

**BEFORE THE ILLINOIS POLLUTION CONTROL BOARD**

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

**NOTICE OF FILING**

TO: John Therriault, Assistant Clerk	Attached Service List
Illinois Pollution Control Board	
James R. Thompson Center	
100 West Randolph Street, Suite 11-500	
Chicago, IL 60601	

PLEASE TAKE NOTICE that I have today filed with the Illinois Pollution Control Board Midwest Generation L.L.C.'s Response Comments to U.S. EPA's Comments in Subdocket C, a copy of which is herewith served upon you.

Dated: August 29, 2013

MIDWEST GENERATION, L.L.C.

By: /s/ Susan M. Franzetti  
One of Its Attorneys

Susan M. Franzetti  
Kristen Laughridge Gale  
NIJMAN FRANZETTI LLP  
10 South LaSalle Street, Suite 3600  
Chicago, IL 60603  
(312) 251-5590

**SERVICE LIST R08-09**

Marie Tipsord, Hearing Officer  
Illinois Pollution Control Board  
100 West Randolph St  
Suite 11-500  
Chicago, IL 60601

Deborah J. Williams  
Stefanie N. Diers  
Illinois EPA  
1021 North Grand Avenue  
Springfield, IL 62794-9276

Frederick Feldman  
Ronald Hill  
Louis Kollias  
Margaret Conway  
Metropolitan Water Reclamation District  
100 East Erie St  
Chicago, IL 60611

Keith Harley  
Elizabeth Schenkier  
Chicago Legal Clinic, Inc.  
211 West Wacker Drive  
Suite 750  
Chicago, IL 60606

Katherine Hodge  
Monica Rios  
Hodge Dwyer Driver  
3150 Roland Avenue  
Springfield, IL 62705-5776

Ann Alexander  
Natural Resources Defense Council  
20 North Wacker Drive  
Suite 1600  
Chicago, IL 60606

Fredric Andes  
Erika Powers  
Barnes & Thornburg LLP  
1 North Wacker Dr  
Suite 4400  
Chicago, IL 60606

Thomas H. Shepherd  
Elizabeth Wallace  
Office of Illinois Attorney General  
Environmental Bureau  
69 West Washington St., Suite 1800  
Chicago, IL 60602

Lisa Frede  
Chemical Industry Council of Illinois  
1400 E. Touhy Avenue, Suite 110  
Des Plaines, IL 60018

Jack Darin  
Cindy Skrukrud  
Sierra Club, Illinois Chapter  
70 E. Lake St., Suite 1500  
Chicago, IL 60601-7447

Jeffrey C. Fort  
Dentons US LLP  
233 S. Wacker Drive, Suite 7800  
Chicago, IL 60606-6404

Jessica Dexter  
Environmental Law & Policy Center  
35 E. Wacker Drive, Suite 1600  
Chicago, IL 60601

Stacy Meyers-Glen  
Openlands  
25 E. Washington, Suite 1650  
Chicago, IL 60602

Thomas W. Dimond  
Susan Charles  
Ice Miller LLP  
200 West Madison Street, Suite 3500  
Chicago, IL 60606-3417

Lyman C. Welch  
Alliance for the Great Lakes  
17 N. State St., Suite 1390  
Chicago, IL 60602

Cathy Hudzik  
City of Chicago  
Mayor's Office of Intergovernmental Affairs  
121 North LaSalle Street, Room 406  
Chicago, IL 60602

Mitchell Cohen  
Illinois DNR, Legal  
Illinois Department of Natural Resources  
One Natural Resources Way  
Springfield, IL 62705-5776

Albert Ettinger  
Counsel for Environmental Groups  
53 W. Jackson Blvd., Suite 1664  
Chicago, IL 60604

**ILLINOIS POLLUTION CONTROL BOARD**

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

**MIDWEST GENERATION L.L.C.'S RESPONSE COMMENTS TO U.S. EPA'S  
COMMENTS IN SUBDOCKET C**

**INTRODUCTION**

On June 26, 2013, the United States Environmental Protection Agency ("U.S. EPA") submitted written comments, docketed as PC#1372 (the "U.S. EPA's Subdocket C Comments"), on several issues related to the Illinois Pollution Control Board's ("Board") First Notice and Opinion in Subdocket C ("Subdocket C First Notice"). In its written comments, the U.S. EPA both questioned and requested further justification for several of the Board's findings regarding the proposed lower aquatic life use designations for Chicago Area Waterway System ("CAWS") and the Lower Des Plaines River ("LDPR"). The U.S. EPA's Subdocket C comments also questioned whether the record in Subdocket C contained the information necessary to support the Board's findings.

The U.S. EPA Subdocket C Comments request that the Board identify more specifically the information in the Subdocket C record that supports certain of its findings. As an active participant in the Subdocket C rulemaking, and pursuant to the July 30, 2013, Hearing Officer Order, Midwest Generation, L.L.C. ("Midwest Generation") is providing this response to the U.S. EPA's Subdocket C Comments in an effort to assist and advance the Board's consideration of the U.S. EPA's requests.

Also, certain of the U.S. EPA's comments on the Use Attainability Analysis factors in 40 CFR 131.10(g)(3)-(5), UAA Factors 3, 4 and 5, do not appear to be consistent with the plain language of the UAA regulation. In particular, U.S. EPA appears to be requesting information that goes beyond the burden of proof required by the UAA regulation in contending that the record information may not be sufficient to satisfy any of these three UAA Factors. Indeed, it is difficult to imagine a more use-challenged waterbody than either the Chicago Sanitary and Ship Canal ("CSSC") or the Brandon Pool. If neither of these two segments can satisfy any of UAA Factors 3, 4 or 5, it is difficult to comprehend how the U.S. EPA has previously approved lower use designations for many other waters across the nation.

Midwest Generation's focus is on those parts of the U.S. EPA's Subdocket C comments which relate to the segments of the CAWS and LDPR with which it is most familiar, namely the record information concerning the CSSC and the Brandon Pool. Accordingly, this response does not attempt to address all of the issues and questions raised by the U.S. EPA Subdocket C Comments regarding other water segments. However, this focused presentation is not intended to imply that the record on those issues not addressed in this response does not justify the Board's findings.

The U.S. EPA Subdocket C Comments also question whether the Board's proposed revisions to the Illinois Environmental Protection Agency's ("Illinois EPA") proposed use language are consistent with federal law. Specifically, the U.S. EPA interprets the Board's revisions to the proposed use language to exclude the protection of any aquatic life use except fish. The U.S. EPA recommends that the Board "revert to the designated use language proposed by the [Illinois EPA] in its Statement of Reasons." (PC #1372 at p. 3, Section II). The U.S. EPA's interpretation of the Board's proposed use language does not appear to be what the Board

intended. The Board's revisions generally appear to improve upon the Agency's proposed use language. However, the U.S. EPA may be concerned that the Board's version references the waters ability to support "tolerant fish species" and the Agency's refers more broadly to "aquatic populations dominated by tolerant types." The difference appears to boil down to the phrases "fish species" and "aquatic populations." The Board may wish to substitute the phrase "tolerant aquatic populations" for its use of the phrase "tolerant fish species." The U.S. EPA also appears concerned that the Board's examples of tolerant species which are included in its proposed use language were limited to fish. The Board may wish to add examples of tolerant non-fish species as well. Alternatively, the most expeditious means of resolving the U.S. EPA's concerns may be to revert to the Illinois EPA's proposed use language. For the Use B waters which affect Midwest Generation's facilities, it has no objection to this alternative approach should the Board elect it.

**I. U.S. EPA's Application of the UAA Factors to the CSSC and Brandon Pool is Not Consistent with the Subdocket C Record.**

The U.S. EPA Subdocket C Comments take an overly restrictive view of the relevant evidence presented in support of the Board's findings. By doing so, the U.S. EPA incorrectly narrows the scope of the relevant record evidence supporting the Board's findings that UAA Factors 3, 4 and 5 are applicable to the CSSC and Brandon Pool. In its comments, the U.S. EPA singles out only certain portions of the relevant evidence relating to why a particular UAA Factor is satisfied. However, the scope of each of the UAA Factors at issue (40 CFR §131.3(g)(4)-(6)) is much broader and allows for relying on several different reasons for why a waterway may not attain the CWA goals. For both the CSSC and Brandon Pool, there are several constraints operating to lower the use that is attainable by these waters. All of these constraints must properly be given weight in determining that one or more of the UAA Factors has been satisfied.

Midwest Generation submits that in the Board's response to the U.S. EPA Comments, it should not limit its justifications for the applicability of Factor 3 to CSOs and stormwater impacts, but should include all of the "human caused conditions and sources of pollution" that prevent the attainment of the Clean Water Act's fishable use. Similarly, for UAA Factor 5, the Board's justifications should not be limited to evaluating why "low flow" conditions prevent attainment of a higher use, but should also include the scarcity of "natural features" in these waters and the prevalence of man-made modifications which are addressed by UAA Factor 5.

