repealed</u> )
303.442	Waters Not Designated for Public Water Supply
303.443	Lake Michigan Basin
303.444	Salt Creek, Higgins Creek, West Branch of the DuPage River, Des Plaines River
303.445	Total Dissolved Solids Water Quality Standard for the Lower Des Plaines River

SUBPART D: THERMAL DISCHARGES

Section	
303.500	Scope and Applicability
303.502	Lake Sangchris Thermal Discharges

APPENDIX A	References to Previous Rules
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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. 27, p. 221, effective July 5, 1978; amended at 3 Ill. Reg. 20, p. 95, effective May 17, 1979; amended at 5 Ill. Reg. 11592, effective October 19, 1981; codified at 6 Ill. Reg. 7818; amended at 6 Ill. Reg. 11161 effective, September 7, 1982; amended at 7 Ill. Reg. 8111, effective June 23, 1983; amended in R87-27 at 12 Ill. Reg. 9917, effective May 27, 1988; amended in R87-2 at 13 Ill. Reg. 15649, effective September 22, 1989; amended in R87-36 at 14 Ill. Reg. 9460, effective May 31, 1990; amended in R86-14 at 14 Ill. Reg. 20724, effective December 18, 1990; amended in R89-14(C) at 16 Ill. Reg. 14684, effective September 10, 1992; amended in R92-17 at 18 Ill. Reg. 2981, effective February 14, 1994; amended in R91-23 at 18 Ill. Reg. 13457, effective August 19, 1994; amended in R93-13 at 19 Ill. Reg. 1310, effective January 30, 1995; amended in R95-14 at 20 Ill. Reg. 3534, effective February 8, 1996; amended in R97-25 at 22 Ill. Reg. 1403, effective December 24, 1997; amended in R01-13 at 26 Ill. Reg. 3517, effective February 22, 2002; amended in R03-11, at 28 Ill. Reg. 3071, effective February 4, 2004; amended in R06-24 at 31 Ill. Reg. 4440, effective February 27, 2007; amended in R08-\_\_\_ at \_\_\_ Ill. Reg. \_\_\_, effective \_\_\_\_\_.

**SUBPART A: GENERAL PROVISIONS**

**Section 303.102 Rulemaking Required (Repealed)**

~~Designation of waters to meet secondary contact and indigenous aquatic life standards is governed by Part 102 of Subtitle A.~~

(Note: Prior to codification, Part II of Chapter I: Procedural Rules.)

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

**SUBPART B: NONSPECIFIC WATER USE DESIGNATIONS**

**Section 303.204 Chicago Area Waterway System and Lower Des Plaines River Secondary Contact and Indigenous Aquatic Life Waters**

The Chicago Area Waterway System and Lower Des Plaines River Waters which are designated to protect for incidental contact or non-contact recreational uses, except where designated as non-recreational waters; commercial activity, including navigation and industrial water supply uses; and the highest quality aquatic life and wildlife that is attainable, limited only by the physical condition of these waters and hydrologic modifications to these waters. These waters are required to meet the secondary contact and indigenous aquatic life standards contained in of Subpart D, of Part 302, but are not required to meet the general use standards or the public and food processing water supply

standards of Subparts B and C, of Part 302. Designated recreational and aquatic life uses and subcategories or seasonal uses for each segment of the Chicago Area Waterway System and Lower Des Plaines River are identified in this Subpart.

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

**303.220 Incidental Contact Recreation Waters**

The following waters are designated as Incidental Contact Recreation waters and must protect for incidental contact recreational uses as defined in 35 Ill. Adm. Code 301.282.

- a) North Shore Channel;
- b) North Branch Chicago River from its confluence with North Shore Channel to its confluence with South Branch Chicago River and Chicago River;
- c) Chicago River;
- d) South Branch Chicago River and its South Fork;
- e) Chicago Sanitary and Ship Canal from its confluence with South Branch Chicago River to its confluence with Calumet-Sag Channel;
- f) Calumet River, from Torrence Avenue to its confluence with Grand Calumet River and Little Calumet River;
- g) Lake Calumet;
- h) Lake Calumet Connecting Channel;
- i) Grand Calumet River;
- j) Little Calumet River from its confluence with Calumet River and Grand Calumet River to its confluence with Calumet-Sag Channel;
- k) Calumet-Sag Channel; and
- l) Lower Des Plaines River from the Brandon Road Lock and Dam to the Interstate 55 bridge.

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

**303.225 Non-Contact Recreation Waters**

Calumet River from Lake Michigan to Torrence Avenue is designated as a Non-Contact Recreation water and must protect for non-contact recreational uses as defined in 35 Ill. Adm. Code 301.323.

