

ILLINOIS POLLUTION CONTROL BOARD
September 13, 1989

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

PROPOSED RULE. SECOND NOTICE

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

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. Merit hearings on the Agency's proposal were held in Chicago on May 18, 1987 and in Springfield on July 21, 1987. Participants at those hearings beside 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 hearing, 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).

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 was obviously necessary to return this proceeding to First Notice. On May 11, 1989, the Board adopted a Second First Notice proposed Opinion and Order, which was subsequently corrected on May 25, 1989. The Board also utilized the necessity for a Second First Notice period to afford the participants additional time to consider this rulemaking in light of the changes proposed by the Board (see following). Additionally, the Board concluded that at least one more hearing in this docket would be advisable in view of the continuing problems posed by the record.

The Second First Notice embodied the Agency's original proposal together with the modifications proposed by the Board in its deferred Second Notice proposal of December 15, 1988 as more fully set forth below. A merit hearing to consider the modified proposal was held in Chicago on June 23, 1989. Participants at this third merit hearing (fifth overall), besides the Agency were DENR, the City of Charleston (Charleston), Dr. Harish Rao, Chief of the Board's Scientific and Technical Section (STS), and Mr. Robert Kirschner, Manager of the NIPC lakes program, who appeared on behalf of the Illinois Lake Management Association (ILMA) as its vice-president and the North American Lake Management Society (NALMS) as its secretary. At the hearing, ten additional exhibits (Exhs. 50-58 and 60) were received into evidence.*

The Board's Modified Proposal (Second First Notice)

As more fully described in the Board's Opinion of May 11, 1989, the Board, after consideration of the record then available to it, found sufficient support for the Agency's proposal to the extent that it would impose a 1.0 mg/l effluent phosphorus as P standard upon all point sources of 2500 population equivalents (P.E.) or more located within 25 miles of a 20-acre or larger lake or reservoir. Current requirements impose this effluent standard upon somewhat smaller (1500 P.E. or larger) sources which discharge within the Fox River Basin or which (without utilizing a third-stage lagoon treatment system) discharge

* One other exhibits (Exh. 59), consisting of the Illinois Water Quality Report for 1980-1987 (also known as the 305B report) was to have been submitted, but has not been received.

directly to a lake or reservoir which does not comply with the general use water quality standard for phosphorus (35 Ill. Adm. Code 302.205), and to somewhat larger (5000 P.E. or larger) sources elsewhere (separate standards for the Lake Michigan basin are not affected). The Board also accepted the Agency's proposal to the extent that the effluent phosphorus standard would not apply to sources tributary to so-called "riverine" lakes or reservoirs (e.g., Lake Decatur) whose very low retention times appear to limit growth of nuisance plants and algae regardless of phosphorus concentrations. However, the Board noted (on page 13) that it was not satisfied that the record supported that aspect of the Agency's proposal that removed control requirements from all point sources of phosphorus which happen to be located more than 25 miles from a lake. The Board noted that some of the lakes and reservoirs potentially impacted by the Agency's 25 mile cut-off were, according to the EcIS, in a transitional or balancing condition between mesotrophy and eutrophy. Finally, in this regard, the Board noted that the Agency, DENR and other commenters agreed that internal regeneration of phosphorus into the dissolved form from lake sediments can be a "significant factor" in lake eutrophication (Id., citing Exh. 1, pgs. 6-8, 34-38 and 54).

The Board's Second First Notice proposal (which was identical to its December 15, 1988 deferred Second Notice proposal as corrected) attempted to supply the element it viewed as missing from the Agency's proposal, namely, a measure of control over those point sources of phosphorus located more than 25 miles upstream from the receiving lake or reservoir. The proposal approached the problem by, in effect, defining what constituted a "significant" source. Based on testimony and exhibits in the record, particularly the EcIS, the Board's proposal exempted from the effluent phosphorus standard only such point sources whose effluent, if untreated for removal of phosphorus, would contribute less than 3% of the point and non-point source phosphorus loading of all tributaries to the receiving lake or reservoir. Phosphorus loading was to be estimated utilizing the National Eutrophication Surveys, Working Paper Series, U.S. Environmental Protection Agency, June 1975 (NES).

At the June 23, 1989, hearing and in comments and exhibits submitted by various participants, the Board's choice of the 3% cutoff, as well as the use of the NES, were attacked as unreliable and founded upon suspect dated methodology (R. 81-82, 85-87, 101-102, 151-152)*. The Agency submitted an exhibit (Exh. 57) suggesting that there was very little (3.3% on average) difference in sedimentary phosphorus levels as between lakes

* All references to transcript pages relate to the hearing of June 23, 1989, unless otherwise noted.

with, and lakes without, upstream point sources of phosphorus (R. 113-114). The Agency essentially urged the Board to ignore point sources of sedimentary phosphorus as being insignificant or negligible when compared to non-point sources (R. 82-83, 114-115 and 117). The Agency suggested that the NES data was dated and unreliable (R. 152). The Agency stated that there was not enough data presently available upon which to base a statewide rule (R. 86-88), and that diagnosis of lake problems would be necessarily lake-specific (R. 90). Further, although the Agency and other participants indicated that specific studies are underway in some areas of the State (e.g., Lake Charleston - see R. 15, 25-26, 45-46, and Exh. 51), the Agency suggested that future research dollars would likely be directed at toxins rather than phosphorus (R. 90-91).

