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STATE OF ILLINOIS
Pollution Control Board

BEFORE THE ILLINOIS POLLUTION CONTROL BOARD

IN THE MATTER OF:)
)
PROPOSED AMENDMENTS TO) R 04-25
DISSOLVED OXYGEN STANDARD)
35 Ill. Adm. Code 302.206)

NOTICE OF FILING

TO: See Attached Service List

PLEASE TAKE NOTICE that on Wednesday, August 04, 2004, we filed the attached Memorandum In Response And Opposition To Motion To suspend Consideration Of Proposed Amendments To The Dissolved Oxygen Standard Pending Development Of Draft Implementation Rules with the Illinois Pollution Control Board, a copy of which is herewith served upon you.

Respectfully submitted,

By: 

One of Its Attorneys

Roy M. Harsch
Sheila H. Deely
GARDNER CARTON & DOUGLAS LLP
191 N. Wacker Drive – Suite 3700
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THIS FILING IS SUBMITTED ON RECYCLED PAPER

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BEFORE THE ILLINOIS POLLUTION CONTROL BOARD

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**MEMORANDUM IN RESPONSE AND OPPOSITION TO MOTION TO SUSPEND
CONSIDERATION OF PROPOSED AMENDMENTS TO THE DISSOLVED OXYGEN
STANDARD PENDING DEVELOPMENT OF DRAFT IMPLEMENTATION RULES**

The Illinois Association of Wastewater Agencies ("IAWA"), by its attorneys Gardner Carton & Douglas, responds to the Motion to Suspend Consideration of Proposed Amendments to the Dissolved Oxygen Standard Pending Development of Draft Implementation Rules ("Mot.") filed by the Environmental Law & Policy Center of the Midwest, Prairie Rivers Network and the Sierra Club (collectively, "Environmental Groups").

The Environmental Groups have filed their motion to suspend this proceeding based on the absence of implementation procedures submitted as part of this rulemaking, a claimed absence of urgency in the need to revise the dissolved oxygen standard because federal law allows standards more protective than the National Criteria Document ("NCD"), a claimed lack of real world effect on permittees from the current erroneous dissolved oxygen standard, and, finally, a claimed lack of availability or ability to review data and other pertinent information in a timely manner. Much of the objection by the Environmental Groups is based on a claimed lack of information. In addition, the conditions the Environmental Groups want fulfilled before proceeding with this rulemaking will take years to complete.

The claimed need to suspend this rulemaking is without merit, and the Board should proceed to fulfill its legal duty to promulgate scientifically defensible standards in accordance with the NCD. The Petition for Rulemaking by IAWA has been filed to start what is likely to be

a lengthy process of revising dissolved oxygen standards. This process has hardly been undertaken in a hasty manner. Rather, IAWA has taken substantial time and incurred significant cost to ensure that its proposal is scientifically based and well-considered. Because of this work, the Board will have all the information it needs to engage in careful and considered rulemaking. During the process, the Board and the Environmental Groups will be in a position to ask the questions they want answered. IAWA will address each of the Environmental Group's claims in turn.

1. Illinois EPA Has Authority Over Implementation Rules, and Discussion on Those Rules Is Proceeding

Toby Frevert of Illinois EPA noted at the first hearing in this matter that this proceeding has been undertaken to determine what should be the general use standard for dissolved oxygen in Illinois waters. The task before the Board is to identify and promulgate a scientifically defensible dissolved oxygen standard in Illinois. Counsel for IAWA noted that this rulemaking is the beginning of the process of bringing the Illinois dissolved oxygen water quality standards up to date, and it is long overdue. IAWA decided to embark on the process of reviewing the current dissolved oxygen standard almost three years ago, and engaged Drs. James Garvey and Matt Whiles, two accomplished and experienced scientific experts, in 2002. A great deal of work has gone into this rulemaking, and all interested parties had an opportunity to review and weigh in on the assessment performed by Drs. Garvey and Whiles well before IAWA filed its petition.

Notwithstanding IAWA's efforts, the Environmental Groups imply that IAWA has omitted something from its rulemaking petition to support their claim for suspension: "the petitioner has not presented even the barest outline of the implementation rules that the Agency

will or should adopt.” The Environmental Groups later contradict this absence of “the barest outline” by noting the recommendation of IAWA’s expert, which was presented in IAWA’s Petition, concerning the implementation rules that IAWA anticipates will be developed by Illinois EPA, as well as the recommendations of the NCD. The Environmental Groups have not raised a specific concern with how the dissolved oxygen standard will be implemented (apart from a general parsing and academic inquiry on the meaning of the word “should” Mot. 7 n.1), but have instead merely used the question of implementation rules to delay this proceeding. The Environmental Groups claim that if a hearing is held, it should be limited to a presentation by Dr. Garvey of expert opinion on supplemental data that has recently become available. IAWA is puzzled by this recommendation, for it seems to conflict with the claimed need for more information on implementation rules. The Environmental Groups state that there is “no need for the Board to rush to consider this proposed change without having access to information regarding implementation rules,” but it is the opposite that is true. The Board should not rush to suspend this proceeding at the behest of the Environmental Groups when the process of revising the long-outdated dissolved oxygen standard in Illinois is only just beginning.

The Environmental Groups’ claim concerning the need for implementation rules will be addressed in time by the Illinois EPA, and IAWA is confident that Illinois EPA will do so in a competent manner that allows all interested stakeholders to have a voice in the process. Illinois EPA made a commitment at the hearing to provide information to the Board on implementation rules. In addition, Illinois EPA is hosting a meeting on the morning of the second hearing to discuss the implementation rules, and the Environmental Groups have been invited and, given their concern, will surely be in attendance. The Environmental Groups state without citation that it is Board practice to establish implementation rules, but this is not the case. The practice is that

the standard is passed and then the implementation rules are promulgated. Adoption of implementation rules by Illinois EPA comes after the standard is set. Nevertheless, the Board's interest in discussing the implementation rules as part of this proceeding and having input from Illinois EPA will be fulfilled during the course of this proceeding. Further, the Environmental Groups' comparison of the need for implementation rules to be established in this proceeding to the ammonia proceeding ignores the complicated nature of the ammonia implementation rules and the uncomplicated nature of the implementation rules for the proposed dissolved oxygen standard. For dissolved oxygen, all the implementation rules have to do is determine where and how often sampling should be conducted. The parameters of implementation rules proposed by IAWA may be found in electronic correspondence circulated to interested parties, which is attached as Exhibit 1.

2. A General Use Standard Should Be General, Not "Nuanced"

The proposed standard will be the general use water quality standard for Illinois waters, or a default standard in the absence of more specific standards. A general use water quality standard is intended to apply generally to the waters in a state, to "waters for which there is no specific designation." Section 302.101. The Environmental Groups challenge the generality of the proposed general use dissolved oxygen standard, claiming that "it is not nuanced," and does not take into account "how exceptional the water body, where the water body is located, the nature of the water body and what species are found in the water." Mot. 6. The Board has adopted procedures to allow consideration of the exceptional nature and quality of a water body, where the water body is located to the extent that impacts its quality, and the species found in the water. The most important procedure, the anti-degradation rules, were promulgated by the Board at the instigation of the Environmental Groups. Section 302.105. The anti-degradation rules

contain three tiers of water quality protection, with the most stringent for waters designated as “Outstanding Resource Waters,” and the second tier provides for added protection better than the general use water quality standard for “High Quality Waters.” The rules also contain added protections for “waters of particular biological significance.” Anti-degradation review already requires a stream study, with information on the species found in the water. There is no need for “nuance” for a general use water quality standard, when all the tools are already present in the Board’s rules that provide the type of protection for higher quality waters than the Environmental Groups seek. The Environmental Groups simply have not used these tools to seek the increased protection that they desire. IAWA, on the other hand, has committed to studying this issue with the intent to use the tools to designate waterways that may need more stringent protection.

With respect to the consistency of the proposed standard with the NCD¹ or the need to analyze data, the Environmental Groups’ self-serving allegations and unsupported claims should be considered in the context of this rulemaking. IAWA’s expert, Dr. Jim Garvey, is prepared to address these points as necessary at the hearing. The Environmental Groups are free to make their claims in comments to the Board that can be given their appropriate weight based on the evidence. It is not appropriate, however, to suspend this proceeding because the Environmental Groups disagree about what the data shows and what it does not, or whether the proposed standard is consistent with the NCD, and IAWA believes it is.

3. Positions Taken by the Environmental Groups in Other Proceedings Show There Is a Clear Need to Proceed with These Rules

IAWA submitted testimony that the original dissolved oxygen standard was hurriedly promulgated as part of a flurry of standards over thirty years ago. The NCD was issued in 1986,

¹ The Environmental Groups claim one inconsistency with the NCD in the absence of a 30-day standard, but IAWA has already stated that it has no objection to the inclusion of this standard.

and clearly changed the science concerning dissolved oxygen water quality. The Illinois standards have not, however, been changed since the original promulgation.

While acknowledging that the Board will have to address these issues in the future, the Environmental Groups argue that there is no urgency for the Board to proceed with changes to the existing standard. The claimed lack of urgency is based on purported differences between the proposed standard and the NCD, claimed irrelevance of the proposed dissolved oxygen standard to nutrient standards, including the proposed phosphorus standard (which, in contrast, the Environmental Groups claim “are needed as soon as possible”), the unknown schedule for total maximum daily loads (“TMDLs”) concerning dissolved oxygen impairment, and lack of detail about permit limits involving dissolved oxygen. These claims by the Environmental Groups are frankly disingenuous and insincere, for these groups regularly cite the current flawed and indefensible dissolved oxygen standard in objecting to proposed permits, arguing for stringent permit limits, and pushing Illinois EPA to proceed with TMDLs. In addition, based upon the positions of these same Environmental Groups, Illinois EPA is regularly placing dissolved oxygen limits in NPDES permits, and requiring construction schedules to meet it. Tr. 19.

The Environmental Groups have cited dissolved oxygen impairment in permit proceedings before Illinois EPA and have pushed Illinois EPA to refrain from granting NPDES permits to applicants that cannot prove their discharge will not cause or contribute to violation of dissolved oxygen standards. In a letter to Illinois EPA, counsel for the Environmental Law & Policy Center stated “the Agency should not be granting NPDES permits for discharges without proof by the applicant that the discharge will not cause or contribute to violations of state dissolved oxygen standards.” See Exhibit 2, letter signed by Albert Ettinger, Environmental Law

& Policy Center, Jack Darin, Illinois Chapter Sierra Club, and Jean Flemma, Prairie Rivers Network to Renee Cipriano and Marcia Willhite, Illinois EPA, dated February 2, 2004. Alleged dissolved oxygen impairment is the basis for a permit appeal pending before the Board in *Des Plaines River Watershed Alliance, Livable Communities Alliance, Prairie Rivers Network, and Sierra Club v. Illinois Environmental Protection Agency and Village of New Lenox*, PCB 04-88. In the Petition for Review filed in that case, the Environmental Groups stated that “[m]embers of Petitioners will be affected adversely when pollution discharged under the permit causes or contributes to the creation of low oxygen and offensive conditions in Hickory Creek, the Des Plaines River and the Illinois River and otherwise injures the ecology of Hickory Creek and downstream waters as a result of IEPA’s failure to require protective effluent limits, monitoring, and a proper antidegradation analysis.” The transcript of the public information hearing, included in the record of that appeal, elaborates on Petitioners’ dissolved oxygen claims. *See, e.g.,* Tr. 21-25, 28 (testimony of Ms. Beth Wentzel, Prairie Rivers Network), attached as Exhibit 3.

