BEFORE THE ILLINOIS POLLUTION CONTROL BOARD

DES PLAINES RIVER WATERSHED ALLIANCE, LIVABLE COMMUNITIES ALLIANCE, PRAIRIE RIVERS NETWORK, and SIERRA CLUB,	)	
Petitioners,	)	
v.	)	PCB 04-88 (NPDES Permit Appeal)
ILLINOIS ENVIRONMENTAL PROTECTION AGENCY and VILLAGE OF NEW LENOX	)	
Respondents.	)	

NOTICE OF FILING

PLEASE TAKE NOTICE that the Des Plaines River Watershed Alliance, the Livable Communities Alliance, Prairie Rivers Network, and the Sierra Club have filed the attached PETITIONERS' REPLY MEMORANDUM IN SUPPORT OF SUMMARY JUDGMENT and PETITIONERS' REPLY REGARDING RELEVANT FACTS IN THE AGENCY RECORD.

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DATED: June 7, 2005.

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Respondents.	)	

PETITIONERS' REPLY MEMORANDUM IN SUPPORT OF SUMMARY JUDGMENT

DATED: June 8, 2005

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INTRODUCTION

The Illinois Environmental Protection Agency ("IEPA" or the "Agency") and the Village of New Lenox ("New Lenox") (collectively "Respondents") in their responses to the motion for summary judgment rely on legal arguments that contradict the express language of the relevant regulations. Regarding the facts, Respondents frequently do not even try to support their claims with citations to the record and many of the citations they do make do not support them. Respondents frequently rely on Agency conclusions that have no basis other than the notion that if the Agency says it, it must be true. In large part, the IEPA and New Lenox responses discuss issues (e.g. dissolved oxygen levels, effect of the discharge on aquatic life and land treatment alternatives) that were not raised by the motion.

However, the fundamental flaw in the responses of IEPA and New Lenox is that they treat this case as though it were an enforcement action brought by Petitioners against New Lenox claiming that New Lenox had caused violations of water quality standards. Respondents fault Petitioners for failing to prove indisputably with sworn testimony that New Lenox caused such violations. But this is not an enforcement action. It is a permit review in which the question is whether IEPA followed the Environmental Protection Act and the Board Rules in issuing the permit. The facts presented by Petitioners in their Statement of Relevant Facts show the information about potential problems that could result from the discharge under consideration that was provided to the Agency and what the Agency did and did not do in response to that information during the permitting process.

In order to simplify this case and attempt to save Hickory Creek from the effects of illegal and unnecessary new pollution, petitioners Des Plaines River Watershed Alliance, the Livable Communities Alliance, Prairie Rivers Network, and the Sierra Club (collectively, "Petitioners") moved for summary judgment on only three of the grounds for remanding the permit:

1. IEPA never considered putting any limit on discharges of phosphorus although the public asked that such limits be considered and it is indisputably feasible to remove much of the phosphorus from New Lenox's discharge. The permit, accordingly, violates 35 Ill. Adm. Code 302.105(c)(1) which requires that new pollution only be allowed when it is "necessary" and 35 Ill. Adm. Code 302.105 (c)(2)(B)(iii), which requires that the Agency "assure" that all technically and economically reasonable measures to minimize pollution be required.

2. Despite evidence (later confirmed by IEPA itself) that Hickory Creek is having unnatural algal blooms and that discharges like those from New Lenox could contribute to such blooms, IEPA failed to consider whether any permit limits or conditions were necessary to prevent discharges that could cause or contribute to violations of the narrative "offensive conditions" standard, 35 Ill. Adm. Code 302.203. Because of this failure, the permit violates 35 Ill. Adm. Code 302.203(c)(2)(B)(i), which requires that the Agency "assure" that narrative standards will not be violated, and 35 Ill. Adm. Code 304.105 and 35 Ill. Adm. Code 309.141(d)(1) which prohibit issuance of NPDES permits where the discharge would "alone or in combination with other sources cause a violation of any applicable water quality standard" or where the discharge "will cause, have the reasonable potential to cause, or contribute to an excursion above any State water quality standard including state narrative criteria." 40 CFR 122.44(d)(1)(i) (incorporated into Illinois rules by 35 Ill. Adm. Code 309.141(d)(1)).

3. IEPA failed to assure that copper discharges will not cause or contribute to violations of the copper water quality standard although testing by New Lenox's contractor showed that there was a reasonable potential that copper discharges would cause such violations. Thus, with regard also to copper, the permit violates 35 Ill. Adm. Code 302.105(c)(2)(B)(iii), 35 Ill. Adm. Code 302.203(c)(2)(B)(i), 35 Ill. Adm. Code 304.105 and 35 Ill. Adm. Code 309.141(d)(1).

(See Petitioners' Memorandum in Support of Summary Judgment p.2.)[1]

Petitioners supported each of their three claims with citations to the record showing how the permit violated Board regulations, thereby meeting their burden. IEPA and New Lenox do not in response identify substantial evidence in the record that supports IEPA's decision on any of the three grounds for remanding the permit. Nowhere in the record did IEPA consider whether adding so

[1] Petitioners' Memorandum in Support of Summary Judgment is cited as "Mem. in Support p. __", Petitioners' Statement of Relevant Facts from the Agency Record is cited as "SoF ¶ __", the IEPA Response to Petitioners' Motion for and Memorandum of Law in Support of Summary Judgment is cited as "IEPA Resp. p. __", the Village of New Lenox's Memorandum of Law in Opposition to Petitioners' Motion for Summary Judgment is cited as "New Lenox Resp. Mem. p. __" and the Response of Village of New Lenox to Petitioners Statement of Relevant Facts from the Agency Record is cited as "New Lenox Resp. to Facts p. __."

much more phosphorus to Hickory Creek was necessary, and nothing in the record excuses this failure unless the Board accepts the proposition that the fact that IEPA is working on developing numeric nutrient standards means it does not have to comply with 35 Ill. Adm. Code 302.105(c).

Similarly, Respondents offer no evidence that IEPA considered taking any steps to prevent potential violations of the narrative standards against unnatural algal blooms. The Respondents do bravely attempt to argue that IEPA need not require compliance with narrative standards, but, as will be seen below, this argument runs smack into clear legal requirements. Unless IEPA may ignore regulations that are difficult to apply, the permit must also be remanded for this reason.

IEPA did go through the motions of considering placing copper limits in the permit but there is no substantial evidence in the record supporting its decision not to place such limits in the permit. Considering the evidence in the record as a whole, copper limits or further testing is needed before the discharge can be permitted properly.

Because the decision by the Board in this case must be made "exclusively on the basis of the record before the Agency," (415 ILCS 5/40(e)), summary judgment is an appropriate method for resolving this case. Summary judgment cannot be said to be a drastic remedy and is likely to be appropriate in a proceeding in which there can never be a trial in which new evidence is offered. (See e.g. Florida Fruit & Vegetable Assoc. v. Brock, 771 F.2d 1455, 1459 (11th Cir. 1985) ("Summary judgment is appropriate in this case because in reviewing an agency rulemaking, the court considers the record that was before the agency and the record is before the court"); Tarbell v. Dept. of Interior, 307 F.Supp. 2d 409, 421 (N.D. N.Y. 2004) (where review is limited to agency record, the need for resolution of fact issues, which often precludes summary judgment, does not generally apply); Loggerhead Turtle v. County Council, 120 F. Supp. 2d 1005, 1011-1012 (M.D. Fla. 2000) (when "the Court determines the issues based on the agency's administrative record, a trial is generally

unnecessary and summary judgment is often appropriate")). Any hearing in this case would simply be done to further summarize the evidence and provide oral argument. If such further summary or oral argument is thought by the Board to be useful, the Board could order that there be oral argument on the motion for summary judgment. [2]

I. Respondents do not contest the facts that are essential to Petitioners' motion.

As explained further below, because it was IEPA's duty to comply with the Board rules in issuing the permit, Petitioners need only establish the following factual propositions to establish that the permit violates the Board rules in three different ways:

- IEPA did not find that it was necessary for New Lenox to discharge into Hickory Creek without providing phosphorus removal. (SoF ¶40)

- IEPA did not determine that discharges from New Lenox could not cause algal blooms or place any limits in the permit to prevent unnatural algal blooms. (SoF ¶ 40)

- Testing by New Lenox's contractor indicated that there was a reasonable potential for violations of the copper standard under the relevant U.S. EPA guidance, yet IEPA did not require copper limits or further copper testing before permitting the discharge or offer a reasonable justification for failing to do so. (SoF ¶¶36-38)

Because this is a third-party permit appeal, Petitioners had to prove a bit more to establish standing and meet the requirements of 415 ILCS 5/40(e), which require Petitioners to have raised the issues during the public notice period to challenge the permit violations. Accordingly, in addition to providing the Board some background for the case, Petitioners in their Statement of Relevant Facts showed that:

- Petitioners requested that IEPA consider placing some limit on phosphorus discharges in the permit (SoF ¶¶31-33, 36)

- Petitioners and other members of the public in comments complained of offensive algal blooms in Hickory Creek. (SoF ¶¶ 6-8, 32)

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[2] Oral argument on this motion may well be appropriate given the importance of the issues raised and the novelty of many of the issues.

- Petitioners offered into the record published treatises, expert comments and other comments in the public record that indicate that discharges of phosphorus and other pollutants of the kind discharged by New Lenox may, alone or with other sources, cause algal blooms in Hickory Creek or downstream waters. (SoF ¶¶9-14, 30-32)

- Petitioners requested that IEPA place a copper limit in the permit. (SoF ¶¶34-5)

These seven facts establishing the violations and the Petitioners' right to complain about them are beyond serious dispute and, in fairness to Respondents, they do not really try to contest them. Respondents do, however, offer a number of other denials and statements that are of marginal relevance or no relevance to the motion.

II. Respondents represent as facts matters not of record, and improperly cite unsupported agency conclusions as though they were evidentiary facts or reasoned findings.

Generally, the Board should not accept any of the statements of fact made by New Lenox or IEPA in their responses without carefully studying the record. Many of their statements are not supported by anything in the record. For example, New Lenox relies on the supposed fact that "Illinois EPA made the determination that no limits were required to address offensive conditions." (New Lenox Resp. Mem. p. 9). IEPA determined nothing of the sort. In the Responsiveness Summary, the only thing that IEPA stated in regards to the narrative standard is that:

> [t]here is no existing water quality standards for nutrients that apply to Hickory Creek. A narrative standard exists prohibiting plant and algal growth of other than natural origin. This is a very difficult standard to apply to a permit. The ongoing Agency effort to adopt water quality standards for nutrients will resolve this issue. In the meantime, the antidegradation assessment has concluded that the expansion will not *exacerbate any existing* problems in Hickory Creek due to nutrients. (HR 357) (emphasis added)

This statement from the Responsiveness Summary provides no basis for concluding that no limits were required to prevent offensive conditions, and sets forth the reason for the Agency's

decision.[3] The statement acknowledges that there may be existing problems with algal growth and that limits to prevent this may be set in the future. Indeed, subsequently, IEPA officials also witnessed the same conditions that were seen by numerous persons who testified at the hearing and listed Hickory Creek as impaired by "excessive algae growth" in the 2004 Illinois Water Quality Report submitted by the agency to satisfy Section 305(b) of the Clean Water Act. (Ex. B to Petitioners' Analysis of Respondents' Claims Regarding Material Facts in Dispute)

Moreover, even where there is a document in the record that contains the statement cited by IEPA or New Lenox, the document cited itself is often simply a naked conclusion without any scientific or factual basis. For example, IEPA and New Lenox repeatedly recite the marginally relevant statement from the Agency antidegradation assessment that "the incremental nutrient loading anticipated to result from this project is not expected to increase algae or other noxious plant growth..." (New Lenox Mem. pp. 6-7, 9; IEPA Response p.6)[4] No scientific justification or any reasoning for this conclusion as to the exacerbation of existing problems is provided in the antidegradation assessment (See HR 565) and the fact that this groundless statement is repeated in the Responsiveness Summary does not make it any better.

"Because I say so" is not a valid basis for IEPA decision-making and the permit cannot be upheld on the basis of IEPA statements in the record that are not supported by data or science. Respondents cannot properly rely on blind trust in IEPA's supposed scientific expertise. As federal courts have said with regard to review of decisions by U.S. EPA, "[j]udicial review 'must be based

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[3] Even if there were facts in the record from which a finding could be assembled that would support the agency's decision on this point, it is too late for the Agency to develop new rationales for what it did. Under 35 Ill. Adm. Code 166.192, the Responsiveness Summary shall include the "Agency's specific response to all significant comments, criticisms and and suggestions."

[4] This fact, were it a fact, is of marginal relevance to Petitioners' motion for summary judgment because IEPA could not issue a permit if the *total* permitted discharge, including the existing discharge, has the potential to cause or contribute to a violation of the narrative standard.

on something more than trust and faith in EPA's experience'." American Petroleum Institute v. EPA, 661 F.2d 340, 349 (D.C. Cir. 1981) (quoting Appalachian Power Co. v. Train, 545 F.2d 1351, 1365 (4th Cir. 1976)). Also see Citizens to Preserve Overton Park v. Volpe, 401 U.S. 402, 415; and Ethyl Corp. v. EPA, 541 F.2d 1, 34 (D.C. Cir. 1976). The Board should not simply accept Agency decisions based on *ipse dixit*. "Courts should remember that they need not – and should not – accept an expert's opinion on the basis of *ipse dixit*, i.e., such a thing is so because I say it is so." Harris v. Cropmate Co., 302 Ill. App. 3d 364; 706 N.E.2d 55, 65 (4th Dist. 1999). "Courts require that 'administrative agencies articulate the criteria employed in reaching their result and are no longer content with mere administrative *ipse dixit* based on supposed administrative expertise.' " American Petroleum Institute, 661 F.2d at 349 (quoting Appalachian Power Co. v. EPA, 477 F.2d 495, 507 (4th Cir. 1973)). More generally, as explained in District 1199P v. N.L.R.B., 864 F .2d 1096, 1101 (3d Cir. 1989), "[t]he overarching principle of agency review is that the agency must provide a reasoned explanation of its actions."

In other words, IEPA cannot manufacture "substantial evidence" by making an unsubstantiated statement in the record and then quoting itself. "Substantial evidence is more than a mere scintilla. It means such relevant evidence as a reasonable mind might accept as adequate to support a conclusion" and takes into account the evidence opposed to the view of the agency. Universal Camera Corp. v. N.L.R.B., 340 U.S. 474, 477, 488 (1951) (Frankfurter, J.); see also, Farney v. The Civil Service Commission, 10 Ill. App. 3d 80; 293 N.E. 2d 450, 451 (4th Dist. 1973)

In Petitioners' Reply Regarding Relevant Facts in the Agency Record, Petitioners address Respondents' factual statements in light of what the record actually contains. While they might raise an issue of fact in an enforcement action brought against New Lenox, most of Respondents' factual claims are simply not relevant to this permit appeal. Many of Respondents' factual claims are found

to be supported by nothing. Incredibly, some of the statements cited repeatedly by Respondents are backed only by naked statements in the record which have nothing but the opinions of anonymous authors as support.

III. Under the antidegradation rules, IEPA could not allow the increased loading of phosphorus unless it studied the necessity of the increased loading and found that it was not feasible for New Lenox to remove phosphorus.

As to the only fact needed by Petitioners to prevail on their first claim, the record is crystal clear. IEPA granted the New Lenox permit allowing an increased loading of phosphorus without giving any consideration to whether it was necessary for New Lenox to discharge so much phosphorus.[5] IEPA's failure to consider what phosphorus loadings are actually necessary is only made worse by the facts that IEPA was aware that phosphorus was at least a potential problem in Hickory Creek and downstream waters and that members of the public asked for a phosphorus limit, submitting treatises and other data showing the potential problems from phosphorus.

The only rationale for failing to consider the necessity of the increased phosphorus loading that IEPA gave was that it did not think it needed to consider phosphorus controls until numeric standards have been adopted (HR 358). IEPA and New Lenox offer a variety of legal arguments regarding the antidegradation rules in an attempt to excuse the failure to even consider requiring phosphorus treatment. None of these arguments have merit.

A. Regulatory Background and Purpose of 35 Ill. Adm. Code 302.105(c)

[5] Respondents do not deny the key fact here. (SoF ¶ 40) Respondents do quibble about whether an Illinois Association of Wastewater Agencies study, which was mentioned in the Responsiveness Summary without information on how to find it, can properly be said to be part of the record. (IEPA Resp. pp. 26-7; New Lenox Resp. to Facts p. 26) Whether the unreviewed IAWA study was "published" and part of the record or not, no one claims that it proves the necessity of New Lenox's untreated phosphorus discharge.

For a full understanding of why the legal arguments of IEPA and New Lenox utterly fail, a brief review of the purpose of the Clean Water Act ("CWA") and the history of the Illinois antidegradation rules that were enacted to implement the CWA is helpful.

The objective of the CWA "is to restore and maintain the chemical, physical and biological integrity of the Nation's waters." 33 USC § 1251(a). In the CWA, Congress set as an interim national goal that "wherever attainable ... water quality which provides for the protection and propagation of fish, shellfish and wildlife and provides for recreation in and on the water be achieved by July 1, 1983." 33 USC § 1251(a)(2). Further, Congress established *elimination of all discharges* by 1985 as a national goal. 33 USC § 1251(a)(1).

Federal antidegradation policy, 40 CFR § 131.12, requires that states provide essentially three types of protection for their waters, only one of which is raised by the summary judgment motion.[6] The key antidegradation protection at issue here is the "Tier II" protection that is covered by 35 Ill. Adm. Code 302.105(c). 35 Ill. Adm. Code 302.105(c) was designed to meet the requirements of the federal Tier II rule, 40 CFR § 131.12(a)(2), that provides:

> Where the quality of the waters exceed levels necessary to support propagation of fish, shellfish, and wildlife and recreation in and on the water, that quality shall be maintained and protected unless the State finds, after full satisfaction of the intergovernmental coordination and public participation provisions of the State's continuing planning process, that allowing lower water quality is necessary to accommodate important economic or social development in the area in which the waters are located.

Actually, 35 Ill. Adm. Code 302.105(c), which was adopted in 2002, is the second Illinois rule that recognized the federal Tier II antidegradation policy. Illinois' first antidegradation policy, then called

[6] The first type of protection, protection of existing uses that is incorporated into the Board rules at 35 Ill. Adm. Code 302.105(a), is raised by Petitioners in their petition but is not raised in the motion for summary judgment.

the "nondegradation" policy, was adopted by the Board in 1972 in PCB 71-14. In adopting this early standard, the Board explained:

> This preserves the present prohibition on unnecessary degradation of waters presently of better quality than that required by the [water quality] standards, recognizing that the standards represent not optimum water quality but the worst we are prepared to tolerate if economic conditions so require. In the Matter of Water Quality Standards Revisions, (PCB March 7, 1972) 71-14, p. 11.

A few basic points that are fundamental to understanding 35 Ill. Adm. Code 302.105(c) emerge from this discussion. First, it is not supposed to be easy to obtain permits for new or increased discharges. Against the background that all discharges were supposed to be eliminated, it is hardly surprising that U.S. EPA established regulations that required states to make it very hard to obtain permits for new or increased discharges. It flows from this that new pollution is only to be allowed where it has been shown to be really *necessary*.

"Necessary" is the term used by both the federal regulation and 35 Ill. Adm. Code 302.105(c)(1), which tracks the federal rule. It is not enough to show that the new pollution is reasonable, thought to meet a cost/benefit test or politically expedient. The previously discussed principles of the CWA establish that discharges generally should be eliminated and new or increased discharges should only be allowed where they are indispensable. As explained by U.S. EPA, lowering water quality is allowed "only in a few extraordinary circumstances where the economic and social need for the activity clearly outweighs the benefit of maintaining water quality above that required for 'fishable/swimmable' water *and both cannot be achieved.*" (emphasis added) (Mem. in Support, Appendix of Authorities B, p.4-7)

Further, as is made clear by the federal regulation, the state regulation and the 1972 Board opinion that established the "nondegradation" policy, the prohibition on new loadings that have not

been shown to be necessary is an independent permitting requirement in addition to the requirement that water quality standards be met. See also, Columbus & Franklin County Metropolitan Park Dist. v. Shank, 65 Ohio St. 3d 86, 99, 600 N.E.2d 1042, 1054 (Ohio 1992). That a new or increased discharge will not cause a violation of the water quality standard for dissolved oxygen, total dissolved solids, offensive conditions or copper does not make the discharge permissible unless it has also been shown to be "necessary to accommodate important economic or social development." 35 Ill. Adm. Code 302.105(c)(1). As was stated by the Board in 1972 in adopting the "nondegradation" standard, the water quality standards "do not represent optimum water quality but the worst we are prepared to tolerate if economic conditions so require." (*Supra* p. 4); See also, Site-Specific Exception to Effluent Standards for the Greater Peoria Sanitary and Sewerage Disposal District, No. R87-21, 1988 Ill. ENV LEXIS 470, at *22 (Oct. 6, 1988) (the mandate of the Clean Water Act to restore, maintain and enhance water quality requires that Illinois "strive to go beyond the minimum cleanup goal of polluted waters, as well as to resist the temptation to pollute higher quality waters up to the maximum allowable limits").

B. 35 Ill. Adm. Code 302.105(c) is fully applicable to the New Lenox Discharge to Hickory Creek.

Swinging for the fences, New Lenox attempts to argue on the basis of the title of 35 Ill. Adm. Code 302.105(c), that the Board need not consider whether IEPA complied with 35 Ill. Adm. Code 302.105(c) at all because that regulation is only applicable to "high quality waters." (New Lenox Resp. Memo p.6) New Lenox further claims that "high quality waters" are only those that are on the IDNR list of biologically significant streams. (New Lenox Resp. to Facts p. 1)

New Lenox's argument, which IEPA wisely does not join, rams smack into the language of 35 Ill. Adm. Code 302.105(c)(1):

> (1) Except as otherwise provided in subsection (d) of this Section, water of the State whose existing water quality is better than *any* of the established standards of this Part must be maintained in their present high quality, unless the lowering of water quality is necessary to accommodate important economic or social development. (emphasis added)

Clearly, unless a water body does not have a level of water quality for any parameter that is better than any of the standards listed in Part 302 (i.e. the water body violates all of the standards), it is protected by 35 Ill. Adm. Code 302.105(c).[7] While the parties disagree on the extent of the problems of Hickory Creek, no one contends that the creek violates all of the water quality standards of Part 302 and, thus, Hickory Creek is protected by 35 Ill. Adm Code 302.105(c) under the clear wording of the rules.[8]

There is no need to look beyond the plain language of 35 Ill. Adm. Code 302.105(c) to reject New Lenox's position as the language is clear. However, the history of that rule confirms that New Lenox's argument must fail. When IEPA presented in R01-13 the proposal to the Board that established 35 Ill. Adm. Code 302.105(c), IEPA, through testimony of Toby Frevert, made clear that under the then proposed agency language every water body is covered that is meeting any of the water quality standards. Frevert gave the example and explained that "[j]ust because we have an ammonia problem doesn't mean we are going to allow the copper loading to come up after we address the ammonia problem. So the intent of this and I believe the federal law, is [that] we are trying to minimize the amount of incremental additional pollution coming into the resources

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[7] This was also the belief of the IEPA officials who wrote the antidegradation assessment who went on to consider (inadequately) whether the social development was needed and a few alternatives after concluding that Hickory Creek violated a number of standards and was not listed as a biologically significant stream by the Illinois Natural History Survey. (HR 576-77)

[8] 35 Ill. Adm. Code 302.105(c)(2) makes clear that "any proposed increase in pollutant loading that necessitates a new, renewed or modified NPDES permit" is covered. "Degradation" includes any perceptible lowering of water quality, Columbus & Franklin County Metropolitan Park Dist., 600 N.E.2d at 1055.

consistent with the goals of the Clean Water Act ..." (Frevert Testimony, Nov. 17, 2000, Tr.124-125).