The foregoing Agency views were generally endorsed or accepted by other participants; however, no other participants were willing to accept the Agency's premise that point source contributions of sedimentary phosphorus were insignificant or negligible (R. 50, 123, 139-140). Mr. Kirschner of ILMA and NALMS, while stating that a case-by-case analysis would be required to confirm or refute the Agency's position (R. 143-145), pointedly disagreed with the concept of deregulation of point sources of sedimentary phosphorus (R. 147-149). Even the Agency conceded that the studies upon which it based its conclusions in this regard could be easily faulted or "ripped apart" (R. 98 and 120).

The other major point of contention at the June 23, 1989 hearing was whether the "riverine" exemption should be extended to sources tributary to Lake Charleston. Mr. Alan Alford testified on behalf of Charleston. Mr. Alford testified that the basic difference between Lake Charleston and Lake Decatur (which is also a "riverine" lake) is that the former has a side channel reservoir having a hydraulic retention time approaching two years, in sharp contrast to Lake Charleston's retention time of a few days (R. 22). He expressed concern that an addition to the already "large amount" of phosphorus in Lake Charleston might detrimentally affect the side channel reservoir, which serves as Charleston's potable water supply; he indicated that studies of the phosphorus/nitrogen ratios in the lake indicate that phosphorus may be a limiting factor in terms of causing or contributing to eutrophication in either the lake or the side channel reservoir; tests are presently underway to determine whether phosphorus or nitrogen is the limiting factor (R. 25-26). Under questioning from the Agency, Mr. Alford agreed that his purpose regarding the side channel reservoir would be accomplished if the "riverine" exemption were amended to apply only "where the lake and any side channel reservoir on an annual basis exhibits a mean hydraulic retention time of 18 days or less" (R. 38).

Board Conclusions and Further Modifications (Second Notice)

The Board is persuaded that the "riverine" exemption should not be extended to lakes having side channel reservoirs where the side channel reservoirs do not otherwise qualify for the exemption. Given a chance in the June 23, 1989, hearing to address the obvious confusion in the record regarding the hydraulic retention time of Lake Charleston and its side-channel reservoir, Charleston has made its point in this regard. It is now clear that the side-channel reservoir, which receives some 70% of its influent from the lake, has a retention time approaching two years, rather than a few days. Accordingly, subsections (b) and (c)(1) of Section 304.123 of the Second First Notice proposal will be amended for second notice purposes to include the phrase "including any side channel reservoir or other portion thereof," immediately preceding the words "on an annual basis". The additional reference to "or other portion thereof" has been inserted to make clear that the principle applies irrespective of whether a segment of a lake is denominated a "side channel reservoir".

As to the troubling issue of point sources of phosphorus which are at least 25 miles upstream, the Board remains unpersuaded that the Agency has made out a case for blanket deregulation. No participant or commenter, including the Agency, argues that such phosphorus discharges will not eventually reach the receiving lake or reservoir. No participant or commenter, including the Agency, suggests that such phosphorus as reaches the receiving lake or reservoir, albeit in sedimentary form, cannot be a significant factor in cultural eutrophication* of the receiving lake or reservoir by virtue of internal regeneration of the phosphorus into its dissolved form and subsequent return to the euphotic zone wherein it is again readily available for uptake by biota. Even if one were to accept the Agency's data suggesting that, for most Illinois lakes and reservoirs, internal regeneration of phosphorus is generally not a critical factor in cultural eutrophication, the record has certainly not shown that internal regeneration of phosphorus is not a critical factor for two of the lakes of concern identified in the EcIS, Lakes Shelbyville and Carlyle. This is no small matter: Lake Shelbyville is described by the EcIS as a "major recreational center in downstate Illinois" (p. 63); Lake Carlyle (to which Lake Shelbyville waters are tributary) is also described by the EcIS as "part of a major recreational area in downstate Illinois (p. 75). The combined angler-days for these two lakes (a measure of their recreational value) is 2,715,486.

* Cultural eutrophication refers to those eutrophication processes accelerated by human activities.

By the same token, the Board agrees that the 3% cutoff figure may be irrelevant to a given lake and is based on dated information which may be of doubtful reliability and relevance at the present time. The Board is therefore faced with a dilemma: either it may fashion yet another attempt to deal with point sources of phosphorus 25 miles or more upstream of a receiving lake, or it may, as the Agency has proposed, rely on the presumed general nature of Illinois lakes and watersheds and provide regulatory relief generally for the more distant dischargers until the resource intensive data, gathered on a lake-by-lake basis, indicates a need for further point source controls.