Turning first to UAA Factor 3, the U.S. EPA Subdocket C Comments suggest that only the stormwater and CSOs conditions are relevant considerations. Yet, the language of UAA Factor 3 is much broader than this. It states that "human caused conditions and sources of pollution" prevent the attainment of the use. 40 CFR §131.3(g)(3). UAA Factor 3 expressly encompasses any "human caused conditions or sources of pollution," which is much broader than only CSO and stormwater impacts. Examples of the other "human caused conditions" that exist in the CSSC and Brandon Pool and support the Board's findings are the presence of steep banks, vertical dock walls, and commercial barge traffic. In support of the Board's Subdocket A lower recreational use finding for these waters, which the U.S. EPA previously found acceptable, the Board referenced these same "human caused conditions" and they found that they cannot be remedied or would cause more environmental damage to correct. (*See* Opinion and Order, Second Notice in Subdocket A, *In the Matter of 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*, RO08-09, June 16, 2011 (hereafter "Subdocket A Second Order") at 42).

Midwest Generation's Final Subdocket C Comments contain a detailed description of the record information showing the additional UAA Factor 3 human caused conditions that prevent the attainment of the CWA goals. (*See* Midwest Generation's Final Comments in Subdocket C, PC #1277, March 5, 2012, (hereinafter "Midwest Generation Final Comments") at 36-52).

These human caused conditions include: extensive sedimentation, contaminated sediments, high turbidity, high levels of nutrient and ammonia in the water, barge traffic and the increased presence of Asian Carp. (*Id.*) Because the barge traffic, and the resulting turbidity it causes, as shown by the record information, is a protected navigational use, it cannot be "remedied" within the meaning of UAA Factor 3. As also described in Midwest Generation's Final Subdocket C Comments, Midwest Generation's expert testimony demonstrated that attempts to remove or remediate sediments in these waters would either be economically infeasible and/or would not cure the problem because the continued presence and operation of the locks and dams would result in the re-accumulation of sediments. The Subdocket C information establishes that these "human-caused conditions" are impairments in the CSSC and Brandon Pool that will remain and continue to prevent them from attaining the CWA goals.

As to UAA Factor 5, the U.S. EPA Subdocket C Comments again too narrowly construe the relevant conditions that satisfy this UAA factor. First, U.S. EPA seems to take the position that the only relevant portion of UAA Factor 5 relates to "flow." This is a misunderstanding of the Subdocket C record. Neither the language of UAA Factor 5, nor the supporting information in this record, is limited to flow. UAA Factor 5 addresses "any physical conditions related to the natural features of the water body *such as* lack of proper substrate, cover, flow, depth, pools, riffles and the like unrelated to water quality [which] preclude attainment of aquatic life protection." 40 CFR 131.3(g)(5) (*emphasis added*). The UAA participants have presented a



significant amount of evidence showing that there are very few “physical conditions related to the natural features” in the CSSC or the Brandon Pool that can support a healthy aquatic community. In fact, the CAWS is so unnatural that approximately 75% of the waterway consists of human-made canals where no defined stream existed prior to the original construction of the canals. (Illinois EPA Statement of Reasons (“SOR”) at p. 18). There is not enough “proper substrate,” “cover,” or any “riffles” in these waters to support a higher use – all of which are included in UAA Factor 5 as sufficient justification for a lower use.

UAA Factor 5 applies precisely because there is very little that is “natural” in either the CSSC or the Brandon Pool. To attain the CWA fishable goals, an aquatic habitat must have fast water, riffles, hard substrates, and consistent water levels. There must also be a variety of habitats in sufficient amounts to support viable populations of various fish. (Ex. 2 of Ex. 366 at 27). It is the scarcity of such “natural” physical conditions that makes UAA Factor 5 apply to these waters. The little natural habitat that does exist is woefully insufficient to attain the Clean Water Act’s fishable goals.

The steep banks and vertical dock walls present in these waters prevent them from having natural features, such as adequate cover, proper substrate and sufficient pools. As the Board correctly stated in supporting its UAA Factor 3 finding, the CSSC and Brandon Pool waters are “artificially constructed or channelized, straight, deep-draft, steep-walled shipping channels with little or no fixed aquatic or overhanging riparian vegetation or other refugia for aquatic life from shipping traffic and predation.” (Subdocket C First Notice at 194, citing SOR at 49).<sup>1</sup>

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<sup>1</sup> The Board’s finding is supported by other expert reports describing the CSSC as canal-like in nature with steep sides and little functional cover or substrates. (*See, e.g.*, Attachment R to SOR Analysis of Physical Habitat Quality and Limitations to Waterways in the Chicago Area. Center for Applied Bioassessment and Biocriteria, prepared for U.S. EPA Region 5 (2004) at 11) And similarly, experts described the Brandon Pool as an artificial channel with side masonry, concrete or sheet pile embankments that protect the city from flooding and other effects. (*See, e.g.*, Attachment WW to SOR, A River is Reborn - Use Attainability Analysis for the Lower Des Plaines River, Illinois. Vladimir Novotny, Neal O'Reilly, Timothy Ehlinger, Toby Frevert and Scott Twait)

Experts in this proceeding who have studied the CAWS unanimously agree that the CSSC and Brandon Pool waters have poor to very poor habitat with low Qualitative Habitat Evaluation Index (“QHEI”) scores. (*See, e.g.*, Attach. R of SOR, 2004 Rankin Report). It has never been questioned that neither the CSSC nor the Brandon Pool has sufficient natural features to attain the CWA goals. It was established from the beginning of this rulemaking that they did not. (*Id.*; *see also* 1/29/08 Tr. at p. 108-109). The Board already has cited much of this evidence in support of its UAA Factor 4 finding. Specifically, with regards to the CSSC, the Board found that the QHEI scores of the CSSC are very poor; the habitat is canal-like with steep sides and little cover for fish; and its silty substrates, little instream cover and no sinuosity all are limiting factors which satisfy UAA Factor 4. (Subdocket C First Notice at 195). The Board made similar findings when it considered the Brandon Pool. The Board found that the Brandon Pool is a man-made channel, lined with vertical concrete walls with no spawning substrates other than cracks and expansion joints in the concrete; that the spawning substrates in the waterway segment are limited to soft fine-grained organic sediments; and that this unnatural habitat equates to QHEI scores ranging from very poor to poor. (Subdocket C First Notice at 213).

Based upon all of the above information, it is not surprising that the biological assessments of both the CSSC and the Brandon Pool were also so low. The Index of Biologic Integrity (IBI)<sup>2</sup> score for the CSSC ranged from 12 to 24, which equates to poor to very poor biologic integrity. (Attach. B of SOR, at 4-77). The Brandon Pool also had poor biologic integrity, scoring approximately 20 on the IBI scale. (Attach. A of SOR, at Fig. 6.4).

Throughout these proceedings, Midwest Generation, with the aid of experts from EA Engineering Science and Technology (“EA Engineering”), also presented significant scientific

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<sup>2</sup> The Index of Biologic of Integrity (IBI) is a method by which to quantitatively assess the biologic community. The scores typically range from 0 – 60, with 60 being the highest quality biologic community.

evidence that the CSSC and Brandon Pool do not have adequate habitat to support a healthy and diverse aquatic community. (*See* Ex. 366, Pre-filed testimony of Greg Seegert and Ex. 2 of Ex. 366, EA Engineering's Report, 2008). The evidence presented showed that these waters have had no fast water, excessive amounts of silt, insufficient hard substrates, minimal instream cover, and no riffles. (Ex. 2 of Ex. 366, EA Engineering Report, 2008). A more thorough description of the lack of adequate habitat in the CAWS can be found in Midwest Generation's Final Comments submitted in Subdocket C. (Midwest Generation Final Comments at 58-80). The absence of all these natural elements creates a simplified habitat which leads to the existence of a simplified fish community. (Ex. 2 of Ex. 366, EA Engineering Report, 2008 at 14).

UAA Factor 5 is not limited to the "low flow" conditions mentioned in the U.S. EPA Subdocket C Comments. UAA Factor 5 provides examples of relevant physical conditions by referring to the "lack of" several of them, only one of which is "flow." Even as to "flow," the clear intent of UAA Factor 5 is that any flow conditions, not just "low flow," which preclude attainment of aquatic life protection uses is an authorized basis for selecting a lower use. The CSSC and Brandon Pool lack "natural" flow conditions typical of most waters, precisely the type of condition that UAA Factor 5 addresses. Due to the operation of the locks and dams on the CSSC and Brandon Pool, there is not a "natural" flow pattern in these waters. They are subject to both high and low flow conditions, including the relatively rapid and frequent swings that occur between them, and they have no natural "fast waters" necessary to support certain species, all of which justify the lower use proposed for these waters. Thus it is not only "low flow" conditions, as the U.S. EPA implies, which support the Board's finding that UAA Factor 5 applies to the CSSC and Brandon Pool.

The U.S. EPA also questions the applicability of UAA Factor 5 because it “is not aware of information in the record...that adequately demonstrates that the low flow conditions cited by IPCB are related to the natural features of the water body.” The U.S. EPA’s comment raises the question of how UAA Factor 5 is properly applied to highly modified waters like the CSSC and Brandon Pool. As already discussed above, if UAA Factor 5 is interpreted to apply only to the “natural features of the water body,” meaning conditions that are “natural” for non-modified waters, then the CSSC and Brandon Pool satisfy its requirements because such “natural features,” including natural flow conditions, are so lacking in these waters that they preclude attainment of aquatic life protection uses. Alternatively, because what is “natural” for these waters are their man-made conditions, such as their highly channelized and impounded nature, then it is consistent with UAA Factor 5 to consider the limitations on aquatic life caused by the flow conditions created by the operation of the locks and dams. When those artificially-controlled flow conditions are considered, it is clear that the adverse effects on aquatic life they cause satisfy UAA Factor 5.

