ILLINOIS POLLUTION CONTROL BOARD
March 19, 2015

IN THE MATTER OF:	)	
	)	
WATER QUALITY STANDARDS AND	)	R08-9 (Subdocket D)
EFFLUENT LIMITATIONS FOR THE	)	(Rulemaking - Water)
CHICAGO AREA WATERWAY SYSTEM	)	
AND LOWER DES PLAINES RIVER:	)	
PROPOSED AMENDMENTS TO 35 ILL.	)	
ADM. CODE 301, 302, 303, and 304	)	

Proposed Rule. Second Notice.

OPINION AND ORDER OF THE BOARD (by D. Glosser):

SUMMARY OF TODAY'S ACTION

The Board today proposes for second notice water quality standards for the Chicago Area Waterway System (CAWS) and the Lower Des Plaines River (LDPR) that are necessary to protect the aquatic life uses for those waterways as designated in Water Quality Standards and Effluent Limitations for the Chicago Area Waterway System and Lower Des Plaines River: Proposed Amendments to 35 Ill. Adm. Code 301, 302, 303, and 304, R08-9(C), (Feb. 6, 2014). The Board is generally proceeding with the standards as proposed at first notice, including a site specific chloride water quality standard for the Chicago Sanitary and Ship Canal (CSSC). The Board made some changes to the proposal, which are discussed in detail in the opinion.

One amendment made at second notice is that while the Board proposes a year-round chloride standard of 500 mg/L for CAWS and LDPR, except for the CSSC, the standard will have a three year delayed effective date. The year-round chloride standard will not be effective until three years after the effective date of the rules. In the interim, the Board leaves in place the Total Dissolved Solids (TDS) standard during the winter months of December 1 through April 30 and applies the 500 mg/L chloride standard during the summer months of May 1 through November 30 for CAWS and LDPR, except for the CSSC. The interim TDS standard will sunset three years after the effective date of the rules.

In addition to this change, the Board proceeds to second notice with the temperature standards as proposed at first-notice, except the Board will delay the effective date of the temperature standards until three years after the effective date of the rules. The Board's opinion begins by addressing the procedural background (page 1) followed by a summary of the Board's first notice findings (page 5). The Board next summarizes the first notice public comments (page 17). Finally, the Board discusses the Board's decision (page 66) before reaching its conclusions (page 100) and issuing its order (page 1).

PROCEDURAL BACKGROUND

On October 26, 2007, Illinois Environmental Protection Agency (IEPA) filed a proposal under the general rulemaking provisions of Sections 27 and 28 of the Environmental Protection Act (Act) (415 ILCS 5/27, 28 (2012)). Generally, the proposal amends the Board's rules for Secondary Contact and Indigenous Aquatic Life Use to update the designated uses and standards necessary to protect the existing uses of CAWS and LDPR. On November 1, 2007, the Board accepted the proposal for hearing. On November 15, 2007, the Board granted a motion to hold hearings in Chicago and Joliet.

On June 12, 2008, the Metropolitan Water Reclamation District of Greater Chicago (District) filed a motion to stay the rulemaking proceeding, which was supported by: 1) Midwest Generation L.L.C (Midwest Generation), 2) Chemical Industry Council of Illinois, and 3) Stepan Company (Stepan). On June 25, 2008, the Environmental Law and Policy Center, Friends of the Chicago River, Sierra Club Illinois Chapter, Natural Resources Defense Council, and Openlands (Environmental Groups) filed a response in opposition to the motion. Joining in opposition to the motion were Southeast Environmental Task Force, the People of the State of Illinois (People), and IEPA. On July 21, 2008, the Board denied the motion to stay and directed the parties to proceed with additional hearings already scheduled.

On March 18, 2010, the Board granted a motion filed by CITGO Petroleum Corporation and PDV Midwest, LLC. (Citgo/PDV) for an additional hearing on Asian carp but delayed that hearing until later in 2010. The Board also granted a motion filed by the Environmental Groups to sever the dockets. The Board severed the dockets as follows: 1) Subdocket A dealt with the issues related to recreational use designations, and the final rule was adopted on August 18, 2011; 2) Subdocket B addressed issues relating to disinfection and whether or not disinfection may be necessary to meet the recreational use designations, and the final rule was adopted on February 2, 2012; 3) Subdocket C addressed aquatic life use, designations, and the final rule was adopted on February 6, 2014; and 4) Subdocket D addresses the issues dealing with water quality standards and criteria that are necessary to meet the aquatic life use designations. On February 21, 2013, the Board added Subdocket E to address Bubbly Creek.

The Board held 39 days of hearing as of March 18, 2010, when the docket was divided, and additional hearings proceeded in the Subdockets. During the first 39 days of hearings, hearings were held in Chicago: January 28, 2008 through February 1, 2008, June 16, 2008, September 8, 2008 through September 10, 2008, September 23, 2008 through September 25, 2008, February 17 and 18, 2009, March 3 and 4, 2009, April 15, 2009, May 5, 6, and 20, 2009, July 28 and 29, 2009, August 13 and 14, 2009, October 5, 2009, November 9 and 10, 2009, and January 13 and 14, 2010. Hearings were held in Joliet: March 10, 2008 through March 12, 2008, October 27 and 28, 2008 and November 17, 2008. Hearings were held in Des Plaines: April 23 and 24, 2008, and December 2 and 3, 2008.

Not all the testimony received during the 39 days of hearing held prior to March 18, 2010, is relevant to this Subdocket. Those whose testimony is relevant are the following:

Rob Sulski of IEPA (Exhibit 1)

Scott Twait of IEPA (Exhibit 2)
Roy Smogor of IEPA (Exhibit 3)
Chris O. Yoder on behalf of IEPA (Exhibit 13)
Adrienne D. Nemura on behalf of the District (Exhibit 116)
Stephen F. McGowan on behalf of the District (Exhibit 133, 211)
Charles S. Melching on behalf of the District (Exhibit 169)
Jennifer Wasik on behalf of the District (Exhibit 187, 230)
Samuel G. Dennison on behalf of the District (Exhibit 191, 209)
Paul L. Freedman on behalf of the District (Exhibit 204)
David R. Zenz on behalf of the District (Exhibit 217)
John Mastracchio on behalf of the District (Exhibit 223)
James E. Huff on behalf of Citgo/PDV (Exhibit 285)
Joseph V. Idaszak on behalf of Corn Products[1] (Exhibit 305)
James E. Huff on behalf of Corn Products (Exhibit 304)
Carl E. Adams Jr. and Robin Garibay on behalf of Stepan Company (Exhibit 318)
Julia Wozniak on behalf of Midwest Generation (Exhibit 364)
Greg Seegert on behalf of Midwest Generation (Exhibit 366)
Dr. G. Allen Burton on behalf of Midwest Generation (Exhibit 369)

In addition to hearing testimony, the Board received over 381 exhibits and over 500 public comments prior to the dockets being divided on March 18, 2010. Many of the comments and exhibits are not relevant to a determination of aquatic life use or the associated water quality standards, and therefore will not be discussed.

Proceedings Since March 18, 2010

The Board held an additional five days of hearings in Chicago for Subdocket D. The first of those on November 9 and 10, 2010, was devoted to the issue of the impact of Asian carp prevention measures on the aquatic life uses and water quality standards. The Board held hearings on issues regarding aquatic life water quality standards on July 29, September 23 and December 17, 2013.

By hearing officer order, the pre-first notice comment period closed on April 30, 2014, with responsive comments to be filed by May 14, 2014.

The following individuals representing industry, environmental organizations, and state agencies testified during the five additional days of hearings held on Subdocket D:

Scott Twait on behalf of IEPA (Exhibit 480)
Lial F. Tischler on behalf of ExxonMobil Oil Corporation (ExxonMobil) (Exhibit 488)
Bruce Nelson on behalf of Citgo/PDV (Exhibit 489)
Roger Klocek on behalf of Citgo/PDV (Exhibit 491)
Larry Tyler on behalf of Citgo/PDV (Exhibit 492)
James E. Huff on behalf of Citgo/PDV (Exhibit 493)

[1] Corn Products International, Inc. changed its name to Ingredion Incorporated.

In addition to hearing testimony, the Board received 493 exhibits and over 1,400 public comments in all the dockets combined. Not all comments and exhibits are relevant to a determination of aquatic life water quality standards, and therefore will not be listed. Further, many public comments consist of one page or less from numerous individuals. Those comments are: PC 306-483, 485-494, 501-504, 507-510, 1258-1274, 1294-1329, 1330-1336, 1339-1354, 1355-1365, 1369-1371, 1400. Those comments express support for cleaning up the waters. The public comments from participants are:

IEPA PC 286, 1396, 1401, 1409
Honorable John Fritchey of the 11th District, Illinois House of Representatives PC 289
The Environmental Groups PC 1407, 1412
The District PC 1292, 1366
Citgo/PDV PC 1394, 1395, 1399, 1402, 1410
Stepan Company PC 1405, 1411
ExxonMobil Oil Corporation PC 1397, 1398, 1406, 1413
Midwest Generation PC 1403, 1408a and 1408b
United States Environmental Protection Agency (USEPA) PC 1337, 1338, 1367, 1404

On May 24, 2013, IEPA filed a motion to amend the proposal (AmProp.) and supported the amendment with testimony by Scott Twait (Exh. 480). The Board granted the motion to amend the proposal on September 18, 2014.

First Notice

On September 18, 2014, the Board adopted a first-notice opinion and order. The first notice was published in the *Illinois Register* on October 3, 2014. Since adoption of the first notice, the Board received 14 public comments. Those comments are from:

USEPA (PC 1414)
IEPA (PC 1415)
District (PC 1416, PC 1424)
Citgo/PDV (PC 1417, PC 1423)
Midwest Generation (PC 1418, PC 1427)
Stepan (PC 1419, PC 1426)
ExxonMobil (PC 1420, PC 1425)
Ingredion Incorporated (PC 1421)
Environmental Groups (PC 1422, PC 1428)

No additional hearings were requested and none were held during first notice.

Department of Commerce and Economic Opportunity

On November 16, 2007, in accordance with Section 27(b) of the Act (415 ILCS 5/27(b) (2012)), the Board requested that the Department of Commerce and Economic Opportunity (DCEO) conduct an economic impact study for this rulemaking. The Board did not receive a

response to that letter, and the Board received no comment on DCEO's decision to not respond at the Board's hearing on December 17, 2013. 12/17/13Tr. at 4

SUMMARY OF BOARD'S FIRST NOTICE

The Board designated aquatic life uses for CAWS and LDPR in Subdocket C. Water Quality Standards and Effluent Limitations for the Chicago Area Waterway System and Lower Des Plaines River: Proposed Amendments to 35 Ill. Adm. Code 301, 302, 303, and 304, R08-9(C), (Feb. 6, 2014). After reviewing the record and examining the Clean Water Act (CWA) goal of "water quality which provides for the protection and propagation of fish, shellfish, and wildlife. . ." (33 U.S.C. § 1251(a)(2)), the Board adopted three aquatic life use designations and developed definitions of those aquatic life use designations. The Board adopted a CAWS Aquatic Life Use (ALU) A, CAWS and Brandon Pool Aquatic Life Use (ALU) B, and Upper Dresden Island Pool (UDIP) Aquatic Life Use (ALU). As a result of designating aquatic life uses, the Board needed to address water quality standards to protect those uses. At first notice in this Subdocket, the Board proposed water quality standards necessary to protect the designated aquatic life uses.

Generally, in adopting the first notice, the Board proceeded with the standards for many constituents as proposed by IEPA, with two notable exceptions. The Board found that the 500 mg/L chloride standard must be adapted for the Chicago Sanitary and Ship Canal (CSSC) from December 1 until April 30. Therefore, the Board proposed for the CSSC a numeric standard of 620 mg/L as a chronic water quality standard and 990 mg/L as an acute water quality standard for chloride from December 1 until April 30.

The Board also found that the temperature water quality standards proposed by IEPA as well as those suggested by other participants were not appropriate. Therefore, the Board proposed that the General Use temperature standards apply to these waterways.

The Board also made changes to the proposal in other areas as result of the Board's review of the record, comments, and testimony. In some instances the Board sought additional input from participants. The specific provisions proposed by the Board are discussed generally below.

Bubbly Creek

The South Fork of the South Branch of the Chicago River, known as Bubbly Creek, was removed from consideration of Aquatic Life Uses in Subdocket C. *See* Water Quality Standards and Effluent Limitations for the Chicago Area Waterway System and Lower Des Plaines River: Proposed Amendments to 35 Ill. Adm. Code 301, 302, 303, and 304, R08-9(C), (Feb. 6, 2014). As a result, concerns were raised that if Secondary Contact water quality standards were repealed, Bubbly Creek would not have standards. *See e.g.* PC 1404 at 8. Therefore, IEPA recommended that Indigenous Aquatic Life water quality standards remain in place for Bubbly Creek until Subdocket E issues are resolved. PC 1401 at 38. USEPA recommended the Board either retain the existing standards that apply to Bubbly Creek or temporarily place Bubbly Creek

into one of the new aquatic life use designations until such time as site-specific uses and standards are justified. *Id.*

The Board agreed that proposing to repeal Indigenous Aquatic Life standards would pose an issue for Bubbly Creek as no water quality standards would then apply. Therefore, the Board proposed language that establishes Indigenous Aquatic Life standards for Bubbly Creek and includes those standards with the standards proposed for ALU A, ALU B, and UDIP ALU waters. However, in continuing the application of the Indigenous Aquatic Life standards, the Board expressed concern that Bubbly Creek would be subject to an "anytime" dissolved oxygen (DO) standard of 4.0 mg/L, which appears to be more protective than the "anytime" DO standard of 3.5 mg/L applicable to CAWS ALU A, ALU B, and UDIP waters. While the Board recognized that higher use designation waters are subject to additional DO limitations, the Board sought comments from the participants on whether the proposed DO standard for Bubbly Creek needs to be changed to reflect the "anytime" standard applicable to remaining portions of CAWS and LDPR.

Repeal of Water Quality Standards

IEPA proposed the removal of standards for barium, oil/fat/grease, phenols, and TDS as unnecessary. PC 1401 at 10. USEPA took issue with the removal of phenol and barium water quality standards and recommended that "if the proposed water quality standards are revised to include protection of human health," IEPA should "consider revising (rather than deleting) the water quality criteria for phenol and barium to be as protective as [USEPA]'s current human health water quality criteria recommendations for these parameters (860 mg/L and 1 mg/L, respectively)." PC 286 at 10. In response to USEPA's concerns, IEPA suggested including human health standards for phenol. Barium and oils will be protected by the effluent standard found in 35 Ill. Adm. Code 304.124. SR at 79. USEPA did not specifically address the issue of barium and phenol in its final comment; however, in a later comment USEPA indicated that IEPA's revisions follow national guidance. *See* PC 1404 at Enclosure 1 at 1.

The Board was convinced that IEPA's addition of a human health standard for phenol and corresponding effluent standards are sufficient to protect the aquatic life uses for the CAWS and LDPR. Therefore, the Board proposed the repeal of barium, oil/fat/grease, and TDS water quality standards and proposed a human health standard for phenol.

Water Quality Standards With Little Controversy

IEPA proposed several standards based either on the national criteria documents or the current General Use water quality standards. Those proposed water quality standards are for: pH, lead, chromium (hexavalent, total), benzene, ethylbenzene, toluene, xylene, nickel (dissolved), iron, and zinc (dissolved). After a careful review of the record, the Board found that proceeding to first notice with IEPA's proposed water quality standards for pH, lead, chromium (hexavalent, total), benzene, ethylbenzene, toluene, xylene, nickel (dissolved), iron, zinc (dissolved), arsenic, chromium (trivalent, total), silver, and the aquatic life standard for mercury was warranted. While concerns were raised by participants regarding pH and silver, no suggestions were offered for alternative standards. Additionally, the record supports a finding

that the proposed standards are either equivalent to the current General Use water quality standards or are based on the national criteria. Therefore, the Board proposed at first notice IEPA's proposed water quality standards for pH, lead, chromium (hexavalent, total), benzene, ethylbenzene, toluene, xylene, nickel (dissolved), iron, zinc (dissolved), arsenic, chromium (trivalent. total), silver, and the aquatic life standard for mercury.

Total Ammonia Nitrogen

IEPA added Section 302.412, a stand-alone provision to address the water quality standard for ammonia. IEPA proposed standards based on the most recent national criteria document at the time of the proposal. PC 1401 at 5. IEPA stated that USEPA adopted a new ammonia criterion in April 2013; however, because IEPA will address the new standards on a statewide basis, its current proposal remains the same as originally proposed. *Id.* USEPA insisted that IEPA's proposed ammonia standards are not consistent with the most recent 304(a) criteria toxicity data sets, and the standards do not comply with 40 C.F.R. §131.11(b)(1). USEPA indicated that that the standards should be updated with the newest 304(a) Guidance. PC 1404, Enclosure 1 at 2.

At first notice, the Board shared USEPA's concern that the proposed ammonia standard does not comport with the 2013 national criteria; however, the Board noted that IEPA indicated it plans to address any changes based on the 2013 national criteria document on a statewide basis. The Board found IEPA's approach to be acceptable because the proposed standards are based on the General Use ammonia standards. Additionally, the proposed ammonia standards at Section 302.412 afford early life stage protection for all CAWS and LDPR waters with the exception of CAWS and Brandon Pool ALU B waters, for which conditions to support early life stages do not exist. Therefore, the Board proposed IEPA's total ammonia standard for first notice. The Board sought input from participants including IEPA regarding the applicability of the 2013 national criteria.

Cadmium

For cadmium, IEPA considered using the 2001 national guidance to develop a standard. However, IEPA determined that the derived standard needed adjustment, so IEPA proposed the General Use water quality standard for cadmium for ALU A, ALU B, and UDIP ALU waters. IEPA investigated causes for exceedances of the national criteria for cadmium and found that contaminated sediment is the likely reason for the exceedances. PC 1401 at 7. IEPA was concerned with the data used in the national criteria document and has raised those concerns with USEPA. *Id*. at 8. IEPA determined that at this time the dissolved cadmium water quality standard in the General Use water quality standards will protect the aquatic life uses of CAWS and LDPR. *Id*.

USEPA and Stepan raised concerns regarding IEPA's proposed cadmium standards. The Board acknowledged these concerns; however, the Board expressed reluctance to update the cadmium standard based on USEPA's preliminary analysis. As stated with regard to the total ammonia standard, any changes to the cadmium standard must be done on a statewide basis after a comprehensive evaluation of USEPA's guidance by IEPA. IEPA stated that the current

General Use water quality standard for cadmium is protective of the designated aquatic life uses in CAWS and LDPR. Further IEPA understands that contaminated sediments are the likely reason for the existing exceedances. Therefore, the Board proposed at first notice IEPA's cadmium standard.

Copper

The acute and chronic copper water quality standards are based on the recalculation procedure established in the 1995 national criteria document and not the 2007 update. IEPA choose not to incorporate the 2007 criteria document as the new methodology was complex and a departure from the way copper water quality standards had been developed in the past. USEPA suggested that IEPA "conduct a review of whether or not it is necessary to adopt numeric criteria for recently published 304(a) recommended criteria" including copper. PC 286 at 10. USEPA argues that the copper standard is not consistent with the national criteria and therefore contrary to the CWA. PC 1404, Enclosure 1 at 2. ExxonMobil's testifier indicated that the General Use water quality standards being proposed for the UDIP are of concern especially regarding temperature, chloride, copper, DO, and mercury and suggested that variances are essential to assure that permittees can continue to operate their facilities in compliance. Exh. 488 at 15.

The Board shared USEPA's concern that the proposed copper standard may be insufficient to meet the national criteria, although IEPA indicated that the latest national criteria may not be workable in Illinois. The Board found that the record supported proposing for first notice IEPA's recommended copper water quality standard. However, the Board sought comment from IEPA and other participants to more fully explain why the 2007 national criterion is not workable, and why IEPA's proposal is correct.

Cyanide

IEPA amended the original proposal and recalculated the chronic value for cyanide. IEPA removed rainbow trout from the species list when considering a cyanide standard, as rainbow trout are not found in Illinois outside Lake Michigan. As a result, the remaining four most sensitive species used in the recalculation are brook trout, yellow perch, bluegill, and black crappie. *Id.* The recalculated chronic value for cyanide then becomes 9.799 µg/L, which IEPA recommends rounding up to 10 µg/L. *Id.* IEPA also proposed moving cyanide to the tables in Section 302.407 from its own section in Section 302.410.

The Board found that the record supported IEPA's recommended cyanide water quality standards, and the Board proposed those standards for first notice.

Fluoride and Manganese

IEPA originally withdrew the fluoride and manganese standards but reinserted the standards in the amended proposal. Exh. 481 at 15-16. IEPA added these standards in response to concerns raised by USEPA. IEPA noted that fluoride and manganese have no national criteria developed for the protection of aquatic life uses. *Id.* The Board proposed for first notice water

quality standards for fluoride and manganese. Because the Board adopted water quality standards for General Use waters, the Board found that adopting standards for General Use waters supported adding fluoride and manganese water quality standards to protect aquatic life in CAWS and LDPR.

Selenium

IEPA proposed no changes in the selenium (total) water quality standard from that in the existing Secondary Contact and Indigenous Aquatic Life standard. SR at 74. The current standard is 1.0 mg/L. IEPA explained that it did not use USEPA's criteria for selenium as there is "uncertainty surrounding the science used in developing" the most recent draft rules. PC 1401 at 29. USEPA recommended that IEPA "consider revising [them] to be consistent with either the current chronic criteria recommendation of 5 µg/L or the draft fish tissue-based selenium criteria." PC 286 at 9-10. As with copper, USEPA argues that the selenium standard is not consistent with the national criteria and therefore contrary to the CWA. PC 1404, Enclosure 1 at 2.

As with copper, the Board shares USEPA's concern regarding IEPA's proposed selenium standard. However, the Board was equally concerned that the science used in developing USEPA's draft criterion may be in question. Therefore, the Board found that the record supports proceeding to first notice with the selenium standard proposed by IEPA. The Board sought input from the participants in order to more fully understand why USEPA's proposed national criteria for selenium should not be adopted by the Board.

Human Health Standards

USEPA noted that CAWS and LDPR are both used for fishing, and it is presumed that fish are "then eaten." PC 286 at 10. USEPA therefore recommended that IEPA "determine if additional human health criteria are warranted to adequately protect human health from the consumption of contaminated fish caught in CAWS and LDPR based upon review of all [USEPA] recommended criteria for the protection of human health (for consumption of organism only)."

Benzene

The Board found that there is evidence to support proceeding to first notice with IEPA's proposed human health standard for benzene. However, the Board invited additional comment from participants on whether or not this criterion is appropriate.

Mercury

IEPA proposed a human health standard for mercury that mirrors the human health standard found in the General Use water quality standards. IEPA suggested amending the original proposal to allow for a 12-month rolling average versus an annual average and removing the reference to harmonic mean flow. This change was suggested in response to questions raised by Citgo/PDV at hearings. PC 1401 at 21.

Citgo/PDV raised concerns and suggested that the references to harmonic mean flow be removed. ExxonMobil noted that while the UDIP is listed as impaired for mercury, that impairment is based on fish tissue data and not actual water column data. Because of the impairment, ExxonMobil expressed concern that mixing zones will not be allowed for mercury, and the 12 ng/L standard will have to be met in the discharge. Because of its concerns, ExxonMobil proposed a "streamlined regulatory relief mechanism for addressing mercury." PC 1406 at 17-18.

Although initially expressing concerns with IEPA's proposed mercury human health criterion, USEPA concluded that IEPA's proposed 12 ng/L mercury criterion could potentially be scientifically defensible and protective of the use designations. PC 1404 at 3. USEPA recommended that, when Illinois submits its water column criterion to USEPA, it should include information addressing the feasibility of site-specific bioaccumulation factors, conversion factors, and bioaccumulation models, as well as documentation of CAWS-LDPR characteristics and the applicability of the 12 ng/L criterion. *Id*. at 4.

The Board found that IEPA's amended proposal for the human health standard for mercury is supported by the record. IEPA addressed concerns by Citgo/PDV by removing references to the harmonic mean flow and allowing a 12-month rolling average. Further, USEPA appears to be willing to approve the 12 ng/L standard, if more information is provided by IEPA when IEPA submits the rule for USEPA's final review. Therefore, the Board proceeded to first notice with a mercury human health standard of 12 ng/L.

The Board expressed reluctance to establish a regulatory relief mechanism for a bioaccumulative chemical of concern, such as mercury, in this record. The Board invited ExxonMobil to provide more information during first-notice on this issue, and sought comment from other participants on this proposed standard.

Dissolved Oxygen

IEPA proposed different DO standards for each of the three aquatic life uses, with different aquatic life use designations. IEPA proposed standards for UDIP ALU that are identical to those recommended for General Use waters. SR at 58. For CAWS ALU A waters, IEPA proposed a standard that reflects the lower biological potential of these waters as compared to UDIP ALU. SR at 59. The District and Environmental Groups filed an agreement stating, "The DO criteria proposed by IEPA are appropriate to protect the 'A' and 'B' uses for which they are proposed." PC 1366 at 3. The agreement also stated, "A 5-year variance allowing the District time to work towards compliance with the proposed DO criteria is appropriate." PC 1366 at 2.

USEPA expressed concerns that the site-specific DO standard for the Lower North Shore Channel was inadvertently removed in the amendments made in Subdocket A (Water Quality Standards and Effluent Limitations for the Chicago Area Waterways System and Lower Des Plaines River: Proposed Amendments to 35 Ill. Adm. Code 301, 302, 303, and 304, R08-9(A) (Aug. 18, 2011)). USEPA recommended that the DO standard be restored.

The Board noted that IEPA's proposal includes standards for DO in all stream segments, including the Lower North Shore Channel. Therefore, USEPA's concern regarding DO appears to have been addressed. As to the agreement by the District and the Environmental Groups, the Board took no position on whether or not a variance will be granted. Given the current status of variances, and USEPA's positon, the Board cannot predict whether or not a variance from the DO standards will be supported by IEPA and USEPA. Further, the Board cannot prejudge the request.

The Board found that the proposed DO standards are supported by the record. The Board proceeded to first-notice with the DO standards originally proposed by IEPA and as amended by IEPA in subsequent filings. The Board noted that the proposed standards are consistent with the General Use water quality standards.

Chloride Water Quality Standards

Another key issue in this subdocket is determining appropriate chloride water quality standards for CAWS and LDPR. The Board will not reiterate the comments from first notice, but rather will summarize the Board's decision on chloride standards as proposed at first notice. The Board proposed for first notice a year-round, single-value 500 mg/L chloride water quality standard for the UDIP ALU, ALU A, and ALU B waters as well as a site-specific rule for the CSSC applicable during the winter months of December 1 through April 30. The Board also proposed for first notice amendments to the national pollutant discharge elimination system (NPDES) permitting rules to incorporate federal provisions pertaining to the application of best management practices (BMPs) to achieve effluent limitations and standards.

More specifically, the Board observed that the single-value 500 mg/L chloride water quality standard as proposed by IEPA at first notice was supported by IEPA, Citgo/PDV, and ExxonMobil for the summer months, while USEPA states the 500 mg/L standard would be sufficient, specifying no seasonal timeframe. PC 1401 at 28-30, PC 1404 Enc. 1 at 1, 4-5, Exh. 493 at 5, PC 1413 at 2. As to which months would be considered "summer", the Board found that based on the 2001-2012 data from the District presented by IEPA showing no exceedances from May 1 through November 30, the appropriate timeframe for a summer chloride water quality standard would be May 1 through November 30. PC 1401 at 30-31, 12/17/13 Tr. at 171.

For the "winter" months of December 1 through April 30, the Board noted that, besides the single-value 500 mg/L standard for chloride, IEPA did not address what other standards IEPA and USEPA are considering that would apply during the winter. Other than Citgo/PDV's proposal for the CSSC, no party proposed any other specific standard to apply during the winter. The Board found that the record contained sufficient information to proceed with adoption of chloride water quality standards for UDIP, ALU A and ALU B.

The Board found that Citgo/PDV properly employed USEPA's 2013 recalculation procedures to derive scientifically defensible site-specific acute and chronic water quality standards for chloride in the CSSC as USEPA stated could be done. Those standards are 620 mg/L as a chronic water quality standard and 990 mg/L as an acute water quality standard. The

Board observed that Citgo/PDV's site-specific standards derivation was specific to the CSSC during the winter months and did not apply to all waters designated ALU B, in particular Brandon Pool. For all other segments in CAWS and LDPR, the Board noted that no other site-specific standards were proposed or derived consistent with USEPA's 2013 recalculation procedures.

The Board proceeded to first notice with a year-round 500 mg/L water quality standards for CAWS and LDPR except for the CSSC. The Board proposed Citgo/PDV's standards of 620 mg/L as a chronic water quality standard and 990 mg/L as an acute water quality standard for the months of December 1 through April 30 for the CSSC.

Compliance Mechanisms for Chloride Water Quality Standard

Prior to first notice, the Board received suggestions, testimony, and public comment from IEPA, USEPA, and NPDES permitted dischargers on compliance mechanisms for any chloride water quality standard adopted under the proposed rule revisions. The suggested compliance mechanisms include multiple discharger variances, water body variances, revisions to the mixing zone rules, and use of BMP. After considering each of the alternatives, the Board proposed for first notice amendments to the NPDES permitting rules to incorporate federal provisions pertaining to the application of BMPs to achieve effluent limitations and standards for chloride.

Concerning the multiple discharger variance or water body variance, the Board observed that a time-limited water body variance or multiple discharger variance as suggested by USEPA and IEPA assumes by its very nature that the situation is temporary. Such a variance also assumes that a compliance plan could be implemented by the NPDES permitted dischargers to achieve a standard considered protective of the designated use or to eventually attain uses specified in the CWA. Although Citgo/PDV has provided information in the record indicating that measures are being taken by various applicators to reduce the quantity of road salt for deicing, such as anti-icing techniques and use of beet juice as an alternative to road salt, there is no information in the record that demonstrates such sources are planning to reduce the use of road salt to the point of compliance with the 500, 620, or 990 mg/L chloride water quality standards during the winter in the foreseeable future. With no feasible alternative to chloride deicing salts on the horizon, the Board noted that temporary relief does not reflect the enduring reality that as long as it snows and water freezes on the roadways in this highly urbanized watershed, chloride will continue to be used for road safety in the foreseeable future.

USEPA explains that states can adopt water body variances "where it is not feasible to immediately attain criteria necessary to protect a designated use". PC 1404 Enc. 1 at 5. The Board stated that it understands that IEPA is still working with USEPA on an approvable water body variance and BMPs for point sources and non-point sources. PC 1401 at 28-30. At first notice, the record contained USEPA's current national criteria document for chloride, and IEPA's rationale for relying on a different methodology using the 500 mg/L value for evaluating the toxicity of chloride, as well as other relevant studies introduced in connection with Citgo/PDV's proposal. Although USEPA is planning for a release of an updated national chloride criteria document, USEPA recommended that the Board move forward without waiting. PC 1404 at 5. Therefore, the Board proceeded with the only information available in the record,

noting that anyone may file a new rulemaking or a site-specific rulemaking with the Board to establish different chloride water quality standards that would be protective of the designated uses as further scientifically defensible information is brought to bear.

It was suggested in testimony that one of the recommendations presented involved amending the mixing zone rule at 35 Ill. Adm. Code 302.102 to provide the opportunity for a mixing zone even when the applicable water quality standards are exceeded if the NPDES-permitted discharger employs a BMP plan for the particular pollutant. Citgo/PDV reasoned that with BMPs offsetting the contribution, the discharger would be eligible for a mixing zone because it would no longer be causing or contributing to water quality exceedances. Exh 492 at 12, Exh. 492 at 13.

The Board noted that its current rules state, "No mixing zone is allowed where the water quality standard for the constituent in question is already violated in the receiving water." 35 Ill. Adm. Code 302.102(b)(9). In addition, IEPA's proposal includes the following provision for CAWS/LDPR: "The CS [chronic standard] shall not be exceeded outside of waters in which mixing is allowed pursuant to Section 302.102 of this Part." *See* proposed 35 Ill. Adm. Code 302.407(d)(2), s*ee also* proposed 35 Ill. Adm. Code 307.410(d). The Board believed that the December 1 to April 30 standard for the CSSC may be sufficient to address Citgo/PDV's concerns. Additionally, while ExxonMobil supported Citgo/PDV's proposed mixing zone revisions, as with the request for a different chloride standard for UDIP, the Board found that the record lacks support for a mixing zone change in the UDIP. Therefore, the Board declined to propose Citgo/PDV's suggested revisions to the mixing zone. The Board encouraged participants to provide additional comment, including specific language and data to support a change in the rule at second notice.

The Board did find that the record indicated the major cause and contributor to winter chloride levels in CAWS and LDPR are the storm water discharges from road salting activities through the nonpoint sources and municipal separate storm sewer systems. SR at 76, PC 1401 at 29. The Board noted that municipal separate storm sewer systems are being addressed through the NPDES General Permit to reduce discharge of pollutants like chloride over time. However, with major point source dischargers like Citgo/PDV contributing on the order of 0.2% of the quantity of chloride in the CSSC when concentrations are above 500 mg/L (PC 1410 at 6), the high chloride concentrations that occur in the winter will continue to occur into the foreseeable future even without the input of chloride by these point source dischargers.

The Board noted that in Illinois, NPDES permitting rules incorporate the federal provision of 40 C.F.R. §122.44(d)(1)(ii) at 35 Ill. Adm. Code 309.143(a):

> In determining whether a discharge causes, has the reasonable potential to cause, or contributes to an in-stream excursion above a narrative or numeric criteria within a State water quality standard, the permitting authority shall use procedures which account for existing controls on point and nonpoint sources of pollution, the variability of the pollutant or pollutant parameter in the effluent, the sensitivity of the species to toxicity testing (when evaluating whole effluent

> toxicity), and where appropriate, the dilution of the effluent in the receiving water.

However, the federal provision describing the use of BMPs in NPDES permitting under 40 C.F.R. §122.44(k) does not appear in the Board's NPDES permitting rules under Part 309. To facilitate the use of BMPs in the context of the NPDES permitting rules for not only municipal separate storm sewer systems, the Board proposed for first notice the addition of the substantive language 40 C.F.R. §122.44(k) to Part 309. This language provides that NPDES permits may contain BMPs "to control or abate the discharge of pollutants when…(2) Authorized under section 402(p) of the CWA for the control of storm water discharges;…or (4) The practices are reasonably necessary to achieve effluent limitations and standards or to carry out the purposes and intent of the CWA." 40 C.F.R. §122(k)(2). This provision allows the use of BMPs to achieve effluent limitations. In order to achieve effluent limitations, Citgo/PDV proposed a BMP plan as part of an NPDES compliance plan that would use verifiable monitoring to quantify the waste load reduction of their BMPs by quantifying how much deicing salt was used at the facility and the mass in their effluent. 12/17/13 Tr. at 183.

The Board invited comments on the proposed first notice language for 35 Ill. Adm. Code 309. In particular, the Board requested comments on how the provisions of 40 C.F.R. §122.44(k) can be used to achieve chloride effluent limitations and standards, especially when water quality standards are exceeded, to address compliance and mixing zone issues for dischargers such as Citgo/PDV, ExxonMobil, the District, and entities that discharge once through cooling water.

Temperature Standards

Prior to proceeding with first notice, the Board received proposals for temperature standards for CAWS and LDPR from IEPA, Midwest Generation, and the Environmental Groups. While the proposals from IEPA and the Environmental Groups addressed temperature standards for UDIP, CAWS ALU A, and ALU B, Midwest Generation proposals focused on UDIP and CAWS ALU B. While appreciative of the time and effort devoted by the participants in developing the various proposals, the Board declined to move forward with the participants' thermal standards proposals, but instead proposed the General Use temperature standards for all three aquatic life use designations in CAWS and LDPR.

Regarding IEPA and the Environmental Groups proposals, the adoption of either IEPA's or the Environmental Groups' proposal would result in the application of more stringent standards to waters designated for the protection of lower aquatic life use than the General Use waters. Because there is no proposal before the Board to update the General Use thermal standards to be more stringent than the current General Use standards, the Board found that it would be inappropriate to adopt thermal standards for CAWS and LDPR that are more stringent than the current General Use standards.

In addition to the conceptual problems with adopting more stringent standards than General Use standards for lower aquatic life use waters, the Board noted that the participants, including Midwest Generation, Stepan, and ExxonMobil raised significant concerns regarding

the methodology and the science used by MBI in developing the thermal standards options relied upon by IEPA and the Environmental Groups. In this regard, the Board agreed with Midwest Generation that adopting thermal standards based on questionable methodology would set an untenable precedent for any review of the current General Use standards. Thus, the Board determined it would be premature to adopt IEPA's or the Environmental Groups' more stringent thermal standards for CAWS and LDPR without first addressing the General Use waters.

As to the proposal by Midwest Generation, the Board, cognizant of misgivings raised by IEPA and the Environmental Groups and having its own concerns, declined to adopt the alternate proposals put forth by Midwest Generation for first notice. First, the Board found that the proposal based on Petition of Commonwealth Edison Company for Adjusted Standard from 35 Ill. Adm. Code 302.211(d) and (e), AS 96-10 (Oct. 3, 1996) is not appropriate for CAWS and LDPR without further evaluation of the current conditions in CAWS and LDPR. The Board believed that more current data reflecting recent changes in thermal regime are needed before considering a standard adopted almost 20 years ago.

Next, the Board found that while the methodology used in the EA proposals may have some merits, the proposed thermal standards may not be protective of the aquatic life expected to be in the UDIP waters. While the Board noted in Subdocket C that the "UDIP may not fully meet the CWA aquatic life goal" and noted that "[t]he Board is mindful that, particularly in the area of temperature, water quality standards may need to be adapted for the UDIP", the Board was unconvinced that the EA proposals will be protective of aquatic life expected to be present in UDIP waters. *See* Water Quality Standards and Effluent Limitations for the Chicago Area Waterway System and Lower Des Plaines River: Proposed Amendments to 35 Ill. Adm. Code 301, 302, 303, And 304, R08-9(C), slip op. at 10-11 (Feb. 6, 2014).

