

Appendix A
CURRENT AND PROPOSED PHOSPHORUS LIMITS

Current Effluent Limits:

Section 304.123 Phosphorus (STORET number 00665)

- a) No effluent discharge within the Lake Michigan Basin shall contain more than 1.0 mg/l of phosphorus as P.
- b) No effluent from any source which discharges to a lake or reservoir with a surface area of 8.1 hectares (20 acres) or more, or to any tributary of such a lake or reservoir whose untreated waste load is 2500 or more population equivalents, and which does not utilize a third-stage lagoon treatment system as specified in subsections 304.120(a) and (c), shall exceed 1.0 mg/l of phosphorus as P; however, this subsection shall not apply where the lake or reservoir, including any side channel reservoir or other portion thereof, on an annual basis exhibits a mean hydraulic retention time of 0.05 years (18 days) or less.
- c) Pursuant to Section 28.1 of the Environmental Protection Act (Act) [415 ILCS 5/28.1], the owner or operator of any source subject to subsection (b) of this Section may apply for an adjusted standard. In addition to the proofs specified in Section 28.1(c) of the Act [415 ILCS 5/28.1(c)], such application shall, at a minimum, contain adequate proof that the effluent resulting from grant of the adjusted standard will not contribute to cultural eutrophication, unnatural plant or algal growth or dissolved oxygen deficiencies in the receiving lake or reservoir. For purposes of this subsection (c), such effluent shall be deemed to contribute to such conditions if phosphorus is the limiting nutrient for biological growth in the lake or reservoir, taking into account the lake or reservoir limnology, morphological, physical and chemical characteristics, and sediment transport. However, if the effluent discharge enters a tributary at least 40.25 kilometers (25 miles) upstream of the point at which the tributary enters the lake or reservoir at normal pool level, such effluent shall not be deemed to contribute to such conditions if the receiving lake or reservoir is eutrophic and phosphorus from internal regeneration is not a limiting nutrient.
- d) For the purposes of this Section the term "lake or reservoir" 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.

e) Compliance with the limitations of subsection (b) of this Section shall be achieved by the following dates:

- 1) Sources with the present capability to comply shall do so on the effective date of this Section;
- 2) All other sources shall comply as required by NPDES permit.

f) For purposes of this Section, the following terms shall have the meanings specified:

- 1) "Dissolved oxygen deficiencies" means the occurrence of a violation of the dissolved oxygen standard applicable to a lake or reservoir.

(BOARD NOTE: Dissolved Oxygen standards for general use waters are set forth at 35 Ill. Adm. Code 302.206; Dissolved Oxygen standards for secondary contact or indigenous aquatic life waters are set forth at 35 Ill. Adm. Code 302.405.)

- 2) "Euphotic zone" means that region of a lake or reservoir extending from the water surface to a depth at which 99% of the surface light has disappeared or such lesser depth below which photosynthesis does not occur.
- 3) "Eutrophic" means a condition of a lake or reservoir in which there is an abundant supply of nutrients, including phosphorus, accounting for a high concentration of biomass.
- 4) "Eutrophication" means the process of increasing or accumulating plant nutrients in the water of a lake or reservoir. Cultural eutrophication is eutrophication attributable to human activities.
- 5) "Internal regeneration" means the process of conversion of phosphorus or other nutrients in sediments of a lake or reservoir from the particulate to the dissolved form and the subsequent return of such dissolved forms to the euphotic zone.
- 6) "Limiting nutrient" means a substance which is limiting to biological growth in a lake or reservoir due to its short

supply or unavailability with respect to other substances necessary for the growth of organisms.

- 7) "Unnatural plant or algal growth" means the occurrence of a violation of the unnatural sludge standard applicable to a lake or reservoir with respect to such growth.

(BOARD NOTE: Unnatural sludge standards for general use waters are set forth at 35 Ill. Adm. Code 302.203; unnatural sludge standards for secondary and indigenous aquatic life waters are set forth at 35 Ill. Adm. Code 302.403.)