For the above reasons, the Board’s justifications for finding that UAA Factor 3 is applicable should include not only CSOs and stormwater impacts, but also all of the “human caused conditions and sources of pollution” that prevent the attainment of the Clean Water Act’s fishable use. Similarly, for UAA Factor 5, the Board’s justifications should include not only why “low flow” conditions prevent attainment of a higher use, but also the scarcity of “natural features” in these waters and the prevalence of man-made modifications as provided by UAA Factor 5.

## **II. Response to U.S. EPA Requests for Additional Information**

The Board found that UAA Factors 3 and 5 applied to the CSSC and Brandon Pool because of human caused conditions and the lack of natural features in the waterways. The Board correctly concluded that these waters could not attain the CWA goals because of the flow regulation/modification, municipal point sources, CSO, urban runoff during storm events, channelization and hydro-modification. (Subdocket C First Notice at 196). As discussed above, the Board may need to clarify to the U.S. EPA all the evidence presented showing that for UAA Factor 3, it is more than just the CSOs that justify a lower use. Similarly, for UAA Factor 5, it is more than just “low flow” conditions but also the lack of sufficient substrate, cover, riffles, etc. that characterizes these waters.

To respond to the U.S. EPA’s specific questions, Midwest Generation reviews the Subdocket C record evidence that shows there is sufficient information on the CSOs, stormwater and unnatural flows to support the lower use designations in the CSSC and Brandon Pool. A review of this information also shows that the Board correctly and sufficiently described the negative impacts of these hydromodifications that limit the CSSC and Brandon Pool to the attainment of the Aquatic Use B (“ALU B”) designation.

### **A. The UAA Factor 3 Record is Sufficient.**

#### **1. U.S. EPA has Previously Concluded that TARP Satisfies Factor 3 as a Condition that “Cannot be Remedied Applies.**

The U.S. EPA questions whether the Subdocket C record adequately demonstrates that the CSOs and stormwater sources of pollution cannot be remedied. The US. EPA relies on the projected completion of the Tunnel and Reservoir Project (“TARP”) and its belief that TARP will cure the conditions created by these pollution sources. However, TARP is not projected to be completed until 2029, over fifteen years from now. Until that time, the CSO discharges, with

their pollutant loads, will continue. The “cannot be remedied” language of UAA Factor 3 should be interpreted consistent with the intended purpose of use designations under the Clean Water Act. Use designations address what is “attainable” in the waterbody. Today, and for many years to come, the CSOs and stormwater conditions in the CSSC and Brandon Pool make the Clean Water Act’s fishable goal “unattainable.” UAA Factor 3 requires that these conditions “cannot be remediated,” not that they can “never” be remediated. Interpreting UAA Factor 3 to cover adverse conditions that cannot be remedied for well over a decade is consistent with the Clean Water Act’s framework for reviewing use designations. Water quality standards, which include use designations, are subject to a triennial review process by the states. 40 C.F.R. §131.20(a). The required periodic review of use designations, as waterbody conditions change over time, is consistent with interpreting UAA Factor 3 to allow conditions that cannot be remedied for an extended period of time, well beyond multiple triennial review periods, to satisfy its terms. The CSO and stormwater conditions in the CSSC and Brandon Pool will continue for at least another sixteen years. A reasonable interpretation of UAA Factor 3’s “cannot be remedied” language applies to this situation because it is consistent with the Clean Water Act’s approach to the establishment and periodic review of water quality standards, including use designations.

The U.S. EPA Subdocket C Comments also conflict with its own prior communications indicating that UAA Factor 3 applies to the CAWS because the CSO discharges in the waterway will not be remedied until 2029. On June 26, 2012, the U.S. EPA wrote to the Metropolitan Water Reclamation District (“MWRD” or “District”) to provide a response to the District’s request for guidance on its intent to seek a variance from the dissolved oxygen (“DO”) criteria. (U.S. EPA Letter to MWRD, June 26, 2012, attached as Ex. A of PC #1366). The District was proposing the variance based on the human-caused CSO discharges which prevent consistent

attainment of the DO criteria and the projected completion of TARP in 2029. In its response to the District's proposal, the U.S. EPA agreed that the CSOs were a human caused condition that could not be remedied within a reasonable time period. (Ex. A of PC #1366 at p. 2). Therefore, the U.S. EPA concluded that the District would be able to make an adequate demonstration that UAA Factor 3 applied because of the CSO discharges. (Ex. A of PC #1366 at p. 2).

The meaning and application of UAA Factor 3 is the same whether a variance or a use designation is being considered. The U.S. EPA offers no explanation for why it agreed that UAA Factor 3 applied to the CSOs/TARP information presented in the District's correspondence but now questions whether that same information satisfies the "cannot be remedied" language in UAA Factor 3. The inconsistent interpretation of UAA Factor 3 which the U.S. EPA now offers for the Board's consideration should not dictate the Board's findings in Subdocket C. It is unlikely that the U.S. EPA's change in position regarding the application of UAA Factor 3 to the facts here would be given the deference normally afforded by the courts. *See, e.g., Pauley v. BethEnergy Mines, Inc.* 501 U.S. 680, 698, 111 S.Ct. 2524, 2535 (1991) (Supreme Court found that judicial deference was not required when agency positions are inconsistent with previously held views); *See also, Board of Trustees of Knox County Hosp. v. Shalala*, 135 F.3d 493, 502 (7<sup>th</sup> Cir. 1998); *Environmental Defense Fund, Inc. v. City of Chicago*, 985 F.2d 303, 304 (7<sup>th</sup> Cir. 1993) ("...the EPA has changed its view so often that it is no longer entitled to the deference normally accorded an agency's interpretation of the statute it administers."). As the U.S. EPA correctly reasoned in considering the District's inquiry regarding the applicable requirements for variances from water quality standards, the CSO discharges prevent the attainment of the fishable goal and fall squarely within the meaning of UAA Factor 3.

Another concern regarding the U.S. EPA's UAA Factor 3 comments is that they are based on assumptions and speculation. Whether or not TARP will sufficiently improve the waterway conditions to allow attainment is still an unknown. The U.S. EPA comments assume without justification that TARP's completion will "remedy" the conditions that prevent attainment of a higher aquatic life use. Yet, the MWRD has presented evidence in this record showing that even after TARP is completed, CSOs will continue to discharge into the CAWS and continue to add contaminants to the system. (*See, e.g.*, Written Responses to Illinois EPA's Pre-Filed Questions for MWRD's Witness A. Nemura, R08-09(C) June 17, 2011, Response 3.c. & 2/17/09 PM Tr. at 16, 89-90; Pre-filed Testimony of E. Blatchley III at p. 7). During wet-weather events, the CSO loadings, including raw sewage, associated solids, nutrients and chemical contaminants, will continue. The CSO discharges may decrease after the completion of TARP, but they will not be fully remedied. The remaining CSO conditions may continue to satisfy UAA Factor 3's definition of a human condition that "cannot be remedied."

The uncertainty surrounding the extent of the beneficial effects that TARP's completion will have on the CSO effects in the CSSC and Brandon Pool exemplifies why the "cannot be remedied" language of UAA Factor 3 is applicable here. We know that the CSOs "cannot be remedied" now and we do not know with any certainty that they will be adequately remedied after 2029. The only reasonable interpretation of UAA Factor 3 is that it allows for the passage of time until 2029 and a review of the actual effects of TARP's completion after 2029 during a future triennial review of the continued appropriateness of the Use B designation for the CSSC and Brandon Pool. A contrary interpretation of UAA Factor 3 would improperly allow unjustified speculation about the future to form the basis of the UAA decision-making process.



If the CSSC and Brandon Pool use designation is upgraded now, even though the CSOs will continue to discharge for at least another 16 years, the resulting changes in the water quality standards to protect the upgraded use would impose an unreasonable burden on dischargers to these waters. Dischargers will have to comply with more restrictive water quality standards that will do nothing to achieve the upgraded use in the presence of continuing CSOs. This is precisely the result that UAA Factor 3 is intended to prevent. The UAA regulation prevents “treatment for treatment sake” when there are conditions in a waterway that prevent attainment of a higher use no matter how high the quality of industrial point source discharges. As outlined in the rulemaking, the CSOs not only cause low to zero DO, they also discharge additional constituents such as ammonia, sediments, and chemical contaminants. (LDPR UAA report, 3-8, 3-13). As the CSOs continue, they will add contaminants that degrade the waterway and prevent the attainment of the upgraded use regardless of stricter discharge limits imposed in NPDES permits. Such an unfair and unreasonable burden imposed on dischargers to protect a use that is unattainable for at least sixteen more years, if not longer, is not what the UAA regulation intends. Based on the record regarding TARP’s 2029 completion, the unknowns about the extent and sufficiency of its beneficial effect on the CSSC and Brandon Pool, and the U.S. EPA’s previous conclusion that the CSOs are a human condition that cannot be remedied, the Board’s decision that UAA Factor 3 applies is justified.

