BEFORE THE ILLINOIS POLLUTION CONTROL BOARD

PRAIRIE RIVERS NETWORK, NATURAL RESOURCES DEFENSE COUNCIL, SIERRA CLUB, ENVIRONMENTAL LAW & POLICY CENTER, FRIENDS OF CHICAGO RIVER and GULF RESTORATION NETWORK	)	
Petitioners,	)	PCB 14-106 (O'Brien) PCB 14-107 (Calumet) PCB 14-108 (Stickney) (Third-Party NPDES Permit Appeals - Water) (Consolidated)
v.	)	
ILLINOIS ENVIRONMENTAL PROTECTION AGENCY and METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO	)	
Respondents.	)	

NOTICE OF ELECTRONIC FILING

To: Attached Service List

PLEASE TAKE NOTICE that on January 21, 2015, I electronically filed with the Clerk of the Pollution Control Board of the State of Illinois, **Petitioners' Motion for Reconsideration** and **Memorandum in Support of this Motion** in PCB 2014-106, 107, 108 a copy of which is attached hereto and herewith served upon you.

Respectfully Submitted,

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BEFORE THE ILLINOIS POLLUTION CONTROL BOARD

PRAIRIE RIVERS NETWORK, NATURAL RESOURCES DEFENSE COUNCIL, SIERRA CLUB, ENVIRONMENTAL LAW & POLICY CENTER, FRIENDS OF CHICAGO RIVER and GULF RESTORATION NETWORK	)	
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PETITIONERS' MOTION FOR RECONSIDERATION OF THE OPINION AND ORDER OF DECEMBER 18, 2014

Prairie Rivers Network, Natural Resources Defense Council, Sierra Club, Environmental Law & Policy Center, Friends of the Chicago River, and Gulf Restoration Network (collectively, "Petitioners") hereby move the Illinois Pollution Control Board to reconsider portions of its Opinion and Order of December 18, 2014 (the "Opinion"). The Opinion does not address a key argument of Petitioners' and overlooks numerous critical legal provisions and facts in the record. In support of their motion, Petitioners state:

1) The Opinion overlooked the Petitioners' alternative argument that studies be required as a condition of the permits. The Opinion states that "the parties dispute" the significance of the findings by the Illinois Environmental Protection Agency ("IEPA") that waters downstream of the plants at issue are impaired by phosphorus, (Opinion at

17), but fails to address the legal implications of the factual dispute or attempt to resolve it.

Even if we assume, *arguendo,* that it is necessary to show that phosphorus discharges from the plants have already caused or contributed to impairments before a water quality-based effluent is required to be established, studies should be developed and performed in order to demonstrate what impact the phosphorus discharges from MWRD are having on the receiving and downstream waters and what the appropriate phosphorus limits should be. The agency can't simply throw up its hands and say, "We don't know what's happening in these waters, we have insufficient evidence." *See, American Paper Institute v. U.S. Environmental Protection Agency*, 996 F.2d 346, 350 (DC. Cir. 1992); 35 Ill Adm. Code 309.141 (d) and (e); 40 CFR 122.44 (d).

Petitioners argued in the alternative that the permits should have required MWRD to perform such studies as a condition of the permits. (*See* Petitioners' Memorandum of Law in Support of their Motion for Summary Judgment at 3, 17-18; Petitioners' Response to IEPA's and MWRD's Cross Motions for Summary Judgment and Reply to IEPA's Response to Petitioners' Motion for Summary Judgment at18-20; and Petitioners' Response to Motions by IEPA and MWRD for Leave to File Reply Briefs at 10). It appears that Petitioners' alternative request was simply overlooked by the Board. Petitioners' request should be granted so that progress on this issue can be made.

2) The Opinion overlooks the regulations requiring the Agency to "ensure" permitted discharges will not cause violations of water quality standards, and does not address the requirement that IEPA must act to control pollutants where there is a "reasonable potential" discharged pollutants will cause or contribute to a violation of water quality standards. The Opinion relies on the fact that MWRD contests that phosphorus discharges have caused violations of the narrative standards regarding plant and algal growth and the dissolved oxygen standards. The Opinion can be read to suggest that if such violations have not been proven that no action need be taken to prevent them. (Opinion at 17-18.) The Opinion does not cite or discuss the implications of 35 Ill. Adm. Code 309.141(d) that require IEPA "ensure compliance" with water quality standards and all federal laws or regulations, including 40 CFR 122.44(d). The Opinion does not consider whether the requirement that IEPA "ensure" against violations of water quality is consistent with an approach of waiting until such violations have been proven before requiring action. Similarly, the Opinion does not discuss the language of 35 Ill. Adm. Code 309.143 (a) requiring limits against pollutants that have a "reasonable potential" to cause or contribute to water quality standard violations. The law is clear that the record must support the agency's decision. *IEPA v. PCB*, 115, 115 Ill. 2d 65, 70; 503 N.E. 2d 343, 345 (1986). In this case, that means that the record must support a finding that the IEPA ensured that there was no reasonable potential for the discharges to cause or contribute to a violation of water quality standards. Proper consideration of these regulatory provisions at a minimum requires that studies be included as a condition of the permits to ensure eventual compliance with proper water quality standards.

3) <u>The Opinion overlooks portions of the record that contradict the claim that unnatural algal growth has not been found in the receiving stream segments.</u> The Opinion repeatedly relies on a finding that "the record does not contradict that unnatural plant or algal growth has not been observed in the receiving stream segments." (Opinion at 17, 18.) In fact, exactly the opposite is true. The record is clear and undisputed that unnatural plant and algal growth *has been observed* in two receiving stream segments. These segments have been repeatedly listed by IEPA biologists as impaired by "aquatic algae."

4) <u>The Opinion overlooks evidence that discharges of phosphorus are causing dissolved oxygen violations.</u> The Opinion recognizes that phosphorus may cause or contribute to violations of dissolved oxygen standards but does not consider whether the record shows this has occurred in the numerous waters that are listed as impaired by low dissolved oxygen that receive discharges from the plants. In fact, the IEPA itself has listed phosphorus as a cause of impairment in numerous water segments that receive discharges from the plants, and has "verified" that phosphorus is a cause even using its latest listing criteria. (R. 1302.)

5) <u>The Opinion overlooks the law that permits may not allow discharges that cause or contribute to violations of water quality standards even in waters that are not the direct receiving waters of the discharge.</u> The Opinion apparently attaches importance to the proposition that there is no evidence of dissolved oxygen or unnatural plant or algal growth in the "direct receiving" stream segments or waters of the plants." (Opinion at 17, 18.) This proposition is false because IEPA has repeatedly found such violations in segments that are known to receive pollutants "directly" from the plants.

Moreover, the law is clear that IEPA may not permit discharges that may cause or contribute to a violation of water quality standards in water segments downstream of the discharge point. Indeed, the Board in its regulations has specifically recognized that phosphorus discharges can cause or contribute to impairments of water quality standards many miles below the discharge point and presumes such adverse effects will occur to lakes less than 25 miles downstream of the discharge. 35 Ill. Adm. Code 304.123(c).

6) The Opinion overlooks evidence that a 1.0 mg/L limit is not adequate to prevent violations of the offensive conditions and dissolved oxygen standards. The Opinion states that "there is no information in the record that the 1.0 mg/L effluent limit on phosphorus or omission of a nitrogen limit would violate the standards for dissolved oxygen at 35 Ill. Adm. Code 302.206 and 302.405; unnatural sludge at 35 Ill. Adm. Code 302.403 or offensive conditions at 35 Ill. Adm. Code 302.203 in the receiving waters for the plants." (Opinion at 17.) In fact, while the limit in itself might be helpful as a first step to the reductions that are necessary, there is no evidence in the record that the limit will ensure against violations of water quality standards. On the contrary, there is abundant evidence in the record that the limit is far too lax to do anything to protect the Chicago Area Waterways, the Lower Des Plaines River or the Upper Illinois River. The criteria proposed by U.S. EPA, the criteria adopted by other Midwest states after studying the effects of phosphorus, published studies of Illinois waters, and a study done by MWRD agree that the 1.0 mg/L limit imposed by IEPA is nearly worthless as protection of the Chicago area waters that IEPA has repeatedly found are impaired by phosphorus. (Petitioners' Response to IEPA's and MWRD's Cross Motions for Summary Judgment and Reply to IEPA's Response to Petitioners' Motion for Summary Judgment at 15-8.)

7) The Opinion failed to consider whether the IEPA should have reopened the record under 35 Ill. Adm. Code 309.120. The final permits were granted over three years after the hearings on the permits were held. The 1.0 mg/L phosphorus limit was a significant modification of the draft that was not a logical outgrowth of the draft because there was no hint of a phosphorus limit in the draft. There was never any opportunity for the public to comment on the numeric limits that should be placed on phosphorus discharges. The public could hardly be expected to offer scientific testimony regarding the insufficiency of a 1.0 mg/L phosphorus limit at a time when IEPA did not propose any limit at all.

8) The Opinion failed to apply the proper standard for summary judgment. Summary judgment may only be granted when there is no genuine issue of material fact, viewing the facts in the light most favorable to the non-moving party. 735 ILCS 5/2-1005; *Pielet v. Pielet*, 978 N.E.2d 1000, 1008 (Ill. 2012). The Opinion appears to have identified several factual matters as being in "dispute," (Opinion p. 17), and then resolved the dispute in some fashion. This is inappropriate in the context of a summary judgment motion.

9) A memorandum in support of this motion is attached.

CONCLUSION

The Court should grant Petitioners' motion for reconsideration and require the IEPA to perform the legally-required analyses and include a permit condition requiring studies to determine the impact of phosphorus and the necessary phosphorus limits for the MWRD discharges.

Respectfully Submitted,

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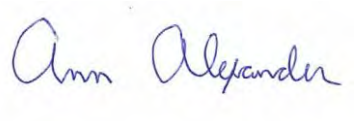

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CERTIFICATE OF SERVICE

I, Albert Ettinger, hereby certify that I have served the attached **Petitioners' Motion for Reconsideration** and **Memorandum in Support of this Motion** in PCB 2014-106, 107, 108 upon:

Mr. John T. Therriault
Assistant Clerk of the Board
Illinois Pollution Control Board
100 West Randolph Street, Suite 11-500
Chicago, Illinois 60601

via electronic filing on January 20, 2015; and upon the attached service list by depositing said documents in the United States Mail, postage prepaid, in Chicago, Illinois on January 20, 2015.

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MEMORANDUM IN SUPPORT OF PETITIONERS' MOTION FOR RECONSIDERATION OF THE BOARD'S OPINION AND ORDER OF DECEMBER 18, 2014

The Board should reconsider portions of its Opinion and Order of December 18, 2014 (hereinafter the "Opinion"). The Opinion does not address a key argument that was made by the Petitioners and overlooks critical legal provisions and facts in the record. The Clean Water Act and the imperative to protect Illinois water quality compel the Board to require the Illinois Environmental Protection Agency ("IEPA") to ensure the necessary studies are performed to determine the proper limits for phosphorus. The Opinion may be read to adopt principles that would severely injure water quality across the state and give a green light to discharges that have a reasonable potential to cause overgrowth of plants, algae and cyano-bacteria. Such growth fueled by discharges of partially-treated wastewater can destroy aquatic life, drinking water sources and

recreational opportunities. The failure of Illinois to control this pollution would necessitate federal corrective action.

A motion to reconsider may be filed to bring to the Board's attention errors in the Board's previous application of law, and a motion to reconsider may specify evidence in the record that was overlooked. *Korogluyan v. Chicago Title & Trust Co.*, 213 Ill. App. 3d 622, 627, 572 N.E. 2d 1154 (1st Dist. 1991); *People of the State of Illinois v. Packaging Personified, Inc.*, 2012 Ill. Env. LEXIS 103 *22 (IPCB 2012).