In other words, "high quality waters" is determined on a parameter-by-parameter basis and a water can be "high quality" as to one pollutant even when it is impaired as to others. (Frevert Testimony, Nov. 17, 2000, Tr.118, 122-24); see also, U.S. EPA Handbook p.4-7 (see Mem. in Supp. App. of Authorities B) ("EPA believes that its antidegradation policy should be interpreted on a pollutant-by-pollutant and waterbody-by-waterbody basis").[9] Protecting water quality on a parameter-by-parameter basis only makes sense as the Nation certainly will not meet its goal of restoring and maintaining the chemical integrity of its waters if it allows unnecessary new loadings of a pollutant just because the water is violating standards for another pollutant.[10]

C. IEPA had to require economically reasonable technology for phosphorus control.

IEPA in its Response claims that the Agency did consider reasonable alternatives to minimize the pollution from the discharge. IEPA discusses how the costs of land treatment and sending the discharge to a golf course were considered as alternatives. (IEPA Response pp. 29-30) Notably lacking, however, is discussion of how the Agency considered the cost of phosphorus removal at New Lenox and determined if New Lenox could bear that cost. That never happened. The closest IEPA came to looking at this common way to minimize pollution

[9] The federal regulation that 35 Ill. Adm. Code 302.105(c) is designed to implement, 40 CFR § 131(a)(2) does not refer to "high quality waters" at all. It speaks of waters with "levels" of quality that are better than minimum fishable/swimmable water quality standards.

[10] New Lenox's theory that "high quality waters" only include those that are listed as biologically significant by the Illinois Natural History Survey would also make nonsense out of 35 Ill. Adm. Code. 302.105(d)(6). Read properly, that rule states that new loadings permissible under general permits need not go through an antidegradation analysis except that the agency must require individual permits for new discharges to waters of particular biological significance. Under New Lenox's perverse theory, the limit on the exception for new loadings permitted under general permits would extinguish the general rule because the only thing to which antidegradation would

was to cite a cost study that did not even estimate the cost of phosphorus removal because it dealt with a combined cost of *both* nitrogen and phosphorus removal. (See HR 358 and IEPA Response p. 24.)

More critically, just tossing out a cost figure obviously does not constitute proof that allowing the extra amount of phosphorus loading into the creek that could be avoided with better treatment is "necessary." There is not a fragment of discussion in the record showing that New Lenox, a growing and wealthy community, could not bear the cost of phosphorus treatment. At a minimum, for lowering of water quality to be "necessary to accommodate important economic or social development," it must be the case that the development cannot practicably go forward without allowing lower water quality. As was explained by U.S. EPA in giving guidance to states as to how to implement antidegradation, "[w]hen performing an antidegradation review, the first question is whether the pollution controls needed to maintain the high-quality water will interfere with the proposed development. If not, then the lowering of water quality is not warranted." Interim Economic Guidance for Water Quality Standards, U.S. EPA (1995).[11]

While the U.S. EPA Interim Economic Guidance is only guidance, it does indicate the sort of factors that IEPA should consider if it is to comply with the 35 Ill. Adm. Code 302.105(c) requirements. Under the U.S. EPA Interim Economic Guidance, pollution loading is not considered necessary for development if the total annual cost of avoiding the loading per household is less than 1.0 percent of median household income. (p. 5-5) The record does not contain the information needed to do this calculation in relation to the necessity of allowing the loading of phosphorus to Hickory Creek at issue here because IEPA did not look at such factors.

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apply is discharges to biologically significant waters.

[11] Available at, http://www.epa.gov/waterscience/econ/chaptr5.html. Attached to this memorandum as Supplemental Authority.

It is, however, extremely unlikely that the phosphorus loading at issue here could be found necessary given the size and prosperity of New Lenox and the low cost of reducing phosphorus concentrations in sewerage effluent down to 1 mg/L.

IEPA argues that it complied with the antidegradation requirements by considering the matter on a case-by-case basis and doing what it thought was reasonable in light of the circumstances. (IEPA Resp. pp 28-30) Actually, IEPA did not consider phosphorus on a case-by-case basis. As the Responsiveness Summary demonstrates, it rejected phosphorus removal on the general basis that IEPA did not then think it had to do anything regarding phosphorus discharges to streams until numeric phosphorus standards were developed. IEPA offers no specific excuse for failing to consider standard phosphorus removal treatment such as has been required of numerous Illinois dischargers for decades. (See 35 Ill. Adm. Code 304.123.)[12]

Moreover, IEPA misunderstands what 35 Ill. Adm. Code 302.105(c) requires. IEPA, while launching off the term "reasonable" in 35 Ill. Adm. Code 302.105(c)(2), passes over the term "necessary" that appears in 35 Ill. Adm. Code 302.105(c)(1). IEPA can point to nothing in the record that shows that it even considered whether the increased phosphorus loading was necessary.

Further, IEPA misstates what "reasonable" means in the context of 35 Ill. Adm. Code 302.105(c)(2). "Reasonable" must be read in the context and with the language of the entire section in which it is referred. 35 Ill. Adm. Code 302.105(c)(2)(B)(iii) specifically states that "[a]ll technically and economically *reasonable measures to…minimize* the extent of the proposed

[12] The Board in adopting 35 Ill. Adm. Code 302.105(c) made clear that the "main objective" is to identify and implement alternatives that reduce or eliminate the proposed increased loadings. In the Matter of: Revision to Antidegradation Rules, R2001-12, 2001 Ill. ENV LEXIS 316 at *31 (June 21, 2001). Here IEPA plainly frustrated the main objective by refusing to consider phosphorus removal at all.

increase in pollutant loading have been incorporated into the proposed activity" (emphasis added). "Minimize" has been defined and referred to as an action to "reduce to the smallest possible number, degree or extent." U.S. v. Focarile, 340 F. Supp. 1033 (D.C. M.D. 1972) (quoting Webster's New Third International Dictionary). Here, one purpose of the Clean Water Act is to eliminate discharges to the nations' waters. Thus, what "reasonable to minimize" means in this context is that a measure should be used to avoid or minimize pollution unless it has been shown to be economically infeasible. As IEPA itself explained in a letter it sent out to explain the antidegradation rules:

> 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. ...
> The revised anti-degradation regulations focus less on the requirements necessary to meet water quality standards (although compliance with standards is still necessary) and more on what kind of treatment system can be designed that will have the least adverse impact on the receiving water. Letter of Tom McSwiggen, Manager Permit Section, July 18, 2002 App. of Authorities A

Still further, IEPA claims that part of the reason that it was reasonable to allow New Lenox to discharge into Hickory Creek without any phosphorus treatment is that the "Village STP 1 is not a major source of phosphorus to Hickory Creek." (IEPA Resp. p. 30) This is irrelevant to the question of whether the phosphorus loading is necessary. Moreover, neither IEPA nor New Lenox denied the assertion made in the record by Professors David Jenkins and Michael Lemke that under the permit the plant will discharge 53.7% of the stream phosphorus load on average and that the stream below New Lenox will be carrying 216% of the total phosphorus loads upstream of the plant. (See SoF ¶ 11, IEPA Resp. p. 16 and New Lenox Resp. to Facts p. 8.)

Still further, the Board has repeatedly found that, using technology that existed decades

ago, "for systems of greater that 5000 population units, a 1.0 mg/L [phosphorus] limitation is economically reasonable." Village of Wauconda v. Illinois EPA, PCB 1981-017, 1981 Ill. ENV LEXIS 266, at *4 (May 1, 1981); see also In the Matter of: Amendments to the Water Pollution Regulations, R1976-001, 1979 Ill. ENV LEXIS 312 (Feb. 15, 1979); In the Matter of: Site-Specific Phosphorus Limitation for the City of Shelbyville, R1983-12, 1984 Ill. ENV LEXIS 129 (December 20,1984).

Finally, it cannot go without notice that IEPA's argument – that it would have been unreasonable to require phosphorus controls on New Lenox with regard to its increased discharge from 1.54 to 2.516 million gallons per day – approaches surrealism given that in R2004-026 the IEPA has presented evidence, found persuasive by the Board, that a 1.0 mg/L phosphorus effluent limit should be required of all new or increased discharges totaling over 1 million gallons per day. For this reason, Petitioners are fairly confident that, given a chance to look at the issue again after remand, IEPA will find that it is not necessary for New Lenox to discharge more than 1 mg/L of phosphorus into Hickory Creek.

D. The fact that IEPA is working to establish numeric phosphorus standards does not excuse it from complying with 35 Ill. Adm. Code 302.105(c).

The only reason for not considering phosphorus limits actually given by IEPA in the record was that IEPA was working to develop numeric water quality standards for phosphorus. New Lenox adds to this that the science of determining the precise levels of nutrients that cause problems is not yet settled. (New Lenox Resp. Mem. p.7)

But the fact that IEPA is working on phosphorus numeric standards is no reason to fail to place limits in NPDES permits to comply with the antidegradation regulations. As is made clear in the Board rules, the water quality standards and antidegradation are separate requirements. The requirement that unnecessary new pollution not be allowed applies even if all of the other water

quality standards are actually satisfied and it has been shown that the new pollution will not have an effect on existing uses. As the authorities discussed above make clear, under the Clean Water Act, we as a society are trying to maintain and restore water quality to the greatest extent possible. This precludes allowing unnecessary new pollution even if it is not known to be harmful. The fact that we do not know exactly how phosphorus affects streams or the safe levels that can be in a stream, if anything, makes it more imperative that unnecessary new phosphorus loadings not be permitted.

IV. IEPA failed to assure that the discharge would not cause or contribute to violations of the narrative "offensive conditions" standard.

As they did with regard to the failure to place phosphorus limits in the permit and in section 302.105(c), Respondents offer a series of legal arguments that attempt to excuse the permit's violation of Board rules. As before, all of the arguments fail.

A. The narrative standards are independent legal requirements that may not be ignored.

Much of Respondents' argument seems based on the notion that narrative standards do not really count. They imply that since there is no numeric standard yet for phosphorus and no proof, in their view, that the dissolved oxygen or pH standard has been violated or aquatic life has been exterminated, IEPA was not obligated to take the narrative standard seriously. (IEPA response p.31; New Lenox Resp. Mem. p. 9)[13] Such arguments cannot be reconciled with the law.

The Board Rules explicitly treat the narrative standards as independent standards that must be satisfied along with the narrative standards. See 35 Ill. Adm. Code 302.105(c)(2)(B)(i). The section 302.203 "offensive conditions" standard is listed right along with all the other water quality standards in Part 302 without any hint that it may be ignored if other standards are satisfied. 35 Ill.

[13] Petitioners have offered facts from the record with regard to high pH values with regard to this motion only because high pH values are further evidence of excessive algal activity.

Adm. Code 304.105 prohibits discharges which cause a violation of "any" water quality standard and, similarly, 35 Ill. Adm. Code 309.141(d)(1) does not indicate that more stringent limits on permits are unnecessary if they would only be needed to prevent violations of a narrative standard. 35 Ill. Adm. Code 309.141(d)(2) requires that Illinois permits comply with federal regulations. Among such federal regulations, 40 CFR § 122.44(d)(1)(i) explicitly prohibits states from allowing discharges that may cause or contribute to violations of narrative standards. Moreover, the Board has held persons liable for causing violations of the "offensive conditions" standard. People v. Chalmers, PCB 1996-111, 2000 Ill. ENV LEXIS 4 (PCB 2000); see also Sierra Club v. Hankinson, 939 F. Supp. 865, 870 (N.D. Ga. 1996) (a state is not free to ignore narrative standards in listing impaired waters under Section 303(d) of the CWA).

The notion that it is good enough to comply with numeric standards cannot be reconciled with the law.

B. IEPA was obligated to take action to prevent the permit from allowing discharges that have the potential to cause violations of the narrative standard even if the discharge would not be the sole cause of the problem.

Respondents cannot deny that numerous persons stated in comments that unusual algal blooms have occurred in Hickory Creek. (SoF ¶¶6-9) Although they quibble, Respondents cannot deny that discharges of pollutants like those coming from the New Lenox discharge are known in the published literature to cause just the kind of offensive conditions reported in the record. Respondents also cannot point to anything IEPA did to determine whether the offensive conditions occurred.[14] Actually, we now know that subsequently IEPA officials also witnessed the same conditions that

[14] It cannot seriously be contended that the observation on one day by an anonymous New Lenox contractor that there was no "visible" overnutrification demonstrates that the New Lenox discharge has no potential to cause or contribute to violation of standards at any time downstream from the plant. But that is the only fact in the record that provides any basis for Respondents' claim. (See Petitioner's Reply Regarding Relevant Facts in the Agency Record p.7.)

were seen by numerous persons who testified at the hearing and listed Hickory Creek as impaired by "excessive algae growth" in the 2004 Illinois Water Quality Report submitted by the agency to satisfy Section 305(b) of the Clean Water Act.[15]

Respondents cannot point to anything that was placed in the permit to prevent the observed problem from occurring in the future or to assure that the increased New Lenox discharge would not make the problem worse. IEPA did not conclude that in its Responsiveness Summary that permit limits to prevent offensive conditions were unnecessary or that offensive conditions could not result in whole or in part from the New Lenox discharge. It said only that setting limits to control discharges that might cause violations of narrative standards is "very difficult" and that it might do something about the potential problem after it develops numeric standards. (HR 357.)

Since they have nothing in the record to show that IEPA did anything to prevent discharges that would cause or contribute to violations of the narrative standards, Respondents try to rewrite the Board rules to make it the public's job to prove that a discharge will be the sole cause of a violation of water quality standards before a permit condition is imposed. Based on that premise, Respondents argue that Petitioners did not prove that the green algae in Hickory Creek (said by eye witnesses to be depressing and unusual and which was identified by a professional lake ecologist as resulting from excess nutrients) was unnatural (IEPA Response 25). They argue that Petitioners did not prove that the New Lenox discharge was the cause of whatever problem occurred and, that even if it was

[15] IEPA's finding that Hickory Creek is in fact impaired by excessive algae growth is not in the administrative record and so Petitioners did not rely on this finding to make their prima facie case. However, the data showing the standards violation was in the Agency's possession when it issued the permit and the Board can use the official post-decision finding by IEPA to reject representations by Respondents that Hickory Creek is in compliance with the narrative standard. (See May Dept. Stores Co. v. Teamsters Union, 64 Ill. 2d 153, 159, 355 N.E. 2d 7, 9 (Ill. 1976) (judicial notice may be taken of documents in public record)).

part of the cause, that there are a lot of other sources of pollutants to the creek. (IEPA Resp. 14; New Lenox Resp. Mem. 9) Respondents conclude that absent proof in the record that the New Lenox discharge was the sole cause of the problem, IEPA was free to do nothing. Getting a bit carried away, IEPA claims that to prevail Petitioners must prove that the area of "Hickory Creek right below the Village STP 1 discharge has algal growth of unnatural origin" (IEPA Resp. p. 33)[16]

IEPA's reliance on City of E. Moline v. IEPA, PCB 1987-127, 1989 Ill. ENV LEXIS 1205 (Nov. 15, 1989) makes clear the extent of Respondents' misunderstanding of the law relevant to this proceeding. In E. Moline a party was held liable for causing a violation of section 302.203, which serves to show further that the narrative standard is not as toothless as the Respondents have claimed. IEPA's point, however, is that Petitioners have not met the same burden of proof that the Agency met in proving that the respondent in E. Moline had violated the standard. That is plainly irrelevant. Petitioners are not attempting in this proceeding to hold New Lenox liable for violating the law but only to get IEPA to follow the applicable rules before issuing a NPDES permit. Those rules place perquisites on permit issuance by the Agency that have not been satisfied.

Petitioners in this proceeding are obligated to show that the permit as issued violated the Act or the Board rules. Prairie Rivers Network v. The Illinois Pollution Control Board, 335 Ill. App. 3d 391, 781 N.E. 2d 372, 380 (4th Dist. 2002). Petitioners here have done that by showing that IEPA issued the permit in violation of numerous Board rules. These Board rules do not state that IEPA may permit a discharge unless it is mathematically certain that that discharge by itself, will cause a violation of water quality standards. Rather, the Board rules state that IEPA must "assure" there will

[16] On better moments, IEPA is fully aware that discharges from a plant may cause problems miles below the plant. The Board certainly recognized this in setting limits on phosphorus discharges twenty-five miles above a lake or reservoir. 35 Ill. Adm. Code 304.123(c).

be no violation as the result of a new or increase discharge. 35 Ill. Adm. Code 302.105(c)(2)(B).[17] Further, IEPA could not issue the New Lenox permit without determining that the total discharge "alone or in combination with other sources" would not cause a violation of standards 35 Ill. Adm. Code 304.105 and IEPA could not issue the permit without finding that the discharge did not have "the potential to cause" or "contribute" to a violation of water quality standards. 40 CFR § 122.44(d)(1)(i).

The public did its job by bringing the potential problems to the attention of IEPA. The permit violates the Board rules because IEPA did not do what it was required to do before issuing a permit.

C. The Fact that IEPA should also control other potential contributors to the offensive conditions does not allow it to except New Lenox from controls.

New Lenox also suggests that it would be unreasonable for IEPA to regulate pollution from New Lenox that might contribute to algal blooms without controlling all sources of the problem stream-wide. (New Lenox Resp. Mem. p.10.) Petitioners agree that IEPA should do more to control other sources of phosphorus and pollutants to Hickory Creek, but this provides no legal basis for granting a permit to New Lenox that has the potential to contribute to the problem.

As discussed, the Board rules are clear that IEPA cannot issue a permit that "alone or in combination with other sources" will violate standards. 35 Ill. Adm. Code 304.105. The Board has upheld phosphorus limits even where the point source at issue was only seven percent (7%) of the total dissolved phosphorus input to the water body at issue. In the Matter of Site-Specific Phosphorus Limitation for the City of Shelbyville, R1983-12 1984, Ill. ENV LEXIS 129 (Dec. 20, 1984).

New Lenox cites a California decision, Communities for a Better Environment v. State Water Resources Control Board, 109 Cal. App. 4th 1089, 1 Cal. Rptr. 3d 76 (1st Dist. 2003) for the

[17] "Assure" means to make certain and put beyond doubt; to ensure positively. Rite Aid, Inc. v. Houston, 171 F.3d 842, 852 (3d. Cir. 1999)

proposition that IEPA could not impose limits on one discharger if that would not solve the whole problem. (New Lenox Resp. Mem p.9) Actually, this California decision presents a good example of the sort of thing that IEPA should have done.

Contrary to New Lenox's suggestion that the California court approved a decision by California authorities to do nothing with regard to the discharger at issue, the case was actually about whether the California authorities had to impose a numeric water quality based limit on the discharger. The court agreed that, under the circumstances, the California authority did not need to place such a limit on the discharger and that instead an interim performance based limit - that imposed an 85% reduction of the pollutant in question from prior discharges and strict monitoring on the discharger - was sufficient. Communities for a Better Environment, 109 Cal. App. 4th at 1102.

Petitioners do not believe that a remand by the Board in this case will result in IEPA imposing strict performance-based limits on New Lenox requiring reductions of 85% of the loadings of phosphorus or other pollutants that may be causing the offensive conditions in Hickory Creek (although there are feasible technologies that could easily reduce New Lenox discharges of the relevant pollutants by 85%). In any event, the fact that IEPA could not completely control the problem by controlling discharges by New Lenox is no justification for issuing a permit that will add to the loading of pollutants known to cause algal blooms.

D. The Fact that IEPA could petition the IPCB to establish a rule to control phosphorus discharges does not free the New Lenox discharge from compliance with existing regulations.

New Lenox also argues that IEPA could not place limits or conditions in New Lenox's permit to prevent discharges from causing "offensive conditions" without a rulemaking setting numeric limit for whatever pollutants are causing the offensive conditions. (New Lenox Resp. Mem. p. 10). In support of this proposition, New Lenox cites Wisconsin Electric Power Company v. Department of

Natural Resources, 93 Wis. 2d 222, 287 N.W. 2d 113 (1980) and Simpson Tacoma Kraft v. Dept of Ecology, 835 P.2d 1030 (Wash. 1992). However, both Wisconsin Electric and Simpson Tacoma involve cases where the administrative agency adopted numeric standards of general applicability without going through the process for adopting numeric standards. In Wisconsin Electric, the Wisconsin DNR adopted specific numeric standards for chlorine that applied to all power plants. 287 N.W. 2d at 120. In Simpson Tacoma, the Washington Department of Ecology adopted a .013 ppq dioxin standard that applied to all water bodies and point sources in the state. 835 P.2d at 1033. Understandably, the courts faced with such agency rulemaking held that the agency had to follow the state procedures for rulemaking.[18]

In this case, as to the narrative standard, Petitioners did not ask that IEPA adopt any rule without going through rulemaking. Petitioners asked merely that IEPA apply the existing narrative standard of 302.203 and consider site-specific permit limitations or conditions that would prevent the New Lenox discharge from causing or contributing to violations of the narrative standard.

Obviously, the "offensive conditions" standard is not susceptible of being replaced by a numeric standard that will be applicable across the state, but that does not mean that the standard can be ignored by IEPA in permit writing. On remand, IEPA should do the work that it should have done before issuing the permit: determining whether there is a potential problem (it determined in 2004 that there is an actual problem), and then fashioning steps to assure that the New Lenox discharge does not cause or contribute to the violation of section 302.203. Following Communities for a Better Environment, such steps may include performance-based limits, improved monitoring or perhaps a 1 mg/L phosphorus limit such as the one it placed in the Wauconda permit recently approved by the

[18] As will be seen below in the discussion of copper, there is a potential application of the principle that rules must go through rulemaking in this case. IEPA has improperly established a rule under which it routinely refuses to apply the U.S. EPA guidance regarding the determination

Board in Village of Lake Barrington v. IEPA, PCB 2005-55 (April 21, 2005).

V. Respondents do not show that substantial evidence supports IEPA's decision that copper limits were unnecessary.

On copper limits, Respondents do not deny that using U.S. EPA recommended procedures, copper limits should have been required. Respondents admit that IEPA performed the U.S. EPA recommended analysis but then refused to apply the U.S. EPA recommendations as to permit limits. (New Lenox Resp. Mem. p. 25; IEPA Resp. p. 34). IEPA's defense of its action consists of its explanation that:

> The Agency does not believe that the USEPA's procedure ... is valid when a small sample size exists because [USEPA] recommends application of a higher multiplier. In cases where limited data exists, the Agency evaluates these substances against the water quality standards applicable to the receiving stream. The approach is especially appropriate in cases where facilities have been previously identified through the pretreatment program as having a low risk of high levels of metals and other industrial pollutants in treated domestic waste effluents. (IEPA Resp. p. 34)

IEPA's explanation does not make sense and falls far short of demonstrating substantial evidence that IEPA assured that the discharge would not cause or contribute to violations of the copper standards. First, U.S. EPA did not establish its recommendations in order to be cruel to dischargers. Although the statistical reasoning involved in the U.S. EPA guidance is sophisticated, the basic principle that "the more limited the amount of data, the larger the uncertainty" is common sense. (See Mem. in Support p. 13.) IEPA, of course, offers nothing to refute this truth. Instead, IEPA states that it applies a rule that ignores the fact that limited data makes for greater uncertainty.

IEPA's claim that it should be more lax if there is little data is almost comical. The fact that data for the New Lenox discharge (and other discharges to which IEPA's rule applies) is limited did not happen because of an "act of God." New Lenox could have collected more data and IEPA could

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of reasonable potential in favor of its own much less protective rule.

have asked New Lenox to collect more data if it wanted to avoid a copper limit.[19] If one is trying to assure that water quality standards are not violated, the obvious answer to a problem with limited data is to get more data collected.

IEPA's statement that it was reasonable for it to be less protective because it thought New Lenox to be a "low risk" for metals problems also makes no sense. Whatever was reasonable to think before the testing was done, it was not reasonable to assume that New Lenox was a low risk for metals after tests run by New Lenox's contractor showed high copper levels.

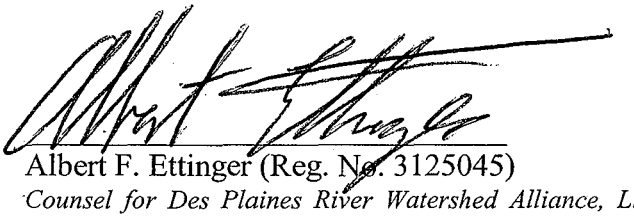
Moreover, here it does appear that IEPA applied a general rule that it uses whenever there is limited data. This plainly is an implementation rule that should have gone through the Illinois Register Notice and Comment procedure and should have been submitted to the U.S. EPA for approval as a standards implementation rule under 40 CFR § 131.6(f). If IEPA should decide to submit this rule to U.S. EPA for approval, it will be interesting to see what U.S. EPA thinks of a rule that defiantly rejects its guidance in favor of a rule that is far less protective.