**2. The Board’s Finding that UAA Factor 3 applies to the CSSC and the Brandon Pool is Consistent with its Prior Rulings.**

The U.S. EPA’s questioning of the adequacy of the Board’s justification for finding that the UAA Factor 3 conditions cannot be remedied is puzzling because the Board’s findings regarding the applicability of UAA Factor 3 to the CAWS have been consistent throughout this proceeding. In the Subdocket A recreational use portion of this rule-making, the U.S. EPA did

not question the Board's virtually similar finding that TARP constituted a condition that "cannot be remedied" within the meaning of UAA Factor 3.

In Subdocket A, the Board found that UAA Factor 3 applied to the CAWS because it is significantly impacted by human caused conditions, including the CSO discharges, which cannot be remedied. (Subdocket A Second Order at 42, 49-50). The Board noted that the CSSC is impaired for numerous contaminants, including ammonia and DO, and the sources of those contaminants included CSOs. (Subdocket A Second Order at 41). The Board again makes a similar finding here: that the CSOs upstream of the CSSC are one of the primary factors contributing to the lower DO levels. (Subdocket C First Order at 196). In Subdocket A, the U.S. EPA did not question whether the extended completion date of TARP and its future effects upon the waterway conditions were sufficient to satisfy the "cannot be remedied" requirement of UAA Factor 3. There is nothing about TARP's expected completion date or its potential effects on DO conditions in the waterway that has changed since the completion of Subdocket A. If these conditions "cannot be remedied" for recreational use purposes, then the same is true for aquatic life uses. It would be arbitrary and capricious for the Board or U.S. EPA to reach a different conclusion on the applicability and justification for UAA Factor 3 in Subdocket C.

**3. The Subdocket C Record Shows that Stormwater and the CSO Human Caused Conditions Satisfy UAA Factor 3.**

The Subdocket C record is replete with information that satisfies the requirements of UAA Factor 3. The CAWS is an urban dominated waterway, carrying the effluent of about 9.5 million people. (SOR at 17). One of the primary purposes of the CAWS is to move stormwater away from the urban area (SOR at p. 18). The CAWS receives significant runoff from the highly urbanized Chicago Metropolitan Area, because numerous storm sewers discharge directly to the CAWS from several municipalities, and eight major expressway outfalls discharge to the

CAWS. (Pre-filed Testimony of J. Huff, Ex. 285; Attach. B of SOR, CDM Report, at p. 3-12). Approximately 307 permitted CSOs discharge into the CAWS, with the dominant contributions from the City of Chicago. (Attach. B of SOR, CDM Report, at p. 3-13). A significant pollutant load from the CSOs enters the CAWS and will continue for several years. (Pre-filed Testimony of J. Huff, Ex. 285). All of this evidence irrefutably shows that the CSO and stormwater discharges are significant.

The Subdocket C record also shows the many adverse consequences and effects of the CSOs and stormwater discharges on the waterway. The stormwater systems contribute to the pollutant load in the waterways by collecting and directing overland flow that contains high levels of bacteria, oils, nutrients, pesticides, herbicides, high suspended solids and oxygen-demanding compounds. (Attach. B of SOR, CDM Report, p. 3-12). As Illinois EPA stated, CSO discharges can cause the DO levels to drop to zero. (SOR at. 61).

Beyond establishing that the CSOs and stormwater discharges are significant and highly detrimental to the waterway, the Subdocket C information shows they will continue for the foreseeable future. MWRD Witness, Adrienne Nemura, testified that CSOs and other wet weather sources will continue to impact DO levels in the CAWS despite the eventual completion of TARP. (Pre-Filed Testimony of A. Nemura, Ex. 465). Even when TARP is eventually finished years from now, not all of the stormwater runoff will be captured but instead will continue to flow into the waterway. (4/23/08 Tr. at 234).

The expected continuation of stormwater runoff and CSO impacts is rational given that the CAWS carries the effluent of practically the entire Chicago Metropolitan Area, a highly urbanized area. The Des Plaines watershed in which the Brandon Pool is located was 58.7% urbanized almost 20 years ago. (Ex. 2 of Ex. 366, EA Engineering Report, 2008 at 31). That

level of urbanization has increased significantly over the past 20 year. There is a strong inverse relationship between the amount of urbanization and the various biological measures. Studies have shown that biological measures significantly decline when the percent impervious area reaches 10-20% or the percent urban area is 8-50%. (Ex. 2 of Ex. 366, EA Engineering Report, 2008 at 30-31). The U.S. EPA's recommended expert, Chris Yoder, also found that streams in highly urbanized areas typically do not achieve the CWA goals and that there is a threshold of watershed urbanization of below 60%, beyond which attainment of a healthy warmwater habitat is unlikely. (Yoder, C.O., R.J. Miltner, and D. White. 2000. *Using Biological Criteria to Assess and Classify Urban Streams and Develop Improved Landscape Indicators. In Proceedings of the National Conference on Tools for Urban Water Resource Management and Protection.* Published by U.S. EPA, Office of Research and Development. Washington D.C. EPA/625/R-00/001). Given the high urbanization of the area around the CAWS, particularly around the CSSC and the Brandon Pool, the Subdocket C evidence shows the water way is incapable of maintaining a healthy, diverse and viable aquatic community.

In addition to the non-CSO/stormwater-related reasons that human caused conditions and contaminants limit the CAWS from attaining the CWA goals,<sup>3</sup> the Board can identify extensive and significant evidence entered into this rulemaking showing that the adverse effects of the CSOs and stormwater runoff from the highly urbanized Chicago Metropolitan Area alone prevent the attainment of the use and cannot be remedied.

**B. The UAA Rulemaking Record Adequately Demonstrates that UAA Factor 5 is Satisfied by Unnatural Flow Conditions.**

The U.S. EPA commented that there was insufficient information in the record to show that the low flow conditions in the CAWS are related to the "natural features" of the water body

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<sup>3</sup> The Midwest Generation Final Comments has an in-depth discussion of how UAA Factor 3 applies to the CAWS. (Midwest Generation Final Comments, at 36-52).

within the meaning of UAA Factor 5. (PC #1372 at p. 2). As described above, the scope of UAA Factor 5 is not limited to just flow conditions, but also includes any physical condition related to the natural features of the water body. UAA Factor 5 gives examples of such physical conditions that include lack of proper substrate, cover, flow, depth, pools, and riffles, unrelated to water quality. 40 CFR 131.3(g)(5). Any unnatural flow conditions, not just “low flow,” can satisfy UAA Factor 5. The Subdocket C record evidence shows that the “unnatural” flow conditions in the CSSC and Brandon Pool dictated by the presence of locks and dams preclude attainment.<sup>4</sup> As shown throughout this rulemaking, there is little or nothing “natural” about the CSSC and Brandon Pool. They are not natural streams, but man-made and highly modified waters whose primary purpose is to convey wastewater and to allow for commercial barge traffic navigation. The evidence showing the lack of “natural” flow patterns, combined with insufficient natural substrates, cover, riffles, *etc.*, clearly justify the Board’s finding that these waters cannot attain the CWA aquatic goals.

**1. The Unpredictable and Unnatural Flows in the CAWS.**

The flows in CAWS are erratic, unpredictable, and completely unnatural because they are based upon the urban requirements of a commercial waterway. The flows in the CAWS do not follow a normal seasonal cycle, in which high spring flows result in a flushing effect followed by relatively constant flows through the summer. (Ex. 2 of Ex. 366, EA Engineering Report, 2008 at 6). Instead, the waterway is managed to maintain or adjust water levels such that wastewater and commercial water traffic can easily move through the waterway. (Ex. 2 of Ex. 366, EA Engineering Report, 2008 at 5). In fact, as the Board found, it is not uncommon for the water depths in the CAWS to change 4 to 6 feet within a 24 to 48 hour period coupled with a rapid change in flow

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<sup>4</sup> UAA Factor 2 is the factor that considers “low flow” conditions as a part of its evaluation to attain the CWA goals. 40 CFR 131.3(g)(2).

velocity. (Subdocket A Second Order at. 42, citing SOR at 32-33; see also 1/31/09 Tr. at 227 and 11/9/09AM Tr. at 90).

