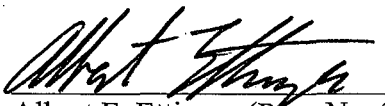
BEFORE THE ILLINOIS POLLUTION CONTROL BOARD

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 MOTION FOR SUMMARY JUDGEMENT, MEMORANDUM IN SUPPORT OF SUMMARY JUDGEMENT, and STATEMENT OF RELEVANT FACTS FROM THE AGENCY RECORD.



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DATED: February 4, 2005

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MOTION FOR SUMMARY JUDGMENT

Pursuant to 35 Ill. Adm. Code 101.56, the Des Plaines River Watershed Alliance, the Livable Communities Alliance, Prairie Rivers Network, and the Sierra Club (collectively, "Petitioners") hereby move for summary judgment against the Illinois Environmental Protection Agency ("IEPA") and the Village of New Lenox ("New Lenox"). The Board should reverse the October 31, 2003 decision of the Illinois Environmental Protection Agency ("IEPA") to grant a National Pollutant Discharge Elimination System ("NPDES") permit (Permit No. IL0020559) to the Village of New Lenox to increase its discharge of pollutants into Hickory Creek from its sewerage treatment plant Number 1 and order the IEPA to reconsider certain limits and other conditions of any permit to be granted. In support of their motion, Petitioners state:

1. Petitioners are not-for-profit organizations with members who live and recreate in the Des Plaines River watershed, including areas near Hickory Creek, and who are concerned with pollution that would affect their ability to enjoy recreation activities dependent on the ecological health of Hickory Creek and the Des Plaines River including fishing, boating,

canoeing, nature study and hiking. Members of the Petitioners are potentially adversely affected in their health, property values and enjoyment by offensive conditions that occur as the result of nutrients discharged into Hickory Creek. Members of Petitioners are concerned about ongoing degradation of Hickory Creek and potential for further degradation. Members of the Petitioners, including Beth Wentzel, Kimberly Kowalski, Gaylyn Grimm, William Eyring, James Bland, Jeff Swano, Joyce Korista, Albert Ettinger, and Cynthia Skrukrud, appeared at the hearing held in this proceeding and submitted comments in opposition to the permit. They and other members of Petitioners are so situated as to be affected by the permit and by offensive conditions or other violations of water quality standards in Hickory Creek, the Des Plaines River and the Illinois River. (Petition for Review and Exhibits thereto, filed December 3, 2003).

2. Hickory Creek flows through Will County and discharges into the Des Plaines River near Joliet, Illinois. The stream has attracted attention because of its exceptional ecology, history and geology. According to a 1971 publication by the Illinois Natural History Survey, Hickory Creek was at that time the outstanding stream in the Des Plaines River system. More recently, Hickory Creek was been identified as an impaired water by IEPA in list of impaired waters. Large offensive algal blooms have been reported in the creek and Hickory Creek has been listed as impaired by excess algal growth by IEPA. (Hearing Record at 5, 18, 67, 80, 82-3, 110)

3. 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, allowing an expanded discharge from 1.54 million gallons per day to 2.516 million gallons per day average daily flow. (Hearing Record at 1)

4. Petitioners commented through testimony given at a public hearing held on the draft permit on April 24, 2003 (Hearing Record at 61-104) and through written comments (Hearing Record at 107-322).

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

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,

b. The draft permit allows 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.

c. 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.

6. At the hearing and in comments, Petitioners also 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.

7. On October 31, 2003, Illinois EPA issued the permit that is subject to the current appeal. (Hearing Record at 341-50) The final permit, while containing some changes from the draft permit that addressed a portion of the dissolved oxygen problem and the existing violations of the total dissolved solid standards, did not remedy the flaws discussed above that were raised by Petitioners in oral comments at the hearing and written comments made after the hearing.

8. Petitioners filed their Petition for Review on December 2, 2003.

9. In its Order of December 18, 2003, the Board found that Petitioners' petition is neither duplicitous nor frivolous and contains a satisfactory demonstration under Section 40(e)(2) of the Environmental Protection Act, 415 ILCS 5/40(e)(2).

10. As the result of a disagreement between Petitioners and Respondents regarding the need for and availability of discovery with regard to the petition, Hearing Officer Bradley Halloran in an order of April 1, 2004 established a schedule for the submission of briefs on the issues of what the Board is to base its decision on in this matter and what constitutes the record

before the Agency. The final briefs were filed in compliance with the April 1, 2004 Order on April 30, 2004 and the issues addressed by the April 1, 2004 Order and the submissions filed pursuant to it have been pending before that Board since that time.

11. The Board should immediately grant summary judgment to Petitioners. There is no basis for allowing discovery or taking further evidence in this case because the case is governed by 415 ILCS 5/40(e) that state that the Board shall hear the petition "exclusively on the basis of the record before the Agency." As stated by the Board in Prairie Rivers Network v. IEPA and Black Beauty Coal Company, (PCB 01-112) Opinion and Order of the Board of August 9, 2001, the evidence for a third party permit appeal is limited "to the record that was before the IEPA at the time the permitting decision was made." (at p. 25) The Agency has filed what it believes to be the record at the time the permitting decision was made and no party has contested the Agency's submission.

12. Moreover, even were the Board to decide that discovery is appropriate as to one or more issues raised by the appeal, it should grant summary judgment as to the issues not implicated by such a decision so as to prevent unnecessary pollution and potential injury to the environment.

13. The issuance of the permit and the final permit violate 35 Ill. Adm. Code 302.105, 304.105 and 35 Ill. Adm. Code 309.141. These regulations include Illinois' antidegradation regulations, the regulations prohibiting effluents which alone or in combination with other pollution sources cause a violation of any of any numeric or narrative water quality standard and Illinois regulations prohibiting issuance of NPDES permits under circumstances where such issuance would violate federal law. The most salient errors of the Agency in granting the permit and flaws in the final permit are:

a. The Agency did not assure that all technically and economically reasonable measures were incorporated into the proposed discharge to prevent nutrient loadings to Hickory Creek in violation of 35 Ill. Adm. Code 302.105(c)(iii)

b. The Agency did not assure that the applicable narrative "offensive conditions" (see 35 Ill. Adm. Code 302.203) and numeric copper water quality standards will not be violated as a result of the proposed discharge to Hickory Creek.

c. The permit allows effluents that alone or in combination with other sources causes a violation of the standard prohibiting offensive conditions in violation of 35 Ill. Adm. Code 304.105

d. The permit violates 35 Ill. Adm. Code 309.141(d) by failing to contain limitations necessary to meet water quality standards and comply with federal law requiring that permits control all pollutants which "will cause, have the reasonable potential to cause, or contribute or contribute to an excursion above any State water quality standard, including State narrative criteria for water quality." 40 C.F. R. §122.44(d)(1)(i).

