

**Environmental Law and Policy Center, Midwest Environmental
Advocates, Minnesota Center for Environmental Advocacy, Natural
Resource Defense Council, Sierra Club**

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Tinka G. Hyde
Director, Water Division
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Attn: WN-16J
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Dear Tinka:

Our recent review of United States Environmental Protection Agency (USEPA or EPA) policies regarding the control of nutrient pollution through NPDES permits, as expressed over the last 5 years in EPA regulatory guidance, USEPA actions in Florida and USEPA letters to state regulatory officials, has made clear that there is a wide chasm between USEPA's stated expectations for states and what Region V states are actually doing to limit such pollution. This problem is particularly apparent in states' failure to include phosphorus and nitrogen water quality based effluent limits (WQBELs) in state-issued NPDES permits where necessary to ensure a discharge does not cause or contribute to a violation of water quality standards in the receiving water and downstream waters. While we acknowledge that some of the Region V states have taken steps to control nutrient pollution and that nonpoint pollution is a major part of the problem, in critical respects Region V states appear attached to practices and viewpoints that virtually guarantee that standards will not be met and point source nutrient pollution will not be properly addressed any time in the foreseeable future.

It is imperative the USEPA act to correct this situation by:

- Issuing clear guidance (or in some cases repeating clear guidance) to states on USEPA's expectations for incorporating water quality based effluent limits in NPDES permits sufficient to protect immediate and downstream receiving waters;
- Reviewing and, as needed, objecting to draft NPDES permits in which states have not incorporated necessary WQBELs;
- Establishing numeric criteria under Clean Water Act (CWA) Section 303(c) for, at minimum, states that persist in refusing to write permit limits based on narrative criteria; or
- Withdrawing NPDES permit-writing authority under 40 CFR § 123.63 from states that simply cannot find a way to write permits that comply with federal law.

Federal Law as enunciated by EPA regulations and policy statements

A brief review of relevant law and policy is offered to help frame the discussion regarding the problems we are seeing in our respective states. The CWA principles at issue here were

succinctly stated in the enclosure to the July 25, 2012 letter of Regional Administrator Susan Hedman to Cathy Stepp, Secretary of the Wisconsin Department of Natural Resources (WDNR) that states:

Sections 301 and 402 of the CWA require NPDES permits to include effluent limitations as needed for discharges to meet water quality standards. The regulation at 40 C.F.R. § 122.44(d) requires the permit issuing agency to (1) determine whether point source discharges will cause, have a reasonable potential to cause, or contribute to an excursion beyond applicable water quality criteria; and (2) when the agency makes an affirmative determination, set WQBELs that are derived from and comply with water quality standards. (p.6)

Three corollaries should be mentioned here. First, applicable water quality criteria include narrative criteria as well as numeric. As you stated in your January 21, 2011 letter to Marcia Willhite, Chief of the Bureau of Water of the Illinois Environmental Protection Agency (IEPA), “[40 CFR §122.44(d)] applies whether the relevant criteria are expressed numerically or in a narrative fashion.” (p.1).

Second, the discharge at issue need only “contribute” to the exceedance. As stated by Kevin Pierard, Chief of the Region 5 NPDES Programs Branch, in writing about certain combined sewer overflows:

[R]egardless of whether MMSD’s CSOs would, by themselves, cause exceedances of criteria, the discharges contribute to exceedances of numeric criteria for bacteria. National Pollutant Discharge Elimination System (NPDES) regulations require that when discharges will cause, have the reasonable potential to cause or contribute to water quality standards exceedance, water quality-based effluent limits must be included in the permit (see 40 CFR §122.44(d)). NPDES regulations further provide that, when reasonable potential exists, the permit must include effluent limits that are “derived from, and comply with all applicable water quality standards. 40 CFR §122.44(d)(1)(vii)(A).

