BEFORE THE ILLINOIS POLLUTION CONTROL BOARD

IN THE MATTER OF:	)	
	)	
WATER QUALITY STANDARDS AND	)	
EFFLUENT LIMITATIONS FOR THE	)	R08-09(D)
CHICAGO AREA WATERWAY SYSTEM	)	(Rulemaking – Water)
AND THE LOWER DES PLAINES RIVER:	)	
PROPOSED AMENDMENTS TO 35 Ill.	)	
Adm. Code Parts 301, 302, 303 and 304	)	

NOTICE OF FILING

To: John Therriault, Clerk
Marie Tipsord, Hearing Officer
James R. Thompson Center
Illinois Pollution Control Board
100 West Randolph Street, Suite 11-500
Chicago, Illinois 60601

SEE ATTACHED SERVICE LIST

PLEASE TAKE NOTICE that I have filed today with the Illinois Pollution Control Board the Illinois Environmental Protection Agency's Motion to Amend Regulatory Proposal Filed in 2007, Amendments to Part 302 Proposal and Testimony of Scott Twait, a copy of which is herewith served upon you.

ILLINOIS ENVIRONMENTAL
PROTECTION AGENCY

By: _____
Deborah J. Williams
Assistant Counsel

Dated: May 23, 2013
1021 North Grand Avenue East
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THIS FILING IS SUMBITTED ON RECYCLED PAPER

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	)	

ILLINOIS ENVIRONMENTAL PROTECTION AGENCY'S MOTION TO AMEND REGULATORY PROPOSAL FILED IN 2007

The Illinois Environmental Protection Agency ("Illinois EPA" or "Agency"), by and through its attorneys, hereby submits its Motion to Amend its original regulatory proposal for Part 302 of the Board's regulations filed in 2007. In support thereof, the Illinois EPA states as follows:

1) On October 26, 2007, the Agency filed a rulemaking proposal to update designated uses and accompanying water quality standards and effluent limitations for the waters currently designated for Secondary Contact and Indigenous Aquatic Life Use which includes most waters in the Chicago Area Waterway System ("CAWS") and Lower Des Plaines River. The Board docketed this proposal as R08-09.

2) On March 18, 2010, the Board issued an order dividing R08-09 into four separate subdockets. Subdocket D was reserved for water quality standards for the protection of aquatic life uses in the CAWS and Lower Des Plaines River.

3) Since the filing of Illinois EPA's proposal in 2007, the Agency has developed minor changes and updates.

4) In general, the changes proposed by the Agency are being made for the

following reasons: to update the Agency's proposal to incorporate rulemaking changes the Board has adopted since the proposal was filed that are necessary to make to this proposal as well, to update the proposal to incorporate the existing use designation recommendations of the Board, to correct errors discovered since the proposal was filed and to attempt to address concerns raised by U.S. EPA in their January 29, 2010, comments on the Agency's proposed language. *See*, Public Comment 286.

5) As the Board has gone to first notice in subdocket C and begun consideration of subdocket D, these amendments are now ripe for filing with the Board.

6) The amended proposal is identified in bold type by double underline and double strikethrough on the attached language proposal.

6) Pursuant to the April 11, 2013, hearing officer order in this docket, the Agency has also submitted testimony of Scott Twait explaining the regulatory language changes.

Wherefore, for the reasons above, the Illinois EPA asks the Board to grant its Motion to Amend.

Respectfully submitted,

By: _____

Deborah J. Williams
Assistant Counsel
Division of Legal Counsel

Date: May 23, 2013

Illinois Environmental Protection Agency
1021 North Grand Avenue East
P.O. Box 19276
Springfield, Illinois 62794-9276

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

PART 302
WATER QUALITY STANDARDS

SUBPART A: GENERAL WATER QUALITY PROVISIONS

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302.102 Allowed Mixing, Mixing Zones and ZIDs
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Section
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302.550 Analytical Testing

SUBPART F: PROCEDURES FOR DETERMINING WATER QUALITY CRITERIA

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

SOURCE: Filed with the Secretary of State January 1, 1978; amended at 2 Ill. Reg. 44, p. 151, effective November 2, 1978; amended at 3 Ill. Reg. 20, p. 95, effective May 17, 1979; amended at 3 Ill. Reg. 25, p. 190, effective June 21, 1979; codified at 6 Ill. Reg. 7818; amended at 6 Ill. Reg. 11161, effective September 7, 1982; amended at 6 Ill. Reg. 13750, effective October 26, 1982; amended at 8 Ill. Reg. 1629, effective January 18, 1984; peremptory amendments at 10 Ill. Reg. 461, effective December 23, 1985; amended at R87-27 at 12 Ill. Reg. 9911, effective May 27, 1988; amended at R85-29 at 12 Ill. Reg. 12082, effective July 11, 1988; amended in R88-1 at 13 Ill. Reg. 5998, effective April 18, 1989; amended in R88-21(A) at 14 Ill. Reg. 2899, effective February 13, 1990; amended in R88-21(B) at 14 Ill. Reg. 11974, effective July 9, 1990; amended in R94-1(A) at 20 Ill. Reg. 7682, effective May 24, 1996; amended in R94-1(B) at 21 Ill. Reg. 370, effective December 23, 1996; expedited correction at 21 Ill. Reg. 6273, effective December 23, 1996; amended in R97-25 at 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 in R04-25 at 32 Ill. Reg. 2254, effective January 28, 2008; amended in R07-9 at 32 Ill. Reg. 14978, effective September 8, 2008; amended in R11-

18 at 36 Ill. Reg. 18871, effective December 12, 2012; 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~~,~~ **and** 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. However, a zone of passage is not required in receiving streams that have zero flow for at least seven consecutive days recurring on average in nine years out of ten.

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. In streams where the dilution ratio is less than 3:1, the volume in which mixing occurs, alone or in combination with other volumes of mixing, must not contain more than 50 % of the volume flow unless an applicant for an NPDES permit demonstrates, pursuant subsection (d) of this section, that an adequate zone of passage is provided for pursuant to Section 302.102(b)(6).

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, except as provided in Section 302.102(b)(6).

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 USC 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 **303.235** ~~303.237~~ as the Chicago Area Waterway System or Lower Des Plaines River**, except that waters designated as Primary Contact Recreation Waters in 35 Ill. Adm. Code 303.220 must meet the numeric water quality standard for bacteria applicable to protected waters in 35 Ill. Adm. Code 302.209** ~~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 **primary contact,** 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 **(be)** 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.**~~

a~~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.

b~~e~~) 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.

c~~d~~) Assessing attainment of dissolved oxygen **mean and** minimum values.

1) Daily mean is the arithmetic mean of dissolved oxygen **concentrations in 24 consecutive hours** ~~**values measured in a single 24-hour calendar day**~~.

2) Daily minimum is the minimum dissolved oxygen **concentration in 24 consecutive hours** ~~**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 **concentrations** ~~**values**~~ used **to determine** ~~**in calculating or determining any**~~ **a** daily mean or daily minimum should not exceed the air-equilibrated **concentration** ~~**value**~~.