Board's First Notice Proposal

The Board proposed for first notice the General Use temperature standards for UDIP, CAWS ALU A, and CAWS and Brandon Pool ALU B waters. As discussed above, the Board found that the thermal standards proposed by IEPA and the Environmental Groups are inappropriate for CAWS and UDIP since they are more stringent than General Use standards. Further, Midwest Generation's proposals may not be protective of the designated aquatic life use of UDIP waters. Additionally, the Board found that the existing Secondary Contact and Indigenous ALU standards are inadequate to protect the new aquatic life use designations adopted by the Board in Subdocket C. Given the significant issues associated with the various alternate proposals in the record, the Board found that the existing General Use temperature standards provide the most appropriate alternative for protecting aquatic life in UDIP, CAWS ALU A, and CAWS ALU B waters.

The existing General Use thermal standards, which have been in effect since the Board adopted them early in the 1970s, provide a federally-approved alternative to the various proposals in the record. In this regard, the Board noted that when faced with a similar situation regarding bacterial water quality standards in Subdocket B, USEPA recommended the Board use existing federally-approved fecal coliform standards in Subdocket B:

> U.S. EPA also recommends that the Board clarify in its second notice opinion, order and rule that Illinois' existing, federally-approved fecal coliform criteria for protection of primary contact recreation, 35 Ill. Adm. Code 302.209, apply to these five segments. PC 994.

In R08-9(B), the Board stated,

> Therefore, because the General Use water quality standard has been adopted by the Board and approved by the USEPA for statewide implementation, the Board will adopt the fecal coliform water quality standard for protected waters found in Section 302.209, for the protection of Primary Contact Recreation waters. Water Quality Standards and Effluent Limitations for the Chicago Area Waterway System and Lower Des Plaines River: Proposed Amendments to 35 Ill. Adm. Code 301, 302, 303, and 304, R08-9(B), slip op. at 7 (Feb. 2, 2012).

While the Board recognized that the General Use fecal coliform standard was adopted for Primary Contact Recreational Use waters, the application of General Use thermal standards to lesser use designations is justified due to the lack of viable alternative options. Further, the Board noted that most of the other water quality standards proposed for CAWS and UDIP waters are the same as General Use, with the exceptions of DO and total ammonia standards for ALU A and ALU B waters; and arsenic, chromium, mercury, phenols, and silver, which reflect more current National Criteria Documents than what was considered for General Use.

The Board noted that the excursion hours provision allows for occasional exceedances of thermal limits. The Board retained the excursion hours provision in the first notice temperature standards for CAWS and UDIP. That provision allows an increase of up to 2.8° F to occur for 1% of the hours in a 12-month period. However, the Board invited comments from IEPA and other participants on this issue.

Given that the General Use standards do not include a cold shock standard and the lack of any documented incidents of cold shock in CAWS and LDPR, the Board declined to propose a cold shock provision at first notice. However, the Board invited IEPA and other participants to specifically address: whether the proposed General Use standard is protective of cold shock in CAWS and LDPR; if a cold shock standard is necessary; whether such a standard be based on a narrative standard like the one proposed by IEPA or a numeric standard similar to the one proposed by Midwest Generation; and if a numeric standard is appropriate, whether the standard proposed by Midwest Generation provides protection against cold shock.

Compliance Alternatives

Midwest Generation, ExxonMobil, and Stepan asked that the Board consider relief mechanisms such, as a multi-discharger variance, or delay the effective date to allow additional time for dischargers to attain compliance with or seek relief from the proposed thermal standards. PC 1403 at 3, 1413 at 4-6, and 1405 at 20. The Board appreciated participants' concerns regarding immediate compliance with the proposed thermal standards upon final

adoption by the Board. The record is clear that thermal dischargers to CAWS and LDPR may need some type of short-term or long-term relief to achieve compliance with the temperature standards. The Board found that delaying the effective date of the thermal standards would allow time for dischargers to achieve compliance or seek relief. The Board proposed to delay the effective date of the thermal standards by eighteen months for CAWS and Brandon Pool ALU B and UDIP waters. The Board did not extend the delayed effective date of thermal standards to CAWS ALU A waters, because the Board was not aware of any thermal discharger to those waters that may be impacted by the proposed standards. The Board believed that the proposed eighteen-month delay provides sufficient time for dischargers to achieve compliance or seek relief from the proposed standards. The Board invited participants to comment on the proposed delayed effective date of the thermal standards.

Miscellaneous Changes to IEPA's Proposal

The Board indicated in Subdocket C that when proceeding in Subdocket D, the Board would move each aquatic life use to its own section. *See* Water Quality Standards and Effluent Limitations for the Chicago Area Waterway System and Lower Des Plaines River: Proposed Amendments to 35 Ill. Adm. Code 301, 302, 303, And 304, R08-9(C), slip op. at 61 (Nov. 21, 2013). Therefore, the proposed rule moved ALU B from Section 303.235 to its own section at Section 303.240. As a result references to Section 303.240 have been added where appropriate.

In Section 302.408, IEPA in its amended proposal removed the phrase "on an average basis" from the subsection dealing with temperature in the ALU A waters. IEPA did not propose removal from the subsections dealing with ALU B waters or UDIP waters. The Board proceeds to first notice removing that language from all the subsections.

SUMMARY OF PUBLIC COMMENTS

The Board received several public comments during the first-notice period. The following provided comments:

USEPA (PC 1414)
IEPA (PC 1415)
District (PC 1416, PC 1424)
Citgo/PDV (PC 1417, PC 1423)
Midwest Generation (PC 1418, PC 1427)
Stepan (PC 1419, PC 1426)
ExxonMobil (PC 1420, PC 1425)
Ingredion Incorporated (PC 1421)
Environmental Groups (PC 1422, PC 1428)

The Board will summarize the comments below.

USEPA (PC 1414)

On November 19, 2014, the USEPA submitted comments on the Board's first notice opinion and order for Subdocket D. USEPA provided comments and recommendations on six major issues.

Sampling

USEPA raises concerns with the "duration and frequency components for all of the criteria included in the Illinois Pollution Control Board's first notice proposal in an omnibus manner". PC 1414 at 1. USEPA notes that while the record is clear that the chronic aquatic life standards in the first notice proposal were based on a four-day duration period, the Board proposed a duration period that could be longer. In Section 302.407(b), the Board proposes that the duration be for "any period of *at least* four days". *Id.* USEPA questions whether this "unbounded duration" is based on "sound scientific rationale and would be protective of the designated use". *Id.* USEPA reiterates its previous comments that the Board remove "at least" from this phrase so that the duration component of the chronic standards would be "any period of four days", which is consistent with the scientific underpinnings of the chronic aquatic life criteria. *Id.* USEPA believes that because the duration component applies to all chronic aquatic life standards, this issue needs to be "adequately addressed by the Board before [US]EPA will be able to approve any chronic aquatic life criteria that the Board ultimately adopts". *Id.*

USEPA also raises concerns about the Board's "inclusion of minimum sampling requirements within the criteria in Sections 302.405(e)(3), 302.407(b), and (c) and 302.412(d)". PC 1414 at 1. USEPA reiterates its comments from April 14, 2014, where it stated that "there is no scientific basis to conclude that Illinois' aquatic life uses can be protected by water quality standards that render the standards that are designed to protect these uses ineffective simply because sampling requirements deemed necessary for measuring the level of pollutants in the receiving stream have not been complied with". *Id.* at 1 and 2. USEPA then proposes language changes to remove minimum sampling requirements from water quality standards. *Id.* at 2. USEPA further opines that if the Board wishes to include minimum sampling requirements in these regulations, that the Board "should separate any such provisions from the criteria themselves and include them in a section of Illinois regulations other than Section 302, to eliminate any link between the criteria themselves and monitoring provisions relevant to assessing attainment of those criteria". *Id.*

Chicago River

USEPA notes that it was proposed that the Chicago River meet General Use standards for aquatic life uses, so was not included in Section 303.230 or 303.235. PC 1414 at 2. The Board's language only includes the protection of aquatic life uses, while General Use waters are intended also to protect wildlife, agricultural, industrial, and aesthetic uses. USEPA recommends that Section 303.204 be clarified "to ensure adequate protection of the designated uses for the Chicago River and clarify the effective water quality criteria for the Chicago River in Sections 302.201 and 302.402". *Id.*

Standards for Protection of Wildlife and Human Health

USEPA observes that Sections 303.204, 302.401, and 302.402 describe the standards related to the protection of aquatic life, but "the applicable criteria in Subpart D includes aquatic life, wildlife and human health criteria". PC 1414 at 2. USEPA, therefore, proposes language revisions to these sections to ensure that aquatic life, wildlife, and human health uses and criteria are adequately recognized in the descriptions of the applicable standards". *Id.*

USEPA is also concerned about the application of Subpart F to Section 302.410, which is entitled "Substances toxic to aquatic life". PC 1414 at 4. This section "should be revised to ensure that the application of Illinois' Subpart F procedures to derive additional water quality criteria provides for protection of human health". *Id.* USEPA recommends deleting the words "toxic to aquatic life" in Section 302.401, but recommends clarifying that "this section applies to substances not otherwise listed in Subpart D similar to the provisions included in Subpart B". USEPA cites Section 302.210 entitled "Other toxic substances" and suggests that separate sections containing this language be applied to all other CAWS and LDPR waters in order to protect designated uses. *Id.* USEPA proposes specific language changes to address this concern. *Id.*

Specific Standards

A fifth issue USEPA raises relates to the defensibility of proposed standards for seven constituents: temperature, selenium, chloride, copper, cadmium, DO, and ammonia. PC 1414 at 4.

Temperature. Regarding temperature, USEPA first recommends that the Board adopt IEPA's proposed temperature standards dated May 24, 2013, except as related to excursion hours. USEPA next notes that the proposed standards are not the same as those that apply to General Use waters in that the narrative temperature standards at Section 302.211(b), (c), and (d) were not included. USEPA states that "if the Board elects to adopt the numeric criteria applicable to General Use waters for the CAWS and LDPR, the narrative temperature standards at Section 302.211(b), (c), and (d) should be included as well". *Id.* at 4 and 5. Finally, USEPA urges the Board to "adopt temperature criteria for the UDIP that are protective of the adopted designated uses consistent with 40 C.F.R. §131.11(a)(1) and 40 C.F.R. §131.11(b)(1)". *Id.* at 5.

Selenium. Also of concern to USEPA is selenium. PC 1414 at 5. USEPA recommends that the Board "adopt the chronic water column total recoverable selenium criterion of 5 µg/L consistent with EPA's 304(a) criteria document published in 1987". *Id.* USEPA asserts that this criterion is reasonable because it is based on the protection of warmwater fish; is likely to be protective of aquatic life uses in flowing waters; and is likely to be protective of warmwater fish present in the CAWS and LDPR, such as sunfish, bass, and minnow genera, "which represent 3 of the 5 most sensitive fish genera in the selenium dataset". PC 1414 at 5.

Chloride. USEPA expresses concern with the Board's proposal for chloride, primarily because USEPA "continues to question whether the winter chloride criteria proposed for the CSSC are based upon a sound scientific rationale as required by 40 C.F.R. §131.11 since the

deletion procedure does not appear to have been completed in accordance with [US]EPA guidance". PC 1414 at 5. USEPA is concerned that the deletion of *Ceriodaphnia, Sphaerium,* and *Lampsilis* GMAVs is inappropriate because "these species should be considered to 'occur at the site' as defined in EPA's 2013 revised deletion process guidance or because they serve as necessary surrogates for other species that occur at the site". USEPA further questions whether all appropriate new toxicity data have been added to the toxicity database that is used to derive the standards. *Id.*

USEPA also raises concerns as to whether the proposed standards "will ensure that downstream aquatic life uses in the Lower Des Plaines River will be protected". *Id.* at 6. Finally, USEPA is concerned that the proposed chloride standards "were calculated at a hardness of 300 mg/L, but information in the record suggests that the CAWS and LDPR have hardness concentrations less than or equal to 200 mg/L", and appropriate duration and frequency are not included in the proposed standards. *Id.* USEPA recommends that the Board consider each of these concerns to demonstrate that there is "sound scientific rationale for the proposed site-specific winter criteria for the CSSC and whether the proposed site-specific winter criteria are protective of designated aquatic life uses". *Id.*

Finally, USEPA expresses support for the 500 mg/L acute chloride criterion at Section 302.407(g) as being scientifically defensible. PC 1414 at 6. However, if the Board is considering adoption of a new subdocket to address chloride standards, USEPA recommends retaining the "current total dissolved solids criteria of 1500 mg/L until such time that chloride criteria and/or chloride variance procedures are adopted and approved by USEPA". *Id.*

Copper. USEPA raises issues with the Board's proposal for copper. PC 1414 at 6. The Board proposed hardness-based copper standards because it did not believe that the biotic ligand model (BLM)-based criteria "are workable". USEPA believes that adequate information exists to estimate the numeric criteria for copper for each segment of CAWS and LDPR using the BLM and outlined a process whereby these criteria could be calculated. *Id.* at 7. USEPA recommends that the "Board calculate and adopt BLM-derived criteria for each segment or revise the hardness-based copper criteria equations by applying the recalculation procedure to an updated toxicity database". *Id.*

Cadmium and Dissolved Oxygen. USEPA provides observations concerning the proposed standards for both cadmium and DO. In April 2014, USEPA concluded that the proposed cadmium standards are protective of aquatic life uses, which it continues to believe is a sound scientific rationale consistent with 40 C.F.R. §131.11. However, the Board provided an alternate rationale for the proposed standards. PC 1414 at 7. Similarly, the Board proposed DO criteria for the CSSC and Brandon Pool using a different rationale from that explained by IEPA. USEPA stated that it "appears that the Illinois EPA justification is based on a sound scientific rationale consistent with requirements of 40 C.F.R. §131.11. *Id.*

Ammonia. USEPA raises concerns with the Board's proposed ammonia standards. PC 1414 at 7. USEPA asserts that these standards "are not derived using EPA's most recent 304(a) criteria toxicity datasets". *Id.* USEPA states that if the Board "elects to adopt standards based upon EPA's 1999 ammonia criteria document, the Board should address EPA's January 29, 2010

comments…regarding the protection for Aquatic Life Use B waters, including…the recommendation that Aquatic Life Use B waters should ensure protection of early life stages of fish during the months of March through October". *Id.*

Subdocket A

The final issue raised by USEPA relates to a "number of revisions to Illinois' water quality standards that the Board adopted in Subdocket A", which USEPA had disapproved in a letter dated May 16, 2012. PC 1414 at 8. USEPA urges the Board to make these changes to Illinois' water quality standards "as soon as possible". *Id*.

IEPA (PC 1415)

IEPA indicates that it agrees with the Board's proposal on the "non-controversial issues" and urges the Board to proceed to second notice with those changes. PC 1415 at 3. IEPA identified eleven issues to address from the Board's first-notice opinion and order. IEPA addressed each of the issues in turn.

Bubbly Creek

IEPA "recommends" that the Board adopt the water quality standards IEPA originally proposed in 2007. PC 1415 at 4. If the Board does not adopt those standards for Bubbly Creek, IEPA recommends that Bubbly Creek retain its current water quality standard, until the issues surrounding Bubbly Creek are resolved. *Id*.

Total Ammonia Nitrogen

IEPA reconfirms its commitment to address the 2013 national criteria document for ammonia on a state-wide basis. PC 1415 at 4. IEPA notes that the 2013 national criteria document is more stringent than the current ammonia regulations, that most existing facilities will not be able to meet the 2013 national criteria ammonia limits with existing controls, and may therefore need to upgrade facilities. *Id*. at 4-5. These upgrades could be expensive and IEPA believes that all stakeholders in the state should be involved in the implementation of the 2013 national criteria. *Id*. at 5. IEPA notes that on October 29 and 30, 2014, national stakeholders met in Washington to discuss problems with implementation of the 2013 national criteria document for ammonia. *Id*. IEPA believes that these issues should be addressed before IEPA proposes the adoption of the ammonia criteria in Illinois. *Id*.

Copper

IEPA states that the 2007 Update of Ambient Water Quality Criteria for Copper is a site-specific derivation of the copper criteria. PC 1415 at 5. IEPA quotes:

> The biotic ligand model (BLM) requires ten input parameters to calculate a freshwater copper criterion (a saltwater BLM is not yet available): temperature, pH, dissolved organic carbon (DOC), calcium, magnesium, sodium, potassium,

> sulfate, chloride, and alkalinity. *Id*., quoting USEPA fact sheet for the *2007 Update of Ambient Water Quality Criteria for Copper*.

IEPA points out that neither it nor the District collect DOC.

IEPA explains that the BLM-based criteria can be more stringent than the current copper criteria, and in certain cases the current standard may be too stringent for particular water bodies. PC 1415 at 5. IEPA offers that USEPA expects that the application of the new copper model will eliminate the need for costly, time-consuming site-specific modifications and more appropriate criteria over all. *Id*. IEPA indicates that if a discharger believes the current standard is too stringent, that discharger could use the water effect ratio for support of a site-specific water quality standard. *Id*.

According to IEPA, the BLM methodology has not been used on a state-wide basis to set a water quality standard. PC 1415 at 6. IEPA uses the current criteria extensively in permitting, including the 25th percentile hardness at the representative ambient water quality monitoring network to determine the permit limit. *Id*. IEPA raises concerns that there are implementation issues with the BLM methodology, and these issues need to be addressed before IEPA proposes the copper standards in a state-wide rulemaking. *Id*.

Selenium

IEPA concedes that the most recent national criteria for selenium are more stringent than Illinois' current standard; however, IEPA is concerned about the science behind the national criteria document. PC 1415 at 6. IEPA notes that USEPA is reevaluating the most recent national criteria for selenium. *Id*. IEPA states that when the draft national criteria become final, IEPA "can start the process of adopting the national criteria document". *Id* at 6-7.

Chloride

IEPA "appreciates the Board's attempt to address the issue of chloride water quality standards for these waters." PC 1415 at 7. However, "[T]he [IEPA] does not support the action taken by the Board in its First Notice Opinion and Order" with regard to the year-round single-value 500 mg/L chloride standard. PC 1415 at 7. IEPA continued, "There will still be wide spread non-compliance if the water quality standard for chloride proposed in the First Notice Opinion and Order is adopted by the Board", and referred to information provided for specific segments of CAWS and LDPR. PC 1415 at 7, Att. 1. Based on 11 years of data from 2001 through the end of 2012 during the winter season (December – March), IEPA listed the percentage of time chloride concentrations exceeded 500 mg/L:

> North Shore Channel: 8%
> North Branch Chicago River: 13%
> South Branch Chicago River: 4.4%
> South Fork of South Branch Chicago River (Bubbly Creek): 4%
> CSSC: 6%
> Cal-Sag Channel: 2.6%

Little Calumet River: 2.3%
Des Plaines River: 6% (based on 2001 data only)
Grand Calumet and Calumet Rivers: 0%
PC 1415 Att. 1

IEPA does not support the Board's proposal for a site specific standard for the CSSC as the approach only helps Citgo/PDV and does not address the "widespread problem that result by the adoption" of the Board's proposal. PC 1415 at 7. IEPA continues to support the 500 mg/L water quality standard for the non-winter months and believes that the Board' proposal for Citgo/PDV in the winter months does not address the problems the State is facing with deicing issues. *Id*. IEPA also has reservations on whether or not USEPA would approve the Board's proposal, and IEPA stresses that adoption of the Citgo/PDV proposal by the Board is premature. *Id*. at 7-8.

IEPA again argues that the Citgo/PDV proposal is not protective of aquatic life use. As an example, IEPA raises concerns with the removal of *Ceriodaphina dubia* from the chloride criteria dataset. PC 1415 at 8. IEPA is unconvinced that this species is absent in the winter months and opines that the "minimal collection effort expended on winter collection" is not sufficient to determine the absence of the species. *Id*. IEPA further opines that even if *Ceriodaphina dubia* is absent, this species is a common test organism in aquatic toxicology and other closely related species may be present. *Id*. IEPA states:

> Given the limited research on the winter residency of *Ceriodaphina dubia* in these waters, and the suitability of this species as a surrogate for other planktonic crustaceans, the [IEPA] believes that the elimination of this species from the chloride dataset is not appropriate. *Id*.

IEPA indicates that more action has taken place with respect to chloride since the Board's first notice opinion and order. PC 1415 at 9. After discussions with USEPA, IEPA is proposing a "chloride variance approach" that would define non-winter months as May 1st through November 30th, and the chloride water quality standard for those months would be 500 mg/L. *Id*. Winter months would be December 1st through April 30th and the approach is to have "no water quality standard in place because the focus would be on applying BMPs to point sources and non-point sources to achieve the highest attainable stream quality." *Id*. IEPA would give load limits to permit holders based on past loadings under this approach. *Id*.

IEPA reports that during the summer of 2014, IEPA met with the District and the City of Chicago to discuss the variance approach. PCB 1415 at 9. The District has agreed to facilitate a work group, and the Illinois Department of Transportation, Illinois Toll Highway Authority, and Illinois Environmental Regulatory Group have expressed interest in participating. *Id*. The work group will discuss the waterbody specific variance. IEPA anticipates a long-term variance option will result from this discussion, with a possibility of renewal. *Id*. at 10.

IEPA argues that the best approach for chloride at this time is for the Board to create a subdocket to address chloride while the work group proceeds. PC 1415 at 10. IEPA states that

once the work group has completed its work, IEPA would return to the Board with a proposal. *Id*. IEPA commits to providing status reports to the Board.

IEPA also suggests that while the work group is developing its proposal for chloride and a variance, "[T]he current TDS standard should stay in effect until the work group comes forward with a proposal for the Board to consider." PC 1415 at 10-11. IEPA explained it, "had previously proposed that TDS be eliminated once a chloride standard was adopted." PC 1415 at 11. In the statement of reasons, IEPA explained that by proposing chloride and sulfate standards, "This eliminated the need for the surrogate total dissolved solids standard which is currently 1,500 mg/L in these waters." SR at 77. However, since IEPA is asking no action be taken with respect to a chloride water quality standard in this docket, IEPA states that the TDS standard should stay in effect while the work group draws up its proposal. PC 1415 at 11.

Compliance Mechanism and Best Management Practice for Chloride

IEPA does not oppose the addition that would allow for BMPs with respect to chloride; however, IEPA believes that the provision should not be limited to chloride. PC 1415 at 11. IEPA suggests that the new section be written to allow IEPA to use BMPs in other situations beyond chloride. *Id*.

Mixing Zone Amendments

IEPA offers comment on the Board's decision not to include Citgo/PDV's request for changes in the mixing zone regulations. PC 1415 at 12. IEPA agrees with the USEPA that the mixing zone change requested by Citgo/PDV could result in exceedances of the chronic standard standards outside the mixing zone. *Id*. IEPA believes that this would then be less protective of aquatic life use designations. Therefore, IEPA supports the Board's decision not to include the mixing zone change. *Id*.

Temperature

IEPA reiterates its arguments in its post-hearing comment (PC 1401) and asks the Board to reconsider and adopt the temperature standards proposed by IEPA. PC 1415 at 13. IEPA asks that if the Board proceeds to second notice with the General Use standards that the Board adopt protections found in Section 302.211(b)-(d) (35 Ill. Adm. Code 302.211(b)-(d)). IEPA asks that the Board include those standards and not just excursion hours at Section 302.211(e) (35 Ill. Adm. Code 302.211(e)). *Id*. IEPA opines that this will ensure that there are no abnormal thermal changes except those caused by natural conditions; the normal daily and seasonal temperature fluctuations will be maintained. *Id*.

Excursion Hours

IEPA supports the Board's decision to keep excursion hours as those hours are currently set in the General Use water quality standards. PC 1415 at 13. IEPA points out a misstatement in the opinion, but notes that the rule is correct. *Id*.

Mercury

IEPA supports the Board's proposal for mercury and does not support adoption of the 2001 mercury human health criteria. PC 1415 at 14. IEPA proposed a standard of 12 ng/L for mercury, which is equivalent to USEPA's 1984 ambient water quality criterion for mercury. *Id.* IEPA concedes that the most recent mercury national criteria document is the 2001 mercury human health criteria. However, IEPA notes that the 2001 criteria are based on fish tissue-based methyl-mercury criterion of 0.3 mg/kg. *Id.* IEPA offers that in order to convert the fish tissue-based methyl-mercury criterion, fish tissue and low-level ambient mercury data must be available. *Id.* While fish tissue data have been collected, neither IEPA nor the District collect low-level mercury data in these waters. Thus a site-specific data conversion factor cannot be completed. *Id.*

IEPA does not believe that the use of a bioaccumulation model is appropriate for these waters, as these waters are not natural streams. PC 1415 at 14. IEPA notes that the vast majority of these steams are straight-walled, deep-draft channels, with unique characteristics that are not found elsewhere in the United States. *Id.* at 14-15. IEPA does not believe that using national bioaccumulation factors, derived from waters that meet the CWA goals, are appropriate for these waters. *Id.* at 15.

IEPA notes that Citgo/PDV collected a limited amount of low-level mercury data in the intake on the CSSC. PC 1415 at 15. This data indicated the annual average of 9.59 ng/L and that number would meet the proposed mercury water quality standard of 12 ng/L. *Id.*

Comments on Regulatory Language

IEPA points to several rule changes, both non-substantive and substantive. The non-substantive changes IEPA suggests are:

1. In the table of contents, Radium 226 and 228 (302.307) is correct on the Board's website, so it is unclear why there is a strikeout for 302.307.

2. In Section 302.101(d), there should be a reference to 303.449, if the Board decides to keep this provision.

3. In Section 302.407(e), the formula for Cadmium, Chromium (trivalent), Copper, Lead, Nickel, Zinc and Silver should be consistent with the formula listed for Fluoride. The Fluoride formula is the current and correct form of the formula.

4. In Section 302.407(X), the (T + 273.16) should be formatted correctly and therefore, (T + 273.16) goes under 2729.92.

5. In Section 302.408(c), if the Board chooses to keep this provision, the citation to 303.230, should be 303.235.

6. In Section 302.408(d), if the Board chooses/decides to keep the provision, the citation to 303.325, should be 303.340.

7. In Section 302.408(e), if the Board were to adopt the table format, there is a box that has nothing in it and therefore it should be deleted.

8. In Section 302.408(e), if the Board chooses to keep this language, the reference to 303.237, should be changed to 303.230

9. In Section 302.412(b), the references to 303.220 should be changed to 303.230.

10. In Section 302.412(c)(2)(A), the reference should be changed from subsection (e) to subsection (f).

11. In Section 302.412(c)(2)(B), the reference to subsection (e), should be changed to subsection (f).

12. In Section 302.412(d)(2), the reference should be changed from subsection (d) to subsection (e).

13. In Section 302.412(d)(3), the reference should be changed from subsection (d) to subsection (e).

14. Fluoride is misspelled in the table found in Section 302.407(e). PC 1415 at 15-19.

IEPA also suggests changes more substantive in nature. In Section 302.408, IEPA states that if the Board was to adopt the General Use Standards for temperature, then the tables in (c), (d), and (e) could be consolidated, or the Board could reference the General Use Standards and omit the tables. PC 1415 at 16. IEPA proposes a change to language found in 302.401 to clarify that the standard for the Chicago River is still the General Use water quality standard. IEPA suggests the following change to Section 302.401(b):

> Subpart D also contains the Chicago Area Waterway System and Lower Des Plaines River water quality standards. Except for the Chicago River, these standards must be met only by waters specifically designated in Part 303. The Subpart B general use and Subpart C public and food processing water supply standards of this Part do not apply to waters described in 35 Ill. Adm. Code 303.204 as the Chicago Area Waterway System or Lower Des Plaines River and listed in 35 Ill. Adm. Code 303.220 through 303.240, 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. <u>The Chicago River must meet the General</u>

> Use standards, including the numeric water quality standard for fecal coliform bacteria applicable to protected waters in 35 Ill. Adm. Code 302.209. PC 1415 at 17.

IEPA suggests that in Section 302.410, "toxic to aquatic life" should be stricken since the regulations also protect for human health and the title of the section should be changed to "Other Toxic Substances". PC 1415 at 17. IEPA notes that this would be in agreement with the General Use Standards and would recognize that the standards are intended to protect aquatic life, wildlife, and human health. *Id*.

Also in Section 302.410, IEPA recommends that the Board keep the old language as it pertains to Bubbly Creek, but adopt an entirely new sentence or sentences with regards to protection of CAWS/LDPR segments that more closely mirrors the language found at 302.210. IEPA is concerned that the current language is not clear as to the level of protection afforded to Bubbly Creek, and it is limited to standards at 302.407 when now there are numeric standards found in Sections 302.407-302.412. PC 1415 at 18. Therefore, IEPA suggests the following language for Section 302.410:

> Any substance or combination of substances toxic to aquatic life not listed in Section 302.407 shall not exceed one half of the 96-hour median tolerance limit (96-hour TLm) for native fish or essential fish food organisms in the South Fork of the South Branch of the Chicago River (Bubbly Creek). All other Chicago Area Waterway System and Lower Des Plaines River waters as designated in Part 303 shall be free from any substances or combination of substances in concentrations toxic or harmful to human health, or to animal, plant or aquatic life. Individual chemical substances or parameters for which numeric standards are specified in this Subpart are not subject to this Section. *Id*.

Section 303.204 limits the description to aquatic life, but the applicable standards in Subpart D include aquatic life, wildlife and human health standards. IEPA recommends that the Board "ensure that aquatic life, wildlife and human health criteria at Section 302.401 and 302.402", are adequately protected by clarifying Section 303.204. PC 1415 at 17-18.

The District

The District offered two comments to the Board on the first-notice proposal. A summary of those comments follows.

PC 1416

On November 21, 2014, the District submitted comments on the Board's first notice opinion and order for Subdocket D. The District provided comments and recommendations related to the proposed chloride, and temperature standards, and DO monitoring requirements, as well as suggesting editing and clarification revisions.

Chloride. The District addresses the proposed site-specific chloride standards of 990 mg/L acute and 620 mg/L chronic for the CSSC for the winter months of December 1 through April 30. PC 1416 at 1. The District notes that Citgo/PDV's justification for the proposed site specific chloride standard for the CSSC is based on data gathered by the District. The District opines that the same justification for the proposed CSSC site-specific standards applies to the remaining CAWS waterways for the same period of time. *Id.*

The District reports that it is aware that USEPA has concerns about the exclusion of certain species in the calculations Citgo performed in determining the proposed chloride standards. PC 1416 at 2. The District notes, however, that if the two species of concern, *Ceriodaphnia* and *Sphaerium*, were included in the calculations, the revised site-specific standard would be "significantly different" than the 500 mg/L chloride standard proposed by the Board. *Id.* In the District's recalculation of the chloride standard, it added the American eel and the threespine stickleback. The District's resulting new chloride standards would be "640 mg/l as an acute standard and 400 mg/l as a chronic standard". *Id.* The District observes that while the revised standards "would not entirely eliminate the attainment issues in CAWS, they would significantly reduce the extent of noncompliance as compared to the application of the proposed 500 mg/l standard". *Id.*

The District also informs the Board that IEPA asked the District to lead a work group on the chloride issues in the Chicago area. PC 1416 at 2. The District explains that it will be reaching out to stakeholders to hold discussions on the issues raised by the Board in its First Notice Opinion and Order. *Id.* at 3. As a result of this work group and the scientific issues that remain to be resolved regarding the chloride standard, the District recommends creating a new Subdocket to consider the chloride standard for CAWS. *Id.* at 2 and 3.

Dissolved Oxygen. The District raises concern with the proposed new requirement that "24 consecutive hours of DO data must be used to assess attainment of mean and minimum values". PC 1416 at 3. According to the District, this would require continuous hourly DO monitoring to determine compliance. The District is unsure as to the justification of this new requirement and asks the Board to "reconsider whether it should be included in the regulations". *Id.*

Temperature. The District refers to the Board's statements in the First Notice Opinion and Order that "the General Use temperature standards that the Board decided to apply to the CAWS are less stringent than the IEPA's proposed standards". PC 1416 at 3. The District alleges that this statement is not accurate. The District notes that the "maximum temperature limit for December through March was reduced from 88.7 degrees F (IEPA's proposal) to 60 degrees F, which is more stringent than the 88.7 degree proposal". *Id.*

PC 1424

On November 12, 2014, the District submitted comments on the Board's First Notice Opinion and Order for Subdocket D. PC 1424 at 1. The District raises issues related to the DO standard for Bubbly Creek, temperature, ammonia, copper, selenium, cyanide, and chloride.

DO Standard for Bubbly Creek. The District notes the Board's question at First Notice regarding the DO standards for Bubbly Creek and whether the current 4.0 mg/L "anytime" standard will be more stringent than the 3.5 mg/L standard that is proposed to apply to other CAWS waters. PC 1424 at 1. Further, the District explains that IEPA has recommended that the Board adopt standards proposed by IEPA for Bubbly Creek in 2007, or to retain the current standard until issues related to Bubbly Creek are resolved in Subdocket E. The District opposes both suggestions. The District opines that if IEPA's 2007 proposed standards are adopted, it would make subdocket E irrelevant and retaining the existing standards would "ignore the contradiction inherent in making Bubbly Creek subject to a more stringent DO standard than any other CAWS water". *Id.* at 1 and 2. Until the complex DO issues related to Bubbly Creek are resolved in subdocket E, the District recommends applying an "anytime" standard that is no more stringent than the "anytime" standard applied to other CAWS reaches. *Id.* at 2. The District therefore recommends a DO standard of 3.5 mg/L for Bubbly Creek. *Id.*

Temperature. The District notes that the Environmental Groups express concern that the application of the General Use standards to the North Shore Channel and Little Calumet River could result in the District being required to cool its effluent from the O'Brien and Calumet plants, which the Environmental Groups believe is inappropriate. PC 1425 at 2. The District agrees. The District also agrees with Midwest Generation and other industrial parties that the "application of the General Use standards to the CAWS is wrong as a scientific matter and as a policy matter". However, the District opines that if the Board proceeds with adoption of General Use standards for CAWS, then the Board "should provide appropriate relief to ensure that the District is not required to cool its effluent". *Id.*

Ammonia. The District explains that the Environmental Groups recommend the Board adopt the new ammonia standards recommendations issued by USEPA in April 2013 rather than the standards proposed by IEPA. PC 1424 at 2. The District does not agree. *Id.* at 3. The new USEPA criteria have not been subject to hearings in this rulemaking, and the State "is under no obligation to adopt the U.S. EPA recommendations". Further, the District suggests that IEPA should consider the new ammonia standards on a statewide basis. If, however, the Board decides that the new ammonia standards need to be considered at this time, the District suggests that a new subdocket be established so that all relevant information can be submitted for consideration. *Id.*

The District also notes a suggestion made by USEPA that the Board should modify the proposed ammonia standards for ALU B waters to ensure protection of early life stages in winter. PC 1424 at 3. The District sees "no scientific basis for this recommendation". ALU B waters do not have seasonal standards for DO, so the District does not understand why these waters would need seasonal ammonia standards. In addition, the District opines that to adopt seasonal ammonia standards for ALU B waters focused on early life stages "would be inconsistent with the basis for setting Use B criteria". The District states that this recommendation "should not be adopted". *Id.*

Copper. The District observes that both the Environmental Groups and USEPA recommend that the Board should adopt the criteria recommendations for copper issued by USEPA in 2007. PC 1424 at 4. The District contends that use of these new criteria is "not

appropriate at this time". The USEPA 2007 recommendation utilizes a new approach, the BLM that requires the collection and analysis of data that have not been considered before in setting copper criteria, according to the District. The District further notes that it does not collect data on some of the parameters required in the BLM model, and none of the scientific issues associated with USEPA's new copper criteria recommendations have been subject to hearings in this rulemaking. The District recommends that any issues related to use of the BLM model in setting copper standards be examined on a state-wide basis. If, however, the new approach is to be considered at this time, the District recommends it be done in a new, separate subdocket. *Id.*

Selenium. The District reports that USEPA contends the Board should adopt the chronic standard of 5 µg/L. However, the District notes that the Environmental Groups recognize that the new selenium standards are under review; in fact, a new draft criteria document has been issued for public comment. PC 1424 at 5. The District recommends that IEPA should "await the results of the Federal guidance development process before adopting new selenium criteria". *Id.*

Cyanide. The District notes the objection by the Environmental Groups to the Board's proposed adoption of IEPA's site-specific cyanide standard of 10 mg/l. PC 1424 at 6. They have raised questions as to whether IEPA followed current USEPA guidance "as to derivation of site-specific standards". The District sees no basis for this question and suggests that in the absence of specific examples of how IEPA deviated from the current USEPA guidance, it appears that IEPA followed the applicable standards. *Id.*

Chloride. The District states that the Environmental Groups and USEPA question the merits of the chloride standard that has been proposed by Citgo for the CSSC, which the Board proposed in the First Notice. PC 1424 at 6. The Environmental Groups further oppose the application of these standards to other waters in CAWS. The District disagrees with both points. The District agrees that the rationale and methodology used by Citgo considered species that are actually present in the CSSC, and that it is appropriate to apply this same rationale and methodology to other waters in CAWS. The District suggests that if additional hearings are needed on the chloride standard that a new subdocket be opened. *Id.*

Citgo/PDV

Citgo/PDV provided two comments on the Board's first-notice proposal. Those comments are summarized below.

PC 1417

On November 21, 2014, Citgo/PDV submitted comments on the Board's first notice proposal. PC 1417 at 1. Citgo/PDV addresses two issues related to the proposed standard for chloride: the seasonal chloride standard for the CSSC; and the proposed use of BMPs to deal with the application of the mixing rule with respect to chloride. Citgo/PDV also proposes suggested language to modify the Board's proposal related to BMPs. *Id.* at 2.

