

ILLINOIS POLLUTION CONTROL BOARD
May 11, 1989

IN THE MATTER OF:)
)
PROPOSED AMENDMENT TO) R87-6
PHOSPHORUS EFFLUENT STANDARD,)
35 ILL. ADM. CODE 304.123)

PROPOSED RULE. SECOND FIRST NOTICE.

PROPOSED OPINION AND ORDER OF THE BOARD (by J. Anderson):

A. Background

This rulemaking was initiated by the Illinois Environmental Protection Agency (Agency) on March 20, 1987. The Agency filed an amended proposal on July 13, 1987. The Agency proposes that the Board make the following changes to the phosphorus effluent standard of 35 Ill. Adm. Code 304.123:

1. Delete existing Paragraph 304.123(b). This would result in discharges to the Fox River Basin being regulated under the generally applicable proposed paragraphs.
2. Delete existing Paragraphs 304.123(c) and d). These would be replaced with a single paragraph which would impose a 1.0 mg/l effluent standard on all dischargers of 2500 population equivalents (P.E.) or more, but only if the discharge is located within 40.25 kilometers (25 miles) of a 20-acre or larger lake. As amended, the Agency proposal would also exempt all dischargers to Lake Decatur and its tributaries; according to the Agency in its "Additional Justification" for the Amendment to Proposal filed July 13, 1987, this further amendment will make the Agency's proposal in this docket consistent with the Agency's reasoning in its proposal in Board proceeding R83-20, In the Matter of: Proposed Water Quality and Effluent Standard Amendments for Water in the Sangamon River Basin.* The current exemption for third-stage lagoon systems would be retained.

* R83-20 was dismissed on April 7, 1988, upon Motion by the Agency.

3. Delete the compliance dates in Paragraphs (f) and (g), and replace them with a single paragraph specifying compliance with the new standard as soon as the discharger has the capability, but in no event later than the "federally mandated" (NPDES) deadline of July 1, 1988. The Board was advised by the Agency (a) that the United States Environmental Protection Agency has "adopted" the proposal as part of its approval of the Illinois NPDES program.

Merit hearings were held in Chicago on May 18, 1987, and in Springfield on July 21, 1987. Participants at the hearings besides the Agency were the Northeastern Illinois Planning Commission (NIPC), the Department of Energy and Natural Resources (DENR), the Urbana and Champaign Sanitary District (U-C Sanitary District) and members of the public.

Following completion of the merit hearings, DENR, with the concurrence of the Economic Technical Advisory Committee (ETAC), determined that an Economic Impact Study (EcIS) was warranted in this proceeding. On March 31, 1988, an EcIS report prepared on behalf of DENR by Blaser, Zeni and Co., a management consulting firm, was filed with the Board (Exh. 40). On April 7, 1988, the Board adopted the Agency's proposal for first notice. This first notice appeared in the Illinois Register on April 29, 1988.

Upon receipt of the EcIS report, the Board scheduled and conducted two additional public hearings to consider the EcIS. Present at these hearings were DENR, the Agency and William L. Blaser, President of Blaser, Zeni and Co. and the principal author of the EcIS report. Some other members of the EcIS drafting team were also present. Hearings were held on June 7, 1988 in Springfield, and on June 21, 1988 in Chicago.

On December 15, 1988, the Board adopted for Second Notice a Proposed Opinion and Order in the matter. Since the Second notice proposal differed in certain respects from the Agency-drafted First Notice proposal, the Board deferred filing of the proposal to allow interested participants opportunity to comment. On January 5, 1989 in order to correct a drafting error in the December 15, 1988 Order, the Board adopted a Correction of Proposed Order of the Board.

Five public comments (Nos. 12-16) were received in response to the Board's Second Notice Proposal. Public Comment #15 was filed by the Agency. In response to questions from the Board's staff requesting clarification of the intent and effect of certain of the Agency's comments, the Agency on March 9, 1989 filed Supplemental Agency Final Comments (Public Comment 17). Changes to the body of the proposed Second Notice Order and other

responses to Public Comments 12 through 17 are separately described and explained below (see "Response to Public Comments Regarding Deferred Second Notice Proposal").

Since, pursuant to Section 5.01(d) of the Illinois Administrative Procedure Act (Ill. Rev. Stat. 1987, Ch. 127, par. 1001 et seq., par. 1005.01(d), no rule can be adopted more than one year after the date of publication of First Notice, it is obviously necessary to return this proceeding to First Notice. The Board will utilize this necessity to afford the participants additional time to consider this rulemaking in light of the changes proposed by the Board (see following). Additionally, the Board has concluded that at least one more hearing in this docket will be advisable in view of the continuing problems posed by the present record. The Hearing Officer is directed to schedule such a hearing as soon as practicable.

B. Eutrophication of Lakes and Reservoirs

The Participants introduced some 48 exhibits (one, Exh. 36, was withdrawn). Chief among these were the Agency's 1986 report, "Phosphorus: A summary of Information Regarding Lake Water Quality" IEPA/WPC/86-010 (introduced and admitted as Exhibit 1), and the EcIS Report, "A Economic Analysis of Proposed Amendments To Water Pollution Regulations Phosphorus Discharges - R87-6", Department of Energy and Natural Resources, 1988 (introduced and admitted as Exhibit 40). These two reports tend to rely upon and summarize data contained in many of the other exhibits; for instance, pages 8-13 of the Agency's report (Exh. 1) cites Exhibits 8-12 in support of its discussion of phosphorus transport in streams (see also R.21-22 [5/18/87]). Exhibits 8-12 are reports by various authors of results of studies of phosphorus in a number of settings including the Lake Erie watershed (Exh. 8), the Lake Champlain Basin (Exh. 10) and a portion of the Sangamon River in Illinois (Exh. 12).

Both principal studies and several commenters viewed phosphorus loading as, generally, the key determinant of "eutrophication". The term "eutrophication" was generally used to describe the accelerated decline in water quality of lakes attributable to human activities which introduce excessive nutrient (e.g., phosphorus) loadings; this is also referred to as "cultural eutrophication" (Exh. 40, pgs. 10-12; Exh. 32, Att. 1, pgs. 10-11). The commenters and reports noted, however, that lake eutrophication is a very complicated process, involving significant other factors, such as retention time, turbidity, lake depth, other nutrient loadings, temperature, algal species and abundance, internal regeneration, seasonal timing and numerous other factors. (Exh. 1, pgs. 8, 30-34; Exh. 40, pgs. 12-16, Exh. 32 and attachments). All commenters agreed that control and moderation of eutrophication require knowledge of lake-

specific conditions; control of point sources of phosphorus may be of little use in one area, but may be valuable in others. All agreed that in-lake phosphorus management strategies could be highly beneficial. Changes in other factors (e.g., turbidity) may increase or decrease the relative importance of phosphorus loading (Exh. 1, pg. 57; Exh. 40, pgs. 128-131, Exh. 32).