The key facts that support the Petitioners' Motion for Reconsideration can be briefly summarized. It is uncontested that:

- Numerous waters that receive phosphorus from the Calumet, O'Brien and Stickney plants have been listed by IEPA as impaired by phosphorus, including: the North Shore Channel, the North Branch of the Chicago River, the Chicago River, the Calumet Sag Channel, the Chicago Sanitary and Ship Canal and the Little Calumet River.[1] These waters receive discharge directly from the plants or are within a few miles of the plants' outfalls.
- Phosphorus can cause violations of the dissolved oxygen standards and the standards regarding unnatural sludge and offensive conditions.
- The 1.0 mg/L effluent limit for phosphorus that was placed in the permits was not based on information or calculation that a 1.0 mg/L limit would ensure against any problem with phosphorus pollution that exists or potentially could exist in the

[1] For the Board's convenience, a highlighted portion of the IEPA's 2012 303(d) list of impaired waters that was referenced in the IEPA Statement of Reasons is attached as Ex. A to this motion.

receiving waters. It is at best a technology-based limit that was agreed to by the discharger.

• The permits do not require MWRD to perform any studies that will enable the IEPA to determine the extent of the problem or that will allow IEPA to set proper water quality-based effluent limits when the permits expire in 2018, although numerous studies have been required of MWRD as a condition of NPDES permit limits in the past.

Based on these uncontested facts alone, the Board should require the IEPA take steps to ensure the effects of the phosphorus pollution from the Calumet, O'Brien and Stickney are fully studied so that proper water quality-based effluent limits can be set in the future. Several Board regulations and facts in the record that the Opinion overlooked further support reconsideration of the Opinion.

1. The Board apparently overlooked the Petitioners' alternative requested relief that studies of the effect of phosphorus pollution on the water bodies be required as a condition of the permits.

Portions of the administrative record overlooked by the Opinion establish that phosphorus pollution from the three plants has caused violations of water quality standards in water segments that receive phosphorus directly from the plants and in segments into which that water flows. However, even assuming, *arguendo*, that there is doubt as to whether phosphorus discharges from the plants *have caused* water quality violations, it is beyond debate that the discharges *could be* having these effects and that they *might well* have these effects in the future. Certainly, at a minimum, IEPA biologists' persistent and repeated decisions that phosphorus *is* impairing numerous

waters that receive phosphorus from the plants means there is a *reasonable potential* of water quality standard violations now and in the future.

The Opinion states that "the parties dispute" the significance of the numerous findings by the IEPA that water bodies receiving phosphorus pollution from the plants are impaired by phosphorus, and that MWRD has claimed that the receiving waters might not be impaired by phosphorus. (Opinion at 17.)[2] In fact, the branch of IEPA in charge of water quality assessment and U.S. EPA are united that the waters *are* impaired by phosphorus. (R. 1303.) The permits should set forth a path to determine the full impacts of the phosphorus discharges on water quality by the time the permits are renewed. Further, such studies are clearly needed to monitor compliance with Special Condition 5 of the permits that prohibits discharges that cause violations of water quality standards. These studies should be required under 35 Ill. Adm. Code 309.141 (d) (2) and (3), 309.143 (a) and 309.146 (a) (2), (3) and (5). *See also*, 40 CFR 122.43(a) and 122.44(d).

It is nothing new to require studies as a condition of NPDES permits. Indeed numerous studies were required as a condition of the last set of NPDES permits for these plants in order to develop plans for pollution prevention, to identify sensitive areas and to assist IEPA and the IPCB in the development of proper standards in the Use Attainability Analysis. (R. 1372, 1375, 1379.)

As things have been left by IEPA, the agency will not have the facts that are critical to setting proper water quality-based phosphorus limits even in the next round of

[2] The Opinion states that the Agency also disputes that Petitioners have offered evidence that the phosphorus discharges will cause impairments of water quality standards, (Opinion at 17), but that is merely what the IEPA's lawyers now say without quoting anything in the record. The IEPA officials whose job it is to make water quality assessments and determine the cause of impairments have "verified" that numerous waters have been impaired by phosphorus. (R.1303.)

permits. Petitioners argued that requiring studies could potentially resolve this issue. (*See*, Petitioners' Memorandum of Law in Support of their Motion for Summary Judgment at 17-18; Petitioners' Response to IEPA's and MWRD's Cross Motions for Summary Judgment and Reply to IEPA's Response to Petitioners' Motion for Summary Judgment at 18-20; Petitioners' Response to Motions by IEPA and MWRD for Leave to File Reply Briefs at 10.) The permits as issued, then, do not merely fail to ensure that the receiving waters will be protected from phosphorus pollution now. The lack of a requirement for studies virtually ensures that the same argument will be back in 2018 without any new information to resolve it. This is not progress. It is just kicking the can down the road.

It appears that Petitioners' request that studies be performed was simply overlooked by the Board. Petitioners ask that the permits be remanded to consider what studies can be done by MWRD to ensure that proper water quality-based effluent limits can be developed when the permits are renewed. Performance of those studies should be made a condition of the permit.

2. The Opinion overlooks the regulations requiring the Agency to "ensure" that permitted discharges will not cause violations of water quality standards and does not address the requirement that IEPA must act to control pollutants if there is a "reasonable potential" that the pollutants will cause a violation of water quality standards.

The Opinion relies on a finding that the evidence that phosphorus has caused violations of the narrative standards regarding plant and algal growth and the dissolved oxygen standards is "contested."[3] The Opinion can be read to imply that if such

[3] Petitioners note that it is not proper to make findings regarding contested evidence in the context of a summary judgment motion. Summary judgment is only appropriate

violations have not been proven, action need not be taken to prevent them. (Opinion at 17-18.) The Opinion does not discuss the implications of 35 Ill. Adm. Code 304.105 or 35 Ill. Adm. Code 309.141(a) that require that IEPA "ensure" that limits are placed in the permits that prevent violations of water quality standards. Nor does the Opinion discuss the language of 35 Ill. Adm. Code 309.143(a) requiring limits on pollutants that have the "reasonable potential" to cause violations of water quality standards.

To "ensure" means "to make certain." *Corey H. by Shirley P. v. Board of Education*, 995 F. Supp. 900, 913 (N.D. Ill. 1998); American Heritage College Dictionary (3d Ed.). Surely, one does not make certain that pollution allowed by permits will not violate water quality standards without 1) first studying the potential impacts of the pollution on the receiving streams, 2) determining what is necessary to prevent impacts that violate water quality standards, and 3) including limits in the permit to prevent such violations.

Similarly, the language requiring limits against pollutants that have a "reasonable *potential*" to cause violations of water quality standards 35 Ill. Adm. Code 309.143(a) establishes that violations need not be proven before a pollutant limit is required. "Potential" means, *inter alia* "capable of being" and "having possibility, capacity or power." American Heritage College Dictionary (3d Ed.); *see also*, Webster's Third New International Dictionary (1993) (potential means "existing in possibility: having the capacity or a strong possibility for development into a state of actuality").

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where there is no genuine issue of material fact, viewing facts in the light most favorable to the non-moving party. 735 ILCS 5/2-1005; *Pielet v. Pielet*, 978 N.E.2d 1000, 1008 (Ill. 2012).

If the reality that phosphorus pollution from the plants is causing impairments is disputable, the potential that it *can* do so is not. No one disputes that the levels of phosphorus present in the Chicago River have the potential to cause low dissolved oxygen levels and unnatural plant and algal growth. The level of phosphorus allowed by the permits is over ten times higher than the criteria recommended by U.S. EPA, (R. 507, R. 1753, R. 4385-88), and 5 to 10 times greater than the Minnesota and Wisconsin standards.[4] *Ensuring* that phosphorus from the plants does not cause violation of water quality standards requires determining the *potential* effects of that phosphorus or at least requiring studies so that the actual effects of the pollution can be determined in the future. The law requires that if there is a reasonable potential that the discharge may cause or contribute to a violation of water quality standards that a numeric water quality-based effluent limit should be placed on the discharge. *American Paper Institute v. U.S. Environmental Protection Agency*, 996 F.2d 346 (DC. Cir. 1992); *Alabama Dept. of Environmental Management v. Alabama Rivers Alliance, Inc.*, 14 So. 3d 853, 866-68 (Ala. Ct. App. 2007); 35 Ill Adm. Code 141 (d) and (e); 40 CFR 122.44(d).

Certainly, if there is uncertainty whether there will be violations of water quality standards, that is the "potential" for a violation, at a minimum data should be collected that will resolve the uncertainty. *Des Plaines River Watershed Alliance v. IEPA*, 2007 Ill. Env. Lexis 147 *141-42 (IPCB 2007).

[4] Petitioners' Response to IEPA's and MWRD's Cross Motions for Summary Judgment and Reply to IEPA's Response to Petitioners' Motion for Summary Judgment at 10, n.2.

3. The Opinion overlooks portions of the record that show that unnatural plant or algal growth has been observed in receiving stream segments.

The Opinion repeatedly relies on a finding that "the record does not contradict that unnatural plant or algal growth has not been observed in the receiving stream segments." (Opinion at 17, 18.) In fact, the record is uncontradicted that unnatural plant and algal growth *has been* observed in the receiving stream segments.

In 2012, the IEPA officials in charge of making assessments of Illinois waters specifically listed segment HA-05 on the Little Calumet River as impaired by low dissolved oxygen (code #322) phosphorus (code #462) and "aquatic algae" (code #479). (Ex. A, at 47-48.) They also found that segment HCCA-02 of the North Shore Channel was impaired by low dissolved oxygen, phosphorus, and aquatic algae. (*Id*. at 62.) These segments directly receive pollution from (respectively) the Calumet and the O'Brien plants, as the plants discharge at the demarcation of two segments of the Little Calumet (HA-04 and HA-05) and the North Shore Channel (HCCA-02 and HCCA-04). As was said by a U.S. EPA official regarding the Calumet plant:

> The demarcation for HA-04 and HA-05 is exactly at the discharge point for the Calumet plant. So from a practical perspective that means that the receiving segment is not just HA-04 but both HA-04 and HA-05.

(R. 2576.) Segment HCCA-02 directly receives pollution from the O'Brien plant, as the wastewater from the plant outfall to the North Shore Channel flows both north and south.

Additionally, the record in this Board's proceeding R08-9, which IEPA used in making its decisions on the Permits, (R. 1318), likewise clarifies that both Little Calumet River segment HA-05 (to the east of the discharge point for the Calumet plant) and North Shore Channel segment HCCA-02 (to the north of the O'Brien discharge point) directly

receive effluent from the Calumet and O'Brien Plants, respectively. Indeed, the Board accepted the position of MWRD and stated in its decision in R08-09 (C) of November 21, 2013 that portions of the Chicago Area Waterways System were subject to flow reversals.[5] The Board heard testimony of Dr. Charles Melching and others who testified as experts on behalf of MWRD. *See* PCB R08-09, Subdocket C, Proposed Rule, Second Notice, November 21, 2013, pp. 27, 32, 50. Specifically, Dr. Melching testified that effluent from the Calumet and O'Brien plants flows in both directions from the outfalls. (Prefiled Testimony of Adrienne D. Nemura and Charles Melching, August 8, 2008, PCB R08-09, Document # 62134, pdf p. 98). Melching further testified that the very "concept" of "upstream and downstream" made no sense as to the North Shore Channel because "more often than not, the north side plant is backing up into the North Shore Channel." (R08-9 Document #63376 Tr. 70-71).[6]

Never in the course of this proceeding have IEPA or MWRD attempted to deny that segments HA-05 or HCCA-02, which have been listed as impaired by aquatic algae, receive effluents from the Calumet and O'Brien plants, respectively. How could they? MWRD offered expert testimony, that it has never retracted, that those segments directly receive wastewater from the plants. Further, as recently as July 2013, IEPA testified to the Board that the reason for one of its temperature proposals was that wastewater moved in both directions from the Calumet and O'Brien plants: "There is not really an upstream

[5] The Board may, of course, rely on its own prior finding and testimony it has heard offered by the very parties now before the Board. *ESG Watts v. Pollution Control Board*, 282 Ill. App. 3d 43, 54-55; 668 N.E. 2d 1015 (4th Dist. 1996).
[6] A portion of this document is attached as Ex. B.

in this case." *In the Matter of Water Quality Standards and Effluent Limitations for the Chicago Area Waterway System* R08-09(D), Twait 7/29/13 (Doc. # 81161) Tr. 28-29[7]

There is, thus, undisputed evidence that segments that receive pollutants directly from the plants at issue have been repeatedly listed by IEPA as impaired by aquatic algae. Therefore, the Opinion's reliance on the finding that no unnatural plant or algal growth has been observed in the relevant waterways was in error.