- 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:

- 1) Treatment works with a Design Average Flow of 1.0 million gallons per day or more receiving primarily municipal or domestic wastewater; or
- 2) Any treatment works, other than those treating primarily municipal or domestic wastewater, with a total phosphorus effluent load of 25 pounds per day or more.
- 3) For purposes of this subsection:
 - A) A new discharge means a discharge from a treatment works constructed after February 2, 2006.
 - B) An expanded discharge means a discharge from any existing treatment works that would be greater than the flowrates permitted prior to February 2, 2006.

- 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.
- k) The averaging rules under subsections (a)(2) and (a)(3) of Section 304.104 do not apply to permit limits established pursuant to subsection (g) or (h) of this Section.

(Source: Amended at 30 Ill. Reg. 2365, effective February 2, 2006)

Proposed Future Effluent Limits (with IAWA comments on IEPA proposed regulations)

June 17, 2008

Marcia T. Willhite, Chief
Bureau of Water
Illinois Environmental Protection Agency
P. O. Box 19276
Springfield, IL 62794-9276

Dear Marcia:

As you are aware the Illinois Association of Wastewater Agencies ("IAWA") is comprised of over 60 sanitary districts and municipalities that provide sanitary waste water treatment to over 8.5 million people in Illinois. IAWA and its member agencies therefore have a very important role in the determination of possible nutrient controls to be imposed in Illinois. IAWA has taken an active role in the stake holder process to date and expects that it will continue to do so if and when the Illinois Environmental Protection Agency ("IEPA") proposes regulations to the Pollution Control Board ("PCB"). IAWA remains very concerned that nutrient rules may be proposed for the sake of proposing such rules when there does not exist any scientific basis for such rules for the majority of Illinois receiving streams as has been clearly shown by the many years of scientific study by a number of groups to date. Studies intended to establish a relationship between in stream nutrient concentrations and biologic quality have failed to find a statistical correlation.

What has been shown by this research is that the key issue and limiting factor is habitat quality not nutrient loadings for the majority of Illinois streams. We should be spending the necessary resources to improve habitat if we are to improve aquatic resources here in Illinois. The same was clearly shown in the DO rulemaking proceeding as well. In addition to habitat improvement, IAWA continues to believe that we should also move forward with the use of green alternatives including construction of wetlands on both a plant scale and larger wetland farm type scale such as that in operation along the Illinois River near Hennepin rather than focus on grey approaches just because it is technically feasible to treat nutrients. Much has been said concerning the need to move to watershed planning by the environmental groups, the United States Environmental Protection Agency ("USEPA") and by your agency, yet nowhere in any of the scenarios discussed to date is there any mention of this important concept as it applies to the nutrient question. If nutrient control is

demonstrated to be necessary in a given watershed, such an approach would allow for the consideration of green alternatives and for possible nutrient trading as well.

IAWA believes that the environmental group proposal is totally without merit and would represent an unconscionable waste of public money with no environmental benefit.

IAWA has carefully reviewed both scenarios that IEPA presented, and while it has serious reservations concerning the technical evidence to support the adoption of either one, IAWA believes that if IEPA is going to proceed with a proposal it should carefully consider a combination of both into one approach. Attached to this letter is an attempt to combine them into one proposal.

We would also like to point out that while the IEPA appears committed to retaining an exemption for three cell lagoons, there may exist a need to review this commitment to the extent that IEPA may want to consider that such dischargers should show that their effluent is in fact not causing a nutrient enrichment problem at the time of permit re-issuance.

IAWA members are, by definition, committed to cleaning the aquatic environment. When there is a demonstrated problem associated with our discharges, we will fix it. However, IEPA must recognize that imposing regulations without there being improvement in the aquatic environment is contrary to its reason for existence. Such a regulation harms the environment by generating waste, consuming natural resources needlessly, and burdening the earth with wasted energy resulting in unwanted environmental damage to the atmosphere. In that regard, IAWA is moving forward with its plan to do a study to document direct and indirect energy costs associated with phosphorus and nitrogen removal treatment technologies to meet nutrient standards and the resulting carbon footprint. The results of this study also need to be considered before implementation of any standard.

IAWA would welcome the opportunity to address any question concerning this letter and the suggestions contained herein.

