

ILLINOIS POLLUTION CONTROL BOARD
November 6, 1986

IN THE MATTER OF:)
)
PROPOSED AMENDMENTS TO)
SUBTITLE C: WATER POLLUTION.) R85-29
FECAL COLIFORM AND)
SEASONAL DISINFECTION)

PROPOSED RULE

FIRST NOTICE

OPINION AND ORDER OF THE BOARD (by R. C. Flemal):

This matter comes before the Board upon a December 5, 1985, Order of the Board which proposed amendments to 35 Ill. Adm. Code 302.209 and 304.121 relating to fecal coliform standards for general use waters and effluent discharges. Today, the Board submits these proposed amendments, with a minor modification to §304.121 and the addition of a proposed §302.306, for first notice publication.

PROCEDURAL HISTORY

The present matter has antecedents in a previous Board docket, R77-12. On October 14, 1982, in R77-12 Docket D, the Board repealed the fecal coliform water quality standard for general use and secondary contact waters (35 Ill. Adm. Code 302.209 and 302.406, respectively) and amended the fecal coliform effluent limitation (35 Ill. Adm. Code 304.121). Upon review of this action, the First District Appellate Court upheld the Board's repeal of the fecal coliform water quality standard for secondary contact waters (§302.406), but overturned the Board's actions with respect to the fecal coliform standards for general use waters (§302.209) and effluent discharges (§304.121). People of the State of Illinois v. Pollution Control Board, 119 Ill. App. 3d 561, 456 N.E. 2d 909 (1983)). The Illinois Supreme Court upheld the appellate court's actions in People of the State of Illinois v. Illinois Pollution Control Board, 103 Ill. 2d. 441, 469 N.E. 2d 1102 (1984).

On November 21, 1985, the Board adopted a peremptory rulemaking in R77-12 Docket D, intending to reestablish §§302.209 and 304.121 as they existed prior to the Board's October 1982 action, pursuant to the mandate of the appellate and Supreme Courts. The use of peremptory rulemaking in these circumstances was challenged by the Joint Committee on Administrative Rules ("JCAR"), and remained in doubt until recently.

At essentially the same time (November 8, 1985) the Bloomington and Normal Sanitary District ("BNSD") and the Illinois Association of Sanitary Districts ("IASD") moved the

Board to adopt an Emergency Rule which would have provided seasonal applicability to the fecal coliform standards for general use waters and effluents, and thus would have had the effect of making disinfection requirements seasonal; such rule would have been in effect for 150 days, pursuant to statutory provisions for Emergency Rules.

On December 5, 1985, the Board denied the motion for emergency rulemaking, noting in part:

The Board believes that BNSD and IASD have failed to demonstrate that an emergency exists. While they have made various unverified allegations which, if proven, could perhaps support the adoption of a permanent rule, those allegations cannot simply be accepted as true in order to support a finding that an emergency exists.

In recognition of the possible merits of a permanent rule similar in character to that proposed in the BNSD and IASD motion, the Board in the same December 1985 Order opened the present docket (R85-29) and therein proposed amendments to §§302.209 and 304.121 which would make the fecal coliform standards of these two sections applicable only from May through October.

On May 22, 1986, the Board amended its December 1985 proposed permanent rule in R85-29 with the intent of accommodating the difficulties with the peremptory rulemaking as perceived by JCAR. The May 1986 amendments did not change the language of either section relative to that of the December 1985 proposal, but rather treated both sections as though they were entirely de novo. Subsequent information provided to the Board by JCAR has indicated that the two sections have been reinstated as a consequence of the peremptory rulemaking activity, and hence that the Board's May 1986 amendments are not required. Accordingly, the Board today recedes from its May 1986 proposed language and readopts its December 1985 proposal, with modifications as discussed below.

HEARING AND PUBLIC COMMENT RECORD

Public hearings in R85-29 were held May 5, 1986, in Bloomington, Illinois, and June 2, 1986, in DeKalb, Illinois. Testimony in support of allowing seasonal disinfection was presented by John M. Callahan of the Bloomington and Normal Sanitary District, Roger C. Andrew of the Springfield Sanitary District, Dr. Cecil Lue-Hing of the Metropolitan Sanitary District of Greater Chicago ("MSD"), Robert S. Flick of the Decatur Sanitary District, James P. Browning of the Galesburg Sanitary District, and Lawrence C. Cox of the Downers Grove Sanitary District. Mr. James D. Park of the Illinois

Environmental Protection Agency also testified in general support of the concept of seasonal disinfection, but with reservations relating to possible impact on public water supply withdrawals.