4. The Opinion overlooks portions of the record showing that discharges of phosphorus are causing violations of water quality standards.

The Opinion recognizes that phosphorus may cause or contribute to violations of dissolved oxygen standards, (Opinion at 16), but does not consider whether this has occurred in the numerous waters that are listed as impaired by low dissolved oxygen and receive discharges from the plants. In fact, IEPA has listed phosphorus as a cause of impairment in a number of waters that receive discharges from the plants and has specifically listed phosphorus as a cause even after the change in listing criteria referenced by MWRD and cited by the Opinion at 17. The waters so listed include segments in the Calumet Sag Channel H-01, the Chicago Sanitary and Ship Canal, segments GI-02, GI-03, GI-06, the North Shore Channel HCCA-02, the Chicago River HCB-01, and the Little Calumet River HA-05. Each of these waters is listed as impaired by low dissolved oxygen and phosphorus. A 303(d) listing of a water body as impaired by the state is at least a *prima facie* showing that it is in fact impaired. *Alabama Dept. of Environmental Management* 14 So.3d at 864.

[7] A portion of this document is attached as Ex. C.

The Opinion, however, discusses some elements in the record that seem to suggest that the Board believes that dissolved oxygen impairments found by IEPA should be given less weight than would normally be afforded agency findings. In particular, the Opinion mentions that the "District claims that the Agency abandoned [the IEPA listing] approach as to phosphorus." (Opinion at 17.)

Any notion, however, that these official agency findings, which have been forwarded for approval to U.S. EPA under federal law, were made lightly or mechanically is simply false. The very agency biologists who observed the waters made the impairment findings after fully considering the facts and did so recently. Indeed, the record is clear that MWRD made the same denials that phosphorus was causing impairments to those biologists that it made to the Board, and MWRD's denials were rejected by the biologists who did the assessment. Indeed, a May 29, 2013 memo regarding a conference between IEPA and U.S. EPA officials states:

> MWRD is attempting to make another program's decision by influencing the permit fact sheet language and arguing to exclude listed impairments. Permit fact sheet reflects current listed impairments and causative pollutants that IEPA verified and listed for each 303(d) cycle. There is no reason to alter permit fact sheets in response to MWRD's comments. Outcome: IEPA agrees with EPA, phosphorus listings shall remain in all 3 permits.

(R.1303.)

Further, the IEPA Responsiveness Summary comment, (R. 1335), that Agency biologists "did not observe" unnatural plant or algal growth mentioned on page 17 of the Opinion is most notable for what it does not say. The question from the public was whether the agency "regularly monitored for unnatural plant or algal growth." The IEPA response never answers that question. Instead, it states that agency personnel did not observe such algal growth during their monitoring activities at a few of the stations below

the plants, leaving the questioner to guess whether the agency personnel even looked for unnatural plant or algal growth at those monitoring stations. In any event, we do know that the IEPA assessment biologists, whatever they saw or did not see during their monitoring activities, were not dissuaded from listing phosphorus as a cause of the impairment in the Calumet Sag Channel and CSSC. Instead, they "verified" that those impairment assessments were correct.

Finally, it is unclear how the Opinion views the role of the dissolved oxygen limits in the permit. It is unsurprising that the record contains no evidence that maintaining reasonable dissolved oxygen levels *in the effluent* will stop phosphorus from causing low dissolved oxygen levels and violations of the water quality standards for dissolved oxygen *in the Chicago River and other water bodies*.

The record is clear that diel swings in dissolved oxygen levels can be caused by plant or algal growth that is stimulated by phosphorus pollution. Phosphorus discharged with the effluent will not immediately have any effect on dissolved oxygen in the effluent and will not even have an effect in the receiving water bodies until there has been time for plants or algae in the receiving waters to use that phosphorus. Even if the effluent has a high level of dissolved oxygen in the pipe coming out of the plant, there may be DO violations downstream as biological activity caused by phosphorus pollution leads to crashes in the DO level during periods of darkness. This phenomenon was described by Dr. Michael Lemke of the University of Illinois Springfield in which he explained that

low dissolved oxygen levels causing fish kills were caused by phosphorus pulsing into Illinois River side channel lakes from river water. (R 4718-23.)[8]

5. The Opinion apparently overlooks the law that permits may not allow discharges that cause or contribute to violations of water quality standards in downstream waters.

As mentioned, the Opinion apparently attaches importance to the supposed fact that there is no evidence of low dissolved oxygen or unnatural plant or algal growth in the "direct receiving" stream segments of the plants. (Opinion at 17, 18.) This is factually incorrect because, as discussed above, IEPA has repeatedly found such violations in segments (HCCA-02 and HA-05) that are known to receive pollutants directly from the plants. In any event, the law is clear that IEPA may not permit discharges that may cause or contribute to a violation of water quality standards in any water segment, even segments that are well downstream of the discharge point. *Arkansas v. Oklahoma*, 503 U.S. 91, 105-07 (1992); *In the Matter of: Proposed Determination of No Significant Ecological Damage for the Joliet Generating Station*, 1989 Ill. Env. LEXIS 1204 *37 (IPCB 1989).

As a matter of fact, it is well-established that phosphorus pollution can travel great distances and often causes adverse effects well downstream from the discharge point at locations where the other necessary requirements for plant or algal growth (e.g.

[8] For this reason, Petitioners' public comments in the MWRD appeal 14-104, mentioned that 24-hour monitoring in locations in the *Chicago area waters* likely to suffer such DO crashes is important. Contrary to the Board's understanding, Petitioners did not urge that there be 24-hour monitoring of the MWRD's *discharge*. Sewage treatment plant effluent generally meets dissolved oxygen standards, but pollutants in the effluent generally cause dissolved oxygen violations in the rivers and canals well below the point of discharge.

light, proper flow conditions) give the algae an opportunity to grow.[9] As was stated by Dr. Lemke, "[E]ven when unnatural phosphorus loadings do not immediately affect the stream segment they initially entered, they may affect downstream waters." (R. 4714.)

Even were it the case that the immediately receiving segments were not impaired, that would not matter. There is nothing in the law or the record that supports the conclusion that phosphorus pollution is not causing harm if the immediate receiving segment is not being harmed. Indeed, the Board in its regulations has specifically recognized that phosphorus discharges can cause or contribute to impairments of water quality standards miles below the discharge point and presumes such adverse effects will occur to lakes as far as 25 miles downstream of the discharge. *See* 35 Ill. Adm. Code 304.123(c).

6. The Opinion overlooks evidence that a 1. 0 mg/L limit is not adequate to prevent violations of the unnatural sludge, offensive conditions and dissolved oxygen standards.

The Opinion states that "there is no information in the record that the 1.0 mg/L effluent limit on phosphorus or omission of a nitrogen limit would violate the standards for dissolved oxygen at 35 Ill. Adm. Code 302.206 and 302.405; unnatural sludge at 35 Ill. Adm. Code 302.403 or offensive conditions at 35 Ill. Adm. Code 302.203 in the receiving waters for the plants." (Opinion at 17.) In fact, while MWRD getting its discharge level down to 1.0 mg/L may be helpful as a first step toward the reductions that are needed, there is *no* evidence in the record that 1.0 mg/L will do anything to address whatever problems there are in the waters that receive pollution from the plants.

[9] As admitted by a former MWRD General Superintendent, MWRD's phosphorus is a significant portion of the load even at the Mississippi River. (R. 4387-88.)

There is, however, abundant evidence in the record that 1.0 mg/L is far too lax to ensure that phosphorus discharges will not cause violations of the dissolved oxygen, unnatural sludge and offensive conditions standards. "Total phosphorus (TP) concentration of most uncontaminated surface water is between 0.01 to 0.05 ppm[10] P." (Professor Michael Lemke, UIS, R. 4716; *see also* R. 4324.) All of the science and data in the record is clear that reducing phosphorus levels to 1.0 mg/L will not solve or prevent any problem. 1.0 mg/L is at least 5 to 10 times too high. In Petitioners' Response to IEPA's and MWRD's Cross Motions for Summary Judgment it is explained that U.S. EPA, other states and scientists who have studied to what levels the concentrations of phosphorus must be limited to control plant and algal growth and protect dissolved oxygen standards agree that levels must be less than 0.2 mg/L or lower. (Petitioners' Response to IEPA's and MWRD's Cross Motions for Summary Judgment and Reply to IEPA's Response to Petitioners' Motion for Summary Judgment at 15-8.) Indeed, MWRD itself, at IEPA's request, reduced its phosphorus discharge as an experiment at its Egan plant to the same level it intends to reduce it under these permits, 1.0 mg/L. At the conclusion of this experiment, MWRD concluded that it could not see any improvement in water quality. (R. 304.) This is an utterly unsurprising conclusion given the science.

In short, no one in the course of this proceeding has suggested that a 1.0 mg/L phosphorus limit will end impairments from phosphorus pollution or will prevent potential violations of water quality standards from phosphorus pollution and there is nothing in the record to support a 1.0 mg/L limit. 1.0 mg/L was picked because that is

[10] 0.01 to 0.05 ppm is equal to 0.01 to 0.05 mg/L.

what MWRD agreed to. To our knowledge, no one (other than the IEPA in this case) has ever suggested that allowing the discharger to choose its permit limits is a proper way to set such limits. Treatment reducing discharge concentrations of phosphorus to 1.0 mg/L can only be seen as progress if it is accompanied by studies to determine how to fully address the problem in the future. But IEPA did not require any such studies.

7. IEPA should have allowed further public comment after allowing the record to grow stale and after substantially changing the permit.

35 Ill. Adm. Code 309.120 requires the Agency to reopen the public comment period when the Agency significantly modifies a draft permit and the final permit is not a logical outgrowth of the proposed permit. Here, the draft permit contained no phosphorus permit limit at all, and members of the public could hardly be expected to comment on the impropriety of a limit that IEPA had not proposed. The creation *ex nihilo* of a phosphorus limit should have been the occasion for marshaling the science to determine what the limit should be. It still can be, if the Board requires that studies of the effects of phosphorus on the receiving water bodies be done and a proper water quality-based effluent limit be developed.

CONCLUSION

The Court should grant Petitioners' motion to reconsider and require at least that MWRD undertake studies to resolve the uncertainties in the relevant facts that the Board believes are present in the record. While such studies will not ensure that phosphorus discharges allowed by this permit will not cause or contribute to violations of the dissolved oxygen, unnatural sludge and offensive conditions standard under these

permits, proper studies would at least ensure that in 2018 it will be possible to determine the steps that should be taken with regard to phosphorus discharges.