Citgo/PDV supports the Board's proposal "to treat the Chicago and Sanitary Ship Canal separately from the other bodies of water". PC 1417 at 2. Citgo/PDV believes the proposed

seasonal standard is "completely justified and appropriate" and is supported by the record. *Id.* Citgo/PDV reminds that the Lemont Refinery withdraws most of its water from the CSSC and then discharges this water along with treated process and storm water back to the CSSC. *Id.* at 3. Extensive data have been collected by the Lemont Refinery that demonstrate the elevated TDS and chloride levels that result from snow melt runoff. *Id.* Citgo/PDV notes that biological data related to fish and other aquatic life were also collected to allow the recalculation of the chloride standard using USEPA's procedures, which resulted in a proposed seasonal standard of 990 mg/L for the acute standard and 620 mg/L for the chronic standard. *Id*. at 3 and 4.

Citgo/PDV states that the Lemont Refinery continued to collect data on the biota of the CSSC, even after the close of hearings in December 2013. PC 1417 at 5. The sampling conducted in May through November 2014 resulted in no *Ceriodaphnia* being found "even in the summer months and even at a sampling location closer to the confluence of the Ship Canal [CSSC] and the Des Plaines River". Citgo/PDV notes that certain *Rotifer* species were found in the summer months but chloride toxicity information is lacking for that species. *Id.* Citgo/PDV opines that because "some rotifers are quite tolerant of chloride (indeed, one thrives in sea water), including rotifers in the calculation procedure would not be meaningful". Citgo/PDV asserts that the CSSC does not support the same diversity of species, and that the water quality standards proposed by the Board for the CSSC during the winter months is appropriate. *Id.*

Citgo/PDV requests that the Board clarify its proposal regarding the use of BMPs for chloride in NPDES permits. PC 1417 at 6. The Board proposed language that would allow BMPs in NPDES permits "to achieve chloride effluent limitations standard" and asked for comments from participants on this language. Citgo/PDV raises concerns that "the Agency (and/or USEPA) would insist that an additional effluent limitation for chloride would also be necessary with respect to water quality standards". Citgo/PDV further suggests that this would defeat the purpose of allowing BMPs to address chloride levels. *Id.* Citgo/PDV identified four sources of chloride with discharges at the Lemont Refinery and suggested that the "rule as proposed might be applied so that, even if the Lemont Refinery were implementing chloride BMPs, its NPDES permit might include a limitation on chloride that penalizes the refinery for those upstream discharges of chloride. *Id.* at 7.

Citgo/PDV urges the Board to revise the proposed language to "address the terms of 309.141(d) which might apply until the time that a waste load allocation is adopted and implemented". *Id.* at 7. Citgo/PDV proposes rule language revisions to address these concerns. *Id.*

Citgo/PDV summarizes by requesting that the Board adopt the proposed winter chloride standard, the mercury human health standard, and the BMP chloride rule for NPDES dischargers with the revisions it proposes. *Id.* at 8.

PC 1423

Chloride. On December 12, 2014, Citgo/PDV submitted a response to comments the Board received on its first notice proposal. PC 1423 at 1. Citgo/PDV addresses issues concerning the proposed chloride standard and the language for BMPs. In addition, on behalf of

Citgo/PDV, Huff & Huff provided responses to specific questions raised by USEPA and IEPA regarding the winter chloride recalculation and the proposed selenium standard for the CSSC.

Citgo/PDV states that the Board correctly chose to designate the CSSC as a "distinct water body for which separate water quality standards were appropriate". PC 1423 at 1. Further, the winter-time chloride standard for the CSSC is appropriate and supported by the record. Citgo/PDV opines that none of the comments on the first notice proposal presented any substantive reasons not to proceed with the chloride standard as proposed for first notice. *Id.*

Citgo/PDV explains that the Lemont Refinery has conducted additional aquatic investigations specifically for the species that USEPA and IEPA opine should exist in the CSSC. PC 1423 at 2. The results of these studies continue to demonstrate that these species are not present in the CSSC, and neither USEPA nor IEPA cited a single study or report that suggests otherwise. Citgo/PDV states that analyses conducted by Huff & Huff show that "no C*eriodaphnia* has been found in the lower CSSC and the larger class of *Cladocera.*…decline as water temperatures cool; none were found after October". *Id.* Huff & Huff also reported that *Sphaerium* fingernail clams are not a resident species, while other fingernail clams were present and "were appropriately included in the recalculation" for the proposed chloride standard. *Id.* at 3. Citgo/PDV states that Huff & Huff found no records of native freshwater mussels exist for the CSSC, and observes that the silty bottom substrates are not suitable habitat for mussel colonization. Citgo/PDV concludes that *Ceriodaphnia, Sphaerium,* and *Lampsilis* appropriately were not included in the recalculation, and "these species do not serve as surrogates for other species that do occur in the CSSC during winter months". Further, USEPA "points to nothing in the Huff & Huff analysis which is not scientific". Citgo/PDV opines that if questions remain regarding the protection of downstream aquatic life conditions, additional data or analysis could have been presented at hearing or at first notice; yet no such information has been forthcoming, only "a conclusory question". *Id.* at 4.

Citgo/PDV argues that the questions that now remain are related to IEPA's most recent proposal to maintain the 1,500 mg/L TDS standard. PC 1423 at 4. The Lemont Refinery has analyzed the TDS levels at the Refinery and at the I-55 bridge. Citgo/PDV reports a 23% decline in maximum TDS levels between the Lemont Refinery and the I-55 bridge, and that a "maximum chloride level of 750 mg/L (or half of the TDS standard) appears reasonable to predict". Citgo/PDV therefore observes that the "proposed winter chloride standard is quite consistent with IEPA's most recent position that the existing TDS standard of 1,500 mg/L should be retained for awhile". *Id.*

Citgo/PDV notes that the District apparently agrees that the recalculation tool can be useful. PC 1423 at 5. Further, Citgo/PDV opines that the District may have presented a calculation in their comments "to illustrate that the recalculation procedure might be useful to identify which, if any, of the other CAWS segments would exceed a re-calculated winter chloride level". Citgo/PDV argues that this "is exactly as we suggested in earlier comments of the Lemont Refinery". *Id.*

Citgo/PDV reiterates its previous observations that the CSSC is an effluent-dominated stream, and that it has extensive data to illustrate that the TDS and chloride levels result from

snow melt run-off. PC 1423 at 6. As a result, Citgo/PDV opines that there is no "good reason for the Board not to adopt a seasonal chloride standard for the CSSC". *Id.* Citgo/PDV notes that the Lemont Refinery has already sought and received variances from water quality standards for TDS for ten years. *Id.* at 6 and 7. Through this time, Citgo/PDV states, they have been "seeking the promised, though long-delayed, forum for a decision specifically to replace the TDS standard with another more appropriate requirement". *Id.* at 7. Citgo/PDV argues that to wait any longer "would truly be arbitrary and capricious". *Id.* In fact, Citgo/PDV argues that if IEPA is going to propose the TDS standard and hold off on adopting chloride standards now, it cannot object to the proposed seasonal chloride standard that the Board has proposed. The Board's proposed well documented chloride standard provides more protection than a TDS standard, according to Citgo/PDV. *Id.* at 8.

Citgo/PDV argues that their proposed recalculation of the chloride standard and the chloride BMP concept benefits many others, including the environment. PC 1423 at 9. The chloride BMP concept was developed by Citgo/PDV and is supported by the Board, Environmental Groups, and other dischargers such as ExxonMobil, and even appears to have the support of USEPA and IEPA. *Id.*

BMP Clarification. Citgo/PDV stated that the Lemont Refinery is committed to the use of BMPs to address chloride issues. PC 1423 at 10. Citgo/PDV notes, however, that having a BMP is not the only relevant condition for an NPDES permit; discharge limits and some type of relief are also expected to be included. Citgo/PDV argues that it is not proposing that "there be no limits in wastewater discharges with respect to TDS and/or chloride". *Id.*

In order to address the concerns with BMPs raised at first notice, Citgo/PDV has proposed language changes to address the "time period prior to adoption of any chloride TMDL [total maximum daily load (TMDL)] and to make clear that snow-melt runoff conditions are a qualifying event for use of BMPs in NPDES permits, as well as storm water permits". *Id.* Citgo/PDV wants to ensure that point source dischargers are entitled to use BMPs and "do not get caught in not being able to use a mixing zone in an effluent dominated water such as the CSSC". *Id.* at 10 and 11. Citgo/PDV proposes the following language changes to Section 309.141(i): *Id.* at 11.

> (i) Best management practices (BMPs) to control or abate the discharge of chloride when:
>
> (1) Authorized under section 402(p) of the CWA for the control of storm water dischargers; or
>
> (2) Numeric effluent limitations are infeasible; or
>
> (3) The practices are reasonably necessary to achieve effluent limitations and standards or to carry out the purposes and intent of the CWA; or

(4) Until adoption of an applicable Total Maximum Daily Load allocation under section 303(d) of the Clean Water Act, during periods of time when applicable water quality standards are exceeded in the receiving stream due to snow melt run-off from upstream point and/or non-point sources.

Citgo/PDV summarizes by requesting that the Board adopt the winter chloride standards for the CSSC and the mercury human health standard as proposed at first notice, as well as adopt the proposed chloride BMP rule for NPDES dischargers with their suggested revisions. PC at 1423 at 12.

Huff & Huff Responses to USEPA & IEPA Winter Chloride Recalculation Questions

On behalf of Citgo/PDV, Huff & Huff provided responses to specific questions raised by USEPA and IEPA in their November 14, 2014 comments to the Board regarding the winter chloride recalculation for the CSSC. PC 1423 Exh. B at 1.

USEPA. Huff & Huff specifically address USEPA comments on Chloride and Selenium.

Chloride. USEPA asserted in its comments that the deletion of *Ceriodaphnia, Sphaerium,* and *Lampsilis* GMAVs is inappropriate because these species should be considered to 'occur at the site'. PC 1423 Exh. B at 1. Huff & Huff respond to this by noting that USEPA provided no data to support their conclusion. Huff & Huff report that *Ceriodaphnia dubia* is not included as a resident species, which is supported by data from the Illinois Natural History Survey as well as Huff & Huff's data. *Id.* They further note that a review of the data provided in Attachment A reveals that water fleas, including *Ceriodaphnia*, "peak in the summer and steadily decline as the water temperatures cool". *Id.* Huff & Huff state that there are no data to suggest that this species is present in the CSSC in the winter months; whereas, there are supporting data to suggest they are not present. *Id.*

Huff & Huff also address the allegation that *Sphaerium* fingernail clams should be considered present in the CSSC during winter months. PC 1423 Exh. B at 2. Huff & Huff reiterate the point they made to the Board on May 13, 2014. Between 1975 and 2010, *Sphaerium* have been found only twice in the CSSC, which does not classify them as a resident species, in their professional opinion. Huff & Huff report that a different fingernail clam, *Musculium,* is present in the CSSC and was included in the recalculation for the chloride standard. Also, *Eupera cubensis*, is found in the CSSC but this species is more tolerant of salinity than is *Sphaerium* and is adequately represented by the *Musculium* as its surrogate species. *Id.*

According to Huff & Huff, *Lampsilis* mussels are not included in the recalculation efforts because they are not present in the CSSC. PC 1423 Exh. B at 2. This is supported by examining a wide range of museum databases. "No historical records of native freshwater mussel are listed for the CSSC." *Id.*

USEPA raised a question as to whether all appropriate new toxicity data have been added to the toxicity databased used to derive the recalculated chloride standard. PC 1423 Exh. B at 3. Huff & Huff assume USEPA is referring to *Brachionus* rotifers and whether this species was included in the toxicity database. USEPA also questions why, because rotifers are present in the CSSC, they were rejected in the recalculation. *Id.* at 5. Huff & Huff explain that rotifers overwinter in thick-shelled, protective eggs and can tolerate physical and chemical extremes. The genus of rotifers, *Brachionus* spp., is known to be present in the CSSC; however, the specific species of *Brachionus* found in the CSSC has not been identified. *Id.* at 6. Huff & Huff hypothesize that the rotifers present in the CSSC are likely a mixture of species, including those that are more tolerant of salinity. Huff & Huff opine that all members of a genus should be used in a site-specific recalculation to obtain the GMAV. If only the specific species of *Brachionus* was used on the recalculation, Huff & Huff suggest the GMAV would result in a "higher derived water quality criteria for winter chloride". *Id.*

USEPA raised concerns that information in the record does not demonstrate that the proposed winter chloride standards would protect aquatic life uses downstream, in the LDPR. PC 1423 Exh. B at 4. Huff & Huff state that the fishery data show improvements downstream of the Brandon Street Lock and Dam where there is additional flow from the merger with the Des Plaines River and other streams. They also note that IEPA has proposed to keep the TDS standard of 1,500 mg/L and "implicitly asserts that this will be protective of downstream aquatic life uses". Huff & Huff estimate that given the 23% decline in peak TDS levels from the Lemont Refinery intake to the I-55 bridge, the proposed winter chloride criterion of 990 mg/L in the Lower CSSC would result in an estimated 750 mg/L of chloride at the I-55 bridge. Therefore, Huff & Huff opine that "the data in the record is contrary to the assertion made that the proposed seasonal chloride standard for the CSSC might not be protective". *Id.*

USEPA questions the use of a *Musculium* GMAV value not "normalized to the appropriate hardness concentration". PC 1423 Exh. B at 6. Huff & Huff state that *Musculium* has an acute toxicity chloride value of 1,930 mg/L at a low hardness of 48 mg/L. They opine that if the hardness is adjusted to the critical hardness found in the CSSC, the adjusted acute value would be 2,259 mg/L for *Musculium*, which they argue "increases the proposed winter chloride water quality criteria". *Id.* Huff & Huff found similar results with USEPA's questions regarding the appropriateness of the proposed chloride standard because it was based on a hardness value of 300 mg/L, and the hardness values for CAWS and LDPR is 200 mg/L. *Id.* Huff & Huff finds that the chloride water quality standard proposed by Citgo has an "additional margin of safety built into the numbers". *Id.* at 7.

USEPA argues in their comments that the proposed 500 mg/L chloride criterion is scientifically defensible. PC 1423 Exh. B at 7. Huff & Huff respond by observing that the "only *scientifically defensible* rationale in the record is that this is the General Use Standard". *Id.*

USEPA recommends that if a new subdocket is opened to address the chloride standard, then the 1,500 mg/L standard should be retained. PC 1423 Exh. B at 8. Huff & Huff argue this approach "continues to ignore the central issue", which is that maintaining the 1,500 mg/L TDS standard will result in enforcement actions for a situation caused solely by use of deicing salts. They opine that Citgo/PDV has attempted to address the 1,500 mg/L TDS limit for ten years to

no avail. Huff & Huff conclude by noting that continued adoption of the TDS standard without addressing how NPDES permits are to be issued will result in gridlock. *Id.*

Selenium. USEPA recommended a new total recoverable chronic selenium criterion of 5 µg/L. PC 1423 Exh. B at 8. Huff & Huff note that "the sound scientific rationale for the chronic selenium limit was not provided". They observe that a review of the data demonstrate that exceedances of USEPA's proposed 5 µg/L selenium standard would routinely occur. The economic implications of this proposed standard have not been examined. *Id.*

Huff & Huff note that because selenium can occur from natural causes, it would be premature to adopt a limit that is not currently being achieved without understanding the current selenium levels and sources. PC 1423 Exh. B at 8. Huff & Huff opine that regulating point source discharges of selenium when these discharges may not be the primary source of selenium makes no sense from a societal perspective, similar to the issue of chloride. *Id.*

Huff & Huff support the Environmental Groups' recommendation that IEPA begin measuring selenium levels in water bodies and pursue further action with the Board in the future, if appropriate. PC 1423 Exh. B at 8. Huff & Huff elaborate by suggesting that total and dissolved selenium be measured, and an effort be made to identify sources so there may be a better understanding of a control strategy that might be necessary. *Id.*

IEPA. IEPA noted in their comments that the proposed chloride standard "only helps CITGO, and fails to address the widespread problem with a 500 mg/L standard". PC 1423 Exh. B at 9. Huff & Huff agree that the 500 mg/L standard would result in "widespread problems". They note that Citgo/PDV has worked on variance petitions for ten years and has spent seven years in this rulemaking trying to get the chloride/TDS effluent limit corrected. Huff & Huff opine that "keeping the TDS standard while deferring the chloride standard accomplishes nothing". This is the standard now in place, which Citgo/PDV is incapable of meeting. *Id.*

IEPA contends that the "minimal effort expended on winter collection has sufficiently determined" that *Ceriodaphnia* is absent from these waters during the winter months. PC 1423 Exh. B at 9. Huff & Huff argue that the absence of *Ceriodaphnia* in the winter is "predicated upon the lack of available food source and the cold water temperature". Huff & Huff also addressed this question when it was raised by USEPA. *Id.*

IEPA raised concerns that the closely related species to *Ceriodaphnia* "may be present and exhibit similar sensitivity to chloride exposure". PC 1423 Exh. B at 9. Huff & Huff opine that after at least a year since Huff & Huff proposed the recalculated chloride standard and its supporting methodology, IEPA has "yet to identify a single species which is or **may** be present". *Id* (emphasis in original). They note that if these related species were specified, then an analysis can be conducted to determine if they are covered by the chloride standard proposed by Citgo/PDV. *Id.* at 9 and 10. Huff & Huff contend that the "23 species covered in our analysis is sufficiently representative of stream organisms". *Id.* at 10.

IEPA stated in its comments that "*Ceriodaphnia* is a common test organism in aquatic toxicology as a surrogate species for other planktonic crustaceans". PC 1423 Exh. B at 10. Huff

& Huff opine that IEPA may have confused "aquatic bioassays with establishing water quality criteria". They note that "typically only a single fish and the single daphnia are tested for bioassay studies, as applied to **effluents**". *Id* (emphasis in original). When establishing the chloride water quality standards here, Huff & Huff note that the methodology involved 23 species, which is far more extensive. Huff & Huff argue that the fact that *Ceriodaphnia* is commonly used in laboratory testing, "has no relevance as to whether they are present in the Lower CSSC in the winter months". *Id.*

Midwest Generation

Midwest Generation offered two comments on the Board's first-notice proposal. Those comments are summarized below.

PC 1418

On November 21, 2014, Midwest Generation submitted comments on the Board's first notice opinion and order for Subdocket D. PC 1418 at 1. Midwest Generation's primary concern is related to the proposed General Use thermal standards, but it also discusses the proposal for cold shock and excursion hours provisions, and the proposed 18-month postponement of the thermal standards. *Id.* at 1 and 2.

Midwest Generation summarizes the change in ownership and anticipated operational changes that will affect three of its facilities. PC 1418 at 2. Effective April 1, 2014, Midwest Generation reminds that NRG Energy, Inc. (NRG) purchased certain subsidiaries of Midwest Generation. NRG plans for operational changes at its Will County Station and Joliet stations 9 and 29. The Will County Station discharges to the CSSC, and the Joliet Stations discharges to the UDIP. NRG plans to close one unit at the Will County Station, with one unit remaining in operation. *Id.* NRG also plans to bring natural gas to its Joliet Stations by mid-2016. PC 1418 at 3. These changes "will likely reduce their thermal discharges"; however, Midwest Generation states it "still faces significant challenges to comply with the proposed General Use thermal standards contained in the Board's First Notice Opinion". *Id.*

Midwest Generation begins with an overview of the issues of concern, which are discussed in detail later in the comment. Midwest Generation states that the Board proposes to adopt General Use thermal water quality standards for ALU B and UDIP waters "due to a lack of viable alternative options". PC 1418 at 3. According to Midwest Generation, the Board considered the 2003 and 2007 EA Thermal Proposals and the AS 96-10 Adjusted Thermal Standards, "but expressed concerns regarding each proposal". Midwest Generation also stated that the Board intends to consider "modifying the proposed thermal standards for specific dischargers based on site-specific conditions" and to provide an 18-month postponement of the effective date of the General Use standards. *Id.* Midwest Generation opines that the "fundamental problem" with the Board's proposed thermal standards is that "these standards were never intended to apply to these low-quality, effluent-dominated, waters, which do not and cannot support the higher full aquatic life use protected by the General Use standards. PC 1418 at 3 and 4.

Midwest Generation asserts that applying the General Use thermal standards to ALU B and UDIP waters subjects thermal dischargers to a "thermal compliance standard that is unnecessarily stringent and economically punitive". PC 1418 at 3. Midwest Generation argues that it should not be required to seek relief from standards that were never intended to apply to non-General Use waters and that the proposed standard "ignores both the purpose and intent of the Clean Water Act's water quality standards". *Id.*

Midwest Generation contends there are scientifically sound and fairer ways to address the thermal standard issue than defaulting to the General Use standards. PC 1418 at 4. As examples, Midwest Generation cites EA's 2003 and 2007 Thermal Proposals and the AS 96-10 Adjusted Standards. Midwest Generation opines that if the Board continues to have concerns with identifying an alternative to using the General Use standards, it proposes that a new subdocket be opened to address thermal standards for ALU B and UDIP waters. *Id.* Midwest Generation surmises that opening a new subdocket could also address the Board's concern that the existing biological data introduced by Midwest Generation are too old. *Id.* at 5.

According to Midwest Generation, the Board's decision to postpone the effective date of the General Use thermal standards will allow affected dischargers time to seek appropriate regulatory relief, but 18 months is inadequate, in part because Midwest Generation will need to collect additional biological data and conduct further studies. PC 1418 at 5. Midwest Generation, therefore, suggests the postponement of the thermal standards for ALU B and UDIP waters for a period of three years. *Id.* at 6.

Midwest Generation suggests the Board "modify the overly protective and stringent General Use thermal standards it proposes for ALU B or UDIP waters". PC 1418 at 6. One suggested change is to modify the 90° F and 60° F daily maximum General Use numeric standards to maximum daily average standards. Midwest Generation argues that aquatic life is "adequately protected by the application of a daily average standard because any exceedance of the 90° F/60° F values would not last more than a handful of hours in a single day". *Id.*

General Use Thermal Standards Should not Apply to ALU B and UDIP Waters.

Midwest Generation argues that applying the General Use thermal standards to ALU B and UDIP waters conflicts with existing Illinois use designation regulations. PC 1418 at 6. In the Illinois designated use classification system, Midwest Generation explains that the General use category "is a broad aquatic life use that protects water bodies capable of supporting all aquatic life, as well as recreational uses". Section 303.201 of the Water Use Designations regulations states that unless a water body has been "otherwise specifically" classified, all Illinois waters are General Use waters by default. For UDIP and ALU B waters, they have been "otherwise specifically" classified by the Board in Subdocket C.

The ALU B and UDIP waters cannot support the more thermally sensitive aquatic organisms that are expected to be found in General Use waters, according to Midwest Generation. PC 1418 at 7. Thus, Midwest Generation contends the "Board's approach is not supported by and conflicts with the Illinois Part 303 use designations in 35 Ill. Adm. Code". *Id.* In addition, Midwest Generation opines that it would be "arbitrary and scientifically unsound to

apply the General Use thermal standards to waters which have not been classified as General Use waters". *Id.* at 8.

Midwest Generation opines that applying the "General Use thermal standards to the ALU B CSSC and Brandon Pool waters would be an even stranger outcome". PC 1418 at 8. Section 303.235(b)(2) states that ALU B waters are not capable of achieving CWA aquatic life use goals, yet General Use waters are capable of achieving such goals. Midwest Generation elaborates by quoting Section 303.235(b)(1) regarding ALU B waters, which are "capable of protecting aquatic life populations predominated by individuals of tolerant types". *Id.* (emphasis in the original). These "tolerant types" include aquatic life that can tolerate thermal conditions that would be "inhospitable to some General Use aquatic life populations". *Id.*

Midwest Generation also argues that the Board's proposed use of General Use thermal standards is not consistent with the procedures for establishing water quality standards that are developed to protect the designated uses of the waters. PC 1418 at 8. According to Midwest Generation, the CWA "requires that the Board review and revise water quality criteria on appropriate science". *Id.* at 9. Midwest Generation contends that the Board's "approach is not based on appropriate science". *Id.*

Midwest Generation observes that the Board appears to envision the adoption of General Use thermal standards as being temporary until IEPA has reviewed and possibly revised General Use thermal standards. PC 1418 at 10. Midwest Generation raises a concern with the additional time this effort would require, leaving dischargers to face the consequences of not being able to meet General Use thermal standards. Midwest Generation also notes that adoption of General Use standards creates the risk that a "total maximum daily load" or "TMDL" would need to be established for ALU B or UDIP waters, leading to greater restrictions on thermal discharges" in NPDES permits. *Id.*

Midwest Generation contends that "the Board accepted the undisputed fact that the CSSC, Brandon Pool and the UDIP are effluent-dominated waters" and that, as a consequence, the "natural" thermal regime of these waters reflects seasonal changes primarily determined by the seasonal temperature of the effluent discharges. PC 1418 at 10. The end result, according to Midwest Generation, is that the water temperatures do not vary seasonally and are not like those in "natural" General Use Waters. *Id.* Midwest Generation opines that the "General Use thermal standards were never intended to apply to these effluent-dominated waters". *Id.* at 11.

Further, Midwest Generation argues that UAA Factor 3 "allows the effluent-dominated nature of these waters to be considered in setting thermal water quality standards". PC 1418 at 11. Midwest Generation contends that the thermal impact of downstream waters from the District's Stickney Plant discharges cannot be "remedied" and so their impact cannot be ignored in setting the applicable thermal standards for these waters. *Id.*

The 2003 and 2007 EA Proposals as Alternatives. Midwest Generation explains that the Board identified concerns with the 2003 and 2007 alternative thermal proposals by EA Engineering, Science, and Technology (EA) (Exh. 368 PC 1402), but "expressed a generally favorable view of the methodology" used by EA. *Id.* at 4 and 11. The Board's concerns,

according to Midwest Generation, include whether the EA proposals were adequately protective of aquatic life present in the UDIP; the absence of thermally sensitive species from EA's proposals; and applying standards based on the existing thermal conditions to waters being upgraded from its current designation. *Id.* at 11.

Midwest Generation argues that both proposals by EA included the most thermally sensitive species expected to be present in the UDIP. PC 1418 at 12. Midwest Generation explains that the fish data that EA based their proposals on include data from both the "thermally impacted" UDIP waters and the General Use waters located below the I-55 bridge. Midwest Generation reasons that "if the thermal contributions from power plant discharges displace fish species from the UDIP, then there should be established populations of these fish present below the I-55 bridge". Further, if these species are not present below the I-55 bridge, "then the contention that such fish species are reasonably expected to be present in the UDIP and must be protected, is wrong". *Id.*

For example, Midwest Generation explains that the more sensitive fish species, such as white sucker and walleye, were excluded from the EA thermal standards after the analysis of many years of data demonstrated that these species had not established resident populations in the General Use waters below the I-55 bridge. PC 1418 at 12. Midwest Generation argues that the habitat conditions for these species to maintain viable populations is not present, so the 2003 and 2007 EA thermal standards "did not exclude sensitive species which are reasonably expected to be present in the UDIP". *Id.* at 13.

Midwest Generation presents data first for the white sucker, for which over the nine-year period of 1994 to 2002, only 11 specimens were collected below the I-55 bridge where cooler ambient temperatures exist. PC 1418 at 13. Midwest Generation reasons that the "absence of the white sucker in the Lower Dresden Pool and the UDIP is due to the unfavorable habitat conditions, not due to thermal discharges". Midwest Generation surmises that the same is true for the walleye and other cool water species. *Id.* Only two walleye were collected in the same nine-year period, both from cooler, General Use waters. *Id.* at 14. Midwest Generation concludes that nine years of data should "persuade the Board that walleye were properly excluded from EA's Thermal Standards". *Id.*

Midwest Generation provides additional evidence to support the exclusion of the walleye from the EA proposals. EA compared catch rates of walleyes in the same waters with those of smallmouth bass and redhorse. PC 1418 at 14. The smallmouth bass has a similar thermal tolerance to the walleye, and the redhorse is considered to more thermally sensitive than the walleye. Midwest Generation notes that both the smallmouth bass and redhorse are included in both of EAs thermal standards proposals. *Id.*

Midwest Generation draws two conclusions from this analysis. PC 1418 at 14. First, the walleye is not a species that is reasonably expected to be present in the UDIP; and second, the inclusion of the smallmouth bass and redhorse in EA's evaluation process "account for the more thermally sensitive fish species that can reasonably be expected to be present in the UDIP". Further, Midwest Generation contends that the walleye are habitat limited and not thermally limited in these waters. *Id.* As an example, Midwest Generation states that both the smallmouth

bass and redhorse have established viable populations in the Lower Des Plaines River, whereas, the walleye has not. *Id.* at 14 and 15. Therefore, Midwest Generation concludes that "EA properly included the smallmouth bass and redhorse data in its derivation of the EA 2003 and 2007 Thermal Standards. It properly excluded walleye". *Id.* at 15. Midwest Generation further argues that "all thermally sensitive species that can reasonably be expected to be present in the UDIP were included within the Representative Important Species (RIS) list used by EA to derive the proposed thermal standards. *Id.*

Dr. Dave Thomas' Testimony. Midwest Generation notes that the Board mentioned Dr. David Thomas' testimony in its First Notice Opinion. PC 1418 at 15. Dr. Thomas argued that temperature sensitive species such as the walleye, smallmouth bass, and redhorse would occur in the UDIP if water temperatures were lower. *Id.* at 15 and 16. Midwest Generation notes that Dr. Thomas did not provide any data or biological information to support his speculation and admitted he had conducted no habitat surveys.

Midwest Generation also contends that Dr. Thomas testified that "if the thermal plumes from the Midwest Generation plants are largely at the surface, it would not impact bottom dwellers like suckers and redhorse". Pc 1418 at 16. Midwest Generation discusses the three-dimensional mapping of Midwest Generation's thermal plumes, which shows that the "buoyancy of these warm water plumes keeps them largely at the surface and a zone of passage at cooler temperatures (of at least 75% of the cross-section of the waterway) remains beneath the surface thermal plume at any time". *Id.* Midwest Generation concludes by opining that Dr. Thomas' testimony "does not provide a reasonable or reliable evidentiary basis for a finding by the Board that fish like walleye or white suckers are "expected" to be present and hence must be protected". *Id.* at 17.

EA Thermal Standards Consistent with USEPA Guidance. According to Midwest Generation, the Board questions whether the aquatic life data EA used for their proposals are preferred by USEPA, given that guidance on developing national aquatic life criterion suggests that fieldwork should include "unpolluted bodies of fresh (or salt) water". PC 1418 at 17. Midwest Generation argues that the Board "appears to have misunderstood the full extent of the field data EA relied upon in deriving the proposed 2003 and 2007 Thermal Standards" and that the use of EA's field data do not conflict with USEPA's national guidelines. *Id.*

Midwest Generation notes that USEPA's preference for data being collected from unpolluted waters is hypothetical and prefaced with "if feasible". PC 1418 at 18. Midwest Generation argues that even if the collection of field data from unpolluted waters were feasible, it would not be the correct approach for the UDIP because these waters "are effluent-dominated waters and their thermal regime is therefore nothing like that of an 'unpolluted water'". *Id.* Midwest Generation further argues that considering the background temperatures created by effluent-dominated waters such as in the ALU B and UDIP waters it "is entirely consistent with U.S. EPA guidelines". *Id.* at 19.

Midwest Generation opines that even if USEPA preferred data being collected from unpolluted waters, it would not be feasible to apply that to ALU B and UDIP waters because there are no similar unpolluted "reference" streams. PC 1418 at 19. There are no streams in

Illinois that have the same conditions as found in ALU B and UDIP waters, which have an artificially controlled water regime, man-made shorelines, and significant navigational water control uses. *Id.*

In response to Midwest Generation's suggestion that the Board may not understand the scope of the field data relied on by EA to develop its proposals, Midwest Generation explains that EA's fish collection data were not limited to the UDIP. PC 1418 at 19. EA relied upon fish data collected from both the Lower Dresden Pool and the Upper Marseilles Pool, both of which are General Use waters and have cooler ambient temperatures. *Id.* Midwest Generation notes that EA considered the possibility of thermal avoidance behavior if fish were influenced by the presence of power plant discharges and avoided the higher temperatures in the area of thermal discharge plumes. *Id.* at 19 and 20. According to Midwest Generation, EA considered whether a species avoided a "thermally-enhanced area" during field collection work performed in May through September, noted the absence of any fish species, and adjusted its biological measurements accordingly.

Absence of Witness Cross-Examination. Midwest Generation notes that it provided expert witness testimony regarding the two EA thermal standard proposals in the Subdocket A rulemaking, although it had more limited participation in Subdocket D and did not present witnesses at the hearings. PC 1418 at 20. According to Midwest Generation, IEPA recommended to the Board that the EA proposals not be adopted because witnesses were not available to be cross-examined at the later hearings. Midwest Generation argues that the mere absence at hearings for cross-examination is not a sufficient reason to reject either of EA's proposals. *Id.*

Midwest Generation reminds the Board that the thermal standards proposed by EA, including the methodology on which they were based, were vetted by "the renowned thermal standards expert, Dr. Charles Coutant". PC 1418 at 21. Midwest Generation describes Dr. Coutant as a nationally recognized expert on thermal standards who has been involved in the development of thermal standards at the state and federal level. *Id.* at 22. Dr. Coutant reviewed the 2007 EA proposal and found "the thermal analyses and findings to be 'technically sound' and consistent with recognized scientific literature". He also concluded that "the UDIP numerical thermal values were supported by appropriate and well done" technical analyses. *Id.* Midwest Generation contends that Dr. Coutant's endorsement of EA's proposal "should provide the Board with the support it needs to select the EA 2007 Thermal Standards as the appropriate thermal water quality standards for the UDIP". *Id.* at 23.

AS 96-10 Adjusted Thermal Standards as an Alternative. Midwest Generation opines that the selection of thermal standards for the UDIP should be "focused on protecting the aquatic life reasonably expected to be present while not imposing overly stringent thermal standards". PC 1418 at 24. The AS 96-10 Standard, adopted by the Board in 1996 as an adjusted thermal standard applicable at the I-55 bridge, is a "more reasonable and viable alternative", according to Midwest Generation. The AS 96-10 standard is sufficiently protective but not overly protective, and includes an excursion hours provision that is protective but better suited to the aquatic life found in the UDIP. Midwest Generation argues that the AS 96-10 standard has been effective, which is documented by annual fish surveys conducted for Midwest Generation by EA. *Id.*

Midwest Generation provides additional reasons to support the application of the AS 96-10 Standard, rather than the General Use standard. PC 1418 at 24. First, General Use standards were approved in the 1970s, whereas, the AS 96-10 Standard was adopted in 1996, more than 20 years later. Thus, Midwest Generation contends the AS 96-10 Standard "benefitted from the evolution and advancement in aquatic life field data collection practices and general advances in the relevant knowledge" related to thermal standards. *Id.* Second, the AS 96-10 Standard has been incorporated into Midwest Generation's NPDES permits issued to its power plants on these waters. *Id.* at 25. Midwest Generation argues that these standards have been effective, as evidenced by data collected by EA, and that USEPA have never objected to the inclusion of the AS 96-10 Standard in Midwest Generation's NPDES permits. Most importantly, Midwest Generation argues, unlike the General Use standards, "The AS 96-10 Standard was derived specifically to protect the General Use waters below the I-55 Bridge - higher quality waters than either the ALU B or UDIP designations". *Id.*

Midwest Generation cites the Board's concern with the AS 96-10 Standard in that it does not address conditions that have changed since the adjusted standard was adopted. PC 1418 at 26. This includes the installation of helper cooling towers at its Joliet 29 facility and the closing of the Crawford and Fish power plants, and the elimination of their heat discharges. Midwest Generation notes the Board's conclusion that the AS 96-10 Standard is not justified for the UDIP without further evaluation of current conditions of the waterways. However, Midwest Generation argues that these changes do not make the AS 96-10 Standard less suited for the UDIP than the General Use standards. The cooling towers and closure of the two power plants have not had any effect on the conditions of the CSSC and UDIP on which the Board based the AS 96-10 Standard. *Id.*

Midwest Generation opines that the Board's concern with changed conditions "might be justified if those changed conditions included improvements to the aquatic habitat in the ALU B and UDIP waters". PC 1418 at 27. Such changes in habitat have not occurred since the adoption of the AS 96-10 Standard, according to Midwest Generation. *Id.* Lastly, Midwest Generation suggests that the Board's concern with the fact that the AS 96-10 Standard was adopted 20 years ago is not a reasonable ground to reject it, given that the General Use standards were adopted almost twice as long ago and were never intended to be applied to UDIP or ALU B waters. *Id.* at 27-28. Midwest Generation notes that the AS 96-10 Standards were also intended to protect General Use aquatic life populations and not the less thermally sensitive species protected by the ALU B and UDIP use designations. *Id.* at 28.

Midwest Generation argues that by adopting the General Use standards, the Board "will be imposing a greater burden upon Midwest Generation by requiring its thermal discharges to meet daily maximum thermal standards which are stricter than what should be applicable to either the UDIP or ALU B waters". PC 1418 at 28. If the Board adopts either the AS 96-10 Standard or General Use standards, Midwest Generation advises that the Board modify the daily maximum thermal standards by adopting them as daily maximum values, which will still protect aquatic life because the "maximum daily average temperature will not exceed the same numeric temperature values contained in the AS 96-10 and General Use Standards." *Id.* Midwest Generation further argues that making this change would allow thermal dischargers to revise

their operating practices to "attempt to comply with these overly strict standards, particularly if site-specific relief is delayed or denied". *Id.* at 29.