In addition to testimony, the Board also received prior to completion of the hearings a number of written comments expressing general support for a reduction in disinfection requirements. Included were comments from Larry Dressel of the DuPage County Department of Public Works, Robert O. Burns of the the Village of Roselle, Lawrence B. Christmas and Dennis W. Dreher of the Northeastern Illinois Planning Commission ("NIPC"), James L. Daugherty of the Thorn Creek Basin Sanitary District, Ronald A. Johnson of the Glenbard Wastewater Authority, John Churchill of the City of Wood Dale, the Board of Trustees of the Springfield Sanitary District, Dennis Streicher of the City of Elmhurst, and George Feltz of the Kish-Rock Operators Association and the City of Harvard. One written comment, submitted by Dr. Charles N. Haas of the Illinois Institute of Technology, expressed opposition to the proposal.

Subsequent to the hearings, the Board received two written public comments. The first, Public Comment #11, filed on June 19, 1986, consists of objections raised by the Attorney General of the State of Illinois ("AG"). The second, Public Comment #12, filed on August 18, 1986, by BNSD, consists of responses to the AG's objections.

ENVIRONMENTAL IMPACT

The principal argument presented in favor of the proposed amendments is that the chlorination necessary to achieve compliance with the fecal coliform standards causes significant environmental damage. The damage is largely focused on the aquatic community, which suffers as a consequence of exposure to a variety of chlorine reaction products. Among the most troublesome of the chlorine reaction products are chloramines, which are produced in the wastewater chlorination process and which have been discharged from Illinois sewage treatment facilities at levels as high as 1.05 to 5.17 mg/l; many fish species cannot tolerate chloramine levels above 0.1 mg/l, and even more tolerant fish species are killed at levels above 1.2 mg/l¹.

¹ "Wastewater Disinfection: A Review of the Technical and Legal Aspects in Illinois", The Metropolitan Sanitary District of Greater Chicago, Report No. 84-17. This document has been admitted into the record as Exhibit 6.

Field demonstrations of environmental damage to aquatic life due to chlorination are many. Among these are a three-year study conducted on Sugar Creek below the BNSD outfall, which showed a marked decline in intolerant fish species, fish species diversity, and total number of individual fish within the zone of total residual chlorine persistence downstream from the BNSD outfall (R. at 22-3).

One of the more extreme cases presented in this record concerns the East Branch of the DuPage River. It is noted that the East Branch "once supported a game fishery, including large mouth bass and northern pike", but is now characterized "as very poor, being dominated by carp and suckers" (NIPC, Public Comment #7, p. 1). Modeling studies of the effect of various toxicants in the East Branch indicate that residual chlorine is a major contributor to the poor character of the aquatic community². Based on these results, NIPC has concluded that even with the advent of advanced wastewater treatment at all East Branch treatment plants, "fish toxicity will still be a problem due to the presence of residual chlorine" and that it is only when chlorine is eliminated that "toxicity drops to tolerable levels throughout much of the river" (Id. at 5). In summary, NIPC notes that "if present chlorination practices continue, it will be impossible to achieve a high quality fish community in much of the East Branch even when advanced wastewater treatment is implemented" (Id. at 6).

Field studies have also demonstrated that the elimination of chlorination can lead to a restoration of the health of an aquatic community. A particularly pertinent study, carried out in Illinois in 1983 by Drs. Roy C. Heidinger and William M. Lewis³, found that in three central Illinois streams temporary discontinuation of chlorination by sewage treatment plants resulted in the rapid restoration of what had been extremely poor fish communities. Restoration was to the level characteristic of ambient areas above the outfalls, and could be directly attributed to reductions in residual chlorine (Id. at 88). As a general conclusion, Heidinger and Lewis determined that "the elimination of residual chlorine from good quality secondary sewage effluents derived primarily from domestic wastes will result in quantitative and qualitative improvement of the fish communities in most Illinois streams" (Id. at 88-9).

² Dennis W. Dreher, "Study of Fish Toxicity in the East Branch Du Page River", Northeastern Illinois Planning Commission Staff Paper, June 1981. This document and its independent appendix 3 have been admitted into the record as Exhibit 6.