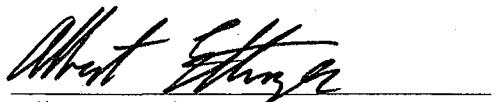
14. In addition, the Agency in granting the permit failed adequately to protect existing conditions in Hickory Creek and added to the pollution problems of the Des Plaines and Illinois Rivers. Still further, to the extent the Agency may rely on the concept of allowing a mixing zones to justify some portion of its decision to grant the permit, such zone has not properly been designed under 35 Ill. Adm. Code 302.102.

15. Documents entitled "Memorandum in Support of Motion for Summary

Judgment" and "Statement of Facts in the Record" are being filed with this motion.

WHEREFORE, the Des Plaines River Watershed Alliance, Livable Communities Alliance, Sierra Club, and Prairie Rivers Network ask that the Pollution Control Board grant them summary judgment, set aside the NPDES permit (No IL0020559) issued to the Village of New Lenox on October 31, 2003 as not sufficiently protective of the environment and not in accord with law and direct that the Agency reconsider the permit in order to establish conditions and limits necessary to protect Illinois waters, assure protection of Illinois water quality standards and comply with the Federal Water Pollution Control Act, 33 U.S.C. §1251 et seq., and Illinois law. The Board should direct the Agency in any future permit to:

- Assure that all technically and economically reasonable measures to avoid or minimize the extent of nutrient loadings to Hickory Creek be incorporated into the permit pursuant to 35 Ill. Adm. Code 302.105(c)(B)(iii),
- Assure that discharges from New Lenox STP #1 not cause or contribute to violations of the water quality standard prohibiting "offensive conditions" 35 Ill. Adm. Code 302.203, and
- Assure that discharges from New Lenox STP #1 not cause or contribute to violations of the numeric water quality standard for copper provided in 35 Ill. Adm. Code Section 302.208(e).



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MEMORANDUM IN SUPPORT OF SUMMARY JUDGMENT

The Des Plaines River Watershed Alliance, the Livable Communities Alliance, Prairie Rivers Network, and the Sierra Club (collectively, "Petitioners") are entitled to summary judgment under 35 Ill Adm. Code 101.516. This case must be decided "exclusively on the basis of the record before the Agency." 415 ILCS 5/40(e). The record before the Agency shows that the Illinois Environmental Protection Agency ("IEPA") failed to comply with applicable regulations in granting the permit and that the permit violates a number of regulatory requirements. Indeed, with regard to the state and federal requirement that permits control all pollutants necessary to prevent violation of narrative standards, the Agency has essentially admitted in the record that the permit does not comply with the law. There is no issue of material fact and Petitioners are entitled to judgment as a matter of law.

IEPA in granting the permit to the Village of New Lenox violated numerous provisions of the Board regulations regarding issuance of National Pollutant Discharge Elimination System ("NPDES") permits with regard to a number of different pollutants and parameters. The

Statement of Facts from the Agency Record being filed with this memorandum sets forth facts with regard to many ways in which the permit violates Illinois law.[1]

However, in an effort to secure quicker protection for the receiving waters and expedite this proceeding, Petitioners focus in this memorandum on the three most salient ways in which the permit falls short of Illinois requirements. First, the record is very clear that the permit does not require reasonable controls on phosphorus. Indeed, IEPA did not even seriously consider such controls although the applicable regulation requires that IEPA "assure" that all reasonable controls be put in place and phosphorus is known to be a problem in Hickory Creek. Second, it is apparent that the permit does not even pretend to control pollution that may cause or contribute to violations of the narrative offensive conditions standard (35 Ill. Adm. Code 302.203). In lieu of compliance with the Board regulations, IEPA offers only the excuse that the narrative offensive conditions standard is "very difficult to apply." (SoF ¶ 41). Third, the permit does not control discharges of copper that may cause or contribute to violations of the copper water quality standard.[2]

In their motion, Petitioners ask that the permit be revoked and remanded for reconsideration by the Agency with instructions to the Agency in any future permit to:

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[1] Citations of facts in this memorandum are cited to The Statement of Facts from the Agency Record in the format of "SoF ¶ _."

[2] In addition to failing to require, or even consider, technologically and economically reasonable pollution control measures and failing to assure that discharges from the plant will not cause violations of the offensive conditions and copper standards, the continued and increased discharges from New Lenox STP #1 allowed by the permit will seriously harm the biological integrity of Hickory Creek and adversely affect the Des Plaines and Illinois Rivers downstream. The permit also fails to assure that discharges from the plant will not cause violations of numeric water quality standards for pH and dissolved oxygen. Because the environmental implications of these violations are intertwined with the failure to control nutrients, Petitioners believe that if on remand the Agency properly addresses the nutrient issue, it will also address the protection of existing uses, dissolved oxygen and pH issues.

- Assure that all technically and economically reasonable measures to avoid or minimize the extent of nutrient loadings to Hickory Creek be incorporated into the permit pursuant to 35 Ill. Adm. Code 302.105(c)(2)(B)(iii),
- Assure that discharges from New Lenox STP #1 not cause or contribute to violations of the water quality standard prohibiting "offensive conditions" 35 Ill. Adm. Code 302.203, and
- Assure that discharges from New Lenox STP #1 not cause or contribute to violations of the numeric water quality standard for copper provided in 35 Ill. Adm. Code Section 302.208(e).

SUMMARY OF THE RELEVANT FACTS

Hickory Creek

Hickory Creek flows through Will County and discharges into the Des Plaines River near Joliet, Illinois. (SoF ¶ 1)

Because the proper data has not been collected, the evidence in the record is at best unclear as to the current state of Hickory Creek.[3] It is clear that the trend of water quality in Hickory Creek over the last 30 years has been downward. According to a 1971 publication by the Illinois Natural History Survey, Hickory Creek was at that time the "outstanding stream" in the Des Plaines River system. More recently, Hickory Creek has been rated a "C" stream and was listed as impaired by IEPA in its 2002 list of impaired waters. Potential causes of

[3] The record is unclear as to the extent to which the existing New Lenox discharge is adversely affecting the biological integrity of the receiving waters. A study of the existing biological state of the creek was done by a contractor for New Lenox but the study was heavily criticized by

impairment listed in 2002 by IEPA are phosphorus, nitrogen, total dissolved solids, flow alterations and suspended solids. The potential sources of impairment listed by IEPA include municipal point sources. (SoF ¶ 5)