Respectfully Submitted,

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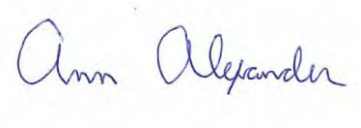

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PRAIRIE RIVERS NETWORK, NATURAL RESOURCES DEFENSE COUNCIL, SIERRA CLUB, ENVIRONMENTAL LAW & POLICY CENTER, FRIENDS OF CHICAGO RIVER and GULF RESTORATION NETWORK	)	
Petitioners,	)	PCB 14-106 (O'Brien) PCB 14-107 (Calumet) PCB 14-108 (Stickney) (Third-Party NPDES Permit Appeals - Water) (Consolidated)
v.	)	
ILLINOIS ENVIRONMENTAL PROTECTION AGENCY and METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO	)	
Respondents.	)	

Exhibit A

Appendix B-2. Specific Assessment Information for Streams, 2014.

Legend

Support Code	Use Support Level
F	Fully Supporting
N	Not Supporting
I	Insufficient Information
X	Not Assessed

Use ID	Use Description
582	Aquatic Life
583	Fish Consumption
584	Public and Food Processing Water Supplies
585	Primary Contact
586	Secondary Contact
587	Indigenous Aquatic Life
590	Aesthetic Quality

Cause ID	Description
N/A	No Cause Identified
1	.alpha.-BHC
34	2,4-D
79	Aldrin
84	Alteration in stream-side or littoral vegetative covers
85	Alterations in wetland habitats
91	Ammonia (Un-ionized)
96	Arsenic
99	Atrazine
104	Barium
123	Boron
127	Cadmium
137	Chlordane
138	Chloride
139	Chlorine
154	Chromium (total)
160	Color
163	Copper
168	Cyanide
177	DDT
198	Dieldrin
203	Dioxin (including 2,3,7,8-TCDD)
213	Endrin
228	Fish-Passage Barrier
229	Fish Kills
234	Fluoride
244	Heptachlor
246	Hexachlorobenzene
260	Iron
267	Lead
268	Lindane
270	Low flow alterations
273	Manganese
274	Mercury

Cause ID	Description
277	Methoxychlor
301	Nickel
308	Ammonia (Total)
313	Nonnative Fish, Shellfish, or Zooplankton
317	Oil and Grease
319	Other flow regime alterations
322	Oxygen, Dissolved
339	Phenols
348	Polychlorinated biphenyls
371	Sedimentation/Siltation
375	Silver
376	Simazine
385	Sulfates
388	Temperature, water
390	Terbufos
399	Total Dissolved Solids
400	Fecal Coliform
403	Total Suspended Solids (TSS)
413	Turbidity
423	Zinc
441	pH
452	Nitrogen, Nitrate
462	Phosphorus (Total)
463	Cause Unknown
471	Bottom Deposits
478	Aquatic Plants (Macrophytes)
479	Aquatic Algae
500	Changes in Stream Depth and Velocity Patterns
501	Loss of Instream Cover
502	Sludge
519	Visible Oil
520	Odor
521	Ethanol

Appendix B-2. Specific Assessment Information for Streams, 2014.

Legend

Source ID	Description
N/A	No Source Identified
2	Acid Mine Drainage
4	Animal Feeding Operations (NPS)
10	Atmospheric Deposition - Toxics
20	Channelization
23	Combined Sewer Overflows
28	Contaminated Sediments
36	Drainage/Filling/Loss of Wetlands
37	Dredge Mining
38	Dredging (E.g., for Navigation Channels)
45	Golf Courses
49	Highway/Road/Bridge Runoff (Non-construction Related)
50	Highways, Roads, Bridges, Infrastructure (New Construction)
56	Impacts from Abandoned Mine Lands (Inactive)
58	Impacts from Hydrostructure Flow Regulation/modification
61	Industrial Land Treatment
62	Industrial Point Source Discharge
66	Irrigated Crop Production
69	Landfills
72	Loss of Riparian Habitat
73	Managed Pasture Grazing
82	Mine Tailings
84	Municipal (Urbanized High Density Area)
85	Municipal Point Source Discharges
87	Non-irrigated Crop Production

Source ID	Description
92	On-site Treatment Systems (Septic Systems and Similar Decentralized Systems)
95	Other Recreational Pollution Sources
102	Petroleum/natural Gas Activities
115	Sanitary Sewer Overflows (Collection System Failures)
122	Site Clearance (Land Development or Redevelopment)
124	Spills from Trucks or Trains
125	Streambank Modifications/destabilization
126	Subsurface (Hardrock) Mining
127	Surface Mining
130	Unpermitted Discharge (Domestic Wastes)
132	Upstream Impoundments (e.g., Pl-566 NRCS Structures)
135	Wet Weather Discharges (Point Source and Combination of Stormwater, SSO or CSO)
140	Source Unknown
142	Dam or Impoundment
143	Livestock (Grazing or Feeding Operations)
144	Crop Production (Crop Land or Dry Land)
149	Sediment Resuspension (Contaminated Sediment)
155	Natural Sources
156	Agriculture
157	Habitat Modification - other than Hydromodification
161	Pesticide Application
177	Urban Runoff/Storm Sewers
178	Coal Mining (Subsurface)
181	Runoff from Forest/Grassland/Parkland

Appendix B-2. Specific Assessment Information for Streams, 2014.

Name	Assessment Unit ID	10-Digit HUC	IEPA Basin	Cat.	Size (miles)	Use Attainment	Causes	Sources
Cache R.	IL_IX-05	0714010801	33	5	7.77	N582, X583, X585, X586, F590	84, 319, 322, 371, 500	36, 58, 140, 144, 20, 72, 156
Cache R. Old Channel	IL_AA-01	0514020607	33	3	7.32	X582, X583, X585, X586, X590	N/A	N/A
Cache R-Old Channel	IL_IX	0714010802	33	3	5.1	X582, X583, X585, X586, X590	N/A	N/A
Caesar Cr.	IL_OOB	0714020202	24	3	10.46	X582, X583, X585, X586, X590	N/A	N/A
Cahokia Canal	IL_JN-02	0714010104	27	5	12.39	N582, X583, X586, N590	84, 260, 273, 322, 371, 403, 462, 500, 501, 471	20, 177, 23, 72, 85, 115, 144, 156, 122
Cahokia Canal No.1	IL_JMA-01	0714010105	27	5	7.07	N582, X583, X585, X586, X590	84, 462, 500, 501	20, 72, 85
Cahokia Chute	IL_JM	0714010105	27	3	1.95	X582, X583, X585, X586, X590	N/A	N/A
Cahokia Cr.	IL_JQ-05	0714010102	27	5	10.69	N582, X583, N585, X586, F590	273, 322, 400	20, 85, 144, 156, 177, 140
Cahokia Cr.	IL_JQ-04	0714010101	27	2	15.9	F582, X583, X585, X586, F590	N/A	N/A
Cahokia Cr.	IL_JQ-03	0714010102	27	2	20.09	F582, X583, X585, X586, X590	N/A	N/A
Cahokia Div. Channel	IL_JQ-07	0714010102	27	5	5.23	N582, X583, X585, X586, X590	84, 228, 322, 462, 500, 501	20, 125, 142, 156, 177
Calfkiller Cr.	IL_BEE-01	0512011212	30	3	8.84	X582, X583, X585, X586, X590	N/A	N/A
Calumet R.	IL_HAA-01	0404000106	1	5	6.2	F582, N583, N585, X586, X590	274, 348, 400	10, 140, 23, 177
Calumet Union Drain N.	IL_HBB	0712000304	1	3	3.6	X582, X583, X585, X586, X590	N/A	N/A
Calumet-Sag Channel	IL_H-02	0712000304	1	5	10.35	N583, X586, N587	274, 348, 260, 322, 399	10, 140, 149, 23, 177
Calumet-Sag Channel	IL_H-01	0712000407	2	5	5.74	N583, X586, N587	274, 348, 260, 317, 322, 399, 403, 462	10, 140, 23, 149, 177, 58
Camel Cr.	IL_CDFA	0512011407	31	3	6.85	X582, X583, X585, X586, X590	N/A	N/A
Camfield Branch	IL_OZZZC	0714020107	23	3	2.93	X582, X583, X585, X586, X590	N/A	N/A
Camp Branch	IL_CHI	0512011406	31	3	3.43	X582, X583, X585, X586, X590	N/A	N/A
Camp Cr.	IL_DJMB	0713000502	15	3	7.97	X582, X583, X585, X586, X590	N/A	N/A
Camp Cr.	IL_EW-01	0713000604	21	2	16.58	F582, X583, X585, X586, X590	N/A	N/A
Camp Cr.	IL_DGI-01	0713001006	17	2	33.77	F582, X583, X585, X586, X590	N/A	N/A
Camp Cr.	IL_LB-01	0708010416	16	2	18.08	F582, X583, X585, X586, F590	N/A	N/A
Camp Cr.	IL_NCAA	0714010610	26	3	7.46	X582, X583, X585, X586, X590	N/A	N/A
Camp Cr.	IL_MJA-02	0706000510	9	3	18.35	X582, X583, X585, X586, X590	N/A	N/A
Camp Cr.	IL_CZZF	0512011409	31	3	3.75	X582, X583, X585, X586, X590	N/A	N/A
Camp Cr.	IL_DZ3L	0713001103	18	3	13.79	X582, X583, X585, X586, X590	N/A	N/A
Camp Cr.	IL_OZB	0714020409	25	3	9.12	X582, X583, X585, X586, X590	N/A	N/A
Camp Cr. East	IL_LFD-01	0708010402	16	3	21.71	X582, X583, X585, X586, X590	N/A	N/A
Camp Cr. North	IL_ONEC-01	0714020203	24	3	12.44	X582, X583, X585, X586, X590	N/A	N/A

Appendix B-2. Specific Assessment Information for Streams, 2014.

Name	Assessment Unit ID	10-Digit HUC	IEPA Basin	Cat.	Size (miles)	Use Attainment	Causes	Sources
Cedar Fork	IL_DJFD-01	0713000509	15	2	17.04	F582, X583, X585, X586, F590	N/A	N/A
Cedar Glen Cr.	IL_LZU	0708010418	16	3	5.39	X582, X583, X585, X586, X590	N/A	N/A
Chain o Rocks Canal	IL_JO	0714010104	27	5	9.43	F582, N583, F584, X585, X586, X590	348	140
Chaney Cr.	IL_LZS-01	0708010418	16	3	11.7	X582, X583, X585, X586, X590	N/A	N/A
Chic. San. & Ship Canal	IL_GI-02	0712000407	2	5	13.53	N583, X586, N587	348, 260, 273, 322, 399, 462	140, 23, 149, 177, 58, 85
Chic. San. & Ship Canal	IL_GI-03	0712000301	1	5	5.91	N583, X586, N587	274, 348, 322, 462	10, 140, 20, 23, 58, 85, 177
Chic. San. & Ship Canal	IL_GI-06	0712000407	2	5	12.4	N583, X586, N587	348, 322, 399, 462	140, 23, 177
Chicago R.	IL_HCB-01	0712000301	1	5	1.29	N582, N583, N585, X586, X590	319, 322, 441, 462, 500, 501, 274, 348, 400	20, 58, 23, 177, 85, 95, 72, 10, 140
Chicken Cr.	IL_OIO-09	0714020306	24	5	1.54	N582, X583, X585, X586, X590	322, 371, 375, 403, 462	4, 143, 144, 140
Chicken Cr.	IL_NCF	0714010610	26	3	6.95	X582, X583, X585, X586, X590	N/A	N/A
Chivler Cr.	IL_BEIA	0512011208	30	3	6.93	X582, X583, X585, X586, X590	N/A	N/A
Clair Cr.	IL_JMACBA-C1	0714010105	27	2	2.39	F582, X583, X585, X586, X590	N/A	N/A
Clark Branch	IL_DLFA	0713000302	13	3	7.93	X582, X583, X585, X586, X590	N/A	N/A
Clark Branch	IL_DGEA	0713001012	17	3	7.72	X582, X583, X585, X586, X590	N/A	N/A
Clark Run	IL_DZZT	0713000102	11	3	9.82	X582, X583, X585, X586, X590	N/A	N/A
Clary Cr.	IL_EG-01	0713000806	20	5	19.63	N582, X583, X585, X586, X590	441	140
Clay Cr.	IL_CZZB-CC-C2	0512011408	31	5	1.25	N582, X583, X585, X586, X590	308, 322, 462, 502	85
Clay Cr.	IL_CZZB-CC-C1	0512011408	31	5	2.35	N582, X583, X585, X586, X590	84, 308, 462, 502	20, 85
Clear Cr.	IL_EIEB	0713000905	22	3	6.86	X582, X583, X585, X586, X590	N/A	N/A
Clear Cr.	IL_CZW	0512011401	31	3	4.82	X582, X583, X585, X586, X590	N/A	N/A
Clear Cr.	IL_MNIA-11	0706000505	9	2	6.53	F582, X583, X585, X586, F590	N/A	N/A
Clear Cr.	IL_EP-02	0713000608	21	3	13.65	X582, X583, X585, X586, X590	N/A	N/A
Clear Cr.	IL_DFD	0713001101	18	3	19.01	X582, X583, X585, X586, X590	N/A	N/A
Clear Cr.	IL_DTZF-01	0712000706	4	2	5.5	F582, X583, X585, X586, X590	N/A	N/A
Clear Cr.	IL_IC-03	0714010506	28	2	4.44	F582, X583, X585, X586, X590	N/A	N/A
Clear Cr.	IL_IC-05	0714010507	28	5	15.77	N582, N583, X585, X586, F590	84, 273, 313, 322, 371, 500, 501, 274	20, 28, 36, 72, 144, 156, 140
Clear Cr.	IL_IC-02	0714010506	28	2	8.08	F582, X583, X585, X586, F590	N/A	N/A
Clear Cr.	IL_EOD-01	0713000704	20	2	12.08	F582, X583, F585, F586, X590	N/A	N/A
Clear Cr.	IL_BEZR	0512011208	30	3	5.87	X582, X583, X585, X586, X590	N/A	N/A
Clear Cr.	IL_BEJL	0512011207	30	3	7.79	X582, X583, X585, X586, X590	N/A	N/A