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

**303.227 Non-Recreational Waters**

The following waters are designated as Non-Recreational waters as defined in 35 Ill. Adm. Code 301.324.

- a) Chicago Sanitary and Ship Canal from its confluence with the Calumet-Sag Channel to its confluence with Des Plaines River; and
- b) Lower Des Plaines River from its confluence with Chicago Sanitary and Ship Canal to the Brandon Road Lock and Dam.

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

**303.230 Chicago Area Waterway System Aquatic Life Use A Waters**

Waters designated as Chicago Area Waterway System Aquatic Life Use A Waters are capable of maintaining aquatic-life populations predominated by individuals of tolerant or intermediately tolerant types that are adaptive to the unique physical conditions, flow patterns, and operational controls necessary to maintain navigational use, flood control, and drainage functions of the waterway system. The following waters are designated as Chicago Area Waterway System Aquatic Life Use A waters and must meet the water quality standards of 35 Ill. Adm. Code 302, Subpart D:

- a) North Shore Channel;
- b) North Branch Chicago River from its confluence with North Shore Channel to the south end of the North Avenue Turning Basin;
- c) Calumet River from Torrence Avenue to its confluence with Grand Calumet River and Little Calumet River;
- d) Lake Calumet;
- e) Grand Calumet River;
- f) Little Calumet River from its confluence with Calumet River and Grand Calumet River to its confluence with Calumet-Sag Channel; and

g) Calumet-Sag Channel.

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

**303.235 Chicago Area Waterway System and Brandon Pool Aquatic Life Use B Waters**

Waters designated as Chicago Area Waterway System and Brandon Pool Aquatic Life Use B Waters are capable of maintaining aquatic-life populations predominated by individuals of tolerant types that are adaptive to the unique physical conditions, flow patterns, and operational controls designed to maintain navigational use, flood control, and drainage functions in deep-draft, steep-walled shipping channels. The following waters are designated as Chicago Area Waterway System and Brandon Pool Aquatic Life Use B waters and must meet the water quality standards of 35 Ill. Adm. Code 302, Subpart D:

- a) North Branch Chicago River from the south end of the North Avenue Turning Basin to its confluence with South Branch Chicago River and Chicago River;
- b) Chicago River;
- c) South Branch Chicago River and its South Fork;
- d) Chicago Sanitary and Ship Canal;
- e) Calumet River from Lake Michigan to Torrence Avenue;
- f) Lake Calumet Connecting Channel; and
- g) Lower Des Plaines River from its confluence with Chicago Sanitary and Ship Canal to the Brandon Road Lock and Dam.

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

**303.237 Upper Dresden Island Pool Aquatic Life Use Waters**

Lower Des Plaines River from the Brandon Road Lock and Dam to the Interstate 55 bridge shall be designated for the Upper Dresden Island Pool Aquatic Life Use. These waters are capable maintaining aquatic-life populations consisting of individuals of tolerant, intermediately tolerant and intolerant types that are adaptive to the unique flow conditions necessary to maintain navigational use and upstream flood control functions of the waterway system. These waters must meet the water quality standards of 35 Ill. Adm. Code 302, Subpart D.