5) "Daily minimum averaged over 7 days" means the arithmetic mean of daily minimum dissolved oxygen concentrations in 7 consecutive 24-hour periods.

6) "Daily mean averaged over 7 days" means the arithmetic mean of daily mean dissolved oxygen concentrations in 7 consecutive 24-hour periods.

7) "Daily mean averaged over 30 days" means the arithmetic mean of daily mean dissolved oxygen concentrations in 30 consecutive 24-hour periods.

(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 **chemical constituents** ~~**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 **chemical constituent** ~~**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

Constituent	AS (µg/L)	CS (µg/L)
Arsenic (trivalent, dissolved)	340 X 1.0*=340	150 X 1.0*=150
Benzene	4200	860
Cadmium (dissolved)	exp[A+Bln(H)] X {1.138672-[(lnH)(0.041838)]}*, where A=-2.918 and B=1.128	exp[A+Bln(H)] X {1.101672-[(lnH)(0.041838)]}*, where A= -3.490 and B=0.7852
Chromium (hexavalent, total)	16	11
Chromium (trivalent, dissolved)	exp[A+Bln(H)] X 0.316*, where A=3.7256 and B=0.8190	exp[A+Bln(H)] X 0.860*, where A=0.6848 and B=0.8190
Copper (dissolved)	exp[A+Bln(H)] X 0.960*, where A=-1.645 and B=0.9422	exp[A+Bln(H)] X 0.960*, where A=-1.646 and B=0.8545
Cyanide**	22	**105.2**
Ethylbenzene	150	14
Flouride (total)	$e^{A+B\ln(H)}$	$e^{A+B\ln(H)}$ **, but shall not exceed**

	where *A* = 6.7319 and *B* = 0.5394	**4.0 mg/L where *A* = 6.0445 and *B* = 0.5394**
Lead (dissolved)	exp[A+Bln(H)] X {1.46203-[(lnH)(0.145712)]}*, where A=-1.301 and B=1.273	exp[A+Bln(H)] X {1.46203-[(lnH)(0.145712)]}*, where A=-2.863 and B=1.273
Manganese (dissolved)	$e^{A+B\ln(H)}$ **X 0.9812* where *A* = 4.9187 and *B* = 0.7467**	$e^{A+B\ln(H)}$ **X 0.9812* where *A* = 4.0635 and *B* = 0.7467**
Mercury (dissolved)	1.4 X 0.85*=1.2	0.77 X 0.85*=0.65
Nickel (dissolved)	exp[A+Bln(H)] X 0.998*, where A=0.5173 and B=0.8460	exp[A+Bln(H)] X 0.997*, where A=-2.286 and B=0.8460
Toluene	2000	600
TRC	19	11
Xylene(s)	920	360
Zinc (dissolved)	exp[A+Bln(H)] X 0.978*, where A=0.9035 and B=0.8473	exp[A+Bln(H)] X 0.986*, where A=**-0.4456~~=-0.8165~~** and B=0.8473

where: µg/L = microgram per liter,

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

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

* = conversion factor multiplier for dissolved metals, and

** = **standard to be evaluated using either of the following USEPA approved methods, incorporated by reference at 35 Ill. Adm. Code 301.106: Method OIA-1677, DW: Available Cyanide by Flow Injection, Ligand Exchange, and Amperometry, January 2004, Document Number EPA-821-R-04-001 or Cyanide Amenable to Chlorination, Standard Methods 4500-CN-G (40 CFR 136.3),~~sample may be in the available or weak acid dissociable (WAD) forms~~**

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

Constituent	HHS in micrograms per liter (µg/L)
Benzene	310
Mercury **(total)**	0.012
Phenols	**860,000**

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.

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

where: mg/L = milligram per liter,

ug/L = microgram per liter,

H = Hardness concentration of receiving water in mg/L as $CaCO_3$,

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

exp[x] = base **of** 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:~~

~~CONSTITUENTS~~	~~STORET NUMBER~~	~~CONCENTRATION (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:~~

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

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

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

~~**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~~**.

Months – dates	Period Average (°F)	Daily Maximum (°F)
January 1-31	54.3	88.7
February 1-28	53.6	88.7
March 1-31	**54.4 ~~57.2~~**	88.7
April 1-15	**58.9 ~~60.8~~**	88.7
April 16-30	**62.9 ~~62.1~~**	88.7
May 1-15	**68.1 ~~69.2~~**	88.7
May 16-31	**70.4 ~~71.4~~**	88.7
June 1-15	**75.5 ~~74.2~~**	88.7
June 16-30	85.1	88.7
July 1-31	85.1	88.7
August 1-31	85.1	88.7
September 1-15	85.1	88.7
September 16-30	**76.5 ~~77.0~~**	88.7
October 1-15	73.2	88.7
October 16-31	**69.4 ~~69.6~~**	88.7
November 1-30	66.2	88.7
December 1-31	59.9	88.7

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.

Months – dates	Period Average (°F)	Daily Maximum (°F)
January 1-31	54.3	90.3
February 1-28	53.6	90.3
March 1-31	**54.4 ~~57.2~~**	90.3
April 1-15	**58.9 ~~60.8~~**	90.3
April 16-30	**62.9 ~~62.1~~**	90.3

May 1-15	**68.1** ~~**69.2**~~	90.3
May 16-31	**70.4** ~~**71.4**~~	90.3
June 1-15	**75.5** ~~**74.2**~~	90.3
June 16-30	86.7	90.3
July 1-31	86.7	90.3
August 1-31	86.7	90.3
September 1-15	86.7	90.3
September 16-30	**76.5** ~~**77.0**~~	90.3
October 1-15	73.2	90.3
October 16-31	**69.4** ~~**69.6**~~	90.3
November 1-30	66.2	90.3
December 1-31	59.9	90.3

~~**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.**~~

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

d) Cold Shock

Water temperatures of discharges to the CAWS Aquatic Life Use A Waters and CAWS and Brandon Pool Aquatic Life Use B Waters shall be controlled in a manner to protect fish and aquatic life uses from the deleterious effects of cold shock.

~~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 **or harmful** to **human health,** 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) Any substance or combination of substances shall be deemed to be toxic or harmful to human health if present in concentrations that exceed criteria, validly derived and correctly applied, based on either of the following:

1) Disease or functional impairment due to a physiological mechanism for which there is a threshold dose below which no damage occurs calculated pursuant to Sections 302.642 through 302.648 (Human Threshold Criterion); or

2) Disease or functional impairment due to a physiological mechanism for which any dose may cause some risk of damage calculated pursuant to Sections 302.651 through 302.658 (Human Nonthreshold Criterion).

d~~e~~) The most stringent criterion of subsections (a)**, (b)** and **(c)(~~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.

c~~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)**, (b)** and **(c)(~~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 **(f)(e).**

f~~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 **(f)(1)~~(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 **(f)(1)~~(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.

g~~f~~) Subsections (a) through **(e)~~(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)); **and**

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:

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

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:

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

ii) When water temperature is above 14.51°C:

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

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:

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

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

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

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 _____)

SUBPART F: PROCEDURES FOR DETERMINING WATER QUALITY CRITERIA

Section 302.601 Scope and Applicability

This Subpart contains the procedures for determining the water quality criteria set forth in Section 302.210(a), (b) and (c) **and 302.410(a), (b) and (c)**.