IAWA made the point at the first hearing that dissolved oxygen has already had an effect through the existing TMDLs that have been developed and will continue to play an important role as new TMDLs are developed. Tr. 20-22. IAWA believes that Illinois ought to get the standard on which the TMDLs are based correct and ensure that both the standard and TMDL are scientifically supported. The Environmental Groups have themselves directed comments to dissolved oxygen impairment again and again in response to draft TMDLs that have been developed, and the comments of the Environmental Groups show the broad impact that the dissolved oxygen standard has on other effluent standards and regulatory issues, ranging from biological oxygen demand to sediment oxygen demand to ammonia to Combined Sewer

Overflows to stormwater runoff to dam removal to stream aeration. See Group Exhibit 4, letters from Environmental Groups and NIPC to Illinois EPA. The change of course that the Environmental Groups have made on the impact of the standard is calculated to their current end.

Whether the dissolved oxygen standard is scientifically based is important not only to whether a TMDL is developed, but also how it is developed. All the modeling that is done and all the load allocations for various dischargers to the waterway are based on the dissolved oxygen standard. The Environmental Groups claim that “[i]t is unknown if any total maximum daily load studies to be done in the next two years will be affected by the dissolved oxygen standards,” because we do not know how many waters that are impaired under the current standard “would pass” under the IAWA proposal. Mot. 13. This is true, but whether a waterway currently listed as impaired would “pass” or not is beside the point. Mere listing of a waterway as impaired is not the source of cost to wastewater treatment facilities or their taxpayers, or other public and private entities. It is the load limits and other regulatory restrictions that result from a TMDL study, and the Environmental Groups entirely ignore this fact. There are 31 waterways on the Two-Year Schedule for TMDL Development that are impaired for dissolved oxygen, and the TMDL studies for all of these waterways will be based on the existing dissolved oxygen water quality standard. See Exhibit C to Environmental Group’s Motion.

Among many examples of the real world costs presented by TMDLs is a comment by the Forest Preserve District of DuPage County concerning the draft Salt Creek TMDL Plan. The Forest Preserve District appears to have concluded that the TMDL called for one of two alternatives to reduce dissolved oxygen: reduce discharges of CBOD and ammonia at the wastewater treatment plants within the Salt Creek watershed at an estimated cost of \$18 million, or remove the historic and publicly valuable Graue Mill Dam. See Exhibit 5, Letter from Brett

Manning, Forest Preserve District of DuPage County to Illinois EPA, November 12, 2003.

Either alternative presents a real world cost to the public that has not been sufficiently addressed by the Environmental Groups, who simply prefer more stringent limits.

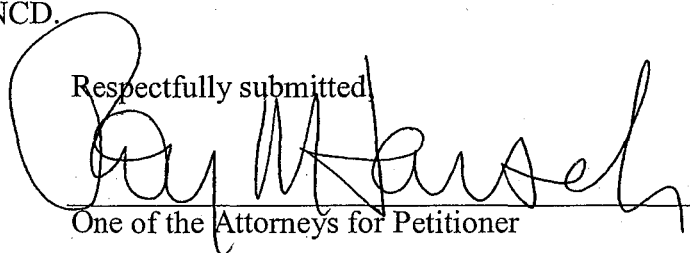
IAWA's testimony also included information on the development of nutrient standards in Illinois, the need for a determination of the concentration of phosphorus at which the eutrophication cycle begins to cause problematic dissolved oxygen concentrations, and the general consensus of many professional in Illinois that the current Illinois dissolved oxygen standard does not represent this critical dissolved oxygen concentration. Tr. 32-35, 38-39. This was the origin of IAWA's work, as the need was clear to determine the critical dissolved oxygen concentration before a phosphorus standard could be properly developed, and though Illinois EPA recognized this need, it did not have the time or resources to undertake the assessment. Tr. 35. The Environmental Groups work hard to separate the issue of properly developed nutrient standards from the dissolved oxygen standard, but their past positions belie these claims. See Group Ex. 2, directly linking nutrients with dissolved oxygen impairments. It is impossible to understand how the Environmental Groups can wish so urgently for the establishment of nutrient standards without ensuring that the dissolved oxygen standard is sound and based on science, and all available data show the current standard is not sound.

Conclusion

There is simply no rationale for suspending these proceedings. The IAWA's assessment of the dissolved oxygen standard has been in the works for years, and has been subject to extensive comment by all interested parties. If various parties have scientifically based objections, the Board will surely take account of them, but it is not appropriate to suspend these proceedings based on the claims in the Environmental Groups' motion. Illinois EPA is

competent to address the implementation rules for the proposed standard and has already promised to provide the Board with the information it needs at the appropriate time. In fact, a meeting of the stakeholders with Illinois EPA is scheduled for the morning of the second scheduled hearing. The Environmental Groups' claims concerning the lack of urgency to revise the existing standard are self-serving, and belied by the positions these same groups are regularly taking in other forums, which clearly show the need for a scientifically defensible dissolved oxygen standard in conformance with the NCD.

Respectfully submitted,

A handwritten signature in black ink, appearing to read "Roy M. Harsch", written over a horizontal line.

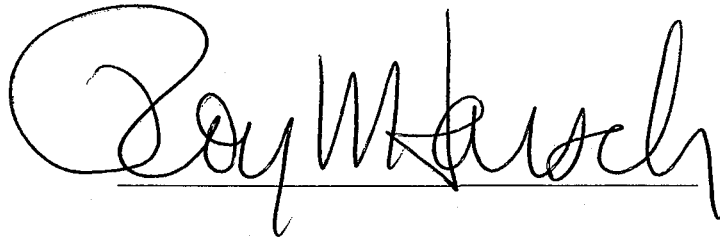
One of the Attorneys for Petitioner

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CH02/22327598.1

CERTIFICATE OF SERVICE

The undersigned certifies that a copy of the foregoing **Notice of Filing and Memorandum In Response And Opposition To Motion To suspend Consideration Of Proposed Amendments To The Dissolved Oxygen Standard Pending Development Of Draft Implementation Rules** was filed by hand delivery with the Clerk of the Illinois Pollution Control Board and served upon the parties to whom said Notice is directed by first class mail, postage prepaid, by depositing in the U.S. Mail at 191 N. Wacker Drive, Chicago, Illinois on Wednesday, August 4, 2004.

A handwritten signature in black ink, appearing to read "Jay March", written over a horizontal line. The signature is cursive and stylized.

Service List

R2004-025

<p>Fred L. Hubbard 415 North Gilbert Street Danville, IL 61834-0012</p>	<p>Alex Messina Illinois Environmental Regulatory Group 3150 Roland Avenue Springfield, IL 62703</p>
<p>Bernard Sawyer Metropolitan Water Reclamation District 6001 W. Pershing Rd. Cicero, IL 60650-4112</p>	<p>Charles W. Wesselhoft Ross & Hardies 150 North Michigan Avenue Suite 2500 Chicago, IL 60601-7567</p>
<p>Claire A. Manning Posegate & Denes, P.C. 111 N. Sixth Street Springfield, IL 62705</p>	<p>Connie L. Tonsor IEPA 1021 North Grand Avenue P.O. Box 19276 Springfield, IL 62794-9276</p>
<p>Deborah J. Williams IEPA 1021 North Grand Avenue P.O. Box 19276 Springfield, IL 62794-9276</p>	<p>Dennis L. Duffield City of Joliet, Department of Public Works and Utilities 921 E. Washington Street Joliet, IL 60431</p>
<p>Dorothy M. Gunn Illinois Pollution Control Board 100 W. Randolph St. Suite 11-500 Chicago, IL 60601</p>	<p>Erika K. Powers Barnes & Thornburg 1 N. Wacker Suite 4400 Chicago, IL 60606</p>
<p>Frederick D. Keady Vermilion Coal 1979 Johns Drive Glenview, IL 60025</p>	<p>James L. Daugherty Thorn Creek Basin Sanitary District 700 West End Avenue Chicago Heights, IL 60411</p>
<p>James T. Harrington Ross & Hardies 150 North Michigan Avenue Suite 2500 Chicago, IL 60601-7567</p>	<p>Joel J. Sternstein Office of the Attorney General 188 West Randolph 20th Floor Chicago, IL 60601</p>

Service List

R2004-025

<p>John Donahue City of Geneva 22 South First Street Geneva, IL 60134-2203</p>	<p>Jonathan Furr Illinois Department of Natural Resources One Natural Resources Way Springfield, IL 62702-1271</p>
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<p>Lisa Frede Chemical Industry Council of Illinois 2250 E. Devon Avenue Suite 239 Des Plaines, IL 60018-4509</p>	<p>Margaret Hedinger 2601 South Fifth Street Springfield, IL 62703</p>
<p>Matthew J. Dunn Office of the Attorney General 188 West Randolph 20th Floor Chicago, IL 60601</p>	<p>Michael G. Rosenberg, Esq. Metropolitan Water Reclamation District 100 East Erie Street Chicago, IL 60611</p>
<p>Mike Callahan Bloomington Normal Water Reclamation District PO Box 3307 Bloomington, IL 61702-3307</p>	<p>Richard Lanyon Metropolitan Water Reclamation District 100 East Erie Street Chicago, IL 60611</p>
<p>Richard McGill Illinois Pollution Control Board 100 W. Randolph St. Suite 11-500 Chicago, IL 60601</p>	<p>Sanjay K. Sofat IEPA 1021 North Grand Avenue East P.O. Box 19276 Springfield, IL 62794-9276</p>
<p>Stephanie N. Diers IEPA 1021 North Grand Avenue East P.O. Box 19276 Springfield, IL 62794-9276</p>	<p>Sue Schultz Illinois American Water Company 300 North Water Works Drive P.O. Box 24040 Belleville, IL 62223-9040</p>

Service List

R2004-025

<p>Susan M. Franzetti 10 South LaSalle Street Suite 3600 Chicago, IL 60603</p>	<p>Tom Muth Fox Metro Water Reclamation District 682 State Route 31 Oswego, IL 60543</p>
<p>Vicky McKinley Evanston Environment Board 23 Grey Avenue Evanston, IL 60202</p>	<p>W.C. Blanton Blackwell Sanders Peper Martin LLP 2300 Main Street Suite 1000 Kansas City, MO 64108</p>

CH02/22319597.1

Exhibit 1

Cowger, Donna

From: Cowger, Donna on behalf of Harsch, Roy M.
Sent: Thursday, July 22, 2004 8:52 AM
To: 'Amessina@IERG.org'; 'Deborah.Williams@epa.state.il.us'; 'Jdonahue@geneva.il.us'; 'lfrede@cicil.net'; 'Stefanie.Diers@epa.state.il.us'; 'Toby.Frevert@epa.state.il.us'; 'Cskrukud@earthlink.net'; 'AEttinger@elpc.org'; 'bwentzel@prairierivers.org'; 'Syonkauski@dnrmail.state.il.us'; 'KHodge@IERG.org'; 'Richard.Lanyon@mwrddgc.dst.il.us'; 'claire@posegate-denes.com'
Subject: DO Proposal

At the first hearing in this matter Toby discussed the IEPAs willingness to discuss this proposal and potential implementation rules. He has set aside the morning of August 12th for a Stakeholder meeting prior to the afternoon hearing in Springfield. Below is a list of my thoughts on the items that should be included in the IEPA Implementation Rules for the DO proposal. These are consistent with comments that Jim Garvey got from Chapman that the first full paragraph on page 39 of Jim's report "is a good example of the type of implementation documentation that is needed for adequate application of DO standards".

1. DO should be measured with continuous monitoring devices or approved methods for instantaneous results. These would include DO meters and appropriate wet chemistry methods. The rule should cite the applicable USEPA test method, etc.
2. A single reading below the proposed daily minimum would constitute a violation.
3. Values above saturation should be reduced to the DO level at saturation in calculating daily or long term averages.
4. In streams, DO should be:
 - a. measured in pool or run habitats not riffles,
 - b. taken at 2/3 or 67% of stream depth,
 - c. and not taken at the sediment/water interface.
5. In lakes, DO should be taken one meter below the surface in the limnetic zone above the deepest point of the lake.

Please let me know if you would like to participate in this meeting. My phone number is 312 5691441 and my E Mail address is rharsch@gcd.com.