[19] The cost of additional copper sampling is reasonable. The U.S. EPA estimated cost for analyzing wastewater for metals, including copper, was $15 per sample (p. 128, U.S. EPA NPDES Permit Writers' Manual, dated December 1996, available at http://www.epa.gov/npdes/pubs/owm0243.pdf

CONCLUSION

If the Respondents want to put more evidence into the record, the easiest way to accomplish that is for the permit to be vacated and remanded to the Agency for further consideration. IEPA could then consider whether it was necessary to allow so much phosphorus into the water and what might be done to assure that excessive algal blooms do not again occur. New Lenox and other interested parties could then offer whatever evidence into the record that they wanted.

The Board should vacate and remand the permit to IEPA for reconsideration.



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Supplemental Authority

United States
Environmental Protection
Agency

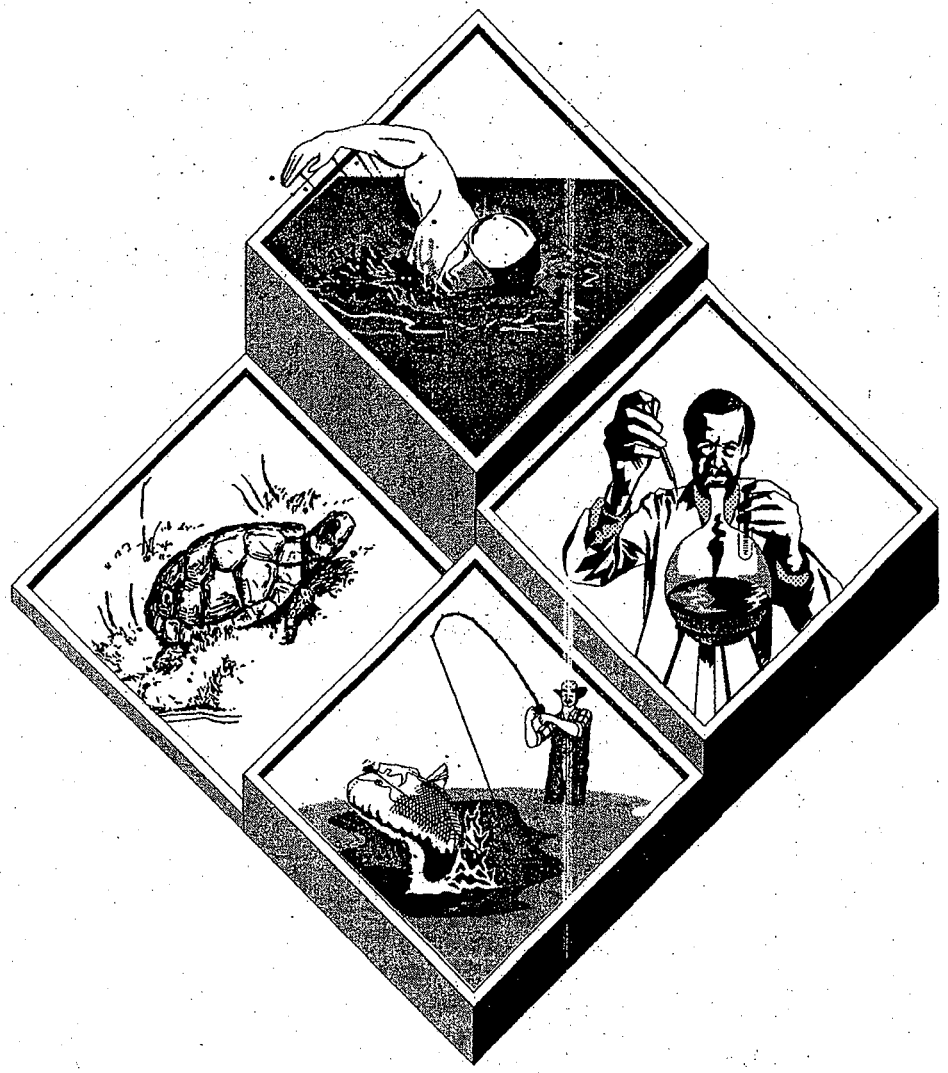
Office of Water
(4303)

EPA-823-B-95-002
March 1995

EPA

Interim Economic Guidance for Water Quality Standards

Workbook



"... to restore and maintain the chemical, physical, and biological integrity of the Nation's waters."

Section 101(a) of the Clean Water Act

Appendix M to the
Water Quality Standards Handbook - Second Edition

INTERIM ECONOMIC GUIDANCE FOR WATER QUALITY STANDARDS

WORKBOOK

Economics and Statistical Analysis Branch

Office of Science and Technology

Office of Water

U.S. Environmental Protection Agency

March 1995

5. ANTIDEGRADATION: ROLE OF ECONOMIC ANALYSIS

Under the Water Quality Standards program, each State must develop, adopt and retain a statewide antidegradation policy and establish procedures for its implementation. The antidegradation policy is intended to protect current water quality; in only a limited set of cases can economic grounds be used to allow for a lowering of water quality. In particular, if the quality of the water exceeds levels necessary to support the propagation of fish, shellfish, and wildlife and recreation in and on the water (i.e. "high-quality water"), then economic considerations can be taken into account. Before any lowering of water quality in high-quality waters, however, an antidegradation review must determine that the lowering is necessary in order to accommodate important economic or social development in the area in which the waters are located.

Antidegradation is not a "no growth" rule and was never designed nor intended to be one. It is a policy that allows the public to make decisions about important environmental actions. Where the State intends to provide for development, it may decide that some lowering of water quality in "high-quality waters" is necessary to accommodate important economic or social development. Any such reduction in water quality, however, must protect existing uses fully and must satisfy the requirements for intergovernmental coordination and public participation.

While the terminology is different, the tests to determine substantial and widespread economic impacts (used when removing a use or granting a variance) are basically the same as those used to determine if there might be interference with an important social and economic development (antidegradation). As such, antidegradation analysis is the mirror image of the analyses described in Chapters 2, 3 and 4. Variances and downgrades refer to situations where additional treatment needed to meet standards may result in worsening economic conditions; while antidegradation refers to situations where lowering water quality may result in improved social and economic conditions.

When performing an antidegradation review, the first question is whether the pollution controls needed to maintain the high-quality water will interfere with the proposed development. If not, then the lowering of water quality is not warranted. If, on the other hand, the pollution controls will interfere with development, then the review must show that the development would be an important economic and social one. These two steps rely on the same tests as the determination of substantial and widespread impacts. It should be stressed at the outset that substantial economic impacts does not mean driving profits to zero, nor precluding all other municipal expenditures.

The following sections describe the steps involved in performing an economic impact analysis as part of an antidegradation review. These steps are outlined in Figure 5-1. The analytic approach presented here can be used for a variety of public-sector and private-sector entities, including POTWs, commercial, industrial, residential and recreational land

uses, and for point and nonpoint sources of pollution. The guidance provided in this chapter, however, is not meant to be exhaustive. The State and/or EPA may require additional information or tests. In addition, the applicant should feel free to include any additional information they feel is relevant. The steps described in further detail in the rest of the chapter are:

- **Verify Project Costs and Calculate the Annual Cost of the Pollution Control Project** - This section describes the factors considered when verifying that the proposed pollution control project is the most appropriate solution and the type of information that should be provided about the proposed project. It discusses how to annualize capital costs of the project and calculate total annual costs of the pollution control project.

- **Determine if Requirements would Interfere with Development (i.e., lower water quality is "necessary")** - This section describes the types of financial tests that should be used to determine if maintaining the high-quality water would interfere with the development.

- **Determine if Economic and Social Development would be Important** - This section presents factors to be considered in determining whether the development would be important from an economic and social point of view.

These steps closely parallel the analytic techniques presented in Chapters 2, 3, and 4. These chapters should be read for more detail.

5.1 Verify Project Costs and Calculate The Annual Cost of the Pollution Control Project

Before the impact analysis can be performed, the project costs should be verified and the annual costs calculated. Both private-sector and public-sector entities should consider a broad range of discharge management options including pollution prevention, end-of-pipe treatment, and upgrades or additions to existing treatment.

Whatever approach, the discharger must demonstrate that the proposed project is the most appropriate means of meeting water quality standards and must document project cost estimates. If there is at least one of the treatment alternatives that allows the applicant to maintain high-quality water without incurring substantial impacts, then they have failed to show that the requirements would interfere with the development. Cost information, and the assumptions underlying the cost estimates, should be supplied on Worksheet O.

The following two sections (5.1.a and 5.1.b) discuss analyzing public-sector projects. Section 5.1.c discusses private sector projects.

5.1.a Public-Sector Developments: Calculate the Annual Costs of the Pollution Control Project

Since capital costs typically will be paid over several years, annualized costs are used in the evaluation of economic burden to the community. The capital portion of public-sector project costs is typically financed over approximately 20 years, by issuing a municipal debt instrument such as a general obligation bond or a revenue bond.

The calculation of total annualized cost of the project is presented in **Worksheet P**. First, capital costs are summed and the portion of costs to be paid for with grant monies are deducted, as these costs will not need to be financed. Next, the annualization factor is calculated using the formula supplied on **Worksheet P**, or the annualization factor is found in Appendix B. Annualized capital cost is then calculated by multiplying the total capital costs to be financed by the annualization factor.

The interest rates used to annualize costs are dependent on the type of debt instrument used as well as the issuer's credit standing. Therefore, the interest rate used on **Worksheet P** reflects the debt instrument (i.e. municipal bond, commercial bank loan, state revolving fund loan, or other instrument) likely to be used by the municipality.

Next, annual operating and maintenance costs are added to the annualized capital cost. O&M costs should include the costs of monitoring, inspection, permitting fees, waste disposal charges, repair, administration, replacement, and any other recurring costs. All recurring costs should be stated in terms of dollars per year. The sum of the annualized capital cost and total annual operating and maintenance costs is the total annual cost of the project.

5.1.b Public-Sector Developments: Calculate Total Annualized Pollution Control Costs Per Household

To assess the burden that total pollution control costs are expected to have on households, an average annualized pollution control cost per household should be calculated for all households in the community that would bear project costs. In order to evaluate substantial impacts, therefore, the analysis must establish which households will actually pay for pollution control and what proportion of the costs will be borne by households. Then, these apportioned project costs are added to existing pollution control costs paid by the households.

It is important to define the affected community. The "community" is the governmental jurisdiction or jurisdictions responsible for paying compliance costs.

If project costs were estimated for some prior year, these costs should be adjusted upward to reflect current year prices using the average annual national Consumer Price

Index (CPI) inflation rate for the period. The CPI inflation rate is available from the Bureau of Labor Statistics. An additional source reporting the CPI inflation rate is the *CPI Detailed Report*, which is published monthly by the U.S. Department of Labor, Bureau of Labor Statistics.

In calculating the total annual cost of pollution control per household, current costs of pollution control must be considered along with the projected annual costs of the proposed pollution control project. The existing cost per household usually can be obtained from the most recent municipal records. For example, use the most recent operating revenues of the sewer enterprise fund, divided by the number of households served. If the portion of proposed project costs that households are expected to pay is known or is expected to remain unchanged, then use **Worksheet Q** to calculate the total annual cost of pollution control per household. If the portion paid by households is based on flow, then should refer to **Worksheet Q: Option A** as well.

5.1.c Private-Sector Entities: Calculate the Annual Costs of the Pollution Control Project

As with public-sector investments, the total capital costs are usually spread out over several years. Annualization calculates the amount that will be paid each year, including the financing costs. In order to allow for comparisons across cases, the analysis should assume that the applicant will borrow the capital and repay the loan in even annual installments over a 10 year period. The assumption of ten years is based on the likely life of the equipment. The assumption of even annual installments is made for convenience. The interest rate on the loan should be equivalent to the rate the applicant pays when it borrows money.

The financial tests discussed below compare the costs of compliance to other costs and revenues of the applicant. Compliance costs and other costs and revenues must, therefore, be calculated for the same year. See discussion in Section 2.2, and Appendix A for references to inflation/deflation indices. The Annualized Cost of Pollution Control for a private-sector entity can be calculated using **Worksheet R**.

5.2 Financial Analysis to Determine if Lower Water Quality is "Necessary"

The purpose of the financial impact analysis is to assess the extent to which planned development will be reduced as a result of maintaining water quality. There are two sets of tests presented in this section: one set for publicly owned developments, such as POTWs, and another for privately owned developments, such as new manufacturing facilities. The tests are not designed to determine the exact impact of pollution control costs on an entity. They merely provide indicators of whether pollution control costs would result in a substantial impact.

5.2.a Public-Sector Developments: Calculate and Evaluate the Municipal Preliminary Screener Value

Whether or not maintaining high-quality water is likely to interfere with a development due to additional public-sector costs is determined by jointly considering the results of two tests. The first test is a "screener" to establish whether the community can clearly pay for the project. The Municipal Preliminary Screener estimates the total per household annual pollution control costs to be borne by households (existing costs plus those attributable to the proposed project) as a percentage of median household income. The screener is written as follows:

$$Municipal\,Preliminary\,Screener = \frac{Average\,Total\,Pollution\,Control\,Cost\,per\,Household}{Median\,Household\,Income}$$

Median household income information for many municipalities is available from the 1990 Census of Population. To estimate median household income for the current year, use the CPI inflation rate for the period between the year that median household income is available and the current year.

Depending on the results of the screener, the community is expected to incur small, mid-range, or large economic impacts (see **Worksheet S**). If the total annual cost per household (existing annual cost per household plus the incremental cost related to the proposed project) is less than 1.0 percent of median household income, then the requirements are not expected to impose a substantial economic hardship on households and would not interfere with the development.

Communities are expected to incur mid-range impacts when the ratio of total annual compliance costs to median household income is between 1.0 and 2.0 percent. If the average annual cost per household exceeds 2.0 percent of median household income, then the project may place a large financial burden on many of the households within the community and the requirements may interfere with the development. In either case, communities move on to the Secondary Test to demonstrate substantial impacts.

5.2.b Public-Sector Developments: Secondary Test

The Secondary Test is designed to build upon the characterization of community identified in the Municipal Preliminary Screener. The Secondary Test indicates the community's ability to obtain financing and describes the socioeconomic health of the community. Indicators describe precompliance debt, socioeconomic, and financial management conditions in the community. Using these indicators and the scoring system

described below, the impact of the cost of pollution control is estimated. Specifically, applicants are required to present the following six indicators for the community:

Debt Indicators

- Bond Rating (if available) - a measure of credit worthiness of the community;
- Overall Net Debt as a Percent of Full Market Value of Taxable Property - a measure of debt burden on residents within the community;

Socioeconomic Indicators

- Unemployment Rate - a measure of the general economic health of the community;
- Median Household Income - a measure of the wealth of the community;

Financial Management Indicators

- Property Tax Revenue as a Percent of Full Market Value of Taxable Property - a measure of the funding capacity available to support debt based on the wealth of the community; and
- Property Tax Collection Rate - a measure of how well the local government is administered.

A more detailed description of the six indicators is presented in Section 2.4, including a discussion of alternative measures to use in States with property tax caps and limitations on assessed values. **Worksheet T** can be used to estimate each of the indicators. Table 5-1 summarizes the indicators and what is considered to be a strong, mid-range, or weak rating.

The Secondary Score is calculated for the community by weighting each indicator equally and assigning a value of 1 to each indicator judged to be weak, a 2 to each indicator judged to be mid-range, and a 3 to each strong indicator. A cumulative assessment score is arrived at by summing the individual scores and dividing by the number of factors used. **Worksheet U** guides the reader through this calculation. The cumulative assessment score is evaluated as follows:

- less than 1.5 is considered weak
- between 1.5 and 2.5 is considered mid-range
- greater than 2.5 is considered strong

If the applicant is not able to develop one or more of the six indicators, they must provide an explanation as to why the indicator is not appropriate or not available. Since the point of the analysis is to measure the overall burden to the community, the debt and socioeconomic indicators are assumed to be better measures of burden than the financial management indicators. Consequently, if one of the debt or socioeconomic indicators is not available, the applicant should average the two financial management indicators and use this averaged value as a single indicator with the remaining indicators. This averaging is necessary so that undue weight is not given to the financial management indicators.

5.2.d Public-Sector Developments: Assess Whether the Requirements Would Interfere With the Development

The results of the two tests are considered jointly in determining whether the community is expected to incur substantial impacts that would interfere with the development. As shown in Table 5-2, the cumulative assessment score for the community is combined with the estimated household burden. The combination of factors establishes whether impacts can be expected to be substantial.

In the matrix, "X" indicates that the impact is likely to interfere with the development. The closer the community is to the upper right hand corner of the matrix, the greater the likelihood. Similarly, "✓" indicates that the impact is not likely to interfere with development. The closer to the lower left hand corner of the matrix, the smaller the likelihood. Finally, the "?" indicates that the impact is unclear.

5.2.e Private-Sector Developments: Financial Measures

Four general categories of financial tests are used to determine if maintaining high-quality water will interfere with privately owned development. The four categories are divided into a primary measure of financial impacts and three secondary measures of financial impacts:

Primary Measure

- Profit -- how much would profits decline due to pollution control expenditures?

Secondary Measures

- Liquidity -- how easily can an entity pay its short-term bills?
- Solvency -- how easily can an entity pay its fixed and long-term bills?
- Leverage -- how much money can the entity borrow?

Profit and solvency ratios are calculated both with and without the additional compliance costs (taking into consideration the entity's ability, if any, to increase its prices to cover

part or all of the costs). Comparing these ratios to each other and to industry benchmarks provides a measure of the impact on the entity. Since antidegradation reviews involve new or expanded operations, the ratios often will be calculated using estimated values from pro-forma income statements and balance sheets prepared for the development.

For all of the tests, it is important to look beyond the individual test results and evaluate the total situation of the entity. While each test addresses a single aspect of financial health, the results of the four tests should be considered jointly to obtain an overall picture. The results should be compared with the ratios for other entities in the same industry or activity.

The primary and secondary measures are described below, along with an example of specific tests to be used. While there are several ratios that could be used for each test, to simplify the presentation only one ratio per test is described. In most cases, interpreting the results requires comparisons with typical values for the industry. Among the sources that provide comparative information are: Robert Morris Associates' *Annual Statement Studies*, *Moody's Industrial Manual*, Dun and Bradstreet's *Dun's Industry Norms*, and Standard & Poor's *Industry Surveys*. The *Annual Statement Studies*, *Dun's Industry Norms* , and Standard & Poor's *Industry Surveys* provide composite statistics for firms grouped into various manufacturing and service industries. The *Moody's Industrial Manual* provides detailed financial information on individual firms that can be used for comparison purposes. Each of the tests is discussed in more detail in Chapter 3.

5.2.f Private-Sector Developments: Primary Measure

Primary measure is the Profit Test, which measures the development's earnings if it is required to provide pollution control necessary to maintain the high-quality waters and if it is not required to do so. If maintaining high-quality water would result in considerably lower profits, then the development might not take place.

Two pieces of information are needed for the Profit Test. The first piece is the total annual cost of the required pollution control from **Worksheet R**. The second piece is the earnings information from the entity's income statement (**Worksheet V**).

$$Profit\ Test = \frac{Earnings\ Before\ Taxes}{Revenues}$$

The Profit Test should be calculated with and without the cost of the pollution control. In the former case, the annualized cost of pollution control (including O&M) is subtracted from the discharger's estimated earnings before taxes (revenues minus costs excluding income taxes). The Profit Test can be calculated using **Worksheets V, and W**. These profit rates should be

compared to those for facilities in similar lines of business, using data in *Moody's Industrial Manual*, *Dun & Bradstreet's Industry Norms and Key Business Ratios*, *Standard & Poor's Industry Surveys*, or Robert Morris's *Annual Statement Studies*.

The degree to which the discharger is able to raise prices is difficult to predict, and depends on many factors. Considerations should include the level of competition in the industry, the likelihood of competitors' facilities facing similar project costs, and the willingness of consumers to pay more for the product.

5.2.g Private-Sector Developments: Secondary Measures

The following secondary measures provide additional important information about the financial health of the development. All primary and secondary measures should be included in the analysis.

Liquidity

Liquidity is a measure of how easily a discharger can pay its short-term bills. One measure of liquidity is the Current Ratio, which compares current assets with current liabilities. Current assets include cash and other assets that are or could reasonably be converted into cash during the current year. Likewise, current liabilities are items that must be paid within the current year.

The Current Ratio is calculated by dividing current assets by current liabilities.

$$Current\ Ratio = \frac{Current\ Assets}{Current\ Liabilities}$$

The Current Ratio can be calculated using **Worksheet X**. The general rule is that if the Current Ratio is greater than 2, the entity should be able to cover its short-term obligations. Frequently, lenders require this level of liquidity as a prerequisite for lending. This rule (Current Ratio > 2) may not, however, be appropriate for all types of private entities. The Current Ratio of the discharger in question should be compared with ratios for other dischargers in the same line of business.

Solvency

Solvency is a measure of an entity's ability to meet its fixed and long-term obligations. These obligations are bills and debts that are owed on a regular basis for periods longer than one year. Solvency tests are commonly used to predict financial problems that could lead to bankruptcy within the next few years.

As with liquidity, there are several possible tests for solvency. One solvency test, the Beaver's Ratio, compares cash flow to total debt. This test has been shown to be a good indicator of the likelihood of bankruptcy.

$$Beaver's\ Ratio = \frac{Cash\ Flow}{Total\ Debt}$$

The Beaver's Ratio can be calculated using **Worksheet Y**. Cash Flow is a measure of the cash the entity has available to it in a given year. Since depreciation is an accounting cost -- a cost that does not use any currently available revenues -- it is added back to reported net income after taxes to get cash flow. Total debt is equal to the current debt for the current year plus the long term debt, since current debt includes that part of long-term debt that is due in the current year.

If the Beaver's Ratio is greater than 0.20 the development is considered to be solvent (i.e., can pay its long-term debts). If the ratio is less than 0.15 the development may be insolvent (i.e., go bankrupt). If the ratio is between 0.15 and 0.20, then future solvency is uncertain.

Leverage

Leverage tests measure the extent to which a firm has fixed financial obligations and thus indicates how much more money a firm is capable of borrowing. Firms that rely heavily on debt may find it difficult and expensive to borrow additional funds. One commonly used measure of leverage is the Debt to Equity Ratio.

$$Debt/Equity\ Ratio = \frac{Long\text{-}Term\ Liabilities}{Owners' Equity}$$

The Debt to Equity Ratio can be calculated using **Worksheet Z**. Since there are no generally accepted Debt/Equity Ratio values that apply to all types of economic activity, the ratio should be compared with the ratio of firms in similar businesses. If the entity's ratio compares favorably with the median or upper quartile ratio for similar businesses, it should be able to borrow additional funds. These ratios can be calculated using data in Robert Morris Associates' *Annual Statement Studies*, *Moody's Industrial Manual*, and Dun & Bradstreet's *Dun's Industry Norms*.

For entities with special sources of funding, leverage is not an appropriate measure of their ability to raise capital. Examples are agriculture and affordable housing, where special loan programs may be available. In these cases, an analysis of the probability that the project would receive this money is appropriate.

5.2.g Private-Sector Developments: Assess Whether the Requirements Will Interfere With the Development: Interpreting the Results

The financial analysis should be used to determine if there will be a substantial adverse impact such as to interfere with the development. If the four tests taken together indicate that the requirements would interfere with the development, then proceed to Section 5.3 to determine if the development would be considered important in social and economic terms.

5.3 Determine If Economic and Social Development Would Be Important

There are no economic ratios per se that determine whether a development would be considered important. Instead, the relative magnitudes of indicators such as increases in unemployment, losses to the local economy, changes in household income, decreases in tax revenues, indirect effects on other businesses, and increases in sewer fees should be taken into account. The term important is intended to convey a general concept regarding the level of social and economic development used to justify a change in high-quality waters.

