

ILLINOIS POLLUTION CONTROL BOARD
May 11, 1989

IN THE MATTER OF:)
)
AMENDMENT TO 35 ILL. ADM. CODE) R88-22
SECTION 304.301, EXCEPTION FOR)
AMMONIA NITROGEN WATER QUALITY)
VIOLATIONS)

ADOPTED RULE. FINAL ORDER.

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

On July 11, 1988 the Illinois Environmental Protection Agency ("Agency") filed a public comment in a separate proceeding, R88-1. Therein the Agency proposed that 35 Ill. Adm. Code Section 304.301(d) be amended to extend the termination date for the exception for ammonia water quality violations from July 1, 1988 to July 1, 1991.

In the belief that the subject matter of the Agency's proposal was more properly considered in a dedicated docket, the Board in its August 18, 1988 Opinion and Order, docketed the Agency's proposal¹ within the instant proceeding and sent the proposal to first notice. In so doing, the Board took no position on the substantive merits of the Agency's proposal at that time. First notice publication occurred in the Illinois Register Vol. 12, Issue 38, September 16, 1988, pp. 14509-14514.

Hearings were held on October 27, 1988 in Springfield, and November 4, 1988 in DeKalb; no members of the public were in attendance. Testimony was presented by the Agency, the Illinois Department of Energy and Natural Resources ("DENR"), and Mr. James L. Daugherty on behalf of the Thorn Creek Basin Sanitary District and the Illinois Association of Sanitary Districts ("IASD"). Comments subsequent to first notice publication were received from the Agency, DENR, the Downers Grove Sanitary District, and Springfield Metro Sanitary District.

On December 5, 1988 DENR determined that a formal Economic Impact Study was not required in this matter, finding that the economic impact of the regulation would be difficult to measure such that a formal study would not generate useful information.

¹ The document wherein the Agency's proposal is presented, Public Comment #3 of Board Docket R88-1, was incorporated into the instant docket as the Agency's Proposal at first notice.

The Economic and Technical Advisory Committee concurred in this determination on December 15, 1988. On October 4, 1988, the Department of Commerce and Community Affairs filed its Impact Analysis which indicated that there would be no economic effect on small businesses from the proposed rulemaking.

On January 5, 1989, the Board adopted the amendments for Second Notice with changes from the First Notice proposal as noted below. Several typographical errors were subsequently found in the January 5, 1989 Order and on January 19, 1989, the Board issued a corrected Order of the Board. The amendments as corrected were subsequently submitted to the Joint Committee on Administrative Rules ("JCAR") which issued a certification of no objection to the amendments on May 9, 1989. However, JCAR made certain recommendations for nonsubstantive changes similar to those recommendations made by the Illinois Administrative Code Unit to provide consistency for publication of the amendments in the Illinois Register. The Board accepts the recommended changes, and today adopts the amendments as proposed at Second Notice with these recommended changes.

JUSTIFICATION FOR AMENDMENT

The Agency in its proposal provided the following argument for adoption of the amendments:

Paragraph (b) provides an exemption for winter (November thru March) water quality violations. In adopting this rule in PCB R77-6, the Board noted that "biologic treatment of domestic wastewater is virtually universally practiced..." (Final Order dated June 22, 1978, page 9). The Board continued as follows (page 10):

"The process of nitrification, however, is temperature dependent; the rate of nitrification decreases as the temperature decreases. It is not cost-effective to design biological processes capable of removing ammonia nitrogen to 1.5 mg/l from very cold domestic wastewater. In Illinois, facilities treating domestic wastewater utilizing the types of biologic processes which yield effluent concentrations of 1.5 mg/l during the warm months are usually incapable of consistently reducing ammonia nitrogen concentrations below 4.0 mg/l during cold weather."

Since adoption, it has been evident that these same technological limitations remain relevant. Biological processes are still the only cost-effective and

environmentally acceptable means of ammonia nitrogen reduction; and the efficiency of these processes is still greatly affected by cold temperatures. Attachment A² provides an analysis of the performance of 74 municipal wastewater treatment facilities designed for nitrification in Illinois. Each facility represents "state-of-the art" nitrification and has a record of good operation. The overall performance of these facilities falls within the expected range. It is clear that application of the most stringent effluent standard, 1.5 mg/l, during the winter months would result in unacceptably high violation rates on a monthly basis for these facilities. Water quality based permit limits, however, are established as daily maxima, rather than monthly averages. The violation rate for the facilities in Attachment A would be significantly higher if calculated on a daily maximum basis. In addition, nearly 300 other municipal sources are regulated for ammonia discharges. Many of these sources perform significantly worse with regard to ammonia removal. Typically this is due to organic or hydraulic overloading or operational problems. As indicated in Attachment B, many of those 300 facilities are currently designing or constructing nitrification equipment. Each of these facilities is designed in accordance with the same stringent design standards as the facilities in Attachment A. The Agency believes that the prudent course of action would be to extend the exception for winter months (Paragraph b) an additional 3 years. This will allow time for completion and performance evaluation of most of these facilities. At that time, the Agency will be in a better position to assess the need for a permanent rule change.