Roy Harsch

Donna M. Cowger

Assistant to Roy M. Harsch
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Exhibit 2



ENVIRONMENTAL LAW & POLICY CENTER
ILLINOIS INDIANA MICHIGAN MINNESOTA OHIO WISCONSIN

February 2, 2004

RECEIVED
FEB - 3 2004
BUREAU OF WATER

Renee Cipriano, Director
Marcia Willhite, Chief Bureau of Water
Illinois E.P.A.
1021 N. Grand Ave. East
P.O. Box 19276
Springfield, Illinois
62794-9276

Dear Renee and Marcia:

We sincerely appreciate the commitment of Governor Blagojevich and the Agency to improve on past efforts to address nutrient pollution in Illinois waters. We feel strongly that more must be done now and in the future to prevent further degradation of water quality from nutrient loading, and to restore healthy conditions in waters already suffering from excessive nutrients. Our hope that we can agree on a common strategy with specific steps to move forward and address the issues on a statewide basis, rather than debating them in the context of individual permits.

As we made clear at our January 14 meeting, we do not believe it is legal or defensible as a policy matter for the Agency to continue generally to issue NPDES permits without limits for phosphorus given federal law, Illinois law, and the facts regarding detriments to Illinois waters and those downstream. While there was apparently some confusion within the Agency, we did not in connection with the settlement of the Fox River Water Reclamation District permit appeal or otherwise agree that it was appropriate to issue permits without nutrient limits for new or increased discharges in the Fox watershed or anywhere else.

Not to start a legal debate but to make our position clear, IEPA should be writing nutrient limits for at least three reasons:

1. Section 39(a) of the Illinois Environmental Protection Act clearly places the burden on the applicant to offer "proof" that its proposed permit "will not cause the a violation of this Act or of regulations thereof." Permits that allow discharges that may cause or contribute to violations of water quality standards violate 40 CFR 122.44(d) and the Illinois regulations that incorporate those federal requirements. 35 Ill. Adm. Code 309.141. Accordingly, the Agency should not be granting NPDES permits for discharges without proof by the applicant that the discharge will not cause or contribute to violations of state dissolved oxygen standards. Insofar

as applicants never offer anything like such proof, the Agency should not be issuing permits without nutrient limits.

2. Similarly, it is apparent that many Illinois discharges are causing or contributing to violations of state narrative standards prohibiting creation of "offensive conditions." Certainly, dischargers are not offering proof that their discharges will not cause such conditions. 40 CFR 122.44(d) explicitly states that a permit may not be granted for a discharge that may cause or contribute to a violation of narrative standards.

3. Under the antidegradation regulations, lowering of water quality may only be allowed if it is necessary to accommodate important economic or social development. 40 CFR 131.12; 35 Ill. Adm. Code 302.105(c). A lowering of water quality is not necessary if it can practicably be avoided. Given that no one denies that it is practicable to treat sewerage effluent to a level of 1 mg/L phosphorus or lower, no permit for a new or increased discharge should be allowed for more phosphorus than that.

Because applicants cannot prove that their discharges will not cause or contribute to violations of dissolved oxygen or offensive conditions standards (or at least have never tried to do so), the Agency should probably not grant any permits involving discharge of nutrients unless the discharge concentrations are below ambient levels.

Further, there are also practical economic reasons for imposing nutrient limits now. Currently many dischargers are building or expanding sewerage treatment plants and making treatment choices that will prove to be unwise if later nutrient standards impose treatment requirements that will require costly retrofitting. More critically, a land, sub-surface or other "no discharge" alternative that looks more costly now because the Agency does not require nutrient controls will be rejected by many POTWs in favor of conventional treatment systems that will be more costly in a few years after nutrient standards are developed.

One may predict building of a large amount of conventional treatment capacity in the next four years without nutrient controls if the Agency continues to grant permits without nutrient limits. The water quality of many streams will be severely degraded by discharges from these plants. When numeric nutrient standards are established, the entities that have conventional plants that cannot economically meet the standards will seek variances, use redesignations and other relief that, if granted, would result in many Illinois streams that could have been protected or restored if nutrient limits were imposed being nutrient-impaired for decades.

Having stated these legal and environmental issues so that you can see the bases for our concern, those joining in this letter would like to reach a reasonable accord. We know that the Blagojevich Administration is committed to addressing nutrient pollution in Illinois and we sincerely appreciate the time and effort you and your staff are devoting to identifying ways to move forward. We would welcome a specific commitment to propose a numeric standard to the IPCB by Spring 2006. For the interim period, attached "Dear Design Engineer" letter, modeled on a letter sent by the Agency two years ago, generally states what we think a reasonable compromise in this situation is for the Agency and the environment and what we hope the

Agency will do. Basically, we would like to see discharges of nutrients minimized. We believe that the highest quality Illinois waters should not receive new or increased nutrient discharges. No waters, however, should receive new or increased discharges with more than 1 mg/L of phosphorus except perhaps in very special cases where economic proof of the need for such an exception can be adequately demonstrated.

We recognize that this is a difficult situation and are open to other ideas. We look forward to talking to you further about these issues.

Sincerely,



Albert Ettinger
Senior Staff Attorney
Environmental Law and Policy Center



Jack Darin
Director
Illinois Chapter Sierra Club



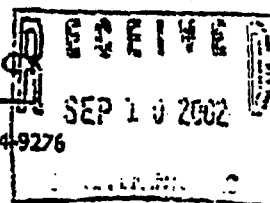
Jean Flemma
Executive Director
Prairie Rivers Network



ILLINOIS ENVIRONMENTAL PROTECTION AGENCY

1021 NORTH GRAND AVENUE EAST, P.O. BOX 19276, SPRINGFIELD, ILLINOIS 62794-9276

RENEE CIPRIANO, DIRECTOR



217782-0610

July 18, 2002

Re: Revisions in the Permitting Procedures for All New and Expanded Sewage Treatment Plans.

Dear Design Engineer:

The purpose of this letter is to inform design professionals of recent changes to NPDES permit program administration within the Division of Water Pollution Control and how they relate to application documents submitted in support of a permit application. These changes pertain to new Illinois Pollution Control Board Regulations that place specific requirements upon the Agency for issuance of permits that authorize a new or increased discharge of wastewater into waters of the state. The Agency is adjusting its permit review and issuance process to comply with these new requirements with minimal additional time and burden upon both the permit applicant and Agency staff. In order to accomplish this, it is important for the engineering profession to understand the importance of early and comprehensive facility planning and engineering reports to the permitting process.

The Illinois Pollution Control Board adopted new anti-degradation regulations on February 21, 2002. These rules became effective on February 22, 2002 and can be downloaded from the Board at www.ipcb.state.il.us/Archive/dscgl/ds.py/Get/File-16619/R_01-013_022102_Opinion_and_Order.pdf using Adobe Acrobat®. Primarily, these regulations require that the Agency perform an analysis for all new and expanded discharges to surface waters (requiring NPDES permits). The primary purpose of the anti-degradation analysis is to ensure that new (or expanded) discharges do not cause degradation in the water into which discharge occurs unless absolutely necessary. If degradation is likely to occur, the degradation must be held to the smallest amount practically achievable and such degradation must be fully justified by the benefits of the project.

In times past, the permit applicant and their engineer have decided upon the method of wastewater treatment to be provided based primarily on cost and the requirements of the applicant. Review by the Agency took place primarily after design was completed (unless financial assistance was being provided by the Agency) and was based on whether or not the proposed treatment system would consistently meet effluent standards. It is now necessary for the Agency (and the public) to become involved in the process much earlier. The revised anti-degradation regulations focus less on the requirements necessary to meet water quality standards (although compliance with these standards is still necessary) and more on what kind of treatment system can be designed to have the least adverse impact on the receiving water.

GEORGE H. RYAN, GOVERNOR

Page 2
Revisions in Permitting Procedures

Any discharge of treated wastewater to surface waters has the potential to cause the quality of the receiving water to become degraded. Therefore, systems that do not discharge should be considered and must be deemed not feasible before a discharging system can be considered. Examples of non-discharging systems are golf course, agricultural land, and other types of spray irrigation, seepage fields, and other types of subsurface discharges. Regionalization should also be considered for communities so located.

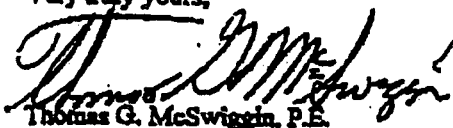
Potential environmental impacts should be examined and included in the preliminary engineering report (or facility plan if the project is to receive funding through the IEPA loan program, etc.) for each option considered. To expedite the review process, an NPDES permit application should be submitted with the engineering report/facility plan in cases where a discharging system is the recommended construction alternative. Plans and specifications should not be prepared until the engineering report/facility plan has been approved by the Agency.

The new Board rules essentially merge the engineering report/facility plan and NPDES permit application procedures into one process that must be completed before a state authorization to construct (state permit) can be issued. The items to be included in the engineering report/facility plan are attached.

As the Agency implements the Board's anti-degradation regulations, additional items may come to light. The Agency will attempt to keep the regulated community apprised of these as they develop. In the meantime, we have compiled a list of commonly-made errors in the processing of sewage treatment plant permit applications. To expedite the issuing of permits, the Agency has included these as an attachment to this letter. Ensuring that your staff does not make any of these common errors on submissions to the Agency should help reduce the burden and time that it takes the Agency to review the submittal.

The Agency thanks you for your continuing cooperation and patience in this matter as we begin implementing these new requirements. If you have questions or comments on these changes, please contact our municipal engineer at the phone number given above.

Very truly yours,



Thomas G. McSwiggan, P.E.
Manager, Permit Section
Division of Water Pollution Control

TGM:DJJS

Dear Design Engineer:

In a letter of July 18, 2002, Tom McSwiggin, then Manager of the Permit Section of the Division of Water Pollution Control, wrote you regarding revisions in the permitting procedures for all new and expanded sewerage treatment plants. That letter provided guidance regarding the then freshly-adopted Illinois Pollution Control Board anti-degradation regulations. That letter also mentioned that, as the Agency implemented the anti-degradation regulations, additional items might come to light regarding which the Agency would attempt to keep the regulated community apprised. Since July 2002, additional matters have come to light bearing on anti-degradation particularly with regard to the discharge of nutrients.

As you may be aware, the Agency is now developing numeric water quality standards for nitrogen and river and stream standards applicable to phosphorus. Along with other states, Illinois has agreed with U.S. EPA to adopt such criteria by the end of 2008 and to allow time for Pollution Control Board consideration, the Agency expects to present a proposal to the Board in 2006.

A serious question has arisen with regard to the appropriate effluent limits for phosphorus and other nutrients as to permits issued during the four-year interval during which numeric standards are developed. There are currently in place numeric standards for phosphorus in lakes (35 Ill. Adm. Code 302.205), numeric standards for all waters for dissolved oxygen (35 Ill. Adm. Code 302.206), and narrative standards regarding "offensive conditions" (35 Ill. Adm. Code 302.203) which include "algal blooms" that can be caused by excessive nutrients. When the discharge is to a lake or reservoir, the Agency has been imposing permit limits of 1 mg/L of phosphorus for many years. However, neither permit applicants nor Agency permit writers have found it practical to determine appropriate permit limits regarding nitrogen or phosphorus from the dissolved oxygen or "offensive conditions" standards. Development of a proper total maximum daily load (TMDL) study for impaired waters may make this possible in some cases in the future.

While we have been urged by some groups to do so, the Agency does not believe that it should now require permit applicants generally to prove under Section 39(a) of the Illinois Environmental Protection Act that their proposed discharge of nutrients will not cause a violation of the dissolved oxygen or "offensive conditions" standards in order to obtain a permit. The Agency does believe, however, that given the anti-degradation regulations and available technologies for phosphorus removal, a concentration limit of 1mg/L phosphorus should generally be imposed on new and increased discharges involving phosphorus.