5.3.a Define Relevant Geographical Area

One important factor is defining the geographical area in which the impacts will occur. In the case of municipal pollution control projects, the affected community is most often the immediate municipality. The relevant geographic area for evaluating the importance of a private-sector development varies with each situation. The area will typically be determined by the area in which the majority of its workers live and where most of the businesses that depend on it are located. In either case, the geographical area considered must include "...the area in which the waters are located." (40 CFR 131.12 (a)(2)) There are no simple rules for defining the relevant area or community; the decision is based on the judgement of the applicant and state, subject to EPA review.

5.3.b Public-Sector Developments: Determine Whether Important

While there are no explicit criteria, it is recommended that changes in the socioeconomic indicators listed below be considered. For each indicator listed, the applicant should estimate the potential change that would result from the development.

- Median Household Income;
- Community Unemployment Rate;
- Overall Net Debt as a Percent of Full Market Value of Taxable Property;
- Percent of Households Below Poverty Line;
- Impact on Community Development Potential; and
- Impact on Property Values.

Estimated changes should be provided, along with supporting discussions, on **Worksheet AA.**

5.3.c Private-Sector Developments: Determine Whether Important

Determination of whether or not a private-sector development will be important to a community requires exploring more factors than is the case with public-sector developments. **Worksheet AB** has been provided to assist applicants in their evaluation of socioeconomic impacts. It is designed as a list of the factors applicants should consider in determining whether the development is important. Applicants should feel free, however, to add anecdotal information to describe any current community characteristics or anticipated impacts that are not listed in the worksheet.

Potentially, one of the most important impacts on the affected community's economy is the employment to be gained. The size of this impact is dependent on the number of new jobs relative to the total number of jobs in the community, and to the other job opportunities available in the community. Typically, an increase in employment leads to an increase in personal income in the affected community. The total amount of income gained by the affected community will depend, in part, on the other job prospects of those hired. To assess the net impact on employment in the affected community, the existing rate of unemployment should be considered as an indicator of worker mobility between jobs.

The analysis should also consider whether the increase in employment opportunities may lead to a decreased need for social services in the affected community. If the cost of savings for decreased social services will be borne by the affected community, they should be included in the assessment.

The effects of increased employment and personal income will be compounded as the money moves through the economy. This multiplier effect means that each dollar gained to an employee results in the gain of more than a dollar to the local economy. Multiplier effects are discussed in more detail in Section 4.4.

Socioeconomic impacts may also include effects on the local government(s) such as property tax revenues and the demand for other public services. For example, if the development would be paying a share of the cost to upgrade a municipal treatment plant, then the analysis of community impacts is more complicated. If the development is eliminated, the system may become excessively expensive for the remaining users.

5.4 Summary

Using the guidance described in this document, the applicant must demonstrate that the pollution control measures needed to maintain the high-quality waters will interfere

with the development. In addition, the applicant will have to show that the development is important to the community.

The tests used to demonstrate interference and importance are the same as those used to demonstrate substantial and widespread. The difference is, however, that an antidegradation review considers situations that would improve the economic condition.

Figure 5-1:
Antidegradation Review

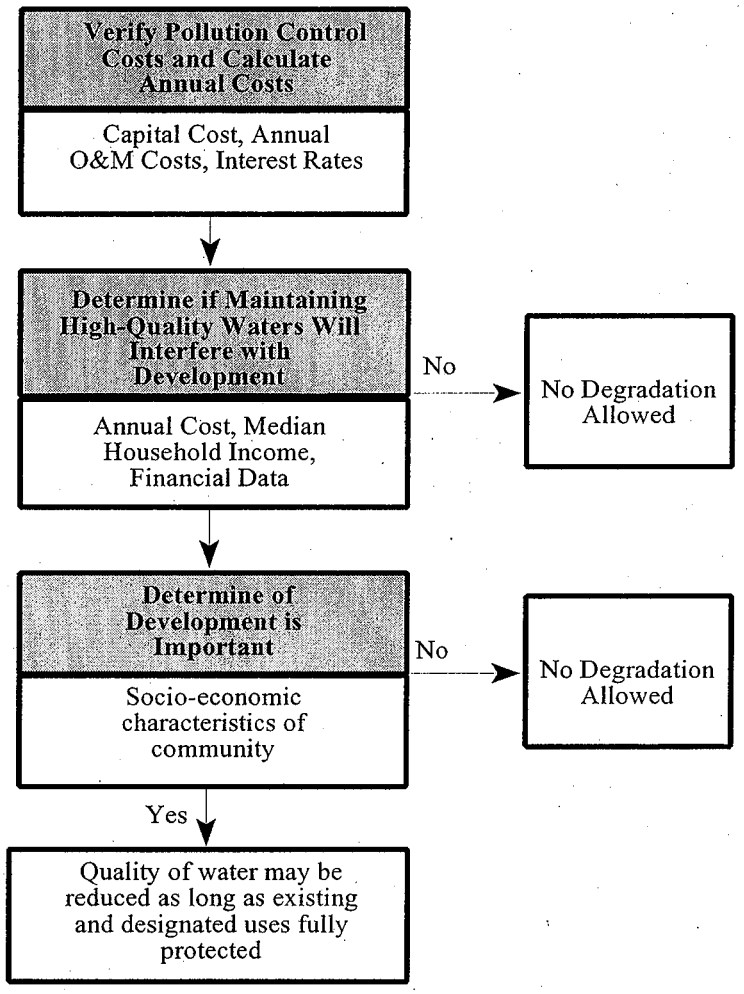


TABLE 5-1

SECONDARY INDICATORS

	Secondary Indicators		
Indicator	**Weak**	**Mid-Range**	**Strong**
Bond Rating	Below BBB (S&P) Below Baa (Moody's)	BBB (S&P) Baa (Moody's)	Above BBB (S&P) or Baa (Moody's)
Overall Net Debt as Percent of Full Market Value of Taxable Property	Above 5%	2%-5%	Below 2%
Unemployment	More than 1% above National Average	National Average	More than 1% below National Average
Median Household Income	More than 10% below State Median	State Median	More than 10% above State Median
Property Tax Revenues as a Percent of Full Market Value of Taxable Property	Above 4%	2%-4%	Below 2%
Property Tax Collection Rate	< 94%	94% - 98%	> 98%

TABLE 5-2

ASSESSMENT OF SUBSTANTIAL IMPACTS MATRIX

Secondary Score	Municipal Preliminary Screener		
	Less than 1.0 Percent	**Between 1.0 and 2.0 Percent**	**Greater than 2.0 Percent**
Less than 1.5	?	X	X
Between 1.5 and 2.5	✓	?	X
Greater than 2.5	✓	✓	?

BEFORE THE ILLINOIS POLLUTION CONTROL BOARD

DES PLAINES RIVER WATERSHED ALLIANCE, LIVABLE COMMUNITIES ALLIANCE, PRAIRIE RIVERS NETWORK, and SIERRA CLUB,	)	
Petitioners,	)	
v.	)	PCB 04-88 (NPDES Permit Appeal)
ILLINOIS ENVIRONMENTAL PROTECTION AGENCY and VILLAGE OF NEW LENOX	)	
Respondents.	)	

PETITIONERS' REPLY REGARDING RELEVANT FACTS IN THE AGENCY RECORD

Hickory Creek

1. Hickory Creek, a tributary of the Des Plaines River which flows in Will County, was once known for its exceptionally high water quality and biological integrity. Phillip Smith, a scientist of the Illinois Natural History Survey wrote in 1971 that "Prairie and Jackson Creeks have good species diversity, but Hickory Creek is the outstanding stream in the [Des Plaines River] system and contains populations of such unusual species as the northern hogsucker, rosyface shiner, and slender madtom." (HR115)

IEPA Response: The Agency disputes the Petitioners' statement in SOF ¶1. It is not clear from the above statement if the outstanding conditions in Hickory Creek existed throughout the Creek. The relevant fact here is whether these outstanding conditions existed immediately upstream and downstream of the Village's STP plant outfall. According to Northeastern Illinois Planning Commission (1981), land use upstream of Pilcher Park was primarily agricultural while downstream land use was predominately residential and commercial with numerous sewers and Combined Sewers Overflows in the Joliet area. The Agency's water quality reports since 1986 have reported the upper 12 miles of Hickory Creek as fully meeting aquatic life use while the lower 10 miles were rated as partial support. The lower portion includes the Joliet metropolitan area. Rosyface shiner have recently (2003) been reported upstream and downstream of the Village's STP 1. Further, Hickory Creek is not on the current list of biologically significant streams compiled by the Illinois Department of Natural Resources ("IDNR"). Furthermore, IDNR has noted that no threatened or endangered species exist in the vicinity of the segment of Hickory Creek in which the Village's STP 1 discharges. Agency record at 371.

New Lenox Response: The cited information appears to be a very brief conclusion in an abstract

that was inserted into the record. New Lenox has no reason to agree or disagree with the cited conclusion, which is of limited relevance given the time period it references, the absence of the location along Hickory Creek and data on which it was based, the absence of the author in this proceeding, or other relevant information. However, for regulatory purposes it is important to note that Hickory Creek is not on the current list of biologically significant streams compiled by the Illinois Department of Natural Resources ("IDNR"), Natural History Survey in the publication Biologically Significant Illinois Streams. This list is relevant for purposes of anti-degradation, and IDNR has further concluded that no threatened or endangered species exist in the vicinity of the segment of Hickory Creek to which New Lenox will discharge. See HR 005, 371. Hickory Creek is a general use and is rated as a "C" stream by Illinois EPA under its Biological Stream Characterization System. HR 005,115.

Petitioners' REPLY: As the facts stated in Petitioners' paragraph 1 are essentially background, it is probably not useful to refute the Respondents' responses at length.

Petitioners will note that Respondents do not cite anything showing that Hickory Creek was not of unique biological value in 1971. Further, the parties are agreed that water quality is not particularly good in Hickory Creek now.

As explained in Petitioners' Reply Memorandum (p.11), the legal arguments that New Lenox attempts to base on the fact that Hickory Creek is not on the Illinois Natural History Survey list of waters of particular biological significance are without merit.

2. *New Lenox Sewage Treatment Plant #1 was built in 1973. (HR 81)*

IEPA Response: None

New Lenox Response: New Lenox agrees with this fact and notes that its plant is located at 301 North Cedar Road. HR 005.

Petitioners' REPLY: The parties are agreed.

3. *Dr. David Bardack, formerly of the University of Illinois at Chicago Circle, wrote in 1982 that "Studies of the Hickory Creek ecosystem are widely recognized beyond the Chicago area. In fact, Hickory Creek has attained the status of a classic biological study area.... As a relatively unpolluted and unaltered stream with a diversified fauna...." (HR 108)*

IEPA Response: The Agency disputes the Petitioners' statement in SOF ¶3. It is not clear from the above statement if these conditions in Hickory Creek existed throughout the Creek. The relevant fact is whether these conditions exit immediately upstream and downstream of the Village's STP plant

outfall. According to Northeastern Illinois Planning Commission (1981), land use upstream of Pilcher Park was primarily agricultural while downstream land use was predominately residential and commercial with numerous sewers and Combined Sewers Overflows in the Joliet area. The Agency's water quality reports since 1986 have reported the upper 12 miles of Hickory Creek as fully meeting aquatic life use while the lower 10 miles were rated as partial support. Further, the Agency and IDNR classified all of Hickory Creek as a "C" stream in the 1989 and 1996 Biological Stream Characterization reports. This characterization of Hickory Creek was based on data collected between 1980 and 1988. Agency record at 371; 699.

New Lenox Response: New Lenox has no reason to agree or disagree with the cited conclusion, which is of limited relevance given the time period it references, the absence of the location along Hickory Creek and data on which it was based, the absence of the author in this proceeding, or other relevant information. Hickory Creek is not on the current list of biologically significant streams compiled by the Illinois Department of Natural Resources, which is one list that by regulation is relevant for purposes of anti-degradation, and IDNR has further concluded that no threatened or endangered species exist in the vicinity of the segment of Hickory Creek to which New Lenox will discharge. See HR 371,699.

Petitioners' REPLY: The parties are agreed that the statement quoted by Petitioners was placed into the record.

IEPA and New Lenox also make their own statements with regard to this paragraph. These statements are largely irrelevant. Petitioners will also note that few of the propositions stated in Respondents' responses are actually supported by the few record cites they provide.

4. New Lenox Sewage Treatment Plant #1 has been expanded since 1991. (HR 5)

IEPA Response: None

New Lenox Response: New Lenox agrees with this fact. At the time of the application for expansion at issue in this proceeding, the plant was operating at 85 percent capacity, and expansion was necessary to ensure wastewater services were properly provided for projected development in New Lenox. The area to be served was within New Lenox's FPA, and New Lenox received full approval from the Northeastern Illinois Planning Commission for its expansion. HR 005.

Petitioners' REPLY: The parties are in agreement as to the fact stated by Petitioners.

NIPC approval of the expansion is plainly irrelevant as NIPC has no authority to make any decision as to NPDES permits.

5. Hickory Creek is found on the draft 2002 Illinois 303(d) list of impaired waters. "The causes

of impairment given ... at that time were nutrients, phosphorus, nitrogen, salinity/TDS/Chlorides, TDS (chlorides), flow alterations, and suspended solids. The sources associated with the impairment are municipal point sources...." (HR 5) In the Illinois Water Quality Report 2004, Hickory Creek is listed as impaired with the potential causes of impairment being silver, nitrogen, pH, sedimentation/siltation, total dissolved solids, chlorides, flow alterations, physical-habitat alterations, total fecal coliform bacteria, total suspended solids, excess algal growth, and total phosphorus.

IEPA Response: The Agency's draft 2002 Illinois 303(d) list did not list all of Hickory Creek as impaired. The lower 10.1 miles were listed as impaired based primarily on water quality data collected at Washington Street in Joliet at river mile 2.5. The upper 12 miles were rated as full aquatic life use based primarily on biological data collected at river mile 10.6, Marley Road. Also, the list of potential sources of impairment included more than just municipal wastewater discharges. The list also included CSOs, urban runoff/storm sewers, land development and flow regulation/modification. The inclusion of pH as a potential cause of impairment in the 2002 Illinois Water Quality Report was a mistake. The pH value that indicated noncompliance with the minimum pH standard of 6.5 was mistakenly entered into the database as 0.87 instead of 7.87.

New Lenox Response: New Lenox agrees that Illinois EPA reported that Hickory Creek is found on the draft 2002 Illinois 303(d) list, reportedly based on a study performed in 1991. The selected quote is misleading in that it omits the numerous other sources generally associated with the listing. Discovery in this case could be expected to show the basis for the listing, the additional sources to the stream, and other information relevant to this case. In addition, Illinois EPA concluded during the permit proceedings that "a review of the causes of impairment resulted in a new conclusion. Agency biologists now believe that only total dissolved solids can be implicated as a cause of whatever impairment may exist in this stream segment outside of the immediate area of the New Lenox outfall." HR 360. New Lenox voluntarily agreed to accept a limit in the permit on total dissolved solids. New Lenox notes that the cited 2004 Water Quality Report was issued after the NPDES permit challenged in this case was issued. In addition, Illinois EPA has reported that the inclusion of pH as a potential cause of impairment was a mistake based on an erroneous database entry of 0.87 instead of 7.87.

Petitioners' REPLY: The Agency provides no citations to the record for any of the statements made in its response.

New Lenox fails to cite to the record for any of its alleged facts except for the quoted statement regarding the cause of the impairment in Hickory Creek. Petitioners have no idea how New Lenox concluded that the listing was based on 1991 data. The statement quoted regarding the alleged conclusion of agency biologists states an unsupported conclusion without providing any data or reasoning in support of it.

In actuality, the record clearly shows that biologists did not conclude anything about what caused the biological impairments in Hickory Creek that earned it its "C" rating. Given the way IEPA then did its impairment listings, numeric violations of water quality standards could cause listings in the absence of good biological data. After numerous internal discussions regarding whether New Lenox' contractor's study proved anything (HR 660 -700), it was determined on November 26, 2002, that the "basis for the 305(b)/303(d) 'partial impairment' assessment was TDS standards violations rates greater than 11 percent. Therefore, forget using the contractor's bug study." HR 562. At that point, the biologists stepped aside in the NPDES permit development process.

In short, we know that in the late 1990s Hickory Creek had high levels of a number of pollutants because of the "potential cause" listings, even though the reason Hickory Creek was listed apparently related to numeric violations of the TDS standard. In particular, in order to be listed on the 2002 303(d) with a potential cause listed as "phosphorus," water samples in the creek had to be over the 85th percentile for phosphorus in the state. (See Exhibit 1, an excerpt from the 2002 Water Quality Report, available on the web at http://www.epa.state.il.us/water/water-quality/index.html).

New Lenox, which is so eager to take discovery that would go outside the record before the agency, notes correctly that the 2004 Water Quality Report was issued after the permit was issued in October 2003. However, the data that was used in the 2004 report was collected in 2002 and thus was in IEPA's hands when it issued the permit. The 2004 report lists Hickory Creek as impaired by, among other things, "excess algal growth" (= 2210) and "Total Phosphorus" (=9910) and lists among the potential causes "municipal sewerage treatment plants." (See Exhibit 2, an excerpt from the 2004 Water Quality Report, available on the web at http://www.epa.state.il.us/water/water-quality/index.html).

Offensive Conditions/Algal Blooms

6. A number of witnesses gave reports of algal blooms in Hickory Creek including nearby resident Kim Kowalski. (HR 76)

IEPA Response: It is not clear from the above statement whether the reported algal blooms occurred upstream or downstream of the Village's STP 1 or when the blooms occurred. Did the blooms occur during low, normal, or high flow stream conditions? Further, there are several factors that can contribute to excessive algal growth including nutrients, stream flows, dams/impoundments, turbidity and sunlight/canopy cover. It is possible to have excessive algal growth even if nutrients are not substantially elevated. There is a dam located in Pilcher Park at river mile 4.6, which is about 3.8 miles downstream of the Village's STP 1. Furthermore, it is a known fact that algae is a vital part of the aquatic community and only excessive algal population is considered a problem. The best measure of determining if excessive algal conditions exist in a stream is by studying the local fish population. Only if the oxygen concentration dips to low levels, the fish population is adversely impacted. Agency record at 361; 515; 639.

New Lenox Response: This statement is a mischaracterization of the comment in this proceeding. New Lenox agrees that a few commenters reported "algae," but "algal blooms" have not been the subject of comment. Further, as pointed out by New Lenox's consultant, sampling performed in August 2002 for purposes of the water quality study observed there were no visible signs of organic growth or over-nutrification at the plant discharge site. PR 515, 633. Comments concerning algae were considered by Illinois EPA, and addressed in its Responsiveness Summary. In the Responsiveness Summary, Illinois EPA stated that algae is a vital part of the aquatic community and algae growth in itself is not problematic; it is in relation to dissolved oxygen and the adverse impact on fish that provides context. Illinois EPA stated that "Streams would be expected to exhibit either one kind of algal growth or another, [i.e. planktonic or periphyton]" depending on a variety of factors, and "the best measure of whether [fish are adversely impacted] is to look at the local fish population. Hickory Creel: has fish populations that are not indicative of low dissolved oxygen concentrations." HR 361. Illinois EPA also concluded based on relevant data for 2003 that all measurements in Hickory Creek meet the water quality standard for dissolved oxygen. HR 364. Finally, to the extent algae was observed in August, those observations were more likely due to low flow conditions and solar heating, not to nutrients discharged by the plant. PR 639.

Petitioners' REPLY: The parties are agreed that information was placed into the record at the public hearing regarding offensive algal blooms.

IEPA and New Lenox make factual statements here regarding dissolved oxygen conditions in Hickory Creek. These statements are irrelevant to Petitioners' motion because Petitioners have not moved for summary judgment with regard to dissolved oxygen. IEPA may not permit discharges that may cause or contribute to violations of the "offensive conditions" standard whether or not the

discharges would cause violations of the dissolved oxygen standards.

Respondents do cite a statement in the record that stated that the offensive conditions violation was due to low flow conditions and solar heating. The document cited for this proposition (HR 638-41) is an anonymous document that contains no analysis or factual support. It merely states that on one day (August 20, 2002) a New Lenox' contractor did not observe "visible" signs of organic pollution or over-enrichment at the point of the New Lenox discharge. (HR 639) This plainly is not substantial evidence of anything. Furthermore, IEPA's failure to make this point in the Responsiveness Summary is a clear indication that IEPA did not think it proved anything.

Moreover, as the Board and the agency are well aware, nutrients may cause problems miles downstream from the discharge when the flow of the stream changes or the water encounters a lake or reservoir (or the Pilcher dam) which is why the Board decades ago limited phosphorus discharges twenty-five miles above a lake or reservoir. 35 Ill. Adm. Code 304.123(c).

There is nothing to suggest that the flow or sunlight was unnatural. What could have been unnatural was the level of nutrients in the water, and no one denies that nutrient levels in Hickory Creek are elevated over natural levels. IEPA statements in the record and the treatises cited make clear that high concentrations of nutrients combined with natural sunlight will lead to algal blooms. (HR 303-05)

7. Jim Bland, Director of Integrated Lakes Management, testified that "[I] should comment that as recently as August of this year I saw something unique in-stream, something I have not seen before. The entirety of the stream is covered from Pilcher Park almost all the way up to Cedar Street with Hydrodictyon and algae on the surface of it. So here you have a running stream covered almost completely and a running stream that's really a very, very viable and important resource, pretty sadly degraded by the sorts of nutrient discharge that we are seeing." (HR 80)

IEPA Response: The Agency disputes the Petitioners' statement in SOF ¶7. As the permit hearing was only an informational hearing, the public was allowed to provide comments, but not testimony. Contrary to Petitioners' claim, Jim Bland could not have testified at the hearing. In addition, the statement, "[t]he entirety of the stream is covered from Pilcher Park almost all the way up to Cedar

Street with Hydrodictyon and algae on the surface of it", does not indicate that there is a dam located in Pilcher Park at about river mile 4.6. Hydrodictyon is a green algae commonly found in lakes, small ponds, and irrigation ditches. The statement also does not indicate where the bloom stopped. The Village's STP 1 discharge is located about 0.18 mile downstream of Cedar Street. If the Village's STP 1 was responsible for this condition, the green algae would not extend upstream of the discharge. Agency record at 361; 515; 639.

New Lenox Response: See response to par. 6. Additionally, New Lenox disagrees that Mr. Bland "testified," as his comments were unsworn and not subject to questioning or cross-examination. In addition, Pilcher Park, which is located about two miles as the crow flies from New Lenox, is the location of a dam. Dams are one aquatic feature that are associated with algae.

Petitioners' REPLY: The parities are agreed that Mr. Bland made the statement into the record as described in Petitioners factual statement. Respondents quibble that Mr. Bland did not "testify" but the term testified is frequently used as to formal statements whether of not made under oath.

None of Respondents' citations to the record support any of the propositions for which they are cited.

Moreover, if it is true that there was also algae above the New Lenox discharge, it proves only that New Lenox is not the sole cause of the offensive conditions problem, which no one claims. It also would prove that New Lenox contractor, discussed in HR 639 and paragraph 6 above, who reported no visible evidence at the mouth of the discharge on the day he was at the New Lenox plant must have either been there on a different day than the day that the reported algal bloom took place or the contractor does not see well.

8. Community resident Brad Salamy testified at the hearing that, "Last summer, and this was alluded to earlier, the creek was greener than I had ever seen it, a little patch down the center was liquid, the rest of it was completely green like you could walk on it." (HR 82-3)

IEPA Response: As the permit hearing was only an informational hearing, the public was allowed to provide comments, but not to provide testimony. Contrary to Petitioners' claim, Brad Salamy could not have testified at the hearing. The above statement does not indicate where in relation to the Village's STP 1 discharge this green patch was seen. This statement is confusing as it tends to indicate that there was only a little patch of water down the center. Hickory Creek near Marley Road has fairly extensive areas of water willow that can make up a large proportion of the stream channel during low flow stream conditions. Agency record at 361; 515; 639.

New Lenox Response: See response to par. 6. New Lenox disagrees that Mr. Salamy "testified," as his comments were unsworn and not subject to questioning or cross-examination.

Petitioners' REPLY : See reply to Respondents responses to paragraph 8.