Midwest Generation objects to the 60° F maximum thermal standard and argues that this temperature was never proposed at hearings or in information presented during the proceeding. PC 1418 at 29. Midwest Generation opines that given the "effluent-dominated nature of these waters, it is uncertain whether the ambient temperatures, even without power plant dischargers, will be below 60° F daily maximum standard at all times". Midwest Generation notes that the previously proposed maximum thermal standard value was 88.7° F. Meeting the new proposed maximum daily value, which is a 30° decrease, "will have serious and extensive consequences because the proposed instantaneous daily maximum standard allows no room to modify a station's operations to remain in compliance". *Id.* Midwest Generation proposes that converting the thermal standard from a daily maximum to a maximum daily average would be one way in which the Board could mitigate the "harshness" of their proposed thermal standard. *Id.*

Modified Excursion Hours Provision. Midwest Generation notes that the Board requested input on the proposed inclusion of the General Use excursion hours provision in Section 302.211, which allows for an increase of up to 3.0° F to occur for 1% of the hours in a 12-month period. AC 1418 at 30. While Midwest Generation agrees that excursion hours are appropriately included in the thermal standards for the ALU B and UDIP waters, it suggests this should be increased to at least 2% or greater and should be applied on a calendar year basis instead of a 12-month rolling basis. Midwest Generation reminds that the AS 96-10 Standard provides for such an excursion provision and annual in-stream studies on the General Use waters downstream of the I-55 bridge have demonstrated that this is protective of aquatic life. *Id.* Therefore, Midwest Generation requests that the Board adopt the excursion hours provision in AS 96-10 rather than the General Use excursion hours provision. *Id.* at 31.

Cold Shock. In response to the Board's request for comments on whether a cold shock provision should be included in the thermal standards, Midwest Generation supports the Board's decision to not include a cold shock provision. PC 1418 at 31. Midwest Generation opines that if cold shock has not occurred in these waters in decades, there is no reason to suggest it will occur in the future. The inclusion of a cold shock provision also fails to recognize the effluent-dominated nature of these waters. *Id.*

Midwest Generation references the USEPA 1976 guidance on water quality criteria, which found that "the potential adverse effects caused by cold shock occur if the ambient water temperature is greater than 27° F less than the temperature of the heated discharge". PC 1418 at 31. Midwest Generation states that none of its stations have this condition. *Id.*

Also in response to the Board's request for comment, Midwest Generation favors a specific 27° F maximum thermal discharge temperature change rather than the narrative cold shock provisions proposed by IEPA. PC 1418 at 32. Midwest Generation opines that this does not mean it supports a cold shock provision, but that it prefers a proposal that is clear and understandable to dischargers, rather than the "vagueness and uncertainty inherent" in the language proposed by IEPA. *Id.*

Postponement of the Effective Date. Midwest Generation opines that it is unfortunate that this rulemaking is coming to a close at a time of uncertainty regarding the availability of water quality standards variances under Illinois law given that IEPA "is still working with U.S. EPA on a workable variance approach". PC 1418 at 32 and 33. Midwest Generation recognizes that the Board is aware of the uncertainty regarding variances and offered for comment a proposal to postpone the effective date for the thermal standards by 18 months. *Id.* at 33. Midwest Generation asserts that however well-intentioned, an 18-month postponement is not adequate for several reasons. First, it is not clear when USEPA and IEPA will agree on a workable solution to the issuance of variances. Second, Midwest Generation contends there also is uncertainty regarding the future of the General Use standards in that while the Board proposed to adopt General Use standards for the ALU B and UDIP waters, these standards may be placeholders until IEPA has updated the General Use standards. This, Midwest Generation hypothesizes, will lead to efforts to modify the thermal standards for the ALU B and UDIP waters based on the methodology used to update the General Use waters. *Id.*

As a result, Midwest Generation argues that the Board's proposed 18-month postponement of the effective date of the proposed thermal standards "is not likely to adequately protect thermal dischargers from the prejudice and burdens caused by having to comply with thermal water quality standards that are likely to be moving targets in the years to come". PC 1418 at 34. The 18-month postponement may lead dischargers with compliance issues to either initiate a new thermal standards rulemaking in the future or to attempt to retain relief through a variance request. *Id.* at 34-35. Midwest Generation contends that neither alternative is reasonable. *Id.*

Midwest Generation, therefore, proposes that if the Board does not adopt either of the EA thermal proposals, it should create a new subdocket to address the thermal standards issues. PC 1418 at 35. Midwest Generation notes that now that aquatic life use designations have been adopted for these waters, "there is a clear basis on which to derive protective thermal standards for these uses". These use designations had not been adopted at the time that IEPA and Midwest Generation proposed their thermal standards. *Id.* Midwest Generation opines that opening a separate subdocket will allow an acceptable methodology to be derived that can be applied to all aquatic life use designations. *Id.* at 36.

Three-year Postponement Alternative. Midwest Generation urges the Board to extend the postponement of the effective date of the thermal standards for ALU B and UDIP waters for a period of at least three years if it elects to not open a separate subdocket to address thermal standard issues. PC 1418 at 36. Eighteen months does not allow "sufficient assurance that either site-specific relief or more final thermal standards for these waters can be obtained". A three-year postponement provides a more realistic timeframe to relieve thermal dischargers from "the regulatory uncertainties that exist and for which thermal dischargers are not responsible". *Id.*

Midwest Generation argues that a multi-year postponement is warranted because it would reduce or avoid the prejudice that will be caused by requiring thermal dischargers to spend the time and money to seek relief or to achieve compliance with the General Use standards that are likely to be updated in the future. PC 1418 at 37. Midwest Generation speculates that any effort

to comply with the General Use standards will be a waste of resources because these standards may become more lenient for ALU B and UDIP waters in the future. *Id.*

PC 1427

On December 12, 2014, Midwest Generation submitted a response to the comments received on the Board's First Notice Opinion and Order for Subdocket D. PC 1427 at 1. Midwest Generation raises issues primarily related to the proposed temperature standards.

Midwest Generation notes that there is no consensus as to what the thermal standards should be for CAWS/LDPR waters. PC 1427 at 1. As an example, Midwest Generation, IEPA, and USEPA oppose the Board's proposal, although the latter two recommend adopting IEPA's proposed thermal standards. According to Midwest Generation, there is "no defensible basis on which to proceed to adopt the Agency's proposed thermal standards". *Id.* Midwest Generation also finds the Board's proposal of applying General Use numeric thermal standards to be without scientific support. *Id.* at 2. IEPA and USEPA also supported the adoption of some of the General Use standard's narrative provisions, which Midwest Generation argues are inapplicable to the effluent-dominated UDIP and ALU B waters. *Id.*

Midwest Generation continues to support its thermal standards proposals; however, recommends that if the Board does not agree, it should open a new subdocket to address and satisfactorily resolve the issues that remain regarding thermal standards. PC 1427 at 2. While this approach will delay the effective date of implementation of these new standards, Midwest Generation suggests this is "far superior to adopting outdated, inapplicable and overly stringent General Use thermal standards". *Id.*

Midwest Generation argues that a new subdocket would allow the Board to adopt thermal standards that are supported by scientific methods. PC 1427 at 3. Midwest Generation continues to support their two proposals for thermal standards, notably the 2007 EA proposal that was endorsed by Dr. Charles Coutant, a nationally recognized thermal standards expert. *Id.* at 3 and 4. Opening a new subdocket would allow further deliberations and vetting of the 2007 EA proposal, which Midwest Generation contends IEPA found lacking. *Id.* at 4. The same rationale applies to the Board's reluctance to adopt the AS 96-10 standard for the UDIP, indicating that it may be outdated. A new subdocket would allow an opportunity to evaluate whether AS 96-10 adequately addresses current conditions. *Id.*

Midwest Generation argues that the Board's proposal to adopt General Use standards for these waters is not defensible and conflicts with earlier Board decisions. PC 1427 at 5. First, Midwest Generation notes that the Board has not heard testimony from or cross-examination of experts supporting the adoption of General Use standards. Second, this proposal "would be a reversal of decades of recognition of the undisputed fact that General Use standards apply to high-quality, natural water bodies". Midwest Generation contends this is "as old as the Board itself", citing from a 1972 Board opinion that concluded the General Use standards were not meant to apply to the "few highly industrialized streams consistent primarily of effluents in the Chicago area". *Id.* Midwest Generation suggests the Board appeared to recognize the "unnatural nature" of these water bodies in Subdocket C when it considered and rejected designating the

UDIP as a General Use water because it could not fully meet the CWA's aquatic life goal. *Id.* at 6.

Midwest Generation notes that other states have developed innovative approaches to regulating thermal discharges. Pc 1427 at 6. Wisconsin, as an example, created a "water-body classification specifically for wastewater effluent channels" with relaxed temperature standards. Wyoming subjected effluent-dominated waters to "general, narrative requirements that they not cause harmful, acute or chronic effects to aquatic life". *Id.* Midwest Generation also mentions Colorado's regulations that allow for "water temperatures to be exceeded during unusually warm days". *Id.* at 7. Midwest Generation argues that the Board needs to "adopt modern thermal standards that keep pace with regulators in other states". *Id.* at 7.

According to Midwest Generation, the CSSC and UDIP are effluent-dominated waters, sometimes consisting entirely of effluent from the Stickney Water Reclamation Plan. PC 1427 at 7. Effluent-dominated waters have unique characteristics, Midwest Generation notes, and problems that are not the same as in naturally occurring waters. The question, poses Midwest Generation, is how to adopt proper thermal standards for these waters. *Id.* Midwest Generation raises these points as support for its recommendation to open a new subdocket to address thermal standards. *Id.* at 8.

Midwest Generation supports the Board's decision to not propose adopting the General Use narrative standards, which it contends were never intended to apply to lower use waters such CAWS and LDPR. PC 1427 at 8. Midwest Generation argues that Section 302.211(b) through (d) cannot be applied to these waters because they are not "natural" waterways. One example of the "fatal flaw" of trying to apply the narrative standards to these waters is with "5° F Delta T Rule" that prohibits temperature rises above "natural temperatures" by more than 5° F. Midwest Generation argues there is no evidence in the record to suggest what "natural temperatures" are in these waters. *Id.* As result, Midwest Generation opines that "dischargers are left in the dark as to what the regulations require of them". *Id.* at 9 and 10.

Midwest Generation argues that the Environmental Groups recognize that the adoption of the narrative standards would make these rules "so onerous that even nominal thermal dischargers associated with public treatment works could not easily achieve compliance". PC 1427 at 10. As a result, Midwest Generation claims that the Environmental Groups have conceded that the District should be exempt from the thermal standards because there is no practical way of being in compliance. *Id.*, citing PC 1422 at 3. Midwest Generation urges the Board to not "cherry pick" among the narrative standards contained in the General Use thermal standards. *Id.* This would make the thermal water quality standards "even more unreasonable and ill-suited to these waters". *Id.* at 11. Midwest Generation summarizes by saying it does not support the proposed adoption of the numeric General Use standards but also does not support the inclusion of additional narrative standards, suggesting this would make the thermal standards "completely unworkable and unjustified" for these waters. *Id.*

Cold Shock. Midwest Generation addresses the Environmental Groups suggestion to include Section 302.211(d) of the narrative standard to protect against cold shock. PC 1427 at 10. Midwest Generation argues that the Environmental Groups have offered no support for this

contention, and there is nothing in the record to support it. Midwest Generation recommends that if the Board decides a cold shock provision is needed, that it include the cold shock provision proposed by Midwest Generation. *Id.*

Stepan Company

During the first notice comment period, Stepan provided two comments to the Board. Those comments are summarized below

PC 1419

On November 21, 2014, Stepan submitted comments on the Board's first notice proposal. Stepan raises issues related to the proposed standards for temperature, DO, and chloride. Stepan begins by noting that the changes in numeric and narrative water quality standards proposed by IEPA and the Board at First Notice "could significantly impact Stepan", specifically Stepan's Millsdale plant, which discharges to the UDIP. PC 1419 at 1.

Stepan agrees with the Board's rejection of IEPA's and the Environmental Groups' proposed temperature standards because their proposals would apply more stringent standards to waters designated for the protection of lower aquatic life than General Use waters. PC 1419 at 1. Stepan notes that the Board recognized that the methodology and science used by the Midwest Biodiversity Institute (MBI) in developing IEPA's thermal standards was "questionable". *Id.* at 2. Stepan believes there "is more than ample evidence in the record supporting these conclusions". *Id.*

Stepan explains that the Board rejected proposals submitted by Midwest Generation and supported by Stepan and others because these proposals "were not supported by sufficiently recent data and that the Board did not believe they would protect aquatic life expected to be present in UDIP waters". PC 1419 at 2. Stepan believes that this assessment is unfair, noting that one proposal was supported by fish sampling data from the Dresden Pool between 1994 and 2005, whereas, the IEPA proposal was based on laboratory studies rather than fish sampling data. *Id.* Stepan notes that the temperature standards proposed by EA Engineering in 2007 were based on "field data with a total of 77 different fish species, including all 27 species on the Representative Aquatic Species advocated by MBI". *Id.*

Stepan states that the Board also criticizes Midwest Generation's temperature standards proposals because they did not consider the "recent changes in the thermal regime of the CAWS or the UDIP", among them, the closing of the Crawford and Fisk plants. PC 1419 at 2. Stepan argues that there is "no foundation" for these criticisms. *Id.* Stepan opines that there is no evidence that these changes in thermal regime would have "any material impact on the temperature regime in the UDIP". *Id.* at 3. Stepan further contends that the Board's criticism "ignores that the LDPR is a heavily effluent-dominated stream for which wastewater treatment plant discharges comprise 90% of stream flow and, during winter, almost the entire low flow". *Id.*

Stepan supports the temperature standards proposed by Midwest Generation, believing they are supported by relevant and recent data and that they would protect aquatic life expected to occur in UDIP waters. PC 1419 at 3. As a result, Stepan notes it "reserves its right to challenge the numeric temperature criteria in the *First Notice*, if finally adopted by the Board". *Id.* Stepan indicates that the same concerns apply to the Board's proposed numeric standards for DO and chloride, which are equivalent to General Use standards. Stepan explains that while it "does not intend to re-argue the evidence already considered by the Board in reaching the *First Notice* proposal, Stepan disagrees with these proposed standards and "reserves its right to challenge, those, or any other numeric criteria in the *First Notice*, if finally adopted by the Board". *Id.* at 3 and 4.

Lastly, Stepan identifies "what appear to be some inadvertently incorrect subsection cross-references" related to the proposed numeric standards for temperature in Section 302.408 and the proposed numeric standards for ammonia in Section 302.412. PC 1419 at 4-7.

PC 1426

On December 12, 2014, Stepan submitted its response to the comments received on the Board's first notice proposal. PC 1426 at 1. Stepan raises issues related to chloride and BMPs, temperature and excursion hours, the applicability of the General Use narrative standards, copper, cyanide, benzene, selenium, ammonia, and sampling requirements.

Chloride. Stepan supports IEPA's proposal to open a new subdocket to address chloride issues, noting that the proposed standards do not address the real cause of chloride issues in CAWS and the LDPR. PC 1426 at 2. Stepan notes that it was made clear at the hearings that the cause of the chloride problem is the wide-spread use of salt for deicing roads during winter months. Even with the proposed acute standard of 990 mg/L and chronic standard of 620 mg/L for the CSSC, Stepan opines that exceedances may still occur in winter months. *Id*.

Stepan disagrees with the Board's reasoning for not opening a new subdocket to address chloride issues, and opines that sufficient information does not exist to adopt water quality standards now. PC 1426 at 3. Stepan notes that evidence was provided in testimony that the standards proposed by IEPA and the Board cannot be complied with due to situations completely beyond the control of the dischargers. Stepan further notes that Illinois courts have allowed the Board to adopt technology-forcing standards in certain situations, but this is dependent on the availability of variances or other site-specific or discharger-specific relief. *Id.* Stepan argues that "the Board's authority to adopt standards with which compliance is not technically feasible is, at best, unclear". *Id.* at 4.

Stepan observes that the Board's acknowledged availability of variances for chloride is questionable given new requirements of USEPA. PC 1426 at 4. The Board also noted that it is unclear how point source dischargers with NPDES permits will implement an effective compliance plan or show progress in meeting the standards when the exceedances would be due to those that discharge only storm water, such as non-point sources, and municipal separate storm sewer systems. According to Stepan, the Board has also not explained why a 500 mg/L chloride standards is "absolutely necessary" to protect public health. In light of these issues,

Stepan opines that the three proposed chloride water quality standards "could well be overturned on appeal and the creation of a subdocket to more fully consider these issues is surely the wisest course". *Id.*

Stepan opposes extending the site-specific chloride standard proposed for the CSSC to all CAWS waters as suggested by the District, although does not oppose this standard. PC 1426 at 5. Expanding the applicability of the site-specific chloride standards would only worsen the potential chloride impacts of upstream dischargers on the LDPR and other downstream waters. *Id.*

Temperature. Stepan supports Midwest Generation's proposal to open a new subdocket to address thermal standards for CAWS and LDPR. PC 1426 at 6. Stepan also suggests that the Board retain the current numeric thermal standards in Section 302.408 until the new subdocket has been resolved. This is important to Stepan because of the projected capital and operating costs required to meet IEPA's and the Board's proposed thermal standards. *Id.*

Stepan opines that no participant in Subdocket D hearings "favored applying the GU numeric temperature criteria to the CAWS and LDPR waters". PC 1426 at 7. IEPA and the Environmental Groups advocated for lower thermal standards, while Midwest Generation, Stepan and others supported higher thermal standards than the GU numbers. Stepan agrees with the decision to not adopt IEPA's and the Environmental Groups' thermal standards proposal, but does not believe the record supports the Board's rejection of Midwest Generation's thermal proposals. *Id.* According to Stepan, the Board cannot "justify a regulation based on reasoning that is contradicted in the record" without risking the action being "arbitrary, and capricious and invalid". *Id.* at 8.

Stepan observes that by designating a distinct ALU for the UDIP, the Board found that the UDIP did not fully meet CWA goals, which made it inconsistent to proposed General Use thermal standards for the UDIP. PC 1427 at 8. Further, Stepan reasons that the Board's rejection of IEPA's and the Environmental Groups' thermal proposals because they were more stringent than General Use standards applies to the application of General Use thermal standards as well. Stepan does not believe there is evidence in the record to support the conclusion that long-term thermal discharges may be adversely impacting aquatic life in these waters. As an example, Stepan notes that the thermally sensitive fish species, the white sucker and walleye, have not established populations downstream of the I-55 bridge, suggesting that temperature is not the limiting factor for those fish present in the UDIP in significant numbers. *Id.*

Stepan also argues that the lack of any effective regulatory relief for thermal discharges is further argument to support opening a new subdocket to address thermal standards. PC 1426 at 10. Another reason to support opening a separate subdocket is that the Board has not established that it is absolutely necessary to apply the General Use standards to CAWS and LDPR. This is evidenced by the fact that the Environmental Groups recommend that the District not have to cool its effluent, suggesting there is "no necessity at all". *Id.* at 11.

Narrative GU Standards. Stepan recommends that the proposal to apply the narrative General Use standards to the CAWS and LDPR should be rejected or the narrative standards

should be modified to reflect the effluent-dominated nature of these waters. PC 1426 at 12. These narrative standards are recommended to be included by IEPA, USEPA, and the Environmental Groups, although Stepan argues that this is inconsistent with the Board's finding that these waters are effluent-dominated. Narrative standards in Section 302.211(b), (c), and (d) are all worded to suggest they apply to natural water bodies that have normal temperature fluctuations or natural temperatures. Such is not the case with the CAWS and LDPR waters. In fact, Stepan argues that the opposite is true, particularly related to thermal characteristics. There are no "natural temperatures" or normal temperature fluctuations. *Id.* According to Stepan, there is only "consistent discharge of treated wastewater by the [District] which sets the CAWS and LDPR thermal regime". *Id.* at 12 -13.

Stepan believes that the application of the General Use narrative standards "is unjustified and unsupported by the record and would be arbitrary and capricious". PC 1426 at 13. However, Stepan states that if the Board decides to include these narrative standards, certain changes need to be considered. If the General Use narrative standards are to be made applicable to these waters, proposed Section 302.408(b) needs to be modified to say "Water temperature at representative locations in the main river shall not exceed maximum limits in the applicable table in subsections (c), (d) and (e)". "Second, language in each of the narrative criteria must be changed to recognize that not all CAWS and LDPR waters have identical ALUs and to delete concepts such as "natural temperatures," which do not apply." Stepan provided specific suggestions as to how the Board might modify the General Use narrative standards. *Id.* at 14.

Excursion Hours. Stepan recommends that the Board retain the excursion hours provision associated with the proposed numeric thermal standards. PC 1426 at 14. Proposed Section 302.408(b) includes a provision that allows the numeric standards to be exceeded not more than one percent of the hours during any 12-month period ending with any month. *Id.* Stepan notes that USEPA's position on this excursion hours provision is "unclear", while the Environmental Groups oppose the excursion hours over summer maximums proposed in both the IEPA proposal and the current General Use thermal standards. *Id.* at 15. Stepan contends that the "ability of fish to avoid short-term exceedances of even maximum limits has been well-established," which supports the excursion hours provision. *Id.*

Best Management Practices. Stepan supports the Board's proposed Section 309.141(i) to authorize BMPs for the control of chloride, but believes this should be applied to any pollutant. PC 1426 at 16. First, Stepan argues that this would be consistent with 40 C.F.R. §122.44(k). Second, the federal BMPs provision allows BMPs as a permit condition if authorized under the CWA 304(e). Stepan recommends that Section 309.141(i) be modified to include language authorizing IEPA to use BMPs if authorized under by the CWA Section 304(e). *Id.*

Copper. Stepan notes that USEPA and the Environmental Groups recommend using USEPA's 2007 National Criteria Document and its BLM to adopt the chronic copper standards. PC 1426 at 17. Stepan opposes this approach because IEPA does not have all of the necessary data to use the BLM and believes applying the BLM on a state-wide basis is more appropriate. Stepan agrees with IEPA that the copper standards for CAWS and LDPR waters should be based on the same national criteria document that was used for the current General Use standards.

Cyanide. Stepan supports the chronic cyanide standards as proposed by the Board at First Notice. PC 1426 at 18. The Environmental Groups raise concerns about the proposed 10µ/L standard because the rainbow trout was excluded in the calculation. *Id.* at 17. Stepan argues that the exclusion of the rainbow trout from CAWS and LDPR waters is "amply justified" because there has been no mention of this species having been found in these waters or even in nearby downstream waters. *Id.* at 17 and 18. In addition, Stepan notes, USEPA raised no objection to the Board's proposed chronic cyanide standard. *Id.* at 17.

Benzene. Stepan does not support the recommendation by the Environmental Groups to adopt the human health numeric standards of 51 µg/L or 23 µg/L for benzene. PC 1426 at 18. Stepan observes that the Board proposed at First Notice, a human health standards for benzene of 310 µ/L because none of the CAWS or LDPR waters are designated as public water supplies. *Id.* This standards is the same as that which applies to General Use waters. Stepan argues that there is no justification to adopt a standards for CAWS or LDPR waters that is more stringent than the standards applied to General Use waters and that if a more stringent standard is to be considered, it should be done on a state-wide basis. *Id.* at 19.

Selenium. Stepan states that the Board proposed a selenium standards of 1.0 mg/L, which is identical to the General Use standards. PC 1426 at 19. It also notes that USEPA asked the Board to set the standard sat 0.005 mg/L of total recoverable selenium based on USEPA's 1987 National Criteria Document. The Environmental Groups noted in their comments that USEPA anticipates publishing a new selenium national criteria document in 2015 but did not ask the Board to adopt the criterion suggested by USEPA. Stepan notes that the Environmental Groups suggested IEPA begin measuring selenium in waters throughout the state and then introduce a selenium proposal in 2016. Stepan asserts that there is uncertainty related to the science of USEPA's lower selenium criteria, as well as a pending revision of the national criterion recommendation for selenium. These factors do not lend support to adopting a selenium standards for CAWS and LDPR waters that is more stringent than General Use standards. Stepan also comments that an effort to revise the selenium standards should be done on a statewide basis. *Id.*

Other Toxic Substances. Stepan observes that the Board proposed changes to Section 302.410, which addresses substances toxic to aquatic life. PC 1426 at 19 and 20. The purpose of this section is to "make the CAWS and LDPR waters subject to Procedures for Determining Water Quality Criteria in Part 302, Subpart F", which identifies the procedures for calculating numeric criteria for pollutants not specifically listed. *Id.* at 20. Stepan notes that IEPA and USEPA "requested a change to the section title and other language to more closely parallel Section 302.210", which is analogous to the provisions for General Use waters. One change proposed is to delete "toxic to aquatic life". Stepan states that it does not generally object to the language changes proposed by the two agencies, "except that they do not specify that the criteria to be derived must take into account the Board's designated use of the waters at issue". Stepan asserts that CAWS and LDPR waters have different human/recreational and aquatic life uses than do General Use waters. As a result, the water quality standards to be derived pursuant to the proposed Section 302.410 and its incorporation of Subpart F procedures "must take into account the differing designated uses of the waters to properly derive criteria". *Id.* Stepan recommends

that if the Board chooses to retain the structure of proposed Section 302.410, then the language should be revised to reflect the differences in designated uses. *Id.* at 21. Stepan proposes adding the phrase "taking into account the uses of the water as designated in Part 303" to the language the Board proposed in Section 302.410. Stepan also supports the changes suggested by both USEPA and IEPA. *Id.*

Ammonia. Stepan notes that both USEPA and the Environmental Groups recommend that the Board "rely on USEPA's 2013 National Criteria Document for ammonia to adopt lower acute and chronic ammonia criteria for ammonia than proposed by the Board at First Notice". PC 1426 at 22. Stepan agrees with IEPA that compliance with the ammonia standards based on the 2013 National Criteria Document is a nationwide problem. Stepan also asserts that adopting the more stringent ammonia standards based on the 2013 USEPA document would likely impose a more stringent ammonia standard for CAWS and LDPR waters than exists for General Use waters, which Stepan notes the Board has "repeatedly said would be inappropriate". Further, Stepan agrees with IEPA that pursuing an ammonia standard based on the 2013 USEPA document should be done on a state-wide basis. *Id.*

Sampling Requirements. Stepan notes that USEPA has recommended that the Board "eliminate language referring to duration and frequency or sampling requirements from the water quality numeric criteria". PC 1426 at 22. Stepan supports the Board's decision to not include the suggested changes proposed by USEPA and cites three reasons: 1) these changes would "introduce inconsistences between the proposed rules for the CAWS and LDPR and essentially identical existing rules applicable to GU and/or Lake Michigan Basin waters"; 2) these changes are not supported by USEPA guidance; and 3) "other states within Region 5 also include sampling requirements in their water quality criteria." *Id.* at 23. Stepan asserts that any change to the sampling requirements should be done on a state-wide basis, "with a more detailed explanation of the reason and significance of the change". *Id.* at 24.

Stepan closes its responsive comments with several miscellaneous comments and suggested revisions the Board's proposed First Notice language. PC 1426 at 24.

ExxonMobil

ExxonMobil provided two comments during the Board's first-notice period. The Board summarizes those comments in turn.

PC 1420

On November 12, 2014, ExxonMobil Oil submitted comments on the Board's first notice opinion and order for Subdocket D. ExxonMobil raises issues related to the proposed water quality standards for chloride, mercury, and temperature. ExxonMobil also provides comments on BMPs related to the proposed chloride standard and cold shock.

ExxonMobil explains that Subdocket D was to establish water quality standards based in part on the aquatic life uses adopted in Water Quality Standards and Effluent Limitations for the Chicago Area Waterway System and Lower Des Plaines River: Proposed Amendments to 35 Ill.

Adm. Code 301, 302, 303, and 304, R08-9(C), (Feb. 6, 2014) (Subdocket C). PC 1420 at 1. In Subdocket C, ExxonMobil reminds that the Board suggested that the UDIP "is unique and justifies its own unique WQS". ExxonMobil discharges into the UDIP. *Id.* ExxonMobil states that it had identified in Pre-First Notice comments the conditions in the UDIP that warrant special considerations "when adopting WQS and regulatory relief mechanisms in Subdocket D". *Id.* at 2. ExxonMobil recognizes the Board's efforts "to address many of the challenges impacting dischargers to these waterways" but "stresses the need for revisions to the Board's First Notice proposal". *Id.*

Chloride. ExxonMobil addresses the Board's proposed chloride standards for CAWS and LDPR. PC 1420 at 2. According to ExxonMobil, the "record contains information that indicates that the chloride standard proposed by Illinois EPA will be exceeded during the winter months due to the use of calcium chloride to deice roads in the area". ExxonMobil notes that point source discharges are not the primary source of the elevated chloride levels. *Id.* ExxonMobil explains that the Board is proposing a 500 mg/L chloride standard to apply to CAWS and LDPR waters except the CSSC waters where a separate winter chloride standards of 620 mg/L chronic and 990 mg/L acute would apply. *Id.* at 5. ExxonMobil supports the standards proposed for the CSSC and "believes it should also be adopted for the LDPR, including the UDIP, as well as for CAWS waters". *Id.*

ExxonMobil opines that there is "ample evidence in the rulemaking record that the UDIP is subject to the same winter chloride concentration peaks that are observed in the CSSC due to the use of calcium chloride for deicing". PC 1420 at 5. ExxonMobil notes that while the data on aquatic species used by Huff & Huff in the recalculation of the winter chloride standards for the CSSC are not available for the LDPR, ExxonMobil reasons that the "majority of flow in the LDPR is from the CAWS, and particularly the CSSC", and the LDPR is therefore subject to the same peaks in chloride concentration in winter months as the CSSC. *Id.* ExxonMobil further reasons that because the "existing aquatic biota in the LDPR have necessarily adapted to such variations in concentrations", the chloride standard proposed for the CSSC "will be protective of the aquatic life that currently inhabits the LDPR". *Id.* at 6. ExxonMobil contends that the "Board has the authority and the database (as provided by CITGO Petroleum Corporation and PDV Midwest, LLC ("CITGO/PDV") to justify adopting winter chloride criteria for the UDIP". *Id.* As an alternative, ExxonMobil requests a separate subdocket be opened to "address an appropriate chloride standard and waterbody variance". *Id.* at 5.

ExxonMobil notes that the Board has proposed "an appropriate tool (best management practices for point source dischargers)", which it supports as a way of addressing elevated levels of chloride. PC 1420 at 3. It further notes that water quality based effluent limits (WQBEL) "applied to point source NPDES permits are infeasible as a means of assuring compliance with the chloride criterion in the winters months" because point sources are not the cause of the intermittent exceedances. *Id.* at 7. ExxonMobil opines that a numeric WQBEL set at 500 mg/L "would be economically unreasonable and would have no measurable effect on the winter instream exceedances". ExxonMobil suggests that requiring point sources to implement BMPs to control their contributions of chloride in the winter months would meet the purposes and intent of the CWA". *Id.* at 7 and 8.

Mercury. ExxonMobil addresses "the feasibility and implementation of Illinois EPA's proposed mercury standard for the LDPR, including the UDIP". PC 1420 at 3. ExxonMobil opines that as with chloride, the overwhelming source of mercury in surface waters is due to nonpoint source discharges, specifically from atmospheric deposition. *Id.* ExxonMobil states that despite the nonpoint source for mercury in surface waters, IEPA has listed the UDIP as impaired for mercury. ExxonMobil raises concerns that this "impairment status is based on fish tissue data and not water column data". ExxonMobil is also concerned that there are no known commercially available treatment processes for mercury dischargers to use to meet the proposed mercury standard. ExxonMobil notes that other states have acknowledged the "ubiquitous status of mercury in surface waters and lack of treatment options and have provided dischargers with streamlined approaches for obtaining regulatory relief". *Id.*

ExxonMobil states that it could support the proposed human health-based standard for total mercury of 12 ng/L if the "Board also adopts a streamlined relief mechanism", which the Board declined to do at First Notice. PC 1420 at 8 and 9. ExxonMobil notes the Board's finding that the record did not contain "sufficient information on the water quality for mercury in the UDIP" to conclude that relief is necessary". *Id.* at 9. ExxonMobil agrees that there is no water column data in the record for the UDIP showing exceedances of the proposed 12 ng/L mercury standard on an annual basis; however, ExxonMobil is concerned that IEPA "will use fish tissue data to make permitting decisions that should be based on water column data". *Id.*

ExxonMobil asserts that regulatory relief is "appropriate", either as streamlined adjusted standard procedures or a multi-discharger or water body variance process that is "similar to those implemented by most Great Lakes states". PC 1420 at 9. ExxonMobil urges the Board to "consider a separate rulemaking, preferably on a statewide basis, to adopt such procedures for mercury" given that point sources are not the major sources of mercury discharges and that the TMDL process is "too slow and cumbersome". *Id.* ExxonMobil opines that other Great Lakes states have addressed these problems either through "variance procedures (*e.g.* Indiana, Ohio, Wisconsin, and Michigan) or TMDL-based permitting methods (*i.e.* Minnesota and New York)". *Id.* at 9 and 10.

ExxonMobil also states that it supports the proposed revision to a 12-month rolling average. PC 1420 at 8. IEPA's initial proposal would have determined compliance "based on when the stream flow "is at or above the harmonic mean flow", which ExxonMobil does not support. *Id.* ExxonMobil contends that "the use of a 12-month rolling average of multiple representative samples is scientifically justified to determine compliance with the criteria". *Id.* at 8 and 9.

Temperature. ExxonMobil addresses the proposed General Use thermal standards for the UDIP. PC 1420 at 10. ExxonMobil agrees with the Board's decision to not adopt thermal standards that are more restrictive than the General Use standards that meet CWA goals and with the Board's decision to delay implementation of the thermal standards. Despite this, ExxonMobil opines that "large upstream dischargers still necessitate a regulatory relief mechanism for smaller dischargers". *Id.* ExxonMobil also supports the Board's inclusion of excursion hours that "recognize that short-term variations in temperature may occur without

causing permanent harm to the aquatic life because avoidance is a natural response of fish to short-term temperature increases". *Id.*

While ExxonMobil supports the thermal standards proposed for the UDIP, it remains concerned that thermal discharges upstream of the UDIP have "historically resulted in elevated temperatures in the UDIP". PC 1420 at 11. These upstream discharges could "preclude ExxonMobil from obtaining a mixing zone, as allowed by the Board's rules, until such time as the upstream dischargers are fully compliant" with the proposed temperature standards. While ExxonMobil notes the Board is proposing to delay the effective date of implementation of the General Use temperature standards for the UDIP for 18 months, ExxonMobil does not believe this delay is sufficient. *Id.* If the new temperature standards were placed in ExxonMobil's renewed permits, "assuming they would not be granted mixing zones", ExxonMobil "would be forced to install sufficient cooling, at great expense, to achieve the WQS at end-of-pipe". *Id.*

ExxonMobil notes that to address this concern, IEPA has considered a "type of cascading implementation of the temperature standards that would address the major upstream thermal sources first" although IEPA also acknowledged that this approach "raises some concerns". PC 1420 at 12. ExxonMobil is "concerned that the existing regulatory authority to cascade implementation is unclear and imperfect". *Id.* Because of these concerns, ExxonMobil suggests that if the Board adopts the proposed temperature standards for the UDIP that it "should also build in regulatory relief for downstream dischargers". *Id.* at 13. ExxonMobil offers several suggestions for such relief, including allowing a demonstration as required in Section 302.211(f) of a single discharger variance, although this would be cumbersome, or a waterbody-wide regulatory mechanism in the WQS itself. *Id.*

Cold Shock. ExxonMobil provides comments on the Board declining to adopt IEPA's cold shock provisions for CAWS and LDPR. PC 1420 at 13. ExxonMobil supports this decision because IEPA reported that it had never identified cold shock as occurring in any surface water in the state. *Id.* ExxonMobil suggests the cold shock provisions as proposed by IEPA "was not scientifically justified, and the Board's deletion of this provision from the Proposed Rules is appropriate". *Id.* 13 and 14.

PC 1425

On December 21, 2014, ExxonMobil Oil Corporation (ExxonMobil) submitted a response to First Notice comments. PC 1425 at 1. ExxonMobil raises issues regarding chloride, delaying the effective date of the proposed thermal standards, and providing relief to downstream dischargers. In addition, ExxonMobil requests the Board publish a proposed second notice to allow additional public comment before issuing a second notice order.

ExxonMobil supports IEPA's chloride proposal in its First Notice comments and shares IEPA's concerns that there will be widespread noncompliance if the Board adopts the chloride standard proposed at First Notice. PC 1425 at 2. Specifically, ExxonMobil supports establishing a subdocket to allow time to develop an appropriate chloride standard and waterbody variance, with the current TDS standard being maintained until the chloride issues are resolved. *Id.* at 3. This includes the site-specific standard of 1,686 mg/L applicable to a stretch of the LDPR. *Id.*

As an alternative, ExxonMobil supports applying the Board's proposed chloride standard for the CSSC to the UDIP. *Id.* at 6. ExxonMobil further notes that if the Board moves forward with a year-round 500 mg/L limit, IEPA recommends delaying the effective date for two years and applying the 1,500 mg/L TDS standard and the approved site-specific standard for this time period. *Id.*

ExxonMobil notes that Midwest Generation requests the Board open a new subdocket to address thermal issues or to extend the postponement of the effective date of the thermal standards. PC 1425 at 6 and 7. ExxonMobil agrees that extending the effective date will help "minimize uncertainties", but opines that this alone will not solve the problem facing dischargers downstream of large thermal dischargers. *Id.* at 7. ExxonMobil explains that the new thermal standards may be imposed on downstream dischargers before large upstream dischargers comply with the new standard or obtain regulatory relief. Such downstream dischargers cannot develop appropriate compliance plans until the issues of upstream thermal dischargers have been resolved. *Id.*

For these reasons, ExxonMobil urges the Board to provide a regulatory requirement that larger thermal dischargers have to achieve compliance before smaller dischargers are required to comply with new thermal standards. PC 1425 at 7. One suggestion is to require a demonstration such as "required by Section 302.211(f) (for dischargers with heated effluent discharging 150 megawatts (0.5 billion BTU/hr) or more) and a clarification that until such demonstration is made and implemented, other thermal dischargers that are impacted by such dischargers need only comply with previously permitted limits". *Id.* at 7 and 8.