One commenter in particular, Dr. Paul F. Derr, an environmental consultant to FMC Corporation, characterized phosphorus, per se, as "not the cause of eutrophication" (Exh. 32, pg. 2; emphasis in original). Rather, he asserted, phosphorus is but one of "15 to 20 essential nutrient elements", high inputs of which lead to cultural eutrophication, "particularly when they enter streams and lakes as organic wastes" (id). Such organic forms, according to Dr. Derr, "place a large oxygen demand on these waters, which leads to rapid recycling of all the nutrient elements from the sediments into the surface waters to support algal growth" (id; R.81-82 [7/21/87]; emphasis in original). The value of phosphorus measurements and standards, concludes Dr. Derr, is as "nothing more than a tracer of organic pollution which contains all of the fifteen to twenty nutrient elements" (Exh. 32, pg. 3, and Att. III, pg. 11; R.84-85 [7/21/87]). In turn, he notes, phosphorus removal and control is only valuable as a "surrogate" for BOD and COD control, that is, for removal and control of the 15 to 20 nutrients (R.95-96, 101-103 and 109-110 [7/21/87]), since control of phosphorus tends to control the other nutrients as well. Neither the Agency nor DENR took issue with Dr. Derr's statements; as Dr. Derr noted, the essential difference between his views and those expressed by the Agency in Exhibit 1 is the Agency's occasional reference to "phosphorus removal" rather than "nutrient removal" (R.110 [7/21/87]).

C. Trophic Status of Lakes and Reservoirs

Notwithstanding the uncertain correlation between phosphorus and lake eutrophication, both the Agency and DENR focused their attention upon phosphorus in gauging the trophic status of lakes and reservoirs. Although the Agency's phosphorus study (Exh. 1) and the EcIS report (Exh. 40) differed as to the use of the so-called "Vollenweider model", they have both used the model (see, e.g., Exh. 1, pgs. 32-33, and Exh. 40, pgs. 17-19). The model, as modified by Rast and Lee and others provides a means of determining "critical" phosphorus loading rates of lakes and for classifying lakes' "trophic states" based on their phosphorus loading, morphometric characteristics and algal biomass. (see Exh. 1, pg. 33) Under this model, lakes and reservoirs are generally classed as being oligotrophic (total phosphorus concentration of less than 10 ug/l), mesotrophic (total phosphorus concentrations of 30-80 ug/l), or eutrophic (total phosphorus concentrations of more than 80 ug/l). Lakes or reservoirs having total phosphorus concentrations of at least 100

ug/l are sometimes described as "hypertrophic". Although 86 percent of all Illinois lakes surveyed exhibit eutrophic conditions (Exh. 1, pg. 14), two of the six lakes potentially impacted by this rulemaking may not be classified as eutrophic; a third has not had its trophic state redetermined since its division into two separate impoundments in 1981 (see following). In any event, due to seasonal variations and other factors, the range of phosphorus values from individual samples can overlap; that is, a single sample from a eutrophic lake may exhibit a total phosphorus concentration which is also consistent with another trophic status (see Exh. 40, Table III-2, pg. 18).

D. The Nature and Behavior of Phosphorus

Although the hearings in this proceeding were sometimes contentious, there was little disagreement over the Agency's characterization of the behavior of phosphorus in streams and lakes. It was not disputed that "for a typical wastewater discharge to a stream there is a significant increase in instream phosphorus concentration, depending on dilution, followed by a rapid decline in water column concentrations to the point where ambient levels approach the background levels found upstream. This typically occurs within approximately 10 miles under low flow conditions" (Exh. 27, pg. 4; R.39 [7/21/87]).

There was also agreement that the rapid decline in water column concentration of phosphorus was due primarily to dilution. Another factor may be the conversion of phosphorus from one of its dissolved forms into one of the particulate forms. Although the phosphorus standard is (and under the Agency's proposal would continue to be) expressed in terms of total phosphorus (the sum of particulate phosphorus and dissolved phosphorus), measurement is taken of only the water column. The Agency did not suggest that the decline in total phosphorus measurements indicated destruction or conversion of this element. Rather, its Final Comments (PC #10, p.1) suggest that this and other basic EcIS conclusions on phosphorus transport and loading (e.g., that substantially all phosphorus released to a tributary stream eventually reaches the receiving lake or reservoir) are "self-evident".

No commenters disagreed with the Agency characterization of its experiences with small dischargers (or defining small dischargers as all those with flows of less than 2500 population equivalents, or "P.E."). According to the Agency, such facilities find it very difficult and disproportionately expensive to achieve and maintain compliance with the standard using small mechanical facilities (R.20-21 [5/18/87]). Similarly, there was no disagreement with the Agency's assertion that a phosphorus effluent standard less than 1.0 mg/l is technically infeasible (R.13,17-18 [5/18/87]). Finally, there was no opposition to the Agency's exemption of Lake Decatur

tributaries, which was based essentially on its short hydraulic retention time: the two other factors cited by the Agency, namely, high turbidity and extensive non-point contributions (R.42 [7/21/87]), are shared to some degree by most of the other five lakes identified in the EcIS as affected under the Agency's proposal (see below).

E. The Impact of the Agency's Proposal

The EcIS determined that there are six lakes which have tributary treatment plants potentially impacted by the Agency's proposal (EcIS report, pg. 2). These are:

1. Crab Orchard Lake
2. Lake Decatur
3. Pistakee Lake
4. Lake Charleston
5. Lake Shelbyville
6. Lake Carlyle

The authors of the EcIS report identified and listed some 38 point sources which are tributary to these six lakes and which are subject to the current standard (Exh. 40, Table II-1, pg. 3). Of these point sources, some 21 are listed as being exempted from the 1.0 mg/l phosphorus standard under the Agency's proposal. These 21 point sources, and the reason(s) for their exemption under the Agency's proposal, are summarized in Table II-2 of Exhibit 40, which table is reproduced below:

TABLE II-2
 Illinois Wastewater Treatment Plants
 Exempted by
 Adoption of Proposed Regulation R87-6
 As of 2/15/88

<u>Lake/WWTP</u>	<u>Reason For Exemption</u>			
	<u>25 mile Exemption</u>	<u>Increase in P.E. Exemption</u>	<u>Lake Decatur Exemption</u>	<u>Phosphorus- Removal Capability</u>
<u>CARLYLE</u>				
CF Industries	x			No
Pana	x			Yes
Shelbyville	x			Yes
<u>CHARLESTON</u>				
Arcola	x			Yes*
Tolono	x			No
Tuscola*	x			No
Villa Grove	x			Yes*
<u>CRAB ORCHARD</u>				
Crab Orchard NWR		x		No
<u>DECATUR</u>				
Cerro Gordo		x	x	No
Fisher	x	x	x	No
Gibson City	x		x	Yes
Mahomet	x		x	No
Monticello			x	No
Viobin Corp.			x	No
<u>PISTAKEE</u>				
Hebron	x			Yes
<u>SHELBYVILLE</u>				
Arthur	x			No
Bement	x	x		No
Bethany		x		No
Kraft, Inc.	x			No
Urbana-Champaign.	x			Yes
US Ind. Chem.	x			No

* City will combine two existing plants into one new facility.