Very truly yours,

Tim Bachman, Chair
TMDL/Nutrient Sub-Committee
Illinois Association of Wastewater Agencies
Urbana & Champaign Sanitary District
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cc: - Paul Terrio, Illinois EPA Nutrient Standards Coordinator
- Bob Mosher, Manager, Illinois EPA Water Quality Standards

COMBINED SCENARIO A&B

Section 302.205 Phosphorus

- a) ~~Phosphorus (STORET number 00665): After December 31, 1983, Total P~~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.
- b) In all other waters that meet both of the conditions described in subsections (b)(1) and (b)(2) of this Section, except if such waters are classified as quiescent and isolated sectors of General Use waters as indicated in Section 302.206(a) of this Part, total phosphorus standard is X mg/l as P during the season from May through October. Attainment of this standard is determined in accordance with subsection (b)(5) of this Section.
- 1) A dissolved oxygen standard violation and supersaturation occur within 24 hours of each other in more than one 24-hour period and more than one percent of 24-hour periods monitored in a three-year period:
- A) Minimum dissolved oxygen concentration violates an applicable water quality standard of Section 302.206 of this Part.
- B) Maximum dissolved oxygen concentration exceeds solubility of oxygen in water as determined by the following table or another applicable method:

Solubility of oxygen in water at various temperatures and pressures
[In milligrams per liter. Values based on Weiss (1970). C, degrees Celsius;
mmHg, millimeters of mercury]

Temp. C	Atmospheric pressure, mmHg										
	800.0	790.0	780.0	770.0	760.0	750.0	740.0	730.0	720.0	710.0	700.0
0	15.4	15.2	15.0	14.8	14.6	14.4	14.2	14.0	13.8	13.6	13.4
1	14.9	14.7	14.6	14.4	14.2	14.0	13.8	13.6	13.4	13.2	13.1
2	14.5	14.3	14.2	14.0	13.8	13.6	13.4	13.3	13.1	12.9	12.7
3	14.1	14.0	13.8	13.6	13.4	13.3	13.1	12.9	12.7	12.5	12.4
4	13.8	13.6	13.4	13.3	13.1	12.9	12.7	12.6	12.4	12.2	12.0
5	13.4	13.3	13.1	12.9	12.7	12.6	12.4	12.2	12.1	11.9	11.7
6	13.1	12.9	12.8	12.6	12.4	12.3	12.1	11.9	11.8	11.6	11.4
7	12.8	12.6	12.4	12.3	12.1	12.0	11.8	11.6	11.5	11.3	11.1
8	12.4	12.3	12.1	12.0	11.8	11.7	11.5	11.3	11.2	11.0	10.9
9	12.2	12.0	11.8	11.7	11.5	11.4	11.2	11.1	10.9	10.8	10.6
10	11.9	11.7	11.6	11.4	11.3	11.1	11.0	10.8	10.7	10.5	10.4
11	11.6	11.4	11.3	11.2	11.0	10.9	10.7	10.6	10.4	10.3	10.1
12	11.3	11.2	11.0	10.9	10.8	10.6	10.5	10.3	10.2	10.0	9.9
13	11.1	10.9	10.8	10.7	10.5	10.4	10.2	10.1	10.0	9.8	9.7
14	10.8	10.7	10.6	10.4	10.3	10.1	10.0	9.9	9.7	9.6	9.5
15	10.6	10.5	10.3	10.2	10.1	9.9	9.8	9.7	9.5	9.4	9.3