Also, while IEPA in its antidegradation analysis broadly concluded that the increment of increased pollution allowed by the permit would not affect existing aquatic life or other uses of Hickory Creek, there does not appear to be any evidence in the record to support that conclusion. No specific study was conducted of the potential effects of the increased discharge although the increased discharge makes up a large portion of the flow of the creek during critical low flow conditions. (SoF ¶ 11)

There is no dispute in the record that Hickory Creek is being affected by severe vegetative growth. Eyewitnesses at the hearing testified of new and offensive algal blooms that took over miles of the creek during the summer before the hearing. Other evidence of unnatural vegetative growth includes evidence of large diurnal swings in dissolved oxygen levels and evidence of pH levels that violate Illinois water quality standards. No one contested in the record the existence of these offensive conditions and subsequently Hickory Creek was listed by the Agency as impaired by algal blooms. (SoF ¶¶ 5-8, ¶¶14-15)

There is no doubt that the kind of algal growth and pH and variations in dissolved oxygen levels that have been seen in Hickory Creek are generally a result of high levels of nutrients in the water, particularly phosphorus. Further, it is clear in the record that Hickory Creek has high levels of phosphorus and that the New Lenox sewerage treatment plant discharge is a major source of phosphorus. (SoF ¶¶ 9-11)

IEPA scientists who requested the study be done over. Ultimately it was decided by IEPA, not to require a proper study of existing biological conditions. (SoF ¶¶ 16-21)

Proceedings Before the Agency

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 renewed permit allows the New Lenox plant to increase its design average flow from 1.54 million gallons per day to 2.516 million gallons per day. (SoF ¶ 23)

In their comments and testimony given on the draft permit, Petitioners raised legal and scientific issues regarding flaws in the draft permit and in IEPA's consideration of the draft permit. Petitioners commented that 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 conditions. (SoF ¶ 27) Petitioners offered expert opinions and published treatises showing that nutrients are the likely cause of algal blooms and other unnatural plant growth that have been reported in the creek. (SoF ¶¶ 11-13)

Further, Petitioners commented the draft permit allows discharges that may cause, have a reasonable potential to cause or contribute to violations of state water quality standards regarding copper, 35 Ill. Adm. Code 302.208(e). This comment was based on the fact that, using the U.S. EPA method for determining reasonably potential, the two laboratory tests of New Lenox effluent done by New Lenox's contractor showed that there was a reasonable potential for violation of the state's copper standard and that a permit limit or at least more careful analysis was required. (SoF ¶¶ 34-35)

Petitioners also commented 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). Petitioners

cited evidence that studies were not properly conducted to determine the potential effect of the draft permit on existing uses of the stream, and that IEPA officials recognized that the study conducted by the applicant's contractor was inadequate. (SoF ¶¶ 16-21, ¶ 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. In particular, petitioners asked IEPA to provide for economically feasible controls on the discharge of nutrients, particularly phosphorus. (SoF ¶¶ 29-33).

On October 31, 2003, Illinois EPA issued the permit that is subject to the current appeal. The final permit does not contain any limit on discharges of nutrients or copper or even require that these pollutants be monitored. (SoF ¶ 37) The record shows further that IEPA never determined whether New Lenox could economically control nutrient pollution. (SoF ¶ 33, ¶ 40) The Agency Responsiveness Document states that any nutrient controls were being put off until the development of numeric nutrient standards. (SoF ¶ 41) The Responsiveness Document states further that no limit was being placed on the discharge to prevent violation of the "offensive conditions" narrative standard because it is a "very difficult standard to apply." (SoF ¶ 41)

I. The Permit Does Not Comply with Illinois Antidegradation Regulations.

The permit did not comply with 35 Ill. Adm. Code 302.105(c)(2)(D)(iii) because IEPA did not assure that the permit incorporated all reasonable measures to avoid or minimize the extent of the new pollution loading. Much of the discussion in the record focused on whether New Lenox could have avoided some or all of the new discharge by spraying some or all of the effluent on the land. Petitioners believe that careful consideration of the record shows that the

consideration of land application by New Lenox and IEPA was purely *pro forma*. However, the failure to consider land application seriously need not detain us here because the record is crystal clear that IEPA did essentially nothing to determine if New Lenox could reasonably reduce the amount of its phosphorus pollution to Hickory Creek.

IEPA failed to assure that reasonable controls were put on nutrients although the evidence in the record shows without dispute that the nutrient pollution from facilities like New Lenox's can practicably be reduced substantially. The law is quite clear that, at a bare minimum, IEPA should have carefully considered the level of nutrient control that New Lenox could technically and economically provide. The law requires that new pollution be minimized even when it would not potentially affect the receiving water.[4] However, IEPA's complete failure to minimize the extent of the increased nutrient pollution of Hickory Creek and downstream waters is particularly regrettable here because the record is clear that the New Lenox discharge is a major source of phosphorus to Hickory Creek and phosphorus is already having an adverse impact on the stream and downstream waters.

Key provisions of Illinois Antidegradation regulations enacted by the Board in 2002, 35 Ill. Adm. Code 302.105(c), state:

> c) High Quality Waters

[4]An antidegradation policy is "a policy requiring that state standards be sufficient to maintain existing beneficial uses of navigable waters, preventing their further degradation." PUD No. 1 of Jefferson County v. Washington Dep't of Ecology, 511 U.S. 700, 705 (1994). Each state must adopt an antidegradation policy consistent with 40 C.F.R. § 131.12, which creates overlapping "tiers" of protection. 40 C.F.R. §131.12. At the base, Tier 1 requires the maintenance and protection of "[e]xisting instream water uses." 40 C.F.R. § 131.12(a)(1). Tier 2 adds another layer of protection for water quality by providing that levels of water quality better than that needed to meet standards and protect existing uses, "shall be maintained and protected" unless "allowing lower water quality *is necessary* to accommodate important economic or social development in the area in which the waters are located." 40 CFR 131.12(a)(2)(emphasis added).

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

2) The Agency must assess any proposed increase in pollutant loading that necessitates a new, renewed or modified NPDES permit or any activity requiring a CWA Section 401 certification to determine compliance with this Section. The assessment to determine compliance with this Section must be made on a case-by-case basis. In making this assessment, the Agency must:

A) Consider the fate and effect of any parameters proposed for an increased pollutant loading.

B) Assure the following:

i) The applicable numeric or narrative water quality standard will no be exceeded as a result of the proposed activity;

ii) All existing uses will be fully protected;

iii) All technically and economically reasonable measures to avoid or minimize the extent of the proposed increase in pollution loading have been incorporated into the proposed activity; ....