As was explained in the July 18, 2002 letter, the anti-degradation regulations focus on treatment systems that can be designed to have the least impact on the receiving water. In this regard, it is clear that treatment systems can be practicably designed that discharge phosphorus at levels at or below 1 mg/L. Dischargers to lakes across Illinois

and dischargers in Michigan, Minnesota, Wisconsin and many other states have been meeting 1mg/L effluent limits for years. The practicality of meeting this effluent limit is confirmed by the recent study of the Illinois Association of Wastewater Agencies. Accordingly, the Agency believes that a discharge of more than 1 mg/L of phosphorus will generally not be necessary to accommodate important economic or social activity and the Agency will normally require an effluent limit of 1 mg/L phosphorus in all permits subject to antidegradation requirements.

In summary, until the development of numeric nutrient standards, the Agency will not generally require nutrient effluent limits designed to meet the dissolved oxygen or offensive conditions standards. An exception here would be the situation in which a total maximum daily load study shows the need for such controls.

On the other hand, an effluent limit of 1 mg/L phosphorus will generally be imposed on all dischargers to lakes or streams proposing new or increased loadings with a reasonable potential to discharge that level or more of phosphorus. A 1 mg/L phosphorus limit will be imposed unless the discharger limits its total loading of phosphorus to that allowed under a prior permit (in which case there is no degradation as to phosphorus) or the applicant proves that, for reasons particular to it, it is economically infeasible for it to limit its discharge of phosphorus to 1 mg/L. Any applicant considering offering proof that it cannot feasibly limit its phosphorus discharge to 1 mg/L should consult the enclosed U.S. EPA Interim Economic Guidance for Water Quality Standards.

Sincerely,

Exhibit 3

1 BEFORE THE ILLINOIS ENVIRONMENTAL PROTECTION AGENCY

2 IN THE MATTER OF:)
3 DRAFT RENEWAL NPDES PERMIT)
4 TO DISCHARGE INTO WATERS OF)
5 THE STATE - VILLAGE OF)
6 NEW LENOX - STP #1)

7 REPORT OF PROCEEDINGS taken at the hearing
8 of the above-entitled matter, held at 701 West Haven
9 Avenue, New Lenox, Illinois, before Hearing Officer
10 Deborah Williams, reported by Janice H. Heinemann, CSR,
11 RDR, CRR, a notary public within and for the County of
12 DuPage and State of Illinois, on the 24th day of April,
13 2003, commencing at the hour of 7:00 p.m.

14 APPEARANCES:

- 15 MS. DEBORAH WILLIAMS, IEPA Acting Hearing
- 16 Officer, Division of Legal Counsel;
- 17 MR. ALAN KELLER, Manager,
- 18 Northern Municipal Unit, Permit Section;
- 19 MR. ROBERT MOSHER,
- 20 Water Quality Standards Unit;
- 21 MR. ABEL HAILE,
- 22 Northern Municipal Unit, Permit Section;
- 23 MR. JAY PATEL, Field Operations Section;
- 24 MR. BILL HAMMEL, Office of Community Relations.

1 refer to them now in your comments, the web site and where
2 we can find the information; but if you wouldn't mind
3 sending a printout with --

4 MS. WENTZEL: Print it all out.

5 HEARING OFFICER WILLIAMS: With comments later.
6 Do you know how many pages we are talking?

7 MS. WENTZEL: Depends on the size of the font.
8 And as long as that is official and if I just print them
9 off myself, that's fine.

10 HEARING OFFICER WILLIAMS: Because if there were
11 ever to be an appeal or something, I think we would want
12 that to be part of the actual records and stuff.

13 MS. WENTZEL: Okay. Then I will certainly do
14 that.

15 Prairie Rivers Network is concerned that
16 the issuance of this permit as written would violate
17 applicable state and federal law, specifically the
18 applicant and Illinois EPA have not satisfied provisions
19 of the antidegradation policy. And Illinois EPA has not
20 incorporated necessary water quality-based effluent limits
21 for nutrients and oxygen-demanding waste into the permit.

22 In order to save time this evening, my
23 comments will focus on some of the chemical and physical
24 states of Hickory Creek and the need for water

1 quality-based effluent limits, and some of the other
2 presenters will cover antidegradation and value of the
3 creek and many other issues.

4 Illinois EPA is required to develop and
5 incorporate water quality-based effluent limitations for
6 any pollutant parameters if there is reasonable potential
7 that it would cause or contribute to an excursion above
8 any water quality standards including narrative standards.
9 This is required by federal regulations which are
10 applicable to state programs. Substantial evidence exists
11 that there is reasonable potential that Hickory Creek is
12 exceeding narrative and numeric water quality standards
13 due to high levels of nutrients and the resulting impacts
14 on dissolved oxygen.

15 First, Illinois EPA has determined that
16 Hickory Creek was not fully supporting its designated uses
17 and, therefore, not meeting water quality standards for
18 the purposes of the State's 303(d) list. This is an
19 impaired waters list that the State prepares.
20 The creek is on the draft 2002 list due to total dissolved
21 solids, total suspended solids, nutrients, phosphorous,
22 inorganic nitrogen, and other parameters as well.
23 Potential sources identified in the list include municipal
24 point sources.

1 While the State has been clear that this
2 does not constitute proof that the water is violating
3 standards, I do feel that it at least constitutes
4 reasonable potential that there are violations of water
5 quality standards and, therefore, water quality-based
6 effluent limits should be determined for those parameters.

7 Fortunately, there is other evidence
8 besides just the presence on the list that there are some
9 problems out there. There is evidence to suggest that
10 phosphorous concentrations are particularly high in the
11 creek. The U.S.G.S. database that I mentioned earlier
12 indicates that for the period of '92 to '97, which is the
13 most recent five year period on record, total phosphorous
14 exceeded Illinois's EPA trigger value for more than
15 20 percent of the samples.

16 I think it's worth noting that Illinois
17 EPA's trigger is eight times -- approximately eight times
18 higher than the USEPA's recommended criterion. While this
19 is not an adopted standard at this time, it does indicate
20 that there is high phosphorous in the stream.

21 Furthermore, data collected in August 2002
22 by the Village of New Lenox indicate the total phosphorous
23 instream on that particular day when they sampled was
24 between 1.49 and 1.63 milligrams per liter. These

1 concentrations are approximately 20 times the USEPA-
2 recommended criterion and more than twice Illinois EPA's
3 trigger. If these excessive concentrations are not enough
4 to warrant limiting phosphorous to Hickory Creek, we also
5 should look at the impacts that nutrient enrichment has on
6 dissolved oxygen for which numeric criteria have been
7 adopted by the State.

8 As many of you know, excessive nutrient
9 enrichment causes dissolved oxygen to fluctuate
10 considerably over the course of a day as photosynthesis
11 produces oxygen during daylight hours and respiration
12 takes that oxygen back out of the water during dark hours.
13 Typically the lowest oxygen concentrations are observed
14 right before dawn. And because sampling is seldom
15 conducted at these early hours, violations of the minimum
16 dissolved oxygen criterion often go undetected.

17 However, reasonable potential of that
18 dissolved oxygen criteria are violated is evident in the
19 supersaturation of oxygen in the creek during daylight
20 hours, which demonstrates considerable photosynthetic
21 activity. Data from that same U.S.G.S. database indicates
22 that during the full period of record at that gauge
23 station, which was from '79 to '97, dissolved oxygen was
24 supersaturated based on the temperature data that was also

1 collected for more than 40 percent of the samples.

2 And I would like to ask the Agency if they feel
3 that there is any reasonable cause for this in Hickory
4 Creek other than photosynthetic activity.

5 MR. MOSHER: Well, usually supersaturation is
6 either caused by photosynthetic activity or extreme
7 turbulence. So given the nature of Hickory Creek, it's
8 very possible that algae saturation photosynthesis had a
9 part in that.

10 MS. WENTZEL: Given that fluctuations between
11 daylight hours and dark hours can be as great as -- have
12 been shown to be as great as 6 to 8 milligrams per liter,
13 there is reasonable potential that dissolved oxygen
14 regularly falls below the adopted minimum of 5.0
15 milligrams per liter.

16 The data collected by the applicant on
17 August of 2002 also indicates supersaturation of dissolved
18 saturation. And interestingly, on that day the four sites
19 downstream of the facility were supersaturated and the
20 single upstream sample that day was not. Supersaturation
21 of dissolved oxygen has also been shown to cause gas
22 bubble trauma in fish and aquatic invertebrates. I don't
23 know if that is something that has been considered by the
24 Agency.

1 Maybe I should just ask, is that something
2 that has been considered by the Agency with respect to
3 this permit or this issue?

4 MR. MOSHER: I'm going to have to answer that
5 that I'm not aware of any noted gas bubble disease in fish
6 that are routinely collected by either our staff or IDNR
7 staff. If they ever did report that, I'm sure we would
8 definitely take it seriously and conclude from that
9 incidence.

10 MS. WENTZEL: Finally, area residents have
11 observed excessive and offensive algal blooms in the creek,
12 and this condition violates the State's narrative
13 criterion prohibiting offensive conditions that is spelled
14 out in the State regulations.

15 So based on these findings, I feel that
16 there is more than reasonable potential that the creek is
17 violating water quality standards. So the next question
18 is will this particular discharge contribute to the
19 violations, and I will try to wrap up quickly.
20 There certainly is evidence that the existing facility and
21 the proposed expansion contribute a substantial load of
22 nutrients to Hickory Creek. Page 2 of a document
23 submitted by EarthTec, the applicant's consultant, dated
24 April 2, 2002, titled "Impact of Proposed Discharge on

1 Receiving Streams," concludes that -- and this is a
2 quote -- Based on available data, the effluent from the
3 wastewater treatment plant No. 1 has lower concentrations
4 for all comparable parameters except for copper.

5 However, notably absent from the comparison
6 were nutrients. The applicant sampling conducted in
7 August of 2002 found 2.76 milligrams per liter of total
8 phosphorous in the effluent, almost twice the upstream
9 concentration on that day and six times the average over
10 time for that particular stream.

11 The August 2002 sample also indicated
12 considerably higher nitrate plus nitrite in the effluent
13 than at Hickory Creek. In large streams with few other
14 discharges dilution of the waste might alleviate problems
15 associated with these high discharge concentrations.
16 However, Hickory Creek is dominated by flow from
17 wastewater treatment plants particularly during low flow
18 periods. These statistical low flow or the 7Q10 flow
19 reported in the fact sheet is 2.4 cubic feet per second.
20 The discharge from the expanded facility would be 3.9
21 cubic feet per second.

22 And because cumulative impacts of other
23 discharges must also be considered before permitting a
24 discharge, it is worth noting that according to the permit

1 compliance system the sum of average flows from all sewage
2 treatment plants in the upper watershed is over 13 cubic
3 feet per second. So it is certainly an effluent-dominated
4 stream.

5 The existing and proposed facility will
6 also discharge other oxygen-demanding wastes, namely BOD,
7 that exacerbates the dissolved oxygen problems previously
8 mentioned. There is no evidence in the file that Illinois
9 EPA conducted any analyses to determine levels of BOD that
10 would ensure that dissolved oxygen criteria will be met.
11 Prior to issuance of this permit Illinois EPA must conduct
12 such an analysis using an established method such as a
13 Streeter-Phelps equation to determine allowable levels of
14 BOD.

15 To conclude and give somebody else the
16 mike, I just want to emphasize that because there is
17 reasonable potential that this facility currently
18 contributes and, if it expands, will further contribute to
19 water quality standard violations for offensive conditions
20 and dissolved oxygen, Illinois EPA must develop water
21 quality based effluent limits for nutrient and BOD for
22 this facility and incorporate them into the permit.