16		10.4	10.2	10.1	10.0	9.8	9.7	9.6	9.5	9.3	9.2	9.1
17		10.2	10.0	9.9	9.8	9.6	9.5	9.4	9.3	9.1	9.0	8.9
18		10.0	9.8	9.7	9.6	9.4	9.3	9.2	9.1	8.9	8.8	8.7
19		9.7	9.6	9.5	9.4	9.3	9.1	9.0	8.9	8.8	8.6	8.5
20		9.6	9.4	9.3	9.2	9.1	8.9	8.8	8.7	8.6	8.5	8.3
21		9.4	9.2	9.1	9.0	8.9	8.8	8.6	8.5	8.4	8.3	8.2
22		9.2	9.1	9.0	8.8	8.7	8.6	8.5	8.4	8.2	8.1	8.0
23		9.0	8.9	8.8	8.7	8.6	8.4	8.3	8.2	8.1	8.0	7.9
24		8.8	8.7	8.6	8.5	8.4	8.3	8.2	8.0	7.9	7.8	7.7
25		8.7	8.6	8.5	8.3	8.2	8.1	8.0	7.9	7.8	7.7	7.6
26		8.5	8.4	8.3	8.2	8.1	8.0	7.9	7.8	7.6	7.5	7.4
27		8.4	8.3	8.2	8.0	7.9	7.8	7.7	7.6	7.5	7.4	7.3
28		8.2	8.1	8.0	7.9	7.8	7.7	7.6	7.5	7.4	7.3	7.2
29		8.1	8.0	7.9	7.8	7.7	7.6	7.5	7.3	7.2	7.1	7.0
30		7.9	7.8	7.7	7.6	7.5	7.4	7.3	7.2	7.1	7.0	6.9

[DOTABLES page](#)

The URL for this page is <http://water.usgs.gov/cgi-bin/dotables>

Web-based program translated by David Boldt from the FORTRAN program prepared by R. Middelburg and entered by D. V. Maddy in 1981

- 2) The water body segment provides all of the following conditions conducive to excessive algal production:
- A) Light availability is not substantially limited by shading and riparian cover. Canopy cover over the stream is measured to be less than 40 percent using standardized methodologies documented in Fitzpatrick and others, 1998.
 - B) Inorganic turbidity in the water column measures less than 30 NTUs during a period when sestonic algae (comprised of either phytoplankton or detached periphyton, or both) is not contributing to the turbidity value.
 - C) Greater than 50 percent of the low-flow stream channel benthic substrate is comprised of particles coarser than silt (>0.063mm).
 - D) The flow regime of the stream during the months of July through September does not include frequent flow episodes capable of scouring or disturbing the benthic substrate and/or removing established periphyton algae, as indicated by a flow-duration analysis using not less than a 5-year period of record. Flows during this period shall not cause near-bed velocities greater than 2.0 fps in streams with predominantly sand substrate or velocities greater than 3.0 fps in streams with predominantly coarser than sand substrate.
- 3) If conditions in subsections (b)(1) and (b)(2) of this Section are not met, no phosphorus standard is applicable under this Section 302.205(b).

- 4) Any water body or water body segment determined to meet the conditions in (b)(1) and (b)(2) is subject to the phosphorus standard until it is demonstrated that the characteristics in (b)(1) or (b)(2) no longer exist due to environmental or habitat changes that preclude excess algae and plant growth or that the determination was the result of measurement error.
- A) In the event that the characteristics in (b)(1) or (b)(2) are demonstrated no longer to exist for any water body or water body segment previously determined to meet them, effluent limitations established for the tributary discharges pursuant to the provisions of 35 Ill. Adm. Code 304.123(g) shall be rescinded.
- 5) Attainment of the total phosphorus standard of this Section 302.205(b):
- A) Seasonal (May through October) average concentration of total phosphorus as P must not exceed the standard except in those waters in which mixing is allowed pursuant to Section 302.102 of this Part.
- B) Attainment of the standard is evaluated by averaging at least six samples collected at approximately monthly intervals or at other sampling intervals that statistically represent the six-month sampling period. The samples must be collected in a manner that assures a representative sampling period.
- c) Compliance of point source discharges with Section 304.123 shall constitute their compliance with this Section for purposes of application of Section 304.105.

The Combined Scenario A&B essentially combines IEPA's Scenarios A and B by requiring both the reactive, dissolved oxygen (DO) trigger of Scenario A and the proactive, habitat trigger of Scenario B. Both the habitat conditions for excessive primary production and the DO consequences of excessive primary production are needed to trigger the applicability of the phosphorus water quality standard in the Combined Scenario. Rather than reiterating the IEPA's commentary on Scenario A and Scenario B, we point out and comment on the differences between this Combined Scenario and IEPA's scenarios.