The gross "benefit" of adopting the Agency's proposal for these 21 sources, in terms of cost savings only, is estimated by the EcIS to amount to \$567,566 per year (Exh. 40, Table XI-2, pg. 102). Actually, since two of these 21 point sources, Kraft, Inc. and Viobin Corp., are shown as having no measurable phosphorus in their effluent, (Exh. 40, Tables VIII-4, pg. 67, and XI-1, pg. 101), the annual benefits are actually spread among the remaining 19 point sources (Exh. 40, Table XI-2, pg. 102). These benefits range from \$9,779 for Bethany to \$136,726 for U.S. Industrial Chemical Company (USICC). No "non-dollar" benefits were identified by the EcIS (Exh. 40, pg. 103).

As Table II-2 of the EcIS report shows, 16 of the 21 sites which would be exempt from the operation of the current standard by adoption of the Agency's proposal would qualify for that exemption by virtue of the 25 miles exemption; four of these 16 sites would also qualify for exemption under one or more of the other criteria changed under the proposal (i.e., the increase in the population equivalents criteria and/or the blanket exclusion for Lake Decatur tributaries). Hence, 12 of these sites (including Kraft, Inc.) would be exempt solely by virtue of the 25 mile exemption.

F. Costs vs. Benefits

The authors of the EcIS attempted to assess the costs of adopting the Agency's proposal (Exh. 40, Chapter XII, pgs. 104-116). They considered as "primary costs" the reduction in the quantity and quality of recreational activities associated with each of the affected lakes (Exh. 40, pg. 105); the implicit assumption is that increases in phosphorus loading causes or triggers such reduction in recreational activities. "Secondary costs" were also identified. These include losses of expenditures for sport fishing and other forms of aquatic recreation as well as costs to farmers for obtaining alternatives to those phosphorus-rich wastewater treatment plant sludges used as fertilizer. The report also suggested that other consequences, including impossible-to-quantify costs, may occur (Exh. 40, pg. 105). The report identified no non-monetary costs (Exh. 40, pg. 115).

The EcIS acknowledged that no study had been found which correlates changes in phosphorus concentrations with changes in aquatic recreation under circumstances applicable to Illinois (Exh. 40, pg. 117). It concluded that such scarcity of data precluded any reasonably defensible dollar estimates of cost consequences of adoption of the proposal (Exh. 40, pg. vii and 117). It proposed, in place of such a study, use of a form of break-even analysis, under which the known benefits were correlated with the corresponding reduction in aquatic-related recreation, expressed as "consumer surplus", adopted from Ciecka, James E., et al., An Economic Analysis of Phosphorus Control and

Other Aspects of R76-1, Illinois Institute for Environmental Quality, Chicago, 1978 (Exh. 40, pgs. 118-122 and Appendix 13-2, pgs. A13-1 to A13-3). According to this methodology, the reduction required in aquatic-related recreation to exceed anticipated benefits, if one assumes benefits and costs both commence in 1989, is approximately 2.8% for all six lakes, with a range of 0.3% for Lake Pistakee to 15.8% for Lake Charleston (Exh. 40, Table XIII-1, pg. 119). However, the authors argue that costs associated with increased phosphorus loading may not be fully realized for some time, as it can take months and perhaps years for the phosphorus (especially in its particulate form) to be transported to the receiving lakes or reservoirs and fully assimilated. For the sake of comparison, the EcIS authors calculated and displayed the results of assuming that costs would not begin (manifest themselves) until five years after benefits had begun. Under this set of assumptions, the reduction in aquatic-related recreation necessary to exceed anticipated benefits was calculated to be approximately 3.9% for all six lakes, with a range of from 0.4% for Lake Pistakee to 22.2% for Lake Charleston (Exh. 40, Table XIII-2, pg. 120). Finally, the authors of the EcIS argue that "to determine whether the benefits of adoption exceed the costs, it is not necessary to accurately estimate the resulting decrease in usage". Rather, they suggest, it is necessary only "to determine whether the estimated decrease in usage is less than the break-even percentage" (Exh. 40, pg. 121). The EcIS report does not explain how one can determine whether the "decrease in usage" is less than some value ("break-even percentage") without some estimation of what that "decrease in usage" is.

G. EcIS Conclusions

The EcIS concludes that no significant change in aquatic-related recreation will occur with respect to any of the potentially impacted lakes, except for Lake Shelbyville, where the resulting decrease in recreational usage is described as "un-quantified". Also, "un-quantified" is the change in aquatic-related recreation for all six lakes taken as a whole (Exh. 40, pgs. 121-122). Using the Vollenweider model, the EcIS predicted an average percentage increase in total phosphorus loadings to the receiving lakes resulting from the approval of the Agency's proposal as follows:

<u>Lake</u>	<u>Status</u>	<u>% Increase in P</u>
Crab Orchard	Eutrophic	0.4
Pistakee	Eutrophic	0.5
Decatur	Eutrophic	6.7

Charleston	Eutrophic (?) ^{1*}	10.5
Shelbyville	Mesotrophic	19.4 (26.9) ²
Carlyle	Mesotrophic(?) ³	5.4

(Date for the above graphic was extracted from Exh. 40, pgs. 24, 28-29, 34, 38-39, 44, 48-49, 57, 61, 66-67, 71-73, 77, 81 and 85-86).

The EcIS conclusions for the lakes which are described as "Eutrophic" are based generally upon the assumption that additions of phosphorus to eutrophic lakes should not cause a biologically significant increase in algal productivity. The EcIS uses virtually identical language with respect to each of the first three lakes, suggesting that the alleged non-effect of additional phosphorus is due to the "already high levels of primary production" (see pgs. 29, 38 and 48). It appears to hold that Lake Charleston also falls within this principle, but also characterizes Lake Charleston as more "riverine" than lake-like due to its asserted very short hydraulic retention time (Exh. 40, pg. 61) and thus less likely to support high production of algal biomass despite its eutrophic classification. It also appears to suggest that Lakes Decatur and Charleston are more similar to each other than to the other potentially affected lakes, due mainly to their asserted very low retention times, although the EcIS acknowledges that water quality data for Lake Charleston is "extremely limited".⁴

* ¹ Trophic status of this lake has not been determined since its division into two separate impoundments in 1981.

² Second figure (in parenthesis) is based on more recent but less reliable (single sample) data regarding effluent from USICC. (see page 10).

³ EcIS (pg. 85) states that this lake "can be considered an eutrophic lake, but may also be borderline mesotrophic". This is due to conflicting chlorophyll a and N:P data. Tributaries to Lake Shelbyville are also tributary to this lake, which is downstream from the Shelbyville dam.

⁴ See Exh. 40, pg. 61. Lake Charleston's mean hydraulic retention time, according to the EcIS, is a fraction of one day; both Exhibit 1 and Exhibit 40 place Lake Decatur's mean hydraulic retention time at 11 days although the Agency's statement (Exh. 27, pg. 6; R.42 [7/21/87] suggests its retention time is 7 days. The Board was unable to locate, in the record of this proceeding or in R83-20 (to which the Agency referred), support for the 7-day assertion. Note also that the conclusions of the EcIS regarding Lake Charleston have been challenged by commenters (see P.C. #12 and 14).