Third, permit limits must protect all downstream waters, even those in other states. “40 CFR §122.4(4) prohibits issuance of permits when the imposition of conditions cannot ensure compliance with the applicable water quality requirements of all affected states.” (Enclosure to July 25, 2012 Hedman letter to Stepp, p.3) This principle has particular relevance in Region 5. As stated by Deputy Assistant Administrator Michael H. Shapiro in a July 29, 2011 letter denying a citizen petition requesting that EPA establish numeric nutrient criteria for Mississippi Basin states, “[C]oncerns [regarding nutrient pollution] are nationwide in scope but have particular relevance to the Mississippi Basin, where nutrient loadings to the Mississippi River and its tributaries are both harming upstream water quality and contributing significantly to hypoxia (or the ‘dead zone’) in the Gulf of Mexico.” (p. 2)

Protection of proximate and downstream waters cannot be achieved passively. The permitting agency must affirmatively determine whether downstream waters will be adversely affected by the discharge at issue. As you wrote to Ms. Willhite, “EPA expects that Illinois EPA will follow 40 CFR §122.44(d) when it develops permits for nutrient discharges. Specifically, Illinois EPA must: (1) determine whether nutrient discharges will cause, have a reasonable potential to cause, or contribute to an excursion beyond the criteria in 35 Ill. Adm. Code §302.203 or §302.205 in proximate and downstream waters ...” (p.2)¹

Finally, it must be emphasized that technology based effluent limits, while very useful, are not a substitute for water quality based effluent limits. The CWA requires that permits contain the more stringent of technology-based limits and water-quality based limits. 33 U.S.C. §1311(b)(1)(C), 40 CFR §122.44(d), USEPA NPDES Permit Writer’s Manual Chapter 6. This is particularly important as to POTW discharges for which technology-based effluent limits have not been updated to recognize technological improvements since the Ford Administration. Indeed, USEPA has recently denied a citizen petition for updated effluent standards for POTWs based in large part on the argument that “[t]he CWA requires application of effluent limitations for nutrients that are met by using advance treatment where necessary to meet applicable water quality standards. ... Specifically, where secondary treatment is insufficient to protect the quality of the receiving waterbody, POTWs must meet any more stringent water-quality based limits derived to achieve water quality standards.” Letter of Michael H. Shapiro, Deputy Assistant Administrator, to Ann Alexander, December 14, 2012.

Lack of implementation of federal requirements by Region 5 states

Despite repeated communications from Region 5 officials regarding the requirements of federal law, it is now clear that states are not implementing these requirements.

Illinois

USGS has found that Illinois contributes more pollutants to the Gulf of Mexico Dead Zone than any other state.² In addition, numerous Illinois waters were found likely to be impaired by nutrient pollution in the latest approved Illinois 303(d) list. Unfortunately, while some reductions in nutrient pollution loadings have been made in Illinois and some promises have

¹ With regard to the permits at issue here, there are already proven downstream impairments or the relevant state has failed to determine if there is one. However, even if it is known that currently all downstream waters are healthy, it is not appropriate to wait until a downstream water impairment develops before determining potential impacts. As stated in a March 1, 2011 letter by Acting Assistant Administrator Nancy Stoner to Ronald F. Peck, Executive Director of the New England Interstate Water Pollution Control Commission, “The Agency’s primary concern with this approach is that waiting for visible algal growth or an alteration in the biological community ensures that the designated use is already impaired before action is take to reduce nitrogen and phosphorus loading. It takes a significant amount of time and resources for a waterbody to recover once visible signs of nitrogen and phosphorus enrichment are demonstrated.”(p.2)

² Robertson, D.E., Schwarz, G.E. and Alexander, R.B., Incorporating Uncertainty into the Ranking of Sparrow Model Nutrient Yields from Mississippi/Atchafalaya River Basin Watersheds, Journal of the American Water Resources Association, Vol. 45, No. 2 April 2009,

been made for further reductions³, Illinois has been recalcitrant in refusing to commit to the protection of water quality standards and downstream waters.