Levels of Phosphorus in Hickory Creek

9. Phosphorous concentrations are high in the creek. In addition to the IEPA impaired water data discussed above (¶5), the U.S. Geological Survey database shows that for the period of '92 to '97 total phosphorus exceeded Illinois' EPA trigger value for more than 20 percent of the samples. Illinois EPA's trigger is approximately eight times higher than the USEPA's recommended criterion. Furthermore, data collected in August 2002 by the Village of New Lenox indicate the total phosphorus instream on that particular day when they sampled was between 1.49 and 1.63 milligrams per liter. These concentrations are approximately 20 times the USEPA-recommended criterion and more than twice Illinois EPA's trigger. (Wentzel Testimony HR 67)

IEPA Response: Phosphorus levels in Hickory Creek are elevated from background levels both upstream and downstream of the Village's STP 1 discharge. There are at least 12 wastewater treatment plants that discharge into Hickory Creek and its tributaries. Nine of these facilities are located upstream of the Village's STP 1 discharge. The two stations sampled in 1997 that were used for the assessment of Hickory Creek for the 2002 Illinois Water Quality Report were located upstream (GG-06) and downstream (GG-02) of the Village's STP 1. Station GG-06 at Marley Road was assessed as full aquatic life use based on biological data. Station GG-02 at Washington Street, Joliet was assessed as partial support based on water chemistry data. Both stations had total phosphorus concentrations that exceeded the Agency's cause listing criteria of 0.61 mg/L. Phosphorus is only listed as a possible cause of impairment if other data, biological and or water quality numeric standards, indicate impairment. Phosphorus concentrations were similar at these two stations in 1997 with means of 0.58 mg/L at GG-06 and 0.53 mg/L at GG-02. Moreover, the statement that phosphorus values are "high" in the Creek is not a fact but Petitioners' opinion. As, even within the various ecoregions utilized by U.S. EPA, "the national criteria recommendations are based on statistical distribution and recurrence frequencies, not direct relationship to detrimental or impaired stream conditions," the Agency concluded that there is nothing unusual about the phosphorus levels in Hickory Creek. Agency record at 365.

New Lenox Response: This paragraph's characterization of phosphorus values as "high" in the Creek does not constitute a fact but merely a characterization by the statement's author. The cited, data is from Illinois EPA's samples at U.S.G.S. gauge 05539000 in Joliet, Illinois, which is published by U.S.G.S. under mutual agreement with Illinois EPA. HR 129, 365. This monitoring station is located approximately seven miles downstream of New Lenox's discharge and the latest data is from six years before the permit was issued.

Neither Illinois EPA's "trigger value" nor a criterion recommended by U.S. EPA constitute regulatory standards in Illinois or are relevant here. Illinois EPA's trigger value is a tool for ranking streams. It is based on the 85th percentile of values recorded for phosphorus. It has absolutely nothing to do with the impact of phosphorus on a stream or a cause/effect relationship. Illinois EPA

noted that even within the various ecoregions utilized by U.S. EPA, "the national criteria recommendations are based on statistical distribution and recurrence frequencies, not direct relationship to detrimental or impaired stream conditions." HR 365. See also PR 639.

Illinois EPA properly weighed Petitioners' comments, and concluded that there is nothing unusual about stream phosphorus values such as those reported for Hickory Creek. Illinois EPA is also aware of the other dischargers to the Creek, and their location both upstream and downstream of New Lenox, and discovery could be expected to address these dischargers.

Petitioners' REPLY: It appears the parties agree that there are already high levels of phosphorus in Hickory Creek as stated in Petitioners' paragraph.

The Respondents do not cite to the record for most of the alleged facts in their response.

In any event, Respondents admit that the levels of phosphorus were "elevated" and that statistically Hickory Creek has a high level of phosphorus using U.S. EPA criteria. Still, Respondents insist that Hickory Creek's levels of phosphorus are not "unusual." If, by this, Respondents mean to imply that many Illinois waters have unfortunately high levels of phosphorus pollution, then they are correct.

Certainly nothing in any of the facts cited by Respondents suggest any reason to be satisfied with the levels of phosphorus currently in Hickory Creek or to welcome additional phosphorus.

10. Sampling by the applicant's contractor, Earth Tech, conducted in August of 2002 found 2.76 milligrams per liter of total phosphorus in the effluent, almost twice the upstream concentration on that day and six times the average over time for that particular stream. (Wentzel Testimony HR 68)

IEPA Response: None

New Lenox Response: New Lenox agrees that the results of a grab sample of its effluent were 2.76 milligrams per liter of total phosphorus in the effluent on the date sampled, and notes that the four downstream samples showed phosphorus at values of 1.60 milligrams per liter, 1.63 milligrams per liter, 1.47 milligrams per liter, and 1.52 milligrams per liter. See PR 513, 545. As New Lenox's consultant pointed out, it is misleading to compare concentrations in the creek and in the plant effluent when the flows are not the same, and had flows been considered, the total phosphorus from the plant effluent would have been on fourth of the upstream total phosphorus. PR. 632-33. Concentrations of phosphorus in effluent can be highly variable and dependent on flows, the time of day and a host of other facts, and a grab sample can be expected to result in limited information. New Lenox notes that phosphorus is not an acute pollutant, and it is long-term average values that would be more critical. In addition, the Illinois EPA is aware of other dischargers upstream and

downstream of New Lenox.

Petitioners' REPLY: The parties again agree on the fact that New Lenox is a significant source of phosphorus to Hickory Creek and that the increased discharge makes it still more important. According to the New Lenox contractor, New Lenox prior to the new authorized discharge is discharging approximately one-fourth of the total upstream phosphorus under average conditions. New Lenox's permitted discharge is then a much higher percentage of the low flows.

Further, it must be noted that no author is identified for this document.

Still further, the document is titled "Comments on Draft Responsiveness Summary." (HR 632) Are we to understand then that New Lenox was allowed to help write the Agency Responsiveness Summary? If true, this indicates an outrageous level of collaboration between a discharger and the Agency supposedly regulating it.

Effect of New Lenox Discharge on Nutrient Levels, Algal blooms, Dissolved oxygen and pH in Hickory Creek

11. Comments by Professors David Jenkins and Michael Lemke of the Biology Department, University of Illinois at Springfield stated:

- *Based on the New Lenox August data, the current plant releases an average of 64.7 kg of nitrate+nitrite per day and 16.1 kg of total P [total phosphorus] into Hickory Creek.*
- *Based on long-term average August flow data from USGS and USGS Schmuhl Road nutrient analyses, current Hickory Creek nutrient loads upstream from the WWTP#1 are 151 kg nitrate+nitrite, and 22.7 kg total P.*
- *Therefore, the plant is responsible for 30% of downstream nitrate+nitrite load in Hickory Creek, and 41% of the Hickory Creek total P load.*
- *As currently planned (and assuming nutrient levels in plant discharge remain the same), the new plant discharge will release 105.7 kg of nitrate+nitrite per day and 26.3 kg of total P per day into Hickory Creek. Assuming that Hickory Creek flow will not change for reasons other than the planned extra plant discharge, the new plant discharge will release 41% of the stream nitrate+nitrite load, and 53.7% of the stream P load on an average basis.*
- *More importantly, the same-sized receiving stream will be bearing 170% the levels of*

nitrate+nitrite upstream of the plant, and 216% of the total P levels upstream of the plant. These levels of nutrient loading will have substantial effects on downstream water quality, not only in Hickory Creek, but also the Des Plaines River and the Illinois River. The Hickory Creek channel will also be receiving substantially more flow, which will have effects on stream habitat and biota that are separate from nutrient effects.

– *Summary of Hickory Creek Water Quality Information, David Jenkins and Michael Lemke (HR 304-305)*

IEPA Response: The Agency disputes the implications of Petitioners' statement in SOF ¶11. These statements fail to establish any proof that the Village's STP 1 discharge would cause violation of water quality standards algal blooms, dissolved oxygen water quality standard, and pH standard.

New Lenox Response: New Lenox does not dispute that the Professors made the cited statements. However, the conclusions in these comments are based on questionable or undisclosed assumptions, and discovery would be necessary to show what support these comments are based on, mathematically and otherwise. New Lenox's consultant pointed out several areas where the Professors used incorrect assumptions, including the flow used and invalid data comparisons. PR 635. The conclusion that there will be "substantial effects on downstream water quality" in Hickory Creek, the Des Plaines River and the Illinois River is of very questionable and undisclosed scientific and mathematical support. In any case, the Illinois EPA considered these comments and is aware of point and non-point sources of nutrients to all of these water bodies.

Petitioners' REPLY: Respondents agree that Petitioners filed the statements quoted into the record. These statements constitute additional proof that IEPA was put on notice that discharges of phosphorus from New Lenox have the potential to harm Hickory Creek. See also Petitioners' Reply regarding paragraph 10.

12. Published treatises placed in the record show that elevated nutrient levels cause impairment of streams.

"Eutrophication is a fundamental concern in the management of all water bodies.... There is now also considerable interest in the enrichment of streams and rivers (see discussion by Dodds and Welch 2000). For example in 1992, the United States Department of Agriculture National Water Quality Inventory reported that enrichment and sedimentation were the most significant causes of water quality degradation in 44% of >1,000,000 km of streams and rivers surveyed in the US (http://www.usda.gov/stream_restoration). Management problems caused by [nutrient] enrichment, and associated benthic algal proliferations, include aesthetic degradation..., loss of pollution-sensitive invertebrate taxa through smothering of substrata by algae ..., and degradation of water quality (particularly dissolved oxygen and pH) resulting in fish kills...."

Biggs, B.J.F. 2000. Eutrophication of streams and rivers: dissolved nutrient-chlorophyll relationships for benthic algae. J. North Am. Benthol. Soc. 19:17-31. (HR 187)

> *"Reasons for nutrient criteria include: 1) adverse effects on humans and domestic animals, 2) aesthetic impairment, 3) interference with human use, 4) negative impacts on aquatic life, and 5) excessive nutrient input into downstream systems."*

Dodds, W. K. and E.B. Welch. 2000. Establishing nutrient criteria in streams. J. North Am. Benthol. Soc. 19:186-196. (HR 177)

> *"High algal growth can affect fish distribution by altering the physical (algal mass accumulation) and chemical (dissolved oxygen, pH) characteristics of the river system."*

Sabater, S., J. Armengol, E. Comas, F. Sabater, I Urrizalqui, and I. Urrutia. 2000. Algal biomass in a disturbed Atlantic river: water quality relationships and environmental implications. Science of the Total Environment. 263:185-195. (HR 210)

There is a positive correlation between nutrients in streams and algal activity.

> *"The present analysis suggests that managing nutrient supply could not only reduce the magnitude of maximum biomass, but also reduce the frequency and duration of benthic algal proliferations in streams."*

Biggs, B.J.F. 2000. (HR 187)

> *"... our study indicates that there is a generally positive relationship between Chl [chlorophyll] and TP [total phosphorus] in temperate streams ..."*

Van Nieuwenhuyse, E.E. and J.R. Jones. 1996. Phosphorus-chlorophyll relationship in temperate streams and its variation with stream catchment area. Can. J. Fish. Aquat. Sci. 53:99-105. (HR 206)

> *"If streams are not turbid, preventing maximum benthic chlorophyll levels from exceeding 200 mg/m2 is reasonable because streams with higher levels are not aesthetically pleasing, and their recreational uses may be compromised. For benthic chlorophyll to remain below 200 mg/m2 at the very least, TN should remain below 3 mg/L and TP below 0.4 mg/L."*

Dodds, W. K. and E.B. Welch. 2000. (HR 184)

> *"Photosynthesis and respiration are the two important biological processes that alter the concentration of oxygen and carbon dioxide. In highly productive waters,*

such as slow moving rivers with abundant macrophytes, oxygen is elevated and carbon dioxide is reduced during the daytime, while the reverse occurs at night."

Allan, J. D., 1995. Stream Ecology: structure and function of running waters. Chapman & Hall, New York (HR 163)

"Diel (24 h) changes in oxygen concentration provide a means of estimating photosynthesis and respiration of the total ecosystem..."

(Allan, J. D. HR 163)

"Carbon dioxide likewise tends to deviate from atmospheric equilibrium in highly productive lowland streams where luxuriant growths of macrophytes and microbenthic algae can result in diel shifts in dissolved CO2.... Because of the interdependence of CO2 concentration and pH ..., mid-day pH can increase by as much as 0.5 units."

(Allan, J. D. HR 164)

"Dissolved O_2 deficit and high pH are perhaps the most severe algal-related problems affecting the aquatic life-support characteristics of a river or stream. Deficits of DO can occur when respiration of organic C produced by photosynthetic processes in the stream exceeds the ability of reaeration to supply DO."

(Dodds, W. K. and E.B. Welch. HR 180)

"The contribution of algal biomass to the diel dissolved oxygen (DO) variability in rivers is common in systems receiving high nutrient inputs...."

Sabater, S., J. Armengol, E. Comas, F. Sabater, I Urrizalqui, and I. Urrutia. 2000. (HR 216)

IEPA Response: The Agency disputes Petitioners' implication of cited quotes in SOF ¶12. These treatises fail to establish that the Village's STP 1 discharge would cause violation of water quality standards for algal blooms, dissolved oxygen water quality standard, and pH standard. In addition, these treatises are irrelevant as the discussion is directed at developing criteria for nutrients, and not at developing effluent limits for a discharge. Further, the water based effluent limit for dissolved oxygen will help to improve the instream dissolved oxygen concentrations in Hickory Creek as this Creek is an effluent dominated stream during low flow conditions. Agency record at 356.

New Lenox Response: New Lenox agrees that the state in response to draft criteria by U.S. EPA is moving forward to develop nutrient standards and has convened a study group that includes stakeholders from numerous areas, including persons that commented in this proceeding.
New Lenox agrees that published statements were placed in the record by Petitioners, but they are of limited usefulness since they are not directed at this stream or this effluent, they are unsworn and

unverified, and they are generally more appropriately considered in the context of setting generally applicable standards for nutrients, not deriving water quality limits for one discharger along a stream with many dischargers. The provided snippets of statements from these studies do not change the fact that the science concerning nutrients, algal growth, dissolved oxygen levels, stream types, and other factors is both complicated and uncertain, and Illinois EPA has acknowledged "major knowledge gaps." HR 356. Further, the Illinois EPA concluded specifically in this case that "the incremental nutrient loading anticipated to result from this project is not expected to increase algae or other noxious plant growth, diminish the present aquatic community or otherwise aggravate existing stream conditions." PR 565. Finally, both Illinois EPA and the Board have concluded as much with respect to the uncertain science surrounding nutrients in the opinion concerning the Board's proposal of a technology-based interim standard for phosphorus. See Opinion and Order, R 04-26 (April 7, 2005).

Petitioners' REPLY: The parties agree that the quoted treatises were placed into the record.

The agency conclusion regarding the effect of the incremental nutrient loading anticipated to result from the expanded plant is a naked conclusion with no support in the record. Indeed, if one accepts the agency protestations that there are "major knowledge gaps" regarding the effects of nutrients, it is impossible to understand how the agency could have any confidence in a conclusion that the incremental nutrients will have no effect.

Moreover, any statement regarding the effect of the "incremental" increase is irrelevant to the question of whether the permit could be issued. The permit to discharge authorized or reauthorized the entire New Lenox discharge and, thus, the permit could not be issued if the entire discharge alone or in combination with other sources of pollutants to Hickory Creek caused or had the potential to cause a violation of water quality standards in Hickory Creek or any downstream water.

13. It is likely that nutrient discharges from New Lenox WWTP #1 are already adversely impacting Hickory Creek and that reductions of nutrient discharges are needed to prevent further impact. (Statement of Professors Jenkins and Lemke HR 305)

IEPA Response: The above statement is an opinion made by Professors at the permit hearing, and is not a statement of fact. There is no evidence in the record to support Petitioners' statement.

New Lenox Response: See responses to 11 and 12. This statement is an unfounded characterization and conclusion, submitted in an unsworn comment, and is contrary to Illinois EPA's conclusion. The conclusion does not explain what the adverse impacts are, and New Lenox's studies and submissions

showed the opposite. HR 361, 364. Based on the macroinvertebrate survey performed by New Lenox at the request of Illinois EPA at the location of the discharge, pollution intolerant organisms are present both upstream and downstream of the existing discharge. PR 572.

Petitioners' REPLY: Unlike the anonymous agency conclusion cited by Respondents, Professors Jenkins and Lemke did not simply opine without any basis. Although Petitioners only cited their conclusions in this paragraph, the complete Jenkins and Lemke report appears in the record at HR 303-07. The Board may judge for itself the strength of their conclusions.

In any event, the point here is not whether nutrient discharges have caused problems in Hickory Creek but whether they have the reasonable potential to do so. The parties agree that Petitioners placed information in the record showing that the New Lenox discharge could contribute to violations of the offensive conditions standard.

14. The IEPA at the hearing on the draft permit acknowledged that it was "very possible" that supersaturated oxygen levels found during the daytime hours in Hickory Creek are due to algae saturation photosynthesis. (HR 67)

IEPA Response: Petitioners are taking the Agency's comment out of context. The Agency's comment is referring to a phenomenon that may be occurring in Hickory Creek, not in any way, implying that the Village's STP 1 is causing the supersaturated oxygen levels in the Creek. Agency record at 068; 361.

New Lenox Response: New Lenox agrees that Mr. Bob Mosher of Illinois EPA acknowledged that it is "very possible that algae saturation photosynthesis had a part in levels of supersaturated dissolved oxygen levels during the period of 1979 to 1997" as reported in the data taken at the U.S.G.S. stream gauge approximately seven miles in Joliet downstream from New Lenox. To put the statement in context, in response to follow up questioning and in the Responsiveness Summary, Mr. Mosher also stated that he was not aware of any studies that show gas bubble disease in fish from supersaturation. HR 068 and 361.

Petitioners' REPLY: The parties are agreed that high algae levels may be causing large swings in dissolved oxygen levels in Hickory Creek.

15. Hickory Creek also violated pH standards by exceeding a pH of 9, likely as the result of algal activity. (HR 126)

IEPA Response: The statement is a Petitioners' statement of opinion and not a statement of fact.

Also, the Agency, from the review of its raw data, found that a pH value of 0.87 was mistakenly entered into the database, instead of 7.87.

New Lenox Response: This conclusory statement is based on an unsworn comment from Petitioners in the record. It appears to be derived from Illinois EPA's sampling at the U.S.G.S. stream gauge in Joliet, approximately seven miles downstream from New Lenox's discharge point. New Lenox's consultant pointed out that during the period of record, average pH was 7.8, only 3 pH values were 9.0 or higher, with two at 9.0 and one at 9.1. PR 640. New Lenox's pH sampling in connection with its water quality report showed pH ranging from 6.77 to 8.21 in the vicinity of New Lenox's plant. Illinois EPA also properly considered its data concerning pH, and pointed out that in some environments, a pH over 9.0 is not an unnatural condition. Illinois EPA also stated that its monitoring station on the lower part of Hickory Creek may not have similar morphology to the area around New Lenox, and therefore drawing direct conclusions between sites may not be valid. HR 369.

Petitioners' REPLY: Petitioners' statement is not an opinion. The fact that Hickory Creek frequently violates pH limits was based on U.S.G.S. reports that are cited in the comment letter and included in the record. (HR 129-159)

The data cited by New Lenox and IEPA do not seem to be directed at the U.S.G.S. data.

In any event, with regard to Petitioners' motion, the point is merely that Petitioners placed evidence of high pH levels into the record, which further demonstrates that algal blooms are occurring in Hickory Creek.

Current Biological Integrity of Hickory Creek

16. IEPA did not analyze the effects of the existing New Lenox discharge with a recent valid study. The Antidegradation Assessment Memorandum from Scott Twait to Abel Haile, Nov. 26, 2002 states that "The most recent facility related stream survey conducted by the Agency was on June 10, 1991. The facility related stream survey is not representative of the stream conditions that exist at this time, since the facility has been expanded since the 1991 facility related stream survey was conducted." (HR 5)

IEPA Response: The Agency disputes Petitioners' claim that "IEPA did not analyze the effects of the existing New Lenox discharge with a recent valid study," as this claim is inaccurate. The Agency did, along with other information, did consider a study performed by the Village in 2003. The study showed that no significant impact by the Village's discharge on the receiving stream as measured by macroinvertebrates. Agency record at 368; 403-418; 512-521.

New Lenox Response: This statement is inaccurate. Illinois EPA requested and received a recent

valid study from New Lenox, performed by its consultant Earth Tech.

Petitioners' REPLY: The Agency record makes clear that the agency did not perform any study for itself and that fact is not contested. The Earth Tech study is discussed below.

17. The applicant' contractor, Earth Tech, performed a biological study for the Village of New Lenox (HR 513-519) at IEPA's request (HR 660.5). There is extensive discussion in the Hearing Record among IEPA staff regarding deficiencies in the Earth Tech study. (HR 537, HR 556-558, HR 561, HR 661-698).

IEPA Response: The Agency disputes Petitioners' statements that the Village's study was "deficient." The discussion in the record simply provides the views of various Agency staff members who were involved in reviewing the Village's study. Most of the discussion was focused on various valid methodologies that could have been used for performing MBI analysis. Agency record at 665; 671; 674-675. Some of the tolerance values assigned to several species were not as the Agency would have assigned them. Agency record at 370. The consultant made these changes and recalculated the MBI results. The difference between the two results was relatively minor. The pertinent inquiry here is whether the Village's study is adequate in determining the impact of the Village's existing discharge on the aquatic life of Hickory Creek. The overall conclusion of the study was that as there was very little difference between upstream and downstream MBI values, there was an insignificant or no adverse effect on the receiving stream from the effluent. Agency record at 370; 562.

New Lenox Response: New Lenox agrees that its consultant performed a biological study, and it was subject to extensive discussions and appropriate internal agency deliberation about the information it provided as well as general discussions about the manner in which these studies are performed. The conclusion that the study was "deficient" is an inappropriate characterization, and omits substantial parts of Illinois EPA's thoughtful and thorough deliberations. The agency's deliberations reflect that there are various methodologies for performing MBIs, and there were initially differences between Illinois EPA staff members' practice and New Lenox's consultant, which were addressed by Illinois EPA and New Lenox's consultant. Those differences included the manner in which the MBI was calculated and the tolerance values assigned to certain species, as well as procedures,"beyond [the staff members"] own familiarity and practice." Illinois EPA has also recognized the difficulty of performing an MBI assessment and the variations in acceptable methods that nevertheless may still not be perfect. For example, one of the Illinois EPA staff members cited by Petitioners has stated that even its own "bug-sampling methods (as they are currently defined) fall short of adequately addressing how to control for habitat or flow influences on macroinvertebrate samples collected at difference sites." PR 665; See also 671, 674-75.

As recognized by Illinois EPA, there is no regulatory method to perform the MBI. See PR 674-75. New Lenox's consultant was nevertheless able to satisfy Illinois EPA's concerns about the study and Illinois EPA made a decision to rely on the study as part of the information that informed its decision. The consultant revised the MBI values to accord with the Illinois EPA's preferred methodology, which produced a relatively minor difference from the originally calculated MBI. HR 370. Illinois EPA subsequently verified the validity and acceptability of the survey to characterize the

current condition of Hickory Creek. HR 370; PR 019.

Petitioners' REPLY: Nothing stated by either of the Respondents conflicts with Petitioners' statement that there is substantial discussion in the record regarding deficiencies in the Earth Tech study.

18. A Sept. 24, 2002 internal IEPA email from Howard Essig to Roy Smoger states, "The macroinvertebrate memo prepared by Earth Tech is one of the poorest studies I have seen in a while." It is further stated that "Statements made by Earth Tech on page 3 of their report are all without merit. They do not back up any of their statements with data. For example they attribute differences in taxa between stations to variations in stream flow, dissolved oxygen levels and habitat types- but they provided no stream flow or dissolved oxygen data." It is still further stated in this email that "Earth Tech also indicated that the current baseflow of Hickory Creek is adequate to dilute the volume discharged from the WWTP. They did not provide any flow data on Hickory Creek or the New Lenox WWTP to back up this claim." (HR 666-7)

IEPA Response: The statement cited by Petitioners is a dialogue between two Agency staff members, and is not the Agency's final conclusion on the validity of the Village's study for intended purposes. The Agency's considers the Village's study as valid for its limited purpose to show that the existing discharge is not adversely impacting Hickory Creek. Agency record at 370; 562.