The EcIS conclusion for Lake Shelbyville is that the fairly substantial increase in phosphorus loading and chlorophyll a concentration which would be attributable to adoption of the proposal "may be considered a biologically significant increase". (Exh. 40, pg. 72); this conclusion is tempered by the possible effect of unidentified other factors which may be limiting algal productivity. In any event, the lake is described as possibly being in a "transitional stage of eutrophication" (Id). Further complicating the issue is the existence of somewhat contradictory data regarding the phosphorus loading attributable to USICC. Two possible assumptions were identified. "Assumption I" is that the USICC effluent phosphorus concentration is 1.64 mg/l as suggested by USICC's 1981 permit application data. "Assumption II" is that USICC's effluent phosphorus concentration is 5.8 mg/l as suggested by a single-sample value obtained by the Agency in 1987. This difference is described by the EcIS as "significant" (Exh. 40, pgs. 72-73). Simply stated, if Assumption I is utilized, the percent increase in phosphorus loadings to the lake from all sources is 19.4%, while the figure jumps to 28.9% under Assumption II (Exh. 40, pg. 73). Put another way, using EcIS data the Board has calculated that under Assumption I, USICC will contribute a 1.45% increase in phosphorus loadings to Lake Shelbyville if the Agency's proposal is adopted (2063 kg/year divided by 142,131 kg/year); under Assumption II, USICC will contribute a 10.88% increase in phosphorus loading under identical conditions (15,470 kg/year divided by 142,131 kg/year).

As for Lake Carlyle, the EcIS is ambiguous. While suggesting the lake can be considered eutrophic, it notes that a relatively low chlorophyll a level exists, suggesting that phosphorus may not be the limiting factor in algal productivity. Lake Carlyle, it asserts, "may be a lake that is in a delicate balance between mesotrophy and eutrophy" (Exh. 40, pg. 85). The effect of other factors influencing the lake's trophic state is suggested but not quantified by the EcIS. Based on the assumption that one or more such other unidentified factors may be at work in Lake Carlyle, the EcIS concludes that the 5.4% increase in phosphorus loading would have no effect on primary (algal) productivity "unless a change in these limiting factors would occur" (Exh. 40, pg. 86).

It must be remembered that the EcIS' descriptions of trophic states are primarily reflective of the biological production levels of each lake; other phenomena affecting the trophic state of a lake are not equally taken into account. Hence, as the EcIS report acknowledges (pg. 12), "a lake may be defined as eutrophic because of its nutrient status, but in terms of productivity ... it may be something less than eutrophic".

Unfortunately, the EcIS provides little in the way of guidance as to either the net economic impact of the Agency's proposed rules or the appropriate measure of when a particular

point source contributes a significant phosphorus load to a receiving lake or reservoir. It provides no meaningful economic impact figures. Its "break-even" analysis lacked numerical estimates of the resulting decrease in lake usage attributable to grant of the requested relief, making use of its breakeven formula impossible. The Board cannot comprehend how one can, as the EcIS suggests (pg. 121) "determine whether the resulting decrease in usage is more or less than the break-even percentage" if one does not or cannot estimate that resulting decrease in usage. Neither the EcIS nor any other exhibit or testimony attempted to substantiate its conclusions regarding loss of aquatic-related recreation except to the extent that all eutrophic lakes were essentially lumped together as experiencing "no significant change". All other conclusions regarding loss of such use were "un-quantified".

Board Conclusions and Modifications

The Board notes that the Record of this proceeding does not provide the Board with unambiguous data on the role of phosphorus, (particularly measured as total phosphorus in the water column) in the eutrophication of lakes generally. Neither for that matter, does it provide solid data needed to assess the impact and contribution of phosphorus to the trophic status of any of the six lakes discussed at length in the EcIS. Absent such data, it is very difficult to project the consequences of increasing phosphorus loadings as suggested by the Agency's proposal. However, there is little to suggest that phosphorus is not at least useful in broad general terms in gauging the nutrient load tributary to a lake. Since there is ample support on the record for the notion that control of phosphorus is effective to control such nutrient loading, the Board will (as have most of the commenters) presume that, all other factors being equal, phosphorus is the limiting factor in eutrophication. This presumption, of course, can be overcome by other factors. As more information become known about the eutrophication dynamics of specific lakes and reservoirs in Illinois, it may be necessary to reconsider this position.

Within these limitations, the Board finds that the Agency has amply demonstrated the wisdom of applying a 1.0 mg/l effluent phosphorus as P standard upon all point sources of 2500 P.E. or more located within 25 miles of a 20-acre or larger lake or reservoir. It is the Agency's testimony that the 1.0 mg/l standard is attainable using conventional treatment, and that add-on phosphorus control for point sources of less than 2500 P.E. is uncertain, expensive and difficult. The Board will accept this testimony as true in the absence of contrary data in the record; the Board does not understand the Agency to suggest that all of those point sources under 2500 P.E. which have such controls are unsuccessful in their efforts to control phosphorus. The Board also believes that retaining the treatment

requirement for all dischargers within 25 miles is prudent based on the Agency's data showing that phosphorus from nearby point sources is more likely to reach the lake in the more readily available dissolved phosphorus form for immediate algae uptake than is the phosphorus from more distant dischargers. Exemption of tributaries to Lake Decatur appears warranted, due primarily to its short hydraulic retention time, although the record is not absolutely clear on that point.

The Board is not, however, satisfied that the Agency has demonstrated that significant point sources of phosphorus which happen to be located more than 25 miles from a lake can be generally ignored by these phosphorus rules. First, what little is known of the six impacted lakes from the record of the proceeding suggests that, at least in some cases, particulate phosphorus could have a significant impact on trophic status. At least two of the lakes are classified as mesotrophic. One in the internal regeneration process of these is described in the EcIS as "transitional", the other as possibly being in a "delicate balance between mesotrophy and eutrophy". This suggests to the Board that even small changes in phosphorus loading could be critical. When other factors are considered, one or more of the other four lakes potentially impacted by this rulemaking may prove either not to be eutrophic or to be similarly "transitional" or "balanced" (e.g., Lake Charleston, for which no current data exists, and Lake Decatur, which was described by the EcIS report in docket R83-20 [Exh. 4(a), pg. 99] as being non-eutrophic). Second, no exhibit or testimony was offered to challenge the EcIS assumption that substantially all phosphorus released in an effluent eventually reaches the downstream lake or reservoir. Third, no exhibit or testimony was offered to challenge the concept that particulate phosphorus may, through the processes of internal regeneration, be converted back into the dissolved form through anoxic, aerobic and other processes. Indeed, the Agency stated that such internal regeneration can be a "significant factor" in lake eutrophication (Exh. 1, pgs. 6-8, 34-38 and 54). This is a view evidently shared by Dr. Derr (Exh. 32, pg. 2) and DENR (Exh. 40, pg.15).

The foregoing suggests to the Board that distance alone is not dispositive as to the need for phosphorus controls on a point source. The record contains numerous unchallenged assertions that additional study is needed in order to understand the specific dynamics of eutrophication on a lake-by-lake basis (R.16 [5/18/87]; Exh. 1, pg. 57; exh. 7; Exh. 40, pgs. 128-131). Absent such understanding, the record suggests that the role and relative impact of particulate phosphorus (from any significant source, including sources more than 25 miles distant) on the water quality of a given lake cannot be readily determined. The record affirms (e.g., Exh. 29, R.61-64 [7/21/87]) that internal regeneration of phosphorus can be critical.