In Exhibit B to Midwest Generation's Final Comments in Subdocket C, in response to a prior U.S. EPA comment which indicated it wanted to see more data on flow conditions, Midwest Generation included U.S. Army Corps of Engineers ("Army Corps") data on water level controls for the Brandon Road Lock and Dam during the period from 2009 through 2011. (Ex. B of PC #1277). The Army Corps data demonstrates that the flow in these waters is both unpredictable and unnatural. The Army Corps data further demonstrates the frequent, quick and significant changes in the flow. The Army Corps website from which this data was obtained continues to show that the flows are highly variable and not associated with the natural seasons.<sup>5</sup>

Also, many knowledgeable MWRD Witnesses testified that the flow in the CAWS changes rapidly. The District's Dr. Granato testified that the CAWS has flow reversals, slow water velocity and high influxes of water during wet weather. (Testimony of Dr. T. Granato, 3/3/09PM Tr. at 38-39). The District's expert witness Paul Freedman reiterated that water levels in the CAWS change rapidly when the water levels are lowered in anticipation of a major rain event only to be followed by enormous wet weather flows from stormwater, CSOs, and pumping stations. (Pre-filed Testimony of P. Freedman, Ex. 204 at 5-6). Further, the District's Richard Lanyon stated that the various inflows into the CAWS include discretionary diversion from Lake Michigan, leakage through control walls, tributary streams, storm runoff, combined sewer overflows and treated effluent from water reclamation plants. (Pre-filed Testimony of R. Lanyon, Ex. 60 at 5). He also testified that the District fluctuates the flow volume in the channels in order to provide for required navigation depth, high water quality, urban drainage and flood prevention. (Pre-filed Testimony of R. Lanyon, Ex. 60 at 4, 9/8/08AA Tr. at 50-51). In addition, as explained in information publicly available on

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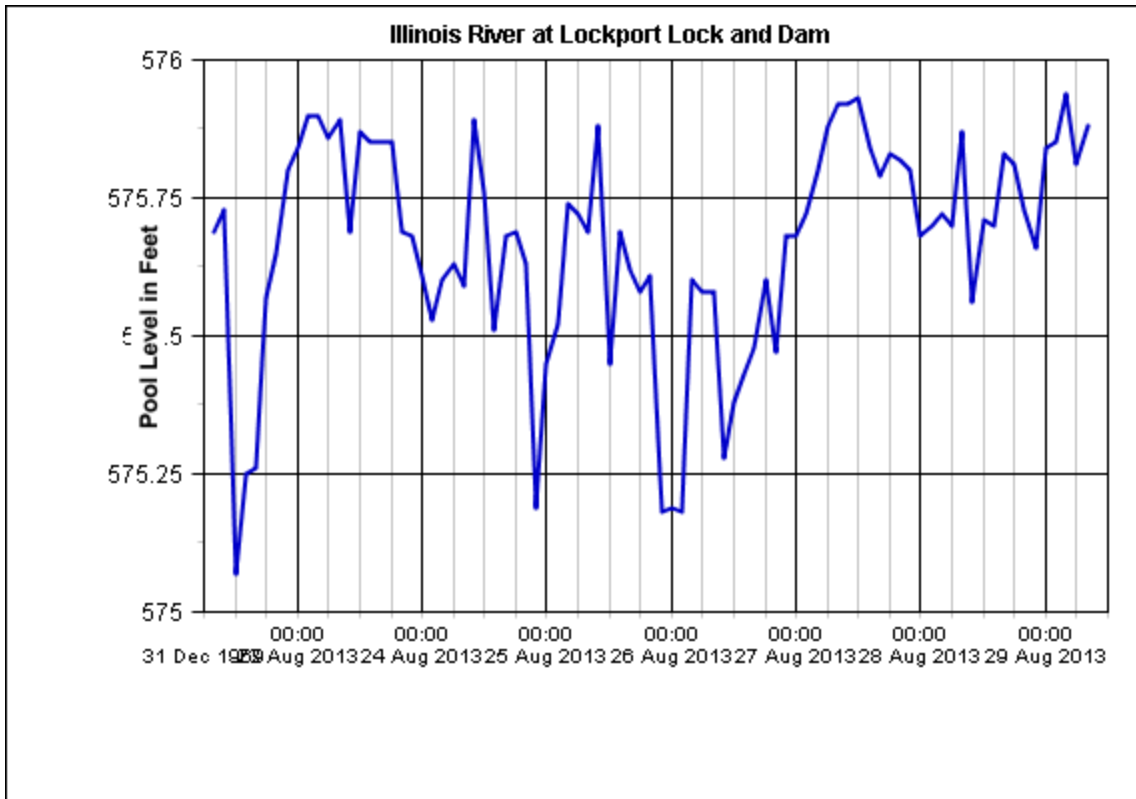
<sup>5</sup> The Army Corp records on the variable flows and water levels on the CAWS can be viewed on the Army Corps website at: <http://rivergages.mvr.usace.army.mil/WaterControl/new/layout.cfm>

the District's website, its Lockport Powerhouse, located right before where the CSSC connects with the Des Plaines River, "is an integral part of the MWRD's task of managing the CAWS and reducing the risk of flooding throughout the MWRD service area" which "enables the MWRD to control the levels of the Canal" and "provides financial benefits from hydroelectric power generation."<sup>6</sup> As can be seen in the Army Corps data, during dry summer months when electrical demands are high, the CSSC flow can be held immediately upstream of the Lockport Powerhouse to maximize the volume of water then released to help generate needed electricity. This in turn contributes to the erratic flow conditions observed in the downstream Brandon Pool and Upper Dresden Island Pool segments where flow stops for several hours and then suddenly and significantly increases when the flow is released upstream through the Lockport Powerhouse. The erratic flow patterns are documented in the Army Corps data, as shown in the following excerpt for August 24-29, 2013:

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<sup>6</sup> See, MWRD Website at:

[http://www.mwrdd.org/irj/servlet/prt/portal/prtroot/pcd!3aportal\\_content!2fMWRD!2fMWRDInternet!2fRoles!2fServices\\_Facilities!2fWaterReclamation!2fLockportPowerhouse!2fLockportPowerhouseH](http://www.mwrdd.org/irj/servlet/prt/portal/prtroot/pcd!3aportal_content!2fMWRD!2fMWRDInternet!2fRoles!2fServices_Facilities!2fWaterReclamation!2fLockportPowerhouse!2fLockportPowerhouseH) ; last referenced August 14, 2013.



Source: U.S. Army Corps of Engineers Website at: [http://rivergages.mvr.usace.army.mil/scripts/ctredirector.dll/?@\\_CPRWH\\_GeXT\\_XQrt](http://rivergages.mvr.usace.army.mil/scripts/ctredirector.dll/?@_CPRWH_GeXT_XQrt); last referenced August 29, 2013.

The average flow velocity in the CSSC is approximately 0.5 fps, thus, unless there is a wet weather flow, the residence time of the wastewater in the canal is approximately three days. (Attach. A of SOR, LDPR UAA Final Report at 7-28). Citgo Witness James Huff testified that the CSSC has minimal slow and low velocities, which are optimal conditions for sediment deposition but not optimal conditions for aquatic habitat. (Pre-filed Testimony of J. Huff, Ex. 285 at 6-7). The Brandon Pool has an equally slow average velocity of 0.75 fps. (Attach. A of SOR, LDPR UAA Final Report at 1-7). Typical flow fluctuations in the Brandon Pool are not gradual but can change every two hours, sometimes more often, and the change in flow can be thousands of cubic feet per second within that short a time, either up or down, or there can be no flow of water at all for extended periods of time. (11/9/09 AM Tr. at 13, 90). One witness



testified to seeing the water sink from about thigh high deep to ankle deep within 15 to 20 minutes. (11/9/09 PM Tr. at 62). These extreme changes do not necessarily correspond to rainfall events, so they can occur any time of the year and are not predictable.

In sum, the Subdocket C record is replete with data and testimony regarding the erratic high and low flow conditions in the CSSC and Brandon Pool which is sufficient to justify the Board's finding that UAA Factor 5 applies.

## **2. The Detrimental Consequences of Unnatural Flow Patterns.**

The consequences of a waterway with atypical and unpredictable flows are extensive and damaging. It is well established that maintaining a natural flow pattern is essential to continuing the viability of riverine species populations including invertebrates and fish. (Ex. 456, Bunn and Arthington, *Basic Principles and Ecological Consequences of Altered Flow Regimes for Aquatic Biodiversity*, at 492 and 499). Flow regime is considered by many aquatic ecologists to be the key driver of river and floodplain ecosystems because "flow is a major determinant of physical habitat in streams, which in turn is a major determinant of biotic composition." (Ex. 456, Bunn and Arthington, at 492, see also 493-494).

The CAWS does not have a natural flow pattern. Instead, the random and abrupt high flows in the CAWS are detrimental to fish and invertebrates, especially because the high flows may occur when fish are most vulnerable, particularly larval fish. (Ex. 455, Kohler and Hubert, *Inland Fisheries Management in North America*, 2nd Ed. (1999) at p 275). EA Engineering personnel testified to seeing small fish get stuck in isolated pools because of severe rapid fluctuations in water levels. (11/9/09 PM Tr. at 61-62). Further the dramatic rise and fall of water levels and extreme changes in flow can result in substrate scouring, sediment resuspension, drying of shoreline aquatic habitats, and a sudden decrease in DO. (Pre-Filed Testimony of P.

Freedman, Ex. 204 at 6). Illinois EPA witness Chris Yoder agreed that the sudden and severe flow fluctuation can disrupt fish feeding and spawning. (1/31/09 Tr. at 227). He further testified that flow fluctuations causing changes in water levels of 4 to 6 feet within a day's time are extreme variations that "overrule" fish habitat areas. (1/31/09 Tr. at 227).