Appendix B-2. Specific Assessment Information for Streams, 2014.

Name	Assessment Unit ID	10-Digit HUC	IEPA Basin	Cat.	Size (miles)	Use Attainment	Causes	Sources
Lilly Branch	IL_MNH	0706000505	9	3	4.35	X582, X583, X585, X586, X590	N/A	N/A
Lily Cache Cr.	IL_GBE-02	0712000408	2	5	10.05	N582, X583, X585, X586, X590	463	N/A
Lily Cache Cr.	IL_GBE-01	0712000408	2	2	7.89	F582, X583, X585, X586, X590	N/A	N/A
Lily Cr.	IL_CZR	0512011404	31	3	8.37	X582, X583, X585, X586, X590	N/A	N/A
Limb Branch	IL_NDF	0714010608	26	3	6.55	X582, X583, X585, X586, X590	N/A	N/A
Lime Cr.	IL_DQDB	0713000104	11	3	11.23	X582, X583, X585, X586, X590	N/A	N/A
Limekiln Cr.	IL_CAB	0512011505	31	3	5.91	X582, X583, X585, X586, X590	N/A	N/A
Limekiln Slough	IL_IXQ	0714010801	33	3	5.61	X582, X583, X585, X586, X590	N/A	N/A
Limekiln Springs	IL_IXQA-01	0714010801	33	3	0.02	X582, X583, X585, X586, X590	N/A	N/A
Limestone Cr.	IL_CQA	0512011404	31	3	7.95	X582, X583, X585, X586, X590	N/A	N/A
Limestone Cr.	IL_CJG	0512011405	31	3	9.32	X582, X583, X585, X586, X590	N/A	N/A
Limestone Cr.	IL_NJE	0714010601	26	3	3.89	X582, X583, X585, X586, X590	N/A	N/A
Lin Branch	IL_EOHB	0713000701	20	3	2.19	X582, X583, X585, X586, X590	N/A	N/A
Lindsay Branch	IL_BEFL	0512011210	30	3	3.58	X582, X583, X585, X586, X590	N/A	N/A
Lingle Cr.	IL_IXFD	0714010802	33	2	4.74	F582, X583, X585, X586, F590	N/A	N/A
Link Branch	IL_DAZG	0713001206	18	3	7.01	X582, X583, X585, X586, X590	N/A	N/A
Linn Cr.	IL_OZZB	0714020206	24	3	7.4	X582, X583, X585, X586, X590	N/A	N/A
Lisbon Cr.	IL_DWEA	0712000501	11	3	8.63	X582, X583, X585, X586, X590	N/A	N/A
Little Apple Cr.	IL_DBK	0713001106	18	3	13.22	X582, X583, X585, X586, X590	N/A	N/A
Little Bay Cr.	IL_AJH	0514020308	32	3	3.44	X582, X583, X585, X586, X590	N/A	N/A
Little Bear Branch	IL_AKL	0514020306	32	3	1.32	X582, X583, X585, X586, X590	N/A	N/A
Little Bear Cr.	IL_DBGA	0713001106	18	3	6.96	X582, X583, X585, X586, X590	N/A	N/A
Little Bear Cr.	IL_KIK	0711000105	19	3	13.29	X582, X583, X585, X586, X590	N/A	N/A
Little Bear Rough	IL_DADA	0713001206	18	3	4.87	X582, X583, X585, X586, X590	N/A	N/A
Little Beaucoup Cr.	IL_NCI-01	0714010610	26	4A	15.46	N582, X583, X585, X586, X590	84, 273, 322, 500, 501	72, 125, 127, 140, 20
Little Beaucoup Cr.	IL_NCEB	0714010610	26	3	9.21	X582, X583, X585, X586, X590	N/A	N/A
Little Beaver Cr.	IL_FLDA-01	0712000213	10	5	12.38	N582, X583, X585, X586, F590	84, 319, 371, 500	20, 156
Little Beaver Cr.	IL_OIBB	0714020305	24	3	8.68	X582, X583, X585, X586, X590	N/A	N/A
Little Bessie Cr.	IL_NHD	0714010604	26	3	4.89	X582, X583, X585, X586, X590	N/A	N/A
Little Bishop Cr.	IL_COB	0512011403	31	3	10.05	X582, X583, X585, X586, X590	N/A	N/A
Little Blue Cr.	IL_DZZX	0713001108	18	3	10.07	X582, X583, X585, X586, X590	N/A	N/A
Little Bonpas Cr.	IL_BCE	0512011304	31	2	16.35	F582, X583, X585, X586, X590	N/A	N/A
Little Cache Cr.	IL_ADDB-01	0514020604	33	2	12.9	F582, X583, X585, X586, F590	N/A	N/A
Little Cache Cr.	IL_ADDB-02	0514020604	33	5	2.16	N582, X583, X585, X586, F590	319, 322, 371, 500, 501	20, 177
Little Calumet R. N.	IL_HA-04	0712000304	1	5	1.77	N583, X586, N587	274, 348, 260, 322, 399	10, 140, 149, 23, 177

Appendix B-2. Specific Assessment Information for Streams, 2014.

Name	Assessment Unit ID	10-Digit HUC	IEPA Basin	Cat.	Size (miles)	Use Attainment	Causes	Sources
Little Calumet R. N.	IL_HA-05	0712000304	1	5	4.34	N583, X586, N587	274, 348, 79, 313, 319, 322, 375, 462, 479	10, 140, 28, 58, 20, 132, 23, 149, 177
Little Calumet R. S.	IL_HB-42	0712000303	1	5	4.29	N582, X583, N585, X586, N590	84, 322, 371, 462, 501, 400, 471, 502, 519	157, 23, 177, 72
Little Calumet R. S.	IL_HB-01	0712000304	1	5	8.68	N582, X583, N585, X586, F590	84, 137, 138, 213, 246, 322, 371, 462, 400	20, 28, 23, 177, 85
Little Camp Cr.	IL_LFBD	0708010403	16	3	4.8	X582, X583, X585, X586, X590	N/A	N/A
Little Cana Cr.	IL_ATHHA	0514020401	32	3	2.84	X582, X583, X585, X586, X590	N/A	N/A
Little Canteen Cr.	IL_JMACA	0714010103	27	3	5.47	X582, X583, X585, X586, X590	N/A	N/A
Little Carr Cr.	IL_JHAA	0714010107	27	3	5.75	X582, X583, X585, X586, X590	N/A	N/A
Little Cedar Cr.	IL_DGGA	0713001009	17	3	6.52	X582, X583, X585, X586, X590	N/A	N/A
Little Coal Cr.	IL_DJEC	0713000510	15	3	6.97	X582, X583, X585, X586, X590	N/A	N/A
Little Cr.	IL_BEDA-01	0512011211	30	3	13.62	X582, X583, X585, X586, X590	N/A	N/A
Little Cr.	IL_BHL	0512011110	30	3	4.79	X582, X583, X585, X586, X590	N/A	N/A
Little Cr.	IL_OQB	0714020110	23	3	7.15	X582, X583, X585, X586, X590	N/A	N/A
Little Cr.	IL_DGMA	0713001007	17	3	9.05	X582, X583, X585, X586, X590	N/A	N/A
Little Cr.	IL_DGLG	0713001003	17	3	4.91	X582, X583, X585, X586, X590	N/A	N/A
Little Cr.	IL_DZ3Q	0713001103	18	3	10.92	X582, X583, X585, X586, X590	N/A	N/A
Little Cr.	IL_BNF	0512011103	30	3	3.05	X582, X583, X585, X586, X590	N/A	N/A
Little Cr.	IL_IXJA	0714010801	33	3	8.32	X582, X583, X585, X586, X590	N/A	N/A
Little Cr.	IL_OPAA	0714020201	24	3	5.98	X582, X583, X585, X586, X590	N/A	N/A
Little Cr.	IL_DGPCA	0713001001	17	2	12.75	F582, X583, X585, X586, X590	N/A	N/A
Little Cr. North	IL_IXJC-01	0714010801	33	2	7.45	F582, X583, X585, X586, X590	N/A	N/A
Little Crab Orchard Cr.	IL_NDA-01	0714010608	26	5	13.92	N582, X583, X585, X586, X590	84, 273, 277, 322	72, 125, 177, 144, 143
Little Crooked Cr.	IL_OJA-01	0714020207	24	5	17.64	N582, X583, X585, X586, X590	273, 322, 462	4, 20, 72, 156, 85, 144
Little Dry Fork	IL_OIGA	0714020304	24	3	9.35	X582, X583, X585, X586, X590	N/A	N/A
Little Eagle Cr,	IL_ATEA-07	0514020407	32	3	8.71	X582, X583, X585, X586, X590	N/A	N/A
Little Embarras Cr.	IL_BEP-01	0512011204	30	2	19.38	F582, X583, X585, X586, X590	N/A	N/A
Little Fox Cr.	IL_CHE	0512011406	31	3	9.59	X582, X583, X585, X586, X590	N/A	N/A
Little Fox R.	IL_BZH	0512011308	31	3	3.9	X582, X583, X585, X586, X590	N/A	N/A
Little Galum Cr.	IL_NCDB	0714010609	26	5	16.42	N582, X583, X585, X586, X590	84, 371, 501	72, 125, 20, 144
Little Grand Pierre Cr.	IL_ALA-11	0514020307	32	2	6.4	F582, X583, X585, X586, X590	N/A	N/A
Little Grassy Cr	IL_NDDA-99	0714010608	26	3	2.53	X582, X583, X585, X586, X590	N/A	N/A

Appendix B-2. Specific Assessment Information for Streams, 2014.