There remains the thorny issue of what constitutes a significant individual point source contribution to a lake's overall phosphorus loading. The EcIS reveals that at least one measure, the potential untreated phosphorus loading from a given point source relative to the overall potential phosphorus loading of the receiving lake, is supported by the record. The EcIS indicates that only a handful of point sources (7) more than 25 miles upstream of the receiving lakes potentially contribute more than 3% of the total phosphorus loading to such lakes. Two of these (Urbana-Champaign and USICC) are tributary to Lake Shelbyville and, by extension, Lake Carlyle, the lakes of obvious greatest concern to the authors of the EcIS. Since the EcIS suggests, and the Agency does not deny, that relatively small contributions to a mesotrophic lake might result in eutrophic conditions, it would seem prudent and fully supported by the record to at least include within the standard those point sources which have been identified as sizeable or significant. In this case, the EcIS has noted the importance of USICC's daily flow of 2.336 million gallons per day as the third-largest point source potentially affected by these rules; it further describes the range of variables in that discharge as "significant" and the potential point source increases attributable to adoption of the Agency's proposal as "relatively high". The Board notes that under either "Assumption I" or "Assumption II" (see above), the relative contribution of USICC is at least 3% (actually, under Assumption I, 3.1%). The Board finds that 3% is therefore a reasonable measure of "significance", and has amended Section 304.123 accordingly, adding subsection (c)(2).

It is also apparent to the Board that, insofar as is known, Lake Charleston has characteristics similar to those of Lake Decatur. Their common distinguishing feature is their relatively low hydraulic retention times. If, as the Agency suggests, sources tributary to Lake Decatur should be exempted, there appears to be no reason to not exempt sources tributary to Lake Charleston or any other lake exhibiting such "riverine" traits. The Board will, therefore, so frame this proposal as to exclude sources tributary to lakes having short retention times. The Board believes that a retention time of 18 days (0.05 years) or less is a reasonable standard, consistent with the Agency's pronouncements and its exhibits in this proceeding, particularly Exhibit 7. This standard is reflected in the last clause of subsection (b) and in subparagraph (c)(1) of Section 304.123.

Finally, the Board declines to adopt the July 1, 1988 deadline as proposed by the Agency in its subsection (d)(2) of Section 304.123, and which the Agency states is federally mandated. The Board does so for three reasons. First, the date is manifestly impossible to attain; because of procedural requirements the proceedings in this docket were not capable of being completed until after July 1, 1988. Second, this date may be subject to unilateral modification and can cause confusion.

The Board notes that the regulatory compliance dates for combined sewer overflows (35 Ill. Adm. Code 306.306) were also derived from such administrative deadlines, which deadlines have long since been superseded. Third, any enforceability of the date derives from the Act, so the Board's language is unnecessary. Therefore, as a matter of practice, the Board is reluctant to embed such requirements in its regulations. The Board considered removing this subsection, now subsection (e)(2), in its entirety, consistent with its view that whatever authority the Agency may have to condition its permits in this regard is derived from the Act, rather than from Board rules. It should thus be understood that the reference in (e)(2) to compliance dates "as required by NPDES permit" is intended by the Board as purely informational rather than as a purported delegation of authority to the Agency by Board rule.

Response to Public Comments Regarding Deferred Second Notice Proposal

The comments received by the Board were varied. Several persons noted the typographical errors in proposed Section 304.123(b) and (c), in which 25 miles was equated with 10.25 kilometers; the correct figure, 40.25 kilometers, has been restored.

Two commenters objected to the exclusion of phosphorus dischargers tributary to Lake Charleston. Both commenters, Mr. Alford (P.C. #12) and Mr. Sherman (P.C. #14) represent the City of Charleston. Both assert that they are familiar with Lake Charleston characteristics and have reservations regarding the accuracy of data and assumptions contained in the EcIS. Mr. Alford suggests that the hydraulic retention time attributed to Lake Charleston may be substantially understated. Both commenters urge the Board not to rely upon current data, noting that the City of Charleston, partly in conjunction with the Agency, is conducting studies of the lake and reservoir. They request the Board take no action to revise the effluent phosphorus standard as to Lake Charleston until studies of the lake and reservoir are complete.

In this regard, the Board again is confronted by conflicting opinions, assumptions and data. Consistent with the return to First Notice, the interim nature of these proposed rules and the fact that, for whatever reason, these commenters did not participate in the Board's hearings in this matter to provide testimony, the Board will not modify this Second First Notice proposal to read differently from its original Second Notice proposal so as to maintain the status quo for tributaries to Lake Charleston. However, the Board believes that Lake Charleston warrants a high priority for review in light of these comments and the shortage of current information regarding Lake Charleston. As noted above, the Board has directed the Hearing

Officer to schedule at least one additional hearing in this docket; the commenters will thus have an opportunity to provide testimony with respect to Lake Charleston.

The DENR's comments (P.C. #13) focused on two points. First, the Board was reminded that the Department did provide information (Exh. 37) on a "potentially economical" system for treating wastewater effluents for phosphorus removal, which system is applicable to small dischargers. Exhibit 37 is duly noted by the Board, although it does not, per se, challenge the Agency's assertion regarding smaller dischargers (and defining such dischargers as those with flows of less than 2500 P.E.). The Board will decline to address this issue further, or to address the issue of "technology selection with respect to economic reasonableness and water quality standards" as suggested by DENR (Ibid). These are matters which were simply not placed before the Board in this proceeding. In the hoped-for future regulatory proceedings which the Board envisions will augment or replace the rules today proposed, these matters can be properly and timely raised by the Department.

DENR's second concern involves the issue of the possible impacts of this rulemaking on streams. This, too, is a matter not fully developed by participants in the instant proceeding. The focus of hearings and exhibits in this docket is generally upon lakes and reservoirs. The Agency's proposal, upon which this rulemaking is founded, was mainly an effort to provide regulatory relief to those point sources of phosphorus whose effect on receiving lakes and reservoirs, as opposed to streams or watersheds, was viewed as negligible due to either the distance to the lake or reservoir or to the "riverine" nature of the receiving lake or reservoir (i.e., the Lake Decatur principle). The Board believes the present Second First Notice proposal is at least somewhat more protective of streams than the original (First Notice) proposal in this docket, inasmuch as not all point sources of phosphorus which are more than 25 miles upstream of a receiving lake are ipso facto relieved of their duty to meet the phosphorus effluent standard. More information must be developed with regards to stream effects in order to produce more appropriate standards. DENR may wish to take advantage of the additional public hearing in this docket to more fully present testimony and data regarding streams.

The Agency's comments focused primarily on Board-initiated changes embodied in proposed Section 304.123(c). The Agency attacks that section's provision limiting the exclusion from effluent phosphorus regulations for larger (2500 P.E. or more) point sources more than 25 miles upstream from the receiving lake or reservoir. The Board's provision would make this exclusion available only to such point sources whose potential (untreated) phosphorus contribution to the receiving lake or reservoir is less than 3% of the total potential phosphorus loading (from both

point and non-point sources) tributary to the receiving lake or reservoir. The Agency opposes this provision on the grounds that: 1) accurate phosphorus loading data are non-existent; 2) there is no documented relation between a 3% or greater discharger and a "significant" discharger, and 3) the 3% figure itself is arbitrary and wholly unsupported by the record.