The Agency's testimony at hearing basically reiterated its position as stated in the proposal and quoted above. The comments of the Springfield Metro Sanitary District, the Downers Grove Sanitary District and the testimony provided by Thorn Creek Basin Sanitary District and the IASD are supportive of the amendments, emphasizing the sensitivity of biological

² Board note: Attachments A and B, as referenced in this quote, refer to attachments to the Agency's Proposal in the instant docket (see footnote 1). Attachment A consists of a two-page tabulation of ammonia effluent concentrations for various sewage treatment plants in Illinois. Attachment B consists of a one-page list of sewage treatment facilities in Illinois which are currently proposing nitrification of effluents. The attachments were later received into the record at hearing as Agency Exhibits 2 and 3, respectively.

nitrification processes and their slow recovery during the winter months.

Water Quality Impact

The Agency in response to questioning at hearing submitted data with its comments which indicates that the winter violation rate for ammonia was 0.29 percent from 1983 to the most recent data available. The Agency emphasizes that this information was obtained from the ambient water quality monitoring network. The data is therefore indicative of background levels rather than of the water quality in the vicinity of a point source discharger (R. at 18, 102; Agency Comment at 3). Water quality data from the vicinity of point source dischargers is not available. However, DENR believes that "it is likely that such data would show a low water quality violation rate" because, as the Agency testified, municipal effluents are usually near neutral (DENR comment at 2; R. at 18). This follows because the un-ionized ammonia standard is the standard most likely to be exceeded, and at neutral conditions relatively little of the ammonia exists in the un-ionized form.

The Agency further testified that the data on point sources is presently being gathered through the NPDES permitting system and that the three year extension of the exemption would provide time with which to evaluate that information (R. at 103). In fact, the Agency further noted its commitment to review the situation as part of its next triennial water quality standard review to be submitted to USEPA (Id). USEPA also indicated that it concurs with "the proposed changes to WQS for ammonia-N" (Agency Exh. 4).

DENR has also provided the Board with certain tables and graphs which have aided the Board in its analysis of the potential for winter water quality violations due to ammonia. In its final analysis, DENR concludes that "the water quality impact of continuing the winter exception is probably minimal since, even with the exception in place, very few water quality violations are expected" (DENR comments at 2).

Based on the record in this proceeding and in light of the low rate of water quality violations and the efforts which will be made to study the necessity for a future winter exemption, the Board believes it is reasonable to extend the exemption contained in Section 304.301 for an additional three years, until July 1, 1991.

CHANGES FROM FIRST NOTICE

The Board sent this proposal to second notice with certain changes which were made in response to comments received subsequent to first notice publication and as discussed at

hearing (R. at 88-89, Agency Comments at 3). The changes made relate mainly to clarification of the rules to better effectuate the intent as indicated in the proposal.

The proposed language, as published for first notice, could be read as possibly extending the exemption contained in subsection (a) of 304.301 in addition to that contained in subsection (b) of 304.301. This was not the intention of the Agency (Id). Subsection (a) provided an exemption for small dischargers which allowed such small dischargers to defer ammonia reduction projects in order to coordinate these efforts with other planned improvements. The Agency now believes that ample time has been given to these small dischargers and that the ammonia water quality standard should now apply to both large and small dischargers (R. at 10-11; Agency comment at 3). At hearing and in its post-hearing comments, the Agency suggested modification of the language as proposed for first notice to include deletion of subsection (a), with other nonsubstantive modifications to provide consistency with the deletion. The Board concurred with the Agency's suggestions and incorporated the changes into the proposal at Second Notice.

ORDER

The Clerk of the Pollution Control Board is directed to submit the following adopted rule to the Secretary of State for final notice.

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 R86-17(B) at 13 Ill. Reg. _____, effective _____; amended in R88-22 at 13 Ill. Reg. _____, effective _____.

SUBPART C: TEMPORARY EFFLUENT STANDARDS

Section 304.301 Exception for Ammonia Nitrogen Water Quality Violations

- a) ~~Section 304.105 shall not apply to 35 Ill. Adm. Code 302.212 for any effluent from a source in existence on April 1, 1977, having an untreated ammonia influent loading not exceeding 60 pounds per day and not otherwise needing upgrading to meet the requirements of this chapter.~~
- ba) Section 304.105 shall not apply to Section 35 Ill. Adm. Code 302.212 for any source during the months of November through March; except that during the months of November through March no source not exempt under paragraph (a) shall discharge an effluent containing a concentration of ammonia nitrogen greater than 4.0 mg/l if the discharge, alone or in combination with other discharges, causes or contributes to a violation of that portion of Section 35 Ill. Adm. Code 302.212.
- eb) Compliance with the provisions of paragraph subsection (ba) shall be achieved by March 31, 1979, or such other date as required by NPDES permit, or as ordered by the Board under Title VIII or Title IX of the Environmental Protection Act.
- dc) After July 1, 19881991, the exemption provided in this sSection shall terminate.

IT IS SO ORDERED.

I, Dorothy M. Gunn, Clerk of the Illinois Pollution Control Board, hereby certify that the above Order was adopted on the 17th day of May, 1989, by a vote of 7-0.



Dorothy M. Gunn, Clerk
Illinois Pollution Control Board