23 The development of these water
24 quality-based effluent limits should include an assessment

Exhibit 4



Sierra Club

Illinois Chapter

200 N. Michigan Ave., Suite 505, Chicago, IL 60601-5908
(312) 251-1680 • (312) 251-1780 (FAX)

Sent via fax to 217-785-1225

December 1, 2003

Bruce Yurdin
Illinois EPA
Bureau of Water- Watershed Management Section, Planning Unit
1021 N Grand Ave. East
PO Box 19276
Springfield, IL 62794-9276

RECEIVED
DEC 03 2003
Watershed Management Section
BUREAU OF WATER

RE: Draft TMDLs for East Branch and West Branch DuPage River and Salt Creek

Dear Bruce:

The Sierra Club, Illinois Chapter welcomes the draft TMDLs for three watersheds of the DuPage River. The development of TMDLs and Watershed Implementation Plans is an important step in addressing water quality issues in these watersheds where many Sierra Club members live. Sierra Club members use these waterways for activities including fishing, canoeing and wildlife viewing and depend on good water quality for such activities. Members of the Club's River Prairie Group have been monitoring a suite of water quality parameters in the East and West branches of the DuPage River and Salt Creek since 2000.

In this letter, we will offer suggestions for improvements to the TMDLs and Watershed Implementation Plans (WIP). These suggestions are of two types: those applicable to all three TMDLs and WIPs, and recommendations specific to a given TMDL and/or plan. Among our concerns are nutrient pollution contributions to low dissolved oxygen levels, the use of chloride as a substitute for total dissolved solids/conductivity, and impairments not addressed by the TMDLs and WIPs.

Failure to address nutrient pollution

Our greatest concern is the failure to address the role which nutrients play in the problems with low dissolved oxygen levels in the East Branch and Salt Creek. The combination of the decision to not develop TMDLs for water quality parameters for which there is not an Illinois water quality standard and the limited algal information available for modeling have produced TMDLs which consequently focus all their attention on the reduction of oxygen demand from other sources to resolve the low dissolved oxygen problems of these waterways. We are concerned that this will make the recovery of dissolved oxygen levels necessary to sustain aquatic life more difficult.

We support the recommendations of East Branch and Salt Creek TMDLs and WIPs to limit the discharge of deoxygenating waste (BOD) and ammonia into these waterways as a component of the plan to achieve compliant levels of dissolved oxygen. However, we are concerned that by not addressing the role which nutrient-fed algae play, the scope of the problem will not be addressed. This is manifested in various specific ways in the TMDLs and WIPs for both watersheds as described below. For the East Branch, the resulting WIP places its emphasis on reductions in sediment oxygen demand to levels that cannot feasibly be reached. Clearly, in order to develop a workable WIP to restore the East Branch, further reductions of BOD from other sources and nutrients from a variety of sources will be necessary. In the case of Salt Creek, it meant that future increases in wastewater discharge were ignored in the modeling.

East Branch

In the case of the East Branch, none of the wastewater plants which discharge to the river will need to reduce BOD or ammonia beyond their current loadings. So no change in current conditions is required. The WIP also recommends that Churchill Woods Lake be aerated and organic matter getting into the river from runoff be reduced. The reduction in organic matter input into the river is aimed at reducing the sediment oxygen demand (SOD) to levels as low as 0.02 g/ sq. ft/ day in some stream reaches. However, the feasibility of this is questioned in both the TMDL and the WIP:

Literature values suggest that the desired SOD of 0.02 g/ft²-day in some reaches is rarely found in natural streams (East Branch TMDL, Sec. 6.4.3)

DO due to reduction of SOD that derives from this will take an uncertain amount of time and its effectiveness will initially be unknown. (East Branch WIP, Sec. 4.2)

This leaves the situation in which aeration of Churchill Lake is the sole immediate action to be taken to increase dissolved oxygen levels in the East Branch.

Salt Creek

For Salt Creek, the absence of data on macrophytes and attached algae led to a WIP that does not address algae despite the finding of diurnal variations in dissolved oxygen levels which could not be modeled solely with data on algae in the water column.

Consequently, any DO variation due to the presence of macrophytes and attached algae is not reflected in the model results. Therefore, the model, even after good calibration for chlorophyll *a*, is not capable of simulating the full extent of the diurnal variation of DO. (Salt Creek TMDL, Sec. 5.3.1)

Like for the East Branch, the WIP requires no change from the current levels of loading of BOD and ammonia from wastewater discharges on the creek. The sole immediate change recommended is the reduction of SOD through the control of deoxygenating waste entering the creek from stormwater runoff and combined sewer overflows. Yet, the effectiveness of this approach is questioned.

In addition, reduction of VSS [volatile suspended solids] from stormwater and CSO sources will occur over time in relation to implementation of the Phase II and WWTP NPDES permits. However, the improvement DO due to reduction of SOD that derives from this will take an uncertain amount of time with uncertain effectiveness. (Salt Creek WIP, Sec. 4.2)

As a 52% decrease in VSS from these sources is the projected need to restore dissolved oxygen levels in Salt Creek, the uncertainty of this approach is troublesome. Still, CSO contributions to low dissolved

oxygen levels in the creek along with their other obvious negative impacts on the use of the creek by area residents make this an issue worth immediate attention.

As the connection between nutrient levels, algae and demand on dissolved oxygen was not considered, we have to also question model results that suggest that increases in point source discharges improve instream DO levels due to augmented flow. This assumption led to the impacts of future increases in wastewater discharge to the creek being ignored in the modeling. (Salt Creek TMDL, Sec. 6.2)

In summary, our concern with both the East Branch and Salt Creek TMDLs is that by overlooking the role which nutrients play in causing low dissolved oxygen levels in both streams, WIPs have been produced which place much of the burden to restore the streams to healthy DO levels on reducing VSS in runoff. The uncertainty of this approach, reiterated in the text of the TMDLs and WIPs numerous times, does not bode well for restoration of dissolved oxygen to levels protective of aquatic life. We are also concerned that future impacts of increases in wastewater discharge have also been underestimated by this approach. Clearly, to be effective, the TMDL must consider and address all water quality parameters which affect dissolved oxygen levels, even those such as nutrients for which Illinois water quality standards currently do not exist.

We recommend that resources be put towards the collection of nutrient, diurnal DO, algal (both water column and attached) and macrophyte data needed to properly model the role of nutrients in these waterways. The control of nutrients should be included as a component of the TMDLs.

Concerns & Recommendations regarding Chloride TMDL

We support the reductions in chloride loading prescribed for the East Branch (21%), West Branch (35%), Salt Creek (8 %) and Addison Creek (41 %) in the three TMDLs and WIPs. We recommend that outreach to local citizens be employed as one of the means to foster changes in road salt best management practices in the DuPage River watershed. The Northeastern Illinois Planning Commission brochure *Pavement Deicing-Minimizing the Environmental Impacts* offers a good overview of the impacts of road salt and alternative deicing management methods.

We are, however, concerned with the use of chloride as a substitute for total dissolved solids (TDS)/conductivity, a water quality parameter for which there is a numeric standard. For example in Salt Creek, a number of stream segments are listed as impaired for TDS/conductivity but not for chloride. (Salt Creek TMDL, Table 2.1) This would suggest that the TDS violations found in the creek are not just due to chlorides. Further explanation is needed to demonstrate that the chloride reductions called for in the TMDLs will be sufficient to address TDS violations.

Issues not Addressed by the TMDLs and WIPs

1. Each TMDL should explain why or why not a cause of impairment listed in the 1998 303(d) list for any waterbody in the three watersheds was addressed in the TMDL. For example, St. Joseph Creek in the East Branch watershed is listed for nutrients, chloride and habitat alterations, yet the creek's impairments are not considered in the East Branch TMDL, even though chloride is one of the parameters that the TMDL does address.

Other waterbodies and issues not addressed include:

East Branch DuPage River Watershed- Impairments in the East Branch due to nutrients, siltation, habitat alterations, pathogens and chlorine are not addressed by the East Branch TMDL. In addition, the impairments of St. Joseph Creek, Lacey Creek and Hidden Lake are not addressed. Which is correct- Table 2-1 or Figure 2-1? They show a different number of impaired segments on the East Branch and its tributaries.

West Branch DuPage River Watershed- Impairments in the 1998 303(d) list include phosphorus, nitrogen, nitrate, salinity, total dissolved solids (TDS), chlorides, total suspended solids (TSS), ammonia, pathogens, siltation, flow alterations, and other habitat alterations.

Salt Creek Watershed- The 1998 303(d) list shows Salt Creek as also impaired due to nutrients, siltation and pathogens. Busse Woods Lake is listed as impaired due to siltation, dissolved oxygen, suspended solids and noxious aquatic plants. Meacham Creek and Westbury Lake were also listed as water segments to be included in the Salt Creek TMDL.

2. Since the 303(d) list has been updated (in 2002) after the TMDLs for the three watersheds got underway, the TMDL should also list any new impairments that have been identified and explain how these issues will be addressed in the future.

General Comments

1. Since discharge monitoring reports typically report flow data on a daily basis, we wonder why point discharge daily flow data were not made available to the modelers to improve the hydrological simulation of the HSPF model.

Since point sources are responsible for a large portion of flow during low-flow periods, the quality of the point-source data is likely leading to error in the calibration and validation. Since the point-source discharge data were provided as monthly values, daily point source discharge variation is not reflected in the simulation, and the effect of this monthly data would be felt the strongest during low-flow periods. (Salt Creek TMDL, Sec. 5.2.6)

2. We recommend that a summary document be created for each TMDL which briefly describes the TMDL process and the recommendations of the WIP. This piece would be useful for Sierra Club members to use to promote the changes in deicing practices needed in each of the 3 watersheds. It could also explain the actions needed to meet the dissolved oxygen standard in the East Branch and Salt Creek watersheds.

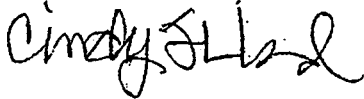
3. We also recommend that local watershed committees be formed to address the need to cut down on polluted runoff in all 3 watersheds. Local Sierra Club members can help in this work, including stream monitoring to gauge the success of such efforts.

In summary, Sierra Club sees the draft TMDLs for the East Branch and West Branch of the DuPage River and Salt Creek as a first step in addressing the problems of these waterways. We support the proposals for limiting BOD and ammonia loading into the East Branch and Salt Creek and for reducing pollution from runoff, especially road salt, in all 3 watersheds. However, we find the absence of any control of nutrient pollution into the East Branch and Salt Creek to be a serious omission from the cleanup plans. Nutrient

contributions to algae and aquatic plant growth must be addressed if we are serious about restoring the levels of dissolved oxygen in these streams to levels supportive of aquatic life.

Thank you for the opportunity to comment on the draft TMDLs for the DuPage River basin. We look forward to working with the Agency on the implementation of the cleanup plans.

Sincerely,

A handwritten signature in black ink, appearing to read "Cindy Skrukrud". The signature is written in a cursive, flowing style.

Cindy Skrukrud, Ph.D.
Clean Water Advocate

CJ → Leahy
Tony

Prairie Rivers Network

Protecting Illinois' Streams

Executive Director
Jean Flemma

December 1, 2003

RECEIVED

DEC 02 2003

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President
Urbana

Mr. Bruce Yurdin
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BUREAU OF WATER**

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Bruce Hannon
Champaign

Ward McDonald
Mahomet

Virginia Scott
Springfield

Re: Comments on the East Branch of the Dupage River TMDL

Dear Mr. Yurdin:

On behalf of Prairie Rivers Network, a statewide river conservation organization and the Illinois affiliate of National Wildlife Federation, I submit the following comments on the East Branch of the Dupage River TMDL and Implementation Plan. We recognize the challenge of cost effectively developing defensible and effective TMDLs and appreciate the efforts that have gone into assembling and analyzing the information in the document. While we believe that this effort was a good start, we feel that significant modifications are necessary prior to finalizing the TMDL.