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

Section 302.648 Determining the Human Threshold Criterion

The HTC is calculated according to the equation:

$$HTC = ADI/[W + (F \times BCF)]$$

where:

HTC = Human health protection criterion in milligrams per liter (mg/L);

ADI = Acceptable daily intake of substance in milligrams per day (mg/d) as specified in Section 302.645;

W = Per capita daily water consumption equal to 2 liters per day (L/d) for surface waters at the point of intake of a public or food processing water supply, or equal to 0.01 liters per day (L/d) which represents incidental exposure through contact or ingestion of small volumes of water while swimming or during other recreational activities for areas which are determined to be public access areas pursuant to Section 302.102 (b)(3), or 0.001 liters per day (L/d) for other ~~General Use~~ waters;

F = Assumed daily fish consumption in the United States equal to 0.020 kilograms per day (kg/d); and

BCF = Aquatic organism Bioconcentration Factor with units of liter per kilogram (L/kg) as derived in Sections 302.660 through 302.666.

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

Section 302.657 Determining the Human Nonthreshold Criterion

The HNC is calculated according to the equation:

$$HNC = RAI/[W + (F \times BCF)]$$

where:

HNC = Human Nonthreshold Protection Criterion in milligrams per liter (mg/L);

RAI = Risk Associated Intake of a substance in milligrams per day (mg/d) which is associated with a lifetime cancer risk level equal to a ratio of one to 1,000,000 as derived in Section 302.654;

W = Per capita daily water consumption equal to 2 liters per day (L/d) for surface waters at the point of intake of a public or food processing water supply, or equal to 0.01 liters per day (L/d) which represents incidental exposure through contact or ingestion of small volumes of water while swimming or during other recreational activities for areas which are determined to be public access areas pursuant to Section 302.102(b)(3), or 0.001 liters per day (L/d) for other ~~General Use~~ waters;

F = Assumed daily fish consumption in the United States equal to 0.020 kilograms per day (kg/d); and

BCF = Aquatic Life Bioconcentration Factor with units of liter per kilogram (L/kg) as derived in Section 302.663.

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

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

PART 302
WATER QUALITY STANDARDS

SUBPART A: GENERAL WATER QUALITY PROVISIONS

SUBPART B: GENERAL USE WATER QUALITY STANDARDS

SUBPART C: PUBLIC AND FOOD PROCESSING WATER SUPPLY STANDARDS

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

SUBPART E: LAKE MICHIGAN BASIN WATER QUALITY STANDARDS

SUBPART F: PROCEDURES FOR DETERMINING WATER QUALITY CRITERIA

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

SOURCE: Filed with the Secretary of State January 1, 1978; amended at 2 Ill. Reg. 44, p. 151, effective November 2, 1978; amended at 3 Ill. Reg. 20, p. 95, effective May 17, 1979; amended at 3 Ill. Reg. 25, p. 190, effective June 21, 1979; codified at 6 Ill. Reg. 7818; amended at 6 Ill. Reg. 11161, effective September 7, 1982; amended at 6 Ill. Reg. 13750, effective October 26, 1982; amended at 8 Ill. Reg. 1629, effective January 18, 1984; peremptory amendments at 10 Ill. Reg. 461, effective December 23, 1985; amended at R87-27 at 12 Ill. Reg. 9911, effective May 27, 1988; amended at R85-29 at 12 Ill. Reg. 12082, effective July 11, 1988; amended in R88-1 at 13 Ill. Reg. 5998, effective April 18, 1989; amended in R88-21(A) at 14 Ill. Reg. 2899, effective February 13, 1990; amended in R88-21(B) at 14 Ill. Reg. 11974, effective July 9, 1990; amended in R94-1(A) at 20 Ill. Reg. 7682, effective May 24, 1996; amended in R94-1(B) at 21 Ill. Reg. 370, effective December 23, 1996; expedited correction at 21 Ill. Reg. 6273, effective December 23, 1996; amended in R97-25 at 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 in R04-25 at 32 Ill. Reg. 2254, effective January 28, 2008; amended in R07-9 at 32 Ill. Reg. 14978, effective September 8, 2008; amended in R11-

18 at 36 Ill. Reg. 18871, effective December 12, 2012; 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~~,~~ **and** 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. However, a zone of passage is not required in receiving streams that have zero flow for at least seven consecutive days recurring on average in nine years out of ten.

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. In streams where the dilution ratio is less than 3:1, the volume in which mixing occurs, alone or in combination with other volumes of mixing, must not contain more than 50 % of the volume flow unless an applicant for an NPDES permit demonstrates, pursuant subsection (d) of this section, that an adequate zone of passage is provided for pursuant to Section 302.102(b)(6).

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, except as provided in Section 302.102(b)(6).

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 USC 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 **303.235** ~~303.237~~ as the Chicago Area Waterway System or Lower Des Plaines River**, except that waters designated as Primary Contact Recreation Waters in 35 Ill. Adm. Code 303.220 must meet the numeric water quality standard for bacteria applicable to protected waters in 35 Ill. Adm. Code 302.209** ~~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 **primary contact,** 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 **(be)** 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.**~~

a~~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.

b~~e~~) 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.

c~~d~~) Assessing attainment of dissolved oxygen **mean and** minimum values.

1) Daily mean is the arithmetic mean of dissolved oxygen **concentrations in 24 consecutive hours~~ values measured in a single 24-hour calendar day~~**.

2) Daily minimum is the minimum dissolved oxygen **concentration in 24 consecutive hours** ~~**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 **concentrations** ~~**values**~~ used **to determine** ~~**in calculating or determining any**~~ **a** daily mean or daily minimum should not exceed the air-equilibrated **concentration** ~~**value**~~.

5) "Daily minimum averaged over 7 days" means the arithmetic mean of daily minimum dissolved oxygen concentrations in 7 consecutive 24-hour periods.

6) "Daily mean averaged over 7 days" means the arithmetic mean of daily mean dissolved oxygen concentrations in 7 consecutive 24-hour periods.

7) "Daily mean averaged over 30 days" means the arithmetic mean of daily mean dissolved oxygen concentrations in 30 consecutive 24-hour periods.