³ Heidinger and Lewis, "Relative Effects of Chlorine and Ammonia from Wastewater Treatment Facilities on Stream Biota". This document has been admitted into the record as Exhibit 3.

The MSD undertook a similar study, with similar results. In April, 1984, MSD ceased chlorinating effluent discharged from its North Side Sewage Treatment Works. The effluent had received continuous chlorination prior to that time. During fish sampling conducted in each of the seven preceding years and carried out 0.7 to 1.7 miles downstream from the outfall, a total of 20 individual fish representing six species were collected. In contrast, a collection made in that same area on November 5, 1984, seven months after cessation of chlorination, totalled 115 individual fish representing 9 species (R. at 112-3).

Concerns over environmental damage associated with chlorination have persuaded other states to reduce requirements for chlorination. Among these are the neighboring states of Ohio, Indiana, Minnesota, Iowa, and Missouri, each of which has instituted seasonal chlorination (R. at 14; Ex. 1). The U.S. Environmental Protection Agency ("USEPA"), commenting in a letter written by the chief of USEPA's Technical Support Section to an official of the BNSD, also noted that the USEPA

encourages the reduction in disinfection by the use of chlorine where aquatic life protection is a desired use, and public health requirements do not outweigh this consideration. EPA encourages seasonal disinfection as a reasonable way to avoid chlorine discharges when justified. (Ex. 2; emphasis added).

The Board itself has previously reached the determination that chlorination causes significant aquatic environmental damage. In R77-12 Docket D (In the Matter of: Amendments to Chapter 3: Water Pollution (Effluent Disinfection)), 47 PCB 555, 570 et seq., August 18, 1982) the Board observed that residual chlorine stunts the growth of fish, halts or reduces spawning, and is lethal at concentrations of less than 0.1 mg/l; that fish avoid levels of residual chlorine as low as 0.01 mg/l; that estimated value of lost angling days was then from \$2,000,000 to \$4,400,000; that chlorinated hydrocarbons produced as a result of chlorination are hazardous materials whose toxic effects are of uncertain but likely real concern; and that chlorination may negatively impact other effluent parameters, including ammonia and dissolved oxygen. Given the weight of those observations, the Board concluded that "if disinfection were first proposed for adoption today, it is quite clear that the record would not support its widespread use" (Id. at 574).

A principal argument presented in opposition to the amendments as proposed prior to today is that seasonal disinfection would negatively impact downstream water supplies. This position has been capsulized by Mr. Park, representing the Agency:

The Agency is concerned ... about the possible impact of existing and the potential impact of new

discharges of wastewater containing high counts of fecal coliform in the immediate vicinity of public water supply intakes ... While public water supply clarification, filtration and chlorination facilities can effectively deal with a relatively wide range of raw water quality, the elevated and fluctuating bacterial levels associated with unchlorinated secondary effluent do have the potential to overwhelm public water supply chlorination facilities if the natural mitigating effects of dilution and instream die-off do not have a chance to operate. (R. at 188-9).

This concern aside, the Agency does conclude that "reduction in the amount of chlorine released to the environment in Illinois can be expected to have a positive impact on the aquatic communities while reducing operating costs for wastewater treatment plants" (R. at 190).

This argument related to impact on downstream water supplies was also raised in the Public Comments by the AG and Professor Haas. The AG contends that survival of viruses and bacteria in river water is greatest at the lower temperatures characteristic of the winter months (Public Comment #11, p. 3) and that viral shedding appears to be greatest in late summer and early fall (Id. at 4). The AG additionally noted that treatment of drinking water is "an imperfect process" which "is not immune from operational problems which allow bacteria and viruses to pass through to the users" (Id. at 5); given this circumstance, the AG contends that the "present proposal, if accepted, would eliminate an important barrier protecting the health of drinking water users" (Id. at 5).

Professor Haas asserted that:

There is ... a potential for serious conflict between the proposal and the drinking water regulations. During winter months, in low dilution streams, near the source of an effluent discharge, the coliform counts will be substantially above the numbers [in the Public Water Supply Regulations, Section 504.501]. Thus, the potable water plant will be at least in nominal violation. In addition, excess costs of treatment will occur at drinking water plants in these situations due to the need for a greater degree of treatment.