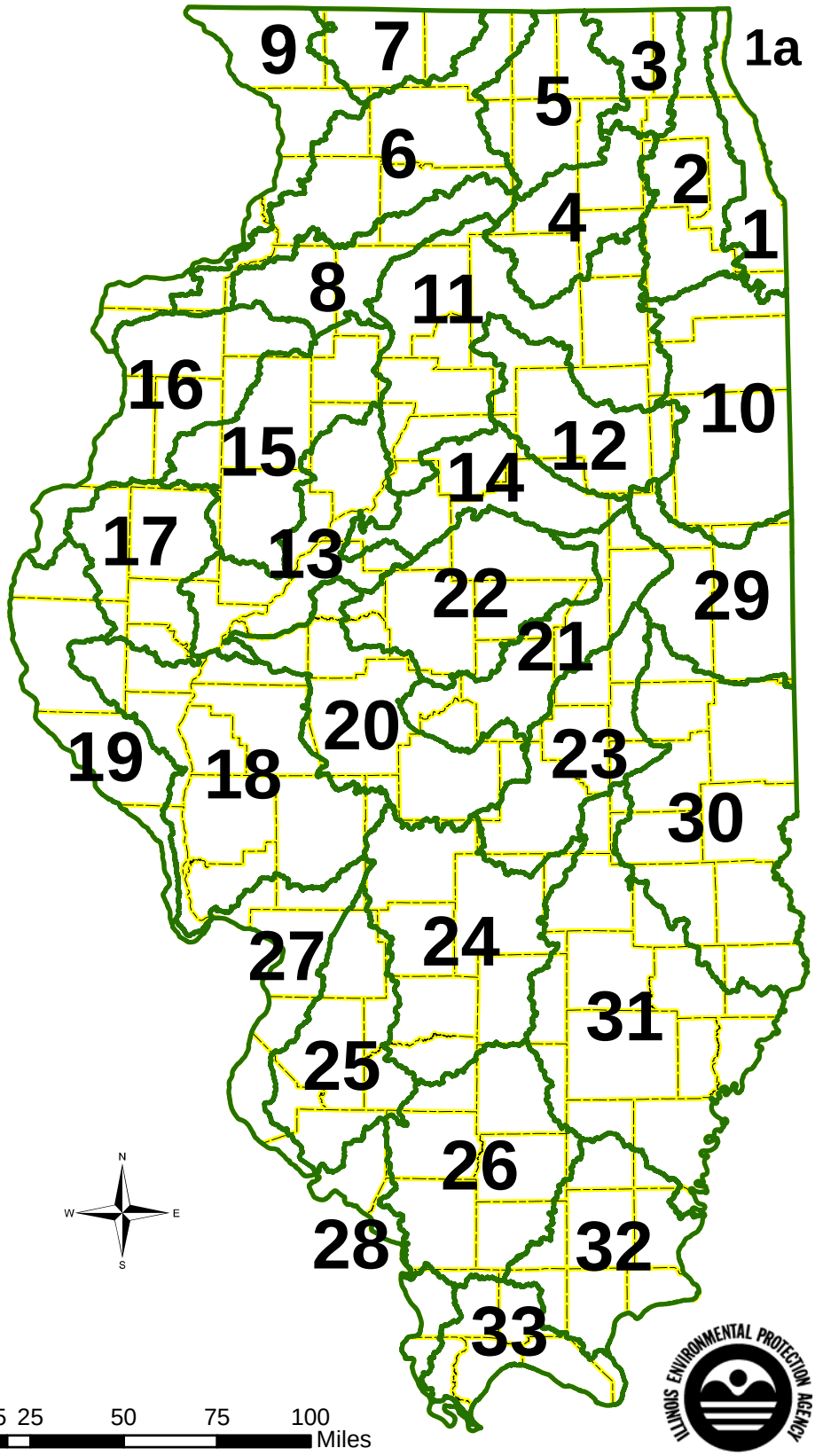
Name	Assessment Unit ID	10-Digit HUC	IEPA Basin	Cat.	Size (miles)	Use Attainment	Causes	Sources
Murray Ditch	IL_DST-01	0713000208	12	4C	8.06	N582, X583, X585, X586, F590	501	155
Murray Slough	IL_DVEA	0712000503	11	3	23.6	X582, X583, X585, X586, X590	N/A	N/A
N Br S Br Kishwaukee R	IL_PQCF	0709000606	5	3	6.89	X582, X583, X585, X586, X590	N/A	N/A
N. Br. Chicago R.	IL_HCC-07	0712000301	1	5	11.9	N582, N583, N585, X586, F590	79, 84, 138, 177, 246, 322, 403, 462, 348, 400	28, 20, 125, 23, 49, 85, 177, 140
N. Br. Chicago R.	IL_HCC-08	0712000301	1	5	5.73	N583, X586, N587	274, 348, 260, 319, 322, 399, 462	10, 140, 23, 149, 177, 58, 85
N. Br. Chicago R.	IL_HCC-02	0712000301	1	5	2.05	N583, X586, N587	274, 348, 322, 399	10, 140, 23, 177
N. Br. Crow Cr. E.	IL_DOB	0713000112	11	3	15.53	X582, X583, X585, X586, X590	N/A	N/A
N. Br. Kishwaukee R.	IL_PQJ-01	0709000602	5	2	17.84	F582, X583, X585, X586, F590	N/A	N/A
N. Br. Larry Cr.	IL_LJA	0708010418	16	3	6.86	X582, X583, X585, X586, X590	N/A	N/A
N. Br. Nippersink Cr.	IL_DTKA-04	0712000608	3	2	9.25	F582, X583, X585, X586, X590	N/A	N/A
N. Br. Otter Cr.	IL_PWBB-01	0709000408	7	2	11.16	F582, X583, X585, X586, X590	N/A	N/A
N. Br. Otter Cr.	IL_DIC	0713000307	13	3	6.19	X582, X583, X585, X586, X590	N/A	N/A
N. Fk. Clear Cr.	IL_EPB-01	0713000608	21	3	6.75	X582, X583, X585, X586, X590	N/A	N/A
N. Fk. E. Fk. La Moine R	IL_DGLF	0713001003	17	3	6.76	X582, X583, X585, X586, X590	N/A	N/A
N. Fk. East Fork	IL_PQEE-01	0709000603	5	3	1.59	X582, X583, X585, X586, X590	N/A	N/A
N. Fk. Embarras R.	IL_BEF-02	0512011210	30	2	33.93	F582, X583, X585, X586, F590	N/A	N/A
N. Fk. Embarras R.	IL_BEF-05	0512011210	30	5	29.96	N582, X583, N585, X586, F590	501, 400	140
N. Fk. Hadley Cr.	IL_KCHC	0711000404	19	3	7.13	X582, X583, X585, X586, X590	N/A	N/A
N. Fk. Indian Cr.	IL_BEMB	0512011208	30	3	5.21	X582, X583, X585, X586, X590	N/A	N/A
N. Fk. Kaskaskia R.	IL_OKA-02	0714020205	24	5	18.56	N582, X583, X585, X586, X590	273, 322, 441, 462	56, 127, 140, 144
N. Fk. Kaskaskia R.	IL_OKA-01	0714020205	24	5	11.83	N582, X583, N585, X586, X590	99, 273, 322, 390, 462, 400	156, 127, 140, 144
N. Fk. Mauvaise Terre C	IL_DDC	0713001104	18	4C	14.98	N582, X583, X585, X586, X590	84, 501	20
N. FK. Plum R.	IL_MJF	0706000510	9	3	4.27	X582, X583, X585, X586, X590	N/A	N/A
N. Fk. Raccoon Cr.	IL_BGA	0512011113	30	3	9.47	X582, X583, X585, X586, X590	N/A	N/A
N. Fk. Richland Cr.	IL_EKB	0713000803	20	3	5.61	X582, X583, X585, X586, X590	N/A	N/A
N. Fk. Saline R.	IL_ATF-07	0514020404	32	5	5.62	N582, X583, X585, X586, X590	84, 138	20, 72, 102
N. Fk. Saline R.	IL_ATF-06	0514020407	32	5	14.62	N582, X583, X585, X586, N590	84, 322, 501, 413	20, 156
N. Fk. Saline R.	IL_ATF-05	0514020404	32	4C	7.95	N582, X583, X585, X586, X590	84, 500, 501	20, 125
N. Fk. Saline R.	IL_ATF-04	0514020406	32	5	5.21	N582, N583, N585, X586, X590	260, 322, 501, 274, 400	20, 10, 140
N. Fk. Salt Cr.	IL_EIJ-01	0713000902	22	2	21.39	F582, X583, X585, X586, X590	N/A	N/A
N. Fk. Shelby Cr.	IL_DGC	0713001012	17	3	6.25	X582, X583, X585, X586, X590	N/A	N/A
N. Fk. Vermilion R.	IL_DSQ-02	0713000203	12	3	6.35	X582, X583, X585, X586, X590	N/A	N/A

Appendix B-2. Specific Assessment Information for Streams, 2014.

Name	Assessment Unit ID	10-Digit HUC	IEPA Basin	Cat.	Size (miles)	Use Attainment	Causes	Sources
Nixon Run	IL_DLE	0713000302	13	3	9.98	X582, X583, X585, X586, X590	N/A	N/A
No Business Cr.	IL_BZN	0512011117	30	3	7.51	X582, X583, X585, X586, X590	N/A	N/A
Norman Drain	IL_GBH-01	0712000408	2	3	7.49	X582, X583, X585, X586, X590	N/A	N/A
North Bonfield Branch	IL_FCCA	0712000116	10	3	9.48	X582, X583, X585, X586, X590	N/A	N/A
North Camp Cr.	IL_LFBC	0708010403	16	3	5.67	X582, X583, X585, X586, X590	N/A	N/A
North Cr.	IL_OJAD	0714020207	24	3	10.27	X582, X583, X585, X586, X590	N/A	N/A
North Cr.	IL_DTKAA-03	0712000608	3	3	1.92	X582, X583, X585, X586, X590	N/A	N/A
North Cr.	IL_HBDA-01	0712000302	1	5	4.86	N582, X583, X585, X586, F590	246, 313, 322, 371	28, 58, 177, 181
North Cr.	IL_JMACBAA-D2	0714010105	27	2	2.16	F582, X583, X585, X586, X590	N/A	N/A
North Cr.	IL_DJJB-01	0713000505	15	2	13.24	F582, X583, X585, X586, F590	N/A	N/A
North Creek	IL_DSLC	0713000206	12	5	5.51	N582, X583, X585, X586, X590	84, 322	20, 23, 140, 177
North Fk. Cox Cr.	IL_IIHA-31	0714010502	28	5	5.11	N582, X583, X585, X586, X590	84, 213, 371, 385	72, 125, 144, 177, 127
North Fk. Cox Cr.	IL_IIHA-ST-C1	0714010502	28	5	0.55	N582, X583, X585, X586, X590	371	85, 127, 144, 177
North Fork Shoal Cr.	IL_CZUA	0512011401	31	3	4.22	X582, X583, X585, X586, X590	N/A	N/A
North Fraction Run	IL_GHAA	0712000407	2	3	1.66	X582, X583, X585, X586, X590	N/A	N/A
North Shore Channel	IL_HCCA-02	0712000301	1	5	4.33	N582, N583, N585, X586, X590	84, 319, 322, 441, 462, 479, 274, 348, 400	20, 58, 132, 23, 85, 177, 10, 140
Norton Branch	IL_DTZN-01	0712000701	4	3	5.46	X582, X583, X585, X586, X590	N/A	N/A
Novak Cr.	IL_NKC	0714010602	26	3	9.21	X582, X583, X585, X586, X590	N/A	N/A
Oak Branch	IL_EOHE	0713000701	20	3	9.26	X582, X583, X585, X586, X590	N/A	N/A
Oat Cr.	IL_PBIA	0709000705	8	3	4.62	X582, X583, X585, X586, X590	N/A	N/A
O'Brien Run	IL_DZ4D	0712000507	11	3	6.16	X582, X583, X585, X586, X590	N/A	N/A
Ogles Cr.	IL_ODI-CE-C3	0714020405	25	2	6.42	F582, X583, X585, X586, X590	N/A	N/A
Ogles Cr.	IL_ODI-CE-C2	0714020405	25	2	2.56	F582, X583, X585, X586, X590	N/A	N/A
Ogles Cr.	IL_ODI-CE-C1	0714020405	25	5	0.82	N582, X583, X585, X586, X590	84, 462	125, 85, 144, 177
Ogles Cr.	IL_ODI-CE-D1	0714020405	25	5	1.76	N582, X583, X585, X586, X590	463	N/A
Ohio River	IL_A-894-910	0514020307	32	5	16.08	F582, N583, N585, X586, X590	203, 274, 348, 400	140, 10
Ohio River	IL_A-920-981	0514020607	33	5	60.13	F582, N583, F584, N585, X586, X590	203, 274, 348, 400	140, 10
Ohio River	IL_A-910-920	0514020309	32	5	10.19	F582, N583, F585, F586, X590	203, 274, 348	140, 10
Ohio River	IL_A-862-873	0514020303	32	5	11.24	F582, N583, N585, X586, X590	203, 274, 348, 400	140, 10, 177
Ohio River	IL_A-873-894	0514020305	32	5	19.74	F582, N583, N585, X586, X590	203, 274, 348, 400	140, 10, 177
Ohio River	IL_A-849-862	0514020301	32	5	12.73	F582, N583, N585, X586, X590	203, 274, 348, 400	140, 10, 177
Ohio River	IL_A-848-849	0514020207	32	5	1.05	F582, N583, N585, X586, X590	203, 274, 348, 400	140, 10