The evidence overwhelmingly shows that conditions in the CSSC and Brandon Pool are not conducive to maintaining a healthy and viable aquatic community. Because the flow conditions are related to navigation, a protected use, there is no reasonable basis on which to conclude that the operation of the locks and dams could be changed to the significant degree necessary to enable these waters to attain the CWA goals. (Ex. 366 at 3). Throughout these proceedings, the regulated community and the Illinois EPA presented evidence and testimony that the lack of natural flow patterns, along with the inadequate habitat, due to the absence of good substrate, riffles, cover, and presence of deep shafts with very little pools, demonstrates UAA Factor 5 applies to and is satisfied by the CSSC and the Brandon Pool conditions.<sup>7</sup>

**C. There Is a Strong Rationale to Support the Board's Finding That Dams and Hydromodifications Preclude Attainment under UAA Factor 4.**

The U.S. EPA suggested the Board strengthen its rationale for each relevant segment of the CAWS and LDPR to show the information that demonstrates (i) the hydromodifications preclude the attainment of the CWA use and (ii) that it is not feasible to restore the water body to its original condition or operate such modification in a way that would result in the attainment of the use. (PC #1372 at p. 2) The Subdocket C record provides the Board with the necessary factual and scientific data on which to do so.

From the beginning of this rulemaking, over six years ago, the fact that the majority of the CAWS is impounded and controlled by a lock and dam system was well-established. (*See*

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<sup>7</sup> As stated above, the Midwest Generation Final Comments on Subdocket C has a detailed discussion on how UAA Factor 5 applies to the CAWS. (Midwest Generation Final Comments, at 58-80).

Attachment B to SRO, CDM UAA Report). Since then, a significant amount of evidence and data has been presented to show the adverse and detrimental effect of an impounded system on maintaining a viable and health aquatic community. With the permanent addition of the Aquatic Nuisance Species Barrier Project, there is little doubt that the extensive hydromodifications in the CSSC prevent it from supporting a diverse and healthy aquatic community.

**1. The Subdocket C Evidence Demonstrates that the Hydromodifications Preclude Attainment of the Use.**

In its Subdocket C First Notice Opinion, the Board has already gathered much of the evidence showing that locks and dams in this highly modified waterway make it incapable of attaining the highest fishable use. (*See, e.g.*, Subdocket C First Notice at 5). However, although the Board's First Notice Opinion recites much of the relevant evidence on this issue as it summarizes the various comments and testimony provided by the participants, it seems the U.S. EPA is requesting that the Board specifically identify "what information demonstrates that" UAA Factor 4 is satisfied from the many pages of the record summary provided in the Board's First Notice Opinion. Midwest Generation highlights below some of the key evidence presented that may be used to address the U.S. EPA's request.

One of the first studies the Illinois EPA entered into this rulemaking concluded that the dams and hydromodifications prevent the CAWS from attaining a high quality aquatic life use. (Attach. B of SOR at 5-3). Midwest Generation's experts also provided clear scientific support for the finding that dams like those in the CSSC and Brandon Pool change a waterway system from its original riverine nature to a modified lake-like environment. (Ex. 2 of Ex. 366, EA Engineering Report, 2008 at 10; see also Ex. 456 at p. 494, 496 and Table 1). And that this change to a "lake-like environment" causes most of the physical limitations in a waterway by eliminating riffles, reducing the amount of fast water, increasing sedimentation, disrupting

normal sediment flow, interrupting or eliminating migration, reducing the number and variety of aquatic insects, and reducing habitat complexity. (Ex. 366 at 6 and Ex. 2 of Ex. 366, EA Engineering Report, 2008 at 11-12; see also U.S. EPA *Water Quality Handbook*, 1994, Sec. 2.9.2, Physical Factors, Table 2-1, Summary of Typical Factors Used in Conducting a Water Body Survey and Assessment). Illinois EPA expert witness Roy Smogor agreed that “if you put impoundment into a system by – almost by definition, you’re going to reduce the biological integrity.” (1/28/08 Tr. at 258).

The adverse effects of dams on aquatic life have been well-documented in a 2005 study on effects of dams on the aquatic life in the Fox River that is part of the Subdocket C record. (Santucci, V.J., S.R. Gephard, and S.M. Pescitelli. 2005. “Effects of multiple low-head dams on fish, macroinvertebrates, habitat, and water quality in the Fox River, Illinois.” *North American Journal of Fisheries Management* 25:975-992). The Fox River study found “strong correlations between habitat quality and fish and invertebrate community quality and that index scores were consistently higher in free-flowing reaches than in impoundments.” (Santucci, 2005). The impounded habitat was more homogenous and consisted of deep open-water areas, lower current velocities and substrates dominated by fine silts. (Santucci, 2005). This homogenous environmental creates a homogenous aquatic community. (Santucci, 2005). Plus, the adverse effects of the impoundments are not limited to the area of the dam, but were also observed throughout the river basin. (Santucci, 2005.)<sup>8</sup> The impoundments “adversely affect fish species by eliminating riffles, reducing stream velocity, increasing sedimentation, interrupting fish migration, reducing insects that provide a food source, and reducing overall habitat complexity and biological integrity.” (Pre-filed Testimony of G. Seegert, Ex. 366 at 6). Further, the operation of the CSSC

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<sup>8</sup> Midwest Generation’s Final Comments has a detailed discussion of the negative and irreversible consequences of an impounded waterway. (Midwest Generation Final Comments, PC #1277 at 28-36).

causes repeated wetting and drying of the limited shoreline habitat, which causes sediment scouring and resuspension, and prohibits aquatic vegetation from growing. (Pre-Filed Testimony of R. Garibay, Ex. 420 at 7).

The Subdocket C record contains a strong basis on which to strengthen the Board's rationale that the impoundment and dam hydromodifications in the CSSC and Brandon Pool on the system cause a cascade of adverse consequences that limit the ability of the water way to sustain a high quality aquatic community.

**2. It is not Feasible to Restore the CSSC and Brandon Pool to its Original Condition or to Modify Its Operations.**

For UAA Factor 4, the U.S. EPA also asked that the Board bolster its reasoning for concluding it was not feasible to “restore the water body to its original condition or to operate such modification in a way that would result in the attainment of the use.” (PC #1372 at 2, emphasis in original). For the CSSC, it cannot be restored to its “original condition” by the very nature of its man-made origins, at least not without completely obliterating its protected navigational and flood control uses. Further, the evidence shows that it is not feasible to modify the lock and dam operations to the extent necessary to achieve the Clean Water Act's fishable use without unacceptable constraints being imposed upon both navigation and flood control existing uses for the CSSC and Brandon Pool.

Prior to its construction over 100 years ago, 75% of the CAWS did not exist. (*supra* at Sec. I, citing SOR at 18). The remaining 25% of the CAWS that are original waterbodies have been highly modified to support navigation, stormwater and wastewater conveyance, and public use. (Attach. B of SOR, CDM UAA Report at 5-3). As the CDM UAA Report concluded, “[t]he CAWS cannot be restored to its original conditions because the flows in the CAWS are highly regulated and original flows were diverted through man-made canals to reduce

contamination to Lake Michigan.” (Attach. B to SOR, CDM UAA Report at 5-3). The LDPR UAA Report also concluded that the “century old and well-functioning and managed system of the [CSSC]...must be considered for the foreseeable future as an irreversible reality. (Attachment A to SOR, LDPR UAA Report at 2-22). The Board agreed with and adopted these conclusions in its prior Subdocket A opinion finding that the hydromodification conditions were irreversible. (Subdocket A Second Notice at 42).

It is also not feasible to modify the operation of the locks and dams to attain the Clean Water Act’s fishable use. To realistically attain the CWA goals in the CAWS, a substantial and widespread modification of the system would be necessary. (Pre-filed testimony of R. Lanyon, Ex. 60 at 10). The LDPR UAA Report concluded that the QHEI scores could not be improved “without removal or major modifications to the navigation system.” (Attach. A of SOR, LDPR UAA Report, a 4-32). And the CAWS UAA Report correctly found that the main purpose of the impoundments is to maintain commercial navigation, which is a protected use. (Attach. B of SOR, CMD UAA Report at 3-2). The Illinois EPA has consistently maintained that the dams in the CSSC and Brandon Pool cannot be managed differently to attain a higher use. (SOR at 48). It is simply not feasible to make the major modifications to this navigation system without impairing a protected use. UAA Factor 3 does not require sacrificing one protected use (aquatic life) for another (navigation).

Another protected use that requires maintaining the current operation of the locks and dams is flood control. The locks and dams are used to convey wastewater from Chicago and the surrounding communities downstream and to control the flow in the waterway to protect against flooding, for which there are no feasible alternatives.<sup>9</sup> The Illinois EPA testified that both

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<sup>9</sup>District Witness, Richard Lanyon, also testified that the most important uses of the CAWS are commercial navigation and urban drainage functions. 9/8/08A Tr. at 2-3, 9/8/08A Tr. at 19.

commercial use and flow control of the CAWS and UDIP, which depends upon the locks and dams, is not reversible. (1/29/08 Tr. at 41, 43).