New Lenox Response: See resp. to par. 17. The discussion within Illinois EPA is evidence of proper internal deliberations in this matter between various staff members prior to the time Illinois EPA made a decision, and the cited memorandum is evidence of one staff members' views and comments early in the process. It was not Illinois EPA's ultimate conclusion with respect to the study. There were ongoing discussions between New Lenox and Illinois EPA, and Illinois EPA was ultimately satisfied that the study was sound notwithstanding minor variations in procedure.

Petitioners' REPLY: IEPA and New Lenox state additional facts but do not deny that the statement made in Petitioners statement of facts appears in the agency record.

19. Another internal IEPA memo, the Oct. 9, 2002 Memorandum from Roy Smoger to Bob Mosher, summarizes the reviews by Smoger, Howard Essig and Mark Joseph of the Earth Tech study and recommends that the study be conducted again. This memo states, "We find it difficult to judge the validity of the analyses and conclusions because the study used different collection methods, different taxon-tolerance values, and different criteria for interpreting MBI scores than those typically used by Illinois EPA. In addition, the report does not contain enough specific information on habitat, water chemistry, and flow." The memo concludes, "Therefore we recommend that Earth Tech conduct the survey again following the guidelines listed below." (HR 559-560).

IEPA Response: The statement cited by Petitioners is a dialogue between two Agency staff members, and is not the Agency's final conclusion on the validity of the Village's study. The

discussion stems from the fact that the procedures used by the Village's consultant were not exactly as the Agency would have used. The discussion also shows that there are alternative field sampling practices. Based on the information received from the Village's consultant during the Agency review, the Agency concluded that the study is valid and acceptable way of characterizing the current conditions of Hickory Creek. Agency record at 370; 562.

New Lenox Response: See Resp. par. 17 and 18. In addition, New Lenox notes that the preferred procedures and guidelines of certain staff members that reviewed the study have not been adopted as regulation, and to the extent New Lenox's consultant used different procedures, its study was ultimately determined to be sound by Illinois EPA, and is evidence properly relied upon by Illinois EPA.

Petitioners' REPLY: See Reply regarding paragraph 18.

20. A Nov. 25, 2002 email indicates confusion on whether IEPA field staff would redo the study. (HR 700) A Nov. 26, 2002 email from IEPA's Gregg Good shows IEPA's decision to ignore the Earth Tech study, stating, "Therefore, forget using the contractor's bug study." On the same day, IEPA referenced the study in the Antidegradation Assessment. Antidegradation Assessment Memorandum from Scott Twait to Abel Haile, Nov. 26, 2002 (HR 5): "New Lenox sponsored a macroinvertebrate survey of Hickory Creek at this location in August 2002. Pollution intolerant organisms were found both upstream and downstream of the existing discharge." (HR 562)

IEPA Response: The Agency disputes Petitioners' unfounded claim that the Gregg Good's email in any way represents the Agency's decision to ignore the Earth Tech study. Upon reviewing the basis for listing Hickory Creek as "partial impairment," the Agency concluded that the decision to list as partial impairment was rather based on violation of standards for total dissolved solids, and not on biological information. The Agency's conclusion is also supported by the Village's study that pollution intolerant organisms were found both upstream and downstream of the Village's STP 1 existing discharge. Agency record at 562.

New Lenox Response: This paragraph contains inappropriate characterizations on the state of mind of Illinois EPA field staff that are not supported by the record. Illinois EPA did not make a decision to ignore the Earth Tech study but, having asked for it, utilized and relied on it as useful and important information for purposes of the Anti-Degradation Assessment. As explained by Gregg Good in the cited email, Illinois EPA also went back and reviewed the basis for listing Hickory Creek as "partial impairment," and determined that the basis for the listing was violation of standards governing total dissolved solids. Illinois EPA therefore recommended and New Lenox agreed to accept a limitation for total dissolved solids. Finally, the cited email is evidence of the extensive internal deliberations that properly occurred. They should not be used as evidence of "confusion," nor do internal agency deliberations change the appropriate analysis and conclusions of the Agency reflected in the NPDES Permit, Responsiveness Summary and the Anti-Degradation Assessment.

Petitioners' REPLY: Respondents do not deny that the quoted statements were made in the record.

Regarding "confusion," see HR 700 that looks back on the debate regarding the contractor bug study,

the 303(d) listing and the New Lenox survey, and describes these as "a real headache" and as involving "snafu's."

21. The record does not contain any study of the potential effect of increased discharges from the plant on Hickory Creek or the Des Plaines River. In an email of September 9, 2002, IEPA's Robert Mosher wrote, "There is no good way to predict what impact the expansion may have (antidegradation)...." (HR 660.5)

IEPA Response: None

New Lenox Response: The record contains extensive evidence of appropriate Agency deliberations, including by Bob Mosher, concerning the water quality in Hickory Creek and the plant's effect on it. After the Agency weighed all of the information before it, it was able to make a decision that the current cause of impairment in the Creek was total dissolved solids, and a permit limit was included in the permit. With respect to the Des Plaines River, consideration of potential impacts would be entirely speculative.

Petitioners' REPLY: The parties are agreed that the agency determined that the reason for the 303(d) listing was from violations of the numeric standard for total dissolved solids.

The record shows that the agency never determined the reason for why Hickory Creek is now a "C" stream or the reasons for the reported excess algal blooms in the stream.

Copper

22. In the reasonable potential analysis for copper done for this permit modification (Memorandum of July 16, 2002 from Scott Twait to Abel Haile), the concentration of the highest sample was 20.5 µg/l while the chronic standard for copper at the hardness level found in Hickory Creek is 20.6 µg/l. IEPA's calculation of the reasonable potential for a violation of water quality standards for copper using the U.S. EPA method revealed that there was a reasonable potential for the level of copper to be more than double the acute water quality standard for copper and to exceed the chronic standard by a factor of over 3.7. (HR 508)

IEPA Response: The results of the two copper samples collected by the Village's STP 1 were 0.0141 mg/L and 0.0205 mg/L. The average of the copper samples was 0.0173 mg/L. As this value is less than the chronic water quality standard of 0.0206 mg/L, the Agency determined that there was no reason to incorporate permit limits for copper.

New Lenox Response: Illinois EPA considered the U.S. EPA method as well as this comment. In its Responsiveness Summary, Illinois EPA concluded that for the chronic standard at issue here, on an average basis, the effluent is not likely to exceed that value. HR 363. In Scott Twait's memorandum concerning water quality based effluent limits, Illinois EPA determined in accordance with Agency

policy that it would not use the high multiplier used in U.S. EPA's method because that method does not yield valid results when only a small sample population exists. Illinois EPA also concluded that this facility had been previously identified as having a low risk for high levels of metals. PR 509. Further, based on Illinois EPA's knowledge of other dischargers to the Creek and a known problem with copper in at least some segments of Hickory Creek, which could be expected to be explored through discovery, Illinois EPA reasonably concluded that the New Lenox discharge would not be likely to cause a violation of water quality standard.

Petitioners' REPLY: Respondents restate the facts stated in Petitioners' statement and state additional facts but do not deny the statement made by Petitioners.

The Agency Proceedings

23. On January 5, 2003, IEPA gave notice that it had made a tentative decision to renew a NPDES permit to New Lenox to discharge into Hickory Creek. The draft renewed permit allowed the New Lenox plant to increase its design average flow from 1.54 million gallons per day to 2.516 million gallons per day. (HR 1-15)

IEPA Response: None

New Lenox Response: New Lenox agrees with this paragraph.

Petitioners' REPLY: The parties agree

24. After reviewing a copy of the draft permit, Petitioners commented through testimony given at a public hearing held on the draft permit on April 24, 2003 in the New Lenox Council Chambers. (HR 61-87)

IEPA Response: None

New Lenox Response: New Lenox agrees with this paragraph.

Petitioners' REPLY: The parties agree.

25. No one appeared at the hearing on behalf of the applicant, which chose not to participate in the hearing. (HR 61-87).

IEPA Response: None

New Lenox Response: New Lenox disputes that it did not appear at the Public Hearing. The attendance sheet shows that Mike Tiurley, the Wastewater Treatment Plant Superintendent, was present at the hearing. HR 055. New Lenox was not requested to provide comment at the hearing, and in light of the fact that the purpose of the hearing is for Illinois EPA to provide information to the public and accept public comments, this is consistent with the regulations governing the hearing.

As the applicant, under the regulations New Lenox is not in the same position as a member of the public. The record reflects the extensive information provided to Illinois EPA prior to the hearing to enable it to hold an informative and meaningful public hearing and comment period, as evidenced by Petitioners' extensive participation and voluminous submittals.

Petitioners' REPLY: Petitioners will not argue about what it means to "appear" at a hearing. The parties agree that New Lenox offered no comment at the hearing.

26. At the hearing, IEPA answered that it had done no studies of alternatives to allowing the discharge other than to review a study of land treatment done by the applicant's contractor and that it had not made any study of the cost of removing phosphorus or nitrogen at the plant. (HR 73-4)

IEPA Response: A study performed by the Illinois Associated of Wastewater Agencies (IAWA) regarding cost and efficiency of nutrient treatment was before the Agency at the time the Agency was making its final decision. At the hearing, the Agency indicated that "a 2.5 MGD plant addition capabilities to remove both nitrogen and phosphorus is estimated to have capital cost in excess of $5.4 million. This does not include the annual operations and maintenance costs." Agency record at 74; 358.

New Lenox Response: As noted by this paragraph and discussed at the hearing, New Lenox's consultant performed an analysis of spray irrigation either at farmland or on a golf course as alternatives to the discharge, and New Lenox also considered alternative discharge locations. PR 403, 634; 111 1372-374. In addition, as noted at the hearing, the Illinois Associated of Wastewater Agencies (IAWA) at the request of Illinois EPA performed a study concerning cost and efficiency of nutrient treatment, which was before Illinois EPA at the time it made its decision and is consequently properly part of the record. HR 74. All parties involved in this proceeding are aware of the content of that study.

Petitioners' REPLY: Respondents do not contest the statement made by Petitioners as to what the agency had studied as of the date of the hearing.

The statement that all parties were aware of the content of the IAWA statement is not supported by any citation to the record and is false. Moreover, the IAWA study is irrelevant as it did not consider the necessity of New Lenox discharging wastewater into Hickory Creek that was not treated for nutrients.

27. In their comments and testimony, Petitioners raised legal and scientific issues regarding flaws in the draft permit and in IEPA's consideration of the draft permit including:

a. The draft permit allowed discharges of phosphorus and nitrogen that cause, have a reasonable potential to cause or contribute to violations of the water quality standards

regarding offensive condition, 35 Ill. Adm. Code 302.203, in violation of 40 CFR 122.44(d) and 35 Ill. Adm Code 309.141. Nutrients are the likely cause of algal blooms and other unnatural plant growth that have been reported in the creek. (HR 68)

b. *Evidence, never disputed in the record, that Hickory Creek now violates state water quality standards regarding offensive conditions because of algal blooms. (see ¶¶ 6-9 above)*
c. *That the draft permit allowed discharges that may cause, have a reasonable potential to cause or contribute to violations of state water quality standards regarding dissolved oxygen, 35 Ill. Adm 302.206, and copper, 35 Ill. Adm. Code 302.208(e) in violation of 40 CFR 122.44(d) and 35 Ill. Adm. Code 309.141. (HR 68, HR 265-6)*
d. *That the draft permit and the studies and lack of studies that led to the creation of the draft permit did not comply with Illinois antidegradation rules protecting the existing uses of the receiving waters. 35 Ill. Adm Code 302.105(a) because studies were not properly conducted to determine the potential effect of the draft permit on existing uses of the stream and because IEPA took no steps to determine if existing recreational uses of the stream might be impacted by the lack of disinfection of wastewater from the plant in months outside of May through October. (HR 265, HR 82)*

IEPA Response: None

New Lenox Response: New Lenox agrees that Petitioners availed themselves of the opportunity to provide extensive public comment and raised various arguments including those cited in this paragraph, all of which were fully considered by Illinois EPA. To the extent raised in the motion, the characterization of these issues as "flaws" in the draft permit constitutes (a) a legal argument, not a fact and (b) these arguments were rejected by Illinois EPA, as fully explained in its Responsiveness Summary. HR 352-376.

Petitioners' REPLY: The parties agree that Petitioners made comments into the record sufficient to raise the issues raised in this appeal.

28. Further, Petitioners urged that the IEPA take the steps necessary to comply with 35 Ill. Adm. Code 302.105(c). Petitioners presented comments that the alternatives to allowing the increase in pollution were not reasonably weighed prior to the issuance of the draft permit and that many of the costs of proceeding under the draft permit were ignored. William Eyring, Senior Engineer for the Center of Neighborhood Technology, raised concerns about the social and economic costs of expanding the plant in the center of the Village. (HR 120-1) Jim Bland testified that the environmental effects of the kinds of development that would be facilitated by the plant expansion were not considered. (HR 78-79, HR 109) Petitioners testified that the estimated costs of alternatives (e.g. land treatment and land application of treated wastewater) to allowing the increased discharge were unreasonably inflated and the costs of minimizing nutrient discharges were not considered. Environmental economist Jeff Swano requested a life cycle analysis be performed on all considered alternatives as an appropriate economic assessment of the costs to provide a better cost-benefit analysis and to provide the public with a costs-per-treated-volume figure. (HR 70-2)

IEPA Response: The Agency disputes Petitioners' those statement that constitute interpretation of the Board regulations. Such statements are not undisputed statements of facts. Further, since the permit hearing was only an informational hearing and no testimony was allowed, Petitioners could not have testified at the hearing.

New Lenox Response: New Lenox does not dispute the general summary of Petitioners' comments, but Petitioners' characterization of "the steps necessary to comply with" regulations and its advice to Illinois EPA concerning same constitutes a legal argument, not a fact. New Lenox disagrees that any Petitiioners "testified," as public comments represent unsworn statements by parties not subject to cross examination. New Lenox disputes that these particular comments are relevant to the extent they concern the "kinds of development that would be facilitated by the plant expansion," which is a consideration outside the scope of Illinois EPA's review of the impact of this particular treatment plant, not the land use considerations that are properly within the discretion of New Lenox. New Lenox is not aware of Mr. Swano's credentials or qualifications as an "environmental economist." New Lenox disputes that its estimated cost of alternatives were unreasonably inflated, and notes that Mr. Swano's comments concerning land application were not the result of his own independent analysis but were based on information from Schaffer International, a company in the business of selling land application systems. HR 71.

Petitioners' REPLY: See Reply to responses to paragraph 27.

29. Petitioners asked that all technically and economically reasonable measures to avoid or minimize the extent of the proposed increase in pollutant loadings be incorporated into the permit and that the permit be improved in a number of respects including that;

- *a. It provide for economically feasible controls on the discharge of nutrients including phosphorus and nitrogen;*
- *b. The limits in the permit be improved to prevent discharges that could cause or contribute to violations of water quality standards regarding offensive conditions and dissolved oxygen;*
- *c. That proper biological studies be conducted to assure that the discharge would not adversely affect existing uses of the stream;*
- *d. That IEPA seriously consider whether the increased discharge was actually necessary in light of potential alternatives; and*
- *e. That IEPA seriously consider alternatives to allowing the levels of pollutants in the streams that would be allowed by the draft permit.*

(HR 112-3, 120-1, 126, 265-267)

IEPA Response: None

New Lenox Response: New Lenox does not dispute the general summary of Petitioners comments presented by this paragraph. New Lenox believes that Illinois EPA did seriously consider alternatives in this matter, as noted in its Responsiveness Summary at HR 372-374.

Petitioners' REPLY: See Reply to responses to paragraph 27

30. In particular, Jim Bland, an expert on eutrophication, testified on behalf of the Des Plaines River Watershed Alliance at the public hearing that "Data concerning increased nutrient loading, especially phosphorus is not included in the proposed permit.... On a long term basis the proposed increase in discharge will increase the "attached algae" (periphyton that covers the rocks and bottom rubble that are characteristic of this reach (c.f. Ecological Effects of Wastewater, E.B. Welch). This increase in stream productivity has the capacity to dramatically alter the character of the invertebrate communities downgradient from the STP." (HR 110)

IEPA Response: The Agency objects to Petitioners' claim that Mr. Jim Bland is "an expert on eutrophication," as this claim is not supported in the record. Also, the Agency disputes Petitioners' comment that Mr. Bland "testified", as the permit hearing was only an information hearing, Mr. Bland could not have testified at this hearing.

New Lenox Response: New Lenox moves to strike the statement that Mr. Jim Bland is "an expert on eutrophication," as this has not been established by his comments. Further, New Lenox disagrees that Mr. Bland "testified" in this case, as he was unsworn and not subject to cross-examination. New Lenox does not dispute that Mr. Bland made the quoted comments, which show a lack of understanding of the relationship between appropriate permit considerations as opposed to what would be considered in a rulemaking or setting a TMDL. Illinois EPA fully considered the comments, and stated that "Streams would be expected to exhibit either one kind of algal growth or another, [i.e. planktonic or periphyton]" depending on a variety of factors, and "the best measure of whether [fish are adversely impacted] is to look at the local fish population. Hickory Creek has fish populations that are not indicative of low dissolved oxygen concentrations." HR 361. Illinois EPA also concluded based on relevant data for 2003 that all measurements in Hickory Creek meet the water quality standard for dissolved oxygen. HR 364.

Petitioners' REPLY: Respondents agree that Mr. Bland placed the quoted views on the record and thereby put IEPA on notice.

31. In addition, Mr. Bland asked that IEPA "Speed up the analysis of nutrient loading influences and apply this analysis to the existing permit specification. Document the direct influences of phosphorus which already exist at the stream." (HR 113)

IEPA Response: None

New Lenox Response: See resp. to par. 30. New Lenox does not dispute that Mr. Bland made the quoted comments. New Lenox notes that Illinois EPA fully considered them as part of its permit proceedings. New Lenox also notes that Illinois EPA has convened a work group, and this comment is more properly directed in the context of that proceeding than a specific permit proceeding.

Petitioners' REPLY: See Reply to response to paragraph 30.

32. In post hearing comments, Beth Wentzel of the Prairie Rivers Network stated that "The literature supports the claim that excess nutrients, nitrogen and phosphorus, can impair streams by

affecting dissolved oxygen concentrations, causing nuisance algal blooms and causing other problems." (HR 125) She concluded that "As described at the hearing, the existing facility discharges nitrogen and phosphorus to Hickory Creek at concentrations that exceed instream concentrations. According to USGS flow data, Hickory Creek is regularly dominated by effluent flow. As demonstrated above and through testimony provided by local residents at the public hearing, there is reasonable potential that instream concentrations cause violations of water quality standards. Because the discharge from New Lenox STP #1 contributes to these violations, the existing discharge is illegal and an expansion of the discharge would be illegal. Prior to issuance of this permit, IEPA must determine water quality based effluent limits for nitrogen and phosphorus that ensure that water quality standards will be satisfied instream. Alternatively, the applicant must adopt an alternative that does not require discharge of nutrients to Hickory Creek." (HR 126)

IEPA Response: None

New Lenox Response: New Lenox does not dispute that Ms. Wentzel made the above comments and conclusions, although New Lenox disagrees with their content and notes that they constitute a legal conclusion. In any case, Illinois EPA fully considered these comments. See resp. to par. 5, 6, 9, 10,11-15.

Petitioners' REPLY: The parties agree that Ms. Wentzel placed the quoted remarks into the record.

33. At the public hearing, Albert Ettinger of the Environmental Law & Policy Center asked the Agency to provide an estimate of the cost of removing phosphorus and the cost of removing nitrogen from the discharge. (HR 73-4)

IEPA Response: None

New Lenox Response: New Lenox does not dispute that Mr. Ettinger made the above request and also submitted comments in this proceeding. New Lenox notes that Illinois EPA had before it the study prepared by the Illinois Association of Wastewater Agencies at the request of Illinois EPA, which contained information on the cost associated with removing nutrients. See resp. to par. 26.

Petitioners' REPLY: The parties agree that Mr. Ettinger made the quoted comment into the record.

As described in the Responsiveness Summary, the IAWA report contained only general information on the cost of removing both nitrogen and phosphorus at one particular level. The IAWA study did not purport to consider whether it was necessary for New Lenox to discharge without providing phosphorus removal. IEPA in the Responsiveness Summary did not purport to make any determination as to the need for New Lenox to increase its discharge without treating the wastewater to remove phosphorus. (HR 358)

34. Cynthia Skrukrud Ph.D. testified on behalf of the Sierra Club that "using the standard USEPA method where you use a multiplier to come up with a 95 percent ... reasonable potential, the copper suggested that there should be further analysis. But then further in the memorandum, it's reported that all copper samples reported were less than the acute and chronic water quality standards and the conclusion was that no regulation of copper is necessary and no monitoring beyond routine requirements is needed. My concern is that there were only two samples taken. And of those two samples, I only know what one of them was. But one of them, the sample measured 20.5 micrograms per liter. The chronic standard is 20.6 micrograms per liter. It certainly would seem given that you have only two samples, and you are so close to a violation of the chronic standard there, that I would think that there is a reasonable potential for violation of the chronic standard, and that because there were ... so few samples that it needs to be investigated further." (HR 70)

IEPA Response: None

New Lenox Response: New Lenox does not dispute that Ms. Skrukrud made the above comments and conclusions, although New Lenox disagrees with their content. See resp, to par. 22.

Petitioners' REPLY: Again the parties agree that Petitioners raised the issue before the agency that they now raise in this appeal.

35. In a post-hearing letter and attachments (HR 264-265), Skrukrud wrote:

> ***Reasonable Potential Analysis to Exceed Water Quality Standards***
>
> *The USEPA recommended method for Reasonable Potential Analysis is to use a multiplier to determine the potential to exceed a given standard when a small number of samples have been collected. It is precisely because so few data are collected that the multiplier is needed. IEPA's decision to abandon the method recommended by USEPA in Technical Support Document for Water Quality Based Toxics Control is not acceptable. IEPA should either use the multiplier in their analysis or require that more samples be collected ...*
>
> *... Yet IEPA concludes from this limited data set that there is no need for additional copper monitoring. If the measured value had been 20.7 µg/l instead of 20.5, would further investigation have been required? Are we then to believe that IEPA considers 20.5 and 20.7 µg/l to be statistically different? The confusing situation which exists with IEPA's method of direct comparison of sample values to standards is exactly why the statistical method recommended by USEPA should be employed."*

IEPA Response: None

New Lenox Response: New Lenox does not dispute that Ms. Wentzel submitted the above comments, although New Lenox disagrees with their content. See resp. to par. 5, 6, 9, 10, 11-15.

Petitioners' REPLY: See Reply to response to paragraph 34.

36. Skrukrud further commented:

Inadequate Consideration of Alternatives

In addition to the other flaws in the antidegradation analysis, the analysis makes no serious effort to consider alternatives or to rationally weigh whether the proposed new discharge is socially or economically necessary.

Nutrient removal is already required for New Lenox by the Clean Water Act and Illinois law given that the discharge is plainly causing or contributing to violations of state narrative water quality standards and probably state dissolved oxygen standards. Although the Agency is not now requiring nutrient removal, it concedes that requirements for nutrient removal are likely to go into effect during the life of the proposed expansion. It is, thus, unreasonable to decide on the merits of permitting this expansion without explicit consideration of the costs of nutrient removal. The Agency wrongly rejects land treatment and other options as too expensive both by overpricing land treatment and by ignoring potentially huge future capital and operation costs that will be incurred by permitting this discharge expansion." (HR 267)

IEPA Response: None

New Lenox Response: New Lenox does not dispute that Ms. Skrukrud submitted the above comments, although New Lenox disagrees with their content. See resp. to par. 5, 6, 9, 10, 11-15.

Petitioners' REPLY: See Reply to response to paragraph 34.

The Final Permit and Responsiveness Document

37. On October 31, 2003, Illinois EPA issued the permit that is subject to the current appeal. The final permit contains some changes from the draft including required levels of dissolved oxygen in the effluent and a limit on total dissolved solids. The final permit did not place any limits on the discharge of phosphorus, nitrogen or copper. (HR 341-50)

IEPA Response: None

New Lenox Response: New Lenox agrees that Illinois EPA issued the permit subject to the current appeal on October 31, 2003. In response to comments made during the public comment period and to information before Illinois EPA, the agency recommended and New Lenox agreed to accept certain limits without challenge. New Lenox notes that it did not challenge the limits, but this does not mean those limits were not challengeable or were required. They include limits on dissolved oxygen, total dissolved solids, and ammonia.