The language of 302.105(c) is very clear and plainly mandatory. Before granting a permit allowing new pollution loadings, the Agency "*must*" "*assure*" that "*all*" reasonable measures to minimize the extent of the pollution have been incorporated. See also See 35 Ill. Adm. Code 302.105(f)(1)(D) (information on treatment levels and alternatives must be presented by the applicant)[5] The language of Section 302.105(c) certainly does not allow the IEPA to limit its

[5] An explanation of the antidegradation rules was sent out by IEPA shortly after they were enacted. (Appendix of Authorities A) This explanation makes clear that under this rule, in addition to requiring limits on all pollutants that could cause violations of standards, IEPA must require the type of treatment design that will hold degradation to the "smallest amount practically achievable."

consideration of controls on an important pollutant to mentioning one possible level of treatment and then rejecting it without thought. At a minimum, IEPA should have determined what level of phosphorus and nitrogen removal were economically reasonable and imposed limits based on that determination.

While the Board's language requiring IEPA consideration of all the ways to minimize pollution could hardly be more clear, it is worthwhile to review the considerations that led the Board to adopt this language. Even decades before adoption of the 2002 antidegradation rules, it was established Illinois policy that the state would not allow unnecessary pollution even if that new pollution under consideration would not cause a violation of water quality standards. Indeed, even before the Pollution Control Board was created, it was not Illinois policy to permit new pollution into a stream up to the level at which a violation would develop. As was explained by the Board in 1972 in adopting the "nondegradation" policy which preceded the current language quote above, "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, R71-14 (PCB March 7, 1972) p. 11.

In drafting current Section 302.105(c), the Board was also advised by the federal antidegradation regulations which permit a lowering of water quality only if it is "necessary to accommodate important economic or social development" 40 CFR 131.12(a)(2) because a lowering of water quality is not necessary if it can practicably be avoided. With regard to this regulation, U.S. EPA in its Water Quality Standards Handbook (4th Edition 1994) (available at www.epa.gov/watescience/standards/handbook) explained:

> [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. The burden of demonstration on the individual proposing such activity will be very high. In any case, moreover, the existing use must be maintained and the activity shall not preclude the maintenance of a "fishable swimmable" level of water quality protection. (Appendix of Authorities B, p. 4-7)

Here the IEPA went forward without getting information on alternative controls from the applicant in violation of 35 Ill. Adm. Code 302.105(f)(1)(D) and, in violation of 35 Ill. Adm. Code 302.105(c), did not do any analysis of the range of technologically and economically reasonable measures to avoid or minimize nutrient loadings to the stream although it was repeatedly asked to place nutrient limits in the permit and consider the reasonableness of doing so. (SoF ¶¶ 30-33, ¶ 36, ¶ 40) And, of course, the Agency knew full well that it is feasible to reduce phosphorus concentrations down to 1 mg/L as numerous Illinois communities are already doing so as a result of Illinois regulations that have been in place for decades. 35 Ill. Adm. Code 304.123. The permit should be vacated and IEPA directed by the Board to consider what levels of nutrient control measures are technically and economically reasonable to impose in the permit and to assure that all such measures are required.

II. The Permit Fails to Control All Pollutants that Have a Reasonable Potential to Cause or Contribute to Violations of Numeric and Narrative Water Quality Standards.

The permit in issue also fails to control discharges that may cause or contribute to violations of water quality standards. This violates a number of provisions of Board regulations controlling the issuance of NPDES permits. The Record shows that IEPA failed to assure that

discharges from the plant would not cause violations of the standards for dissolved oxygen and pH (SoF ¶¶ 14-15), but it is most clear that IEPA violated 35 Ill Adm. Code 302.105(c)(2)(B), 35 Ill. Adm. Code 304.105 and 35 Ill. Adm. Code 309.141(d)(1) and (2) with regard to the narrative water quality standard as to "offensive conditions," 35 Ill. Adm. Code 302.203, and the numeric standard as to copper. In violation of 35 Ill. Adm. Code 309.142, IEPA has not properly verified that the discharges allowed by the permit will not cause or contribute to violations of the offensive conditions, or copper standards.

A. The Law Clearly Requires that Permits limit all pollutants that may cause a violation of numeric or narrative standards.

35 Ill. Adm. Code 304.105 requires that any effluent or combination of effluents be regulated to insure that there is compliance with all applicable water quality standards in all receiving or downstream waters that may be affected by the discharge. See also 35 Ill. Adm. Code 309.141(d)(1).

Similarly, applicable federal regulations explicitly require that NPDES permits include permit limits to control "all pollutants ... which will cause, have a potential to cause, or contribute to an excursion above any State water quality standard, including State narrative criteria for water quality" 40 CFR §§ 122.44(d)(1)(i) see also, 40 CFR 122.4(d) and (i). As explained by American Paper Institute v. U.S. Environmental Protection Agency, 996 F.2d 346, 350 (D.C. Cir. 1993). permit "[l]imitations must control all pollutants or pollutant parameters (either conventional, nonconventional or toxic pollutants) which ... are or may be discharged at a level which will cause, have a reasonable potential to cause, or contribute to an excursion above any State water quality standard, including state narrative criteria for water quality." Not only must permit limits protect standards in the waters immediately below the discharge point,

standards must be protected in waters far downstream of the discharge, even in another state. Arkansas v. Oklahoma, 503 U.S. 91, 107 (1992).[6] These federal principles of law are fully applicable to Illinois NPDES permits under applicable Board regulations requiring permits to meet any federal law or regulation. 35 Ill. Adm. Code 309.141(d)(2).

B. The Permit Does Not Assure Compliance with the narrative standard on Offensive Conditions

35 Ill. Adm. Code 302.203 establishes the narrative standard that:

> Waters of the State shall be free from sludge or bottom deposits, floating debris, visible oil, odor, plant or algal growth, color or turbidity of other than natural origin.

Under the law discussed above, IEPA could not legally issue a permit that would cause or contribute to a violation of this narrative standard and the record is unequivocal that this standard has been violated as the result of pollutants of the sort permitted by this permit. Thus, 35 Ill Adm. Code 304.105 and 309.141 are clearly violated by the permit. There was abundant testimony that the offensive conditions standard is currently being violated. There was also testimony and comments by experts, as well as numerous treatises placed into the record, showing that the type of pollution coming from the plant was exactly the kind of phosphorus pollution likely to cause the offensive conditions reported by numerous eyewitnesses. Nothing was offered into the record by the applicant or IEPA to refute any portion of this record testimony and other evidence.