IEPA does not study or require permit applicants to study whether the discharge of nutrient pollution may cause or contribute to violations of state narrative or dissolved oxygen criteria or may harm downstream uses. As a result, IEPA has proposed numerous draft NPDES permits that allow nutrient discharges at levels known to cause impairments even when there are known impairments in proximate or downstream waters. In other cases, IEPA has failed to do the work needed to determine if there are proximate or downstream impairments or if the discharges it proposes would continue or exacerbate violations of narrative water quality standards or violations of dissolved oxygen standards.⁴

Currently, we are aware of at least the following draft permits for which no nutrient limit has been proposed by IEPA despite known impairments or lack of information regarding downstream waters:

- Metropolitan Water Reclamation District of Greater Chicago (MWRD) – Calumet
- MWRD – North Side
- MWRD – Stickney
- West Chicago Regional STP
- North Shore Sanitary District- Clavey Road STP
- Springfield Metro Sanitary District- Sugar Creek STP
- City of Belleville STP # 1

In those few cases in which IEPA does set a permit limit for nutrient pollution, the limit is 1.0 mg/L for total phosphorus (TP). This limit is clearly based on what could easily be achieved using decades old technology. Certainly, a limit of 1.0 mg TP/L cannot be justified in general as a water quality-based effluent limit. The criteria set by USEPA in Florida, even in phosphate mining regions, are considerably below 1.0 mg/L. The USEPA TP criteria proposed in 2000 and 2001 for eco-regions including Illinois were all far below 1.0 mg/L; the Wisconsin criteria for small streams and rivers are, respectively, 0.075 and 0.1 mg/L; and the Illinois criterion for lakes is 0.05 mg/L.⁵ A discharge of 1.0 mg/L TP can only be tolerated if there is very substantial dilution with water relatively free of phosphorus.

³ The Metropolitan Water Reclamation District (MWRD) has agreed to test the Demon technology to remove nitrogen at its Egan plant according to a Dec. 19, 2012 MWRD press release.

⁴ In failing even to require dischargers to determine if their discharges are impacting downstream waters or to develop plans addressing known impairments, Illinois appears to be especially deficient. While, as the result of a permit appeal and the threat of a state-written TMDL, Illinois Fox River cities have participated in studies to determine a plan for ending Fox River impairments, this is to our knowledge the only instance in which IEPA has required dischargers to act to assure that their discharges are not causing or contributing to nutrient caused impairments. In contrast, WDNR has required the Milwaukee Metropolitan Sanitary District to do phosphorus TMDLs for the water bodies that are impacted by its discharges. Certainly, no less should be required of Illinois dischargers discharging phosphorus to nutrient impaired waters such as the Chicago River and the Des Plaines River.

⁵ See also, Miltner, R.J. (2010). A method and rationale for deriving nutrient criteria for small rivers and streams in Ohio. *Environmental Management* (DOI 10.1007/s00267-010-9439), Dodds, W. K. (2006) Eutrophication and trophic state in rivers and streams. *Limnology and Oceanography* 51: 671-680.

Recently, Region 1 disapproved a TMDL that did not provide reasonable assurance that Lake Champlain would be protected from phosphorus pollution because it relied too heavily on uncertain nonpoint load reductions. In doing so, Region 1 decided that the waste load allocation (WLA) had to be redone, stating, “Most of the WLAs for treatment plants in the final TMDL were based on the plants’ design flows with effluent concentrations of 0.6 mg/L or 0.8 mg/L of phosphorus (depending on the facility), well above levels that would otherwise be required in the absence of nonpoint source load reductions, and also well above what was technologically feasible [in 2002].” Reconsideration of EPA’s Approval of Vermont’s 2002 Lake Champlain Phosphorus Total Maximum Daily Load (TMDL) and Determination to Disapprove the TMDL (Jan. 24, 2011) (p. 8). *See also Upper Blackstone Water Pollution Abatement District v. USEPA* (1st Cir. 2012) (upholding 0.1 mg/L TP effluent limit set by USEPA to restore a P-impacted water body).

It may be that some small or exceptional dischargers could be allowed to discharge as much as 1 mg/L TP. That cannot be determined, however, because IEPA does not calculate what limits are needed to protect the receiving stream or downstream waters. Nor, as is done in the September 2012 Florida Implementation rules, does IEPA make the discharger do so.