1. Several other pollutants are listed on the 303(d) list as causes of impairment. What is the state's projected timeline for completing TMDLs for these other pollutants?
2. Use of the chloride standard as a surrogate for the TDS standard is unjustified.

In developing the TMDL for total dissolved solids (TDS) and chloride, it was assumed that if the chloride standard of 500 mg/L is met, the total dissolved solids standard of 1000 mg/L will be met. However, the information presented in the TMDL document suggest that this is not an appropriate assumption. The

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The Illinois Affiliate of the National Wildlife Federation

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correlation between chloride and conductivity was estimated for the East Branch stations as shown on the plot on page 4-4 of the report. It was stated that the TDS standard of 1000 mg/L is equivalent to conductivity of 1667 $\mu\text{mho/cm}$. The plot and equation presented suggest that a more appropriate target for chloride would be approximately 400 mg/L.

3. Point source contributions to chloride standard violations may have been underestimated.

The contribution to chloride loads from point sources was estimated from the measured concentrations on September 16, 1997. While the report indicated that CSO discharge data was unavailable, there are likely combined sewers in the area. Because some stormwater is routed to and through the sewage treatment plant, it is reasonable to expect that the road salt that causes increased chloride instream during winter months could also cause increased chloride at the sewage treatment plants that receive stormwater. If chloride has not been monitored in the effluent of these sewage treatment plants during winter months, such monitoring should be conducted before assuming that the effluent contributions to chloride standards violations are minimal.

4. Failure to identify maximum nutrient loads is unacceptable.

Several pollutants contribute to violations of dissolved oxygen (DO) standards. One purpose of the draft TMDL is to identify maximum loads for pollutants that affect DO to ensure that the standards are met at all times. Therefore, it is not appropriate to exclude nutrients from this analysis. It is not necessary to have adopted nutrient standards before determining maximum loads for meeting DO standards. There are currently no instream water quality standards for CBOD, but water quality based effluent limits are determined and enforced to ensure that DO standards are met. Nutrients should be similarly limited to ensure that these standards are met.

Additionally, the largest reduction of oxygen demand that is proposed in this TMDL is the reduction of sediment oxygen demand (SOD). Nutrients contribute to water column algae and periphyton growth. These organisms eventually die, may settle to the stream bottoms, and decay. This process contributes to sediment oxygen demand. Therefore, to reduce SOD, nutrients should be limited.

5. After calibrating the model, the model should be validated using available water quality data to determine the extent to which it accurately predicts conditions.

6. Error analysis should be conducted as a means of determining an appropriate margin of safety.

The margin of safety (MOS) must "take into account any lack of knowledge concerning the relationship between effluent limitations and water quality." (CWA §303(d)(1)(C)) Therefore, to set aside an appropriate margin of safety, either explicitly or implicitly, the uncertainty associated with the modeling must first be determined. It is not clear from the discussion of MOS in the TMDL document whether a relatively large MOS is assumed based on considerable uncertainty or a small MOS is assumed based on less uncertainty.

7. A TMDL should specify the allowable loading and percent reductions required to meet the proposed reduction of SOD.

The implementation plan refers to a reduction of VSS in order to achieve the reductions of SOD. However, the TMDL document describes no TMDL for VSS. Additionally, it is not clear that VSS is the only component of SOD. Because these are not settleable solids and would not be expected to settle to the stream bottom, this relationship between VSS and SOD is particularly unclear.

8. Estimated BMPs that are already in place should be included in the modeling.

On page 3-13, the report states that no BMPs were included in the model because data regarding the location of these practices was not available. This assumption represents an overestimate of the contribution from stormwater sources. When these sources are overestimated and the model is calibrated to actual conditions, other sources of pollutants, including point source contributions, may be underestimated. To the extent possible, the BMPs that are already in place should be estimated and included in the modeling.

9. The implementation plan does not provide reasonable assurance that load reductions from stormwater discharges will be achieved.

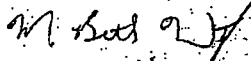
This TMDL demonstrates that discharges from MS4s and CSOs are causing or contributing to violations of applicable water quality standards for DO and chloride. Because the general permit for MS4s specifically prohibits discharges from causing or contributing to a violation of standards and CSO permits typically contain a similar special condition, the holders of these permits are currently violating the terms of the permits. Please identify the MS4 operators whose storm sewers discharge to waters in the watershed, and provide more detail on the measures that these permittees must implement as well as the proposed timeline for

compliance. If the terms of the general MS4 permit do not contain provisions specific enough to comply with water quality standards, please provide a timeline for IEPA to develop an individual permit for these discharges.

* * *

Prairie Rivers Network hopes to continue to work with the state to ensure that these and future TMDLs are as effective and defensible as possible. We would welcome the opportunity to discuss these comments further and look forward to your response.

Sincerely,



M. Beth Wentzel
Watershed Scientist

*St. Louis
Tony*

Prairie Rivers Network

Protecting Illinois' Streams

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Mr. Bruce Yurdin
Illinois Environmental Protection Agency
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P. O. Box 19276
Springfield, IL 62794-9276

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**Watershed Management Section
BUREAU OF WATER**

Re: Comments on the Salt Creek TMDL

Dear Mr. Yurdin:

On behalf of Prairie Rivers Network, a statewide river conservation organization and the Illinois affiliate of National Wildlife Federation, I am submitting the following comments on the Salt Creek TMDL and Implementation Plan. We recognize the challenge of cost effectively developing defensible and effective TMDLs and appreciate the efforts that have gone into assembling and analyzing the information in the document. While we believe that this effort was a good start, we feel that significant modifications are necessary prior to finalizing the TMDL.

1. Several other pollutants are listed on the 303(d) list as causes of impairment. What is the state's projected timeline for completing TMDLs for these other pollutants?
2. Use of the chloride standard as a surrogate for the TDS standard is unjustified.

In developing the TMDL for total dissolved solids (TDS) and chloride, it was assumed that if the chloride standard of 500 mg/L is met, the total dissolved solids standard of 1000 mg/L will be met. However, the information presented in the TMDL document suggest that this is not an appropriate assumption. First, while TDS was identified as a cause of impairment for several segments of the watershed, chloride was identified as a cause of impairment for only one

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of the segments. Apparently, several segments currently meet standards for chloride, but not for TDS.

Secondly, the correlation between chloride and conductivity was estimated for the Addison Creek and Salt Creek stations as shown on the plots on pages 4-7 and 4-8 of the report. It was stated that the TDS standard of 1000 mg/L is equivalent to conductivity of 1667 $\mu\text{mho/cm}$. The plots and equations presented suggest that a more appropriate target for chloride would be somewhere between 350 and 390 mg/L.

3. Assumption that point sources do not contribute to chloride standard violations is unjustified.

Section 6.3.3 of the report states that the point sources do not contribute to the chloride standard violations, because the measured instream concentrations during the months of May through November do not exceed standards. This argument is based on an assumption that the effluent concentration of chloride in winter months is essentially the same as that in the summer months. However, elsewhere in the report it is clear that there are several combined sewers in the watershed. Because the stormwater is routed to and through the sewage treatment plant, it is reasonable to expect that the road salt that causes increased chloride instream during winter months could also cause increased chloride at the sewage treatment plants that receive stormwater. If chloride has not been monitored in the effluent of these sewage treatment plants during winter months, such monitoring should be conducted before assuming that the effluent does not contribute to chloride standards violations.

Secondly, as acknowledged in the report, the CSO and MS4 discharges to Salt Creek are point sources. These contributions should be identified in the TMDL as part of the WLA.

4. Failure to identify maximum nutrient loads is unacceptable.

Several pollutants contribute to violations of dissolved oxygen (DO) standards. One purpose of the draft TMDL is to identify maximum loads for pollutants that affect DO to ensure that the standards are met at all times. Therefore, it is not appropriate to exclude nutrients from this analysis. As mentioned at the public meeting, it is not necessary to have adopted nutrient standards before determining maximum loads for meeting DO standards. There are currently no instream water quality standards for CBOD, but water quality based effluent limits are determined and enforced to ensure that DO standards are met. Nutrients should be similarly limited to ensure that these standards are met.

Additionally, the largest reduction of oxygen demand that is proposed in this TMDL is the reduction of sediment oxygen demand (SOD). Nutrients contribute to water column algae and periphyton growth. These organisms eventually die, may settle to the stream bottoms, and decay. This process contributes to sediment oxygen demand. Therefore, to reduce SOD, nutrients should be limited.

5. After calibrating the model, the model should be validated using available water quality data to determine the extent to which it accurately predicts conditions.
6. Error analysis should be conducted as a means of determining an appropriate margin of safety.

The margin of safety (MOS) must "take into account any lack of knowledge concerning the relationship between effluent limitations and water quality." (CWA §303(d)(1)(C)) Therefore, to set aside an appropriate margin of safety, either explicitly or implicitly, the uncertainty associated with the modeling must first be determined. It is not clear from the discussion of MOS in the TMDL document whether a relatively large MOS is assumed based on considerable uncertainty or a small MOS is assumed based on less uncertainty.

7. Please clarify the relationship between the volatile suspended solids (VSS) load and sediment oxygen demand.

The TMDL scenarios proposed both require reduction of SOD below CSO outfalls to be reduced to that found elsewhere along the creek. This is expressed in the TMDL as 52% reduction in the VSS load. Please describe the rationale behind the assumption that VSS is the only component contributing to SOD below CSO outfalls. Because these are not settleable solids, and therefore would not be expected to settle to the stream substrate quickly, the relationship is particularly unclear.

8. Point sources contribute to sediment oxygen demand, and therefore some portion of the VSS load or other contributing pollutant to SOD should be identified and regulated as a WLA.

As pointed out elsewhere in the TMDL report and implementation plan, many of the stormwater discharges are considered point sources that are regulated under the NPDES programs. Therefore, Table 6-3 should be revised to clarify which portion of the TMDL for VSS is the WLA and which portion is the LA.

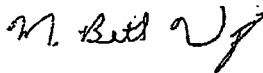
9. The implementation plan does not provide reasonable assurance that load reductions from stormwater discharges will be achieved.

This TMDL demonstrates that discharges from MS4s and CSOs are causing or contributing to violations of applicable water quality standards for DO and chloride. Because the general permit for MS4s specifically prohibits discharges from causing or contributing to a violation of standards and CSO permits typically contain a similar special condition, the holders of these permits are currently violating the terms of the permits. Please identify the MS4 operators whose storm sewers discharge to waters in the watershed, and provide more detail on the measures that these permittees must implement as well as the proposed timeline for compliance. If the terms of the general MS4 permit do not contain provisions specific enough to comply with water quality standards, please provide a timeline for IEPA to develop an individual permit for these discharges.

* * *

Prairie Rivers Network hopes to continue to work with the state to ensure that these and future TMDLs are as effective and defensible as possible. We would welcome the opportunity to discuss these comments further and look forward to your response.

Sincerely,



M. Beth Wentzel
Watershed Scientist



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November 28, 2003

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DEC 04 2003

Watershed Management Section
BUREAU OF WATER

Bruce Yurdin
Illinois Environmental Protection Agency
1021 North Grand Avenue East
Springfield, Illinois 62794-9276

Dear Mr. Yurdin: *Bruce*

Thank you for the opportunity to review your draft reports: *Total Maximum Daily Loads for Salt Creek, Illinois and Salt Creek Watershed Implementation Plan*, both dated July 2003. The following comments and recommendations were developed by staff based on adopted Commission policies and standards and experience with previous water quality studies and modeling of Salt Creek and similar watersheds.

First, we commend you on the development of these assessments and recommendations that are needed to improve water quality and beneficial uses in Salt Creek.

Attached are detailed questions and recommendations on the draft reports. While we understand the budgetary limitations of this and other TMDL studies, we are concerned that the described approach may not adequately assess water quality impairments and their causes in Salt Creek. Several specific concerns highlighted.