IAWA notes that the balance between the expediency of determining the applicability of the phosphorus water quality standard and the ability to avoid spurious applicability designations (and effluent limits) needs to be considered. IAWA notes this in the context of the anticipated difficulty of dismissing a previously made determination of applicability, the potentially strict enforcement of antibacksliding and the strength of the antidegradation standard in Illinois, and the likely magnitude of cost for upgrading and operating wastewater treatment facilities to remove phosphorus. IAWA believes that the combination of the two triggers provides the appropriately stronger evidence for the applicability of the water quality standard.

For the same reason, the Combined Scenario does not include the portion of the DO trigger (subsection 302.205(c) of Scenario A) that allows a subjective determination of high algae or biomass in the state of decay on a predominantly overcast day as a trigger. As noted by IEPA in its commentary on Scenario A, "once the phosphorus standard has been applied, a very detailed study would be necessary to dismiss it." IAWA's concern is the imbalance between the potential invitation to accept determinations of applicability that would likely be impossible to dismiss (because how does one prove that on a particular day in the past there in fact was not high biomass in the state of decay, or that such biomass will not be observed in the future) and that would trigger potentially permanent effluent limits on tributary point sources. If phosphorus discharges are causing water quality problems through eutrophication, it should be possible to await the onset of other than predominantly overcast days to make the case for applicability.

Additionally, to better define a feasible method of reversing the determination of applicability if appropriate, the Combined Scenario contains a new requirement that during a three-year period, more than one 24-hour period and more than one percent of the 24-hour periods monitored are needed to trigger the DO condition of applicability. The Combined Scenario also contains a provision rescinding any dependent tributary effluent limitations in the event that the determination of applicability of the water quality standard is reversed.

The Combined Scenario uses "X" instead of a numerical value of the total phosphorus standard for most rivers and streams. IAWA's motivation for avoiding a numerical value at this time is its membership's conclusion that the C-FAR studies do not support a scientifically defensible single value. The Combined Scenario introduces a seasonal (six-month) averaging period in May through October in describing the applicability and determination of attainment of the standard. Phosphorus was characterized in the C-FAR and other studies into its water quality impacts not by peak, short-term concentrations as a toxic compound, but by longer-term, seasonal averages. We also note that the potential but uncertain effects of sorption/desorption and settling/resuspension on phosphorus remobilization after the November through April period would be addressed by the proposed seasonal standard without the need to make the standard year-round. (Should the phosphorus accumulate during off-

season to remobilize to excessive levels during the season of applicability, it would, by definition, violate the seasonal standard.)

The Combined Scenario combines the averaging and seasonality concepts into the application of the seasonal average to judge attainment of the standard. We believe that six monthly samples should provide an adequate representation of ambient concentrations for comparisons with the standard.

While it appears that the availability of mixing will be rare in Illinois, the Combined Scenario allows the theoretical opportunity to utilize mixing for determination of attainment if allowed by Section 302.102. Nonetheless, similar to IEPA's Scenarios A and B, the Combined Scenario provides that compliance with Section 304.123 establishes compliance with this Section for purposes of application of Section 304.105.

Section 304.123 Phosphorus (STORET number 00665)

- a) No effluent discharge within the Lake Michigan Basin shall contain more than 1.0 mg/l of phosphorus as P.
- b) No effluent from any source which discharges to a lake or reservoir with a surface area of 8.1 hectares (20 acres) or more, or to any tributary of such a lake or reservoir whose untreated waste load is 2500 or more population equivalents, and which does not utilize a third-stage lagoon treatment system as specified in subsections 304.120(a) and (c), shall exceed 1.0 mg/l of phosphorus as P; however, this subsection shall not apply where the lake or reservoir, including any side channel reservoir or other portion thereof, on an annual basis exhibits a mean hydraulic retention time of 0.05 years (18 days) or less.
- c) Pursuant to Section 28.1 of the Environmental Protection Act (Act) [415 ILCS 5/28.1], the owner or operator of any source subject to subsection (b) of this Section may apply for an adjusted standard. In addition to the proofs specified in Section 28.1(c) of the Act [415 ILCS 5/28.1(c)], such application shall, at a minimum, contain adequate proof that the effluent resulting from grant of the adjusted standard will not contribute to cultural eutrophication, unnatural plant or algal growth or dissolved oxygen deficiencies in the receiving lake or reservoir. For purposes of this subsection (c), such effluent shall be deemed to contribute to such conditions if phosphorus is the limiting nutrient for biological growth in the lake or reservoir, taking into account the lake or reservoir limnology, morphological, physical and chemical characteristics, and sediment transport. However, if the effluent discharge enters a tributary at least 40.25 kilometers (25 miles) upstream of the point at which the tributary enters the lake or reservoir at normal pool level, such effluent shall not be deemed to contribute to such conditions if the receiving lake or reservoir is eutrophic and phosphorus from internal regeneration is not a limiting nutrient.
- d) For the purposes of this Section the term "lake or reservoir" 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.
- e) Compliance with the limitations of subsection (b) of this Section shall be achieved by the following dates:
 - 1) Sources with the present capability to comply shall do so on the effective date of this Section;
 - 2) All other sources shall comply as required by NPDES permit.
- f) For purposes of this Section, the following terms shall have the meanings specified:
 - 1) "Dissolved oxygen deficiencies" means the occurrence of a violation of the dissolved oxygen standard applicable to a lake or reservoir.