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



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

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

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

## SUBPART C: TEMPORARY EFFLUENT STANDARDS

### Section

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

### Appendix A References to Previous Rules

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

**SOURCE:** Filed with the Secretary of State January 1, 1978; amended at 2 Ill. Reg. 30, p. 343, effective July 27, 1978; amended at 2 Ill. Reg. 44, p. 151, effective November 2, 1978; amended at 3 Ill. Reg. 20, p. 95, effective May 17, 1979; amended at 3 Ill. Reg. 25, p. 190, effective June 21, 1979; amended at 4 Ill. Reg. 20, p. 53, effective May 7, 1980; amended at 6 Ill. Reg. 563, effective December 24, 1981; codified at 6 Ill. Reg. 7818; amended at 6 Ill. Reg. 11161, effective September 7, 1982; amended at 6 Ill. Reg. 13750, effective October 26, 1982; amended at 7 Ill. Reg. 3020, effective March 4, 1983; amended at 7 Ill. Reg. 8111, effective June 23, 1983; amended at 7 Ill. Reg. 14515, effective October 14, 1983; amended at 7 Ill. Reg. 14910, effective November 14, 1983; amended at 8 Ill. Reg. 1600, effective January 18, 1984; amended at 8 Ill. Reg. 3687, effective March 14, 1984; amended at 8 Ill. Reg. 8237, effective June 8, 1984; amended at 9 Ill. Reg. 1379, effective January 21, 1985; amended at 9 Ill. Reg. 4510, effective March 22, 1985; peremptory amendment at 10 Ill. Reg. 456, effective December 23, 1985; amended at 11 Ill. Reg. 3117, effective January 28, 1987; amended in R84-13 at 11 Ill. Reg. 7291, effective April 3, 1987; amended in R86-17(A) at 11 Ill. Reg. 14748, effective August 24, 1987; amended in R84-16 at 12 Ill. Reg. 2445, effective January 15, 1988; amended in R83-23 at 12 Ill. Reg. 8658, effective May 10, 1988; amended in R87-27 at 12 Ill. Reg. 9905, effective May 27, 1988; amended in R82-7 at 12 Ill. Reg. 10712, effective June 9, 1988; amended in R85-29 at 12 Ill. Reg. 12064, effective July 12, 1988; amended in R87-22 at 12 Ill. Reg. 13966, effective August 23, 1988; amended in R86-3 at 12 Ill. Reg. 20126, effective November 16, 1988; amended in R84-20 at 13 Ill. Reg. 851, effective January 9, 1989; amended in R85-11 at 13 Ill. Reg. 2060, effective February 6, 1989; amended in R88-1 at 13 Ill. Reg. 5976, effective April 18, 1989; amended in R86-17(B) at 13 Ill. Reg. 7754, effective May 4, 1989; amended in R88-22 at 13 Ill. Reg. 8880, effective May 26, 1989; amended in R87-6 at 14 Ill. Reg. 6777, effective April 24, 1990; amended in R87-36 at 14 Ill. Reg. 9437, effective May 31, 1990; amended in R88-21(B) at 14 Ill. Reg. 12538, effective July 18, 1990; amended in R84-44 at 14 Ill. Reg. 20719, effective December 11, 1990; amended in R86-14 at 15 Ill. Reg. 241, effective December 18, 1990; amended in R93-8 at 18 Ill. Reg. 267, effective December 23, 1993; amended in R87-33 at 18 Ill. Reg. 11574, effective July 7, 1994; amended in R95-14 at 20 Ill. Reg. 3528, effective February 8, 1996; amended in R94-1(B) at 21 Ill. Reg. 364, effective December 23, 1996; expedited correction in R94-1(B) at 21 Ill. Reg. 6269, effective December 23, 1996; amended in

R97-25 at 22 Ill. Reg. 1351, effective December 24, 1997; amended in R97-28 at 22 Ill. Reg. 3512, effective February 3, 1998; amended in R98-14 at 23 Ill. Reg. 687, effective December 31, 1998; amended in R02-19 at 26 Ill. Reg. 16948, effective November 8, 2002; amended in R02-11 at 27 Ill. Reg. 194, effective December 20, 2002; amended in R04-26 at 30 Ill. Reg. 2365, effective February 2, 2006; amended in R08-\_\_\_ at \_\_\_ Ill. Reg. \_\_\_, effective \_\_\_\_\_.

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

**304.224 Effluent Bacteria Standards for Discharges to the Chicago Area Waterway System and Lower Des Plaines River**

Effluents discharged to the Incidental Contact Recreation waters listed in 35 Ill. Adm. Code 303.220 and the Non-Contact Recreation waters listed in 35 Ill. Adm. Code 303.225 shall not exceed 400 fecal coliforms per 100 ml during the recreational season lasting from March 1 through November 30. All effluents in existence on or before the effective date of this Section shall meet these standards by March 1, 2011. All new discharges shall meet these standards upon the initiation of discharge.

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

STATE OF ILLINOIS  
COUNTY OF SANGAMON

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**PROOF OF SERVICE**

I, the undersigned, on oath state that I have served the attached Motion for Acceptance; Appearances; Motion for Waiver of Copy Requirements; Motion to Conduct Hearings in Chicago and Joliet; Director's Statement of Submittal; Certificate of Origination; Statement of Reasons and Attachments; and Proposed Amendments to 35 Ill. Adm. Code Parts 301, 302, 303 and 304 upon the person to whom it is directed, by hand delivery to:

John Therriault, Clerk  
Illinois Pollution Control Board  
James R. Thompson Center  
100 West Randolph Street, Suite 11-500  
Chicago, Illinois 60601

Bill Richardson, Chief Legal Counsel  
Illinois Department of Natural Resources  
One Natural Resources Way  
Springfield, Illinois 62702-1271

Matthew Dunn, Chief  
Environmental Bureau  
Office of the Attorney General  
100 W. Randolph, 12<sup>th</sup> Floor  
Chicago, Illinois 60601

on October 26, 2007.

And Ellis

SUBSCRIBED AND SWORN TO BEFORE ME

This 26<sup>th</sup> day of October 2007

Brenda Boehner  
Notary Public



Due to the volume of this pleading,  
please contact the Clerk's Office

at

312/814-3629

to view this file.