It is necessary for any proposed revisions of wastewater disinfection regulations to recognize the need for year-round disinfection of those effluents in proximity to intakes and/or in low dilution receiving waters. Without this recognition, any relaxation of effluent disinfection is technically unsupportable. (Public Comment #3, p. 3)

At hearing and in Public Comment #12, BNSD offered rebuttal of the position that adoption of the proposed amendments would adversely impact downstream water supplies. Among other matters, BNSD noted that existing regulations require water suppliers utilizing surface water as a raw water source to employ coagulation, clarification, rapid sand filtration, and continuous post-chlorination. BNSD contends "that each of these treatment processes in themselves are bacteriocidal and virucidal" and that when "employed in a series treatment scheme they provide adequate protection of the public health" (Public Comment #12, p. 1-2). BNSD also provided documentation from other states where seasonal chlorination is the accepted practice which notes that no known human health problems have been associated with seasonal chlorination. Additionally, BNSD contests the applicability to Illinois of the studies cited by the AG in support of his contention of winter bacterial and viral survival, contending that the studies are old and were conducted on Alaskan streams very different both physically and chemically from those in Illinois (Public Comment #12, p. 8-15).

A second objection raised by the AG concerns the question of whether the proposed amendments "fail to consider the possibility that bacteria and viruses which are discharged untreated into rivers and streams during the winter months may accumulate and survive in the sediments", which thus presents "the possibility that undisinfected wastewater discharged in winter may endanger both drinking water supplies and recreational users long after the actual discharge took place" (Public Comment #11, p. 6). Professor Haas also raised this issue, noting that "during non-disinfection months, sediments could serve as a reservoir for survival of populations" and that "when bathing commences (even though the effluent is disinfected), sediments would serve as a source for microorganisms into the water column" (Public Comment #3, p. 3).

The subject matter of this objection was addressed both at hearing (R. at 26-8, 45-7, 134-7, 148-50) and in Public Comment #12 (p. 20-4). There it is alleged that the scouring efficiency of late winter and early spring high flows makes it unlikely that residual sediments would be released as postulated by the AG and Professor Haas; that other states which employ seasonal disinfection have made no mention of a health hazard associated with sediment scour; and that the studies cited by the AG portray conditions not generally applicable to Illinois (e.g., discharge of primary treatment products).

The final argument raised in opposition to the proposed amendments notes that disinfection might be accomplished by means other than chlorination, and that therefore it might be possible to retain disinfection requirements without suffering the negative aspects associated with chlorination. The AG contends that other viable means of achieving disinfection do exist, and that therefore "the Proponent's arguments that chlorination is

environmentally problematic and an economic hardship do not provide the basis for ceasing disinfection" (Public Comment #11, p. 8).

The counter argument presented by BNSD is that alternative disinfection methods, specifically ozonation and ultraviolet irradiation, have been found to be effective on research and pilot scales, but "are not cost-effective for scale-up to actual wastewater treatment facilities" (Public Comment #12, p. 24). BNSD further notes that ability to secure federal and state grants for new and upgraded wastewater treatment facilities is predicated on demonstrating that the most cost-effective technology is employed; BNSD contends that the overwhelming nationwide utilization of chlorination as the means of disinfection is thereby evidence that chlorination is the most cost effective disinfection process (Id. at 24).

ECONOMIC REASONABLENESS

The Illinois Department of Energy and Natural Resources ("ENR") concluded on September 26, 1986, that a formal economic impact study ("EcIS") is not necessary in the proceeding, noting that this declaration is appropriate based on the statutory criteria in Ill. Rev. Stat., ch. 98^{1/2}, par. 7404(d)(2). The Economic Technical Advisory Committee ("ETAC") concurred in this determination on October 10, 1986.

It is to be noted that the proposal before ENR and ETAC was that of May 1985 rather than the proposal which the Board considers today. Section 27(b) of the Act, however, in addition to requiring that economic impact studies be prepared, also allows the Board to modify and subsequently adopt any proposed regulations without additional economic study by ENR if the modification does not significantly alter the intent and purpose of the proposed regulation which was the subject of ENR's determination. The Board finds that the proposal put forward today is not significantly altered in intent or purpose from the May 1986 proposal. The Board consequently believes that no additional determination by ENR regarding the necessity of an EcIS is warranted.