In response to this overwhelming evidence, no one in this proceeding has presented any feasible alternative mode of operations for the locks and dams that maintain the protected uses while enabling the CSSC and Brandon Pool to attain a higher use.<sup>10</sup> The LDPR Report concluded that the impounded nature of the water way and the artificial modifications to the stream channel prevented the feasibility of an improved fish community. (Attachment A to the SOR, LDPR UAA Report at 6-26). As Midwest Generation's aquatic biologist expert testified, the impact on aquatic communities of the dams and locks in the CSSC and Brandon Pool is not only unmistakable, but also irreversible. (Pre-filed Testimony of G. Seegert, Ex. 366 at 7)..<sup>11</sup>

There simply is no way to modify the water way operations in a way that would result in creating conditions that can maintain a viable and diverse aquatic community. The "fast water" and "consistent water levels" that are necessary for certain aquatic species cannot be maintained while still enabling heavy barge traffic and flood control. Changing the operation of the locks and dams will not create necessary "riffle" areas that are totally lacking in these waters. As the Board correctly found, the negative habitat conditions are also attributable to the need for navigation channel maintenance in the CSSC and the Brandon Pool through periodic dredging. (Subdocket C First Notice at 214). No matter how one might try to modify the lock and dam operations, the periodic dredging necessary to support navigational use will still be necessary and will still adversely affect the availability of suitable habitat.

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<sup>10</sup> In Subdocket A, the U.S. EPA similarly suggested, without any supporting evidence, that the barge traffic could operate under time and place restrictions. (U.S. EPA Comment Letter, PC #1338 at 30). That suggestion was disputed by the UAA participants with supporting evidence. (See Comment of T. Doyle, PC 552, Pre-filed testimony of D. Melvin, Ex. 434).

<sup>11</sup>The Midwest Generation Final Comments has an extensive discussion on the poor aquatic community in the CAWS. (PC #1277 at 67-74).

Similarly, because of the need to protect the Chicago area from flooding, it is not feasible to eliminate flood control operation of the locks and dam during the entire spawning season of fish so as not to wash away aquatic nesting areas, along with eggs and larval fish. This is not a situation where some changes here and there in how the locks and dams are operated is all that is needed to support a higher use. (*See Midwest Generation Final Comments in Subdocket C at pps. 32-33*).

And finally, it is not just how the locks and dams are operated that is the constraining force here. The dams in the CSSC and the Brandon Pool are exceptionally close together, which further degrades the habitat. The Lyons study showed that the spacing between dams is an important element in determining the quality of the habitat. (Lyons, J., R.R. Peitte, and K.W. Niermeyer. 2001. *Development, validation, and application of a fish-based index of biotic integrity for Wisconsin's large warmwater rivers*. Transactions of the American Fisheries Society 130:1077-1094). As the number of dams increased and the spacing between the dams decreased, the quality of the habitat and its ability to maintain a robust aquatic community decreased substantially. (Lyons 2001). Because the spacing between the dams in the CSSC and the Brandon Road Pool (as well as in the UDIP) is so small, the resultant poor habitat and reduced fish community is inevitable and irreversible. It is simply not feasible to extend the distance between these existing dams to alleviate their negative effects.

Because of all the dams, impoundments and other hydromodifications required to operate this navigation channel, along with the necessary presence of the Aquatic Barrier, the Board correctly found that the CSSC and the Brandon Road Pool could not attain the CWA goals but could only attain the ALU B use designation.<sup>12</sup>

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<sup>12</sup> The Board also found that UAA Factors 3 and 5 prevented attainment in the CSSC and the Brandon Road Pool.



**D. The Significant and Extensive Evidence in the Rulemaking Show that the CSSC and Brandon Pool Can Only Attain ALU B.**

The U.S. EPA suggests that the Board “should provide a better demonstration that the hydromodification present in [the CSSC and Brandon Pool] prevents attainment of the Aquatic Life Use A designation proposed for other waters and that the proposed use protects existing uses.” (PC #1372 at p. 3) The Board was correct in finding that Brandon Pool conditions and constraints justify a Use B classification. Many references to the record information discussed above show that very similar conditions exist for both the CSSC and Brandon Pool. There is not a rational basis for distinguishing between the aquatic life use attainable for the CSSC versus the Brandon Pool – unless one engages in an exercise of “splitting hairs.”

Both the CSSC and Brandon Pool are highly modified, highly impounded and very poor habitat that cannot support a viable and healthy aquatic community. The scientific reports attached to the Illinois EPA’s Statement of Reasons reach these same conclusions and no evidence was presented to contradict it. For example, in the 2004 “Analysis of Physical Habitat Quality and Limitations to Waterways in the Chicago Area,” prepared for U.S. EPA by the Center for Applied Bioassessment and Biocriteria (Attachment R to the SOR), the CSSC is described as “canal-like” in nature with steep sides and little functional cover. (*Id.* at 11). Similarly, the authors of the LDPR UAA Report and Illinois EPA personnel described the Brandon Pool as an artificial channel with side masonry, concrete or sheet pile embankments. (Attachment WW to SOR). Like the CSSC findings, the UAA Report concluded that the Brandon Pool’s impounded nature and artificial modifications prevented the feasibility of an improved fish community. (Attachment A to SOR, LDPR UAA Report at 6-26).

The UAA Report conclusions are reflected in the QHEI scores, which show an overall poor habitat in both the CSSC and the Brandon Pool. The mean QHEI scores for the CSSC in

the Lockport Pool ranged from 40.8 to 46.1, and the mean QHEI scores were only marginally better in the Brandon Pool (high 40's to low 50's). (Ex. 370, CD1 at 2.4-7). Illinois EPA's consultants similarly found overall low QHEI scores in the Brandon Pool. (Ex. 6). The low QHEI scores in both the Brandon Pool and CSSC were due to the lack of shallow areas necessary for fish feeding and reproduction, little cover, no riffles, and the constant churning of the bottom by barge and shipping traffic. (Ex. 370, CD1 at 2.5-10). Given the similarities between the physical conditions of the CSSC and Brandon Pool, it is not surprising that their biological assessment scores are also very similar. As noted above, the IBI score for the CSSC ranged from 12-24, which equates to poor to very poor biologic integrity and the Brandon Pool's IBI score was approximately 20, also equating to a poor level of biologic integrity. (Attachment B to SOR at 4-77).

The two water segments are also very similar in the type of fish assemblage that is both present and reasonably expected to be present. The CSSC is low in native fish abundance, low in species richness and is dominated by highly tolerant species (*e.g.*, bluntnose minnow and common carp). (Ex. 2 of Ex. 366, EA Engineering Report, 2008 at 16; Attachment 1 to Ex. 2 to Ex. 366 at 8). In fact, 86% of the total number of fish caught in the CSSC was comprised of eight tolerant fish species, including the common carp, bluntnose minnow, golden shiner, green sunfish, and yellow bullhead. (Ex. 370, CD1 at 9.3-17). Further, 76% of the fish caught in the Brandon Pool were the same eight tolerant fish species. (Ex. 370, CD1 at 9.3-17).<sup>13</sup> The poor fish assemblage was also demonstrated by the Illinois Department of Natural Resources ("IDNR") fish collections. IDNR found that most of the biomass in the CSSC and Brandon Pool was comprised of tolerant species, including common carp, yellow bullhead, gizzard shad, and

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<sup>13</sup> These fish were also those that IEPA Expert Witness Chris Yoder classified as "Secondary Contact" Representative Aquatic Species and defined as the most tolerant representative species. (Attach 1 to Ex. 13, at Table 1).

goldfish. (PC #505 at p. 3). Thus, both the EA Engineering and IDNR fish sampling show that the Brandon Pool and the CSSC have a highly homogenous fish assemblage.<sup>14</sup>

The IWBmod<sup>15</sup> scores for both the CSSC and the Brandon Pool were exceptionally poor. The IWBmod score, as compared to the IWB score, excludes the tolerant species because they generally thrive where water and habitat quality are marginal, such as the CSSC and Brandon Pool. (Ex. 370, CD1 at 9.3-3). The IWBmod scores for the CSSC and the Brandon Pool were 1.4 and 2.8 respectively, both of which scores are indicative of a poor fish assemblage with reduced number and diversity. (Ex. 370, CD1 at 9.3-53).

Further, the data suggests that the majority of fish in the Upper Illinois Waterway exhibit limited movement. (Ex. 370, CD1 at 9.6-3). Because the evidence suggests both that fish do not significantly migrate and the majority of the Brandon Pool and CSSC is overall poor habitat, it is unlikely that a sustainable population of diverse aquatic species could colonize either waterway.

It is important to note that the tolerant species that dominated the IDNR and EA Engineering collections are included in the Board's proposed list of illustrative species for ALU B. Moreover, and equally important, one of the species proposed to represent ALU A assemblages, the tadpole madtom, has not been found in the Brandon Pool in the fish sampling conducted by either IDNR or EA Engineering. (PC #505, Table 2 and Ex. 370, CD1 at 9.3-18 - 9.3-19). If one were to look exclusively at the representative species proposed by the Board for each of the aquatic uses, it is apparent that the Brandon Pool and CSSC must both be designated as ALU B. The exemplary tolerant species described in ALU B dominate the Brandon Pool, compared to the intermittent appearance if not absence of the exemplary species described in

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<sup>14</sup> Merely finding a few intolerant fish in a waterway dominated by tolerant fish provides very little information about the condition of a stream or its abilities to attain the CWA goals. (Attachment A, UAA Report at 6-1).