Nonetheless, IEPA did not even consider placing limits in the permit to prevent such

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[6] The Board applied this principle with regard to the Des Plaines River system in holding that heat discharges to the river at Joliet could not be allowed if they would cause or contribute to violations of water quality standards miles downstream. In the Matter of: Petition of Commonwealth Edison Company for Adjusted Standard from 35 Ill. Adm. Code 302.211(d) and (e), AS 96-10 (PCB, October 3, 1996) p. 5.

violations of narrative standards but instead offered only the explanation that it is working on developing numeric standards and that it is "very difficult" to write permits to comply with narrative standards. (SoF ¶ 41) Petitioners submit that one does not comply with a regulation simply by declaring that it is "very difficult" to do so.[7]

C. IEPA must further consider whether a permit limit on copper is needed

The IEPA permit writers at least purported to consider what limits were necessary to prevent violations of numeric water quality standards. But their efforts fell far short of assuring that the copper limit would not be exceeded.

The United States Environmental Protection Agency NPDES Permit Writers Manual (http://cfpub.epa.gov/npdes/writermanual.cfm?program_id=45) discusses the problem of how to determine reasonable potential to violate water quality standards and how to deal with the risk of uncertainly particularly in the case in which there is limited data. The Manual states:

> All toxic effects testing and exposure assessment parameters, for both effluent toxicity and individual chemical, have some degree of uncertainty associated with them. The more limited amount of data, the larger the uncertainty. To better characterize the effects of effluent variability and reduce uncertainty in the process of deciding whether to require an effluent limit EPA has developed a statistical approach to determining a reasonable potential. (Section 6.3.2 p. 102, Appendix of Authorities C)

IEPA did its analysis of the "reasonable potential to exceed" with only two effluent samples and actually did the calculation recommended by U.S. EPA. Based on the fact it was using two samples, IEPA did the math for considering whether it should place a copper limit using the federal technical guidance and found that there was a potential to exceed the acute and

[7] Still further, in this case involving an increased discharge, 35 Ill. Adm. Code 302.105(c)(2)(B)(i) required that IEPA "assure" that narrative standards would not be exceeded.

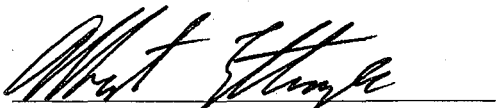
chronic standards for copper. Had IEPA applied the federal guidance, it clearly would have had to place limits in the permit because its calculation showed that there was a reasonable potential for violating standards. Indeed, given the limited amount of data that it looked at, there was a reasonable potential for a discharge that exceeded the *acute* water quality standard by more than 200 percent.(HR 508)[8] Still, IEPA did not put any copper limit in the permit or even establish a monitoring requirement.

The permit does not comply with 35 Ill. Adm. Code 302.105 or 35 Ill. Adm. Code 309.141 because it does not limit all pollutants that may cause or contribute to a violation of the copper standard. And in the permit IEPA certainly did not "assure" that the copper standard would be met as required by 35 Ill. Adm. Code 302.105(c)(2)(B)(i).

CONCLUSION

The Board should reverse the October 31, 2003 decision of the Illinois Environmental Protection Agency ("IEPA") to grant a National Pollutant Discharge Elimination System ("NPDES") permit (Permit No. IL0020559) to the Village of New Lenox to increase its discharge of pollutants into Hickory Creek from its sewerage treatment plant for a number of reasons. The Board should further direct that the Agency reconsider the permit in order to establish conditions and limits necessary to limit nutrient pollution to that consistent with the lowest technologically and economically feasible level, and assure that discharges from New Lenox STP #1 do not violate the standards regarding copper and offensive conditions.

One certainly cannot be said to have assured compliance with a standard by declaring that the standard is "very difficult" to apply.



Albert F. Ettinger (Reg. No. 3125045)
Counsel for Des Plaines River Watershed Alliance, Livable Communities Alliance, Prairie Rivers Network and Sierra Club

DATED: February 4, 2005

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

[8] Had IEPA followed its own rule regarding discharges to the Great Lakes, it would have had to do a mixing zone analysis or place a monitoring requirement in the permit. 35 Ill. Adm. Code 352.421. But IEPA did not do a mixing zone analysis or require monitoring either.

Appendix of Authorities A

ILLINOIS ENVIRONMENTAL PROTECTION AGENCY

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

RENEE CIPRIANO, DIRECTOR

217/782-0610

July 18, 2002

CE 0294 VA LBLS 07/13/2002 MAIL CODE 15
Northeastern Illinois
Planning Commission
222 Riverside Plaza
Suite 1800
Chicago, IL 60606

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

Dear Design Engineer:

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

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

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

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

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

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

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

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

Very truly yours,

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

TGM:DJS:[illegible]

Appendix of Authorities B

United States Environmental Protection Agency

Office of Water (4305)

EPA 823-B-94-005a
August 1994

EPA

Water Quality Standards Handbook:

Second Edition

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

Section 101(a) of the Clean Water Act

Contains Update #1
August 1994

High-quality waters are those whose quality exceeds that necessary to protect the section 101(a)(2) goals of the Act, regardless of use designation. All parameters do not need to be better quality than the State's ambient criteria for the water to be deemed a "high-quality water." EPA believes that it is best to apply antidegradation on a parameter-by-parameter basis. Otherwise, there is potential for a large number of waters not to receive antidegradation protection, which is important to attaining the goals of the Clean Water Act to restore and maintain the integrity of the Nation's waters. However, if a State has an official interpretation that differs from this interpretation, EPA will evaluate the State interpretation for conformance with the statutory and regulatory intent of the antidegradation policy. EPA has accepted approaches that do not use a strict pollutant-by-pollutant basis (USEPA, 1989c).

In "high-quality waters," under 131.12(a)(2), before any lowering of water quality occurs, there must be an antidegradation review consisting of:

- a finding that it is necessary to accommodate important economical or social development in the area in which the waters are located (this phrase is intended to convey a general concept regarding what level of social and economic development could be used to justify a change in high-quality waters);

- full satisfaction of all intergovernmental coordination and public participation provisions (the intent here is to ensure that no activity that will cause water quality to decline in existing high-quality waters is undertaken without adequate public review and intergovernmental coordination); and

- assurance that the highest statutory and regulatory requirements for point sources, including new source performance standards, and best management practices for nonpoint source pollutant controls are achieved (this requirement ensures that the limited provision for lowering water quality of high-quality waters down to "fishable/swimmable" levels will not be used to undercut the Clean Water Act requirements for point source and nonpoint source pollution control; furthermore, by ensuring compliance with such statutory and regulatory controls, there is less chance that a lowering of water quality will be sought to accommodate new economic and social development).

In addition, water quality may not be lowered to less than the level necessary to fully protect the "fishable/swimmable" uses and other existing uses. This provision is intended to provide relief 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. The burden of demonstration on the individual proposing such activity will be very high. In any case, moreover, the existing use must be maintained and the activity shall not preclude the maintenance of a "fishable/swimmable" level of water quality protection.