The Board chooses the former. The Board is simply unwilling at this juncture to provide regulatory relief, including the shutdown of several existing phosphorus control facilities and the termination of a number of phosphorus control construction projects, where the impact on the State's valuable water resources is speculative at best. It agrees with all participants that further research is needed on a lake and watershed-specific basis, such as is currently underway at Lake Charleston. Nevertheless, it recognizes that regulatory relief for some point sources of phosphorus may be appropriate, particularly where the phosphorus arrives at the receiving lake or reservoir in the sedimentary form or where such phosphorus plays no material role in cultural eutrophication of that lake or reservoir.

The Board, therefore, proposes for Second Notice a modified proposal which does not grant outright relief, but rather provides for adjusted standard (AS) relief pursuant to Section 28.1 of the Act. It conditions regulatory relief for point sources of phosphorus on the specific dynamics of the affected watershed and the receiving lake or reservoir. Rather than resort to the 3% cutoff and the NES study, both of which have been questioned by commenters, the Board will, in keeping with the tenor of comments, generally require that justification for relief from the 1.0 mg/l effluent phosphorus standard be predicated upon a demonstration that phosphorus is not the limiting nutrient for purposes of stimulating biological growth in the receiving lake or reservoir. However, for point sources at least 25 miles upstream of a eutrophic lake, the Board will require only that phosphorus from internal regeneration be ruled out as a limiting nutrient. Thus the AS showing for the more distant point sources which are tributary to lakes which are already eutrophic have a somewhat reduced hurdle to overcome to qualify for relief from the standard. This reduction reflects the presumption that phosphorus from such sources arrives at the receiving lake or reservoir in sedimentary form, and is of negligible concern where internal regeneration of phosphorus plays no substantial role in keeping the lake or reservoir eutrophic. In addition, the Board has added definitions of the key terms, such as "euphotic zone", "eutrophication" and

"internal regeneration". Finally, the Board has clarified its intent that distances between a point source and the receiving lake or reservoir are to be determined at the normal pool level, rather than at some seasonal extreme.

The Board recognizes that the near-term effect of these regulatory changes may be small. Some very small sources (certain of those between 1500 P.E. and 2500 P.E.) may obtain relief. Some others sources (certain of those between 2500 P.E. and 5000 P.E.) will be made subject to the standard for the first time. Many sources will be unaffected. Yet the possibility of relief first raised by the Agency remains and the incentive to truly understand the location-specific dynamics of eutrophication is, in many cases, enhanced. The Board would expect that owners and operators of point sources of phosphorus, particularly those which are more distant from the receiving lake or reservoir, may wish to enter into cooperative efforts to study the receiving lake and watershed system as a necessary prerequisite to regulatory relief.

It should be remembered that when the Agency's proposal was first filed, the adjusted standards mechanism in Section 28.1 was in its infancy. Also, in 1988 there were major revisions and additions to the section, and only recently (in 1989) has the Board adopted general procedural rules to implement it. We believe that this more efficient mechanism is particularly appropriate for providing situation-specific relief from the phosphorus regulatory requirements. The Board's revised proposal invokes this relatively new mechanism and specifies the level of justification required of a petitioner pursuant to Section 28.1(b). Absent such specification, there would be no criteria provided in the rule by which to determine the appropriate level of justification for an adjusted standard; there would also be no distinction between near point sources and more distant point sources.

Most importantly, this proposal will protect the environment and the public welfare by assuring that any relief from the phosphorus effluent standard will not result in the cultural eutrophication of Illinois lakes and reservoirs. As a related benefit, this proposal places a premium on possessing knowledge of the specific dynamics of eutrophication of a given lake or reservoir. If nothing else, the record of this protracted proceeding has abundantly demonstrated the need for such knowledge.

Due to the aforementioned changes made in the proposal, the filing of Second Notice with the Joint Committee will be deferred for 14 days to allow participants opportunity to comment on the changes. Such comments should be directed to the Board in writing and must be received by the Board no later than Monday, September 25, 1989.

ORDER

The Board hereby proposes the following revised proposed amendment for Second Notice, which is to be filed with the Joint Committee on Administrative Rules. Such filing shall be deferred for receipt and consideration of additional comments until no sooner than September 29, 1989.

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 R86-17B at 13 Ill. Reg. 7754, effective May 4, 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 ≥ 500 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 ≥ 500 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 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, 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 Act, the owner or operator of any source subject to paragraph (b) may apply for an adjusted standard. 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, 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.

- 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.
- 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.

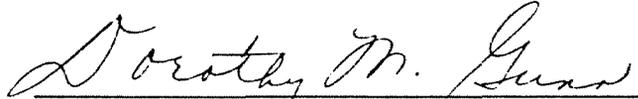
- 7) "Unnatural plant or algal growth" means the occurrence of a violation of the unnatural sludge standard applicable to a lake or reservoir with respect to such growth.

(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.)

IT IS SO ORDERED.

B. Forcade dissented.

I, Dorothy M. Gunn, Clerk of the Illinois Pollution Control Board, hereby certify that the above Correction to Proposed Opinion and Order was adopted on the 13th day of September, 1989, by a vote of 6-1.



Dorothy M. Gunn, Clerk
Illinois Pollution Control Board