<sup>15</sup> IWBmod and IWB scores are indexes of fish community health. (Attach. 1 to Ex. 2 to Ex. 366, Summary of EA Engineering Stream Surveys, at 5).

ALU A. There is simply no reasonable biological basis for distinguishing between the use designations for the CSSC and Brandon Pool.

In both the CSSC and Brandon Pool, the percentage of fish afflicted with an abnormality (*i.e.*, DELT) was very high. (Attach. 1 to Ex. 2 to Ex. 366, Summary of EA Engineering Stream Surveys, at 7). The high incidence of DELT anomalies is another indication of stress caused by a variety of adverse environmental conditions. (Attach. 1 to Ex. 2 to Ex. 366, Summary of EA Engineering Stream Surveys, at 7). Because the locks and dams in both the CSSC and Brandon Pool are of similar design and construction, these hydromodifications exert a very similar, adverse impact on aquatic communities that is both unmistakable and irreversible. (Pre-filed Testimony of G. Seegert, Ex. 366 at 7).

The extensive evidence and testimony in this rulemaking shows that the CSSC and Brandon Pool are both highly modified waterways with little to no natural habitat and should both remain designated as an ALU B water. As already described above, the modifications on both of the waterways are irreversible because they are required to maintain the primary purposes of commercial barge traffic and flood control. No one has suggested a feasible modification of the operations in Brandon Pool, because there simply is none. The impoundments and hydromodifications create a simplified habitat that can only support tolerant species. There is no scientific basis for elevating Brandon Pool to a higher use designation than that ascribed to the CSSC.

**E. The Board's Proposed Language for ALU A and ALU B Accurately Describe the Waters and Protected Uses.**

U.S. EPA questioned the completeness of the Board's proposed use language for ALU A and ALU B and alternatively recommended that the Board instead adopt the IEPA's proposed ALU language. Because Midwest Generation does not discharge to an ALU A water, and as

described above neither CSSC nor the Brandon Pool should be considered an ALU A water, its comments here are limited to the ALU B Waters use designation language.

The Board's Proposed ALU B designation language is as follows:

These waters are not presently capable of maintaining a balanced, integrated, adaptive community of warm-water fish and macroinvertebrate community due to irreversible modifications that result in limited physical habitat and stream hydrology. Such physical modifications are of long duration and may include artificially constructed channels consisting of vertical sheet-pile, concrete and rip-rap walls designed to support commercial navigation and the conveyance of stormwater and wastewater. These waters are capable of supporting primarily tolerant fish species, which may include but are not limited to central mudminnow, golden shiner, bluntnose minnow, yellow bullhead and green sunfish. 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: (*waters intentionally omitted*)

The Board's proposed use language appears to try to clarify the meaning of the Use B designation. The newly proposed language which describes the waters as "not presently capable of maintaining a balanced" aquatic community "due to irreversible modifications that result in limited physical habitat and stream hydrology" is an accurate description of these waterways. Further, the examples of the physical modifications, including that they are "channels consisting of vertical sheet-pile, concrete and rip-rap walls designed to support commercial navigation and the conveyance of stormwater and wastewater," is a good encapsulation of the extensive evidence in this rulemaking on the limiting conditions of these waters and their uses. The references to "channels" and "vertical sheet-pile" also accurately convey the existence of poor habitat conditions in these waters, which is a main reason why they are so classified. Further, the Board correctly identifies the primary protected uses of the ALU B waters by stating that the purpose of the channels is to support tolerant fish species, commercial navigation and stormwater and wastewater conveyance.

In considering the proposed language, U.S. EPA disagreed with the inclusion of example fish species, stating that it was concerned the examples did not consider the other aquatic life,

such as macroinvertebrates, plants and algae. The U.S. EPA stated that this appeared to be inconsistent with 40 CFR 131.10(i), which requires that States reflect the uses actually being attained. It appears that the distinction the U.S. EPA is concerned about between the Board's proposed use language and the Agency's proposed use language is that the Board's version references the waters ability to support "tolerant fish species" and the Agency's refers more broadly to "aquatic populations dominated by tolerant types." The difference appears to boil down to the phrases "fish species" and "aquatic populations." The Board may wish to substitute the phrase "tolerant aquatic populations" for its use of the phrase "tolerant fish species." Also, in this same vein, the U.S. EPA appears concerned that because the Board's use language provides examples only of tolerant "fish," without referencing any other types of tolerant aquatic species, such as macroinvertebrates, the use designation could be incorrectly interpreted to protect only tolerant fish and no other type of tolerant aquatic population. There is no prohibition in the UAA federal regulations against including examples of the protected species in use designation language. Accordingly, if the Board prefers to retain its version of the use language, then it should consider including an example (or two) of "non-fish" tolerant aquatic species to address the U.S. EPA's concern.

Midwest Generation's only additional suggestion is that if the Board retains its list of examples of protected tolerant species, it also consider including the "common carp". According to the EA Engineering fish surveys, the common carp was one of the numerically dominate species, along with the bluntnose minnow, present in Use B waters. (Attach. 1 to Ex. 2 to Ex. 366 at 8).

U.S. EPA also questioned in their comments whether "the word 'may' preceding the fish species list should be included in the description of the designated uses." (PC #1372 at p. 3).

Midwest Generation understands this comment to mean that the U.S. EPA is suggesting the Board delete the word “may” from the use designation. If that is the case, then Midwest Generation suggests that the Board reject that recommendation. If the word “may” is deleted, then the presence of the exemplary fish become an additional requirement of the use designation as opposed to illustrative examples of what tolerant species may be expected to be present in such waters. As the Board has written it, the fish species are listed as examples which “may” be present in an ALU B water. By deleting the word “may,” the use designation would effectively state that all of these fish species must be present in order for a water to qualify as a Use B water. That conclusion is not supported by the Subdocket C scientific record and does not appear to be the intent of the Board’s insertion of the list of fish species.

Alternatively, Midwest Generation has no objection to the Board making a decision to revert back to the Illinois EPA’s proposed Use B language. It certainly is an expedient option given the U.S. EPA’s statement that it would accept that use language.

### **III. Conclusion.**

The Subdocket C record information provides the basis and support for the Board’s findings that UAA Factors 3, 4 and 5 apply to the CSSC and Brandon Pool. The Board was justified in finding that the CSO’s and stormwater were one of the many human caused conditions that prevented the CAWS from attaining the CWA goals and cannot be remedied as required by UAA Factor 3. For UAA Factor 5, it is not simply the “low flow” conditions that justify the application of this UAA Factor. There are so few “natural” conditions in the CSSC and Brandon Pool that they are clearly inadequate to support a diversified, balanced fish community that achieves the Clean Water Act’s “fishable” goal. Even with regard to flow conditions, it is low flow, high flow and the erratic and sudden changes in flow, as shown by the

Army Corps flow monitoring data in this record, that satisfy UAA Factor 5. Finally, the Board sufficiently demonstrated that the CSSC and Brandon Pool have hydromodifications and impoundments that prevent the attainment of the CWA use because they are irreversible and cannot be operated in such a way that the use could be attained. The Board correctly concluded that the CSSC and the Brandon Pool are capable of attaining only the ALU B designation because of the channelization, vertical concrete walls, and absence of aquatic vegetation or other refugia. Midwest Generation's only suggestion would be that the Board also include the Aquatic Barrier as another hydromodification that is irreversible and also prevents the CSSC from attaining the CWA goals.

For all of these reasons, there is a comprehensive record of facts, scientific data and expert opinion evidence in Subdocket C to support the Board's conclusions that UAA Factors 3, 4, and 5 apply to the CSSC and Brandon Pool. It seems the task before the Board is to expand upon that portion of its First Notice Opinion in which it stated its findings by including references to the supporting record evidence on which it relied and which provide the justifications that the U.S. EPA is seeking for those findings. Midwest Generation hopes that this submission may assist the Board in locating and including the relevant evidence in the Subdocket C record with which to do so.

As to the U.S. EPA's concerns about the Board's proposed use language, Midwest Generation also has tried to present helpful suggestions for how the Board may address those



concerns. However, Midwest Generation has no objection to the Board selecting the U.S. EPA's alternative recommendation that it instead adopt the Illinois EPA's proposed use language.

Respectfully submitted,

MIDWEST GENERATION, L.L.C.

By: /s/ Susan M. Franzetti  
Susan M. Franzetti

Date: August 29, 2013

Susan M. Franzetti  
Kristen Laughridge Gale  
NIJMAN FRANZETTI LLP  
Counsel for Midwest Generation, L.L.C.  
10 S. LaSalle St., Suite 3600  
Chicago, IL 60603  
(312) 251-5590

**CERTIFICATE OF SERVICE**

The undersigned, an attorney, certifies that a true copy of the foregoing Notice of Filing and Midwest Generation L.L.C.'s Response Comments to U.S. EPA's Comments in Subdocket C were filed electronically on August 29, 2013 with the following:

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

and that true copies were mailed by First Class Mail, postage prepaid, on August 29, 2013 to the parties listed on the foregoing Service List.

/s/ Susan M. Franzetti