ExxonMobil requests the Board publish a proposed second notice to allow additional public comment before issuing a second notice order. PC 1425 at 8. ExxonMobil notes that First Notice comments "advocate numerous competing proposals", and new proposals have been introduced, such as IEPA's proposed chloride plan. ExxonMobil notes that the Board has been willing to publish a proposed second notice in the past when it was believed a rule would benefit from additional public comment. *Id.*

Ingredion Incorporated (PC 1421)

On November 21, 2014, Ingredion Incorporated (Ingredion) submitted comments on the Board's first notice opinion and order for Subdocket D. Ingredion raises concerns with the proposed General Use temperature standards for the CSSC, an ALU B water, and requests clarification for the meaning of the excursion hours provision.

Temperature

Ingredion reminds that at First Notice in Subdocket C, the Board found that the CSSC was not capable of attaining CWA goals for aquatic life and agreed with IEPA that use attainability analysis factors 3, 4, and 5 applied to the CSSC. PC 1421 at 2. The Board further noted that "problems persist with DO and temperature" for the CSSC, and therefore concluded that conditions in the CSSC "*limit the attainment of the General Use* designation for protection of aquatic life (emphasis added)". *Id.* at 2 and 3.

Given the conclusions of the Board, Ingredion contends there is "no technical support or justification to propose application of an existing General Use WQS to Use B waters in Subdocket D". PC 1421 at 3. Ingredion opines that the Board is proposing to "apply WQS to low quality Use B waters that is equivalent to the existing General Use WQS. But the General Use WQS is applicable to higher quality waters…that are not limited in use". *Id.* at 4. Ingredion concludes that the Board's proposal does not recognize the unique uses identified for Use B waters, and that thermal limits should be established with consideration to these limited uses. *Id.*

Ingredion explains that the Board proposes a daily maximum limit for Use B waters of 60º F for the months of December, January, February, and March; whereas, IEPA proposed a daily maximum of 90.3° for all months. PC 1421 at 5. Ingredion notes this is a "difference of more than thirty degrees in winter months". Ingredion attributes this to the "confusion due to the fact that period averages proposed by Illinois EPA [IEPA] were lower than the daily maximum limits proposed by the Board at First Notice". *Id.* Ingredion contends that these two numbers cannot be compared because compliance with IEPA's proposed period average limits was designed to be achieved "during any period on an average basis", while the Board's proposal does not allow for averaging. *Id.*

As an example, Ingredion observes that IEPA proposed a "*period average* of 59.9º F for December 1-31 and a daily maximum for that same period of 90.3º F". PC 1421 at 5. Ingredion compares these standards to the Board's proposed "*daily maximum* of 60º F for December". *Id.* Ingredion opines that the Board's proposal is a "drastic departure from the thermal standards currently applicable to Use B waters, which preclude the temperature from exceeding 93° F more than 5% of the time, or 100º F at any time". *Id.* at 6. According to Ingredion, the daily maximum is "designed to protect acute (or lethal) impacts, while the chronic (or sub-lethal) impacts are protected through the period average". *Id.* at 7. Ingredion contends that the Board's proposal "does not recognize the distinction between the types of limits", and there is "no evidence in the record that shows that a 60º F daily maximum temperature is necessary to protect acute impacts in Use B waters". *Id.*

Ingredion urges the Board to adopt a Use B daily maximum limit of at least 75º F for the months of December and March to allow for the occasional warm day or week. PC 1421 at 7. This daily maximum would allow for a transition to the proposed winter daily maximum while protecting for short term acute impacts. *Id.*

As an alternative, Ingredion suggests the Board "grant relief to dischargers when the receiving stream is impacted by unseasonably warm days in the winter". PC 1421 at 7. IEPA's proposed standards accommodated occasional warm periods in the winter months by allowing averaging temperatures over the period. Ingredion proposes that the Board "grant dischargers relief from thermal standards for 72 hours following any time when the ambient air temperature at the National Weather Service Station at Midway Airport rises to 55º F or higher". *Id.* at 7 and 8. Ingredion requests that the summer daily maximum of 90º F apply under these conditions, which would protect against short term acute impacts. *Id.* at 8.

Ingredion contends that while the Board's proposal includes a delay of the effective date of the thermal standards for 18 months, this does not allow dischargers sufficient time to attain compliance. PC 1421 at 8. Ingredion explains that "dischargers may need to devote significant time and resources to engineer and construct equipment such as cooling towers and mechanical cooling devices". Ingredion requests that the effectiveness of the Board's thermal limits be delayed by five years to allow dischargers to implement the needed changes. *Id.*

Excursion Hours

Ingredion requests a clarification of the Board's meaning of the excursion hours provision. PC 1421 at 8. Ingredion reminds that the Board's proposal states that "[w]ater temperature shall not exceed the maximum limits…during more than one percent of the hours in the 12-month period ending with any month". Ingredion states that this implies that if the standard is exceeded in only one month, then the discharger is in violation of the standard for the following 11 months regardless of whether there is an exceedance of the daily maximum in subsequent months. *Id.* at 8 and 9. This is "purely the result of the 12-month rolling total period for calculating excursion hours in excess of 1%, and Ingredion does not believe the Board "intends for hourly exceedances to be recounted multiple times toward separation violations of the 1% allowance". Ingredion suggests that such exceedances "be counted as a singular violation" and requests that the Board "affirm this reading of the proposed standard". *Id.* at 9.

Environmental Groups

The Environmental Groups provided the Board with two public comments on the Board's first notice, which are summarized below.

PC 1422

On November 21, 2014, the Environmental Groups submitted comments on the Board's first notice opinion and order for Subdocket D. The Environmental Groups raise issues related to temperature, and questions regarding the proposed standards for benzene, ammonia, mercury, selenium, copper, cyanide, and chloride.

Temperature. The Environmental Groups assert that the "temperature standard proposed by the Board is extremely under-protective, does not in fact apply the General Use temperature standards…and could not be approved by U.S. EPA". PC 1422 at 1. As an example, the Environmental Groups note that Section 302.408 does not include critical aquatic life use protections that are included in General Use standards. Specifically, they indicate there "shall be no abnormal temperature changes that may adversely affect aquatic life unless caused by natural conditions", normal and daily seasonal temperature fluctuations must be maintained, and the maximum temperature rise above natural temperature cannot exceed 5° F. *Id.* at 1 and 2.

The Environmental Groups acknowledge that the Board's omission of the language in Section 302.211 (b), (c), and (d) was unintentional, but must be restored. PC 1422 at 2. They opine that USEPA would not approve a "truncated General Use standard". *Id.* The Environmental Groups further note that allowing unseasonal temperatures could affect the

spawning and survival of aquatic life, and that the existing General Use temperature standard protects against cold shock but the truncated version proposed at First Notice does not. As an example, the proposed standard would allow discharges to rise to 63° F in January and then fall back to freezing. *Id.*

The Environmental Groups argue that IEPA's proposed standards do not adequately protect CAWS and LDPR from thermal pollution and that the Board should adopt the Environmental Groups' proposal instead. PC 1422 at 3. However, the Environmental Groups opine that if the entire General Use temperature standards are adopted now and reconsideration of the General Use standards begins, this may be a sound approach. The Environmental Groups urge the Board to ask IEPA to begin an update of the General Use standards immediately. *Id.* at 3.

According to the Environmental Groups, the temperature standards proposed by IEPA and the Environmental Groups are not more restrictive than the standards now applicable to General Use waters. PC 1422 at 3. They note that while the daily maximum temperatures allowed under both IEPA and the Environmental Groups' proposals are lower than the daily maximums allowed under General Use standards, it is not clear if these proposals "are more stringent than the General Use standards when the entire General Use temperature standard…is applied". *Id.*

The Environmental Groups ask the Board to allow higher temperatures in the segments of the North Shore Channel and Little Calumet that receive effluent discharges from the District in the winter and spring. PC 1422 at 3. They explain that because of reverse flows of warm effluent from the O'Brien and Calumet water reclamation plants, IEPA had proposed higher temperatures in these segments so that the District would not have to cool its effluent. However, they note due to the objection by USEPA, that General Use temperature standards now apply to the Upper North Shore Channel. The Environmental Groups agree with IEPA that the District should not be required to cool its effluent in these segments. *Id.*

The Environmental Groups argue that excursion hours should not be allowed over the summer maximums that are contained in either IEPA's proposal or the current General Use standards. PC 1422 at 4. They opine that it is unclear whether USEPA would approve such excursions and warns that excursions should not be approved if only the truncated version of General Use standards is to be adopted. *Id.*

According to the Environmental Groups, dischargers may not need to seek relief from the proposed temperature standards because of the closure of the Fisk and Crawford plants, and anticipated closure of one of NRG Energy's plants in Will County and conversion of another of its plants to natural gas. PC 1422 at 4. These changes, they speculate, may result in a reduction of the thermal loading to CAWS and LDPR such that NRG Energy may not need a variance. *Id.*

Benzene (Human Health). The Environmental Groups suggest there is a serious problem with the proposed human health standard for benzene because it is more than 13 times greater than the criterion supported by science. PC 1422 at 5. They argue this standard "should be reduced from 310 µg/L to 23 µg/L in order to secure approval from USEPA". According to

the Environmental Groups, IEPA's justification for proposing the human health standard of 310 µg/L is that it is based on the General Use standards and is more current than the national criterion. The Environmental Groups argue this is not true. *Id.*

In November 2002, the Environmental Groups explain, USEPA issued their National Recommended Water Quality Criteria: 2002, which contains a benzene human health criteria of 51 µg/L. PC 1422 at 5. The Environmental Groups note that in 2014, USEPA released its "Draft Update of Human Health Ambient Water Quality Criteria: Benzene 71-43-2". This document proposed criteria as a range of 6.2 µg/L to 23 µg/L, which even at the high end of this range is 13 times less than the benzene standard proposed at First Notice. The Environmental Groups argue that because there are two national documents with more current criteria for the human health benzene standard, the Board must amend its proposed standard. *Id.* at 6.

Ammonia. The Environmental Groups note that both IEPA and USEPA have acknowledged that the ammonia standards proposed at First Notice are not consistent with USEPA's 2013 ammonia criteria. PC 1422 at 6. They contend that the Board must adopt the ammonia standards base on criteria proposed by USEPA in its April 2013 document, Aquatic Life Ambient Water Quality Criteria for Ammonia Freshwater, which is an acute criterion of 17 mg total ammonia nitrogen per liter (TAN)/L and a chronic criterion of 1.9 mg TAN/L (30-day rolling average). *Id.* at 6 and 7. The Environmental Groups suggest that it may prove more desirable to establish another subdocket to address ammonia and other pollutants for which current Illinois General Use standards are substantial[ly] weaker" than the latest USEPA criteria. *Id.* at 7.

Mercury. The Environmental Groups note that the Board invited comment on the appropriateness of providing relief from the proposed 12 ng/L mercury standard. PC 1422 at 7. The Environmental Groups argue that "this is not the appropriate proceeding to seek either individual regulatory relief or to overhaul the Board's procedures for obtaining regulatory relief". They further note that it would not be appropriate to make an advance decision in this rulemaking proceeding about the appropriateness of site specific relief without following the Board's adjudicatory rules. *Id.*

Selenium. According to the Environmental Groups, the "Illinois selenium 'not to be exceeded' standard of 1.0 mg/L…is 20 times higher than the latest U.S. EPA chronic standard". PC 1422 at 7. However, they note that this standard is under review by USEPA, with a new criteria to be published in late 2015. As a result, the Environmental Groups suggest that IEPA "begin measuring selenium levels in water bodies throughout the state and plan on making a selenium proposal to the Board in early 2016". The Environmental Groups suggest that until that time, any new permits involving selenium discharges "should be considered very carefully under Illinois antidegradation standards". *Id.*

Copper. The Environmental Groups explain that USEPA has pointed out and the Board recognized that the proposed copper standard does not appear to be consistent with the most recent USEPA criteria. PC 1422 at 8. The Environmental Groups are interested in hearing "a more detailed discussion of why the U.S. EPA criteria is [sic] not "workable" in the eyes of IEPA". They have reviewed the 2007 update of the national criteria that uses the BLM and note

that it requires extensive data collection, most of which is collected by the District. The Environmental Groups opine that the latest copper criteria "may well be more easily workable in the waters of CAWS where this abundance of water quality data exists". *Id.*

Cyanide. The Environmental Groups support the proposed cyanide standard given the Board's position that current General Use standards should be adopted in the absence of a demonstration that other standards are appropriate. PC 1422 at 8. They question IEPA's removal of the rainbow trout to calculate their proposed 10 µg/L chronic cyanide standard. *Id.*

Chloride. The Environmental Groups contend that a 500 mg/L chloride standard is protective as an acute limit but not as a chronic limit. PC 1422 at 9. They note that USEPA's chronic criterion for chloride is 230 mg/L. The Environmental Groups question whether Citgo/PDV justified their proposed winter standard for the reach of the CSSC into which it discharges, but definitely does not believe the case has been made to apply this winter standard to the entire CSSC. Therefore, the Environmental Groups recommend that "at a minimum, the Board should amend the language appearing in proposed Section 303.449 to correspond to the geographic reach of the Citgo proposal". *Id.*

The Environmental Groups support the Board's rejection of the mixing zone proposal by Citgo/PDV, indicating it is "fraught with serious risks". PC 1422 at 9. They opine that a variance may be appropriate to address the chloride issue, but such a proposal should be "fully considered in the context of addressing the issue of chloride pollution in the CAWS and downstream". *Id.*

The Environmental Groups note that in exchange for a mixing zone, Citgo/PDV proposed "some vague provisions regarding the employment of best management practices". PC 1422 at 10. They opine that allowing a mixing zone in impaired waters "would allow dischargers a pass on the chronic water quality standards, in effect substituting BMPs for chronic (monthly) effluent limits". The Environmental Groups state that the use of BMPs to reduce chloride loadings to the CSSC may be a good idea, but neither Illinois nor federal NPDES regulations allow BMPs to substitute for numeric effluent limits. *Id.* Further, they note that federal law requires BMP conditions in NPDES permits when the BMPs are necessary to achieve effluent limits and standards. Therefore, the Environmental Groups suggest that allowing a BMP condition in a NPDES permit to reduce chloride loadings in the CSSC should be an addition to chloride effluent limits. *Id.*

The Environmental Groups support the use of BMPs by dischargers and recognize the primary source of chloride in the CSSC is from road salt use. PC 1422 at 11. They, therefore, support the Board's amendments to Section 309.141 to clarify IEPA's authority to use BMPs in NPDES permits to control the discharge of chloride.

USEPA Disapproval of Use Designations. The Environmental Groups raise comments made by USEPA regarding use designations the Board adopted in other Subdockets of this proceeding. PC 1422 at 11. They remind that these are not "suggestions, but disapprovals of the Board's earlier actions", and that if not addressed, USEPA can use its own authority to

promulgate its own use designations to replace the ones it has disapproved. The Environmental Groups urge the Board to address these issues. *Id.*

PC 1428

Temperature. On December 12, 2014, the Environmental Groups (Sierra Club, Prairie Rivers Network, Natural Resource Defense Council, Openlands, Friends of the Chicago River, and Environmental Law & Policy Center) submitted responsive comments on the Board's First Notice Opinion and Order for Subdocket D. PC 1428 at 1. The Environmental Groups opine that the Board "adopted a valid approach to setting thermal standards" for the UDIP, ALU A, and ALU B waters. "Using the existing General Use standards for these waters is appropriate", according to the Environmental Groups. *Id.* In addition to temperature, the Environmental Groups provide comments on cold shock, chloride and the proposed BMPs, ammonia, mercury human health standard, selenium, copper, DO, and the toxic effects of the combinations of pollutants.

The Environmental Groups argue that the temperature standards proposed by Midwest Generation are not protective of aquatic life and should be rejected. PC 1428 at 3. While Midwest Generation contends that the "UDIP is a totally unique water body in Illinois" in that it is subject to barge traffic, impoundments, and sewage effluents, the Environmental Groups argue that the Board found the UDIP waters to "almost meet the CWA goals", and that evidence offered in Subdocket C demonstrated that the habitat in the UDIP was "at most marginally worse than the habitat in the Lower Des Plaines below the I-55 bridge and much of the Illinois River". *Id.* The Environmental Groups further opine that the Illinois General Use standards "were not developed to protect pristine streams" but apply to all waters in Illinois, including those that are to some degree effluent dominated, impounded, or subject to barge traffic. *Id.*

The Environmental Groups contend that the argument made by Midwest Generation that the discharges by the District's sewage treatment plants are relevant to setting thermal standards for the UDIP and Brandon Pool is wrong. PC 1428 at 3. According to the Environmental Groups, no one has shown that the sewage effluents raise water temperature in the summer. Further, they contend that the District's own data demonstrate that "whatever winter warming effect [District] dischargers have is dissipated by the time the water reaches the Joliet intake". *Id.*

The Environmental Groups argue that the temperature standards proposed by Midwest Generation should be "rejected as a matter of law even if the biological studies on which they purport to be based are sound, or were sound when they were done 20 years ago". PC 1428 at 3. Midwest Generation's studies do not compare the UDIP to high quality waters to illustrate what might be attainable absent thermal pollution, but rather, demonstrate what aquatic life is like in these waters now. *Id.* As an example, the Environmental Groups cite Midwest Generation's elimination of the white sucker, alleging that it does not spawn in the Lower Des Plaines River. Environmental Groups note that the white sucker is found in various waters in CAWS and the vicinity of the Lower Des Plaines River, suggesting that habitat for the white sucker does exist in streams directly connected to the Lower Des Plaines River. *Id.* a 4.

According to the Environmental Groups, the temperature standards proposed by Midwest Generation are above the temperatures tolerable for the white sucker but also "are above the ecologically relevant temperature tolerances for emerald shiner, bluntnose minnow and numerous other species that are known to live in the UDIP in some number". PC 1428 at 4. Midwest Generation's proposed thermal standards are also not protective of the most sensitive uses as is required by federal law. As an example, the Environmental Groups cite a study Midwest Generation uses to rely on its proposed 2007 EA standards where it concluded that "above 87° F [species'] richness appears to decrease". The Environmental Groups argue that while the study may be useful, the legal conclusions drawn from it are not. *Id.*

The Environmental Groups opine that protective thermal standards would be those well below the temperatures where biological damage may occur. PC 1428 at 4. In examining Midwest Generation's study, the Environmental Groups contend that the "temperatures at which the biological community begins to be degraded is not 87 °F, but somewhere below 83 °F". The Environmental Groups further suggest that the species richness scores of the rivers included in the Midwest Generation study should not be compared with scores from the same stretch of river, but rather to rivers that do not have thermal pollution. The Environmental Groups opine that "Comparing an impaired river to itself to set criteria and standards is not protective, nor is it a scientifically defensible way to develop criteria and standards". *Id.* at 5.

The Environmental Groups state that Midwest Generation proposes 90° F as an average temperature for the UDIP, which they suggest would subject the UDIP to temperatures that significantly impair the aquatic community. PC 1428 at 5. Midwest Generation also proposes that, as an alternative, the Board adopt the AS 96-10 standards adopted for the waters below the I-55 bridge. The Environmental Groups argue that Midwest Generation's alternate proposal is far less protective than AS 96-10 in that the maximum temperatures allowed under AS 96-10 would be allowed as averages. They argue that there is no support in the record for the Board to adopt Midwest Generation's "transmogrified AS 96-10 criteria proposal". The Environmental Groups also contend the claims by Midwest Generation of "technological and economic burdens" it would suffer with the proposed thermal standards are not substantiated in the record. *Id.*

The Environmental Groups oppose Midwest Generation's request for a three-year delay in the effective date of the new standards. PC 1428 at 6. First, they argue that it is unclear now whether the delay proposed by the Board will be needed given the proposed plans for Midwest Generation's Will County and Joliet stations. *Id.* Second, the Environmental Groups argue that Midwest Generation's claims of the regulatory uncertainty that exists now are not valid; such uncertainly "will always be present". *Id.* at 7. They further state that any issues regarding temperature loadings and the need for regulatory relief should be addressed "after it becomes clear there is some compliance problem". *Id.*

The Environmental Groups agree with USEPA and IEPA that a truncated version of the General Use temperature standards should not be adopted. The Board should therefore also apply the provisions of Section 302.211 (b), (c), and (d). PC 1428 at 8.

The Environmental Groups oppose Ingredion's proposal for ALU B waters that would allow during the winter months a summer maximum temperature of 90° F any time in which the air temperature reaches 55° F or higher rather than the 60° F that is proposed to apply. PC 1428 at 8. They argue that Ingredion has provided no "explanation of the relevant physics" of this proposal or "any basis for believing that such a criterion could be protective of aquatic life". *Id.*

Cold Shock. The Environmental Groups believe that if the complete General Use standards are adopted, there would be no need for a cold shock provision". PC 1428 at 8 and 9. Further, they contend that a cold shock provision also is unnecessary "if non-summer daily maximum temperature criteria are adopted", as they have proposed. *Id.* at 9.

Chloride and BMPs. The Environmental Groups state that the proposals to extend the chloride standard beyond the invasive barrier zone of the CSSC are not supported by the record. PC 1428 at 9. The fact that there may be violations of the Board's proposed standards if adopted is no justification for altering the Board's proposal. The Environmental Groups contend that if such violations occur, it "shows that further action will be needed to meet the standard, which may include adoption of reasonable variances". *Id.*

The Environmental Groups argue that there is nothing in the record to support applying the weaker chloride standard to the entire CSSC or other segments, such as the UDIP. PC 1428 at 9. The fact that existing aquatic life can exist in the UDIP, as suggested by ExxonMobil, "tells us nothing of what could be there if chloride pollution were reduced", says the Environmental Groups. The Environmental Groups also oppose the District's alternative proposal for weakening the chloride standard, but does support adopting the 500 mg/L acute standard and considering of revisions to the standard and potential variances in the future. *Id.*

Regarding the proposed use of BMPs to address chloride pollution, the Environmental Groups support such BMPs; however, it is not necessary to adopt the federal language at 40 C.F.R. §122.44(k) into Illinois regulation. PC 1428 at 10. The Environmental Groups note there could be harm in the misinterpretation of this section as evidenced by ExxonMobil's suggestion that IEPA be allowed to substitute BMPs for numeric permit limits. *Id.*

Ammonia. The Environmental Groups note that the Board, IEPA, and USEPA have acknowledged that the proposed ammonia standards are not consistent with USEPA's 2013 ammonia criteria. PC 1428 at 11. They recognize that the problem needs to be corrected, but argues that this does not need to be done in this subdocket in this proceeding. The Environmental Groups support creating a separate subdocket to address ammonia or to adopt the General Use standards for CAWS and LDPR waters, recognizing that these standards may soon be reconsidered. *Id.*

Mercury (Human Health). The Environmental Groups support the Board's proposal to adopt a mercury standard of 12 ng/L. PC 1428 at 11.

Selenium. The Environmental Groups argue that the Illinois selenium standard warrants revisions because it is 20 times greater than the USEPA criteria. PC 1428 at 11. They contend that the record supports a selenium criterion of 0.05 mg/L; however, suggest that if the Board is

unwilling to adopt this standard, a new subdocket should be created or use the General Use standard for now, "recognizing that this is likely to result in a partial disapproval by USEPA". *Id.*

Copper. The Environmental Groups agree with USEPA that the Board either employ the BLM to calculate and adopt a copper standard for each segment of CAWS and LDPR or "revise the hardness-based copper criteria equations using the recalculation procedure applied to an updated toxicity database". PC 1428 at 11 and 12.

Dissolved Oxygen. The Environmental Groups support the proposed continuous DO monitoring requirement, because DO fluctuates throughout a 24-hour cycle "as plants and algae consume and emit oxygen into the water". PC 1428 at 12. As a result, the Environmental Groups note that DO levels "can look normal or elevated during usual business hours, disguising deadly low DO levels at night". The DO standards need to "account for the true minimum and mean DO in a water, which can only be assessed with continuous DO monitoring". *Id.*

The Environmental Groups support the Board's proposed language in Section 302.405(e), with one exception. PC 1428 at 13. They agree with USEPA that Section 302.405(e)(3) be deleted. As USEPA suggested, this subsection could be "interpreted to mean that the standards are not in effect in the absence of adequate monitoring". The Environmental Groups suggest moving this subsection to another part of the Board Regulations, such as Part 301 or Part 305. *Id.*

Combinations of Pollutants. The Environmental Groups mostly agree with USEPA regarding Subpart F; however, are concerned that the last sentence of USEPA's comments could be misinterpreted: "Individual chemicals or substances for which numeric standards are specific in this Subpart are not subject to this Section". PC 1428 at 13. The Environmental Groups argue that combinations of substances may be more toxic than individual substances. They ask that the Board not adopt the last sentence of USEPA's proposed Subpart F proposal. *Id.*

DISCUSSION

During first notice, participants renewed concerns about the Board's proposal in several areas and offered comment to several issues raised at first notice by the Board. Those issues include the overall economic reasonableness and technical feasibility of complying with the new water quality standards and requests for additional subdockets. The Board will address those two issues generally before proceeding with issues regarding temperature and chloride. The Board will address the issues raised on other water quality standards next. Issues regarding Bubbly Creek and USEPA's disapprovals will be specifically addressed before proceeding with miscellaneous suggested rule changes.

Economic Reasonableness and Technical Feasibility

The Board's rulemaking authority is a "general grant of very broad authority and encompasses that which is necessary to achieve the broad purposes of the Act." Granite City Division of National Steel Co. v. IPCB, 155 Ill. 2d 149, 182 (1993). Under the Act, the Board is

required to take into account "the existing physical conditions, the character of the area involved, including the character of surrounding land uses, zoning classifications, the nature of the existing air quality or receiving body of water, as the case may be, and the technical feasibility and economic reasonableness of measuring or reducing the particular type of pollution." 415 ILCS 5/27(a) (2012). In fulfilling this statutory responsibility, the Board need not conclude that compliance with a regulation is economically reasonable and technically feasible before adopting a regulation. *Id.* The Board may in fact promulgate rules that the Board found technically infeasible, if the Board determines the proposed regulation is necessary to carry out the purposes of the Act. Granite City, 155 Ill. 2d at 182-83.

In Granite City, the Illinois Supreme Court reminded:

> [I]t is not necessarily arbitrary and capricious conduct for the Board to set a standard which a petitioner *cannot adhere to at the present time* or, if absolutely necessary to protect the public, *set a standard with which there can be no foreseeable compliance by petitioner* (Emphasis added.) Granite City 155 Ill. 2d at 182, quoting Monsanto Co. v. PCB, 67 Ill. 2d 276, 293 (1977).

The Court went on to note that the Act includes variance and adjusted standard procedures for relief from environmental control standards upon a showing of unreasonable economic or individual hardship. Granite City 155 Ill. 2d at 182. The Court concluded:

> that section 27(a) does not impose specific evidentiary requirements on the Board, thereby limiting its authority to promulgate only regulations that it has determined to be technically feasible and economically reasonable. Rather, section 27(a) requires only that the Board consider or take into account the factors set forth therein. The Board must then use its technical expertise and judgment in balancing any hardship that the regulations may cause to dischargers against its statutorily mandated purpose and function of protecting our environment and public health. *Id.*

As stated above, Section 27 of the Act requires the Board to consider "the existing physical conditions, the character of the area involved, including the character of surrounding land uses, zoning classifications, the nature of the existing air quality or receiving body of water, as the case may be, and the technical feasibility and economic reasonableness of measuring or reducing the particular type of pollution." 415 ILCS 5/27(a) (2012). In this rulemaking these considerations are particularly unique. The record is replete with evidence of the unique character and history of both CAWS and LDPR, and the economic importance of these waters is also clear.

Arguments have been made that the Board's proposed rules, especially for chloride and temperature, are not supported by the record and may not be necessary to protect the public. The arguments continue that absent relief mechanisms such as a variance, the Board's authority to adopt technically infeasible regulations is at question. The Board will discuss its consideration of the technical feasibility and economic reasonableness of the temperature and chloride standards in more detail below.

The Board disagrees with the arguments that the proposed standards are not supported by the record and that the standards may not be necessary to protect the public. The Board also disagrees that there are no relief mechanisms available to dischargers. The Board will address each of those arguments.

Record

The record is replete with evidence supporting the Board's determinations on each of the standards proposed. The Board acknowledges that the participants and the Board did not concentrate fully on this subdocket until after the Board's decision in Subdocket C. However, prior to the subdockets being established, the Board heard substantial testimony and received comment on water quality standards. *See e.g.* Exh. 1 through 3, Exh. 187 and 230, Exh. 191 and 209. The Board summarized that testimony and those comments in its first notice opinion. The Board scheduled and held additional hearings and allowed for final comments on the record in this proceeding. All of this was contained in the record, and considered by the Board, prior to the Board's adoption of the first notice.

For each of the standards proposed the Board considered the technical feasibility and economic reasonableness of compliance. The Board balanced technical feasibility and economic reasonableness against the necessity of protecting the aquatic life uses established for each stream segment of the CAWS and LDPR. The Board is not persuaded by the arguments in the first-notice comments that the standards should be amended based on technical feasibility and economic reasonableness.

Protective

In adopting the Act, the General Assembly found that "environmental damage seriously endangers the public health and welfare". 415 ILCS 5/2(a)(i) (2012). The General Assembly further found that "it is the purpose" of the Act "to establish a unified, statewide program . . . to restore, protect and enhance the quality of the environment". 415 ILCS 5/2(b) (2012). Thus, the purposes of the Act include restoration and enhancement of the environment.

The national goal of the CWA is to attain "water quality which provides for the protection and propagation of fish, shellfish, and wildlife and provides for the recreation in and on the water. . .." 33 U.S.C. § 1251(a)(2). Waters that cannot meet the CWA goals may be designated only if specific criteria are met. In Illinois, waters that meet the CWA goals are considered General Use waters. *See* 35 Ill. Adm. Code 302.202.

The record in this proceeding is clear that the water quality in CAWS and LDPR has improved, in some cases substantially, since the adoption of the Secondary Contact and Indigenous Aquatic Life standards. For example, the Board designated the Chicago River as capable of recreational use and maintained the General Use water quality standards for that segment. With the UDIP, the Board found that UDIP waters almost meet the CWA goals, while recognizing that thermal standards may need to be adapted for certain dischargers. Water Quality Standards and Effluent Limitations for the Chicago Area Waterway System and Lower

Des Plaines River: Proposed Amendments to 35 Ill. Adm. Code 301, 302, 303, and 304, R08-9(C), slip op. at 43 (Feb. 21, 2013). The aquatic life use designations and recreational use designations reflect the advancement of the stream quality. However, many sections of CAWS and LDPR still need to be improved to achieve the goals of the CWA.

The Board proposed at first notice standards protective of the aquatic life uses adopted for CAWS and LDPR. The Board finds that protecting those aquatic life uses is required by the Act. The Board will address specific concerns raised below, but generally the Board is convinced that proceeding to second notice with the standards as proposed is required to protect the aquatic life uses designated for the streams.

Relief Mechanisms

The Board is cognizant that variances have been used in the past as a relief mechanism but may not be feasible for CAWS and LDPR now due to recent USEPA actions. However, adjusted standards and site-specific rules are available and variances under the Act may again be available in the future. Further, relief from temperature standards may be available through a thermal demonstration under Section 316(a) of the CWA, 33 U.S.C. § 1326(a), and 35 Ill. Adm. Code 304.141(c), as well as the Board's Subpart K procedural rules, 35 Ill. Adm. Code 106.Subpart K. The Board notes that Citgo/PDV in effect provided information to support a site-specific rule in this proceeding. Furthermore, the Board specifically indicated with chloride water quality standards that other participants could consider site-specific relief. Therefore, even if the standards proposed were technically infeasible or economically unreasonable to a specific discharger, relief mechanisms are available.

Additional Subdockets

The Board notes that on March 18, 2010, the Board severed the rulemaking into four separate dockets. Subdocket D was to address the issues dealing with water quality standards and criteria that are necessary to meet the aquatic life use designations finalized in Subdocket C. Prior to and at first notice, the Board declined to open a subdocket for chloride. In the first-notice comments, the request for a chloride subdocket is renewed, and potential subdockets are also being recommended for other constituents.

Subdocket D is the subdocket designated to establish water quality standards. In the last set of hearings scheduled by the hearing officer in Subdocket D, the Board set aside three days for hearing. Yet the prefiled testimony resulted in only one of those days being necessary. Furthermore, no one requested a hearing during first notice. Rather the Board received requests for subdockets so more information can be developed. Another major concern the Board has with these requests is that many of the requested subdockets are for constituents that need to be addressed on a statewide basis and not just in CAWS and LDPR. Those constituents should therefore be addressed in new rulemaking, reflecting the statewide nature of the constituent.

The Board has examined the arguments and the Board is not persuaded that additional subdockets will assist in resolving the issues raised by the participants. Therefore, the Board will not open any additional subdockets.

Temperature

The Board received several comments during first notice asking that the Board reconsider its first notice proposal regarding temperature standards. While USEPA and IEPA urge the Board to adopt the IEPA's temperature standards for CAWS and LDPR, the Environmental Groups and Midwest Generation ask the Board to consider their proposals instead of the proposed General Use temperature standards. Also, USEPA, IEPA, and the Environmental Groups recommend changes to the proposed temperature standards if the Board decides to proceed with the application of General Use standards to CAWS and LDPR. Additionally, Stepan, Ingredion, and ExxonMobil recommended changes concerning thermal standards for ALU B and UDIP waters.

For the reasons explained below, the Board declines to adopt the alternative proposals put forth by IEPA, Midwest Generation, and the Environmental Groups. Instead, the Board will move forward with the temperature standards proposed at first notice with certain changes, including a three-year delayed effective date for CAWS ALU A, CAWS and Brandon Pool ALU B, and UDIP waters. In the following sections, the Board will first discuss IEPA's and the Environmental Groups' proposals before addressing Midwest Generation proposals for UDIP. The Board will then discuss concerns regarding the application of the General Use thermal standards to ALU A waters and ALU B waters.

IEPA's and Environmental Groups' Proposals

At the outset, the Board declines to adopt IEPA's and Environmental Group's proposals for the reasons explained in the first notice opinion. *See* Water Quality Standards and Effluent Limitations for the Chicago Area Waterway System and Lower Des Plaines River: Proposed Amendments to 35 Ill. Adm. Code 301, 302, 303, and 304, R08-9(D), slip op. at 204-205 (Sept. 18, 2014). At first notice, the Board noted that IEPA's thermal standards for CAWS and LDPR are more stringent than the current General Use standards for the months of April through November and approximately equivalent to the General Use standards over the remaining months. *Id.* at 204 citing Exh. 2 at 14. Similarly, the Board also considered the Environmental Groups' proposal, which builds on IEPA's standards, to be more stringent than the current General Use standards.

The Board's finding that IEPA's and Environmental Groups' proposed thermal standards are more stringent than the General Use standards was based on a comparison of the daily maximum temperature limits during summer months, which represent a critical time period for protection of aquatic life. In making this comparison, the Board recognizes that IEPA's proposal for daily maximum temperature limit during summer months for ALU B waters is 0.3° F higher than the General Use standard of 90° F. The Board found that it would be inappropriate to adopt thermal standards for CAWS and LDPR that are more stringent than the current General Use standards, since there is no proposal before the Board to update the General Use thermal standards. Additionally, because of significant concerns raised by participants with the methodology and science used in developing the thermal standards options relied upon by IEPA and Environmental Groups, the Board found that adopting either proposal would set an untenable precedent for any review of the current General Use standards.

As observed at first notice, the Board believes that any revision of the Board's thermal standards based on current science and methodologies must start with the General Use standards before being extended to other use designations. By doing so, the Board believes that thermal standards could be developed systematically using current science, consistent methodology, and a degree of protection dictated by the designated aquatic life uses. While the Board declines to adopt thermal standards proposed by IEPA and the Environmental Groups, the Board will consider the revisions recommended by the participants to the proposed temperature standards.

Midwest Generation Proposals for UDIP

Midwest Generation contends that "a fundamental problem with the Board's proposed application of General Use thermal standards to UDIP waters is that these standards were never intended to apply to these low-quality, effluent-dominated, waters which do not and cannot support the higher full aquatic life use protected by the General Use standards." PC 1418 at 3-4. The application of the General Use standards to UDIP waters subjects "dischargers like Midwest Generation to a thermal compliance standard that is unnecessarily stringent and economically punitive." *Id.* at 4. As such, Midwest Generation urges the Board to consider one of its three alternative proposals for regulating temperature in UDIP instead of the General Use thermal standards.

As noted in the Board's first notice opinion, Midwest Generation presented three alternate proposals in its pre-first notice final comments: 2003 EA thermal standards; 2007 EA thermal standards; and the 1996 Adjusted Thermal Standards. PC 1403 at 37-43, Attach. C and D. The Board declined to adopt the alternate proposals for first notice noting its own concerns, as well as those of other participants including IEPA and the Environmental Groups. The Board found that the Midwest Generation proposals are not protective of the aquatic life expected to be in the UDIP waters. The Board explained that the EA proposals did not give special consideration to thermally sensitive species, and the proposals were based on field aquatic life data collected from CAWS and LDPR segments impacted by temperature discharge and not from "unpolluted bodies" of water, as preferred by USEPA. *See* Water Quality Standards and Effluent Limitations for the Chicago Area Waterway System and Lower Des Plaines River: Proposed Amendments to 35 Ill. Adm. Code 301, 302, 303, and 304, R08-9(D), (Sep. 18, 2014) at 208-209. Further, the Board found that application of AS 96-10 thermal adjusted standard, which was adopted almost 20 years ago, is not justified since that standard does not reflect the current conditions of the waterways. *Id.* 209.