The antidegradation review requirements of this provision of the antidegradation policy are triggered by any action that would result in the lowering of water quality in a high-quality water. Such activities as new discharges or expansion of existing facilities would presumably lower water quality and would not be permissible unless the State conducts a review consistent with the previous paragraph. In addition, no permit may be issued, without an antidegradation review, to a discharger to high-quality waters with effluent limits greater than actual current loadings if such loadings will cause a lowering of water quality (USEPA, 1989c).

Antidegradation is not a "no growth" rule and was never designed or intended to be such. It is a policy that allows public decisions to be made on important environmental actions. Where the State intends to provide for development, it may decide under this section, after satisfying the

Appendix of Authorities C

United States
Environmental Protection
Agency

Office of Water
(4203)

EPA-833-B-96-003
December 1996

EPA

U.S. EPA NPDES Permit Writers' Manual

General Considerations

When determining whether WQBELs are needed in a permit, the permit writer is required to consider, at a minimum: (1) existing controls on point and nonpoint sources of pollution; (2) the variability of the pollutant or pollutant parameter in the effluent; (3) the sensitivity of the species to toxicity testing; and (4) where appropriate, the dilution of the effluent in the receiving water (40 CFR §122.44(d)(ii)). The permit writer also must consider whether technology-based limits are sufficient to maintain State water quality standards. Finally, the permit writer should consider other available data and information pertaining to the discharger (e.g., compliance history, in-stream survey data, dilution, data from similar facilities) in addition to effluent monitoring data to assist in making an informed reasonable potential determination.

6.3.2 Determining Reasonable Potential With Effluent Monitoring Data

When characterizing an effluent for the need for a WQBEL, the permit writer should use any available effluent monitoring data as well as other information pertaining to the discharge (e.g., type of industry, compliance history, stream surveys) as the basis for a decision. The permit writer may already have effluent data available from previous monitoring, or he or she may decide to require the permittee to generate effluent monitoring data prior to permit issuance or as a condition of the issued permit. EPA recommends monitoring data be generated prior to permit limit development for the following reasons: (1) the presence or absence of a pollutant can be more clearly established or refuted; and (2) effluent variability can be more clearly defined. Data collection should begin far enough in advance of permit development to allow sufficient time for conducting toxicity tests and chemical analyses.

The permit writer can use the available effluent data and a water quality model to perform a reasonable potential analysis. The mass balance equation, presented in **Exhibit 6-2**, is a simple water quality model that can be used for this analysis. The permit writer would use the maximum observed effluent concentration, or a statistically projected worst-case value, to calculate a projected in-stream concentration, under critical stream conditions. The permit writer would then compare the projected receiving water concentration to the applicable water quality criteria to determine whether a water quality-based effluent limit is needed.

EXHIBIT 6-2
Basic Mass Balance Water Quality Equation

$$Q_dC_d + Q_sC_s = Q_rC_r$$

Q_d = waste discharge flow in million gallons per day (mgd) or cubic feet per second (cfs)
C_d = pollutant concentration in waste discharge in milligrams per liter (mg/l)
Q_s = background stream flow in mgd or cfs above point of discharge
C_s = background in-stream pollutant concentration in mg/l
Q_r = resultant in-stream flow, after discharge in mgd or cfs
C_r = resultant in-stream pollutant concentration in mg/l in the stream reach (after complete mixing occurs)

All toxic effects testing and exposure assessment parameters, for both effluent toxicity and individual chemicals, have some degree of uncertainty associated with them. The more limited the amount of data, the larger the uncertainty. To better characterize the effects of effluent variability and reduce uncertainty in the process of deciding whether to require an effluent limit EPA has developed a statistical approach to determining reasonable potential. This approach is described in detail in Chapter 3 of the *Technical Support Document for Water Quality-Based Toxics Control*[18] (hereafter referred to as the "TSD"). The statistical approach combines knowledge of effluent variability with the uncertainty due to a limited number of data to project an estimated maximum concentration for the effluent. This projected maximum concentration, after considering dilution, can then be compared to an appropriate water quality criterion to determine the need for an effluent limit.

Example:

Q_s	=	Available dilution from upstream river flow	= 1.2 cfs
Q_d	=	Discharge flow	= 0.31 cfs
C_s	=	Upstream river concentration	= 0.8 mg/l
C_d	=	Statistically projected maximum discharge concentration	= 2.0 mg/l
C_r	=	Receiving water concentration	
Water Quality Criterion			= 1.0 mg/l

$$C_r = \frac{Q_d\,C_d + Q_s\,C_s}{Q_r} = \frac{(0.31\,cfs)\,(2.0\,mg/l) + (1.2\,cfs)\,(0.8\,mg/l)}{(1.2\,cfs) + (0.31\,cfs)}$$

C_r = 1.05 mg/l

Discussion: Since the downstream concentration (C_r) exceeds the water quality criterion, there is a reasonable potential for water quality standards to be exceeded.

[18]USEPA (1991). *Technical Support Document for Water Quality-Based Toxics Control.* EPA-505/2-90-001. Office of Water Enforcement and Permits.

United States
Environmental Protection
Agency

Office Of Water
(EN-336)

EPA/505/2-90-001
PB91-127415
March 1991

EPA

Technical Support Document For Water Quality-based Toxics Control

3.3.2 Addressing Uncertainty in Effluent Characterization by Generating Effluent Monitoring Data

All toxic effects testing and exposure assessment parameters, for both effluent toxicity and individual chemicals, have some degree of uncertainty associated with them. The more limited the amount of test data available, the larger the uncertainty. The least amount of uncertainty of an effluent's impact on the receiving water exists where (1) a complete data base is available on the effects of acute and chronic toxicity on many indigenous species, (2) there is a clear understanding of ecosystem species composition and functional processes, and (3) actual measured exposure concentrations are available for all chemicals during seasonal changes and dilution situations. The uncertainty associated with such an ideal situation would be minimal. However, generation of these data can be very resource intensive.

An example of uncertainty that results from limited monitoring data is if a regulatory authority has only one piece of effluent data (e.g., an LC_{50} of 50 percent) for a facility. Effluent variability in such a case, given the range of effluent toxicity variability seen in other effluents, may range between 20 percent and 100 percent (see Appendix A). It is impossible to determine from one piece of monitoring data where in this range the effluent variability really falls. More monitoring data would need to be generated to determine the actual variability of this effluent and reduce this source of uncertainty.