(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 **chemical constituents** ~~**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 **chemical constituent** ~~**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

Constituent	AS (µg/L)	CS (µg/L)
Arsenic (trivalent, dissolved)	340 X 1.0*=340	150 X 1.0*=150
Benzene	4200	860
Cadmium (dissolved)	exp[A+Bln(H)] X {1.138672-[(lnH)(0.041838)]}*, where A=-2.918 and B=1.128	exp[A+Bln(H)] X {1.101672-[(lnH)(0.041838)]}*, where A= -3.490 and B=0.7852
Chromium (hexavalent, total)	16	11
Chromium (trivalent, dissolved)	exp[A+Bln(H)] X 0.316*, where A=3.7256 and B=0.8190	exp[A+Bln(H)] X 0.860*, where A=0.6848 and B=0.8190
Copper (dissolved)	exp[A+Bln(H)] X 0.960*, where A=-1.645 and B=0.9422	exp[A+Bln(H)] X 0.960*. where A=-1.646 and B=0.8545
Cyanide**	22	**105.2**
Ethylbenzene	150	14
Flouride (total)	$e^{A+B\ln(H)}$	$e^{A+B\ln(H)}$**, but shall not exceed**

	where *A* = 6.7319 and *B* = 0.5394	**4.0 mg/L where *A* = 6.0445 and *B* = 0.5394**
Lead (dissolved)	exp[A+Bln(H)] X {1.46203-[(lnH)(0.145712)]}*, where A=-1.301 and B=1.273	exp[A+Bln(H)] X {1.46203-[(lnH)(0.145712)]}*, where A=-2.863 and B=1.273
Manganese (dissolved)	$e^{A+B\ln(H)}$ **X 0.9812* where *A* = 4.9187 and *B* = 0.7467**	$e^{A+B\ln(H)}$ **X 0.9812* where *A* = 4.0635 and *B* = 0.7467**
Mercury (dissolved)	1.4 X 0.85*=1.2	0.77 X 0.85*=0.65
Nickel (dissolved)	exp[A+Bln(H)] X 0.998*, where A=0.5173 and B=0.8460	exp[A+Bln(H)] X 0.997*, where A=-2.286 and B=0.8460
Toluene	2000	600
TRC	19	11
Xylene(s)	920	360
Zinc (dissolved)	exp[A+Bln(H)] X 0.978*, where A=0.9035 and B=0.8473	exp[A+Bln(H)] X 0.986*, where A=**-0.4456~~= 0.8165~~** and B=0.8473

where: µg/L = microgram per liter,

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

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

* = conversion factor multiplier for dissolved metals, and

** = **standard to be evaluated using either of the following USEPA approved methods, incorporated by reference at 35 Ill. Adm. Code 301.106: Method OIA-1677, DW: Available Cyanide by Flow Injection, Ligand Exchange, and Amperometry, January 2004, Document Number EPA-821-R-04-001 or Cyanide Amenable to Chlorination, Standard Methods 4500-CN-G (40 CFR 136.3).~~sample may be in the available or weak acid dissociable (WAD) forms~~**

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

Constituent	HHS in micrograms per liter (µg/L)
Benzene	310
Mercury **(total)**	0.012
Phenols	**860,000**

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.

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

where: mg/L = milligram per liter,

ug/L = microgram per liter,

H = Hardness concentration of receiving water in mg/L as $CaCO_3$,

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

exp[x] = base **of** 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:~~

~~CONSTITUENTS~~	~~STORET NUMBER~~	~~CONCENTRATION (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:~~

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

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

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

~~**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~~**.

Months – dates	Period Average (°F)	Daily Maximum (°F)
January 1-31	54.3	88.7
February 1-28	53.6	88.7
March 1-31	**54.4 ~~57.2~~**	88.7
April 1-15	**58.9 ~~60.8~~**	88.7
April 16-30	**62.9 ~~62.1~~**	88.7
May 1-15	**68.1 ~~69.2~~**	88.7
May 16-31	**70.4 ~~71.4~~**	88.7
June 1-15	**75.5 ~~74.2~~**	88.7
June 16-30	85.1	88.7
July 1-31	85.1	88.7
August 1-31	85.1	88.7
September 1-15	85.1	88.7
September 16-30	**76.5 ~~77.0~~**	88.7
October 1-15	73.2	88.7
October 16-31	**69.4 ~~69.6~~**	88.7
November 1-30	66.2	88.7
December 1-31	59.9	88.7

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.

Months – dates	Period Average (°F)	Daily Maximum (°F)
January 1-31	54.3	90.3
February 1-28	53.6	90.3
March 1-31	**54.4 ~~57.2~~**	90.3
April 1-15	**58.9 ~~60.8~~**	90.3
April 16-30	**62.9 ~~62.1~~**	90.3

May 1-15	**68.1** ~~**69.2**~~	90.3
May 16-31	**70.4** ~~**71.4**~~	90.3
June 1-15	**75.5** ~~**74.2**~~	90.3
June 16-30	86.7	90.3
July 1-31	86.7	90.3
August 1-31	86.7	90.3
September 1-15	86.7	90.3
September 16-30	**76.5** ~~**77.0**~~	90.3
October 1-15	73.2	90.3
October 16-31	**69.4** ~~**69.6**~~	90.3
November 1-30	66.2	90.3
December 1-31	59.9	90.3

~~**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.**~~

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

d) Cold Shock

Water temperatures of discharges to the CAWS Aquatic Life Use A Waters and CAWS and Brandon Pool Aquatic Life Use B Waters shall be controlled in a manner to protect fish and aquatic life uses from the deleterious effects of cold shock.

~~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 **or harmful** to **human health,** 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) Any substance or combination of substances shall be deemed to be toxic or harmful to human health if present in concentrations that exceed criteria, validly derived and correctly applied, based on either of the following:

1) Disease or functional impairment due to a physiological mechanism for which there is a threshold dose below which no damage occurs calculated pursuant to Sections 302.642 through 302.648 (Human Threshold Criterion); or

2) Disease or functional impairment due to a physiological mechanism for which any dose may cause some risk of damage calculated pursuant to Sections 302.651 through 302.658 (Human Nonthreshold Criterion).

d~~e~~) The most stringent criterion of subsections (a)**, (b)** and **(c)**(~~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.

e~~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)**, (b)** and (**c**)(~~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 **(f)(e).**

f~~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 **(f)(1)(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 **(f)(1)(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.

g~~f~~) Subsections (a) through **(e)(~~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)); **and**

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:

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

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:

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

ii) When water temperature is above 14.51°C:

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

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:

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

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

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

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 _____)

SUBPART F: PROCEDURES FOR DETERMINING WATER QUALITY CRITERIA

Section 302.601 Scope and Applicability

This Subpart contains the procedures for determining the water quality criteria set forth in Section 302.210(a), (b) and (c) **and 302.410(a), (b) and (c)**.

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

Section 302.648 Determining the Human Threshold Criterion

The HTC is calculated according to the equation:

$$HTC = ADI/[W + (F \times BCF)]$$

where:

HTC = Human health protection criterion in milligrams per liter (mg/L);

ADI = Acceptable daily intake of substance in milligrams per day (mg/d) as specified in Section 302.645;

W = Per capita daily water consumption equal to 2 liters per day (L/d) for surface waters at the point of intake of a public or food processing water supply, or equal to 0.01 liters per day (L/d) which represents incidental exposure through contact or ingestion of small volumes of water while swimming or during other recreational activities for areas which are determined to be public access areas pursuant to Section 302.102 (b)(3), or 0.001 liters per day (L/d) for other ~~General Use~~ waters;

F = Assumed daily fish consumption in the United States equal to 0.020 kilograms per day (kg/d); and

BCF = Aquatic organism Bioconcentration Factor with units of liter per kilogram (L/kg) as derived in Sections 302.660 through 302.666.