Petitioners' REPLY: The parties agree regarding the contents of the permit, which, in any case, speaks for itself.

38. The permit set no limit for copper. (HR 343) No explanation appears in the record as to why the Agency proceeded in conflict with the U.S. EPA recommended method for determining the reasonable potential to violate the acute copper standard. No study was done under 35 Ill. Adm. Code 302.102 to develop a mixing zone analysis. Regarding the chronic standard, the New Lenox Responsiveness Summary states "It is important to remember that this comment is dealing with reasonable potential to exceed a chronic water quality standard. By definition, a chronic standard must not be exceeded in the receiving stream by the average of at least four samples." (HR 363) Yet there is no discussion of the possibility of requiring more samples than the two provided.

IEPA Response: Facilities such as the Village's STP 1 that have been identified through the pre-treatment program as having a low risk for high levels of metals are not a significant source of copper. As no known source of copper is discharging into the Village's STP 1, and the sample results were below the chronic water quality standard, the Agency determined that no permit conditions for copper are necessary. The Agency's decision to not incorporate copper limits is consistent with the Act and Board regulations.

New Lenox Response: New Lenox agrees that no permit limit was set for copper.

Petitioners' REPLY: The parties agree that no limit was set for copper. With regard to the IEPA's explanation for the lack of a copper limit, see Petitioners' Reply Memorandum in Support of Summary Judgment at 25.

39. The final permit allowed a monthly daily average increase of 82 lbs of CBOD5 and did not place any limit on the discharge of CBOD5 other that the effluent limit of 35 Ill. Adm. Code.304.120. (HR 342-3)

IEPA Response: None

New Lenox Response: New Lenox disagrees that no permit limit was set for CBOD5. See PR 652, which shows the permit does contain a daily average and a daily maximum value for CBOD5.

Petitioners' REPLY: New Lenox misunderstands Petitioners factual statement. As Petitioners state, there is a permit limit based on 35 Ill. Adm. Code 304.120.

40. No limits were set for phosphorus or nitrogen. (HR 343) Other than to mention that a study done by the Illinois Association of Wastewater Agencies (never placed in the record) indicating that

the combined costs of treating nitrogen to an unmentioned level and phosphorus to the level of 0.5 mg/L might cost capital costs of $5.4 million (HR 358), IEPA never discussed the cost of treating phosphorus. No mention appears in the record of any analysis of the cost, feasibility or reasonableness of any level of phosphorus treatment alone (without nitrogen treatment) or of any level of phosphorus treatment other than 0.5 mg/L.

IEPA Response: The Agency, based on the information in the Agency record, found that Hickory Creek does not have an "offensive conditions" situation, and that Hickory Creek is supporting a healthy and diverse aquatic ecosystem. Therefore, no permit limits are required for offensive conditions. Agency record at 361; 364. Additionally, the Agency disputes the statement that the study performed by the Illinois Association of Wastewater Agencies was not part of the record, as the record properly includes everything the Agency relied upon at the time it made its decision.

New Lenox Response: New Lenox agrees that no permit limit was set for phosphorus or nitrogen. Further, New Lenox disagrees with the statement that the study performed by the Illinois Association of Wastewater Agencies was not part of the record, as the record properly includes everything before the Illinois EPA at the time it made its decision. The study is clearly referenced and disclosed by Illinois EPA in the documents filed in this proceeding.
Petitioners' Answer

Petitioners' REPLY: Respondents agree with Petitioners regarding the limits of IEPA's discussion of nutrient treatment and do not suggest that IEPA at any point in the record considered the necessity of the phosphorous loading.

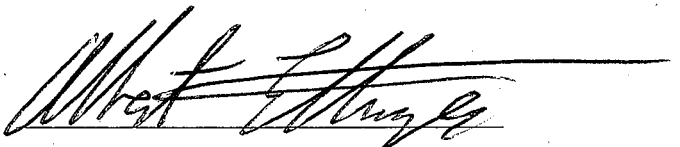
The Agency's citations do not support their statement that Hickory Creek lacks offensive conditions. As previously discussed, several witnesses gave report of excessive algae growth in Hickory Creek. HR 76, 80, 82 - 83.

41. No limits are placed in the permit to prevent violation of the "offensive conditions" narrative standard. The Responsiveness Summary indicates that the Agency would only place limits on nutrients in the permit after numeric standards are set. (HR 356) The IEPA declines to attempt to place limits in the permit to satisfy the narrative standard on plant and algal growth because "This is a very difficult standard to apply to a permit." (HR 357)

IEPA Response: Petitioners' statement in SOF ¶41 that, "[n]o limits are placed in the permit to prevent violation of the 'offensive conditions'" is a statement of law, and not a fact. It is the Board's, not the Petitioners', authority to determine if the Agency imposed the proper requirements in the permit. The Agency based on the information in the Agency record, determined that Hickory Creek does not have "offensive conditions" situation, and that Hickory Creek is supporting a healthy and diverse aquatic life. Therefore, no permit limits are necessary with regard to offensive conditions. Agency record at 361; 364.

New Lenox Response: New Lenox agrees that no limits were placed in the permit concerning "offensive conditions." Further, no limits are required to address offensive conditions. To the extent Petitioners claim that algal growth constitutes an offensive condition, Illinois EPA addressed algae in its Responsiveness Summary, explaining that algae is a vital part of the aquatic community and algae growth in itself is not itself a problem; it is in relation to dissolved oxygen and the adverse impact on fish that provides context. Illinois EPA stated that "Streams would be expected to exhibit either one kind of algal growth or another," depending on a variety of factors, and "the best measure of whether [fish are adversely impacted] is to look at the local fish population. Hickory Creek has fish populations that are not indicated of low dissolved oxygen concentrations." HR 361. Illinois EPA also concluded based on relevant data for 2003 that all measurements in Hickory Creek meet the water quality standard for dissolved oxygen. HR 364. Given the complicated and disputed nature of the science governing algae, both Illinois EPA and the Board have concluded that a work group is necessary to study the issue of nutrients and proposed standards that would govern dischargers in Illinois. Further, the Illinois EPA concluded specifically in this case that "the incremental nutrient loading anticipated to result from this project is not expected to increase algae or other noxious plant growth, diminish the present aquatic community or otherwise aggravate existing stream conditions." PR 565. Finally, Petitioners do not address the impact of numerous other dischargers to the stream.

Petitioners' REPLY: Respondents do not contest Petitioners' statement that nothing was done in the permit to address offensive conditions or Petitioners' quotation of the Responsiveness Summary in which IEPA stated for itself the reason why it did not consider placing limits in the permit to address the potential violation of the "offensive conditions" water quality standard. The other facts stated by Respondents in relation to this factual statement are completely irrelevant or not supported by any evidence in the record.



Albert F. Ettinger (Reg. No. 3125045)

Counsel for Des Plaines River Watershed Alliance, Livable Communities Alliance, Prairie Rivers Network and Sierra Club

DATED: June 8, 2005

Environmental Law and Policy Center
35 E. Wacker Drive, Suite 1300
Chicago, Illinois 60601
312-795-3707

Exhibit 1

This document is formatted for double-sided printing.

Illinois
Environmental
Protection Agency

Bureau of Water
P.O. Box 19276
Springfield, IL 62794-9276

July 2002

IEPA/BOW/02-006

Illinois Water Quality Report 2002

Illinois Environmental Protection Agency

Bureau of Water

ILLINOIS WATER QUALITY REPORT 2002

(Clean Water Act, Section 305(b) Report)

Water Resource Assessment Information Based On Data Collected Through September 2000

July 2002

State of Illinois
Environmental Protection Agency
Bureau of Water

B. Assessment Methodology

This assessment methodology explains how Illinois EPA uses various criteria (including, but not limited to, Illinois water quality standards) to assess the level of support of each applicable designated use in the streams of the state. Each assessed use receives a use-support rating of Full ("good"), Full/Threatened ("good"), Partial ("fair"), or Nonsupport ("poor"). In general, use-support assessments for streams in Illinois have focused on *aquatic life* use because of the overriding and widespread importance of this beneficial use. Assessment of *aquatic life* use in streams is based primarily on biological criteria that are not part of Illinois water quality standards; however, standards are used subsequently to identify potential causes of *aquatic life* impairment. Alternatively, for some uses other than *aquatic life* use, the Illinois water quality standards serve as primary assessment criteria.

Two major enhancements to the stream-assessment methodology are incorporated in this 2002 305(b) report. These changes do not affect the comparability between 2002 assessments and those in previous reports. Each change is described below, with the purpose for the change and overall effect on statewide use-support results.

1. Revision of the flowchart for assessing aquatic life use (Figure 3-3). For the previous 2000 305(b) report (IEPA 2000), the flowchart for assessing *aquatic life* use (Figure 3-3) was divided into two flowcharts: one for AWQMN sites (which have long-term water chemistry data but may be lacking in biological and habitat data) and one for Intensive Basin Survey stations (which have biological and habitat information, but only limited water chemistry data). Whereas these two flowcharts offered improvements over previous assessment methods, they tended to be somewhat confusing. For this 2002 305(b) report, the flowchart has been combined into one. The new flowchart includes the improvements of the previous flowcharts (IEPA 2000) while further clarifying Illinois EPA's process for assessing *aquatic life* use.

2. Refinement of Table 3-7. Guidelines for Identifying Potential Causes of Use Impairment in Streams. Beginning with the 2000 305(b) report (IEPA 2000), Illinois EPA developed guidelines for identifying potential causes of use impairment in streams. For this 2002 305(b) report, Illinois EPA has further expanded this table by specifying the monitoring program under which data were collected, the medium to which the data apply (i.e., water, sediment, habitat, or fish tissue), and whether the guideline is a numeric standard, narrative standard, statistical guideline, or otherwise. Finally, Illinois EPA has provided a confidence level for each potential cause of impairment. This confidence level reflects, in part, information about the data quantity and data source used to make potential cause determinations. Illinois EPA believes that the addition of this information will be useful in 303(d)-related decision-making.

Aquatic Life

Aquatic life use assessments are based on biotic and abiotic data provided by Illinois EPA monitoring programs. Biotic data consist of fish and macroinvertebrate information interpreted by using the Index of Biotic Integrity for fish (IBI; Karr et al. 1986; Bertrand et al. 1996) and the Macroinvertebrate Biotic Index (MBI; IEPA 1994). Abiotic data used in *aquatic life* use assessments include water and sediment chemistry and instream physical habitat. Habitat data include stream quality descriptors (metrics) such as channelization, bank stability, other channel alterations, and siltation (see Table 3-5). Both quantitative and qualitative instream habitat data aid in the determination of habitat's contribution to *aquatic life* use support. Water chemistry data are examined by categories identified as conventionals (dissolved oxygen, pH, temperature) and toxicants (priority pollutants including metals, chlorine, and ammonia) in Table 3-6.

Monitored Assessments

The process for assessing *aquatic life* use (Figure 3-3) is designed for maximizing statewide consistency in assessment results. The "weight of evidence" approach (USEPA 1997b) is the basis for making *aquatic life* use assessments with more emphasis placed on biological data. This emphasis on biological data (fish and macroinvertebrates) over chemical data provides a direct measure of aquatic community health, facilitates detection of cumulative impacts from multiple stressors, and provides a direct measurement of the Clean Water Act (CWA) "fishable" goal. The flowchart shows how fish, macroinvertebrates, water-chemistry, and habitat information are integrated and interpreted to guide the assessment of *aquatic life* use. Knowledge of the study area is also factored into the assessment process and includes a review of comments and field observations of potential causes and sources of impairment. Factoring in this site-specific knowledge ensures that all *aquatic life* use assessments more accurately reflect environmental conditions.

The availability of Agency data will typically fall into one of the following categories. However, almost any combination of data availability may also occur:

1) From Intensive Basin Survey (IBS) stations there is usually fish community data, which is used to calculate an IBI score; macroinvertebrate data, which is used to calculate an MBI score; two to three samples of water chemistry data; one sample of sediment chemistry data; and habitat data from transect surveys and other observations which are used to complete the Stream Habitat Assessment Procedure (SHAP) form and other habitat forms.

2) Ambient Water Quality Monitoring Network (AWQMN) stations may also be jointly located at IBS stations. When they are, the biological and habitat data collected are the same as in item 1. AWQMN stations are generally sampled nine times per year and three years of water chemistry data (27 samples) are used in the assessment process.

3) AWQMN stations that are not part of IBS monitoring usually have only water chemistry data (three years, 27 samples) with which to make an assessment.

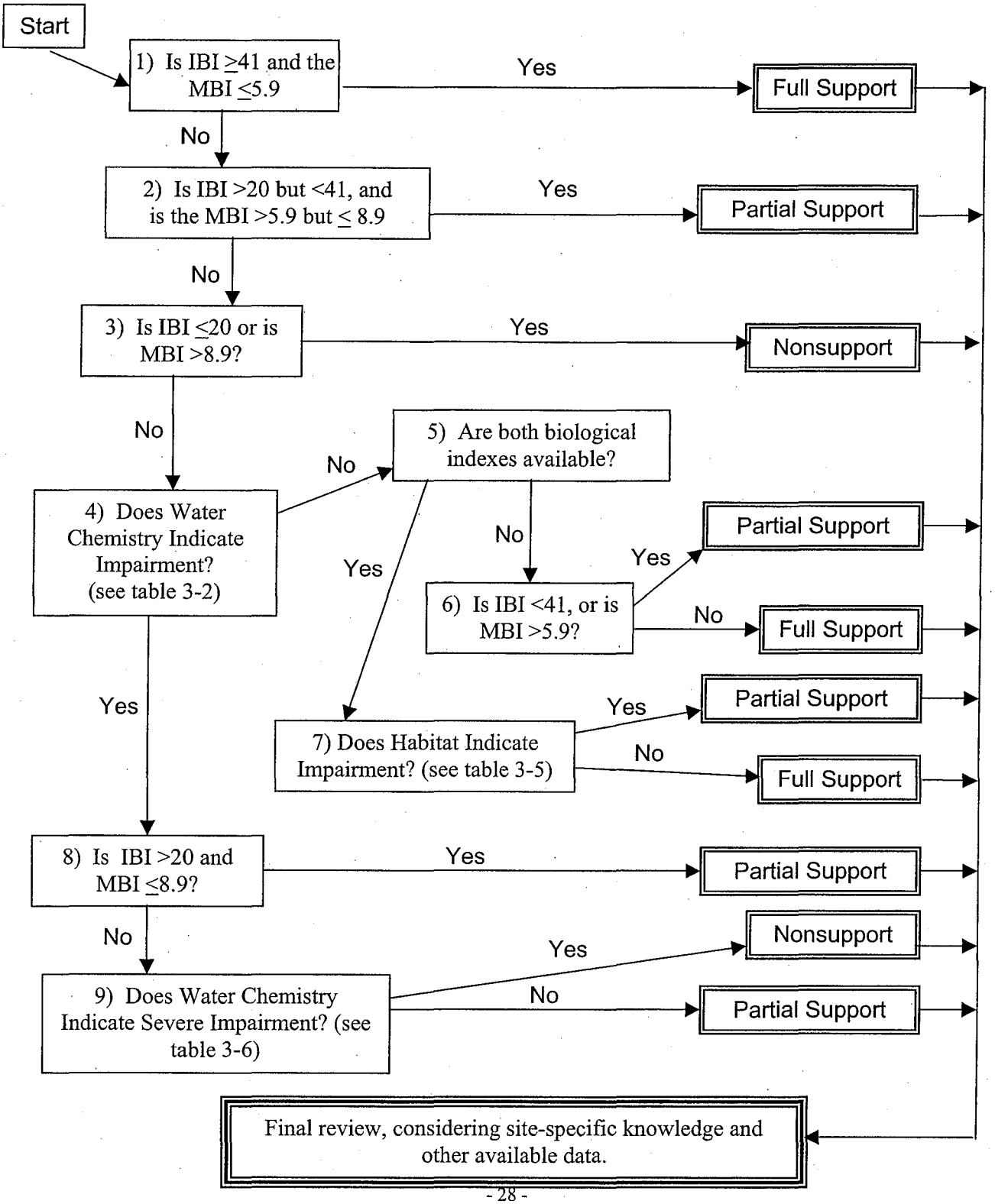
4) Facility Related Stream Surveys (FRSS) are conducted at selected locations to assess the

impact of point-source discharges on stream quality. Data are generally collected at several stations and include macroinvertebrate data, one to three samples of water chemistry data, and habitat observations necessary to complete the SHAP and other forms. Fish data are also collected at some FRSS stations.

The flowchart (Figure 3-3) is designed to assess use support regardless of which data or combinations of data (described above) are available. Whereas the flowchart yields a result for any data combination, an assessment based on habitat data alone would not be considered a monitored assessment. In addition, an assessment based solely on water chemistry data may be judged to be evaluated if it is believed that the amount and nature of the data are inadequate. Only existing and readily available data are used to assess use support.

Figure 3-3. Flowchart for Assessing *Aquatic Life* Use, Based on Fish, Macroinvertebrate, Habitat, and Water-Chemistry Data.

(If data are not available, answer, "No")



APPENDIX TABLE A-2. WATERBODY SPECIFIC INFORMATION FOR STREAMS IN THE DES PLAINES RIVER WATERSHED. 2000.

Waterbody ID	Segment ID	Catalog Unit	Segment Name	Size in miles	Cycle Year	Key Sample Date	Assessment Type/Methods	Designated Uses	Potential Causes of Impairment	Potential Sources of Impairment
ILGBL10	GBLB01	07120004	St. Joseph Cr.	4.28	2002	01/01/1997	M/ 300,420	P1,P20	1200, 1600, 1900, 2100, 2210	200, 3000, 3200, 4000, 7000, 7100, 7550, 7600, 7700, 9000
ILGBL10	GBLC	07120004	Lacey Cr.	3.76	2002	01/01/1995	E/ 170	X1,X20		
ILGC02	GC 02	07120004	Jackson Cr.	10.55	2002	01/01/1991	E/ 150	F1,F20		
ILGC02	GC 03	07120004	Jackson Cr.	14.39	2002	01/01/1997	M/ 700	F1,F20,X21		
ILGC02	GCA 01	07120004	Manhatten Cr.	8.33	2002	01/01/1997	M/	F1,F20,X21		
ILGCB01	GCB	07120004	Jackson Br.	8.95	2002	01/01/1991	E/ 150	P1,P20	900, 910, 930	200
ILGF01	GF 01	07120004	Sugar Run	6.57	2002	01/01/1983	E/ 150	P1,P20,X21	500, 510, 900, 920, 1000, 1100, 1200, 1220	1000, 1100, 3000, 3200, 4000
ILGG02	GG 02	07120004	Hickory Cr.	9.93	2002	01/01/1998	M/ 230	N42,P1,P20	900, 910, 920, 1300, 1320, 1500, 2100	200, 400, 3000, 3200, 4000, 7000, 7400
ILGG02	GG 06	07120004	Hickory Cr.	12.2	2002	01/01/1997	M/ 700	F1,F20		
ILGG02	GGB 01	07120004	Marley Cr.	10.02	2002	01/01/1976	E/ 150	X1,X20		
ILGG02	GGC	07120004	Union Ditch	1.08	2002	01/01/1998	M/ 300	F1,F20		
ILGG02	GGC-FN-C	07120004	Union Ditch	1.42	2002	01/01/1998	M/ 300	N1,N20	600, 900, 920, 1200, 1220	200
ILGG02	GGF	07120004	Frankfort Trib.	4.12	2002	01/01/1999	M/ 300	P1,P20	900, 910, 930, 1300, 1320	200, 4000
ILGGA02	GGA 02	07120004	Spring Cr.	15.63	2002	01/01/1983	E/ 150	P1,P20,X21	0	9000
ILGHE01	GHE 01	07120004	Long Run Cr.	12.74	2002	01/01/1997	M/ 700	F1,F20		
ILGI02	GH	07120004	Illinois and Michigan Canal	5.82	2002		E/	X1,X20		
ILGI02	GHA	07120004	Fraction Run	7.14	2002		E/	X1,X20		
ILGI02	GHAA	07120004	North Fraction Run	1.66	2002		E/	X1,X20		

threshold statistical value at an IBS or FRSS site, or one exceedance over three years at an AWQMN station, qualifies that parameter as a potential cause of impairment.

- Stream Habitat Assessment Procedure (SHAP) scores for selected metrics, quantitative instream-substrate transect data, and related field-collected information are also used to identify potential causes of impairment such as siltation and habitat alteration. SHAP scores rated as "poor" for metrics 9 and 12 (IEPA 1994, Appendix 1), plus observations of channel alteration, riparian vegetation, and channel modifications are used as guidelines for identifying potential causes.

- When a waterbody-specific fish-consumption advisory recommends limiting consumption of particular types of fish in a particular stream segment, the contaminants responsible for the advisory are listed as potential causes of impairment.

- Sediment-chemistry data are also used for identifying potential causes of impairment. In general, whenever a sediment parameter is found at highly elevated levels (Short 1997), the parameter is listed as a potential cause.

For this 2002 305(b) report, four additional columns have been added to Table 3-7. The "Program Name" column indicates the program under which the data were collected, (e.g., IBS/FRSS). The "Media" column refers to the type of data collected, i.e., water, sediment, habitat, or fish tissue. The "Guideline Reference" column indicates the basis for the guideline, such as a narrative standard, numeric standard, or statistical basis.

The fourth column, "Illinois EPA Confidence Level," is included because Illinois EPA believes that this information can be useful in subsequent efforts to restore waterbodies identified as impaired in this report. A confidence level of "3" indicates that Illinois EPA has relatively high confidence that the identified cause is contributing to impairment. A confidence level of "2" indicates moderate confidence, and a confidence level of "1" indicates low confidence. These confidence levels provide information potentially useful in restoring impaired waters. For example, potential causes of impairment identified in the 305(b) report are considered when developing waterbody restoration strategies (e.g., Total Maximum Daily Load analyses). Potential causes with "high" confidence (i.e., "3" in Table 3-7) are the causes most likely to be contributing to impairment, based on available information. However, Illinois EPA cautions users of this information: the monitoring data used to identify potential causes was NOT collected specifically to identify causes of impairment, rather it was collected primarily to assess the level of use support. Thus, the word "potential" is explicitly invoked here. Despite these limitations, some potential causes, especially when interpreted in light of other available site-specific or watershed-specific information, truly may be contributing to impairment and thus should be considered in restoration efforts. Potential causes of impairment identified in this 305(b) report, particularly those causes with low or moderate confidence, may lack utility for waterbody-restoration efforts (e.g., TMDLs) until further evidence indicates, more conclusively, that these causes are contributing to impairment. For any potential cause in Table 3-7, the actual confidence level may differ from the level indicated in the table, if supporting evidence or site-specific knowledge (additional to that addressed in the "Guidelines") indicates that the cause truly is contributing to impairment.

Table 3-7. Guidelines for Identifying Potential Causes of Use Impairment in Streams.