- 1) The selected QUAL2E model has admitted limitations in representing the complex water quality interactions in Salt Creek. Yet it was selected over HSPF which has greater representational capabilities and was applied successfully in the NIPC's 208 studies.
- 2) There are virtually no references to the complex modeling that was applied during 208, suggesting that findings and approaches that worked previously may not have even been considered in this study.
- 3) The narrow TMDL focus on chlorides and DO depletion due principally to WWTP sources seems to be misplaced. In particular, the failure to seriously analyze or model dissolved oxygen depletion caused by wet-weather sources and the admitted inadequate assessment of algal-induced diurnal DO violations appear to be a serious shortcomings.

We would be happy to work with you as you revise your draft reports. If you have any questions regarding our comments, please contact me or Sarah Nerenberg at (312) 454-0400.

Sincerely,

Dennis Dreher

Principal Water Resources Engineer

cc: Sarah Nerenberg

NORTHEASTERN ILLINOIS PLANNING COMMISSION
222 South Riverside Plaza, Suite 1800; Chicago, Illinois 60606

November 28, 2003

Staff Review Statement

Draft Total Maximum Daily Loads for Salt Creek, Illinois and Salt Creek Watershed Implementation Plan, both dated July 2003.

Background: The following comments and recommendations were developed by staff based on adopted Commission policies and standards and, in particular, related water quality modeling and assessments performed by Commission staff and its consultants. In particular, these comments considered the Commission's Strategic Plan for Water Resource Management, the Areawide Water Quality Management Plan (208 Plan), and experience from the water quality modeling work that advised the recommendations of the Areawide Water Quality Management Plan.

Comments on Total Maximum Daily Loads for Salt Creek, Illinois

This document describes methods and procedures used to develop a set of procedures for Salt Creek in Cook and DuPage Counties.

Comments

Sec. 3.6 - Point Sources: It is stated that the dissolved oxygen model was set up for just dry weather conditions. This would seem to be major shortcoming. Our experience in the 208 assessment and modeling process indicated significant wet-weather dissolved oxygen depletion, including standard violations, during wet weather. DO depletion was caused by both nonpoint source runoff as well as combined sewer and sanitary sewer overflows, depending on watershed circumstances. There is a strong likelihood that such occurrences still continue at the present time, but apparently are not being represented in the Salt Creek TMDL model. Why?

Sec. 4.2 - Copper: This section appears to conclude that copper is not a problem, based on ambient water quality monitoring. However, there is no apparent consideration of problematic copper concentrations in sediments. Based on reviews of sediment concentrations in other suburban northeastern Illinois watersheds where metals and other toxic constituents were reported at highly elevated concentrations in sediments, it is recommended that copper concerns in salt creek be reevaluated.

Sec. 4.4 - Chloride: It is reported that there were only limited exceedences of the chloride standard. However, the limited (monthly) grab sample methodology utilized in this study is likely to miss significant wet-weather, snow melt occurrences in which chloride concentrations are likely to be elevated.

4.5 - Total Phosphorus: It is reported that phosphorus concentration appear to be dropping in recent years and that "appropriate measures may have already been taken" to address phosphorus related water quality problems. First, it is possible (likely?) that observed phosphorus changes could be explained by changing weather and/or algal uptake occurrences. Second, while "appropriate measures" are alluded to, there is no discussion of what such measures may have been. Since there is little point source input above Busse Lake, it is hard to imagine that unknown remedial nonpoint source controls have been implemented to cause such a change.

4.6 - Dissolved Oxygen: Although it is noted that both wet-weather and summer, low-flow conditions are potentially contributing to dissolved oxygen impairment, for unexplained reasons it is concluded that "the DO problem" is associated with the latter circumstances and only summer, low-flow conditions will be modeled. This decision seems to be very limiting, particularly considering that making this determination essentially rules out wet-weather/nonpoint source runoff from further assessment and consideration.

5.2.6 - Salt Creek Hydrologic Validation: In this section, and preceding discussions of the HSPF hydrologic modeling and calibration, reference is made to the calibrations performed by Price for DuPage County. This is a very useful and important point of reference. However, no reference is made to previous 208 hydrologic and water quality modeling of Salt Creek. This seems like a serious oversight, particularly because the 208 modeling focused heavily on the accuracy of low-flow modeling, whereas the more recent modeling (Price) is focused principally on high flow (wet-weather) conditions. More specifically, it is noted that monthly point source flow data were used, resulting in an inability to represent daily discharge variations. This is a shortcoming in both model calibration and eventual simulation. As noted previously in this chapter (5.2.4), monthly treatment plant flows are much higher, on average, than daily low flows due to the effects of infiltration and inflow. In addition, it is known that even diurnal treatment plant discharge variations are very substantial and can effect both calibration and simulation results. Considering this, it is unclear why daily flow data were not obtained from treatment plant operators. Further, HSPF allows representation of diurnal variability in point source flows, based on actual observations. It is our recollection that both types of flow variability were incorporated into the previous 208 modeling work, and we suggest, should have been incorporated into the TMDL study.

5.2.7 - Chloride Calibration: The report concludes that the model is adequately calibrated for chloride concentrations. However, the highest concentrations reported in grab samples are not even closely approached in the simulation, suggesting a possible problem. This may be explained by the complexity of representing road salt application. While the model apparently assumes a regular, predictable buildup/washoff function, in reality salt is applied on a very irregular, concentrated basis in response to snow and ice events. Therefore, it is probably no-surprise that the rather basic model representation may be under-simulating extreme salt concentrations occurring during melt/runoff events. Similarly, the model would normally represent snow melt based on natural phenomena - i.e., temperature and solar radiation. However, salt-induced snow melt during sub-freezing conditions may be causing some of the most concentrated chloride conditions instream - i.e., very concentrated runoff occurring during very low dilution conditions. Are these latter salt-induced conditions represented in any way in the model?

5.3 - Modeling Dissolved Oxygen Using QUAL2E: Several comments are noted for this section:

- First, while it is noted that HSPF can represent DO over a wider range of dynamic conditions than the narrow nearly steady state range represented by QUAL2E, there is little discussion as to why HSPF is not used instead. This decision eliminates the ability to represent potential wet-weather DO problems and also limits the ability to represent variable DO conditions during lower flow periods intervening between wet-weather. It also eliminates the related representation of the complex conditions of variable algal concentrations that respond to variability in flow, temperature, and cloud cover and, in turn, affect DO concentrations.

- It is noted that model representations of Salt Creek and Spring Brook began, respectively, downstream of Busse Lake and Lake Kadajah. This seems problematic from the perspective of a complete and adequate dissolved oxygen representation, particularly the diurnal effects caused by algal concentrations which tend to be much more prominent (and potentially problematic) in impounded reaches. Why were the lakes and upstream reaches not represented?

- It is noted in the report that sediment oxygen demand (SOD) is "found through model calibration." This approach seems problematic, particularly considering that SOD is measurable and measured rates would provide a much more reliable point of reference versus backing into assumed levels through model calibration. During the previously mentioned 208 modeling project, an extensive SOD monitoring study was done by the Illinois State Water Survey (along with the Metropolitan Water Reclamation District). At a minimum, those measured concentrations should be used as a point of reference in establishing SOD rates in the TMDL study. While the ISWS SOD report is listed as a reference, there is no indication how that information may have been used in the TMDL analysis. Having sound, measured SOD numbers provides much more reliability in calibrating realistic oxidation and nitrification rates, and greatly reduces the possibility of a false conclusion in determining the relative sources of oxygen demand, such as represented in figure 5-6.

5.3.1 - Diurnal Variation of DO Due to Algae and Photosynthesis: The report notes that QUAL2E cannot represent time-varying flow and pollutant loads. It notes several other shortcomings, including the sample period used for diurnal calibration (e.g., significant flow variability during the period, inability to represent attached algae). It ends up concluding that the model is not capable of simulating the full extent of the diurnal variation of DO. As previously pointed out, it is puzzling why HSPF was not used instead. In particular, HSPF does not have the limitations of QUAL2E in representing diurnal and flow-varied changes in DO and algal concentrations, can also represent attached algae, and was successfully applied to Salt Creek and a range of other stream and river conditions during the 208 process. A consequence of limitations of the selected model may be misrepresentation of critical factors, such as phosphorus and other nutrients, that contribute to observed DO problems.

6.2.- Future Growth: Several concerns are raised in this section.

- The report notes that summer low-flow conditions are the critical condition for DO impairment. While this may be true, and presuming that this low-flow impairment can be eliminated, there remains the concern that wet-weather impairments (even if less severe than low-flow impairments) will continue into the future unabated. The report also notes that point source contribution has the most significant impact under current conditions and will continue under future conditions. This may or may not be the case.

- Future population change in the watershed was apportioned very crudely based on county totals for DuPage and Cook. Alternatively, population change could easily have been estimated more accurately by overlaying GIS-based quarter-section or census tract forecast information on top of watershed and sub-watershed boundaries. This approach is commonly applied by NIPC in its routine watershed planning work.

- It is reported that a future-conditions model run with increased point source loadings shows improved DO conditions in the creek. This model result, and its explanation – “flow augmentation” – seem counterintuitive and inconsistent with previous modeling results (e.g., NIPC and others). It also raises further questions regarding the previously mentioned relationships between SOD, instream BOD and ammonia, and diurnal algal effects, and the adequacy of their representation in a model that is admittedly constrained in its ability to represent complex instream phenomena.

6.3.2 - Chloride Margin of Safety: The referenced “conservative” chloride assumptions really don’t appear “conservative.” In light of measured concentrations that on occasion greatly exceeded 500 mg/l which were not approached by model calibration results, and the previous comments on the complexity of simulating road salt runoff and resultant chloride levels, it is suggested that a significant additional margin of safety is needed in setting the TMDL, at least from the nonpoint source side.

6.4 - Dissolved Oxygen: This section notes that chlorophyll a concentrations in Salt Creek “did not show any obvious eutrophication problem.” It is therefore concluded that the steady-state QUAL2E model was appropriate for developing the DO TMDL. This seems to directly contradict both the observed significant diurnal variations in DO (figure 4.4) and the simulated diurnal variability (figure 5.8), albeit with a model that admittedly has limited ability to represent actual diurnal variations. As a result, any results coming out of such steady state modeling that does not represent algal-induced diurnal variations is suspect, at best, and likely to substantially underestimate the actual degree of dissolved oxygen violations in the creek. It also leads directly to a likely erroneous conclusion that there is no need to evaluate factors (i.e., phosphorus) that contribute to algal growth.

6.4.1 - Margin of Safety for DO: Most of the assumptions referenced in this section seem reasonable and appropriately conservative. However, the assumed summer temperature range (74-77 degrees F) based on a June 1995 monitoring period does not seem conservative, and water/air temperature are critical factors influencing low dissolved oxygen. What is the actual range of summer, low-flow water temperatures seen in Salt Creek? In particular, what was the air temperature range during the June 27, 1995 sample period?

6.4.2 - DO LA and WLA: It is stated that nonpoint contributions of CBOD and ammonia do not require any control because DO standards are not violated during high flow. As noted previously in these comments, the basis of this conclusion does not appear to be valid. First, while the limited wet-weather monitoring data available for Salt Creek probably is not adequate to make a firm conclusion, regional observations would certainly suggest the likelihood of wet-weather DO problems. Secondly, the chosen modeling approach in this study does not have the capacity to represent wet-weather DO conditions.

6.4.3 - Implementation Considerations: Reference is made to possible dam removal as an option for TMDL implementation. It is strongly recommended that this option be further evaluated and pursued. Not only would dam removal help achieve DO standards, it also would contribute significantly to improved aquatic habitat, fish movement, and recreational boating access.

References: There are no references to previous modeling and water quality analyses performed during the NIPC 208 study. This is both perplexing and troubling. While conditions have obviously changed during the intervening years, the dynamic water quality modeling performed during 208, and subsequent follow-up applications on the DuPage River, are still the definitive applications of state-of-the-art, dynamic water quality modeling for Salt Creek and similar streams in this region.