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

Section 302.657 Determining the Human Nonthreshold Criterion

The HNC is calculated according to the equation:

$$HNC = RAI/[W + (F \times BCF)]$$

where:

HNC = Human Nonthreshold Protection Criterion in milligrams per liter (mg/L);

RAI = Risk Associated Intake of a substance in milligrams per day (mg/d) which is associated with a lifetime cancer risk level equal to a ratio of one to 1,000,000 as derived in Section 302.654;

W = Per capita daily water consumption equal to 2 liters per day (L/d) for surface waters at the point of intake of a public or food processing water supply, or equal to 0.01 liters per day (L/d) which represents incidental exposure through contact or ingestion of small volumes of water while swimming or during other recreational activities for areas which are determined to be public access areas pursuant to Section 302.102(b)(3), or 0.001 liters per day (L/d) for other ~~General Use~~ waters;

F = Assumed daily fish consumption in the United States equal to 0.020 kilograms per day (kg/d); and

BCF = Aquatic Life Bioconcentration Factor with units of liter per kilogram (L/kg) as derived in Section 302.663.

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

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

PART 302
WATER QUALITY STANDARDS

SUBPART A: GENERAL WATER QUALITY PROVISIONS

SUBPART B: GENERAL USE WATER QUALITY STANDARDS

SUBPART C: PUBLIC AND FOOD PROCESSING WATER SUPPLY STANDARDS

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

SUBPART E: LAKE MICHIGAN BASIN WATER QUALITY STANDARDS

SUBPART F: PROCEDURES FOR DETERMINING WATER QUALITY CRITERIA

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

SOURCE: Filed with the Secretary of State January 1, 1978; amended at 2 Ill. Reg. 44, p. 151, effective November 2, 1978; amended at 3 Ill. Reg. 20, p. 95, effective May 17, 1979; amended at 3 Ill. Reg. 25, p. 190, effective June 21, 1979; codified at 6 Ill. Reg. 7818; amended at 6 Ill. Reg. 11161, effective September 7, 1982; amended at 6 Ill. Reg. 13750, effective October 26, 1982; amended at 8 Ill. Reg. 1629, effective January 18, 1984; peremptory amendments at 10 Ill. Reg. 461, effective December 23, 1985; amended at R87-27 at 12 Ill. Reg. 9911, effective May 27, 1988; amended at R85-29 at 12 Ill. Reg. 12082, effective July 11, 1988; amended in R88-1 at 13 Ill. Reg. 5998, effective April 18, 1989; amended in R88-21(A) at 14 Ill. Reg. 2899, effective February 13, 1990; amended in R88-21(B) at 14 Ill. Reg. 11974, effective July 9, 1990; amended in R94-1(A) at 20 Ill. Reg. 7682, effective May 24, 1996; amended in R94-1(B) at 21 Ill. Reg. 370, effective December 23, 1996; expedited correction at 21 Ill. Reg. 6273, effective December 23, 1996; amended in R97-25 at 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 in R04-25 at 32 Ill. Reg. 2254, effective January 28, 2008; amended in R07-9 at 32 Ill. Reg. 14978, effective September 8, 2008; amended in R11-

18 at 36 Ill. Reg. 18871, effective December 12, 2012; 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, **and** 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. However, a zone of passage is not required in receiving streams that have zero flow for at least seven consecutive days recurring on average in nine years out of ten.

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. In streams where the dilution ratio is less than 3:1, the volume in which mixing occurs, alone or in combination with other volumes of mixing, must not contain more than 50 % of the volume flow unless an applicant for an NPDES permit demonstrates, pursuant subsection (d) of this section, that an adequate zone of passage is provided for pursuant to Section 302.102(b)(6).

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, except as provided in Section 302.102(b)(6).

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 USC 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 **303.235** ~~303.237~~ as the Chicago Area Waterway System or Lower Des Plaines River**, except that waters designated as Primary Contact Recreation Waters in 35 Ill. Adm. Code 303.220 must meet the numeric water quality standard for bacteria applicable to protected waters in 35 Ill. Adm. Code 302.209** ~~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 **primary contact,** 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 **(be)** 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.**~~

a~~**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.

b~~**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.

c~~**d**~~) Assessing attainment of dissolved oxygen **mean and** minimum values.

1) Daily mean is the arithmetic mean of dissolved oxygen **concentrations in 24 consecutive hours** ~~**values measured in a single 24-hour calendar day**~~.

2) Daily minimum is the minimum dissolved oxygen **concentration in 24 consecutive hours** ~~**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 **concentrations** ~~**values**~~ used **to determine** ~~**in calculating or determining any**~~ **a** daily mean or daily minimum should not exceed the air-equilibrated **concentration** ~~**value**~~.

5) "Daily minimum averaged over 7 days" means the arithmetic mean of daily minimum dissolved oxygen concentrations in 7 consecutive 24-hour periods.

6) "Daily mean averaged over 7 days" means the arithmetic mean of daily mean dissolved oxygen concentrations in 7 consecutive 24-hour periods.

7) "Daily mean averaged over 30 days" means the arithmetic mean of daily mean dissolved oxygen concentrations in 30 consecutive 24-hour periods.

(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 **chemical constituents** ~~**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 **chemical constituent** ~~**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

Constituent	AS (µg/L)	CS (µg/L)
Arsenic (trivalent, dissolved)	340 X 1.0*=340	150 X 1.0*=150
Benzene	4200	860
Cadmium (dissolved)	exp[A+Bln(H)] X {1.138672-[(lnH)(0.041838)]}*, where A=-2.918 and B=1.128	exp[A+Bln(H)] X {1.101672-[(lnH)(0.041838)]}*, where A= -3.490 and B=0.7852
Chromium (hexavalent, total)	16	11
Chromium (trivalent, dissolved)	exp[A+Bln(H)] X 0.316*, where A=3.7256 and B=0.8190	exp[A+Bln(H)] X 0.860*, where A=0.6848 and B=0.8190
Copper (dissolved)	exp[A+Bln(H)] X 0.960*, where A=-1.645 and B=0.9422	exp[A+Bln(H)] X 0.960*. where A=-1.646 and B=0.8545
Cyanide**	22	**105.2**
Ethylbenzene	150	14
Flouride (total)	$e^{A+B\ln(H)}$	$e^{A+B\ln(H)}$**, but shall not exceed**