The AG has objected (Public Comment #11, p. 9-11) to this matter proceeding on the basis of an alleged necessity of conducting a EcIS pursuant to Section 27(b) of the Environmental Protection Act (Ill. Rev. Stat., ch. 111^{1/2}, par. 1027). The AG contended that the record before the Board is insufficient to allow the Board to reach a determination on the economic reasonableness of the proposed amendments. Aside from the determination of ENR and ETAC that an EcIS is not necessary, the Board notes that an EcIS was conducted in R77-12 Docket D, and that the same has been admitted into the current record as

Exhibit 21⁴. The Board finds that the significant information contained in the R77-12 EcIS remains pertinent, and that this, in combination with the record developed in the current proceeding, provides information sufficient for the Board to make its mandatory economic determination.

The R77-12 EcIS determined that the more than 1,400 municipal, industrial, and commercial treatment facilities in Illinois which are required to disinfect their final effluents spend over \$4 million annually doing so⁵. These are annual operational costs, and do not include amortization of chlorination equipment (Ex 21, p. 158). Under the assumption that halving the time period when chlorination would be required would also halve total operational costs, the expected savings associated with the current proposal would be on the order of \$2 million annually. This figure is consistent with a 1985 IASD study, which showed that 22 large municipal plants serving a population of 2 million people spend \$960,000 annually to disinfect final effluents (R. at 12).

The second principal economic benefit to be expected as a consequence of a seasonal reduction in chlorination consists of an increase in angling days. The magnitude of this benefit under the current proposal is not likely to be accurately estimated by halving the R77-12 figure of \$2.0 to \$4.4 million per annum. Nevertheless, the determination that seasonal chlorination would contribute to the health of the aquatic community implies that some benefit in angling potential could be expected to accrue.

The only cost associated with chlorination cessation as determined in the R77-12 EcIS was a small increased risk of viral disease. For a proposal which included protection of downstream water supplies, as does today's proposal (see following), the estimated annual cost was \$11 to \$1200 (Ex. 21, p. 169). For a proposal which excluded protection of downstream water supplies, the estimated annual cost was \$681 to \$10,200 (Id. at 169-70).

⁴ "The Economic Analysis of Health Risks and the Environmental Assessment of Revised Fecal Coliform Effluent and Water Quality Standards", Illinois Institute of Natural Resources, Document No. 81/15, March 1981.

⁵ The annual cost of disinfection in Illinois as cited in Exhibit 21 was approximately \$6.9 million (Table 6-3, p. 159). Included in that sum was the amount spent annually by MSD, approximately \$2.8 million. Since MSD's plants discharge only to secondary contact waters, the plants are no longer required to provide disinfection and MSD has ceased the practice of chlorination. The best estimate of current disinfection costs is therefore the State total minus the MSD cost, expressed in the dollars current for the Exhibit 21 study.

The additional issue of whether the proposed amendments would cause water treatment plants operating downstream of sewage treatment plant effluents to incur increased costs in chlorinating their finished water was addressed at hearing. Dr. Lue-Hing testified that such would not be expected to occur, as the processes used prior to chlorination in the water treatment process are effective in removing particulate material, including bacteria. Therefore, Dr. Lue-Hing concluded that water treatment plants would not have to use additional chlorine during their treatment operations as a result of the proposed regulations. This issue becomes irrelevant if upstream effluent dischargers who significantly impact downstream water supplies are required to maintain continuous chlorination, as the Board today proposes.

CONCLUSIONS

The arguments presented in favor of a reduction in chlorination, where such can be accomplished without impacting human health, are similar to those presented to the Board in R77-12. The Board found these arguments compelling in R77-12, and does so again here. If anything, the passage of time since the Board's action in R77-12 has provided even more compelling reason to conclude that chlorination as a disinfection process causes significant environmental damage.

The higher courts found in R77-12, among other matters, that the Board went too far in repealing the need to disinfect in all circumstances. In particular, the higher courts found that a bacterial standard, and thereby disinfection, must remain when there is reasonable prospect that there will be primary human contact⁶ with the waters in question; under this circumstance, the concern for human health outweighs the negative aspects of chlorination.