(BOARD NOTE: Dissolved Oxygen standards for general use waters are set forth at 35 Ill. Adm. Code 302.206; Dissolved Oxygen standards for secondary contact or indigenous aquatic life waters are set forth at 35 Ill. Adm. Code 302.405.)

- 2) "Euphotic zone" means that region of a lake or reservoir extending from the water surface to a depth at which 99% of the surface light has disappeared or such lesser depth below which photosynthesis does not occur.
- 3) "Eutrophic" means a condition of a lake or reservoir in which there is an abundant supply of nutrients, including phosphorus, accounting for a high concentration of biomass.
- 4) "Eutrophication" means the process of increasing or accumulating plant nutrients in the water of a lake or reservoir. Cultural eutrophication is eutrophication attributable to human activities.
- 5) "Internal regeneration" means the process of conversion of phosphorus or other nutrients in sediments of a lake or reservoir from the particulate to the dissolved form and the subsequent return of such dissolved forms to the euphotic zone.
- 6) "Limiting nutrient" means a substance which is limiting to biological growth in a lake or reservoir due to its short supply or unavailability with respect to other substances necessary for the growth of organisms.
- 7) "Unnatural plant or algal growth" means the occurrence of a violation of the unnatural sludge standard applicable to a lake or reservoir with respect to such growth.

(BOARD NOTE: UNNATURAL sludge standards for general use waters are set forth at 35 Ill. Adm. Code 302.203; unnatural sludge standards for secondary and indigenous aquatic life waters are set forth at 35 Ill. Adm. Code 302.403.)

~~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:~~

- ~~1) Treatment works with a Design Average Flow of 1.0 million gallons per day or more receiving primarily municipal or domestic wastewater; or~~
- ~~2) Any treatment works, other than those treating primarily municipal or domestic wastewater, with a total phosphorus effluent load of 25 pounds per day or more.~~
- ~~3) For purposes of this subsection:~~

~~A) A new discharge means a discharge from a treatment works constructed after February 2, 2006.~~

- B) ~~An expanded discharge means a discharge from any existing treatment works that would be greater than the flowrates permitted prior to February 2, 2006.~~
- 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.~~
- g) Unless otherwise provided in subsection (g)(1), (g)(2), or (g)(3) of this Section, any discharge tributary to a water body segment that has been determined to be subject to the water quality standard for total phosphorus under the provisions of 35 Ill. Adm. Code 302.205(b) is subject to a seasonal average total phosphorus concentration limit of Y mg/l as P during May through October.
- 1) Municipal wastewater treatment facilities with a design average flow of 0.25 MGD or less, lagoon facilities, and all other types of facilities discharging less than 6.25 pounds of total phosphorus per day are exempt from this subsection (g).
 - 2) Tributary discharges farther than 40.25 kilometers (25 miles) upstream from the location subject to the water quality standard are exempt from this subsection (g).
 - 3) Dischargers may elect to remove phosphorus in created wetlands in lieu of being subject to effluent limits under this subsection (g).
 - A) The discharger may create the wetland upstream or downstream of the location determined to be subject to the water quality standard for total phosphorus.
 - B) The discharger must demonstrate that, during May through October, the created wetland removes a total phosphorus mass loading equivalent to at least Z percent of the discharger's effluent loading during the same period.
 - 4) ~~The averaging rules under subsections (a)(2) and (a)(3) of Section 304.104 do not apply to permit limits established pursuant to subsection (g) or (h) of this Section.~~

- 5) 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) of this Section.
- 6) Limitations established pursuant to subsection (g) of this Section are rescindable under the provisions of 35 Ill. Adm. Code 302.205(b)(4)(A).