	where A = 6.7319 and B = 0.5394	**4.0 mg/L where A = 6.0445 and B = 0.5394**
Lead (dissolved)	exp[A+Bln(H)] X {1.46203-[(lnH)(0.145712)]}*, where A=-1.301 and B=1.273	exp[A+Bln(H)] X {1.46203-[(lnH)(0.145712)]}*, where A=-2.863 and B=1.273
Manganese (dissolved)	**$e^{A+B\ln(H)}$ X 0.9812* where A = 4.9187 and B = 0.7467**	**$e^{A+B\ln(H)}$ X 0.9812* where A = 4.0635 and B = 0.7467**
Mercury (dissolved)	1.4 X 0.85*=1.2	0.77 X 0.85*=0.65
Nickel (dissolved)	exp[A+Bln(H)] X 0.998*, where A=0.5173 and B=0.8460	exp[A+Bln(H)] X 0.997*, where A=-2.286 and B=0.8460
Toluene	2000	600
TRC	19	11
Xylene(s)	920	360
Zinc (dissolved)	exp[A+Bln(H)] X 0.978*, where A=0.9035 and B=0.8473	exp[A+Bln(H)] X 0.986*, where A=**-0.4456~~=-0.8165~~** and B=0.8473

where: µg/L = microgram per liter,

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

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

* = conversion factor multiplier for dissolved metals, and

** = **standard to be evaluated using either of the following USEPA approved methods, incorporated by reference at 35 Ill. Adm. Code 301.106: Method OIA-1677, DW: Available Cyanide by Flow Injection, Ligand Exchange, and Amperometry, January 2004, Document Number EPA-821-R-04-001 or Cyanide Amenable to Chlorination, Standard Methods 4500-CN-G (40 CFR 136.3),~~sample may be in the available or weak acid dissociable (WAD) forms~~**

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

Constituent	HHS in micrograms per liter (µg/L)
Benzene	310
Mercury **(total)**	0.012
Phenols	**860,000**

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.

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

where: mg/L = milligram per liter,

ug/L = microgram per liter,

H = Hardness concentration of receiving water in mg/L as $CaCO_3$,

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

exp[x] = base **of** 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:~~

~~CONSTITUENTS~~	~~STORET NUMBER~~	~~CONCENTRATION (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:~~

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

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

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

~~**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~~**.

Months – dates	Period Average (°F)	Daily Maximum (°F)
January 1-31	54.3	88.7
February 1-28	53.6	88.7
March 1-31	**54.4 ~~57.2~~**	88.7
April 1-15	**58.9 ~~60.8~~**	88.7
April 16-30	**62.9 ~~62.1~~**	88.7
May 1-15	**68.1 ~~69.2~~**	88.7
May 16-31	**70.4 ~~71.4~~**	88.7
June 1-15	**75.5 ~~74.2~~**	88.7
June 16-30	85.1	88.7
July 1-31	85.1	88.7
August 1-31	85.1	88.7
September 1-15	85.1	88.7
September 16-30	**76.5 ~~77.0~~**	88.7
October 1-15	73.2	88.7
October 16-31	**69.4 ~~69.6~~**	88.7
November 1-30	66.2	88.7
December 1-31	59.9	88.7

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.

Months – dates	Period Average (°F)	Daily Maximum (°F)
January 1-31	54.3	90.3
February 1-28	53.6	90.3
March 1-31	**54.4 ~~57.2~~**	90.3
April 1-15	**58.9 ~~60.8~~**	90.3
April 16-30	**62.9 ~~62.1~~**	90.3

May 1-15	**68.1** ~~**69.2**~~	90.3
May 16-31	**70.4** ~~**71.4**~~	90.3
June 1-15	**75.5** ~~**74.2**~~	90.3
June 16-30	86.7	90.3
July 1-31	86.7	90.3
August 1-31	86.7	90.3
September 1-15	86.7	90.3
September 16-30	**76.5** ~~**77.0**~~	90.3
October 1-15	73.2	90.3
October 16-31	**69.4** ~~**69.6**~~	90.3
November 1-30	66.2	90.3
December 1-31	59.9	90.3

~~**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.**~~

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

d) Cold Shock

Water temperatures of discharges to the CAWS Aquatic Life Use A Waters and CAWS and Brandon Pool Aquatic Life Use B Waters shall be controlled in a manner to protect fish and aquatic life uses from the deleterious effects of cold shock.

~~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 **or harmful** to **human health,** 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) Any substance or combination of substances shall be deemed to be toxic or harmful to human health if present in concentrations that exceed criteria, validly derived and correctly applied, based on either of the following:

1) Disease or functional impairment due to a physiological mechanism for which there is a threshold dose below which no damage occurs calculated pursuant to Sections 302.642 through 302.648 (Human Threshold Criterion); or

2) Disease or functional impairment due to a physiological mechanism for which any dose may cause some risk of damage calculated pursuant to Sections 302.651 through 302.658 (Human Nonthreshold Criterion).

de) The most stringent criterion of subsections (a)**, (b)** and **(c)(~~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.

c~~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)**, (b)** and **(c)(~~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 **(f)(e).**

fe) 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 **(f)(1)(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 **(f)(1)(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.

g~~f~~) Subsections (a) through **(e)(~~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)); **and**

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:

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

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:

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

ii) When water temperature is above 14.51°C:

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

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:

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

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

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

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 _____)

SUBPART F: PROCEDURES FOR DETERMINING WATER QUALITY CRITERIA

Section 302.601 Scope and Applicability

This Subpart contains the procedures for determining the water quality criteria set forth in Section 302.210(a), (b) and (c) **and 302.410(a), (b) and (c)**.

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

Section 302.648 Determining the Human Threshold Criterion

The HTC is calculated according to the equation:

$$HTC = ADI/[W + (F \times BCF)]$$

where:

HTC = Human health protection criterion in milligrams per liter (mg/L);

ADI = Acceptable daily intake of substance in milligrams per day (mg/d) as specified in Section 302.645;

W = Per capita daily water consumption equal to 2 liters per day (L/d) for surface waters at the point of intake of a public or food processing water supply, or equal to 0.01 liters per day (L/d) which represents incidental exposure through contact or ingestion of small volumes of water while swimming or during other recreational activities for areas which are determined to be public access areas pursuant to Section 302.102 (b)(3), or 0.001 liters per day (L/d) for other ~~General Use~~ waters;

F = Assumed daily fish consumption in the United States equal to 0.020 kilograms per day (kg/d); and

BCF = Aquatic organism Bioconcentration Factor with units of liter per kilogram (L/kg) as derived in Sections 302.660 through 302.666.

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

Section 302.657 Determining the Human Nonthreshold Criterion

The HNC is calculated according to the equation:

$$HNC = RAI/[W + (F \times BCF)]$$

where:

HNC = Human Nonthreshold Protection Criterion in milligrams per liter (mg/L);

RAI = Risk Associated Intake of a substance in milligrams per day (mg/d) which is associated with a lifetime cancer risk level equal to a ratio of one to 1,000,000 as derived in Section 302.654;

W = Per capita daily water consumption equal to 2 liters per day (L/d) for surface waters at the point of intake of a public or food processing water supply, or equal to 0.01 liters per day (L/d) which represents incidental exposure through contact or ingestion of small volumes of water while swimming or during other recreational activities for areas which are determined to be public access areas pursuant to Section 302.102(b)(3), or 0.001 liters per day (L/d) for other ~~General Use~~ waters;

F = Assumed daily fish consumption in the United States equal to 0.020 kilograms per day (kg/d); and

BCF = Aquatic Life Bioconcentration Factor with units of liter per kilogram (L/kg) as derived in Section 302.663.