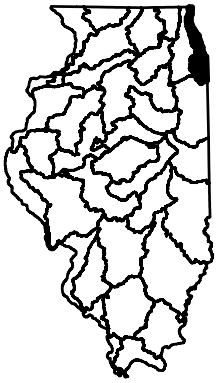
Appendix B-2
2014 Illinois Water Quality Maps

No.	Watershed Name
1	Great Lakes/Calumet River
1a	Lake Michigan Beaches
2	Des Plaines River
3	Upper Fox River
4	Lower Fox River
5	Kishwaukee River
6	Rock River
7	Pecatonica River
8	Green River
9	Mississippi North River
10	Kankakee/Iroquois River
11	Upper Illinois/Mazon River
12	Vermilion (Illinois) River
13	Middle Illinois River
14	Mackinaw River
15	Spoon River
16	Mississippi North Central River
17	La Moine River
18	Lower Illinois/Macoupin Creek
19	Mississippi Central River
20	Lower Sangamon River
21	Upper Sangamon River
22	Salt Creek of Sangamon River
23	Upper Kaskaskia River
24	Middle Kaskaskia/Shoal Creek
25	Lower Kaskaskia River
26	Big Muddy River
27	Mississippi South Central River
28	Mississippi South River
29	Vermilion (Wabash) River
30	Embarras/Middle Wabash River
31	Little and Lower Wabash/Skillet Fork
32	Saline River/Bay Creek
33	Cache River



BOW/WMS/Clarke20140311

1. Great Lakes/Calumet River Watershed



Impaired Waters

Water ID	Water Name	Miles/Acres
GI-03	Chic. San. & Ship Canal	5.91
H-02	Calumet-Sag Channel	10.35
HA-04	Little Calumet R. N.	1.72
HA-05	Little Calumet R. N.	5.08
HAA-01	Calumet R.	7.01
HAB-41	Grand Calumet R.	2.62
HB-01	Little Calumet R. S.	8.68
HB-42	Little Calumet R. S.	4.3
HBD-02	Thorn Cr.	3.86
HBD-03	Thorn Cr.	6.52
HBD-04	Thorn Cr.	4.29
HBD-05	Thorn Cr.	2.9
HBD-06	Thorn Cr.	2.22
HBDA-01	North Cr.	4.86
HBDB-03	Butterfield Cr.	15.24
HBDC	Deer Cr.	8.2
HBDC-02	Deer Cr.	10.12
HC-01	S. Br. Chicago R.	3.99
HCA-01	S. Fk. S. Br. Chicago R.	1.49
HCB-01	Chicago R.	1.29
HCC-02	N. Br. Chicago R.	2.05
HCC-07	N. Br. Chicago R.	11.9
HCC-08	N. Br. Chicago R.	5.73
HCCA-02	North Shore Channel	4.33
HCCA-04	N. Shore Channel	3.4
HCCB-05	W. Fk. N. Br. Chic. R.	14.47
HCCC-02	Mid Fk. N. Br. Chic. R.	18.57
HCCC-04	Mid Fk. N. Br. Chic. R.	3.51
HCCD-01	Skokie R.	13.47
HCCD-09	Skokie R.	1.76
HF-01	Tinley Cr.	9.49
QAA-D1	S. Br. Pettibone Cr.	2.69
QA-C4	Pettibone Cr.	0.21
QC-03	Waukegan R.	4.01
QC-05	Waukegan R.	0.54
QCA-01	S. Br. Waukegan R.	0.86
QE-01	Dead Dog Creek	4.68
QF	Kellogg Ravine	6.98
QG	Bull Cr.	5.05
QZF	WASHINGTON PARK LGN	21.7
QZK	LINCOLN PK NORTH PND	9.3
QZM	JACKSON PK SOUTH LGN	18.9
QZV	SAND POND	20
RHA	WOLF	419
RHB	HUMBOLDT PARK LAGOON	19.9
RHE	MARQUETTE PARK LAG.	40
RHI	SAUK TRAIL	28.8
RHJ	SKOKIE LAGOONS	225
RHJA	CHICAGO BOTANIC GARDEN	60.6
RHK	ELEANOR	11
RHL	WAMPUM	35
RHO	CALUMET	1600
RHR	GEORGE (COOK)	8
RHS	TURTLEHEAD	12
RHU	SHERMAN PARK LAGOONS	14
RHW	GARFIELD PK. LAGOON	13.7
RHX	DOUGLAS PARK LAGOON	6.6
RHY	MC KINLEY PK. LAGOON	7
RHZE	ARROWHEAD (COOK)	14
RHZI	MIDLOTHIAN RESERVOIR	25
RHZJ	FLATFOOT LAKE	15
UHA	LAMB'S FARM	15.91
UHB	LUCKY LAKE	10
UHH	EAGLE LAKE	22
UHP	NIELSON POND	7
UQA	DUGDALE	4.61
WGZI	OLD SCHOOL	12

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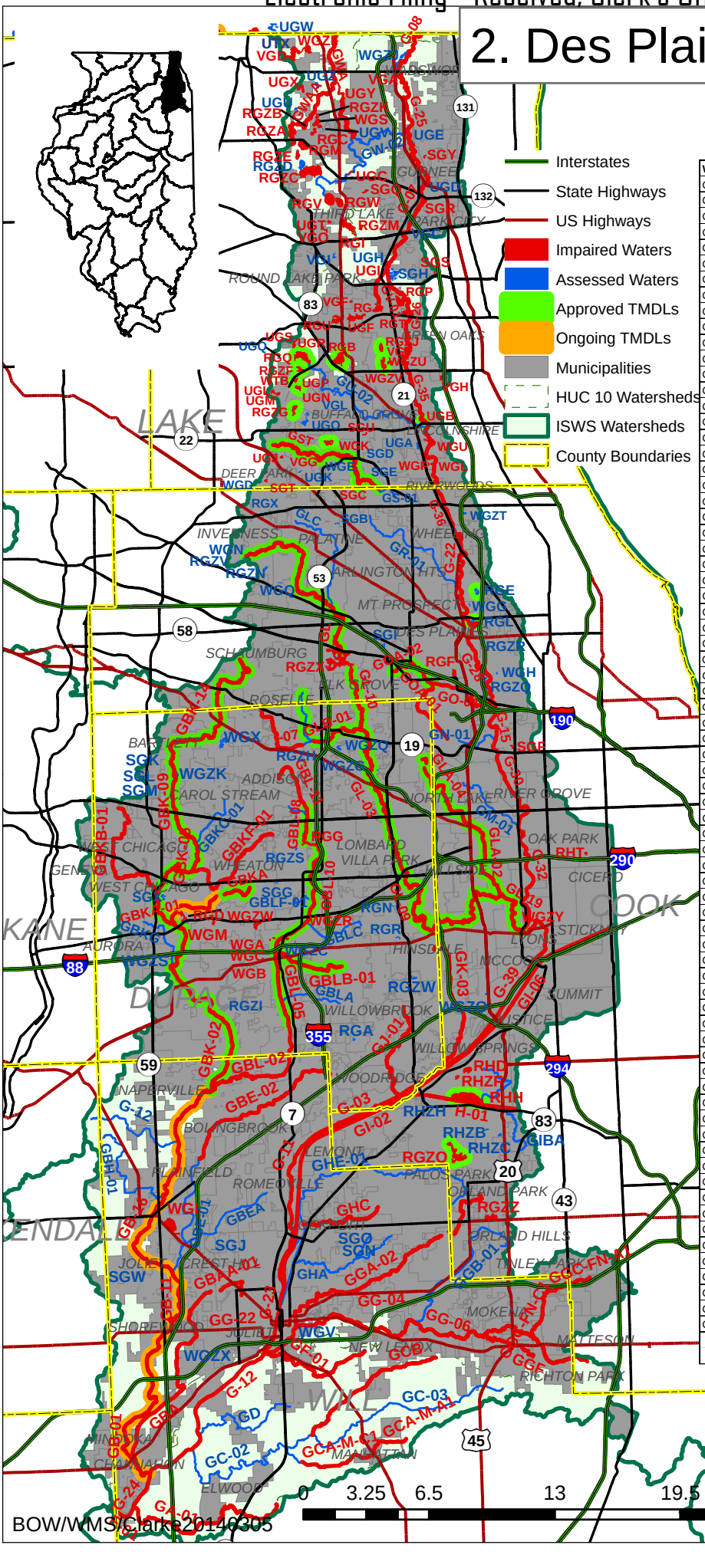
ILLINOIS ENVIRONMENTAL PROTECTION AGENCY