To better characterize the effects of effluent variability and reduce uncertainty in the process of deciding whether to require an effluent limit, EPA has developed the statistical approach described below. This approach combines knowledge of effluent variability as estimated by a coefficient of variation with the uncertainty due to a limited number of data to project an estimated maximum concentration for the effluent. The estimated maximum concentration is calculated as the upper bound of the expected lognormal distribution of effluent concentrations at a high confidence level. The projected effluent concentration after consideration of dilution can then be compared to an appropriate water quality criterion to determine the potential for exceeding that criterion and the need for an effluent limit.

The statistical approach has two parts. The first is a characterization of the highest measured effluent concentration based on the desired confidence level. The relationship that describes this is the following:

$$p_n = (1 - \text{confidence level})^{1/n}$$

where p_n is the percentile represented by the highest concentration in the data and n is the number of samples. The following are some examples of this relationship at a 99 percent confidence level:

- The largest value of 5 samples is greater than the 40 percentile
- The largest value of 10 samples is greater than the 63 percentile
- The largest value of 20 samples is greater than the 79 percentile
- The largest value of 100 samples is greater than the 96 percentile.

The second part of the statistical approach is a relationship between the percentile described above and the selected upper bound of the lognormal effluent distribution. EPA's effluent data base suggests that the lognormal distribution well characterizes effluent concentrations (see Appendix E). For example, if five samples were collected (which represents a 40th percentile), the coefficient of variation is 0.6, and the desired upper bound of the effluent distribution is the 99th percentile, then the two percentiles can be related using the coefficient of variation (CV) as shown below:

$$\frac{C_{99}}{C_{40}} = \frac{\exp(2.326\sigma - 0.5\sigma^2)}{\exp(-0.258\sigma - 0.5\sigma^2)} = 4.2$$

where $\sigma = \ln(CV^2+1)$ and 2.326 and -0.258 are the normal distribution values for the 99th and 40th percentiles, respectively. The use of the 99th percentile is for illustrative purposes here. Although it does represent a measure of the upper bound of an effluent distribution, other percentiles could be selected by a regulatory agency. The relationship shown above can be calculated for other percentiles and CVs by replacing the values in the equation.

Tables 3-1 and 3-2 show the combined effects of both parts for a 99-percent confidence level and upper bounds of the 99th and 95th percentiles, respectively. The factors shown in the tables are multiplied by the highest concentration in an effluent sample to estimate the maximum expected concentration.

This procedure can be used for both single and multiple discharges to the same receiving waterbody. This is accomplished for multiple dischargers by summing the projected RWCs for the pollutant or pollutant parameter of concern from each individual discharger, and comparing it to the water quality standard. This involves an assumption of conservative additivity of the pollutant after discharge, which may not accurately reflect the true behavior of the toxicant. To overcome this, and to further refine the proportional contribution of each discharger and the resultant limits, the permitting authority should supplement this evaluation with multiple source WLA modeling and/or ambient water concentration monitoring.

3.3.3 Effluent Characterization for Whole Effluent Toxicity

Once an effluent has been selected for whole effluent toxicity characterization after consideration of the factors discussed above, the regulatory authority should require toxicity testing in accordance with appropriate site-specific considerations and the recommendations discussed below. In the past 5 years, significant additional experience has been gained in generating effluent toxicity data upon which to make decisions as to whether or not an effluent will cause toxic effects in the receiving water in both freshwater and marine environments.

Table 3-1. Reasonable Potential Multiplying Factors: 99% Confidence Level and 99% Probability Basis

Number of	Coefficient of Variation																			
Samples	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0	1.1	1.2	1.3	1.4	1.5	1.6	1.7	1.8	1.9	2.0
1	1.6	2.5	3.9	6.0	9.0	13.2	18.9	26.5	36.2	48.3	63.3	81.4	102.8	128.0	157.1	190.3	227.8	269.9	316.7	368.3
2	1.4	2.0	2.9	4.0	5.5	7.4	9.8	12.7	16.1	20.2	24.9	30.3	36.3	43.0	50.4	58.4	67.2	76.6	86.7	97.5
3	1.4	1.9	2.5	3.3	4.4	5.6	7.2	8.9	11.0	13.4	16.0	19.0	22.2	25.7	29.4	33.5	37.7	42.3	47.0	52.0
4	1.3	1.7	2.3	2.9	3.8	4.7	5.9	7.2	8.7	10.3	12.2	14.2	16.3	18.6	21.0	23.6	26.3	29.1	32.1	35.1
5	1.3	1.7	2.1	2.7	3.4	4.2	5.1	6.2	7.3	8.6	10.0	11.5	13.1	14.8	16.6	18.4	20.4	22.4	24.5	26.6
6	1.3	1.6	2.0	2.5	3.1	3.8	4.6	5.5	6.4	7.5	8.6	9.8	11.1	12.4	13.8	15.3	16.8	18.3	19.9	21.5
7	1.3	1.6	2.0	2.4	2.9	3.6	4.2	5.0	5.8	6.7	7.7	8.7	9.7	10.8	12.0	13.1	14.4	15.6	16.9	18.2
8	1.2	1.5	1.9	2.3	2.8	3.3	3.9	4.6	5.3	6.1	6.9	7.8	8.7	9.6	10.6	11.6	12.6	13.6	14.7	15.8
9	1.2	1.5	1.8	2.2	2.7	3.2	3.7	4.3	5.0	5.7	6.4	7.1	7.9	8.7	9.6	10.4	11.3	12.2	13.1	14.0
10	1.2	1.5	1.8	2.2	2.6	3.0	3.5	4.1	4.7	5.3	5.9	6.6	7.3	8.0	8.8	9.5	10.3	11.0	11.8	12.6
11	1.2	1.5	1.8	2.1	2.5	2.9	3.4	3.9	4.4	5.0	5.6	6.2	6.8	7.4	8.1	8.8	9.4	10.1	10.8	11.5
12	1.2	1.4	1.7	2.0	2.4	2.8	3.2	3.7	4.2	4.7	5.2	5.8	6.4	7.0	7.5	8.1	8.8	9.4	10.0	10.6
13	1.2	1.4	1.7	2.0	2.3	2.7	3.1	3.6	4.0	4.5	5.0	5.5	6.0	6.5	7.1	7.6	8.2	8.7	9.3	9.9
14	1.2	1.4	1.7	2.0	2.3	2.6	3.0	3.4	3.9	4.3	4.8	5.2	5.7	6.2	6.7	7.2	7.7	8.2	8.7	9.2
15	1.2	1.4	1.6	1.9	2.2	2.6	2.9	3.3	3.7	4.1	4.6	5.0	5.4	5.9	6.4	6.8	7.3	7.7	8.2	8.7
16	1.2	1.4	1.6	1.9	2.2	2.5	2.9	3.2	3.6	4.0	4.4	4.8	5.2	5.6	6.1	6.5	6.9	7.3	7.8	8.2
17	1.2	1.4	1.6	1.9	2.1	2.5	2.8	3.1	3.5	3.8	4.2	4.6	5.0	5.4	5.8	6.2	6.6	7.0	7.4	7.8
18	1.2	1.4	1.6	1.8	2.1	2.4	2.7	3.0	3.4	3.7	4.1	4.4	4.8	5.2	5.6	5.9	6.3	6.7	7.0	7.4
19	1.2	1.4	1.6	1.8	2.1	2.4	2.7	3.0	3.3	3.6	4.0	4.3	4.6	5.0	5.3	5.7	6.0	6.4	6.7	7.1
20	1.2	1.3	1.6	1.8	2.0	2.3	2.6	2.9	3.2	3.5	3.8	4.2	4.5	4.8	5.2	5.5	5.8	6.1	6.5	6.8