As noted above in the public comment summary, Midwest Generation has provided clarification on the issues raised by the Board at first notice, including: exclusion of certain thermally sensitive species; reliance on existing thermal regime; and timing of the proposals without supporting testimony. Midwest Generation states that both EA proposals considered the most thermally sensitive species expected to be present in UDIP. However, sensitive species such as white sucker and walleye were excluded because years of data show that these species had not established resident populations in General Use waters below the I-55 bridge. PC 1418 at 13. Midwest Generation argues that existing habitat conditions are not conducive for maintaining viable populations of thermally sensitive species in UDIP. Midwest Generation also argues that the EA proposals are consistent with USEPA guidance noting that USEPA's

preference for data collected from unpolluted waters is hypothetical and applies only when such data collection is feasible. *Id.* at 18. Midwest Generation notes that field data relied upon by EA includes data collected from the Lower Dresden Island Pool and Upper Marseilles Pool, both of which are General Use waters with cooler ambient temperatures. *Id.*

Additionally, Midwest Generation argues that the AS 96-10 thermal adjusted standard, which applies at the I-55 bridge, is a more reasonable and viable alternative than the General Use standards. PC 1418 at 24. This is because the AS 96-10 standard, which was adopted by the Board 20 years after the General Use standards, reflect advances in data collection and standard setting as compared to the General Use Standard. *Id.* at 25. Further, Midwest Generation notes that habitat changes have not occurred in the subject waterways since the adoption of AS 96-10. *Id.* at 27-28. Finally, Midwest Generation states that the AS 96-10 standards must be adopted as a daily maximum "average" rather than daily maximum, i.e., the daily average temperature must comply with the standards rather than the daily maximum. This change, Midwest Generation contends, is necessary to mitigate the undue technological and economic burdens on thermal dischargers. *Id.* 33.

Although Midwest Generation attempts to address concerns at first notice regarding the alternate proposals, the Board continues to have serious reservations about adopting any one of them. First and foremost, the Board disagrees with Midwest Generation's characterization of UDIP waters as "low-quality, effluent dominated waters which do not and cannot support the higher full aquatic life use protected by the General Use standards." PC 1418 at 3-4. The Board notes that the UDIP ALU designation is an upgrade of the previous Indigenous ALU designation. While the Board noted in Subdocket C that "UDIP does not fully attain CWA aquatic use goal", the Board did not invoke any UAA Factors for UDIP because when compared to ALU A or ALU B waters, UDIP has more diverse habitat conditions and is subject to a lesser degree of recurring impacts from navigation use and upstream flood control functions. *See* Water Quality Standards and Effluent Limitations for the Chicago Area Waterway System and Lower Des Plaines River: Proposed Amendments to 35 Ill. Adm. Code 301, 302, 303, and 304, R08-9(C), (Nov. 21, 2013) at 55.

The Board recognized that thermal standards in the UDIP may need to be adapted to address existing thermal discharges, the Board did not intend to adopt thermal standards that are either the same or less stringent than the existing Indigenous ALU thermal standards. In this regard, Midwest Generation's alternate thermal standards based on daily maximum "average" temperature are less stringent than the existing Indigenous ALU standards during summer months. As such, the Board finds the adoption of Midwest Generation's alternate standards for UDIP to be problematic.

Next, the Board disagrees with Midwest Generation's position that the starting point for consideration of thermal standards should be the ambient background temperature resulting from temperature discharges to the waterways. The Board continues to believe that thermal standards must be developed to be protective of aquatic life expected to be present in the upgraded UDIP ALU designation by considering aquatic life data from waterways not impacted by temperature. This entails special consideration of thermally sensitive species in developing thermal standards, as noted by the Board at first notice. *See* Water Quality Standards and Effluent Limitations for

the Chicago Area Waterway System and Lower Des Plaines River: Proposed Amendments to 35 Ill. Adm. Code 301, 302, 303, and 304, R08-9(D), (Sep. 18, 2014) at 209-210.

In this regard, the Board finds Midwest Generation's argument that it excluded more sensitive fish species because such species have not established resident populations in General Use waters below I-55 Bridge unconvincing. First, the Board notes that General Use waters below the I-55 bridge are still impacted by temperature discharges during summer months under the adjusted standard, AS 96-10. Additionally, fish sampling data from the Des Plaines River and its tributaries indicate that thermally sensitive species are present in the waterways. *See* Exh. 40, 41, 42 and 44. While sensitive fish species may not be present in large numbers, improvement in the fish community in UDIP is possible with improvement in habitat and water quality. The LDPR UAA notes that improvement in the fish community in the Upper and Lower Dresden Island Pool is possible with habitat improvement if temperature impact is addressed during summer months. IEPA Prop., Attach. A at 6-25. Therefore, thermal standards must not only be protective of existing aquatic life in UDIP, but also of sensitive species, such as white sucker and walleye, expected to be present now or in the foreseeable future in these waters consistent with UDIP's upgraded ALU designation.

In addition, the Board notes that the Environmental Groups have raised valid concerns regarding Midwest Generation's proposals. The Environmental Groups question the 2007 EA Proposal's basis for choosing thermal limits, *i.e.*, the temperature at which biological damage will occur (at 90° F) rather than a lower temperature that affords protection to aquatic life from such damage. PC 1428 at 4-5. The Board notes that while EA's analysis of the Dresden Island Pool aquatic life data show "significant" decrease in species richness and IWBmod at 90° F, the decrease in aquatic community is observed at a temperature range of 83° to 87° F. PC 1403, Attach. C at 6-7. The Environmental Groups also question the use of thermal standards based on daily average instead of daily maximum noting that the waterways may be subjected to elevated temperatures for long periods "that are not only well above those shown in the laboratory to be harmful, but that are also shown by [Midwest Generation's] own studies to cause a significantly impaired aquatic life community." PC 1428 at 5.

Finally, the Board continues to have reservations regarding the application of the AS 96-10 thermal standards to ALU B and UDIP waters. Although Midwest Generation maintains that AS 96-10 standards are based on more recent science and data compared to the General Use standards, the Board notes that AS 96-10 was a site-specific determination made almost twenty years ago under the previous Indigenous aquatic life use designation. Further, this proposal does not address the changes in thermal conditions in the waterways since the Board granted the adjusted standard. In this regard, the Board notes that Midwest Generation has announced significant changes in its operations that impact the thermal regime of the waterways. PC 1418 at 3. Moreover, as noted by the Environmental Groups, the Board is not convinced that the application of the AS 96-10 daily maximum thermal limits on a daily average basis to ALU B and UDIP waters would be protective of the designated uses of those waterways.

In light of the above, the Board continues to have serious reservations regarding the Midwest Generation proposals. The Board disagrees with Midwest Generation's characterization of UDIP waters as low-quality, effluent dominated waters that do not warrant protection afforded by the General Use thermal limits. As noted by the LDPR UAA, the Board

believes that improvement in the fish community in UDIP is possible if temperature impacts are addressed during summer months. Therefore, the Board declines to reconsider its first notice proposal and adopt the alternate proposals put forth by Midwest Generation for second notice.

Proposed General Use Thermal Standards for CAWS and LDPR

As noted above, participants raised a number of concerns regarding the Board's decision to apply the General Use daily maximum thermal standards to CAWS and LDPR. USEPA, IEPA, and the Environmental Groups state that the Board may adopt the General Use limits as long as the Board also adopts the General Use narrative thermal standards under Part 302. Further, the District and Environmental Groups request the Board to modify the General Use standards during winter months so that the District would not have to cool its effluent. Ingredion also voices concern regarding the application of General Use standards during winter months to CAWS ALU B waters. Midwest Generation and Stepan oppose the adoption of General Use thermal standards to UDIP and ALU B waters. ExxonMobil raises compliance concerns for small dischargers resulting from large upstream thermal dischargers. The Board will address the concerns raised by participants regarding the application of the General Use thermal standards to CAWS and LDPR

Application of General Use Standards. Midwest Generation presents several arguments as to why the Board should not apply General Use thermal standards to ALU B and UDIP waters. *Supra* at 37-48. Primarily, Midwest Generation contends that the Board's decision to apply the General Use thermal standards to lower quality ALU B and UDIP waters results in "the same illogical conclusion that it sought to avoid under IEPA's proposed, more stringent thermal standards." PC 1418 at 7. Midwest Generation argues that because ALU B and UDIP use designations recognize that these water cannot support the more thermally sensitive species present or expected to be present in General Use waters, the Board's proposed approach conflicts with the Part 303 use designation regulations. Stepan supports Midwest Generation's assertions.

The Board disagrees with Midwest Generation's and Stepan's contention regarding the application of General Use thermal standards to UDIP waters. The Board reiterates that the UDIP ALU designation is an upgrade of the previous Indigenous ALU designation. While UDIP may not fully attain CWA aquatic use goal, when compared to ALU A or ALU B waters, UDIP has more diverse habitat conditions and is subject to a lesser degree of recurring impacts from navigation use and upstream flood control functions. *See* Water Quality Standards and Effluent Limitations for the Chicago Area Waterway System and Lower Des Plaines River: Proposed Amendments to 35 Ill. Adm. Code 301, 302, 303, and 304, R08-9(C), (Nov. 21, 2013) at 55. Given that the daily maximum thermal standards proposed by IEPA and the Environmental Groups are more stringent than the General Use standards during the summer months and Midwest Generation's proposals are not appropriate, as discussed above, the Board maintains that the General Use thermal standards offer the most appropriate alternative for protecting of the UDIP ALU designation.

Regarding ALU A and ALU B waters, participants questioned the appropriateness of proposing the existing General Use water quality temperature standards for waters not meeting the CWA goals. As noted previously, the alternative daily maximum standards proposed by

IEPA and the Environmental Groups for ALU A and ALU B waters during summer months would have resulted in either more stringent than or approximately the same as the General Use standard. The Board found at first notice "that it would be inappropriate to adopt thermal standards for CAWS and LDPR that are more stringent than the current General Use standards." *Id.* at 204. Additionally, Midwest Generation's proposal for ALU B waters is the same as the current Secondary Contact and Indigenous ALU standard. However, the improved quality of the waters leads the Board to conclude that maintaining the existing Indigenous ALU standards is also inappropriate. Thus, the Board is faced with a record that does not support the adoption of any one of the alternate proposals for ALU A and ALU B waters. At first notice, the Board proposed General Use thermal standards, which have been effective since the Board adopted them early in 1970s and provided a federally-approved alternative to the various proposals in the record. As noted by the Environmental Groups, the General Use standards were not developed to protect pristine waters, but apply to all waters of the state that are not covered by specific use designations under Part 303, including those that are to some degree effluent dominated, impounded, or subject to barge traffic. PC 1428 at 3.

In light of the above, the Board finds that the proposed thermal standards based on General Use are appropriate for both ALU A and ALU B waters. In this regard, the Board notes that other than conceptual issues concerning the application of General Use standards to water not meeting CWA goals, the only concern raised by the participants regarding the proposed thermal standards for ALU A and ALU B waters involve the winter limits. As discussed below, the Board believes that the delayed effective date provides sufficient time for affected entities to seek adjustment of the winter thermal limits. As such, the Board will move forward with the proposed thermal standards for CAWS and LDPR with some revisions pertaining to the narrative thermal provisions.

Inclusion of Narrative Thermal Standards. USEPA, IEPA, and the Environmental Groups state that if the Board decides to move forward with the proposed thermal standards, the Board must include the General Use narrative standards at 35 Ill. Adm. Code 302.211 (b) thru (d). PC 1414, 1415, and 1422. These standards place limitations on abnormal temperature changes, maintenance of normal daily and seasonal temperature fluctuations, and temperature rise above natural temperatures. Midwest Generation argues that the narrative standards were never intended to apply to lower use waters such as CAWS and LDPR. PC. 1427 at 8. Midwest Generation contends that the adoption of the narrative standards would make the rules completely "unworkable and unjustified". *Id.* at 10.

The Board notes that the omission of the narrative thermal standards at first notice was unintentional. The Board found that it was appropriate to apply the General Use thermal standards to CAWS and LDPR waters, but due to an oversight did not include the narrative provisions. *See* Water Quality Standards and Effluent Limitations for the Chicago Area Waterway System and Lower Des Plaines River: Proposed Amendments to 35 Ill. Adm. Code 301, 302, 303, and 304, R08-9(D), (Sep. 18, 2014) at 209-210. As noted by the Environmental Groups, the narrative standards are critical to preventing abnormal changes in temperature that affect spawning and survival of aquatic life. PC 1422 at 2. Further, the narrative thermal standards also address cold shock concerns. As to Midwest Generation's argument, the Board again notes that the ALU designations of CAWS and LDPR were upgraded to reflect the improved water quality and aquatic life uses. Regarding Midwest Generation's concern about

determining the "natural temperatures" of the waterways, the Board notes that dischargers can rely on temperature data of streams in the region and tributaries to CAWS and LDPR, as well as the historical temperature data of CAWS and LDPR. Thus the Board finds that the General Use narrative standards must apply to CAWS and LDPR to protect aquatic life from abnormal temperature changes. Accordingly, the Board will add the narrative standards at Section 302.211 (b), (c) and (d) to Section 302.408.

Temperature Standards for Winter Months. As noted above, the Environmental Groups and the District voiced concerns regarding the proposed temperature standards during winter months from December through March. The District states that if the Board moves forward with the adoption of General Use thermal standards for CAWS, the Board must provide appropriate relief to ensure that the District is not required to cool its effluent discharges to the North Shore Channel and Little Calumet River during winter months. PC 1425 at 2. However, neither the Environmental Groups nor the District proposed alternative winter temperature standards for North Shore Channel and Little Calumet River. Additionally, Ingredion voices concern regarding the winter temperature standards for ALU B waters. Ingredion asserts that the proposed winter standard of a 60° F daily maximum is a drastic departure from the current daily maximum temperature of 93° F with an anytime limit of 100 °F. PC 1421 at 5. Ingredion recommends an ALU B daily maximum limit of 75° F for the months of December through March to allow for the occasional warm day or week be consistent with the daily maximum proposed by IEPA. *Id.* at 7. Alternatively, Ingredion suggests that the Board grant relief to dischargers from thermal standards for 72 hours following any time the ambient temperature rises to 55° F or higher during which time the summer daily maximum of 90° F would apply. While the Board appreciates the concerns raised by the participants regarding the proposed winter temperature, the Board declines to establish a winter temperature. As discussed below, the Board will delay the effective date of the proposed temperature standards for CAWS and LDPR by three years. This will allow sufficient time for affected dischargers or IEPA to propose appropriate winter thermal standards for the affected segments of CAWS and LDPR with sufficient technical justification.

Cold Shock. Midwest Generation supports the Board's first notice decision not to include a cold shock provision in the thermal standards. However, if the Board decides to include a cold shock provision, Midwest Generation states that it would be in favor of a limitation based on 27° F maximum thermal discharge temperature change. PC 1418 at 32. The Environmental Groups assert that cold shock concerns would be addressed by the General Use narrative standards or if the Board adopts their non-summer daily maximum standards. PC 1428 at 9. For the same reasons noted at first notice, the Board is not convinced that there is a need for a separate provision to address cold shock. *See* Water Quality Standards and Effluent Limitations for the Chicago Area Waterway System and Lower Des Plaines River: Proposed Amendments to 35 Ill. Adm. Code 301, 302, 303, and 304, R08-9(D), (Sep. 18, 2014) at 213. Further, as noted by the Environmental Groups, the Board's decision to adopt the General Use narrative thermal standards for CAWS and LDPR addresses any issues associated with abnormal temperature changes during winter months. In light of this, the Board declines to propose a cold shock provision.

Excursion Hours. At first notice, the Board included the General Use excursion hours under Section 302.408 and invited comments from IEPA and other participants. IEPA supports

the proposed excursion hours provision, while the Environmental Groups continue to oppose any excursion above the daily maximum thermal limits. In addition, Midwest Generation requests that the Board increase the excursion hours from 1 percent of the hours to at least 2 percent of the hours, and apply the excursion hours on a calendar year basis rather than a 12-month rolling basis. PC 1418 at 30. These revisions, Midwest Generation states, are consistent with the AS 96-10 thermal standards applicable at the I-55 bridge and the 2003 EA proposal. *Id.* The Board declines to make any revisions based on AS 96-10 and the 2003 EA thermal standards, because those standards were found to be inappropriate for LDPR. Further, for the reasons discussed at first notice, the Board will propose the excursion hours to second notice without any changes. *See* Water Quality Standards and Effluent Limitations for the Chicago Area Waterway System and Lower Des Plaines River: Proposed Amendments to 35 Ill. Adm. Code 301, 302, 303, and 304, R08-9(D), (Sep. 18, 2014) at 212-213.

Delayed Effective Date and Compliance Issues. At first notice, the Board addressed the concerns raised by several participants, including Midwest Generation, ExxonMobil, and Stepan regarding immediate compliance with the thermal standards by proposing an eighteen-month delayed effective date of the thermal standards for CAWS and Brandon Pool ALU B and UDIP waters. *See* Water Quality Standards and Effluent Limitations for the Chicago Area Waterway System and Lower Des Plaines River: Proposed Amendments to 35 Ill. Adm. Code 301, 302, 303, and 304, R08-9(D), (Sep. 18, 2014) at 215-217. Midwest Generation asks that the Board extend the delayed effective to at least three years if the Board decides not to open a Subdocket to address thermal issues. PC 1418 at 36. Midwest Generation argues that the three-year period will allow for resolution of compliance issues being addressed by IEPA and USEPA, as well any revisions of the General Use thermal standards by IEPA. *Id.* at 33-34.

At first notice, the Board found that the proposed 18-month delayed effective date for ALU B and UDIP waters was necessary to provide sufficient time for IEPA to resolve compliance issues with USEPA and for dischargers to finalize their compliance options. The Board did not propose a delayed effective date for CAWS ALU A waters at first notice. However, the Board agrees with Midwest Generation that an additional three-year delay of the effective date would be helpful to address compliance issues facing thermal dischargers to the affected waters, including ALU A waters. Specifically, a three-year delayed effective date will allow resolution of variance issues at the federal level and provide clarity to affected dischargers. At the same time, the additional delay of effective date will also allow thermal dischargers like Midwest Generation, ExxonMobil, Ingredion and the District sufficient time to determine their compliance options, including operational changes, treatment options, CWA Section 316(a) thermal demonstrations, or site-specific thermal standards. Additionally, the Board finds that a delayed effective date for ALU A waters is also necessary to allow sufficient time for the District to seek appropriate winter thermal limits for the North Shore Channel and the Little Calumet River. Finally, a delayed effective date will also help IEPA in addressing implementation issues raised by ExxonMobil, including cascading implementation to address large upstream dischargers first.

Therefore, the Board proposes a three-year delayed effective date for thermal standards proposed for CAWS ALU A, CAWS and Brandon Pool ALU B, and UDIP waters. Finally, the Board notes that the existing Indigenous Aquatic Life Use thermal standard will continue to

apply to CAWS and LDPR waters during the delayed effective date period. The Board adds a provision reflecting the three-year delayed effective date at Section 302.408(b).

Subdocket for Temperature

Midwest Generation and Stepan asked that the Board open a new subdocket to address thermal standards for CAWS and LDPR. The Board does not believe that a subdocket to address temperature standards is necessary. The record provides the Board with evidence to support different alternatives for temperature standards, and the Board reviewed that evidence prior to proposing its first notice. The Board again examined the evidence in response to numerous comments arguing the veracity and persuasiveness of the evidence. The Board finds that the evidence supports the proposed temperature water quality standards based upon the Board's General Use thermal standards to protect the aquatic life uses of CAWS and LDPR. While participants argue that the Board should allow more information to be included in the record, as discussed earlier in this opinion, no additional hearings were requested, and the hearings that were scheduled were not fully utilized. Further, as noted above, the Board is proposing a three-year delayed effective date for the temperature standards to allow IEPA and other affected entities to address compliance issues, as well as to formulate any site-specific thermal standards. Any new proposal filed with the Board after the effective date of the regulations that addresses thermal standards for CAWS and LDPR will be considered by the Board in a new docket. As such, the Board declines to open a subdocket to address thermal standards.

Economic Reasonableness and Technical Feasibility

Participants raise a number of concerns about the ability of industry to meet the proposed temperature standards at the end of pipe. The Board understands those concerns; however, the Board finds that the record establishes that the existing General Use water quality standards are necessary to protect the designated aquatic life uses for CAWS and LDPR. Further, as the Board is proposing to allow for a delayed effective date, this will provide opportunity for participants to seek alternative relief from the standards. The Board encourages participants to consider site-specific relief for individual facilities.

Temperature Summary

The Board will adopt for second notice, the proposed temperature standards based on the General Use temperature standards found at 35 Ill. Adm. Code 302.211(e) for CAWS ALU A, CAWS and Brandon Pool ALU B, and UDIP ALU with the changes discussed above. Specifically, the Board: adds the narrative thermal standards found at Sections 302.211 (b), (c) and (d) to the proposed Section 302.408; delays the effective date of the thermal standards applicable to CAWS and LDPR by three years; and applies the existing Indigenous Aquatic Life Use thermal standards to CAWS and LDPR during the initial three-year period from the effective date of the proposed temperature standard.

As noted at first notice, the Board agrees with the Environmental Groups and Midwest Generation that the General Use thermal standards may need to be revised to reflect the current science and methodologies. PC 1418 at 34 and PC 1422 at 3. For the reasons discussed above, the Board strongly believes that any revision of the Board's thermal standards based on current

science and methodologies must start with the General Use standards before being extended to other use designations. By doing so, the Board believes that temperature standards appropriate for various aquatic life uses could be developed without issuing more stringent standards for waters designated for lesser aquatic life uses. Therefore, the Board urges IEPA to consider revision of the General Use thermal standards as a part of its next triennial review.

The Board proposes the following changes to at Section 302.408:

a) For the South Fork of the South Branch of the Chicago River (Bubbly Creek), temperature ~~Temperature~~ (STORET number (^{o} F) 00011 and (^{o} C) 00010) shall not exceed 34^o C (93^o F) more than 5% of the time, or 37.8^o C (100^o F) at any time.

b) The temperature standards in subsections (c) through (i), will become applicable beginning 3 years after the effective date of this Section. For a period of 3 years from the effective date of this Section, the waters designated at 35 Ill. Adm. Code 303 as Chicago Area Waterway System Aquatic Life Use A, Chicago Area Waterway System and Brandon Pool Aquatic Life Use B, and Upper Dresden Island Pool Aquatic Life Use will not exceed temperature (STORET number (^{o} F) 00011 and (^{o} C) 00010) of 34^o C (93^o F) more than 5% of the time, or 37.8^o C (100^o F) at any time.

c) There shall be no abnormal temperature changes that may adversely affect aquatic life unless caused by natural conditions.

d) The normal daily and seasonal temperature fluctuations which existed before the addition of heat due to other than natural causes shall be maintained.

e) The maximum temperature rise above natural temperatures shall not exceed 2.8^o C (5^o F).

~~b~~f) Water temperature shall not exceed the maximum limits in the applicable table in subsections ~~(b), (c) and (d)~~(g), (h), and (i), during more than one percent of the hours in the 12-month period ending with any month. Moreover, at no time shall the water temperature exceed the maximum limits in the applicable table that follows by more than 1.7 ^{o}C (3.0^o F).

~~eg~~) Water temperature in the Chicago Area Waterway System Aquatic Life Use A waters listed in 35 Ill. Adm. Code 303.~~230~~235 shall not exceed the limits in the following table in accordance with subsection (~~a~~f):

Months	Daily Maximum (^{o}F)
January	60
February	60

March	60
April	90
May	90
June	90
July	90
August	90
September	90
October	90
November	90
December	60

hd) Water temperature in the Chicago Area Waterway System and Brandon Pool Aquatic Life Use B waters listed in 35 Ill. Adm. Code 303.325240, shall not exceed the limits in the following table in accordance with subsection (af):

Months	Daily Maximum (^{o}F)
January	60
February	60
March	60
April	90
May	90
June	90
July	90
August	90
September	90
October	90
November	90
December	60

ie) Water temperature for the Upper Dresden Island Pool Aquatic Life Use waters, as defined in 35 Ill. Adm. Code 303.237230, shall not exceed the limits in the following table in accordance with subsection (af):

Months	Daily Maximum (^{o}F)
January	60
February	60
March	60
April	90
May	90
June	90
July	90

August	90
September	90
October	90
November	90
December	60

Chloride

As stated in a 2012 report by the Illinois State Water Survey[2], chloride is found in all natural waters; however, elevated concentrations due to anthropogenic sources are a cause for concern in aquatic ecosystems. Exh. 493 Att. 3 at iii.

Beginning in the 1960s, rivers draining the Chicago region, as in other urban areas, have experienced increased chloride concentrations, primarily due to runoff from deicing road salt following winter storm events. Exh. 493 Att. 3 at iii, 8, 17. Road salt is the leading contributor to chloride levels in the waterways of the State with an estimated annual average of 518,000 tons applied each year mostly in the Chicago region. Potassium chloride fertilizer follows at 410,000 tons/year; however, because it is spread over large areas for agriculture, its impact on water quality is less than concentrated applications of road salt. The District's effluent is the next greatest contributor at 192,000 tons/year due to sewage and water conditioning salts. Exh. 493 at 7, Att. 3 at 8-13.

Being located in the highly urbanized watersheds of Chicago and suburban Cook and Will Counties, CAWS and LDPR experience the direct impacts of chloride from non-point sources of deicing road salt in winter stormwater runoff. PC 1402 at 6-7. Although elevated chloride levels are primarily attributed to non-point sources, NPDES permitted point sources that also discharge to the CAWS and LDPR are impacted. During times of winter stormwater runoff, industrial point sources are faced with the possibility of losing their mixing zones and not being able to discharge into the waterways without costly treatment or facility shutdowns. Exh. 285 at 8-10, Exh. 493 at 8.

IEPA noted that the water quality issues associated with road salt are not unique to CAWS and LDPR. Currently, IEPA is addressing chloride issues in NPDES stormwater permits to municipalities requiring the implementation of BMPs and other programs to minimize storm-related water quality impacts from salts and other pollutants. SR at 76-77.

Since 1979, the waters in CAWS and LDPR have been designated as Secondary Contact and Indigenous Aquatic Life Waters and have been subject to a water quality standard of 1,500 mg/L for TDS to provide for the protection of aquatic life. *See* Amendments to the Water Pollution Regulations of the Illinois Pollution Control Board, R77-12 Docket A (May 24, 1979), referring to Chapter 3: Water Pollution Regulations, Rule 205 Secondary Contact and Indigenous Aquatic Life Standards, subpart (e). *See also* Water Pollution Regulation

[2] Kelly, Walton R.; Samuel V. Panno, Keith Hackley, The Sources, Distribution, and Trends of Chloride in the Water of Illinois, Illinois State water Survey, Prairie Research Institute, University of Illinois at Urbana-Champaign, March 2012. Exh. 493 Att. 3.

Amendments, R73-1 (February 14, 1974). The TDS standard addresses both chloride and sulfate. Initially, IEPA proposed that the TDS standard be eliminated once chloride and sulfate standards were adopted because "the quantities of [TDS] individual constituents are more relevant to toxicity than their simple sum". SR at 78. Also, IEPA initially proposed a 500 mg/L year-round chloride standard, which is the General Use chloride standard. SR at 76. However, the issues associated with adopting a winter chloride water quality standard have proven to be complex. The Board also notes that the record has presented limited options for addressing the chloride issue.

The Board recognizes that future amendments to the water quality standards and NPDES permit regulations may be needed for addressing chloride to reflect more current science and methodologies as well as local conditions. At this time, the Board notes that IEPA still awaits USEPA's planned revisions to the chloride national criteria as well as completion of the efforts by the work group on a proposal for chloride and a water body wide variance.

Second Notice Revisions

As noted above, participants raised a number of concerns regarding the Board's decision at first notice to propose the General Use chloride water quality standard for CAWS and LDPR, outside CSSC, during the winter. In post-first notice comments, IEPA suggested retaining the current TDS standard until the work group develops a proposal regarding chloride and a water body wide variance for the Board's consideration. PC 1415 at 10-11. IEPA explained, it "had previously proposed that TDS be eliminated once a chloride standard was adopted." PC 1415 at 11. However, since IEPA is asking no action be taken with respect to a chloride water quality standard in this docket, IEPA states that the TDS standard should stay in effect while the work group draws up its proposal. PC 1415 at 11.

In its original proposal, IEPA proposed elimination of the TDS standard because "the quantities of its individual constituents are more relevant to toxicity than their simple sum" (SR at 78), however, IEPA still referred to the current TDS standard as a "surrogate" for a chloride and sulfate standard. PC 1415 at 11. As recently as 2008, USEPA approved a TDS standard as "protective of aquatic life and within toxicity thresholds" for the stretch of the LDPR covered by 35 Ill. Adm. Code 303.445. PC 1425 Exh. 1 at 1.

Both IEPA and USEPA point out that a new national criteria document for chloride is anticipated in the near future, but is not yet ready for publication. PC 1401 at 30, PC 1404 Enc. 1 at 5. However, as of second notice, the draft 304(a) Guidance does not yet appear to be available and it has not been provided in this record. The Board notes that this record does not include the science and data to develop water quality standards protective of aquatic life for chloride in CAWS and LDPR, outside the CSSC. Therefore a standard other than the 500 mg/L year-round standard awaits the efforts of USEPA to publish its new chloride criteria document and the efforts of the work group to address the "big picture" of chloride in these waterways.

3-Year Delayed Effective Date for Winter 500 mg/L Chloride Water Quality Standard. Both before and after first notice, IEPA, Citgo/PDV, ExxonMobil, and Stepan noted significant impacts and widespread noncompliance if the Board were to move forward with

adopting a 500 mg/L chloride water quality standard in the winter. PC 1415 at 7, Exh. 493 at 7, PC 1420 at 2, PC 1425 at 2, PC 1426 at 1, 3. IEPA and Citgo/PDV presented evidence showing that most segments of CAWS and LDPR would be expected to exceed a 500 mg/L chloride water quality standard two to 13 percent of the time in the winter. PC 1402 at 6, PC 1415 Att. 1. During these times, Citgo/PDV stressed that industrial point sources would be faced with the possibility of losing their mixing zones and not being able to discharge into the waterways without costly treatment or facility shutdowns. Exh. 285 at 8-10, Exh. 493 at 8.

The Board recognizes that future amendments to the water quality standards and NPDES permit regulations may be needed for addressing chloride to reflect more current science and methodologies as well as local conditions. As of this time, the Board notes that IEPA still awaits USEPA's planned revisions to the chloride national criteria as well as completion of the efforts by the work group on a proposal for chloride and a water body wide variance. The Board believes that the three-year delayed effective date will allow time for determining the best course of action.

Therefore, the Board proceeds with a year-round 500 mg/L chloride water quality standard applicable to all of CAWS and LDPR, except the CSSC, with a three-year delayed effective date. During this three-year period, the Board proposes to retain the 1,500 mg/L TDS standard during the winter months of December 1 through April 30 and apply the 500 mg/L chloride standard during summer months of May 1 through November 30. At the end of the three year period, the 500 mg/L chloride water quality standard will be in effect year-round for all segments of CAWS and LDPR, except the CSSC.

Several participants have stated that if the Board proceeds to adopt the 500 mg/L chloride water quality standards for CAWS and LDPR, the Board must provide appropriate relief mechanisms. The three year interim period with the delayed effective date is intended to allow time for the work group to develop a proposal to address chloride and a water body wide variance as well as for others who may be seeking alternatives. Even as the chloride work group progresses, the Board notes that a site-specific rulemaking or adjusted standard may be available for dischargers upon adequate proof that a different standard would protect the aquatic life uses. Citgo/PDV provided such information during this proceeding, and the Board notes that this option is available to others if site-specific circumstances are not able to be addressed through the work group's efforts.

No Subdocket but New Rulemaking when Specific Proposal is Filed. On January 31, 2014, IEPA filed a "status" for Subdocket D (PC 1396), which asked that a new subdocket be opened to address water quality standards for chloride. ExxonMobil supported that request while Citgo/PDV opposed it. On March 6, 2014, the Board denied the request noting:

> While the Board appreciates the willingness of parties to continue to discuss a chloride water quality standard, the Board is unconvinced that a further delay in proceeding to first notice on a chloride water quality standard is necessary. This is especially relevant as the IEPA had not suggested what additional information might become available after a delay to justify a water quality standard for chlorides. An immediate issue that would need to be addressed is what water

> quality standard for chloride would apply while a new subdocket was opened and discussions continue. The Board believes that there is sufficient information in this record to proceed with water quality standards including chlorides. While issues may still exist, the Board is developing a first notice proposal and participants can continue to offer comment on any proposal developed by the Board. Similarly, if the participants wish to continue to discuss chlorides, outside the record, and offer comment on the Board's first notice proposal, they can certainly do so. Water Quality Standards and Effluent Limitation for the Chicago Area Waterway System and Lower Des Plaines River: Proposed Amendments to 35 Ill. Adm. Code 301, 302, 303, and 304, R08-9(D) (Mar. 6, 2014).

In its comments filed prior to first notice, ExxonMobil again asked for a subdocket on chloride, and IEPA also asked that the Board delay adopting a chloride standard. The Board again declined to open a subdocket and proceeded to first notice with standards for chloride. *See* Water Quality Standards and Effluent Limitation for the Chicago Area Waterway System and Lower Des Plaines River: Proposed Amendments to 35 Ill. Adm. Code 301, 302, 303, and 304, R08-9(D), slip op. at 192 (Sept. 18, 2014).

In first notice comments, participants again raised the issue of opening a subdocket for chloride. In particular, IEPA and the District report since the last time IEPA filed comments with the Board, "more action has been taken with respect to tackling the issue of chloride due to deicing in this watershed." PC 1415 at 9. IEPA and the District state that a work group is forming to focus on chloride reduction during winter deicing events using BMPs and development of water body wide variances for affected dischargers on reaches that cannot meet the new standards. The District has agreed to facilitate the work group and a kickoff meeting was planned for this past January 2015. PC 1415 at 9-10, PC 1416 at 2-3. Referring to the work group's efforts to further develop the concepts of IEPA's chloride water body wide variance approach, IEPA stated, "Once this is completed, [it] and work group participants will come back to the Board with a proposal for chloride and a variance." PC 1415 at 10. During this time, IEPA states that they would file status reports with the Board to show progress toward filing a proposal. PC 1415 at 10.

The Board is unconvinced that such a subdocket is appropriate here when no specific proposal yet exists; especially given the Board's decision to delay the effective date of the year-round chloride standard. The three-year delay in adopting a 500 mg/L year-round chloride standard and the interim TDS standard should address the concerns about the need for a subdocket at this point. This should also provide time for a specific proposal to be filed in a new rulemaking.

Site-Specific Water Quality Standards for CSSC

At first notice, based on the proposal by Citgo/PDV, the Board proposed a site-specific chloride water quality standard for the CSSC with a chronic standard of 620 mg/L and an acute standard of 990 mg/L chloride.

In first notice comments, IEPA and USEPA reiterate previous concerns regarding deletion of species in the methodology used to derive the site-specific standard. PC 1414, PC 1415. On the other hand, the District suggests the proposed site-specific standard for the CSSC should be applied to all CAWS waters. PC 1416 at 1-2. In addition to all CAWS waters, ExxonMobil additionally suggests it should be adopted for the LDPR, including the UDIP. PC 1420 at 5. While Stepan does not oppose the site-specific chloride standard, Stepan does not agree that it should be extended to all CAWS waters. PC 1426 at 5. The Environmental Groups state Citgo/PDV's proposal for the CSSC is "probably harmless" but should just be applied to a small reach of the CSSC immediately below Citgo/PDV's discharge in the special navigation area. PC 1422 at 9.

IEPA and USEPA reiterated concerns from their pre-first notice comments regarding deletion of species in the methodology used to derive the site-specific standard. Both IEPA and USEPA also continue to question the deletion of the *Ceriodaphnia* Genus Mean Acute Value (GMAV) from the data used by Citgo/PDV to derive the CSSC site-specific standards. The Board finds that based on *Ceriodaphnia's* scarce collections, documented absence after October 29, and supporting data regarding the disappearance of their plankton food source in the winter, the Board agrees with Huff & Huff's conclusion that *Ceriodaphnia* are not considered to be "resident" or "occur at the site" as defined in USEPA's April 2013 guidance entitled "Revised Deletion Process for the Site-Specific Recalculation Procedures for Aquatic Life Criteria", EPA-823-R-13-001 (USEPA Recalculation Procedure). PC 1404 Enc. 1 at 1.

In post-first notice comments, USEPA continues to question the deletion of the *Sphaerium* GMAV, and states that information suggests that *Sphaerium* and/or other untested genera of fingernail clams occur at the site. PC 1414 at 6. Based on the record, the Board agrees with Huff & Huff that *Sphaerium* are not considered to be "resident" or "occur at the site" as defined in the USEPA Recalculation Procedure.

Questions were also raised by USEPA about the deletion of the *Lampsilis* GMAV from the data used by Citgo/PDV to derive the CSSC site-specific standards. However, based on the record, the Board agrees with Huff & Huff that *Lampsilis* are not considered to be "resident" or "occur at the site" as defined in the USEPA Recalculation Procedure.

Even if species do not occur at the site, USEPA states that information suggests these species are necessary to serve as surrogates for untested species that occur at the site as consistent with USEPA guidance. PC 1414 at 6. The Board notes that the USEPA Recalculation Procedure "allows for deletion of nonresident tested species only if they are not appropriate surrogates of resident untested species – based on taxonomy." USEPA Recalculation Procedure at 1. The USEPA Recalculation Procedure establishes a step-wise manner for the deletion process. USEPA Recalculation Procedure at 5. When the logic of the deletion process is followed for each of the species deleted from the Iowa list to derive the CSSC site-specific toxicity dataset, the results are consistent with Huff & Huff's analysis. Based on the deletion process, when *Sphaerium*, *Lampsilis*, and *Ceriodaphnia* are considered nonresident or not occurring at the site, the species in these genera are deleted. The Board finds that this is consistent with the result of the process followed by Huff & Huff to delete the following species

from the Iowa list: *Sphaerium simile*, *Ceriodaphnia dubia*, *Lampsilis siliquoidea*, and *Lampsilis fasciola.*

Although rotifers are not included in the Iowa list, USEPA continues to question rejection of rotifer data, citing evidence suggesting that rotifers are present in the waterway and information documenting their absence in the winter is lacking. PC 1414 at 6. Huff & Huff surmise that the rotifers present in the CSSC would likely be a mixture of species, including *Brachionus plicatilis*, which is known to actively reproduce in seawater with chloride concentrations of 18,980 mg/L. PC 1423 at 6. 11. Huff & Huff pointed out that if *Brachionus plicatilis* were included in the recalculation, it would yield a very high GMAV, resulting in higher derived water quality standards for winter chloride. PC 1423 at 6. The Board agrees with Huff & Huff's assessment regarding rotifers and finds that even though they are resident in the CSSC, inclusion of rotifers in the site-specific recalculation would not result in more protective site-specific water quality standards.