The Board believes that the present proposal cures this aspect of the higher courts' concern. Disinfection would continue to be required during the six months of the year when human contact via recreational use of and primary contact with downstream waters could reasonably be expected to occur. During the remaining six months, when human contact is expected to be minimal or non-existent, the prime concern would shift to addressing the damaging aspects of chlorination. The Board also believes that this perspective is consistent with the holding of

⁶ Primary contact is defined in 35 Ill. Adm. Code 301.355 as "Any recreational or other water use in which there is prolonged and intimate contact with the water involving considerable risk of ingesting water in quantities sufficient to pose a significant health hazard, such as swimming and water skiing".

the higher courts which upheld the Board's repeal of the fecal coliform standard for secondary contact waters⁷.

The most common objection to the Board's proposal as it existed before today is that the proposal failed to weigh the impact of nondisinfection on downstream water withdrawal uses, particularly withdrawal for human consumption. This is a concern that the Board itself has shared throughout both the R77-12 and current proceedings. In R77-12 the Board attempted to address this issue by requiring continuous chlorination at all facilities located within twenty-miles upstream of a public water supply intake. However, the higher courts reversed the Board on this issue, finding that the twenty mile limit was arbitrary and capricious since it was incorporated without any scientific justification.

Today the Board proposes an alternative remedy, which consists of maintaining an ambient water quality standard for fecal coliform at sites where water is withdrawn for public and food processing water supply, as set forth more fully below. The Board believes that this addition to the December 1985 proposal addresses the concern for downstream public water supplies expressed in the R77-12 and current records, and also addresses the concern expressed by the higher courts.

The Board is well cognizant of the equation of disinfection with chlorination which has permeated both this and the R77-12 proceeding. The Board is also cognizant of the prospect that disinfection might be achievable by means other than chlorination, as the AG has emphasized. Clearly, if alternative disinfection means were demonstrated to be readily available, were demonstrated to be economically reasonable, and were demonstrated not to present hazards greater than their expected benefits, this and the R77-12 proceeding might have taken different turns. Accordingly, if and when such demonstrations can be made, the Board would greatly welcome their presentation. The fact remains, however, that these demonstrations have not been made, and that chlorination must therefore and at least for the present be considered a de facto synonym for disinfection.

Given this situation, the Board can do nothing but address what is "the chlorination problem" by those means which would appear to be at hand. In fact, having recognized the egregious

⁷ Secondary contact is defined in 35 Ill. Adm. Code 301.380 as "Any recreational or other water use in which contact with the water is either incidental or accidental and in which the probability of ingesting appreciable quantities of water is minimal, such as fishing, commercial and recreational boating and any limited contact incident to shoreline activity."

nature of chlorination, the Board would be remiss if it failed to act immediately to correct the problem given only the speculative nature of alternative means of disinfection.

Regarding the AG's assertion that the economic impact of the proposal cannot be ascertained without the preparation of an economic impact study, the Board concludes that there exists sufficient information in the record for the Board to fulfill its obligation to make a determination regarding the economic impact of the proposed amendments. Moreover, the Board notes that it does not consider that the economic record alone provides controlling reason for today's action. The Board today proposes these regulations for first notice publication largely because of its determination that the adverse environmental effects of chlorination warrant that the practice be limited to seasonal use. The substantial excess of benefits over costs supports this action, but is not essential to it.

FIRST NOTICE PROPOSAL

The principal modification, relative to its previous proposal, which the Board offers today is the inclusion of a new section 302.306 to the Public and Food Processing Water Supply Standards. This new section, in combination with §302.301, requires that fecal coliform bacteria, based on a geometric mean of a minimum of five samples taken over not more than a thirty day period, shall not exceed 2000 per 100 ml at any point at which water is withdrawn for treatment and distribution as a potable water supply or for food processing.

Section 302.306 is intended to address the commonly expressed concerns regarding the effect on water supplies of the proposed amendments to §302.209. Under existing regulations, the raw water used by public and food processing water suppliers is subject to a fecal coliform limit of 200 per 100 ml, with appropriate considerations for averaging and frequency of sampling. This limit applies year-around. The limit exists because, pursuant to §302.301, Public and Food Processing Water Supply Standards are cumulative with General Use Standards. That is, the General Use Standards apply, in addition to the Public and Food Processing Water Supply Standards, at all points where water is withdrawn for public and food processing supply purposes.

Under the proposed rule, absent the addition of §302.306, there would be no fecal coliform standard during November through April at points of water withdrawal for public and food processing supply purposes. The addition of §302.306 rectifies this matter by retaining the essential status quo of a fecal coliform standard at such points.