Comments on Salt Creek Watershed Implementation Plan

1 - Scope: As previously noted in comments on the TMDL report, we have concerns that the TMDL is limited to just chloride and DO (from point sources and VSS contributed by nonpoint sources and CSOs). Other constituents recommended for serious evaluation, and possible TMDL setting, include:

- nutrients as a causative factor for algal growth that creates problematic diurnal DO swings
- nonpoint source runoff, CSOs, and sanitary sewer overflows as likely contributors to wet-weather DO violations
- Copper as a potential contributor to water column and sediment toxicity problems
- Various other constituents (metals, pesticides, organics) for their contribution to elevated concentrations of toxic constituents in the sediment

2.1 - Point Sources-Stormwater: It is stated that stormwater-related allocations will be implemented as point source controls under NPDES Phase II. However, it appears that NPDES Phase II as currently being enforced in Illinois will, at best, address *prevention* of problems associated with new development but will not provide for effective *remediation* of existing stormwater loads.

2.4 - Reasonable Assurance: It is noted that stormwater control for MS4s will be accomplished through the "NPDES Phase II general permit." How will this happen? Does an existing general permit call for basin wide remediation of existing stormwater discharges?

3.1.1 - General BMPs for Road Deicing: It is suggested that a recommendation be added for anti-icing as an additional BMP that can reduce the use of road salt.

3.1.3 - Recommended Management Actions for Chloride: The recommended actions for road deicing in this section seem to be very vague. How will specific recommendations be monitored and enforced to ensure that salt reductions will actually take place?

3.2.1 - Recommended Management actions for DO: The recommendations for VSS reduction for stormwater presume that Phase II stormwater remediation will occur "over time." What mechanisms are in place to ensure that this will happen?

3.2.3 - Cost Considerations: The estimated cost for WWTP improvements is estimated at about \$18 million. However, the cost for dam removal which could achieve similar benefits is not estimated. It is strongly recommended that this estimate be provided. Even if only crude cost estimates are available, it seems very likely that the dam removal cost would be much less than the \$18 million for WWTP improvements.

Exhibit 5



Forest Preserve District of DuPage County

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*St. Haber
Tony*

November 12, 2003

Mr. Bruce J. Yurdin, Manager
Watershed Management Section, Bureau of Water
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P.O. Box 19276
Springfield, IL 62794-9276

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Watershed Management Section
BUREAU OF WATER

RE: DRAFT SALT CREEK TMDL PLAN
FULLERSBURG WOODS CORRESPONDENCE FILE Z-120-002

Dear Mr. Yurdin:

Thank you for the opportunity to review and comment on the draft report titled *Total Maximum Daily Loads (TMDL) for Salt Creek*. The Forest Preserve District of DuPage County (the "District") fully supports the goal of the TMDL program, which is to improve water quality in our lakes, streams and rivers. Organizationally, many of the District's policies emphasize the importance of controlling and eliminating pollution in our waterways. Our Land Management Policy states "Rivers and streams within District boundaries shall be left in a natural state. Winding courses, eddies, riffles, rapids or falls, shaded banks, vegetated banks, oxbows and backwaters, all contribute to a diverse and healthy stream."

However, we also have a Policy on the Development, Preservation and Operation of Historic Structures, which states our support for the preservation of "... structures connected with events important to the patterns of history; structures connected with regionally important people; structures that represented community development or were instrumental to settlement of an area; and structures that are essentially intact or undisturbed." The Graue Mill Dam at Fullersburg Woods Forest Preserve, which is owned by the District, clearly falls into this category of being an important historic structure.

A dam has existed at this site since at least 1852, to supply a source of waterpower for a gristmill constructed by Frederick Graue, one of DuPage County's earliest settlers. The existing dam was constructed in 1934 by the Civilian Conservation Corps, as part of the Works Progress Administration. The Graue Mill is a National Historic Landmark, and one of DuPage County's most popular tourist destinations. Visitors are able to see the mill operate virtually the same way that it did 150 years ago. It is my understanding that the Graue Mill has the only operable millrace powered waterwheel in the State of Illinois.

So, admittedly, the District has conflicting policies regarding the Graue Mill Dam at Fullersburg Woods. Without the historic significance of the structure, and its critical importance in the overall operation and interpretive programs at the Graue Mill, our existing policies would seem to lead us to support the recommended removal of the dam. We agree that the dam does create some negative impacts on water quality and the overall ecological

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Mr. Bruce Yurdin
Salt Creek TMDL Plan
Page 2 of 2

health of Salt Creek. However, the historic importance of the dam cannot be ignored, as the draft version of the TMDL report has done.

It appears to us that the draft *Salt Creek Watershed Implementation Plan* offers two basic alternatives with respect to the TMDL for dissolved oxygen: 1) Reduce the average monthly allowable pollutant concentrations of CBDO₅ and ammonia to 5.0 mg/L and 1.0 mg/L, respectively, at the wastewater treatment plants within the Salt Creek watershed, or 2) remove the Graue Mill Dam at Fullersburg Woods. If we understand the report correctly, the cost of the first alternative is estimated to be \$18 million, on a watershed-wide basis; while the cost for the dam removal option has not been calculated.

My main purpose in writing this letter is to emphasize the important historical and societal aspects of the Graue Mill Dam that have not been addressed in the draft TMDL report. Any serious proposal to remove the Graue Mill Dam will undoubtedly be highly controversial, and many local residents, homeowners associations, and a variety of organizations will object to the proposal. Quite frankly, I am not sure how the Board of Commissioners of the Forest Preserve District would react to such a proposal, if IEPA selects the dam removal alternative as the recommended Salt Creek TMDL for dissolved oxygen.

Before I would even consider asking our Board to make such a decision, much more additional technical research and public input would be required. The draft TMDL report tells us that water quality in Salt Creek would improve if the dam is removed, but doesn't tell us how the upstream sediment would be dealt with or how much the project would cost, or who would pay for the project. In addition, we feel that the IEPA should consult with the Illinois Historic Preservation Agency regarding the acceptability of the dam removal option, given the classification of the Graue Mill as a National Historic Landmark.

Will IEPA be addressing any of these types of issues before finalizing the Salt Creek TMDL Plan?

Sincerely,



Brent Manning
Executive Director

cc: Dewey Pierotti, President

1 BEFORE THE ILLINOIS ENVIRONMENTAL PROTECTION AGENCY

2 IN THE MATTER OF:)
3 DRAFT RENEWAL NPDES PERMIT)
4 TO DISCHARGE INTO WATERS OF)
5 THE STATE - VILLAGE OF)
6 NEW LENOX - STP #1)

5

6 REPORT OF PROCEEDINGS taken at the hearing
7 of the above-entitled matter, held at 701 West Haven
8 Avenue, New Lenox, Illinois, before Hearing Officer
9 Deborah Williams, reported by Janice H. Heinemann, CSR,
10 RDR, CRR, a notary public within and for the County of
11 DuPage and State of Illinois, on the 24th day of April,
12 2003, commencing at the hour of 7:00 p.m.

13

14 APPEARANCES:

15 MS. DEBORAH WILLIAMS, IEPA Acting Hearing
16 Officer, Division of Legal Counsel;

17 MR. ALAN KELLER, Manager,
18 Northern Municipal Unit, Permit Section;

19 MR. ROBERT MOSHER,
20 Water Quality Standards Unit;

21 MR. ABEL HAILE,
22 Northern Municipal Unit, Permit Section;

23 MR. JAY PATEL, Field Operations Section;

24 MR. BILL HAMMEL, Office of Community Relations.

1 refer to them now in your comments, the web site and where
2 we can find the information; but if you wouldn't mind
3 sending a printout with --

4 MS. WENTZEL: Print it all out.

5 HEARING OFFICER WILLIAMS: With comments later.
6 Do you know how many pages we are talking?

7 MS. WENTZEL: Depends on the size of the font.
8 And as long as that is official and if I just print them
9 off myself, that's fine.

10 HEARING OFFICER WILLIAMS: Because if there were
11 ever to be an appeal or something, I think we would want
12 that to be part of the actual records and stuff.

13 MS. WENTZEL: Okay. Then I will certainly do
14 that.

15 Prairie Rivers Network is concerned that
16 the issuance of this permit as written would violate
17 applicable state and federal law, specifically the
18 applicant and Illinois EPA have not satisfied provisions
19 of the antidegradation policy. And Illinois EPA has not
20 incorporated necessary water quality-based effluent limits
21 for nutrients and oxygen-demanding waste into the permit.

22 In order to save time this evening, my
23 comments will focus on some of the chemical and physical
24 states of Hickory Creek and the need for water

1 While the State has been clear that this
2 does not constitute proof that the water is violating
3 standards, I do feel that it at least constitutes
4 reasonable potential that there are violations of water
5 quality standards and, therefore, water quality-based
6 effluent limits should be determined for those parameters.

7 Fortunately, there is other evidence
8 besides just the presence on the list that there are some
9 problems out there. There is evidence to suggest that
10 phosphorous concentrations are particularly high in the
11 creek. The U.S.G.S. database that I mentioned earlier
12 indicates that for the period of '92 to '97, which is the
13 most recent five year period on record, total phosphorous
14 exceeded Illinois's EPA trigger value for more than
15 20 percent of the samples.

16 I think it's worth noting that Illinois
17 EPA's trigger is eight times -- approximately eight times
18 higher than the USEPA's recommended criterion. While this
19 is not an adopted standard at this time, it does indicate
20 that there is high phosphorous in the stream.

21 Furthermore, data collected in August 2002
22 by the Village of New Lenox indicate the total phosphorous
23 instream on that particular day when they sampled was
24 between 1.49 and 1.63 milligrams per liter. These

1 collected for more than 40 percent of the samples.

2 And I would like to ask the Agency if they feel
3 that there is any reasonable cause for this in Hickory
4 Creek other than photosynthetic activity.

5 MR. MOSHER: Well, usually supersaturation is
6 either caused by photosynthetic activity or extreme
7 turbulence. So given the nature of Hickory Creek, it's
8 very possible that algae saturation photosynthesis had a
9 part in that.

10 MS. WENTZEL: Given that fluctuations between
11 daylight hours and dark hours can be as great as -- have
12 been shown to be as great as 6 to 8 milligrams per liter,
13 there is reasonable potential that dissolved oxygen
14 regularly falls below the adopted minimum of 5.0
15 milligrams per liter.

16 The data collected by the applicant on
17 August of 2002 also indicates supersaturation of dissolved
18 saturation. And interestingly, on that day the four sites
19 downstream of the facility were supersaturated and the
20 single upstream sample that day was not. Supersaturation
21 of dissolved oxygen has also been shown to cause gas
22 bubble trauma in fish and aquatic invertebrates. I don't
23 know if that is something that has been considered by the
24 Agency.

1 Receiving Streams," concludes that -- and this is a
2 quote -- Based on available data, the effluent from the
3 wastewater treatment plant No. 1 has lower concentrations
4 for all comparable parameters except for copper.

5 However, notably absent from the comparison
6 were nutrients. The applicant sampling conducted in
7 August of 2002 found 2.76 milligrams per liter of total
8 phosphorous in the effluent, almost twice the upstream
9 concentration on that day and six times the average over
10 time for that particular stream.

11 The August 2002 sample also indicated
12 considerably higher nitrate plus nitrite in the effluent
13 than at Hickory Creek. In large streams with few other
14 discharges dilution of the waste might alleviate problems
15 associated with these high discharge concentrations.
16 However, Hickory Creek is dominated by flow from
17 wastewater treatment plants particularly during low flow
18 periods. These statistical low flow or the 7Q10 flow
19 reported in the fact sheet is 2.4 cubic feet per second.
20 The discharge from the expanded facility would be 3.9
21 cubic feet per second.

22 And because cumulative impacts of other
23 discharges must also be considered before permitting a
24 discharge, it is worth noting that according to the permit