Board Findings on Site Specific Chloride Standard for CSSC. The Board notes that based on the comments the Board has received from other parties involved in this rulemaking (the District, ExxonMobil, Stepan, and the Environmental Groups), no issues have been identified with the scientific rationale Huff & Huff used. As at first notice, the Board continues to find that Citgo/PDV properly employed USEPA's 2013 recalculation procedures to derive scientifically defensible site-specific acute and chronic water quality standards for chloride in the CSSC as USEPA stated could be done. PC 1404 Enc. 1 at 1. The Board finds that Citgo/PDV adequately responded to each of IEPA's and USEPA's concerns in the record to provide supplemental evidence and clarification of the site-specific derivation. USEPA recommended the Board also consider the "appropriate duration and frequency of the [CSSC site-specific] criteria." PC 1423 at 6. The Board notes that this is covered under proposed 35 Ill. Adm. Code 302.407(a), (b).

Even with the site-specific standards for the CSSC, the Board notes that the record indicates that exceedances may still occur. SR, Att. W, Table 8 (2005 and 2006 data from District showing a maximum chloride measurement of 671 mg/L in the CSSC); Exh. 493, Att. 2 (2005 – 2013 data showing 20 exceedances in the CSSC), PC 1426 at 2-3.

The Board observes that Citgo/PDV's proposal was that "the Board adopt chloride limits of 990 mg/L acute and 624 mg/L chronic as a seasonal (from December 1 through March 31) chloride water quality standards for Use B Waters." PC 1402 at 14, *see also* PC 1410 at 3. At first notice, the Board found Citgo/PDV's site-specific standards derivation was specific to the CSSC and the winter months, and did not apply to all waters designated ALU B, in particular Brandon Pool. The deletion process Huff & Huff used to derive a site-specific toxicity dataset from the Iowa list was based on all available relevant information across the CSSC system, including at many as 35-years of databases from INHS, the District, and several museums. PC 1423 Exh. B at 1-6. Additionally, the deletion process relied on Huff & Huff's collections made in the CSSC, including in areas of the CSSC where the highest diversity of organisms were found in Hester-Dendy samplers and where USEPA suggested cladoceran populations might be present near the Lockport Lock and Dam in the winter because it is anthropogenically-warmed. Exh. 491 at 4, PC 1404 Enc. 5 at 1-2, PC 1423 Exh. B 1-6. For all other segments in CAWS and

LDPR, the Board notes that no other site- specific standards were proposed, although the District presented a sample recalculation for a site-specific criterion in CAWS in general using the USEPA Recalculation Procedure. PC 1416.

Because the data used by Citgo/PDV in the recalculation procedure were specific to the CSSC, the Board declines to expand the chloride standard beyond the CSSC, as suggested by participants. ExxonMobil acknowledged that "data on the aquatic species used in the Huff & Huff recalculation of the winter chloride criteria are not available for the LDPR…" PC 1420 at 5-6. The Board finds that the record does not contain sufficient supporting information specific to the other segments of CAWS and LDPR to propose other site-specific chloride standards. The Board reminds that anyone may file a new rulemaking or a site-specific rulemaking with the Board to establish different water quality standards or regulations addressing chloride that would be protective of the designated uses as further scientifically defensible information is brought to bear.

Protection of Downstream Waters. USEPA expressed concern that the record does not contain information to demonstrate that the CSSC site-specific standards will protect aquatic life uses downstream in the LDPR in accordance with 40 C.F.R. §131.10(b). PC 1414 at 6. The Board notes that the USEPA Recalculation Procedure states, "Use of the Recalculation Procedure does not sidestep the need to protect downstream uses." USEPA Recalculation Procedure at 4.

Huff & Huff responded, "Once outside the confines of the man-made, habitat-poor channel, downstream of the Brandon Street Lock and Dam, fishery data show an improvement in the number of species present. There is also additional flow from the merger with the Des Plaines River, as well as other streams such as Deep Run Creek, immediately below the Lockport Lock & Dam." PC 1423 at 4.

In order to quantify the potential impact of the CSSC site-specific chloride water quality standards on the LDPR, Huff & Huff examined flow and TDS data in the CSSC at the I-55 bridge and Citgo/PDV's intake on the CSSC. From the intake to the I-55 bridge, Huff & Huff found that peak TDS values declined by 14 to 23%, from 1,500 to 1,686 mg/L to 1,300 mg/L due to additional flow from the Des Plaines River, which merges with the CSSC just below the Lockport Lock and Dam. Huff & Huff noted that the proposed retention of the 1,500 mg/L TDS water quality standard as well as the current site-specific 1,686 mg/L TDS standard above the I-55 bridge implicitly assert these values are protective of aquatic life. Therefore, Huff & Huff calculated that a 23% decline in TDS would correspond to a 23% decline in the proposed winter acute chloride water quality standard from 990 mg/L to 750 mg/L at the I-55 bridge. PC 1423 at 4. The Board notes that the current 1988 national acute criteria for chloride is 860 mg/L, so the predicted peak of 750 mg/L would be below this value. Therefore, the CSSC site-specific water quality standards for chloride would be considered protective of aquatic life uses downstream in the LDPR in accordance with 40 C.F.R. §131.10(b) based on the national chloride criteria.

Proposed New Subsection 309.141(i) regarding Best Management Practices

At first notice, the Board proposed revisions to the NPDES provisions at 309.141(i) to facilitate the use of BMPs for chloride in NPDES permits based on the federal rule language at 40 C.F.R. §122(k). Comments received after first notice from IEPA, Citgo, ExxonMobil, Stepan, and the Environmental Groups voiced overwhelming support for the BMP provision, but suggested that it not be limited to chloride as would be consistent with the federal rule language simply referring to "pollutants". PC 1415 at 11-12, 1417, 1423, 1420, 1422, 1426. With the information in the record, the Board is not prepared to open the provision to all pollutants without further information, especially with regard to bioaccumulative chemicals of concern. However, at first notice, the Board noted that IEPA has the authority under the Act to include conditions to implement BMPs in NPDES permits to control or abate discharges of pollutants consistent with 40 C.F.R. §122.44(k). See Section 39(b) of the Act (415 ILCS 5/39(b) (2012)). In order to facilitate the use of BMPs in Illinois NPDES permits for chloride, the Board will proceed to second notice to amend 35 Ill. Adm. Code 309.141 to include the federal applicable provisions of the rule at 40 C.F.R. §122.44(k) under 35 Ill. Adm. Code 309.143(c), limited to chloride. This addition, the Board notes, is not intended to limit the scope of the federal rule in Illinois. The federal rule at 40 C.F.R. §122.44(k) is broader in referring to "pollutants" in general and still applies to the State NPDES program.

Citgo/PDV suggests additional language for the proposed BMP provision to address "the time period prior to adoption of any chloride TMDL and to make clear that snow-melt run-off conditions are a qualifying event for use of BMPs in NPDES permits, as well as stormwater permits." PC 1423 at 10. Stepan also argues that Section 309.141(i) as proposed at first notice could be interpreted to apply only to discharges composed entirely of stormwater and suggests additional language addressing "section 304(e) of the CWA for the control of toxic pollutants and hazardous substances from ancillary industrial activities". PC 1426 at 16, *referring* to 40 C.F.R. § 122.44(k)(1). As to the issues raised by Citgo/PDV and Stepan, the Board notes that Mr. Huff earlier referred to BMPs in the context of USEPA's January 13, 2003 "Water Quality Trading Policy", which addresses the use of both management practices and pre-TMDL trading for point and non-point sources under the CWA. 12/17/13 Tr. at 181. Therefore, the Board finds that there is no need for any revisions.

Chloride Summary

Based on the new information provided after first notice was published, the Board is proceeding with a year-round 500 mg/L chloride water quality standard applicable to all of CAWS and LDPR, except the CSSC, with a three-year delayed effective date. During this three year period, the Board proposes to retain the 1,500 mg/L TDS standard during the winter months of December 1 through April 30 and apply the 500 mg/L chloride standard during the summer months of May 1 through November 30. At the end of the three-year period, the 500 mg/L chloride water quality standard will be in effect year-round for all segments of CAWS and LDPR, except the CSSC. Also at the end of the three year period, the chloride standard for summer months and the TDS standard for winter months will be repealed.

The Board also proceeds to second notice with a site-specific winter chloride water quality standard for the CSSC to apply instead of the TDS or chloride water quality standards during the winter months. The numeric standard of 620 mg/L as a chronic chloride water quality standard and 990 mg/L as an acute water quality standard is proposed for the CSSC from December 1 until April 30. Additionally, the Board proceeds to second notice with the inclusion of BMPs in the NPDES rules for complying with the chloride water quality standard.

Because IEPA did not raise any concerns regarding ExxonMobil's request to retain the site-specific TDS standards for the segment of the LDPR found at 35 Ill. Adm. Cole 303.445, and USEPA previously approved it, the Board finds that the site-specific TDS standard of 1,686 mg/L will continue to apply to this segment during the three-year interim period.

Based on the uses as designated in R08-9(C) pursuant to the 40 C.F.R. §131.10(g) factors, the Board will adopt the following water quality standards under proposed 35 Ill. Adm. Code 302.407(g) and 303.339 as protective of the designated uses per 40 C.F.R. §131.10(b):

2) From the effective date of this rule until three years after the effective date, the following concentrations for Chloride and Total Dissolved Solids shall not be exceeded except in waters for which mixing is allowed pursuant to Section 302.102 of this Part.

Chloride during the period of May 1 through November 30	mg/L	500
Total Dissolved Solids during the period of December 1 through April 30	mg/L	1,500

3) From three years after the effective date of these rules, the chloride and Total Dissolved Solids standards in subsection (g)(2) of this section is repealed and the following concentration for Chloride shall not be exceeded except in waters for which mixing is allowed pursuant to Section 302.102 of this Part:

Chloride	mg/L	500

where:

mg/L = milligram per liter,

Section 303.449 Chicago Sanitary and Ship Canal

The numeric water quality standards for chloride and Total Dissolved Solids set forth at 35 Ill. Adm. Code 302.407(g) ~~does~~ do not apply to the Chicago Sanitary and Ship Canal during the period of December 1 through April 30. Chloride levels in these waters must meet the numeric water quality standards for the

protection of aquatic organisms of 620 mg/L as a chronic water quality standard and 990 mg/L as an acute water quality standard for chloride during the period of December 1 through April 30.

Economic Reasonableness and Technical Feasibility

As indicated above, the Board recognizes the importance of new information that has been submitted into the record since first notice was published and information on the widespread hardship that a 500 mg/L chloride water quality standard would cause during the winter months. At second notice, the Board takes special note of the more complete information and updates provided by IEPA, USEPA, and the District on formation of a work group and chloride water body wide variance approach for the winter months and the genuine progress being made.

Based on the current record, the Board is still convinced that the record continues to support the Board's decision to proceed with chloride water quality standards, but with a delayed effective date and the addition of a three-year interim TDS standard in CAWS and LDPR outside the CSSC in the winter.

Several parties have stated that if the Board proceeds to adopt chloride water quality standards for CAWS and LDPR, the Board must provide appropriate relief mechanisms. To that end, the Board notes that the three-year interim period with the delayed effective date is intended to allow time for the work group to develop a proposal to address chloride and a water body wide variance as well as for others who may be seeking alternatives. Even as the chloride work group progresses, the Board notes that a site-specific rulemaking or adjusted standards may be available for dischargers upon adequate proof that a different standard or regulation would protect the aquatic life uses. Citgo/PDV provided such information during this proceeding, and the Board notes that this option is available to others if site-specific circumstances are not able to be addressed through the work group's efforts.

Remaining Water Quality Standards

The Board will begin by addressing total ammonia nitrogen and then cadmium. The Board then moves to copper to be followed by cyanide. The Board next addresses issues regarding fluoride and manganese, selenium, and benzene. Mercury and DO will complete this section.

Total Ammonia Nitrogen

At first notice, the Board proposed IEPA's total ammonia standard, which affords early life stage protection for all CAWS and LDPR waters except CAWS and Brandon Pool ALU B waters. Acknowledging that this standard does not comport with USEPA's 2013 national criteria, the Board requested input from participants on the applicability of the 2013 national criteria.

USEPA contends that the proposed ammonia standards are not derived using USEPA's most recent 304(a) criteria toxicity datasets, and that the Board needs to revise the standards to ensure the protection of early life stages of fish during the period of March through October. IEPA comments that USEPA's 2013 national criteria are more stringent than the current ammonia standards and most facilities could not meet these standards. IEPA reiterates its position that USEPA's 2013 national criteria need to be addressed on a statewide basis. The District and Stepan oppose use of USEPA's 2013 national criteria document for CAWS and LDPR waters and support IEPA's commitment to address new ammonia standards on a statewide basis. The Environmental Groups recognize that the proposed ammonia standard does not meet USEPA's 2013 national criteria but urges the Board to either open a new subdocket to address ammonia standards or adopt the General Use standards with the knowledge these standards will be reconsidered soon.

The Board agrees with IEPA that USEPA's 2013 national criteria for ammonia should be addressed on a statewide basis. No information was received to suggest that early life stages exist in ALU B waters thus requiring application of the General Use ammonia standard. Further, as discussed above, the Board is reluctant to open subdockets for standards that should be considered on statewide basis. Therefore, the Board proceeds to second notice with the ammonia standards as proposed at first notice and declines to open a subdocket.

Cadmium

At first notice, the Board proposed the cadmium General Use water quality standard for the ALU A, ALU B, and UDIP waters, which IEPA had stated was protective of aquatic life uses. USEPA provides the only comment to the first notice proposal. USEPA notes it had previously commented that the "cadmium criteria proposed by the Board are protective of aquatic life uses". USEPA observes in first notice comments that the Board used "an alternate rational for the proposed criteria" than USEPA used in their April 28, 2014 comments. PC 1414 at 7. However, USEPA believes the Board's rational is scientifically sound and consistent with federal requirements. No additional comments were received, and the Board proceeds to second notice with the General Use water quality standard for cadmium for these waters.

Copper

IEPA's proposed acute and chronic copper standards were based on the recalculation procedures established in the 1995 national criteria document rather than the 2007 USEPA update because IEPA believed the new methodology was complex and a departure from how copper standards have been developed. USEPA had stated that IEPA's proposed copper standard is not consistent with national criteria and therefore contrary to the CWA. While the Board shared USEPA's concerns, it also recognized IEPA's opinion that the 2007 criteria may not be workable in Illinois. The Board, therefore, found the record supported IEPA's recommended copper standard and proposed it at first notice. The Board asked participants to more fully explain why the 2007 national criterion is not workable.

USEPA recommends that the Board either employ the BLM to calculate and adopt a copper standard for each segment of CAWS and LDPR or "revise the hardness-based copper

criteria equations using the recalculation procedure applied to an updated toxicity database". USEPA continues to believe that adequate information exists to adopt the BLM. IEPA, however, asserts that BLM-based standards can be more stringent than the current hardness-based copper standards, and in certain cases, hardness-based standards may be overly stringent for particular water bodies and that there are implementation issues that need to be addressed before IEPA proposes adoption of the copper standards state-wide. IEPA notes that the BLM requires input parameters that include dissolved organic carbon, for which neither IEPA nor the District collect data and that BLM methodology has not been used on a state-wide basis to set a water quality standard. The District opposes using USEPA's 2007 criteria, which includes use of the BLM, and further suggests that if the 2007 criteria are considered for adoption, that a new subdocket be opened to address these issues. Stepan also opposes the adoption of the 2007 criteria. The Environmental Groups support USEPA's recommendations.

The Board has concerns with adopting USEPA's 2007 copper criteria because the underlying BLM has not been used to adopt water quality standards state-wide in Illinois. Also, according to IEPA and the District, the data required for the BLM is not now being collected. No information was provided as to how the BLM can be used without dissolved organic carbon data or why the BLM should be employed first for CAWS and LDPR waters when it has not been used to develop water quality standards statewide. Therefore, the Board proceeds to second notice with the copper standard as proposed at first notice.

Cyanide

The Board, at first notice, proposed a cyanide standard based on existing General Use standards, with an amended chronic standard to reflect the removal of the rainbow trout from the species list. The Board proposed a 22 µg/L acute cyanide standard and the amended 10 µg/L chronic standard. The chronic General Use cyanide standard is 5.2 µg/L. The Environmental Groups continue to support the General Use standard for cyanide, including the chronic standard; whereas, Stepan and the District oppose the lower chronic criterion and support the Board's proposal. No additional information was received to suggest the rainbow trout exists in CAWS or LDPR waters or that the 10 µg/L proposed chronic standard would not be protective of existing aquatic life uses. The Board will therefore proceed to second notice with the cyanide standards proposed at first notice.

Fluoride and Manganese

While no national criteria have been developed for fluoride and manganese, the Board proposed General Use water quality standards for both at first notice based on IEPA's proposal. No comments were received in support or opposition to the General Use standards for fluoride and manganese so the Board will proceed to second notice with the standards proposed.

Selenium

The Board, at first notice, proposed no changes from the standard for selenium in the existing Secondary Contact and Indigenous Aquatic Life standard as recommended by IEPA. IEPA did not use USEPA's criteria for selenium due to the uncertainty regarding the

science used in developing the most recent draft rules. The Board invited comments from participants as to why USEPA's proposed national criterion for selenium should not be adopted by the Board.

USEPA continues to recommend the adoption of the chronic water column total recoverable selenium standards of 5 µg/L, which is consistent with its 304(a) criteria document dated 1987. IEPA reiterated its position that the most recent national criteria document is more stringent than the proposed selenium standard, and that it is concerned about the science behind the national selenium criteria document. IEPA suggests that when the draft national criteria become final, IEPA can begin adopting a state-wide standard. The Environmental Groups support adoption of the USEPA-recommended 5 µg/L standard, although also support opening a new subdocket to address the selenium standard. Previously, the Environmental Groups suggested that the best option is for IEPA to begin measuring selenium levels in water bodies throughout the state and plan to bring a proposal to the Board in 2016, although they did not reiterate this concept in first notice comments. The Environmental Groups support adoption of the General Use standard, "recognizing that this is likely to result in a partial disapproval by USEPA". Both Citgo/PDV and the District oppose adoption of the more stringent 5 µg/L standard. Citgo/PDV supports the Environmental Groups' suggestion that IEPA begin collecting selenium data, and the District suggests waiting for further federal guidance before adopting new standards.

The Board shares IEPA's concerns with the science used in developing USEPA's draft selenium criteria, which the Board notes is more stringent than the General Use water quality standard. The Board also supports the District's suggestion that waiting for further guidance is advisable before proceeding with adoption of a new selenium standard. Further, as discussed above, the Board is reluctant to open subdockets for standards that should be considered on statewide basis. Therefore, the Board proceeds to second notice with the selenium standards as proposed at first notice and declines to open a subdocket.

Benzene

At first notice, the Board proposed the human health standard for benzene, as recommended by IEPA. This standard is based on the existing General Use standards, and according to IEPA, is more up-to-date than the national criterion. The Board invited comment from participants as to whether the proposed standard was appropriate. The Environmental Groups continue to argue that the benzene standard should be reduced from the proposed 310 µg/L to 23 µg/L because the proposed standards 13 times greater than the criterion supported by science and is recommended in USEPA's 2014 ambient water quality criterion for benzene. They also note that the benzene standard recommended in USEPA's 2002 report is 51 µg/L. With two national documents recommending benzene criterion more stringent than proposed by IEPA, the Environmental Groups argue the Board must amend its proposed standard.

Stepan does not support the recommendation of the Environmental Groups and notes that the Board proposed a human health standard for benzene because CAWS and LDPR waters are not designated as public water supplies. The proposed 310 µg/L standard is the same as that which applies to General Use waters. Stepan argues there is no justification to adopt standards

for CAWS and LDPR that are more stringent than General Use waters, and that if a more stringent standard is to be considered, it should be done on a state-wide basis.

The Board agrees with Stepan that because CAWS and LDPR waters are not designated as public water supplies, the General Use benzene standard is appropriate. If a more stringent standard for benzene is warranted, it should be considered on a state-wide basis, as Stepan suggests. Therefore, the Board proceeds to second notice with the benzene standard as proposed at first notice.

Mercury

IEPA had proposed a human health standard for mercury that is similar to the General Use human health standard, with two amendments: allowing for a 12-month rolling average versus an annual average and removing reference to harmonic mean flow. The Board found that IEPA's proposal was supported by the record and proposed the 12 ng/L standard at first notice. IEPA and the Environmental Groups support the Board's proposed mercury standard. ExxonMobil supports the proposed amendments allowing for a 12-month rolling average versus an annual average and removing reference to harmonic mean flow. ExxonMobil contends it could support the proposed 12 ng/L standard if the Board would adopt either streamlined adjusted standard procedures or a multi-discharger or water body variance process. ExxonMobil argues that providing regulatory relief is appropriate because the overwhelming source of mercury in surface waters is nonpoint source discharges, specifically from atmospheric deposition, and that there are no known commercially-available treatment processes for mercury dischargers to use to meet the proposed mercury standard.

The Board cannot support modifying water quality standards for a bioaccumulative chemical of concern. However, the Board understands the concerns raised by ExxonMobil regarding the source of mercury in CAWS and LDPR waters and the lack of availability of mercury treatment processes. Regulatory relief mechanisms exist that would be considered by the Board, including adjusted standards, a site-specific rule, or a water body variance as IEPA is exploring for chloride. The Board believes the record supports the mercury standard proposed at first notice, which includes allowing for a 12-month rolling average versus an annual average and removing reference to harmonic mean flow. Therefore, the Board proceeds to second notice with the mercury standard as proposed at first notice.

Dissolved Oxygen

IEPA recommended and the Board proposed at first notice DO standards based on USEPA's 1986 national criteria document. A different standard is proposed for each of the three different aquatic life use designations. General Use DO standards are proposed for the UDIP ALU, and for ALU A waters, a standard is proposed that reflects the lower biological potential of these waters compared to the UDIP ALU. DO standards are incrementally less for CAWS and Brandon Pool ALU B waters, including having no standards for early life stages of fish because these waters do not have the potential to support early life stages for fish. A new requirement that 24 consecutive hours of DO data be used to assess attainment of mean and minimum values is also included at first notice.

USEPA states that the Board proposed DO standards for the CSSC and Brandon Pool using a different rationale from that explained by IEPA, although USEPA appears to support the proposed DO standards. USEPA argues that the IEPA justification is based on a sound scientific rationale consistent with the CWA. Stepan opposes the DO numeric standards. The District raises questions as to the justification for the new requirement that 24 consecutive hours of DO data be used to assess attainment. The District states that this would necessitate continuous hourly DO monitoring and urges the Board to reconsider whether this should be included in the regulations. The Environmental Groups argue that continuous DO monitoring is very important because DO naturally fluctuates in a 24-hour cycle as plants and algae consume and emit oxygen into the water. As a result, DO levels can look normal during daytime business hours but plummet to deadly lows at night. They contend that to protect aquatic life, the DO standard needs to account for the true minimum and mean DO in a water body, which can only be assessed with continuous DO monitoring.

The Board agrees with the Environmental Groups' rationale of the need for 24 consecutive hours of DO data to assess attainment of mean and minimum values as proposed in Section 302.405(e), which the District explains would necessitate continuous hourly DO monitoring. The Board understands that DO levels fluctuate on a 24-hour cycle, which needs to be reflected in the data collected to demonstrate compliance with DO standards. No parties submitted alternative methods to assess attainment with the DO standards or a detailed explanation as to why the proposed methods are not appropriate. As a result, the Board proceeds to second notice with the DO standards as proposed at first notice.

Bubbly Creek

At first notice, the Board proposed to retain the existing Secondary Contact, Indigenous Aquatic Life Use standards for Bubbly Creek. However, the Board raised a concern that these standards would subject Bubbly Creek to an "anytime" DO standard of 4.0 mg/L, which appears to be more protective than the "anytime" DO standard of 3.5 mg/L that will be applicable to CAWS ALU A, ALU B, and UDIP waters. The Board requested comments from participants on this issue.

IEPA notes that the "anytime" DO standard of 3.5 mg/L in the IEPA'S 2007 proposal is only one component of the standards that makes the DO standard protective. IEPA recommends that the Board adopt the water quality standards it proposed in 2007 to address this question. IEPA also suggests that if the Board does not agree with this approach, the existing water quality standard should remain in place until these issues are addressed in Subdocket E.

The District opposes both of IEPA's recommendations, noting that adopting IEPA's 2007 proposed standards for Bubbly Creek would make Subdocket E irrelevant. The District also notes that maintaining the 4.0 mg/L "anytime" standard for Bubbly Creek would be inappropriate because it would make Bubbly Creek subject to a higher standard when it is acknowledged that Bubbly Creek has complex DO issues. The District recommends a 3.5 mg/L standard being applied to Bubbly Creek.

The Board thanks the District and IEPA for providing insight on this issue. IEPA raises a good point that the 3.5 mg/L "anytime" standard associated with the standards proposed for CAWS ALU A, ALU B, and UDIP waters is but one component that makes the DO standard protective. For example, for UDIP, ALU A, and ALU B waters during August to February, the "anytime" standard is 3.5 mg/L, but the daily mean averaged over 30 days is 4.0 mg/L, and for UDIP and ALU A waters during the months of March to July, the "anytime" standard is 5.0 mg/L. The existing Secondary Contact and Indigenous Aquatic Life DO standard, which is applicable to Bubbly Creek, is 4.0 mg/L "anytime", with no seasonal differences. Therefore, the 3.5 mg/L DO standard applicable to UDIP, ALU A, and ALU B waters is not less protective than the 4.0 mg/L standard applicable to Bubbly Creek when the entire set of DO standards are examined.

The District also raises a legitimate point in that assigning a more protective DO standard to Bubbly Creek would effectively make Subdocket E irrelevant. This also applies to the District's recommendation to change the 4.0 mg/L "anytime" standard that now applies to Bubbly Creek with the Secondary Contact and Indigenous Aquatic Life designation to 3.5 mg/L. As a result of the clarification of the 3.5 and 4.0 mg/L "anytime" standards and the intent to address water quality standards for Bubbly Creek in Subdocket E, the Board proposes to proceed to second notice with the existing Secondary Contact and Indigenous Aquatic Life standards for Bubbly Creek, including the 4.0 mg/L DO standard.

USEPA Disapprovals of Actions in Prior Subdockets

Both USEPA and the Environmental Groups remind that USEPA "disapproved" a number of revisions that the Board adopted in the prior subdockets of this proceeding. Specifically USEPA disapproved of the removal of the General Use designation for the Upper North Shore Channel from the Wilmette Pumping Station to the North Side Water Reclamation Plant and Calumet River from Lake Michigan to the O'Brien Locks and Dam.[3] PC 1338 at 4. USEPA also disapproved of the removal of the Secondary Contact recreational use designation from the CSSC and the LDPR from the CSSC to the Brandon Road Lock and Dam.[4] *Id* at 5.

The Environmental Groups state that USEPA's comments are not suggestions and if the Board does not take action, USEPA is required to adopt use designations to replace the designations USEPA disapproved. PC 1422 at 11. At first notice the Board stated:

[3] The Board adopted a final rule that designated these two CAWS segments as ALU A waters. Water Quality Standards and Effluent Limitations for the Chicago Area Waterway System and Lower Des Plaines River: Proposed Amendments to 35 Ill. Adm. Code 301, 302, 303, and 304, R08-9(C), slip op. at 190 (Feb. 21, 2013); *see also* R08-9(C) (Feb. 6, 2013)

[4] The Board adopted a final rule that designated the lower CSSC and the LDPR from the CSSC to the Brandon Road Lock and Dam as a Non-recreational use. Water Quality Standards and Effluent Limitations for the Chicago Area Waterway System and Lower Des Plaines River: Proposed Amendments, R08-9(A) slip op. at 42, 49 (June 16, 2011); *see also* R08-9(A) (Aug. 18, 2011).

In response to these concerns, the Board reminds that the issue of use designation is not within the scope of subdocket D, which is to address water quality standards to protect the aquatic life use designations adopted by the Board in subdocket C. Use designations cannot, therefore, be considered at this time. Second, while use designations are not being addressed in subdocket D, the Board notes that it provided extensive documentation at first notice in subdocket C to support the ALU A designation for both segments of concern to USEPA. Water Quality Standards and Effluent Limitations for the Chicago Area Waterway System and Lower Des Plaines River: Proposed Amendments to 35 Ill. Adm. Code 301, 302, 303, and 304, R08-9(C), slip op. at 182, 203 (Feb. 21, 2013). The Board continues to believe that UAA Factors 3, 4, and 5 prevent the attainment of the General Use designation for both segments. *Id*.

Further, the Board notes that recreational use was addressed in Subdocket A, and the Board believes that it provided extensive documentation to support the uses adopted by the Board for recreation as well as the standards adopted in Subdocket B. Water Quality Standards and Effluent Limitations for the Chicago Area Waterway System and Lower Des Plaines River: Proposed Amendments to 35 Ill. Adm. Code 301, 302, 303, and 304, R08-9(A), slip op. at 42, 49 (June 16, 2011); *see also* R08-9(A) (Aug. 18, 2011).

If anyone believes that the Board's conclusions on uses, both aquatic life and recreational, are incorrect, the Board encourages the filing of a new proposal. However, at this time the Board is not reexamining use determinations. Water Quality Standards and Effluent Limitations for the Chicago Area Waterway System and Lower Des Plaines River: Proposed Amendments, R08-9(D), slip op. at 218-18 (Sept. 18, 2014).

This Subdocket addresses water quality standards necessary to protect the designated aquatic life uses. The Board previously ruled on the designation of uses in Subdocket C. The Board appreciates USEPA's position; however, until the Board receives a new proposal, the Board cannot act on USEPA's disapprovals. The Board encourages IEPA to propose rules that address USEPA's disapprovals, and the Board will proceed with any such proposal as expeditiously as possible.

Miscellaneous Changes Suggested

Sampling Requirements

As noted above, the proposed water quality standards for CAWS and LDPR parallel the General Use standards, which also include similar minimum sampling requirements for attainment demonstration. Since the General Use standards were updated in 1990, there appears to be no confusion regarding the applicability of those standards to protect the designated uses or the sampling provisions for attainment demonstration. The sampling or assessment requirements are intended only for the purposes of demonstrating compliance and not to place any limitation on the applicability of the standards. For example, any discharge to a receiving General Use

stream would be evaluated on the basis of the applicable water quality standard to determine if a permit limit is necessary. In light of this the Board will move forward with sampling requirements proposed at first notice in Sections 302.405, 302.407 and 302.412. However, the Board directs the IEPA to propose changes to Part 302 in a future rulemaking to move all sampling requirements associated with the water quality standards under a new subpart or section to avoid any perceived confusion regarding the applicability the water quality standards.

The proposed averaging time at Section 302.407(b) parallels the Board's General Use standards provision at Section 302.208(b), which sets forth that the chronic standards "shall not be exceeded by the arithmetic average of at least four consecutive sample collected over any period of at least four days, …" 35 Ill. Adm. Code 302.208(b). The Board specified the 4-day averaging period for chronic standards at Section 302.208 when it first adopted the acute and chronic water quality standards in 1990. *See* Proposed Amendments to Title 35, Subtitle C (Toxics Control), R88-21(A) (Jan 25, 1990). In that rulemaking, the IEPA explained that it relied on USEPA guidance in developing the chronic standards, which are the highest four-day average concentrations that will not produce unacceptable effects over a long-term exposure. R88-21(A), IEPA Pre-filed Testimony dated November 2, 1988 at 5. The Board adopted the averaging period for chronic standards as recommended by the IEPA with minor changes to improve clarity including the phrase "at least four days". R88-21(A) slip op at 27 (Dec. 6, 1989).

Although the IEPA proposed an averaging period of "at least four days" in Section 302.208(b) in R88-21(A), that provision was clearly intended to be consistent with the federal guidance. As noted by USEPA, including the phrase "at least four days" may not be consistent with the scientific rational behind the proposed standards, i.e. the highest four-day average concentrations that will not produce unacceptable effects over a long-term exposure. As such, the Board revised Section 302.407(b) by removing the phrase "at least" and requiring that exposure be averaged over any four-day period. The Board notes that similar change will be made to the General Use standards in a future rulemaking when Section 302.208 is open.

Section 302.410

Section 302.410 was retitled as "Other Toxic Substances" as suggested by USEPA and IEPA. *See* pc 1414 at 4; PC 1415 at 16-18. The Board also adopts the clarifying language suggested by USEPA and IEPA. *See Id*. The Board declines to further clarify the language as suggested by Stepan (PC 1426 at 21) as the Board believes the requested change does not clarify the rule language.

Combination of Toxic Pollutants

Environmental Groups expressed concern regarding the synergistic effect of combined toxic pollutants that have numeric standards. The Environmental Groups suggested not including IEPA and USEPA's proposed language for Section 302.410, "Individual chemical substances or parameters for which numeric standards are specified in this Subpart are not subject to this Section." PC 1428 at 13 *referring* to PC 1414 at 4. The Board notes that Subpart

F already addresses determination of criteria for combinations of substances as well as for individual substances.

Obsolete Total Metal Standards

The District asks that "obsolete total metals standards should be stricken". However, those total metal standards are still required for Bubbly Creek and will be retained.

Correcting Citations to ALU A and ALU B Waters

Several participants pointed out that cross references to Sections 303.230, 303.235, and 303.235 were incorrect at times. The Board has corrected those references.

Changes to Language regarding the Chicago River

In Section 302.401(b), the Board clarified the standards for the Chicago River as recommended by the USEPA and IEPA. The Board also addressed the concern that the standards in Subpart D were protective of more than just aquatic life by deleing the phrase "indigenous aquatic life" in Section 302.401 and making the changes suggested by USEPA in Sections 303.204 and 302.402.

Additional Changes to the Rule Language

In Section 302.101, the Board added a reference to Section 303.449, as IEPA requested. In Section 302.407(e) corrected the spelling of Fluoride. In Section 302.408, the references to the corresponding subsections have been corrected. In Section 302.412, cross references to subsections were corrected.

USEPA asked for changes to Sections 303.204, 302.401 and 302.402, noting that the sections describe the standards as relating to aquatic life. However, USEPA notes the applicable standards in Subpart D address aquatic life, wildlife and human health standards. USEPA suggests clarifying language in each of those sections and the Board accepts those suggestions. Specifically in Section 302.401(a), the Board deleted "indigenous aquatic life" and in 302.402 added "wildlife, human health". In Section 303.204, at second notice, the Board deletes "for the protection of aquatic life as well as the" and replaced that phrase with "including the".

JCAR Suggestions

At first notice JCAR made changes to the rule language, which the Board generally accepts. However, in Section 302.405(c), JCAR changed the citation for ALU A waters from Section 303.235 to 35 Ill. Adm. Code 303.240. As discussed above many cross-references to the aquatic life use designations needed to be corrected and this is one. The Board corrected the citation to 35 Ill. Adm. Code 303.235.

CONCLUSION

The Board today proposes for second notice water quality standards for CAWS and the LDPR that are necessary to protect the aquatic life uses for those waterways as designated in Water Quality Standards and Effluent Limitations for the Chicago Area Waterway System and Lower Des Plaines River: Proposed Amendments to 35 Ill. Adm. Code 301, 302, 303, and 304, R08-9(C), (Feb. 6, 2014). The Board is proceeding with the standards as proposed at first notice with some changes to the proposal, which are discussed in detail in the opinion.

One amendment made at second notice is that while the Board proposes a year-round chloride standard of 500 mg/L for CAWS and LDPR, except for CSSC, the standard will have a delayed effective date. The year-round chloride standard will not be effective until three years after the effective date of the rules. In the interim the Board leaves in place the TDS standard during the winter months of December 1 through April 30 and applies the 500 mg/L chloride standard during the summer months of May 1 through November 30 for CAWS and LDPR, except for the CSSC. The interim TDS standard will sunset three years after the effective date of the rules.

In addition to this change, the Board proceeds to second notice with the temperature standards as proposed at first-notice, except the Board will delay the effective date of the temperature standards until three years after the effective date of the rules.

The Board finds that with the amendments at second notice the rule is technically feasible and economically feasible.

ORDER

The Board directs the Clerk to send the following rule in to the Joint Committee on Administrative Rules for second notice consideration:

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

Section

SUBPART E: LAKE MICHIGAN BASIN WATER QUALITY STANDARDS

Section

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 in R11-18(B) at 37 Ill. Reg. 7493, effective May 16, 2013; amended at in R08-09(D)_____ at 38 Ill. Reg. _____, effective _____.

SUBPART A: GENERAL WATER QUALITY PROVISIONS

Section 302.101 Scope and Applicability

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

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

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

d) Subpart D contains the Chicago Area Waterway System and the Lower Des Plaines River water quality ~~secondary contact and indigenous aquatic life~~ standards. These standards must be met only by certain waters designated in 35 Ill. Adm. Code 303.204, 303.220, 303.225, 303.227, 303.230, 303.235, 303.240 and ~~303.240~~ 303.449~~303.441~~. Subpart D also contains water quality standards applicable to indigenous aquatic life waters found only in the South Fork of the South Branch of the Chicago River (Bubbly Creek).

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 38 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~~ These 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~~the 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~~ that 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~~10.

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~~ for which 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~~subsection (b)(6).

9) No mixing is allowed ~~where~~ when 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~~subsection (b)(6).