The Board is well aware that current, accurate and comprehensive loading data for Illinois lakes is lacking; that fact has been noted by the Board above. The dearth of information is not limited to loading data, however, and may be viewed as potentially a two-edged sword, raising the question as to whether there should be any rulemaking in this area at this time. The data provided on some of the affected lakes, most notably Lake Charleston, is extremely incomplete; the core lake characteristic data is uniformly dated, posited on a federal lake study which is now over 16 years old and whose methodology has been called into question (Agency Final Comments, pp. 2-3).

Nevertheless, the Agency evidently found sufficient support in the data to propose an increase in the P.E. cutoff criteria for some smaller point sources (from 1500 P.E. to 2500 P.E.) and a decrease for certain others (from 5,000 P.E.). It also found sufficient support in the data to propose a 25 mile cutoff for all point sources of phosphorus and to propose an exemption for Lake Decatur tributaries.

In all of these matters, as noted above, the Board concurred with the Agency, with two exceptions. First, the Board found no support in the record for distinguishing Lake Decatur from similarly "riverine" lakes, such as (apparently) Lake Charleston. Second, the Board found that the record simply does not support the wholesale exclusion of point sources of phosphorus more than 25 miles upstream of a lake or reservoir. There is no disagreement among the participants regarding the eventual fate of phosphorus from point sources discharges: within 10 or 12 miles, generally, it is absorbed by biota and/or converted to the particulate form, in which form it generally settles to or travels along the stream bottom. All participants generally agreed also that, over time virtually all such particulate phosphorus reaches the receiving lake or reservoir, wherein it becomes a player in the complex and lake-specific processes known as "internal regeneration" (Ibid, pp. 5-6). In this connection, the Agency's Final Comments appear to be on target in asserting that "It is thus improper to assume that a lake's behavior is determined solely by external loading: internal regeneration also plays an important role... Dischargers must be viewed on an individual basis..." (Ibid, p. 6).

Unfortunately, the Agency's proposal fails either to view dischargers on an individual basis or to account for the role of external sources of particulate phosphorus in internal

regeneration. Absent some check, such as the Board's 3% loading criterion, all point sources of phosphorus, irrespective of their size or concentration of phosphorus, are relieved of the necessity for compliance with the phosphorus standard if they are at least 25 miles upstream. In view of the unknown sensitivities of the respective lakes to incremental increases in phosphorus loadings (Ibid, pp. 5-6), it strikes the Board as irresponsible to turn a blind eye to the size of the phosphorus discharge relative to the overall phosphorus load of the receiving lake or reservoir. Absent such data, neither the Board nor the Agency can dismiss the potential role of distant significant point sources of phosphorus upon receiving lakes and reservoirs in the course of internal regeneration simply because the phosphorus from such sources arrives chiefly in the particulate form or because many Illinois lakes may be naturally eutrophic.

To be sure, today's proposed rule is an imperfect response to the phosphorus loading problem. The Board endorses calls by all the participants in this proceeding to undertake the studies necessary to fashion lake-specific standards which account for "sensitivity factors" and watershed uses. The Board has no doubt that the regulations today proposed for Second First Notice will be substantially modified or replaced once the necessary information is available.

The Agency asserted that the 25 mile cutoff criterion stands above and requires no further limitation such as the Board's 3% loading criterion. It stated as follows:

"The issue at this point in the proceeding is not whether another numerical cut-off point is more appropriate than 25 miles, or whether a percentage loading requirement would assist in fine-tuning the rule. The sole remaining issue is whether the record in this rulemaking adequately supports the technical feasibility and economic reasonableness of each element of the proposed rule" (Id; emphasis added).

The Board disagrees with the Agency's position. The Agency will look in vain for authority, statutory or otherwise, for the proposition that this Board is limited to assessing the technical feasibility and economic reasonableness of each element of a proposed regulation.

Finally, as regards the Agency's attacks on the 3% loading criterion, the Board notes that the Agency mischaracterizes it as an effort to "fine-tune" the proposed rule; it is, rather, an effort by the Board to salvage the proposed rule in the face of a sizeable body of uncontroverted data in the record which portrays internal regeneration as a potentially critical determinant of trophic status. This record at the same time reveals a

substantial shortage of data regarding the trophic status of affected lakes and virtually complete ignorance of the lake-specific factors which determine each lake's trophic status and the relative role of particulate phosphorus from remote point sources as one of those factors.

As for the 3% figure, the Board acknowledges that it is somewhat arbitrary. It does not agree that this figure is "totally unsupported by the record" as the Agency asserts (Ibid, p. 1). The Agency's position in this regard is somewhat inconsistent; the Agency has elsewhere stated:

"Every regulation adopted by the Board poses the risk of being over-inclusive or under-inclusive, overly rigorous or insufficiently so. The Act recognizes this situation and invests the Board with the proper discretion to be exercised when these considerations arise". [Supplemental Agency Final Comments, p. 7).

It is in the exercise of its "proper discretion" that the Board has adopted the 3% criterion. In accepting the Agency's essential uncontroverted yet largely undocumented assertions regarding the appropriate flow volume cutoff point (2500 P.E.) and in accepting the Agency's well-documented but one-dimensional distance criteria (25 miles), the Board has exercised that discretion in a manner which generally relaxes the current phosphorus standard for the reasons suggested by the Agency. In like manner, for the reasons noted above, the Board has looked to the record to fashion a limiting criteria (in this case, 3%) by which to delimit the relief granted. Without such a limitation, the proposal necessarily must fall; the 3% criterion may be viewed as a necessary counter-balance to the other two criteria. All three criteria reflect a measure of discretion exercised by the Board; none embodies scientific certainty. The Board need not defend its numerical standards against all other numbers to the seventh digit following the decimal. It need only find rational support in the record for the number it has chosen. In this proceeding, under no theory advanced in the record could the potential phosphorus contribution from the Urbana-Champaign facility (25.2%; see Exh. 40, p. 67) not be viewed as potentially significant, particularly since the receiving lake (Lake Shelbyville) is clearly heavily used for recreational purposes and is undoubtedly mesotrophic. In like manner, the potential phosphorus contribution to Lake Shelbyville from USICC appears to be substantial, whether viewed as a percentage of overall lake loadings (4.5%, equal to the potential for all other "benefitted point sources" combined; Id) or as a percentage of all point source contributions (12.3% to 21.2%; see Exh. 40, p. 65). No other uncontrolled "benefitted" point source of phosphorus tributary to any lake or reservoir identified in

the record (see Exh. 40, p. 3) came close to USICC in potential. Finally, as noted above, (and by the Agency in its Final Comments at p. 6), the EcIS characterizes the range of variables in USICC's discharge as "significant"; this suggests to the Board that, within the context of this point source's average flow (2.336 MGD, described by the EcIS (p. 72) as the "third largest in the study"), and in view of the EcIS' characterizing the potential impact of the relaxation of standards on tributaries to Lake Shelbyville (of which USICC is the second largest) as "relatively high", it is not unreasonable to set the standard for defining a "significant point source discharger of phosphorus" accordingly.