Code	Potential Cause	Program Name/Data Availability	Media	Guidelines	Guideline Reference	IEPA Confidence Level
0000	Potential Cause Unknown			No identifiable potential cause based on available information.		
0300	Priority Organics	AWQMN	Water	At least one violation of applicable standard in most recent three years	Numeric Standard [1]	3
				or		
	Phenols, pesticides (see Table 3-1 for pesticide standards)	IBS/FRSS	Water	At least one violation of applicable standard	Numeric Standard [1]	2
				or		
		IBS/FRSS	Sediment	Any priority organic compound at highly elevated concentrations	Statistical Guideline [2]	2
				or		
		FCMP	Fish tissue	Fish consumption advisory due to a priority organic compound	USEPA (1997b)	3
0410	PCBs	IBS/FRSS	Sediment	Any PCBs at highly elevated concentrations (≥180 µg/kg)	Statistical Guideline [2]	1
				or		
		FCMP	Fish tissue	Fish consumption advisory due to PCBs	USEPA (1997b)	3
0500	Metals (barium, boron, iron, manganese, nickel, silver or any of those below)	AWQMN	Water	At least one violation of applicable acute or chronic standards for any metal in most recent three years	Numeric Standard [1]	3
				or		
		IBS/FRSS	Water	At least one violation of applicable acute standard for any metal	Numeric Standard [1]	2
				or		
		IBS/FRSS	Sediment	Any metal at highly elevated concentrations	Statistical Guideline [2]	2
0510	Arsenic			or		
0520	Cadmium	FCMP	Fish tissue	Fish consumption advisory due to mercury	USEPA (1997b)	3
0530	Copper					
0540	Chromium					
0550	Lead					
0560	Mercury					
0570	Selenium					
0580	Zinc					
0600	Ammonia (total; STORET code 610 or un-ionized; STORET code 612)	AWQMN	Water	At least one violation of applicable acute or chronic standards for ammonia in most recent three years	Numeric Standard [1]	3
				or		
		IBS/FRSS	Water	At least one violation of applicable acute standard for ammonia	Numeric Standard [1]	2
0700	Chlorine	FRSS	Water	At least one violation of applicable acute or chronic standard for total residual chlorine	Numeric Standard [1]	2
0720	Cyanide	AWQMN	Water	At least one violation of applicable standard for cyanide in most recent three years	Numeric Standard [1]	3
				or		
	(WAD; STORET code 718 or total; STORET code 720)	IBS/FRSS	Water	At least one violation of applicable standard for cyanide	Numeric Standard [1]	2

Code	Potential Cause	Program Name/Data Availability	Media	Guidelines	Guideline Reference	IEPA Confidence Level
0750	Sulfates	AWQMN	Water	At least one violation of applicable standard for sulfates in most recent three years	Numeric Standard [1]	3
				or		
		IBS/FRSS	Water	At least one violation of applicable standard for sulfates	Numeric Standard [1]	2
0800	Other Inorganics (fluoride)	AWQMN	Water	At least one violation of applicable standard for fluoride in most recent three years	Numeric Standard [1]	3
				or		
		IBS/FRSS	Water	At least one violation of applicable standard for fluoride	Numeric Standard [1]	2
0900	Nutrients					
0910	Phosphorus	AWQMN	Water	Total phosphorus exceeds 0.61 mg/L in at least one sample in most recent three years	Statistical Guideline [3]	1
				or		
		IBS/FRSS	Water	Total phosphorus exceeds 0.61 mg/L in at least one sample	Statistical Guideline [3]	1
				or		
		IBS/FRSS	Sediment	Phosphorus in sediment exceeds 2,800 mg/kg (highly elevated)	Statistical Guideline [2]	1
0920	Total Ammonia-N	AWQMN	Water	Total Ammonia-N exceeds 0.41 mg/L in at least one sample in most recent three years (STORET code 610)	Statistical Guideline [3]	1
				or		
		IBS/FRSS	Water	Total Ammonia-N exceeds 0.41 mg/L in at least one sample (STORET code 610)	Statistical Guideline [3]	1
				or		
		IBS/FRSS	Sediment	Kjeldahl nitrogen in sediment exceeds 4,680 mg/kg (highly elevated) (STORET code 627)	Statistical Guideline [2]	1
0921	Inorganic-N (nitrates)	AWQMN	Water	Nitrate-N exceeds 7.8 mg/L in 1 sample in most recent three years. (STORET code 630)	Statistical Guideline [3]	1
				or		
		IBS/FRSS	Water	Nitrate-N exceeds 7.8 mg/L (STORET code 630)	Statistical Guideline [3]	1
				or		
		IBS/FRSS	Sediment	Kjeldahl nitrogen in sediment exceeds 4,680 mg/kg (highly elevated) (STORET code 627)	Statistical Guideline [2]	1
0930	Nitrates	AWQMN	Water	At least one violation of applicable standard for Nitrate-N in most recent three years (STORET code 630)	Numeric Standard [1]	3
1000	pH	AWQMN	Water	At least one violation of applicable standard for pH in most recent three years	Numeric Standard [1]	3
				or		
		IBS/FRSS	Water	At least one violation of applicable standard for pH	Numeric Standard [1]	2

Code	Potential Cause	Program Name/Data Availability	Media	Guidelines	Guideline Reference	IEPA Confidence Level
1100	Siltation	IBS/FRSS	Sediment	Unnatural bottom deposits: Silt/mud or sludge - Documented site-specific knowledge or	Narrative Standard [4]	3
				≥34% silt/mud bottom substrate (see table 3-5) or	Statistical Guideline [3]	1
		AWQMN or IBS/FRSS	Water	Suspended solids – total suspended solids exceed 116 mg/L in at least one sample	Statistical Guideline [3]	1
1200	Organic Enrichment, Low Dissolved Oxygen	AWQMN	Water	At least one violation of applicable standard for DO in most recent three years or	Numeric Standard [1]	3
		IBS/FRSS	Water	At least one violation of applicable standard for DO or	Numeric Standard [1]	2
1220	Low Dissolved Oxygen	AWQMN or IBS/FRSS	Water	Known fish kill resulting from DO depletion	Narrative [4] and Numeric [1] Standards	3
1300	Salinity, Total Dissolved Solids (Code=1320), Chlorides (code=1330)	AWQMN or IBS/FRSS	Water	At least one violation of applicable standard for TDS (conductivity µmho/cm x 0.6 = TDS mg/l) or chlorides	Numeric Standard [1]	2
1400	Thermal Modifications			(Used only when a thermal point source is present. Check for exemption of temperature standard in receiving stream)		
		AWQMN	Water	At least one violation of applicable standard for temperature in most recent three years or	Numeric Standard [1]	3
		IBS/FRSS	Water	At least one violation of applicable standard for temperature	Numeric Standard [1]	2
1500	Flow Alterations	AWQMN or IBS/FRSS	Water	Documented site-specific knowledge (unnatural flow alterations only, e.g., dams, water withdrawals)	Recorded observation	1
1600	Habitat Alterations (other than flow)	IBS/FRSS	Instream habitat	SHAP bank stability score (metric 9) ≤4, or SHAP channel alteration score (metric 12) ≤2, or documented riparian vegetation and channel alteration	Recorded observation	1
1700	Pathogens (fecal coliform bacteria)	AWQMN	Water	At least one violation of applicable standard or assessment guideline (Table 3-6) for fecal coliform bacteria in most recent three years. This guideline applies only for *primary contact (swimming)* use assessments	Numeric Standard [1]	2
		IBS/FRSS	Water	Documented site-specific knowledge of pathogens contributing to a fish kill. This guideline applies only for *aquatic life* use assessments.	Recorded Observation	1
1900	Oil and Grease	AWQMN or IBS/FRSS	Water	Documented site-specific knowledge or	Narrative Standard [4]	3
		AWQMN	Water	At least one violation of applicable standard for oil and grease in most recent three years	Numeric Standard [1]	3

Code	Potential Cause	Program Name/Data Availability	Media	Guidelines	Guideline Reference	IEPA Confidence Level
2000	Taste and Odor	AWQMN or IBS/FRSS	Water	Documented site-specific knowledge. This guideline applies only for *public water supply* use.	Narrative Standard [4]	3
2100	Suspended Solids	AWQMN or IBS/FRSS	Water	Total suspended solids exceed 116 mg/L in at least one sample	Statistical Guideline [3]	1
2200	Excessive Native Aquatic Plants	AWQMN or IBS/FRSS	Water	Documented site-specific knowledge	Narrative Standard [4]	3
2210	Excessive Algal Growth	AWQMN or IBS/FRSS	Water	Documented site-specific knowledge	Narrative Standard [4]	3
2500	Turbidity	AWQMN or IBS/FRSS	Water	Documented site-specific knowledge	Narrative Standard [4]	3
2600	Exotic Species	AWQMN or IBS/FRSS	Plant	Documented site-specific knowledge	Narrative Standard [4]	3
			Animal	Documented site-specific knowledge	Recorded observation	1
3000	Pesticides (half life ≤90 days)	AWQMN	Water	Preliminary water chemistry indicators for General Use waters Pesticide exceeds chronic value [5] in average of three samples	Narrative Standard [4]	3
				1.0 µg/L		
3100	Atrazine			30 µg/L		
3200	Cyanazine			100 µg/L		
3300	Alachlor			130 µg/L		
3400	Metolachlor			800 µg/L		
3500	Metribuzin			1.0 µg/L		
3600	Trifluralin			50 µg/L		
3700	Butylate					

IEPA Confidence Levels: 3 = high confidence, 2 = moderate confidence, 1 = low confidence

[1] See Tables 3-1 and 3-2
[2] Short (1997)
[3] 85th percentile of statewide AWQMN data for water years 1978-1996
[4] 35 IL. Adm. Code Part 302 (1999)
[5] Derived by procedures specified at 35 IL. Adm. Code 302.627 (1990). These values have not been peer-reviewed.

Exhibit 2

Illinois
Environmental
Protection Agency

Bureau of Water
P.O. Box 19276
Springfield, IL 62794-9276

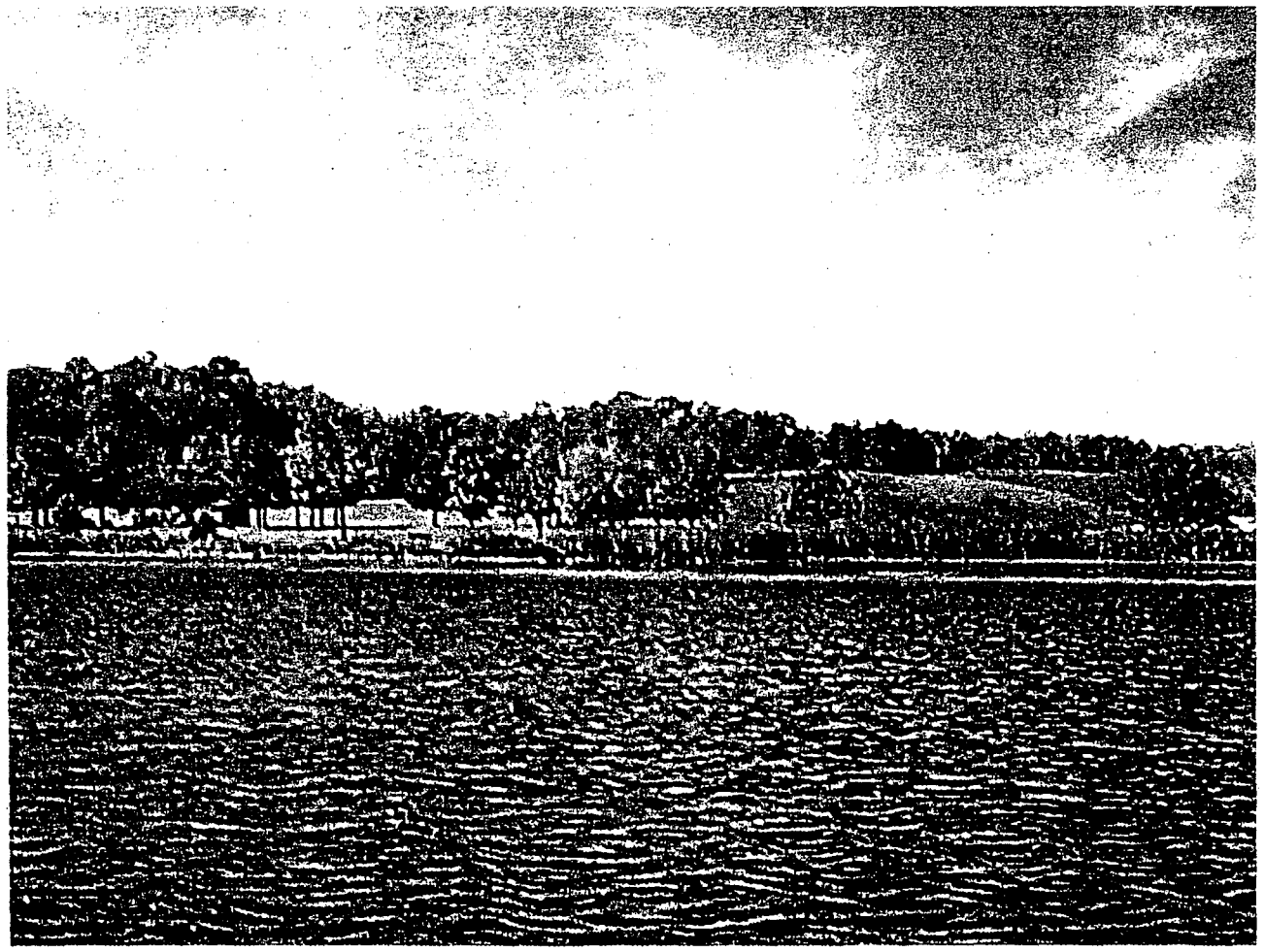
May 2004

IEPA/BOW/04-006

Illinois Water Quality Report 2004

Illinois Environmental Protection Agency

Bureau of Water



1. EXECUTIVE SUMMARY

Overview

This 2004 Illinois Water Quality Report was prepared by the Illinois Environmental Protection Agency (Illinois EPA) to satisfy reporting requirements in Section 305(b) of the federal Clean Water Act. This report provides an assessment of the quality of the state's surface and groundwater resources. An electronic copy of this report, the Illinois Water Quality Mapping Tool, and additional related information are available on the Illinois EPA website, http://www.epa.state.il.us/water/water-quality/index.html.

The 305(b) Process

According to Section 305(b) of the "Clean Water Act" (a generic name that refers collectively to the Federal Water Pollution Control Act of 1972, the Clean Water Act of 1977, and subsequent amendments) and guidance provided by the United States Environmental Protection Agency (U.S. EPA), each state must report to the U.S. Congress and the U.S. EPA on the quality of the surface and groundwater resources of the state. Every other year, this report, commonly referred to as the "305(b) report," must be provided in written form, whereas, in alternate years each state may submit an electronic database to meet the reporting requirement. In the 305(b) report, states must also explain how they determined the resource quality of the waters of the state in terms of the degree to which predefined beneficial uses (i.e., designated uses) of those waters are attained (i.e., supported). Also in the 305(b) report, when any designated use for any waterbody is not fully supported (i.e., impaired), the state must report potential reasons (causes and sources) for the impairment. Herein, we explain how Illinois EPA determines the quality of Illinois streams and rivers (hereafter referred to as "streams"), inland lakes, Lake Michigan basin waters, and groundwaters. For impaired waters, we also explain how we determine the potential causes and sources of the resource impairment.

Since water-resource data take time to gather and process, each 305(b) report reflects up to a two-year data lag. In general, in this 2004 report, only surface-water bodies for which new information became available since the last report (i.e., 2002 report, based mostly on data through September 2000) were assessed. Surface-water assessments in this 2004 report are based primarily on biological, water, sediment, physical-habitat, and fish-tissue information collected through 2002 (some in 2003) via various monitoring programs (IEPA 2002). These programs include: the Ambient Water Quality Monitoring Network (AWQMN), Intensive Basin Surveys (IBS), Facility-Related Stream Surveys (FRSS), the Ambient Lake Monitoring Program (ALMP), the Illinois Clean Lakes Monitoring Program (ICLP), the Volunteer Lake Monitoring Program (VLMP), and the Lake Michigan Monitoring Program (LMMP). Similarly, chemical and biological data were collected on groundwater resources throughout the state to detect impairments. Groundwater-quality monitoring programs include the Ambient Network of Community Water Supply Wells (CWS Network), Pesticide Monitoring Subnetwork of the CWS Network, Rotating Monitoring Network, and Dedicated Pesticide Monitoring Well Network.

Codes of Designated Uses, for streams:

20 = *Aquatic Life*
21 = *Fish Consumption*
42 = *Primary Contact (Swimming)*
46 = *Indigenous Aquatic Life*
50 = *Public Water Supply*

8) Use Support – The level to which the designated use is attained.

F = Full support (i.e., fully attained)
P = Partial support (i.e., partially attained)
N = Nonsupport (i.e., not attained)
X = not assessed

9) Cause Code --Code that identifies each potential cause of impairment.

10) Cause Name –Name of each potential cause of impairment.

(See tables 3-7, 3-10, 3-12, 3-14, and 3-16 for additional information)

Cause Code	Cause Name		Cause Code	Cause Name
0000	Cause Unknown		1710	Total Fecal Coliform Bacteria
0300	Unspecified Priority Organics		1730	Fish Kill
0400	Unspecified Non-priority organics		1900	Oil and grease
0410	Polychlorinated biphenyls (PCBs)		2100	Total Suspended Solids
0500	Unspecified Metals		2200	Aquatic Plants Native
0510	Arsenic		2210	Excess Algal Growth
0520	Cadmium		2620	Non-Native Animals (incl. fish, invertebrates)
0530	Copper		3100	Atrazine
0550	Lead		9312	Aldrin 9000
0560	Mercury		9313	alpha-BHC 9000
0580	Zinc		9318	Chlordane 9000
0593	Boron		9322	DDT 9000
0594	Iron		9326	Dieldrin 9000
0595	Manganese		9330	Endrin 9000
0596	Nickel		9334	Heptachlor
0597	Silver		9336	Hexachlorobenzene 9000
0600	Ammonia (Unionized)		9338	Lindane 9000
0610	Nitrogen, ammonia (Total)		9339	Methoxychlor 9000
0700	Chlorine		9410	Polychlorinated biphenyls (PCBs) 9000
0750	Sulfates		9510	Arsenic 9000
0800	Fluoride		9520	Cadmium 9000
0900	Unspecified Nutrients		9530	Copper 9000
0925	Total Nitrogen as N		9541	Chromium (total) 9000
0930	Nitrogen, Nitrate		9550	Lead 9000
1000	pH		9560	Mercury 9000
1100	Sedimentation/Siltation		9580	Zinc 9000
1220	Oxygen, Dissolved		9591	Barium 9000
1300	Salinity/TDS/chlorides		9594	Iron 9000
1320	Total Dissolved Solids		9595	Manganese 9000
1330	Chlorides		9596	Nickel 9000
1500	Other Flow Alterations		9597	Silver 9000
1510	Fish Barriers		9910	Total Phosphorus 9000
1610	Physical-Habitat Alterations			

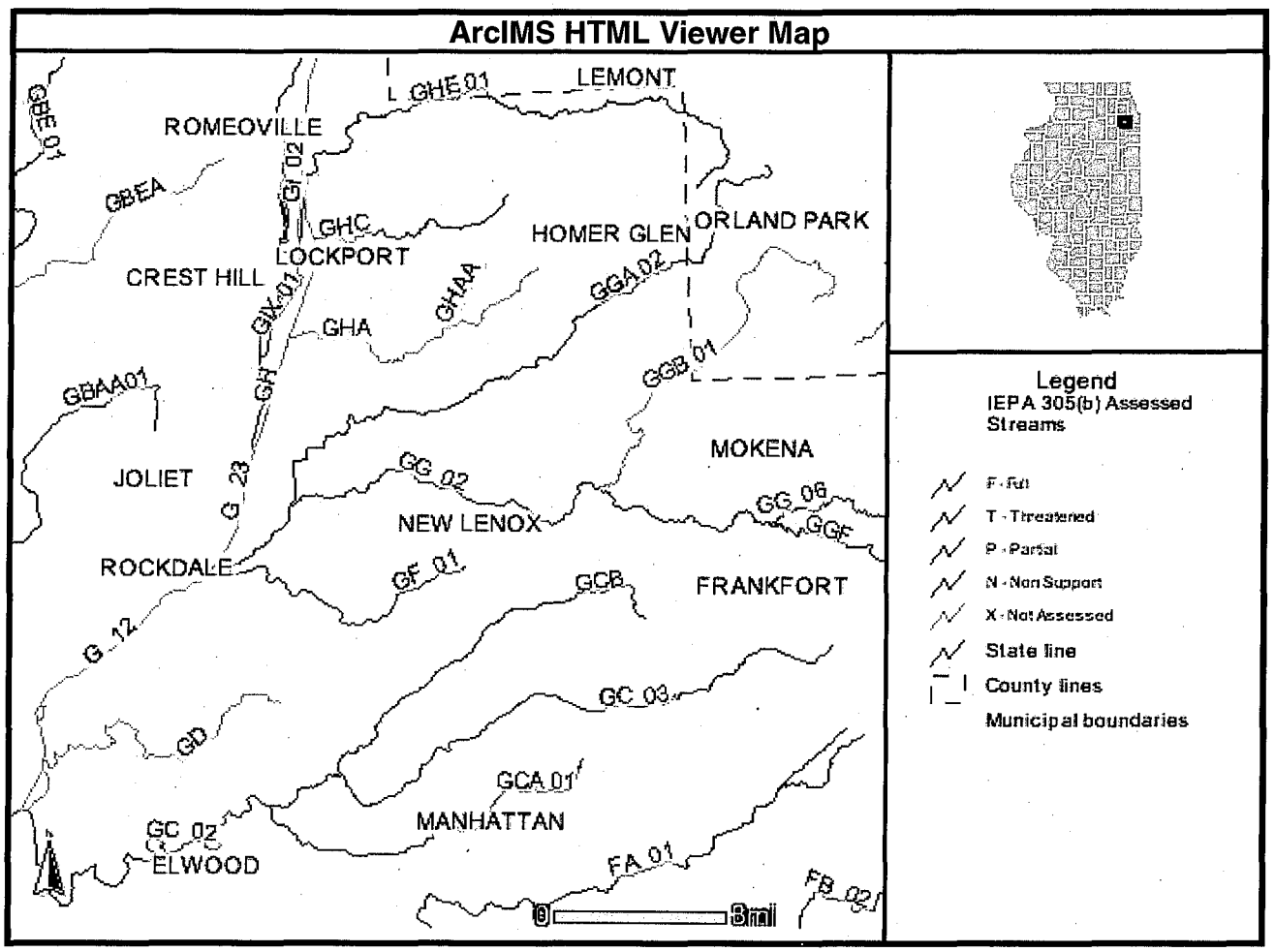
11) Source Code – Code that identifies each potential source of impairment.

12) Source Name – Name of each potential source of impairment.

(See table 3-8 for additional information)

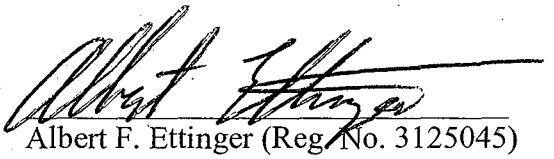
Source Code	Source Name		Source Code	Source Name
0100	Industrial Point Sources		6000	Land Disposal
0200	Municipal Point Sources		6300	Landfills
0210	Major Municipal Point Source		6400	Industrial Land Treatment
0214	Major Municipal Point Sources - wet weather discharges		7000	Hydromodification
0400	Combined Sewer Overflow		7100	Channelization
0500	Collection System Failure		7200	Dredging
0800	Wildcat Sewer		7300	Dam Construction
1000	Agriculture		7350	Upstream Impoundment
1050	Crop-related Sources		7400	Flow Regulation/Modification
1100	Non-irrigated Crop Production		7550	Habitat Modification (other than Hydromodification)
1200	Irrigated Crop Production		7600	Removal of Riparian Vegetation
1350	Grazing related Sources		7700	Bank or Shoreline Modification/Destabilization
1400	Pasture grazing - Riparian and/or Upland		7800	Drainage/Filling Of Wetlands
1600	Intensive Animal Feeding Operations		8100	Atmospheric Deposition
1800	Off-farm Animal Holding/Management Area		8300	Highway Maintenance and Runoff
3000	Construction		8400	Spills
3100	Highway/Road/Bridge Construction		8500	Contaminated Sediments
3200	Land Development		8600	Natural Sources
4000	Urban Runoff/Storm Sewers		8700	Recreation and Tourism Activities
5000	Resource Extraction		8710	Golf courses
5100	Surface Mining		8950	Other
5200	Subsurface Mining		8960	Forest/Grassland/Parkland
5500	Petroleum Activities		9000	Source Unknown
5700	Mine Tailings			
5800	Acid Mine Drainage			
5900	Abandoned mining			

Information and data presented were obtained from various Federal, State, and local agencies and are subject to revision.



CERTIFICATE OF SERVICE

I, Albert F. Ettinger, certify that on June 8, 2005, I filed the attached PETITIONERS' REPLY MEMORANDUM IN SUPPORT OF SUMMARY JUDGMENT and PETITIONERS' REPLY REGARDING RELEVANT FACTS IN THE AGENCY RECORD. An original and 9 copies was filed, on recycled paper, with the Illinois Pollution Control Board, James R. Thompson Center, 100 West Randolph, Suite 11-500, Chicago, IL 60601, and copies were served via United States Mail to those individuals on the included service list.



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DATED: June 7, 2005

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