No Illinois dischargers should be allowed to discharge if the discharge will cause impairments. Where there is uncertainty as to whether a discharge has caused or will cause or contribute to impairments, IEPA must require that the information be collected to determine what discharges may be allowed without impairing proximate and downstream waters and the development of a plan to assure compliance with water quality standards.

Minnesota

Minnesota does not calculate and impose WQBELs to protect either immediate or downstream receiving waters. The Minnesota Pollution Control Agency (MPCA) has failed to utilize its narrative standard and has steadfastly refused to utilize its draft numeric phosphorus criteria for rivers or any other surrogate to derive WQBELs.⁶

The MPCA has supplied a variety of reasons for its repeated refusals, none of which comport with the requirements of 40 C.F.R. § 122.44(d), as follows:

- A TMDL has not yet been developed for an impaired waterbody;
- Minnesota lacks a standard for phosphorus in rivers, therefore there are no violations of any water quality standard to which a discharger is contributing;
- A 1 mg/L limit would be protective if massive nonpoint source reductions occurred in the watershed of the affected stream;
- The draft river eutrophication standards cannot be used because:
 - They may change;

⁶ This topic is exhaustively presented in a petition for corrective action or de-delegation by the Minnesota Center for Environmental Advocacy to the USEPA filed October 5, 2009. To date, USEPA has not responded to the petition.

- Guidance for implementation of the proposed standards has not been developed;
- To do so would represent unpromulgated rulemaking.

Recent permits lacking a QBEL for phosphorus based on one or more of the above include:

- Browerville WWTP;
- Buffalo Lake WWTP;
- Dawson WWTP;
- Faribault WWTP;
- Litchfield WWTP;
- Owatonna WWTP; and
- Winnebago WWTP

Wisconsin

Wisconsin’s position is that phosphorus QBELs to protect downstream waters are optional. WDNR has failed to impose such limits in several WPDES permits and has justified this failure due to a lack of state guidance for developing such limits absent a TMDL.

For example WDNR, in one recent Notice of Final Determination stated:

Note also that pursuant to s. NR 217.13 (b), Wis. Adm. Code, the Department must calculate QBELs based on the applicable phosphorus criteria at the point of discharge, except the Department may calculate limits to protect downstream waters. *The latter approach is optional.* Foremost Farms NFD at p. 2 (July 18, 2012) (emphasis added).

The Department acknowledged that state guidance “recommends phosphorus QBELs be based on downstream water quality criteria when the discharge is upstream of a reservoir or lake,” but the state decided that instead it would wait several years for a TMDL to be developed “rather than imposing QBELs based on downstream water quality criteria...” *Id.* The State has relied on the same rationale to justify its failure to include effluent limits to protect downstream waters in a number of recent permits.

In a November 2012 letter to WDNR, EPA Region 5 clearly explained state and federal regulatory and statutory requirements for calculating and imposing water quality based effluent limits to ensure that a discharge does not cause or contribute to a violation of water quality standards in downstream waters. In that letter EPA Region 5 explained that the phosphorus QBEL contained in the draft WPDES permit for the City of Oshkosh was inconsistent with state and federal Clean Water Act requirements insofar as the limit failed to protect downstream waters in Lake Winnebago. Yet, even after receiving this letter, WDNR issued a WPDES permit to Domtar LLC on December 26, 2012 without making any assessment of the need for phosphorus QBELs to protect an impaired flowage approximately 10 miles downstream. In justifying this decision WDNR stated “[w]hile

Department guidance recommends phosphorus WQBELs be based on downstream water quality criteria when the discharge is upstream from a reservoir or lake, the guidance currently does not contain procedures calculating such limits short of a TMDL that addresses both point and nonpoint source impacts on downstream water quality criteria.” Domtar NFD at p. 3 (Dec. 26, 2012).