2. Des Plaines River Watershed



Impaired Waters

Water ID	Water Name	Miles	Water ID	Water Name	Acres
G-03	DesPlaines R.	8.41	RGB	DIAMOND	154
G-07	DesPlaines R.	10.78	RGC	LINDEN	31
G-08	DesPlaines R.	0.98	RGD	SILVER (DuPAGE)	56.9
G-11	DesPlaines R.	9.06	RGF	OPEKA	40.5
G-12	DesPlaines R.	8.52	RGG	CHURCHILL LAGOON	21
G-15	DesPlaines R.	3.52	RGI	GAGES	139
G-22	DesPlaines R.	4.31	RGJ	BUTLER	55
G-23	DesPlaines R.	3.82	RGM	SAND	100.2
G-24	DesPlaines R.	5.18	RGP	MINEAR	77
G-25	DesPlaines R.	6.92	RGQ	COUNTRYSIDE LAKE	142
G-26	DesPlaines R.	6.01	RGT	LIBERTY	31
G-28	DesPlaines R.	9.02	RGU	LOCH LOMOND	75
G-30	DesPlaines R.	5.19	RGV	DRUCE	87
G-32	DesPlaines R.	6.18	RGW	THIRD	162
G-35	DesPlaines R.	5	RGZA	CROOKED	140
G-36	DesPlaines R.	7.22	RGZB	HASTINGS	76
G-39	DesPlaines R.	11.25	RGZC	FOURTH LAKE	306
GA-01	Grant Cr.	11.4	RGZE	SLOUGH	38
GB-01	DuPage R.	8.11	RGZF	SYLVAN	32
GB-11	DuPage R.	10.11	RGZG	FOREST	40
GB-11	DuPage R.	10.11	RGZJ	LAKE CHARLES	39
GB-16	DuPage R.	11.31	RGZK	POTOMAC LAKE	12
GB-16	DuPage R.	11.31	RGZM	VALLEY	12
GBA	IL and MI Canal	5.22	RGZO	TAMPIER LAKE	161.6
GBAA-01	Rock Run	9.11	RGZX	BUSSE WOODS	590
GBE-02	Lily Cache Cr.	10.05	RGZZ	SEDGEWICK	75
GBK-02	W. Br. DuPage R.	9.43	RHD	MAPLE	58.4
GBK-05	W. Br. DuPage R.	10.51	RHH	SAGANASHKEE	325.4
GBK-09	W. Br. DuPage R.	11.85	RHT	COLUMBUS PARK LAG.	5.8
GBK-14	W. Br. DuPage River	3.83	RHZF	BULLFROG	16
GBKA	Spring Brook	1.74	SGC	BUFFALO CREEK	35
GBKA-01	Spring Brook	3.18	SGF	SCHILLER POND	6
GBKB-01	Kress Cr.	7.91	SGQ	BITTERSWEET	10.7
GBKF-01	Winfield Creek	6.89	SGR	GRAND AVENUE MARSH	14.3
GBL-02	E. Br. DuPage R.	8.01	SGS	KATHRYN	5.3
GBL-05	E. Br. DuPage R.	3.18	SGT	LUCY LAKE	8.2
GBL-08	E. Br. DuPage R.	4.69	SGU	LONGVIEW MEADOW	18
GBL-10	E. Br. DuPage R.	4.66	SGY	OSPREY	0
GBL-11	E. Br. DuPage R.	3.45	UGB	HALFDAY PIT	12.82
GBLB-01	St. Joseph Cr.	4.29	UGC	GRANDWOOD PARK LAKE	8.9
GCA-M-	Manhattan Creek	2.52	UGF	ST. MARY'S LAKE	105
GCA-M-	Manhatten Cr.	4.06	UGI	PETERSON POND	9
GCB	Jackson Br.	8.83	UGJ	BISHOP	7.1
GF-01	Sugar Run	7.32	UGL	LAKE LEO	15
GG-04	Hickory Cr.	8.11	UGM	LAKE NAOMI	13
GG-06	Hickory Cr.	12.63	UGN	BRESEN LAKE	24
GG-22	Hickory Cr.	2.25	UGP	POND-A-RUDY	14
GGA-02	Spring Cr.	15.29	UGR	MARY LEE	15.3
GGC-FN-	Union Ditch	4.1	UGS	STOCKHOLM	13.7
GGC-FN-	Union Ditch	1.21	UGT	WILLOW	8.9
GGF	Frankfort Trib.	3.92	UGX	WHITE LAKE	42
GHC	Fiddyment Cr.	5.37	UGY	RASMUSSEN LAKE	55
GI-02	Chic. San. & Ship Canal	13.53	VGA	AMES PIT	10
GI-03	Chic. San. & Ship Canal	5.91	VGD	REDWING SLOUGH	203
GI-06	Chic. San. & Ship Canal	12.4	VGF	INTERNATIONAL MINING	6.7
GJ-01	Sawmill Cr.	6.62	VGG	ALBERT LAKE (outlet)	18
GK-03	Flag Cr.	7.91	VGH	WERHANE LAKE	15
GL	Salt Cr.	11.9	VGJ	HARVEY LAKE	15
GL-03	Salt Cr.	10.52	VGO	COLLEGE TRAIL	8.5
GL-09	Salt Cr.	12.09	WGA	MEADOW	4.9
GL-10	Salt Cr.	3.72	WGB	MARMO	3.7
GL-19	Salt Cr.	3.15	WGC	STERLING POND	2.1
GLA-02	Addison Cr.	6.72	WGF	MEADOW LAKE W.	3.8
GLA-04	Addison Cr.	3.43	WGI	RENWICK LAKE EAST	330
GLB-01	Spring Brook	3.14	WGK	SALEM-REED	41
GLB-07	Spring Brook	4.19	WGL	MEADOW LAKE E.	2
GO-01	Willow Cr.	8.22	WGM	HERRICK	20.5
GOA-01	Higgens Creek	1.69	WGS	WATERFORD (WALDEN)	67
GOA-02	Higgens Creek	1.36	WGU	OLD MILL	8.3
GST	Buffalo Cr.	8.94	WGZF	DEER LAKE	59
GV-01	Bull Cr.	2.33	WGZR	HIDDEN	10
GWA	N. Mill Cr.	6.62	WGZU	BIG BEAR	25
GWAA	Hastings Cr.	4.04	WGZV	LITTLE BEAR	26
			WGZW	RICE (DuPAGE)	38
			WGZY	INDIAN	4

PRAIRIE RIVERS NETWORK, NATURAL RESOURCES DEFENSE COUNCIL, SIERRA CLUB, ENVIRONMENTAL LAW & POLICY CENTER, FRIENDS OF CHICAGO RIVER and GULF RESTORATION NETWORK	)	
Petitioners,	)	PCB 14-106 (O'Brien) PCB 14-107 (Calumet) PCB 14-108 (Stickney) (Third-Party NPDES Permit Appeals - Water) (Consolidated)
v.	)	
ILLINOIS ENVIRONMENTAL PROTECTION AGENCY and METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO	)	
Respondents.	)	

Exhibit B

ILLINOIS POLLUTION CONTROL BOARD

IN THE MATTER OF:)
)
WATER QUALITY STANDARDS AND) R08-9
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)

TRANSCRIPT OF PROCEEDINGS held in the above-entitled cause at the Will County Courthouse, 14 West Jefferson Street, Joliet, Illinois, on the 17th day of November, 2008, at 9:00 a.m.

BEFORE: MARIA E. TIPSORD, HEARING OFFICER,
ILLINOIS POLLUTION CONTROL BOARD
100 West Randolph Street
Suite 11-500
Chicago, Illinois 60601
312-814-4925.

A. Well, upstream of the north side plant, there is hardly any flow. And we specifically didn't compute any travel time information upstream of the plant. Because, in fact, the north side plant upstream and downstream is really a concept.

Q. It's really a concept?

A. Yeah, I mean --

Q. It's not reality?

A. More often than not, the north side plant is backing up into the North Shore Channel. But there are, then, other periods when it's going the other way.

And sort of the visual evidence of this is the -- and I've been at Maple Grove or at Maple Avenue on North Shore Channel near the end, near Sheridan Road in January, and it's completely on ice. And this has got warm discharge from the north side plant that is backing up and influencing that reach.

If you go all the way to Sheridan Road at that same time that I was there in -- was it 2003 or 2002, I forget now -- there was ice. So several miles upstream from the plant you still have

warm temperatures.

And so, we didn't really specifically try to compute travel time there because, in that reach, upstream and downstream changes much more often than other reaches in the system, if that makes any sense.

Q. Now, is there somewhere in the report that I can find how far upstream this effect is noticed at the three plants? Has that been modeled anywhere?

A. Well, I mean, we could find it from the modeling, but we didn't look more than just in the immediate vicinity of the plants, just to see did we see this reversal of upstream and downstream in the local vicinity plants. But we didn't figure out how far --

Q. How far. And would it be possible to use the models to do that, but that wasn't announced?

A. Yes.

Q. Do you know if you are going to make a recommendation to a field person about how far upstream to take samples that would be unimpacted? Would you be able to make a recommendation like

EVALUATION OF THE DURATION OF STORM EFFECTS ON IN-STREAM WATER QUALITY

Emre Alp[1], Charles S. Melching[2]

CE DATABASE SUBJECT HEADINGS: Monte Carlo Method; Models; Watershed Management; Water Quality; Combined Sewer Overflows

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DUFLOW model and the hydraulic results of the modeling reveal just how stagnant the CAWS is and the potential limitations to the current and future biological community.

Flow reversals

It is well known that large storms can result in flow reversals from the CAWS to Lake Michigan. The flow need not result in a reversal to Lake Michigan to have a flow reversal within the CAWS. Because the water-surface slope of the CAWS is so small and the flow from the North Side, Stickney, and Calumet Water Reclamation Plants is substantially higher than the flow upstream of these Plants, flow reversals also are common during dry weather flows upstream of the Plants. Figures 4-6 in Attachment 1 show that for each of the Plants, the water-surface elevations "upstream" of the Plants frequently are lower than those "downstream" of the Plants. Thus, the outfall of each of the Plants acts as a hydraulic dam inserting treated effluent to the upstream reaches and then holding it and upstream flows back to truly stagnate in the upstream reaches. This backflow explains why the upper North Shore Channel remains ice free for many miles north of the North Side Plant. The bi-directional flow gives us some impression of the unnatural condition of the CAWS.

Slow travel times

The DUFLOW model was used to determine average travel times in the CAWS. Table 2 in Attachment 1 lists the average travel times, lengths, and average velocities for several reaches in the CAWS for the July 12 to September 15, 2001 simulation period. The hydraulic dam upstream from the Stickney Plant is obvious as it takes 2.5 days to go 8 miles from Madison Street to Cicero Avenue. The hydraulic dam upstream from the Calumet Plant also is obvious as it takes 1.5 days to go 2.3 miles from Indiana Avenue to Halsted Street.

Huge travel times and low flow velocities also are apparent upstream from the junction of the Chicago Sanitary and Ship Canal and the Calumet-Sag Channel. This is because when the

PRAIRIE RIVERS NETWORK, NATURAL RESOURCES DEFENSE COUNCIL, SIERRA CLUB, ENVIRONMENTAL LAW & POLICY CENTER, FRIENDS OF CHICAGO RIVER and GULF RESTORATION NETWORK	)	
Petitioners,	)	PCB 14-106 (O'Brien) PCB 14-107 (Calumet) PCB 14-108 (Stickney) (Third-Party NPDES Permit Appeals - Water) (Consolidated)
v.	)	
ILLINOIS ENVIRONMENTAL PROTECTION AGENCY and METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO	)	
Respondents.	)	

Exhibit C

ORIGINAL

BEFORE THE ILLINOIS POLLUTION CONTROL BOARD

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

The TRANSCRIPT FROM THE PROCEEDINGS taken before the HEARING OFFICER MARIE TIPSORD by Kari Wiedenhaupt, CSR, at the Thompson Center, 100 West Randolph Street, Room 9-040, Chicago, Illinois, on the 29th day of July, 2013, A.D., at 10:30 o'clock a.m.

the October 2007 proposal, public comment number 286, USEPA expressed concern that using the MWRD affluent temperatures to establish non-summer thermal criteria for segments upstream of the influence of a wastewater treatment plant could potentially disrupt fish reproduction in those segments.

Did IEPA consider revising non-summer thermal criteria for those segments upstream of the influence of wastewater treatment plants?

A. The Agency considered it, but decided against it. The Agency believes that due to flow reversals and density currents that it was not appropriate.

Q. Tell me about flow reversals.

A. It's the Agency's understanding that when there is some flow reversals to Lake Michigan on the Calumet System, that effluent will go upstream, and, therefore, there is not a -- there is not really an upstream in this case.

Q. Is that true for the north side plant?

A. At the north side plant, we have

been told of instances where there is a discharge and they get flow upstream in some instances.

Q. And that would also be true for Stickney?

A. I'm sure it would, but Stickney one was kind of a moot issue, because there is no upstream, because it's effluent from the north side. That's up stream of them.

Q. Did the Agency consider the affect of cooling of water between the Stickney discharge and the Brandon Pool?

A. No.

Q. About how many miles is there between the Stickney discharge and the Brandon Road lock and dam?

A. I don't know exactly, but I would guess 10, maybe 15.

Q. And the -- let's just understand where we are here. The Stickney discharge will technically be warmer in the winter than normal ambient water quality because of water temperatures because of the wastewater treatment process?

A. The wastewater treatment process