The Board is, however, sympathetic to the potential burden of demonstration to which the Agency alludes. It is not the Board's intention to compel the Agency or every potentially benefitted discharger of phosphorus to undertake an exhaustive analysis of the applicable watershed system. The data in this record is clearly insufficient to sustain such a burdensome requirement. Therefore, the Board will amend the rule to require that the 1973 federal National Eutrophication Surveys (NES) data, as adjusted by IEPA to reflect estimated improvements in non-point source control, be utilized until such time as a more current data base is adopted by regulation for the affected watershed system. This is the methodology employed by the authors of the EcIS. The NES data is admittedly dated even when adjusted for improvements in non-point source controls. However, it is the only viable and comprehensive data base on the subject and was relied upon to some extent by virtually all participants in this proceeding. The Board notes that the Agency and any other potential participant can "perfect" this rule as to any given point source or watershed system by amendatory rulemaking (based upon current data on watershed characteristics, in-lake treatment or individual waste streams) or by resort to the adjusted standards mechanism of Section 28.1 of the Act.

For the sake of clarification, the Board provides below a table entitled "Facilities Subject to Phosphorus Control Requirements Under Various Scenarios". Specifically, the table illustrates, based upon data provided in the record of this proceeding, those facilities which are currently subject to the Board's phosphorus regulations and those which are or may be subject to the phosphorus regulations as proposed today by the Board ("PCB Second First Notice Proposal") and as originally proposed by the Agency (IEPA Proposal"). Note that several facilities with installed and operating phosphorus controls (e.g., Arcola) would be relieved from the need for continuing operation of their phosphorus controls under either proposal.

FACILITIES SUBJECT TO PHOSPHOROUS CONTROL REQUIREMENTS UNDER VARIOUS SCENARIOS

Facility	Population Equivalent	Equipment Status 2/15/88	Mi from Lake	Current Board Regulations	PCB Second 1st Notice Proposal (based on criteria 1.2,3,4)	IEPA Proposal (based on criteria 1.2 & 5)	Remarks
CRAB ORCHARD LAKE							
Crab Orchard NWR	1,500	Plan Only	0.7	X			
Marion	---	Yes	5.5	X	?	?	PE not known
Little Grassy FH	---	Yes	<25	X	?	?	PE not known
PISTAKEE LAKE							
Hebron*	1,888	Install & Oper.	35.2	X			
Richmond*	1,200	Yes	14.7	X			
LAKE DECATUR							
Cerro Gordo	1,553	Plan Only	<25	X			
Fisher	1,572	Plan Only	60.7	X			
Gibson City**	5,830	Inst., not Oper.	78.1	X			
Mahomet***	1,986	Contract Let	44.6	X			
Monticello	4,753	Design Only	23.5	X			
Viobin Corp	N App	Not Appl.	<25	X	----		No flow
LAKE CHARLSTON							
Arcola*	2,711 & 2,714	Operating	>25	X			conflicting data on PE
Tolono***	2,434	Contract Let	66.5	X			
Tuscola	3,839	Plan Only	51.4	X			
Villa Grove*	2,797	Operating	55.0	X			
LAKE SHELBYVILLE							
Arthur	5,000	Plan Only	36.4	X			conflicting data on PE
Bement**	1,820	Inst., not Oper.	43.6	X			
Bathany**	1,550	Inst., not Oper.	6.2	X			
Urbana-Champaign*	53,400	Operating	68.5	X	X		
USICC	23,360	Plan Only	>25	X	X		
Sullivan	4,526	Yes, Installed or under Inst.	3.0	X	X	X	Meets 1.0mg/l
Kraft, Inc.	---	No.	>25	X	?		PE not known
LAKE CARLYLE							
CF Industries	2,730 & <2500	Plan Only	<15	X	X	X	Conflicting data on PE
Pana*	8,910	Operating	54.4	X			
Shelbyville*	5,380	Operating	66.2	X			
Vandalia	6,250	No	10.0	X	X	X	
LAKE SLOCUM							
Wauconda	---	No	1.8	X	?	?	PE not known
LAKE CHANNEL							
Antioch	---	No	2.5	X	?	?	PE not known
LAKE THUNDERBIRD							
Crystal Lake #3	1,400	Yes	3.0	X			
LAKE GRASSY							
Lake Zurich, NW	8,000	Yes	3.0	X	X	X	assumes no short retention
LAKE LONG							
Travenol Lab	Ind.	No	3.0	X	?	?	PE not known
Lake Villa	3,000	Yes	3.2	X	X	X	assumes no short retention
LAKE CLINTON							
Farmer City	---	No	4.0	X	?	?	PE not known
Leroy	---	Yes	14.0	X	?	?	PE not known
LAKE WONDER							
Woodstock, N.	7,600	No	8.8	X	X	X	assumes no short retention
Allied Corp.	Ind.	No		X	?	?	PE not known
LAKE REND							
Mount Vernon	---	Yes	14.5	X	?	?	PE not known
LAKE VERMILLION							
Hoopeston	8,000	Yes	20.6	X		X	assumes no short retention

- Exempt from P Control under the Board's proposal
 - Exempt from P Control under the Agency's proposal

* Currently has installed and operating P Controls
 ** Currently has installed, but not operating P Controls
 ***Currently has contract to install P Controls

Exemption Criteria: 1 - Minimum size of 2500 PE
 2 - Distance of 25 miles or less
 3 - Detention time of 18 days or less
 4 - Contribution of >3% when beyond 25 miles
 5 - Lake Decatur exemption

Cautionary Note

The proposed rules which the Board today proposes again for First Notice should be understood as interim measures, representing an accommodation of the needs expressed by the Agency, but limited to the relief actually justified by the record of this proceeding. It is the Board's wish that the requisite studies of individual lake eutrophication dynamics be undertaken by the Agency and/or DENR promptly. The results of such studies should pave the way for further refinements in the phosphorus standards or, indeed, for framing a regulation that addresses limiting factors other than phosphorus, if appropriate to the dynamics of individual lakes.

Because these proposed rules are interim measures, the Board cautions that those dischargers which under this proposal would be relieved from the necessity of installing or maintaining phosphorus control facilities should not rush to dismantle any such facilities now in place or in progress; it is clear to the Board that one possible outcome of future lake studies is that phosphorus/nutrient control requirements may be reinstated on a lake-by-lake basis.

ORDER

The Board hereby proposes the following revised and corrected proposed amendment for Second First Notice, which is to be filed with the Joint Committee on Administrative Rules.