The Combined Scenario A&B deletes the interim effluent standard for total phosphorus, except for the exemption from the averaging rules of Section 304.104. As provided in current subsection 304.123(j), the interim standard subsections were to apply until such time as the Board adopts a numeric water quality standard for phosphorus and the adopted standard is approved by the USEPA; IAWA expects that these conditions for cessation of applicability will be met.

Mirroring the seasonal average concept of its water quality standard, the Combined Scenario proposes that the total phosphorus effluent standard be a seasonal average during the season of applicability of the water quality standard (May through October). This prompted the modification in the exemption from averaging rules to cover the monthly average in the exemption.

The Combined Scenario also restricts the applicability of the total phosphorus effluent standard geographically to the tributary point sources located no farther than 25 miles upstream from the water body segment deemed to be subject to the water quality standard. This is done in recognition that the effect of upstream sources diminishes with growing distance, so that at some point the distance renders the point-source effect irrelevant, as also reflected in a matching provision in the existing subsection 304.123(c). On the other hand, IAWA is not necessarily convinced that an exemption from the phosphorus effluent standard is appropriate based on the small size of the tributary discharge or on the application of the lagoon system in the treatment process; nonetheless, the Combined Scenario retains the small discharge/lagoon treatment exemption of IEPA's Scenarios A and B in appreciation of the practical issues that we understand may have motivated the IEPA in proposing this exemption.

The Combined Scenario uses "Y" instead of a numerical value of the effluent standard, be it the 1.0 mg/l of the interim standard or the much more aggressive 0.3 mg/l figure envisioned in IEPA's Scenarios A and B. IAWA's motivation for avoiding a numerical value at this time is its membership's appreciation for and desire to bring to focus to practical feasibility and potential costs of effecting phosphorus removal upgrades.

As documented in the recent report by Zenz (2003), entitled "Technical Feasibility and Cost to Meet Nutrient Standards in the State of Illinois", the selection of applicable technologies grows narrower with restricting the effluent total phosphorus to below 1.0 mg/l. The 1.0 mg/l has been proven to be achievable without reliance on tertiary filtration, using chemical phosphorus removal alone or in combination with biological phosphorus removal. Any further restriction on the effluent concentration, including the 0.5 mg/l level discussed in the report by Zenz (2003), tends to increase the need to add excess chemical and/or install tertiary filtration facilities. Either outcome increases the treatment costs and has consequences for the rest of the treatment facility. Excess chemical results in additional solids requiring processing and disposal. The required sludge processing facilities may or may not be feasibly retrofitted, depending on local circumstances. Tertiary filtration may not fit onto existing facility footprints, and because it presents a hydraulic head loss not necessarily previously planned for, it may force the addition of intermediate pumping facilities, which in turn place still more demands on restricted plant sites and POTW budgets.

IAWA continues to support holistic watershed-based solution approaches to achieving nutrient standards if they are deemed appropriate for a water body or a water body segment.

Consequently, IAWA inserted subsection 304.123(g)(3) to initiate the conversation on allowing the dischargers the option to recreate wetlands in lieu of having to upgrade their facilities for phosphorus removal in response to an explicit effluent limit. The environmental benefits of wetlands, which are not limited to phosphorus removal, may make wetlands a more desirable solution than chemical and/or biological phosphorus removal upgrades by the point sources.

Reference:

Zenz, D. R. (2003). Technical Feasibility and Cost to Meet Nutrient Standards in the State of Illinois. Report prepared for Illinois Association of Wastewater Agencies. Consoer Townsend Envirodyne Engineers, Inc., Chicago, IL.