In closing, we note that Nancy K. Stoner, in her memo of March 16, 2011 “Working in Partnership with States to Address Phosphorus and Nitrogen Pollution through Use of a Framework for State Nutrient Reductions”, wrote that “where states are willing to step forward” USEPA can most effectively assist “motivated states” by providing technical assistance, dialog and cooperative efforts with agencies like the United States Department of Agriculture (USDA). (p.2). This may be true, however, the converse of this is certainly true. States that have trouble stepping forward require direct USEPA intervention to assure that permits that harm water quality and violate federal law are not issued. The waters of Illinois, Minnesota, and Wisconsin require this direct form of assistance and USEPA action to assure that permitted discharges from those states are not allowed to harm downstream waters.

Sincerely,



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cc: Susan Hedman, Regional Administrator
Nancy K. Stoner, Acting Assistant Administrator
Kenneth Johnson, WDNR
Lisa Thorvig, MPCA
Marcia Willhite, IEPA

Attachment A:
Discussion of Illinois Regulations

In two provisions, the Illinois Code on first glance appears to provide that IEPA may not set phosphorus effluent limits in NPDES permits to be more stringent than 1.0 mg/L TP. However, in view of the command of 35 Ill. Adm. Code §309.141 that IEPA place limits in NPDES permits as required by federal law, IEPA must set phosphorus limits at levels more stringent than 1 mg/L TP when it is necessary, under 40 CFR §122.44(d) or other federal provisions, for IEPA to do so to prevent granting a permit allowing discharges that may cause or contribute to a violation of water quality standards.

I. The Illinois Lake Phosphorus Standard

The Illinois Lake phosphorus standard, 35 Ill. Adm. Code §302.205, provides

Phosphorus (STORET number 00665): After December 31, 1983, Phosphorus as P shall not exceed 0.05 mg/l in any reservoir or lake with a surface area of 8.1 hectares (20 acres) or more, or in any stream at the point where it enters any such reservoir or lake. For the purposes of this Section, the term "reservoir or lake" shall not include low level pools constructed in free flowing streams or any body of water which is an integral part of an operation which includes the application of sludge on land. Point source discharges which comply with Section 304.123 shall be in compliance with this Section for purposes of application of Section 304.105.

Although developed decades ago, the Illinois 0.05 mg/L lake criterion appears to be reasonable. Other standards and studies of the effect of phosphorus in lakes show that levels of TP above 0.05 mg/L are likely to cause impairments of aquatic life and recreation uses.¹

The third sentence of §302.205 apparently causes a problem because Section 304.12(b) requires compliance only with a 1 mg/L P effluent limit. §304.105 is an Illinois provision requiring compliance with state water quality standards. It states that, "In addition to the other requirements of this part, no effluent shall, alone or in combination with other sources cause a violation of any applicable water quality standard." Thus, if one read only §302.205, §304.123(b) and §304.105, one might believe IEPA may not place a limit tighter than 1 mg/L on P. This would be unfortunate because obviously in many cases there would have to be 20:1 dilution to avoid violation of the 0.05 mg/L lake phosphorus criteria.

However, §304.105 is not the only provision of the Illinois regulations that set limits on what effluents IEPA may allow. Illinois regulations also provide:

Section 309.141 Terms and Conditions of NPDES Permits

¹ For comparison, based on recent science, Wisconsin in 2009 set a lake standard for phosphorus of 0.04 mg/L for reservoirs and certain lakes. NR 102.06(4).

In establishing the terms and conditions of each issued NPDES Permit, the Agency shall apply and ensure compliance with all of the following, whenever applicable:

- a) Effluent limitations under Sections 301 and 302 of the CWA;
- b) Standards of performance for new sources under Section 306 of the CWA;
- c) Effluent standards, effluent prohibitions, and pretreatment standards under Section 307 of the CWA;
- d) Any more stringent limitation, including those:
 - 1) necessary to meet water quality standards, treatment standards, or schedules of compliance, established pursuant to any Illinois statute or regulation (under authority preserved by Section 510 of the CWA),
 - 2) necessary to meet any other federal law or regulation, or
 - 3) required to implement any applicable water quality standards, such limitations to include any legally applicable requirements necessary to implement total maximum daily loads established pursuant to Section 303(d) of the CWA and incorporated in the continuing planning process approved under Section 303(e) of the CWA and any regulations or guidelines issued pursuant thereto;

Because giving an NPDES permit allowing a discharge that caused a violation of the 0.05 mg/L lake phosphorus standard would plainly violate Section 302 of the CWA and 40 CFR §122.44(d), it would appear that IEPA must place into permits whatever limit is necessary to prevent violation of the standard to comply with §301.141(d)(1) and (2).