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

BEFORE THE ILLINOIS POLLUTION CONTROL BOARD

IN THE MATTER OF:	)	
	)	
WATER QUALITY STANDARDS AND	)	
EFFLUENT LIMITATIONS FOR THE	)	R08-09(D)
CHICAGO AREA WATERWAY SYSTEM	)	(Rulemaking – Water)
AND THE LOWER DES PLAINES RIVER:	)	
PROPOSED AMENDMENTS TO 35 Ill.	)	
Adm. Code Parts 301, 302, 303 and 304	)	
	)	

PREFILED TESTIMONY OF SCOTT TWAIT

My name is Scott Twait and I am an Environmental Protection Engineer in the Water Quality Standards Section in the Illinois EPA's Bureau of Water. I have held this position since October 1996. I received a Bachelor's degree in Civil Engineering from the University of Illinois in 1992. As a member of the Water Quality Standards staff, I have participated in the internal development of rulemaking proposals and Agency responses to site-specific rulemaking proposals and petitions for adjusted standards and variances.

My involvement in this rulemaking began with serving as lead technical staff on the Lower Des Plaines River Use Attainability Analysis. I have been involved in a technical review of each of the numeric water quality standards applicable to the Secondary Contact and Indigenous Aquatic Life waters and the recommendations to update and upgrade them as contained in the Agency's proposal. In particular, I was involved in interpreting the information and recommendations provided to the Agency with regard to the thermal water quality standards by U.S. EPA's contractor, Chris Yoder of the Center of Applied Bioassessment and Biocriteria at the Midwest

Biodiversity Institute, and translating those recommendations into the numeric temperature water quality standard proposal before the Board.

In 2008, I testified in support of the Agency's water quality standards proposal which is now the focus of subdocket D of this rulemaking. Since that time, the Agency has developed minor changes and updates to its proposal. Those changes will be the subject of this testimony. In general, the changes proposed by the Agency are being made for the following reasons: to update the Agency's proposal to incorporate rulemaking changes the Board has adopted since the proposal was filed that are necessary to make to this proposal as well, to update the proposal to incorporate the existing use designation recommendations of the Board, to correct errors discovered since the proposal was filed and to attempt to address concerns raised by U.S. EPA in their January 29, 2010, comments on the Agency's proposed language. See, Public Comment 286.

Amendments for Upper Dresden Island Pool

The Illinois Pollution Control Board has proposed to remove the Agency proposed Upper Dresden Island Pool Use and place this segment into the General Use category. Since the Upper Dresden Island Pool Aquatic Life Use has not been proposed by the Board, the Agency has removed all references to Section 303.237 from the water quality standards in Part 302.

In addition, the Agency has amended its proposal to remove the water quality standards that relate exclusively to the Upper Dresden Island Pool. The dissolved oxygen water quality standard at 302.405(a) and the temperature standard at 302.408(d) have both been deleted.

Updates to Reflect Recent Board Rulemakings

The Agency has also made changes to our proposal to reflect changes in the Board rules that have been made since our original proposal was filed. These changes include dissolved oxygen wording changes, changing metals to chemical constituents, adding fluoride and manganese water quality standards, updating the chronic zinc standard, and including "total" to the mercury standard.

The changes to the dissolved oxygen standard in Section 302.405 makes the proposal consistent with the General Use water quality standards as they were adopted in R04-025.

In 302.407(b), the Agency changed "metals" to "chemical constituents" and removes the references to "metal" samples. This makes the proposal consistent with the General Use water quality standards as they were adopted in R11-018.

USEPA expressed concern that the Agency proposed to remove the fluoride and manganese water quality standards that were present in the secondary contact and indigenous aquatic life use standards and not replace them with something that is protective of the uses. The Agency is proposing to add the fluoride and manganese water quality standards to Section 302.407(e). The fluoride and manganese water quality standards are the same as the General Use water quality standards adopted in the R11-018 rulemaking. Fluoride and manganese have no national criteria developed for the protection of aquatic life uses.

The Agency is proposing to correct the error in the chronic zinc water quality standard in Section 302.407(e) as was done in the R11-018 rulemaking. The testimony

of Agency employee Brian Koch in R11-18 explains the change made to the zinc formula in detail. See, R11-18 Exhibit 1.

The Agency is proposing to add a foot note for cyanide to indicate which cyanide test methods may be used to determine compliance with the cyanide water quality standard in Section 302.407(e) as was done in the R11-018 rulemaking.

The Agency is proposing to clarify that the mercury water quality standard for the protection of human health located in Section 302.407(f) is in the total form as was done in the R11-018 rulemaking.

Finally, the Agency is amending its proposed language in Sections 302.401 and 302.402 to reflect language changes made by the Board to 35 Ill. Adm. Code 303.204 in its First Notice Opinion and Order in Subdocket C. These changes involve adding the phrase "except that waters designated as Primary Contact Recreation Waters in 35 Ill. Adm. Code 303.220 must meet the numeric water quality standard for bacteria applicable to protected waters in 35 Ill. Adm. Code 302.209" to the end of Section 302.401 and adding the term "primary contact," before "incidental contact" in Section 302.402.

Water Quality Standards Changes

The Agency is amending its cyanide water quality standard proposal and has added a water quality standard for phenols to protect human health.

On August 4, 2008, Jenifer Wasik submitted prefiled testimony on cyanide which is Exhibit 230 in the record of this rulemaking. Ms. Wasik correctly pointed out that the Board had previously approved a site-specific chronic cyanide water quality standard of 10 ug/L in the R95-14 rulemaking for Salt Creek, Higgins Creek, the West Branch

DuPage River, and the Des Plaines River. That site specific standard is found in Section 303.444.

The proposed cyanide acute water quality standard is exactly the same as the General Use water quality standard 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). This document is included as Attachment Y to the Agency's Statement of Reasons. The 1995 updates for cyanide updates, but does not supersede the January 1985 national criteria document (EPA 440/5-84-028).

In the Agency's original proposal, the chronic cyanide water quality standards was based on the recalculation procedure established in the 1995 national criteria document (EPA-820-B-96-001) which is Attachment Y to the Statement of Reasons.

For the amended cyanide chronic proposal, the Agency used the same recalculation procedures and used all of the tests from Table 1 of the 1995 national criteria document to revise the water quality standard for this proposal with the following exceptions from Table 3. See Attachment Y at F2. 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. Rainbow trout are not found in Illinois outside of Lake Michigan.