TITLE 35: ENVIRONMENTAL PROTECTION
SUBTITLE C: WATER POLLUTION
CHAPTER I: POLLUTION CONTROL BOARD

PART 304
EFFLUENT STANDARDS

SUBPART A: GENERAL EFFLUENT STANDARDS

Section	
304.101	Preamble
304.102	Dilution
304.103	Background Concentrations
304.104	Averaging
304.105	Violation of Water Quality Standards
304.106	Offensive Discharges
304.120	Deoxygenating Wastes
304.121	Bacteria
304.122	Nitrogen (STORET number 00610)
304.123	Phosphorus (STORET number 00665)
304.124	Additional Contaminants

- 304.125 pH
- 304.126 Mercury
- 304.140 Delays in Upgrading (Repealed)
- 304.141 NPDES Effluent Standards
- 304.142 New Source Performance Standards (Repealed)

SUBPART B: SITE SPECIFIC RULES AND EXCEPTIONS
NOT OF GENERAL APPLICABILITY

- Section
- 304.201 Wastewater Treatment Plant Discharges of the Metropolitan Sanitary District of Greater Chicago
- 304.202 Chlor-alkali Mercury Discharges in St. Clair County
- 304.203 Copper Discharges by Olin Corporation
- 304.204 Schoenberger Creek: Groundwater Discharges
- 304.205 John Deere Foundry Discharges
- 304.206 Alton Water Company Treatment Plant Discharges
- 304.207 Galesburg Sanitary District Deoxygenating Wastes Discharges
- 304.208 City of Lockport Treatment Plant Discharges
- 304.209 Wood River Station Total Suspended Solids Discharges
- 304.210 Alton Wastewater Treatment Plant Discharges
- 304.212 Sanitary District of Decatur Discharges
- 304.213 Union Oil Refinery Ammonia Discharge
- 304.214 Mobil Oil Refinery Ammonia Discharge
- 304.215 City of Tuscola Wastewater Treatment Facility Discharges
- 304.216 Newton Station Suspended Solids Discharges
- 304.219 North Shore Sanitary District Phosphorus Discharges
- 304.220 East St. Louis Treatment Facility, Illinois-American Water Company

SUBPART C: TEMPORARY EFFLUENT STANDARDS

- Section
- 304.301 Exception for Ammonia Nitrogen Water Quality Violations
- 304.302 City of Joliet East Side Wastewater Treatment Plant

APPENDIX A References to Previous Rules

AUTHORITY: Implementing Section 13 and authorized by Section 27 of the Environmental Protection Act (Ill. Rev. Stat. 1987, ch. 111 1/2 pars. 1013 and 1027).

SOURCE: Filed with the Secretary of State January 1, 1978; amended at 2 Ill. Reg. 30, p. 343, effective July 27, 1978; amended at 2 Ill. Reg. 44, p. 151, effective November 2, 1978; amended at 3 Ill. Reg. 20, p. 95, effective May 17, 1979; amended at 3 Ill. Reg. 25, p. 190, effective June 21, 1979; amended at 4 Ill. Reg. 20, p. 53, effective May 7, 1980; amended at 6 Ill.

Reg. 563, effective December 24, 1981; codified at 6 Ill. Reg. 7818; amended at 6 Ill. Reg. 11161, effective September 7, 1982; amended at 6 Ill. Reg. 13750, effective October 26, 1982; amended at 7 Ill. Reg. 3020, effective March 4, 1983; amended at 7 Ill. Reg. 8111, effective June 23, 1983; amended at 7 Ill. Reg. 14515, effective October 14, 1983; amended at 7 Ill. Reg. 14910, effective November 14, 1983; amended at 8 Ill. Reg. 1600, effective January 18, 1984; amended at 8 Ill. Reg. 3687, effective March 14, 1984; amended at 8 Ill. Reg. 8237, effective June 8, 1984; amended at 9 Ill. Reg. 1379, effective January 21, 1985; amended at 9 Ill. Reg. 4510, effective March 22, 1985; peremptory amendment at 10 Ill. Reg. 456, effective December 23, 1985; amended at 11 Ill. Reg. 3117, effective January 28, 1987; amended in R84-13 at 11 Ill. Reg. 7291, effective April 3, 1987; amended in R86-17(A) at 11 Ill. Reg. 14748, effective August 24, 1987; amended in R84-16 at 12 Ill. Reg. 2445, effective January 15, 1988; amended in R83-23 at 12 Ill. Reg. 8658, effective May 10, 1988; amended in R87-27 at 12 Ill. Reg. 9905, effective May 27, 1988; amended in R82-7 at 12 Ill. Reg. 10712, effective June 9, 1988; amended in R85-29 at 12 Ill. Reg. 12064, effective July 12, 1988; amended in R87-22 at 12 Ill. Reg. 13966, effective August 23, 1988; amended in R86-3 at 12 Ill. Reg. 20126, effective November 16, 1988; amended in R84-20 at 13 Ill. Reg. 851, effective January 9, 1989; amended in R85-11 at 13 Ill. Reg. 2060, effective February 6, 1989, amended in R88-1 at 13 Ill. Reg. 5976, effective April 18, 1989; amended in R87-6 at Ill. Reg. _____, effective _____.

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 within the Fox River Basin above and including Pistakee Lake and whose untreated waste load is 1500 or more population equivalents shall contain more than 1.0 mg/l of phosphorus as P.
- c) 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 to such a lake or reservoir and whose untreated waste load is 5000 or more population equivalents shall contain more than 1.0 mg/l of phosphorus as P.
- d) No effluent from any source which discharge to a lake or reservoir with a surface area of 8.1 hectares (20 acres) or more which does not comply with Section 302-205 or to any tributary to such a lake or reservoir and whose untreated waste load is 1500 or more population

equivalents and which is not governed by Sections 304.120(a) or 304.120(c) 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 within 40.25 kilometers (25 miles) of the point where the tributary enters the 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 Sections 304.120(a) and (c), shall exceed 1.0 mg/l of phosphorus as P; however, this subsection (b) shall not apply where the lake or reservoir on an annual basis exhibits a mean hydraulic retention time of 0.05 years (18 days) or less.
- c) 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 beyond 40.25 kilometers (25 miles) of the point where the tributary enters the 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 Sections 304.120(a) and (c), shall exceed 1.0 mg/l of phosphorus as P.; however, this subsection (c) shall not apply:
- 1) Where the lake or reservoir on an annual basis exhibits a mean hydraulic retention time of 0.05 years (18 days) or less; or
 - 2) Where effluent, if untreated for removal of phosphorus, would contribute less than 3% of the phosphorus loading of all tributaries to such lake or reservoir, including non-point sources.
- e)d) For the purpose 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.
- f) Compliance with the limitations of paragraph (c) shall be achieved by the following dates:
- 1) New sources shall comply on the effective date of this regulation, and
 - 2) Existing sources shall comply by December 31, 1980, or such other date as required by NPDES permit, or

as ordered by the Board under Title VIII or Title IX of the Act.

g) Compliance with the limitations of paragraph (d) shall be achieved by December 31, 1985, or such other date as required by NPDES permit, or as ordered by the Board under Title VIII or Title IX of the Act.

de) Compliance with the limitations of paragraph (b) shall be achieved by the following dates:

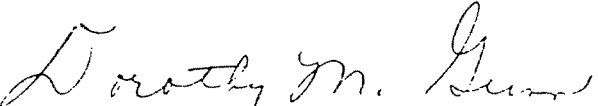
- 1) Sources with the present capability to comply shall do so on the effective date of this regulation;
- 2) All other sources shall comply as required by NPDES permit.

(SOURCE: Amended at _____ Ill. Reg. _____, effective _____)

IT IS SO ORDERED.

J. Dumelle concurred.

I, Dorothy M. Gunn, Clerk of the Illinois Pollution Control Board, hereby certify that the above Proposed Opinion and Order was adopted on the 11th day of May, 1989, by a vote of 7-0.



Dorothy M. Gunn, Clerk
Illinois Pollution Control Board