11) Single sources of effluents ~~which~~ that 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 (b), 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~~ The 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~~ The 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~~ When 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~~ When 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~~ when 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 38 Ill. Reg. _____ effective_____)

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

Section 302.401 Scope and Applicability

a) Subpart D contains the ~~secondary contact and indigenous aquatic life~~ standards that ~~. These~~ must be met only by the South Fork of the South Branch of the Chicago River (Bubbly Creek) ~~certain waters specifically designated in Part 303~~. The Subpart B general use and Subpart C public and food processing water supply standards of this Part do not apply to Bubbly Creek ~~designated for secondary contact and indigenous aquatic life (Section 303.204~~.

b) Subpart D also contains the Chicago Area Waterway System and Lower Des Plaines River water quality standards. Except for the Chicago River these

standards must be met only by waters specifically designated in 35 Ill. Adm. Code 303. The Subpart B general use and Subpart C public and food processing water supply standards of this Part do not apply to waters described in 35 Ill. Adm. Code 303.204 as the Chicago Area Waterway System or Lower Des Plaines River and listed in 35 Ill. Adm. Code 303.220 through 303.240, 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 Section 302.209 of this Part. The Chicago River must meet the general use standards including the numeric water quality standard for fecal coliform bacteria applicable to protected waters in Section 302.209 of this Part.

(Source: Amended at 38 Ill. Reg. _____ effective_____)

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 when 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, wildlife, human health, and recreational uses of the Chicago Area Waterway System and Lower Des Plaines River as those uses are defined in 35 Ill. Adm. Code 301 and designated in 35 Ill. Adm. Code 303. ~~Secondary contact and indigenous~~ 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~~ for the South Fork of the South Branch of the Chicago River (Bubbly Creek), which ~~will be~~ is 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 this Subpart D~~.~~. However, the Chicago River is required to meet the general use standard, including the water quality standard for fecal coliform bacteria applicable to protected waters in Section 302.209 of this Part.

(Source: Amended at 38 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, except for the South Fork of the South Branch of the Chicago River (Bubbly Creek) for which pH shall be within the range of 6.0 to 9.0 except for natural causes.

(Source: Amended at 38 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), (c), and (d) ~~4.0 mg/l at any time except that the Calumet-Sag Channel shall not be less than 3.0 mg/1 at any time~~.

a) For the South Fork of the South Branch of the Chicago River (Bubbly Creek) dissolved oxygen concentrations shall not be less than 4.0 mg/L at any time.

b) For the Upper Dresden Island Pool Aquatic Life Use waters listed in 35 Ill. Adm. Code 303.230:

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.

c) For the Chicago Area Waterway System Aquatic Life Use A waters listed in 35 Ill. Adm. Code 303.235:

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.

d) For the Chicago Area Waterway System and Brandon Pool Aquatic Life Use B waters listed in 35 Ill. Adm. Code 303.240:

1) 4.0 mg/L as a daily minimum averaged over 7 days; and

2) 3.5 mg/L at any time.

e) Assessing attainment of dissolved oxygen mean and minimum values.

1) Daily mean is the arithmetic mean of dissolved oxygen concentrations in 24 consecutive hours.

2) Daily minimum is the minimum dissolved oxygen concentration in 24 consecutive hours.

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 used to determine a daily mean or daily minimum should not exceed the air-equilibrated concentration.

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 38 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 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 sample was collected. To calculate attainment status of chronic standards, the concentration of the chemical constituent 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, on a 12-month rolling average based on at

least eight samples, collected in a manner representative of the sampling period, 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)	$e^{A+B\ ln(H)}$ X {1.138672-[(ln(H))(0.041838)]}*, where A=-2.918 and B=1.128	$e^{A+B\ ln(H)}$ X {1.101672-[(ln(H))(0.041838)]}*, where A= -3.490 and B=0.7852
Chromium (hexavalent, total)	16	11
Chromium (trivalent, dissolved)	$e^{A+B\ ln(H)}$ X 0.316*, where A=3.7256 and B=0.8190	$e^{A+B\ ln(H)}$ X 0.860*, where A=0.6848 and B=0.8190
Copper (dissolved)	$e^{A+B\ ln(H)}$ X 0.960*, where A=-1.645 and B=0.9422	$e^{A+B\ ln(H)}$ X 0.960*. where A=-1.646 and B=0.8545
Cyanide**	22	10
Ethylbenzene	150	14
~~Flouride~~ Fluoride (total)	$e^{A+B\ ln(H)}$ where A = 6.7319 and B = 0.5394	$e^{A+B\ ln(H)}$, but shall not exceed 4.0 mg/L where A = 6.0445 and B = 0.5394
Lead (dissolved)	$e^{A+B\ ln(H)}$ X {1.46203-[(ln(H))(0.145712)]}*, where A=-1.301 and B=1.273	$e^{A+B\ ln(H)}$ X {1.46203-[(ln(H))(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)	$e^{A+B\ln(H)}$ X 0.998*, where A=0.5173 and B=0.8460	$e^{A+B\ln(H)}$ X 0.997*, where A=-2.286 and B=0.8460
Toluene	2000	600
TRC	19	11
Xylene(s)	920	360
Zinc (dissolved)	$e^{A+B\ln(H)}$ X 0.978*, where A=0.9035 and B=0.8473	$e^{A+B\ln(H)}$ X 0.986*, where A=-0.4456 and B=0.8473

where:

µg/L = microgram per liter,

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

e^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).

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

where:

µg/L = microgram per liter.

g) Numeric Water Quality Standards for Other Chemical Constituents

1) 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[~~$e^{[A+B\ln(H)]}$~~]~~ 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,

µg/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,

e^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

2) From the effective date of this rule until three years after the effective date, the following concentrations for Chloride and Total Dissolved Solids shall not be exceeded except in waters for which mixing is allowed pursuant to Section 302.102 of this Part.

Chloride	mg/L	500

during the period of May 1 through November 30		
Total Dissolved Solids during the period of December 1 through April 30	mg/L	1,500

3) From three years after the effective date of these rules, the chloride and Total Dissolved Solids standards in subsection (g)(2) of this section are repealed and the following concentration for Chloride shall not be exceeded except in waters for which mixing is allowed pursuant to Section 302.102 of this Part:

Chloride	mg/L	500

where:

mg/L = milligram per liter,

h) Concentrations of other chemical constituents in the South Fork of the South Branch of the Chicago River (Bubbly Creek) 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~~ 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~~:

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 38 Ill. Reg. _____ effective_____)

Section 302.408 Temperature

a) For the South Fork of the South Branch of the Chicago River (Bubbly Creek), temperature ~~Temperature~~ (STORET number (^{o} F) 00011 and (^{o} C) 00010) shall not exceed 34^{o} C (93^{o} F) more than 5% of the time, or 37.8^{o} C (100^{o} F) at any time.

b) The temperature standards in subsections (c) through (i), will become applicable beginning 3 years after the effective date of this Section. For a period of 3 years from the effective date of this Section, the waters designated at 35 Ill. Adm. Code 303 as Chicago Area Waterway System Aquatic Life Use A, Chicago Area Waterway System and Brandon Pool Aquatic Life Use B, and Upper Dresden Island Pool Aquatic Life Use will not exceed temperature (STORET number (^{o} F)

00011 and (^{o} C) 00010) of 34^o C (93^o F) more than 5% of the time, or 37.8^o C (100^o F) at any time.

c) There shall be no abnormal temperature changes that may adversely affect aquatic life unless caused by natural conditions.

d) The normal daily and seasonal temperature fluctuations which existed before the addition of heat due to other than natural causes shall be maintained.

e) The maximum temperature rise above natural temperatures shall not exceed 2.8^o C (5^o F).

~~b~~f) Water temperature shall not exceed the maximum limits in the applicable table in subsections ~~(b), (c) and (d)~~(g), (h), and (i), during more than one percent of the hours in the 12-month period ending with any month. Moreover, at no time shall the water temperature exceed the maximum limits in the applicable table that follows by more than 1.7 ^{o}C (3.0^o F).

~~c~~g) Water temperature in the Chicago Area Waterway System Aquatic Life Use A waters listed in 35 Ill. Adm. Code 303.~~230~~235 shall not exceed the limits in the following table in accordance with subsection (~~a~~f):

Months	Daily Maximum (^{o}F)
January	60
February	60
March	60
April	90
May	90
June	90
July	90
August	90
September	90
October	90
November	90
December	60

h~~d~~) Water temperature in the Chicago Area Waterway System and Brandon Pool Aquatic Life Use B waters listed in 35 Ill. Adm. Code 303.~~325~~240, shall not exceed the limits in the following table in accordance with subsection (~~a~~f):

Months	Daily Maximum (^{o}F)
January	60

February	60
March	60
April	90
May	90
June	90
July	90
August	90
September	90
October	90
November	90
December	60

i~~e~~) Water temperature for the Upper Dresden Island Pool Aquatic Life Use waters, as defined in 35 Ill. Adm. Code 303.~~237~~230, shall not exceed the limits in the following table in accordance with subsection (~~a~~f):

Months	Daily Maximum (^{o}F)
January	60
February	60
March	60
April	90
May	90
June	90
July	90
August	90
September	90
October	90
November	90
December	60

(Source: Amended at 38 Ill. Reg. _____ effective_____)

Section 302.409 Cyanide for the South Fork of the South Branch of the Chicago River (Bubbly Creek)

Cyanide (total) shall not exceed 0.10 mg/~~l~~L in the South Fork of the South Branch of the Chicago River (Bubbly Creek).

(Source: Amended at 38 Ill. Reg. _____ effective_____)

Section 302.410 ~~Substances~~ Other Toxic ~~to Aquatic Life~~Substances

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; except~~

~~for South Fork of the South Branch of the Chicago River (Bubbly Creek) where the substance shall not~~ exceed one-half of the 96-hour median tolerance limit (96-hour TL_m) for native fish or essential fish food organisms in the South Fork of the South Branch of the Chicago River (Bubbly Creek). All other Chicago Area Waterway System and Lower Des Plaines River waters as designated in Part 303 shall be free from any substances or combination of substance in concentrations toxic or harmful to human health, or to animal, plant or aquatic life. Individual chemical substances or parameters for which numeric standards are specified in this Subpart are not subject to this Section.

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 of this Part or in Section 302.621 of this Part; or

2) A Chronic Aquatic Toxicity Criterion (CATC) validly derived and correctly applied pursuant to procedures set forth in Section 302.627 or 302.630 of this Part.

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 of this Part.

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) of this Part; 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) of this Part.

d) The most stringent criterion of subsections (a), (b) and (c) shall apply at all points outside of any waters within which, mixing is allowed pursuant to Section 302.102 of this Part. 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 of this Part.

e) 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). 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 Title 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 the proceedings pursuant to subsection (f).

f) 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 the 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 the challenge in any subsequent proceeding involving application of the criterion to that person.

2) Consistent with subsection (f)(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~~that~~ action, the Agency shall include in the record all information upon which it has relied in developing and applying the criterion, whether that 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) (see 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), in an action in which alleged violation of the toxicity water quality standard is based on alleged excursion of a criterion, the person bringing the 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) Subsections (a) through (e) do not apply to USEPA registered pesticides approved for aquatic application and applied pursuant to the following conditions:

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

2) Applicator shall be properly certified under the provisions of the Federal Insecticide, Fungicide, and Rodenticide Act (7 USC 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 38 Ill. Reg. _____ effective_____)

Section 302.412 Total Ammonia Nitrogen

a) This Section does not apply to the South Fork of the South Branch of the Chicago River (Bubbly Creek).

b) For the Chicago Area Waterway System and the Lower Des Plaines River described in 35 Ill. Adm. Code 303.204 and listed in 35 Ill. Adm. Code 303.220 through 303.240, total ammonia nitrogen must in no case exceed 15 mg/L.

c) The total ammonia nitrogen acute, chronic, and sub-chronic standards are determined in accordance with the equations in subsections (c)(1) and (c)(2). Attainment of each standard must be determined in accordance with subsections (d) and (e) in mg/L.

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

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

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

A) During the Early Life Stage Present period, as defined in subsection (~~e~~f):

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

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

ii) When water temperature is above 14.51ºC:

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

Where T = Water Temperature, degrees Celsius

B) During the Early Life Stage Absent period, as defined in subsection (~~e~~f):

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

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

ii) When water temperature is greater than 7ºC:

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

Where:

T = Water Temperature, degrees Celsius

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

d) 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 determined in accordance with subsection (~~d~~e) 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 of this Part. Attainment of the sub-chronic standard determined in accordance with subsection (~~d~~e) 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.

e) 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.

f) 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 35 Ill. Adm. Code 303.240 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 38 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 Sections~~Section~~ 302.210(a), (b) and (c) and 302.410(a), (b) and (c).

(Source: Amended at 38 Ill. Reg. _____ effective_____)

Section 302.648 Determining the Human Threshold Criterion

The HTC is calculated according to the equation:

HTC = ADI/[W + (F x 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 38 Ill. Reg. _____ effective_____)

Section 302.657 Determining the Human Nonthreshold Criterion

The HNC is calculated according to the equation:

HNC = RAI/[W + (F x 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 38 Ill. Reg. _____ effective_____)

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

PART 303
WATER USE DESIGNATIONS AND SITE-SPECIFIC WATER QUALITY STANDARDS

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Section
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303.101 Multiple Designations
303.102 Rulemaking Required (Repealed)

SUBPART B: NONSPECIFIC WATER USE DESIGNATIONS

Section
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303.201 General Use Waters
303.202 Public and Food Processing Water Supplies
303.203 Underground Waters
303.204 Chicago Area Waterway System and Lower Des Plaines River ~~Outstanding Resource Waters~~
303.205 Outstanding Resource Waters
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303.227 Non-Contact Recreation Waters and Non-Recreational Waters
303.230 Upper Dresden Island Pool Aquatic Life Use Waters
303.235 Chicago Area Waterway System Aquatic Life Use A Waters ~~and Chicago Area Waterway System and Brandon Pool Aquatic Life Use B Waters~~
303.240 Chicago Area Waterway System and Brandon Pool Aquatic Life Use B Waters

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

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303.300 Scope and Applicability
303.301 Organization
303.311 Ohio River Temperature
303.312 Waters Receiving Fluorspar Mine Drainage (Repealed)
303.321 Wabash River Temperature
303.322 Unnamed Tributary of the Vermilion River
303.323 Sugar Creek and Its Unnamed Tributary

SUBPART D: THERMAL DISCHARGES

AUTHORITY: Implementing Section 13 and authorized by Sections 11(b) and 27 of the Environmental Protection Act [415 ILCS 5/13, 11(b) and 27].SOURCE: Filed with the Secretary of State January 1, 1978; amended at 2 Ill. Reg. 27, p. 221, effective July 5, 1978; amended at 3 Ill. Reg. 20, p. 95, effective May 17, 1979; amended at 5 Ill. Reg. 11592, effective October 19, 1981; codified at 6 Ill. Reg. 7818; amended at 6 Ill. Reg. 11161, effective September 7, 1982; amended at 7 Ill. Reg. 8111, effective June 23, 1983; amended in R87-27 at 12 Ill. Reg. 9917, effective May 27, 1988; amended in R87-2 at 13 Ill. Reg. 15649, effective September 22, 1989; amended in R87-36 at 14 Ill. Reg. 9460, effective May 31, 1990; amended in R86-14 at 14 Ill. Reg. 20724, effective December 18, 1990; amended in R89-14(C) at 16 Ill. Reg. 14684, effective September 10, 1992; amended in R92-17 at 18 Ill. Reg. 2981, effective February 14, 1994; amended in R91-23 at 18 Ill. Reg. 13457, effective August 19, 1994; amended in R93-13 at 19 Ill. Reg. 1310, effective January 30, 1995; amended in R95-14 at 20 Ill. Reg. 3534, effective February 8, 1996; amended in R97-25 at 22 Ill. Reg. 1403, effective December 24, 1997; amended in R01-13 at 26 Ill. Reg. 3517, effective February 22, 2002; amended in R03-11 at 28 Ill. Reg. 3071, effective February 4, 2004; amended in R06-24 at 31 Ill. Reg. 4440,

effective February 27, 2007; amended in R09-8 at 33 Ill. Reg. 7903, effective May 29, 2009; amended in R09-11 at 33 Ill. Reg. 12258, effective August 11, 2009; amended in R08-9(A) at 35 Ill. Reg. 15078, effective August 23, 2011; amended in R11-18 at 36 Ill. Reg. 18898, effective December 12, 2012; amended in R08-9(C) at 38 Ill. Reg. 5517, effective February 13, 2014; amended in R08-09(D) at 38 Ill. Reg._____, effective _____>

SUBPART B: NONSPECIFIC WATER USE DESIGNATIONS

Section 303.204 Chicago Area Waterway System and Lower Des Plaines River ~~Outstanding Resource Waters~~

The Chicago Area Waterway System and Lower Des Plaines River Waters are designated to protect for primary contact recreation, 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 attainable, limited only by the physical condition of these waters and hydrologic modifications to these waters. Except for the Chicago River, these ~~These~~ waters are required to meet ~~the secondary contact and indigenous aquatic life~~ the standards contained in 35 Ill. Adm. Code 302, Subpart D, but are not required to meet the general use standards or the public and food processing water supply standards of 35 Ill. Adm. Code 302, Subpart B and C, except that the waters designated as Primary Contact Recreation Waters in Section 303.220 must meet the numeric water quality standard for fecal coliform bacteria applicable to protected waters in 35 Ill. Adm. Code 302.209. Designated recreational uses and aquatic life use for each segment of the Chicago Area Waterway System and Lower Des Plaines River are identified in this Subpart. The Chicago River must meet the general use standards f~~or the protection of aquatic life as well as the~~ including the numeric water quality standard for fecal coliform bacteria applicable to protected waters in 35 Ill. Adm. Code 302.209.

(Source: Amended at 38 Ill. Reg. _____ effective_____)

Section 303.235 Chicago Area Waterway System Aquatic Life Use A Waters ~~and Chicago Area Waterway System and Brandon Pool Aquatic Life Use B Waters~~

~~a)~~ ~~Chicago Area Waterways System Aquatic Life Use A Waters~~

a~~1~~) Waters designated as Chicago Area Waterway System Aquatic Life Use A Waters are capable of maintaining, and shall have quality sufficient to protect, aquatic-life populations predominated by individuals of tolerant and intermediately tolerant types that are adaptive to the unique physical conditions, flow patterns, and operational controls necessary to maintain navigational use, flood control, and drainage functions of the waterway system. Such aquatic life may include, but is not limited to, fish species such as channel catfish, largemouth bass, bluegill, black crappie, spotfin shiner, orangespotted sunfish, common carp, and goldfish.

b2) Waters designated as Chicago Area Waterway System Aquatic Life Use A Waters are not capable of attaining an aquatic life use consistent with the section 101(a)(2) of the Clean Water Act goal (33 USC 1251(a)(2)).

c3) The following waters are designated as Chicago Area Waterway System Aquatic Life Use A Waters and must meet the water quality standards of 35 Ill. Adm. Code 302. Subpart D:

1A) Upper North Shore Channel from Wilmette Pumping Station to North Side Water Reclamation Plant;

2B) Lower North Shore Channel from North Side Water Reclamation Plant to confluence with North Branch of the Chicago River;

3C) North Branch of the Chicago River from its confluence with North Shore Channel to its confluence with South Branch of the Chicago River and Chicago River;

4D) South Branch of the Chicago River;

5E) Calumet-Sag Channel;

6F) Calumet River from Lake Michigan to its confluence with Grand Calumet River and Little Calumet River;

7G) Little Calumet River from its confluence with Calumet River and Grand Calumet River to its confluence with Calumet-Sag Channel;

8H) Grand Calumet River;

9I) Lake Calumet; and

10J) Lake Calumet Connecting Channel.

b) Chicago Area Waterway System and Brandon Pool Aquatic Life Use B Waters

1) Waters designated as Chicago Area Waterway System and Brandon Pool Aquatic Life Use B Waters are capable of maintaining, and shall have quality sufficient to protect, aquatic life populations predominated by individuals of tolerant types that are adaptive to unique physical conditions and modifications of long duration, including artificially constructed channels consisting of vertical sheet-pile, concrete and rip-rap walls designed to support commercial navigation, flood control, and drainage functions in deep-draft, steep-walled shipping channels. Such aquatic life may include, but is not limited to, fish species such as

~~common carp, golden shiner, bluntnose minnow, yellow bullhead and green sunfish.~~

~~2)~~ ~~Waters designated as Chicago Area Waterway System and Brandon Pool Aquatic Life Use B Waters are not capable of attaining an aquatic life use consistent with the section 101(a)(2) of the Clean Water Act goal (33 USC 1251(a)(2)).~~

~~3)~~ ~~The following waters are designated as Chicago Area Waterway System and Brandon Pool Aquatic Life Use B Waters and must meet the water quality standards of 35 Ill. Adm. Code 302. Subpart D:~~

~~A)~~ ~~Chicago Sanitary and Ship Canal; and~~

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

(Source: Amended at 38 Ill. Reg. _____ effective_____)

Section 303.240 Chicago Area Waterway System and Brandon Pool Aquatic Life Use B Waters

a) Waters designated as Chicago Area Waterway System and Brandon Pool Aquatic Life Use B Waters are capable of maintaining, and shall have quality sufficient to protect, aquatic life populations predominated by individuals of tolerant types that are adaptive to unique physical conditions and modifications of long duration, including artificially constructed channels consisting of vertical sheet-pile, concrete and rip-rap walls designed to support commercial navigation, flood control, and drainage functions in deep-draft, steep-walled shipping channels. Such aquatic life may include, but is not limited to, fish species such as common carp, golden shiner, bluntnose minnow, yellow bullhead and green sunfish.

b) Waters designated as Chicago Area Waterway System and Brandon Pool Aquatic Life Use B Waters are not capable of attaining an aquatic life use consistent with the section 101(a)(2) of the Clean Water Act goal (33 USC 1251(a)(2)).

c) The following waters are designated as Chicago Area Waterway System and Brandon Pool Aquatic Life Use B Waters and must meet the water quality standards of 35 Ill. Adm. Code 302. Subpart D:

1) Chicago Sanitary and Ship Canal; and

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

(Source: Added at 38 Ill. Reg. _____ effective_____)

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

Section 303.449 Chicago Sanitary and Ship Canal

The numeric water quality standards for chloride and Total Dissolved Solids set forth at 35 Ill. Adm. Code 302.407(g) do ~~does~~ not apply to the Chicago Sanitary and Ship Canal during the period of December 1 through April 30. Chloride levels in these waters must meet the numeric water quality standards for the protection of aquatic organisms of 620 mg/L as a chronic water quality standard and 990 mg/L as an acute water quality standard for chloride during the period of December 1 through April 30.

(Source: Added at 38 Ill. Reg. _____ effective_____)

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

PART 309
PERMITS

SUBPART A: NPDES PERMITS

Section
309.101 Preamble
309.102 NPDES Permit Required
309.103 Application - General
309.104 Renewal
309.105 Authority to Deny NPDES Permits
309.106 Access to Facilities and Further Information
309.107 Distribution of Applications
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309.115 Public Hearings on NPDES Permit Applications
309.116 Notice of Agency Hearing
309.117 Agency Hearing
309.118 Agency Hearing File
309.119 Agency Action After Hearing
309.120 Reopening the Record to Receive Additional Written Comment

SUBPART B: OTHER PERMITS

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

SOURCE: Adopted in R71-14, at 4 PCB 3, March 7, 1972; amended in R73-11, 12, at 14 PCB 661, December 5, 1974, at 16 PCB 511, April 24, 1975, and at 28 PCB 509, December 20, 1977; amended in R73-11, 12, at 29 PCB 477, at 2 Ill. Reg. 16, p. 20, effective April 20, 1978; amended in R79-13, at 39 PCB 263, at 4 Ill. Reg. 34, p. 159, effective August 7, 1980; amended in R77-12B, at 41 PCB 369, at 5 Ill. Reg. 6384, effective May 28, 1981; amended in R76-21, at 44 PCB 203, at 6 Ill. Reg. 563, effective December 24, 1981; codified at 6 Ill. Reg. 7818; amended in R82-5, 10, at 54 PCB 411, at 8 Ill. Reg. 1612, effective January 18, 1984; amended in R86-44 at 12 Ill. Reg. 2495, effective January 13, 1988; amended in R88-1 at 13 Ill. Reg. 5993, effective April 18, 1989; amended in R88-21(A) at 14 Ill. Reg. 2892, effective February 13, 1990; amended in R91-5 at 16 Ill. Reg. 7339, effective April 27, 1992; amended in R95-22 at 20 Ill. Reg. 5526, effective April 1, 1996; amended in R99-8 at 23 Ill. Reg. 11287, effective August 26, 1999; amended in R02-11 at 27 Ill. Reg. 202, effective December 20, 2002; amended in R03-19 at 28 Ill. Reg. 7310, effective May 7, 2004; amended in R07-9 at 32 Ill. Reg. 14995, effective September 8, 2008; amended at in R08-09(D)_____ at 38 Ill. Reg. _____, effective _____.

SUBPART A NPDES PERMITS

Section 309.141 Terms and Conditions of NPDES Permits

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

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

b) Standards of performance for new sources under ~~Section~~ section 306 of the CWA;

c) Effluent standards, effluent prohibitions, and pretreatment standards under ~~Section~~ section 307 of the CWA;

d) Any more stringent limitation, including those:

1) necessary to meet water quality standards, treatment standards, or schedules of compliance, established pursuant to any Illinois statute or regulation (under authority preserved by ~~Sections~~ section 510 of the CWA),

2) necessary to meet any other federal law or regulation, or

3) required to implement any applicable water quality standards, such limitations to include any legally applicable requirements necessary to implement total maximum daily loads established pursuant to ~~Section~~ section 303(d) of the CWA and incorporated in the continuing planning process approved under ~~Section~~ section 303(e) of the CWA and any regulations or guidelines issued pursuant ~~thereto~~ to that statute;

e) Any more stringent legally applicable requirements necessary to comply with a plan approved pursuant to ~~Section~~ section 208(b) of the CWA;

f) Prior to promulgation by the Administrator of the U.S. Environmental Protection Agency of applicable effluent standards and limitations pursuant to ~~Sections~~ sections 301, 302, 306 and 307 of the CWA, such conditions as the Agency determines are necessary to carry out the provisions of the CWA;

g) If the NPDES Permit is for the discharge of pollutants into navigable waters from a vessel or other floating craft (except that no NPDES Permit shall be issued for the discharge of pollutants from a vessel or other floating craft into Lake Michigan), any applicable regulations promulgated by the Secretary of the Department in which the Coast Guard is operating, establishing specifications for safe transportation, handling, carriage, storage and stowage of pollutants; and

h) If the NPDES Permit is for the discharge of pollutants from other than wet weather point sources into the Lake Michigan Basin as defined at 35 Ill. Adm. Code 303.443:

1) Total Maximum Daily Loads (TMDLs) and Waste Load Allocation (WLA) will be established through either the LaMP or a RAP for an Area of Concern. If a LaMP or RAP has not been completed and adopted, effluent limits shall be established consistent with the other provisions of this Section, including, but not limited to, Additivity, Intake Pollutants, Loading Limits, Level of Detection/Level of Quantification and Compliance Schedules. When calculation of TMDLs or a WLA is incomplete and it is expected that limits established through other provisions will be superseded upon completion of the TMDL or WLA process, those limits shall be identified as interim and the permit shall include a reopener clause triggered by completion of a TMDL or WLA determination. Any new limits brought about through exercise of the reopener clause shall be eligible for delayed compliance dates and

compliance schedules consistent with Section 39(b) of the Act [415 ILCS 5/39(b)], ~~35 Ill. Adm. Code~~ Section 309.148 of this Part, and 35 Ill. Adm. Code 352.Subpart H.

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

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

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

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

WHERE:

$(TEC)_{TCDD}$ = 2,3,7,8-TCDD toxicity equivalence concentration in effluent
$(C)_x$ = Concentration of total chemical x in effluent
$(TEF)_x$ = TCDD toxicity equivalency factor for x
$(BEF)_x$ = TCDD bioaccumulation equivalency factor for x

TABLE

Congener	TEF	BEF
2,3,7,8-TCDD	1.0	1.0
1,2,3,7,8-PeCDD	0.5	0.9
1,2,3,4,7,8-HxCDD	0.1	0.3
1,2,3,6,7,8-HxCDD	0.1	0.1
1,2,3,7,8,9-HxCDD	0.1	0.1
1,2,3,4,6,7,8-HpCDD	0.01	0.0
OCDD	0.001	0.0
2,3,7,8-TCDF	0.1	0.8
1,2,3,7,8-PeCDF	0.05	0.2
2,3,4,7,8-PeCDF	0.5	1.6
1,2,3,4,7,8-HxCDF	0.1	0.0
1,2,3,6,7,8-HxCDF	0.1	0.2
2,3,4,6,7,8-HxCDF	0.1	0.7
1,2,3,7,8,9-HxCDF	0.1	0.6

1,2,3,4,6,7,8-HpCDF	0.01	0.0
1,2,3,4,7,8,9-HpCDF	0.01	0.4
OCDF	0.001	0.0

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

3) Reasonable potential to exceed.

A) The first step in determining if a reasonable potential to exceed the water quality standard exists for any particular pollutant parameter is the estimation of the maximum expected effluent concentration for that substance. That estimation will be completed for both acute and chronic exposure periods and is termed the PEQ. The PEQ shall be derived from representative facility-specific data to reflect a 95 percent confidence level for the 95th percentile value. These data will be presumed to adhere to a lognormal distribution pattern unless the actual effluent data demonstrates a different distribution pattern. If facility-specific data in excess of 10 data values is available, a coefficient of variation that is the ratio of the standard deviation to the arithmetic average shall be calculated by the Agency. The PEQ is derived as the upper bound of a 95 percent confidence bracket around the 95th percentile value through a multiplier from the following table applied to the maximum value in the data set that has its quality assured consistent with 35 Ill. Adm. Code 352.410 as appropriate for acute and chronic data sets.

PEQ = (maximum data point)(statistical multiplier)

Coefficient of Variation

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

10	1.1	1.2	1.3	1.5	1.6	1.7	1.9	2.0	2.2	2.3	2.4	2.6	2.7
11	1.1	1.2	1.3	1.4	1.6	1.7	1.8	1.9	2.1	2.2	2.3	2.4	2.5
12	1.1	1.2	1.3	1.4	1.5	1.6	1.7	1.9	2.0	2.1	2.2	2.3	2.4
13	1.1	1.2	1.3	1.4	1.5	1.6	1.7	1.8	1.9	2.0	2.1	2.2	2.3
14	1.1	1.2	1.3	1.4	1.4	1.5	1.6	1.7	1.8	1.9	2.0	2.1	2.2
15	1.1	1.2	1.2	1.3	1.4	1.5	1.6	1.7	1.8	1.8	1.9	2.0	2.1
16	1.1	1.1	1.2	1.3	1.4	1.5	1.6	1.6	1.7	1.8	1.9	1.9	2.0
17	1.1	1.1	1.2	1.3	1.4	1.4	1.5	1.6	1.7	1.7	1.8	1.9	1.9
18	1.1	1.1	1.2	1.3	1.3	1.4	1.5	1.6	1.6	1.7	1.7	1.8	1.9
19	1.1	1.1	1.2	1.3	1.3	1.4	1.5	1.5	1.6	1.6	1.7	1.8	1.8
20	1.1	1.1	1.2	1.2	1.3	1.4	1.4	1.5	1.5	1.6	1.6	1.7	1.7
30	1.0	1.1	1.1	1.1	1.2	1.2	1.2	1.3	1.3	1.3	1.3	1.4	1.4
40	1.0	1.0	1.1	1.1	1.1	1.1	1.1	1.1	1.2	1.2	1.2	1.2	1.2
50	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.1	1.1	1.1	1.1	1.1	1.1
60 or greater	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0

i) If the PEQ is less than or equal to the water quality standard, there is no reasonable potential and no limit will be established in the permit.

ii) If the PEQ is more than the water quality standard, the Agency will proceed to consideration of dilution and mixing pursuant to subsection (h)(4).

B) If facility-specific data of 10 or less data values is available, an alternative PEQ shall be derived using the table in subsection (h)(3)(A) assuming a coefficient of variation of 0.6, applied to the maximum value in the data set that has its quality assured consistent with 35 Ill. Adm. Code 352.410.

i) If the PEQ is less than or equal to the water quality standard, there is no reasonable potential and no limit will be established in the permit.

ii) If the PEQ exceeds the water quality standard, an alternative PEQ will be calculated using the maximum value in the data set and a multiplier of 1.4. If the alternative PEQ also exceeds the water quality standard, the Agency will proceed to consider dilution and mixing pursuant to subsection (h)(4).

iii) If the PEQ exceeds the water quality standard but the alternative PEQ is less than or equal to the standard, the Agency will either proceed to consider dilution and mixing pursuant to subsection (h)(4), or will incorporate a

monitoring requirement and reopener clause to reassess the potential to exceed within a specified time schedule, not to exceed one year. In determining which of these options to use in any individual application, the Agency shall consider the operational and economic impacts on the permittee and the effect, if any, deferral of a final decision would have on an ultimate compliance schedule if a permit limit were subsequently determined to be necessary.

C) The Agency shall compare monthly average effluent data values, when available, with chronic aquatic life, human health and wildlife standards to evaluate the need for monthly average water quality based effluent limitations (WQBELs). The Agency shall use daily effluent data values to determine whether a potential exists to exceed acute aquatic life water quality standards.

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

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

4) If the PEQ for a parameter is greater than the particular water quality standard, criteria or value for that parameter, the Agency will assess the level of treatment being provided by the discharger. If the discharger is providing (or will be providing) a level of treatment consistent with the best degree of treatment required by 35 Ill. Adm. Code 304.102(a), the PEQ derived under subsection (h)(3) shall be compared to a preliminary effluent limitation (PEL) determined by applying an appropriate mixing zone or a default mixing zone to the discharge. Mixing opportunity and dilution credit will be considered as follows:

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

B) Bioaccumulative chemicals of concern (BCCs):

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

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

C) Direct discharges to the Open Waters of Lake Michigan shall have a default mixing allowance of 2:1 for acute standards, criteria or values and 10:1 for chronic standards, criteria or values if the discharge configuration indicates that the effluent readily and rapidly mixes with the receiving waters. If ready and rapid mixing is in doubt the Agency shall deny any default dilution or mixing allowance and require a mixing or dispersion study to determine the proper dilution allowance. If the discharger applies for more than the default dilution or mixing allowance, it must submit a mixing or dispersion study to justify its request. Whenever a mixing or dispersion study is available, it shall be used to determine dilution or mixing allowance in lieu of the default allowance.

5) Preliminary effluent limitations calculations.

A) The preliminary effluent limitation (PEL) is calculated in a simple mass balance approach reflecting the dilution allowance established in subsection (h)(4):

WQS = [(Qe)(PEL) + (Qd)(Cd)] / [Qe + Qd] or
PEL = [WQS(Qe + Qd) - (Qd)(Cd)] / Qe

WHERE:

WQS = applicable water quality standard, criteria or value
Qe = effluent flowrate
Qd = allowable dilution flowrate
Cd = background pollutant concentration in dilution water

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

i) "Background" represents all pollutant loadings, specifically loadings that flow from upstream waters into the specified watershed, water body, or water body segment for which a TMDL or WLA in the absence of a TMDL is being

developed and enter the specified watershed, water body, or water body segment through atmospheric deposition, chemical reaction, or sediment release or resuspension.

ii) When determining what available data are acceptable for use in calculating background, the Agency shall use its best professional judgment, including consideration of the sampling location and the reliability of the data through comparison, in part, to detection and quantification levels. When data in more than 1 of the data sets or categories described in subsection (h)(5)(B)(iii) exists, best professional judgment shall be used to select the data that most accurately reflects or estimates background

concentrations. Pollutant degradation and transport information may be considered when using pollutant loading data to estimate a water column concentration.

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

6) Water quality based effluent limitations.

A) If the PEQ is less than or equal to the PEL, it will be concluded that there is no reasonable potential to exceed. Under such circumstances a permit limit for that contaminant will not be set unless otherwise justified under one or more provisions of 35 Ill. Adm. Code 352.430.

B) If the PEQ is equal to or greater than the PEL, and the PEQ was calculated using a data set of more than 10 values, a WQBEL will be included in the permit. If the PEQ was calculated using a data set of less than or equal to 10 values, and the alternative PEQ calculated under subsection (h)(3) (B) also exceeds the PEL, a WQBEL will be included in the permit.

C) If the PEQ was calculated using a data set of less than or equal to 10 values, and the PEQ is greater than the PEL but the alternative PEQ is less than the PEL, the Agency will either establish a WQBEL in the permit or incorporate a monitoring requirement and reopener clause to reassess potential to exceed within a specified time schedule, not to exceed one year. In determining which of these options to use in any individual application, the Agency shall consider the operational and economic impacts on the permittee and the effect, if any, deferral of a final decision would have on an ultimate compliance schedule if a permit limit were subsequently determined to be necessary.

D) The WQBEL will be set at the PEL, unless the PEL is appropriately modified to reflect credit for intake pollutants when the discharged water originates in the same water body to which it is being discharged. Consideration of intake credit will be limited to the provisions of 35 Ill. Adm. Code 352.425.

E) The reasonable potential analysis shall be completed separately for acute and chronic aquatic life effects. When WQBELs are based on acute impacts, the limit will be expressed as a daily maximum. When the WQBEL is based on chronic effects, the limit will be expressed as a monthly average. Human health and wildlife based WQBELs will be expressed as monthly averages. If circumstances warrant, the Agency shall consider alternatives to daily and monthly limits.

i) Best management practices (BMPs) to control or abate the discharge of chloride when:

1) Authorized under section 402(p) of the CWA for the control of storm water discharges;

2) Numeric effluent limitations are infeasible; or

3) The practices are reasonably necessary to achieve effluent limitations and standards or to carry out the purposes and intent of the CWA.

(Source: Amended at 38 Ill. Reg. _____ effective_____)

IT IS SO ORDERED.

I, John T. Therriault, Clerk of the Illinois Pollution Control Board, certify that the Board adopted the above opinion and order on March 19, 2015, by a vote of 4-0

John T. Therriault, Clerk
Illinois Pollution Control Board