The Board believes that retention of a fecal coliform standard applicable at points of water withdrawal for public and food processing supply addresses much of the concern which has been expressed, and which the Board has shared, regarding the proposed amendments. With the inclusion of §302.306, upstream facilities would be required to continue November through April disinfection if failure to disinfect caused the water at a downstream withdrawal point to exceed 2000 per 100 ml. Although the number of thus affected effluent dischargers is expected to be small (R. at 189), and the expected human health gain has not been demonstrated to be large, the Board nonetheless believes that the substantial expression of concern in this area warrants prudence at this time.

Proposed §302.306 uses a 2000 per 100 ml limit rather than the 200 per 100 ml limit which currently exists in the General Use Standards. The latter number is inappropriate because it is based on protection of human contact and recreational uses, which are not at issue here. The selection of 2000 per 100 ml is based on the same rationale employed in the promulgation of 35 Ill. Adm. Code 604.501(c), which sets raw water quality standards for Public Water Supplies. That rationale is that 2000 per 100 ml is "determined as a level required to yield a safe supply after normal treatment" (In the Matter of Public Water Supplies, R73-13, 15 PCB 103, 146, January 3, 1975).

Inasmuch as the Board's proposal for the addition of §302.306 is new today, the Board would particularly encourage any interested groups or individuals to offer comments on this aspect of the proposed rule during the first notice period.

The second modification which the Board today offers to its December 1985 proposal consists of insertion of the phrase "or during any portion of November through April" into the second sentence of amended §304.121. The intent of this modification is to forestall the possibility that a facility might escape the requirement of recommencing disinfection "in such a manner as to minimize any potential adverse effect on aquatic life" by ceasing disinfection for some time less than the full "November through April" period.

Finally, the Board wishes to emphasize that it views today's proposal as fully consistent with the holdings of the higher courts in R77-12. At the same time it need be recognized that the proposal is not intended to be a fully definite response to all of the concerns raised by the higher courts during review of R77-12. Rather, such other matters raised by the higher courts which extend beyond the scope of the instant proceeding may necessarily require additional Board action.

ORDER

The Clerk shall cause first notice publication of the following proposed amendments in the Illinois Register:

**TITLE 35: ENVIRONMENTAL PROTECTION
SUBTITLE C: WATER POLLUTION
CHAPTER 1: POLLUTION CONTROL BOARD**

**PART 302
WATER QUALITY STANDARDS**

SUBPART B: GENERAL USE WATER QUALITY STANDARDS

Section 302.209 Fecal Coliform

During the months May through October, based on a minimum of five samples taken over not more than a 30 day period, fecal coliform (STORET number 31616) shall not exceed a geometric mean of 200 per 100 ml, nor shall more than 10% of the samples during any 30 day period exceed 400 per 100 ml.

**SUBPART C: PUBLIC AND FOOD PROCESSING WATER
SUPPLY STANDARDS**

Section 302.306 Fecal Coliform

Notwithstanding the provisions of Section 302.209, at no time during the months November through April shall the geometric mean, based on a minimum of five samples taken over not more than a 30 day period, of fecal coliform (STORET number 31616) exceed 2000 per 100 ml.

**PART 304
EFFLUENT STANDARDS**

SUBPART A: GENERAL EFFLUENT STANDARDS

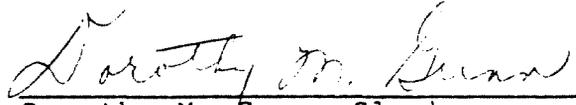
Section 304.121 Bacteria

During the months of May through October, no effluent governed by this Part which discharges to general use waters shall exceed 400 fecal coliform per 100 ml. Any facility which ceases disinfection during November through April, or during any portion of November through April, shall recommence disinfection in such a manner so as to minimize any potential adverse effect on aquatic life.

IT IS SO ORDERED.

Board Members Joan Anderson, Jacob D. Dumelle, Bill Forcade, and John Marlin concurred.

I, Dorothy M. Gunn, Clerk of the Illinois Pollution Control Board, hereby certify that the above Opinion and Order was adopted on the 6th day of November, 1986, by a vote of 6-0.



Dorothy M. Gunn
Dorothy M. Gunn, Clerk
Illinois Pollution Control Board