It may be argued that, because the third sentence of §302.205 provides that discharges in compliance with the 1 mg/L P limit shall not be deemed to violate the lake phosphorus standard, allowing a discharge of 1 mg/L P does not violate the federal regulations prohibiting allowing discharges that cause or contribute to violations of water quality standards. However, this requires claiming that the third sentence of §302.205 is part of the water quality criterion when it is obviously an implementation rule.

Certainly, there could be no “sound scientific rationale” (40 CFR 131.11) for the third sentence of §302.205 as part of the criterion and it is impossible that USEPA approved it as such. While the sentence does appear in the part of the Illinois Code containing water quality standards, holding that the third sentence of §302.205 is part of the water quality criterion would

necessarily mandate that USEPA establish a new criterion for Illinois lakes under Section §303(c)(4) of the Clean Water Act.

On the other hand, accepting the natural reading of the third sentence of §302.205 that it is an implementation rule, leads to the conclusion that IEPA should not impose a tighter phosphorus effluent limit than 1 mg/L to satisfy §304.105 but should do so when necessary to satisfy §309.141 or other provisions of Illinois law.

II. The Illinois Interim Phosphorus Effluent limit provision - §304.123(f)-(k)

In 2006, Illinois adopted an interim phosphorus effluent rule, which it was expected would be in effect until numeric standards were adopted in 2008. See letter of Tinka Hyde to Marcia Willhite of January 21, 2011 (p. 2) That interim effluent standard includes language that:

- g) Except as provided in subsection (h) of this Section, any new or expanded discharges into General Use waters from the following treatment works not covered by subsections (b) through (f) of this Section, are subject to monthly average permit limits for total phosphorus of 1 mg/l ...
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- h) Discharges qualifying under subsections (g)(1) and (g)(2) of this Section may not be subject to the requirements of subsection (g) of this Section provided the discharger demonstrates that phosphorus from treatment works is not the limiting nutrient in the receiving water. The Agency may impose alternative phosphorus effluent limits where the supporting information shows that alternative limits are warranted by the aquatic environment in the receiving stream.
- i) No additional phosphorus limitations are required pursuant to Sections 304.105 and 35 Ill. Adm. Code 302.203 for the discharges that comply with the requirements of subsection (g) or (h) of this Section.
- j) The provisions of subsections (g), (h), and (i) of this Section apply until such time as the Board adopts a numeric water quality standard for phosphorus and the adopted standard is approved by the USEPA.

Again, an initial reading of this language in isolation might lead to the conclusion that Illinois regulations now preclude a total phosphorus limit more stringent than the 1 mg/L as to any discharger covered by subsection (g) or (h) of the rule. This conclusion, however, would be incorrect for two reasons. First, the second sentence of 35 Ill. Adm. Code 304.123 (h) provides that IEPA may impose alternative phosphorus limits where supporting information shows that they are necessary. Second, nothing in the rule precludes imposing phosphorus limits necessary to comply with federal law as is required of IEPA by 35 Ill. Adm. Code 309.141. So again, while phosphorus limits may not be made more stringent than 1 mg/L to meet the requirements of Section 304.105, they may be made more stringent than that to meet the requirements of 40 CFR 122.44(d) and other provisions of federal law.

Holding that Section 304.123 precludes IEPA from requiring effluent limits more stringent than 1.0 mg/l TP, is not consistent with the Illinois Code taken as a whole. Also, adoption of such a reading would plainly mandate that USEPA adopt new standards for Illinois.