Table 3-2. Reasonable Potential Multiplying Factors: 99% Confidence Level and 95% Probability Basis

Number of	Coefficient of Variation																			
Samples	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0	1.1	1.2	1.3	1.4	1.5	1.6	1.7	1.8	1.9	2.0
1	1.4	1.9	2.6	3.6	4.7	6.2	8.0	10.1	12.6	15.5	18.7	22.3	26.4	30.8	35.6	40.7	46.2	52.1	58.4	64.9
2	1.3	1.6	2.0	2.5	3.1	3.8	4.6	5.4	6.4	7.4	8.5	9.7	10.9	12.2	13.6	15.0	16.4	17.9	19.5	21.1
3	1.2	1.5	1.8	2.1	2.5	3.0	3.5	4.0	4.6	5.2	5.8	6.5	7.2	7.9	8.6	9.3	10.0	10.8	11.5	12.3
4	1.2	1.4	1.7	1.9	2.2	2.6	2.9	3.3	3.7	4.2	4.6	5.0	5.5	6.0	6.4	6.9	7.4	7.8	8.3	8.8
5	1.2	1.4	1.6	1.8	2.1	2.3	2.6	2.9	3.2	3.6	3.9	4.2	4.5	4.9	5.2	5.6	5.9	6.2	6.6	6.9
6	1.1	1.3	1.5	1.7	1.9	2.1	2.4	2.6	2.9	3.1	3.4	3.7	3.9	4.2	4.5	4.7	5.0	5.2	5.5	5.7
7	1.1	1.3	1.4	1.6	1.8	2.0	2.2	2.4	2.6	2.8	3.1	3.3	3.5	3.7	3.9	4.1	4.3	4.5	4.7	4.9
8	1.1	1.3	1.4	1.6	1.7	1.9	2.1	2.3	2.4	2.6	2.8	3.0	3.2	3.3	3.5	3.7	3.9	4.0	4.2	4.3
9	1.1	1.2	1.4	1.5	1.7	1.8	2.0	2.1	2.3	2.4	2.6	2.8	2.9	3.1	3.2	3.4	3.5	3.6	3.8	3.9
10	1.1	1.2	1.3	1.5	1.6	1.7	1.9	2.0	2.2	2.3	2.4	2.6	2.7	2.8	3.0	3.1	3.2	3.3	3.4	3.6
11	1.1	1.2	1.3	1.4	1.6	1.7	1.8	1.9	2.1	2.2	2.3	2.4	2.5	2.7	2.8	2.9	3.0	3.1	3.2	3.3
12	1.1	1.2	1.3	1.4	1.5	1.6	1.7	1.9	2.0	2.1	2.2	2.3	2.4	2.5	2.6	2.7	2.8	2.9	3.0	3.0
13	1.1	1.2	1.3	1.4	1.5	1.6	1.7	1.8	1.9	2.0	2.1	2.2	2.3	2.4	2.5	2.5	2.6	2.7	2.8	2.9
14	1.1	1.2	1.3	1.4	1.4	1.5	1.6	1.7	1.8	1.9	2.0	2.1	2.2	2.3	2.3	2.4	2.5	2.6	2.6	2.7
15	1.1	1.2	1.2	1.3	1.4	1.5	1.6	1.7	1.8	1.8	1.9	2.0	2.1	2.2	2.2	2.3	2.4	2.4	2.5	2.5
16	1.1	1.1	1.2	1.3	1.4	1.5	1.6	1.6	1.7	1.8	1.9	1.9	2.0	2.1	2.1	2.2	2.3	2.3	2.4	2.4
17	1.1	1.1	1.2	1.3	1.4	1.4	1.5	1.6	1.7	1.7	1.8	1.9	1.9	2.0	2.0	2.1	2.2	2.2	2.3	2.3
18	1.1	1.1	1.2	1.3	1.3	1.4	1.5	1.6	1.6	1.7	1.7	1.8	1.9	1.9	2.0	2.0	2.1	2.1	2.2	2.2
19	1.1	1.1	1.2	1.3	1.3	1.4	1.5	1.5	1.6	1.6	1.7	1.8	1.8	1.9	1.9	2.0	2.0	2.0	2.1	2.1
20	1.1	1.1	1.2	1.2	1.3	1.4	1.4	1.5	1.5	1.6	1.7	1.7	1.8	1.8	1.8	1.9	1.9	2.0	2.0	2.0

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.	)	

STATEMENT OF RELEVANT FACTS FROM THE AGENCY RECORD

Petitioners state that the following facts are established by the Agency Record. All citations are to that 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)

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

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)

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

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.

Offensive Conditions/Algal Blooms

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

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)

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)

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)

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)

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)

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)

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)

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)

15. Hickory Creek also violated pH standards by exceeding a pH of 9, likely as the result of

algal activity. (HR 126)

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)

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).

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)

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).

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)

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)

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)

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)

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)

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

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)

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)

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)

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)

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)

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)

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)

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)

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)

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."

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)

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)

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.

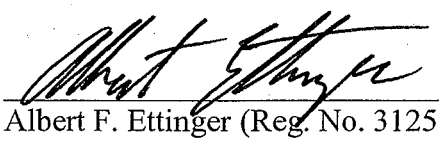
39. The final permit allowed a monthly daily average increase of 82 lbs of CBOD5 and did not place any limit on the discharge of CBOD5 other that the effluent limit of 35 Ill. Adm. Code.304.120. (HR 342-3)

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.

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)

CERTIFICATE OF SERVICE

I, Albert F. Ettinger, certify that on December 21, 2004, I filed the attached MOTION FOR SUMMARY JUDGEMENT, MEMORANDUM IN SUPPORT OF SUMMARY JUDGEMENT, and STATEMENT OF RELEVANT FACTS FROM 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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