GMAV	Species	SMAV
44.73	Rainbow Trout, *Oncorhynchus mykiss*	44.73

The chronic standard was based on FAV/FACR. FAV stands for the final acute value and FACR stands for the final acute-chronic ratio.

If rainbow trout are not included in the cyanide chronic calculation, the four most sensitive species become the four fishes: brook trout, yellow perch, bluegill, and black crappie. When these four species are used, the calculated chronic value for cyanide becomes 9.799 ug/L. The Agency recommends that the Board rounds the chronic cyanide water quality standard to 10 ug/L.

As amended, the Agency's proposal for the cyanide acute standard is 22 micrograms per liter and the chronic standard is 10 micrograms per liter.

USEPA expressed concern that the Agency has proposed to remove the phenol water quality standard that was present in the secondary contact and indigenous aquatic life use standards and not replace it with something that is protective of the designated uses. USEPA has requested that the Agency protect the human health use by adopting the fish consumption only national criterion of 860 mg/L. USEPA has published the phenol human health criteria the Federal Register on June 10, 2009. The Agency agreed to make this change, but noted that the effluent standard (0.3 mg/L) would be applicable to dischargers, which is much more stringent than the proposed human health water quality standard.

Subpart F and Protection of Human Health for Fish Consumption

It was the Agency's original intent to protect all designated uses with the derived water quality procedures in Section 302.410. However, USEPA correctly point out that human health from fish consumption use was not being protected. The Agency is proposing language to ensure that Section 302.410 is protective of human health uses.

The Agency has included the protection of human health and has included subsection (c) that references the derivation procedures in Sections 302.642 through 302.648 for Human Threshold Criterion and Sections 302.651 through 302.658 for the Human Nonthreshold Criterion.

The Agency is also proposing to add a clause to Section 320.601 to include Section 302.410(a), (b), and (c) to the applicability of Subpart F. In addition, the Agency is proposing to remove "General Use" from the phrase "other General Use waters:" in the definition of "W" for the equation in Sections 302.648 and 302.657. The Agency is removing "General Use" from the definition of "W" to ensure that the definition of "W" is applicable to these waters and can be used in the equation.

Temperature

In 2008, I testified that "Developing the Agency's proposal to the Board for thermal water quality standards was one of the most challenging aspects of the rule development process and there will likely be additional information developed in the Record of this proceeding that the Board will have to consider in making a final decision." In the intervening period, the Agency has been working with U.S. EPA to address their concerns with the Agency's original language and has developed a few changes designed to address these concerns. The changes the Agency is proposing at this time include clarification of the period average terminology, amendments to the background temperature proposal with resulting changes in the period average water quality standards, and new language to address a narrative standard that protects aquatic life against cold shock.

USEPA commented that they had concerns with our proposed language, "... shall not exceed the period average limits in the following table during any period on an average basis." It was agreed that the language was not clear. The Agency has proposed to remove the last phrase "on an average basis."

The Agency also changed the period average temperatures during the non-summer months based on comments from USEPA and questions from Midwest Generation during the 2008 hearings. USEPA commented that they believed that the background station that the Agency picked (Chicago Sanitary & Ship Canal – Route 83) was not representative of the background temperature of the system. In discussions with USEPA, the Agency agreed to use the less impacted station (Cal-Sag Channel – Route 83). In the original proposal, the Agency used the 75th percentile of the temperatures from the MWRDGC effluent and Route 83 Chicago Sanitary and Ship Canal station data as the period average to ensure that the seasonal norms are preserved in the system. During the hearings in 2008, Midwest Generation asked the Agency if they expected violations of the period average for the background station that was selected. The Agency did not expect that the period average would be violated at the Chicago Sanitary and Ship Canal – Route 83 station, but the Agency committed to verifying this statement. The evaluation of the data revealed that the use of the 75th percentile data for the period average resulted in violations of the data from the background station. Therefore, the Agency has proposed using the 90th percentile of the temperature from the background station as the period average. In conclusion, the thermal standards for the monthly average for the non-summer months is based on the

least restrictive of the 75th percentile of the temperatures from the MWRDGC effluent and the 90th percentile of the temperature from the Cal-Sag Channel – Route 83 station.

Consequently, the Agency used the effluent temperature from MWRDGC's North Side, Calumet, and Stickney facilities as the background temperature instead of using temperatures at the Cal-Sag Canal - Route 83 station during periods of the non-summer months when the effluent temperature was higher than the background temperature. These periods were January, February, September 16-30, October, November, and December. For the non-summer periods of March, April, May, and June 1-15, the Agency used temperature values from the Cal-Sag Canal - Route 83 station in setting the period averages because the ambient values were higher than the effluent data values.

In addition, USEPA commented that they thought that the Agency should protect aquatic life from cold shock. An example of cold shock would be in the winter time if the fish got acclimated to the warm water downstream of a thermal discharge where the thermal discharge ceases. In this situation, the fish may not be able to handle the cold temperatures and would die. To the Agency's knowledge, this system has not had trouble with fish kills due to cold shock; however, the Agency has proposed a narrative standard that was developed from language that has been adopted in Wisconsin. See, WI NR §102.28 The proposed narrative standard states that "Water temperatures of discharges to the CAWS Aquatic Life Use A Waters and CAWS and Brandon Pool Aquatic Life Use B Waters shall be controlled in a manner to protect fish and aquatic life uses from the deleterious effects of cold shock." The Agency intends to interpret this standard in a similar manner as explained by Wisconsin in development of its cold

shock standard. This standard is not intended to be applied to emergency shut downs, however, all efforts should be made through general operational planning to avoid an emergency action that would cause cold shock.

The Agency thanks the Board for this opportunity to explain the amendments to its proposed regulatory language for subdocket D of this proceeding. The Agency anticipates these amendments will improve the final rule and will make the rule more likely to be approved by USEPA once adopted by the Board. I will be available to answer any questions from the Board and the public on the development of these amendments at the July 29, 2013, hearing.

By: Scott Twait
Scott Twait

Date: 24 May 2013

Illinois Environmental Protection Agency
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P.O. Box 19276
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STATE OF ILLINOIS)
) SS
COUNTY OF SANGAMON)
)

PROOF OF SERVICE

I, the undersigned, on oath state that I have served the attached Illinois Environmental Protection Agency's Motion to Amend Regulatory Proposal Filed in 2007, Amendments to Part 302 Proposal and Testimony of Scott Twait upon the person to whom it is directed by placing it an envelope addressed to:

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

and mailing it by Overnight Mail from Springfield, Illinois on May 23, 2013, with sufficient postage affixed and by mailing it by First Class U.S. Mail from Springfield, Illinois on May 23, 2013 with sufficient postage affixed to the **ATTACHED SERVICE LIST.**

SUBSCRIBED AND SWORN TO BEFORE ME
This 23rd day of May, 2013

Notary Public

OFFICIAL SEAL
DAWN A. HOLLIS
NOTARY PUBLIC, STATE OF ILLINOIS
MY COMMISSION EXPIRES 8-19-2016

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