ILLINOIS POLLUTION CONTROL BOARD
July 18, 1996

IN THE MATTER OF:	)	
	)	
TRIENNIAL WATER QUALITY REVIEW:	)	R94-1 (B)
AMENDMENTS TO 35 ILL. ADM. CODE	)	(Rulemaking - Water)
302.202, 302.212, 302.213, 304.122 and	)	
304.301 (Ammonia Nitrogen)	)	

Proposed Rule. First Notice.

OPINION AND ORDER OF THE BOARD (by E. Dunham, C.A. Manning and R.C. Flemal):

This matter comes before the Board on a regulatory proposal filed on February 24, 1994 by the Illinois Environmental Protection Agency (Agency). The Agency filed the proposal as part of its mandatory review of the applicable water quality standards of the State of Illinois pursuant to 33 U.S.C. §§ 1251-1387 (1987). [1]

On January 4, 1996, the Board severed the docket into subdockets A & B. Subdocket (A) contains the amendments proposed by the Agency for lead and mercury (Sections 302.208 and 302.407).[2] Subdocket (B) contains the amendments proposed by the Agency for ammonia nitrogen (Sections 302.202, 302.212, 302.213, 304.122 and 304.301). The Board today proposes the amendments to the ammonia nitrogen standards for first notice.

The Board's responsibility in this matter arises from the Environmental Protection Act (Act) (415 ILCS 5/1 et. seq. (1994)). The Board is charged therein to "determine, define, and implement the environmental control standards applicable in the state of Illinois." (415 ILCS 5/5(b) (1994).) More generally, the Board's rulemaking charge is based on the system of checks and balances integral to the Illinois environmental governance: the Board bears responsibility for the rulemaking and principal adjudicatory functions; the Agency has primary responsibility for administration of the Act and the Board's regulations. The latter includes administering today's proposed amendments.

PROCEDURAL HISTORY

[1] The Federal Water Pollution Control Act, commonly known as the Clean Water Act (CWA), §§ 101-607 requires the Agency to periodically, but at least every three years, review the water quality standards applicable in the State. This review is commonly referred to as the "triennial review".

[2] The amendments in Subdocket (A) were adopted by the Board on May 16, 1996 and published at 20 Ill. Reg. 7682.

The major portion of today's proposed amendments were filed by the Agency pursuant to Section 27 of the Environmental Protection Act and the Board's procedural rules at 35 Ill. Adm. Code §§ 102.120 and 102.121.

Pursuant to Section 28.2 of the Act and the Board's procedural rules at 35 Ill. Adm. Code § 102.121(e), the Agency initially contended that today's rulemaking is needed to fulfill the requirements of the Federal Clean Water Act (CWA), and therefore is required pursuant to federal law. Nevertheless, the Agency's certification regarding the required nature of the amendments cited to only part of the proposal and, moreover, did not include a written confirmation letter from the United States Environmental Protection Agency (USEPA). Based on these deficiencies in the Agency's original certification, the Board by order of March 17, 1994, found that it had not been shown that the amendments as proposed were federally-required.

On April 11, 1994, the Agency filed a motion requesting that the Board reconsider its March 17, 1994 order. The Agency certified that the entire rulemaking is federally required. Additionally, the Agency attached a confirmation letter from USEPA Region V stating that the proposed changes for the lead, mercury, and ammonia standards would address inconsistencies between current State law and the CWA. The confirmation letter also observed that the proposal would be consistent with the CWA and federal regulations. By order of May 5, 1994 the Board granted the Agency's motion for reconsideration and accepted the Agency proposal as a federally-required rule pursuant to Section 28.2 of the Act.

By order of September 15, 1994, the Board adopted the Agency's proposal for purposes of first notice, pursuant to Section 5.01 of the Illinois Administrative Procedure Act. (415 ILCS 100/1005-40). The Board adopted the proposal without making substantive comment on the merits of the proposal. First notice publication occurred in the Illinois Register on September 30, 1994 at 18 Ill. Reg. 14555 (Part 302) and 18 Ill. Reg. 14549 (Part 304). The Illinois Administrative Procedure Act requires that adoption of the rule occur within one year of the first notice publication. (5 ILCS 5/40(e) (1994).) As the one-year time period has already elapsed, the Board sends the amendments proposed in this docket back to first notice.

Three public hearings were held before hearing officer Diane O'Neill on Docket R94-1: on November 10, 1994 (Tr1.) in Chicago, Illinois; on November 22, 1994 (Tr2.) in Springfield, Illinois; and on January 26, 1995 (Tr3.) in Chicago, Illinois. Additional hearings were held in Docket R4-1(B) on February 22 and 23, 1996 (Tr4. and Tr5.) in Chicago, Illinois. At these hearings the Board received testimony in support of the proposal from the Agency, as well as testimony on various aspects of the proposal from interested persons.

At the completion of each set of hearings the Board opened a short comment period. In response to a public comment from the Chemical Industry Council, the Board extended the comment period to allow participants to comment on the possible effect that an anticipated paper from USEPA Region VIII concerning ammonia nitrogen could have on this proceeding.

After reviewing those comments the Board finds no reason to delay the adoption of the proposed amendments until after the paper on ammonia nitrogen is issued by USEPA Region VIII.

On June 1, 1995, the Agency filed a "Motion to Correct a Typographical Error". The Agency requested that the Board correct a typographical error in Section 302.213 of the proposed regulations and allow a short comment period to allow the regulated community to respond to this correction. The Board granted the motion and allowed participants to file comments on the correction until July 7, 1995. The Board allowed the Agency until July 14, 1995 to file a response to any comments. The Board did not receive any comments on the correction. However, this motion is moot because the Agency has submitted a revised proposal which further modifies the language of Section 302.213.

OVERVIEW OF THE PROPOSAL

The Board today proposes adoption of amendments to the ammonia nitrogen general use water quality standards as proposed by the Agency. The Board proposes the amendments as submitted by the Agency in its public comment. (PC #8(B) Exhibit BB). While some of the language and numbers have been changed from the original proposal the general concepts have not changed. The following is a summary of the proposed amendments filed by the Agency.

Ammonia: General Use Water Quality Standard

The Board currently has General Use Water Quality Standards for (total) ammonia nitrogen and un-ionized ammonia nitrogen found at 35 Ill. Adm. Code 302.212.

By today's action the Board proposes, in agreement with the Agency's recommendations, to reconstitute much of Section 302.212 for the purposes of adding clarity to the section and of incorporating up-dated information on the effects of pH and temperature on ammonia toxicity.

Effluent Modified Waters (Ammonia)

Today's newly proposed Section 302.213 defines and gives the Agency authority to identify Effluent Modified Waters (EMW). An EMW consists of waters downstream from an effluent outfall that have the potential to exceed the chronic standard (CS) for ammonia.

Ammonia Effluent Standard Exemption Process

Today's proposal reorganizes that portion of the Board's effluent regulations that provide for exception from the prohibition against causing or contributing to a violation of the ammonia water quality standards. The existing exception procedure at 35 Ill. Adm. Code 304.301 is proposed for repeal, and new subsections 304.122(c) and (d) are proposed for addition.

Conforming and Housekeeping Amendments

There are several places in the sections which are today opened for other purposes where housekeeping corrections are in order. Among these are updating citations to the Illinois Compiled Statues to the current (1994) edition and changing the abbreviation of the word "liter" from "l" to "L".

PROPOSAL OF "THE CITIES"

On December 8, 1994, the Cities of Batavia, Geneva, Moline, St. Charles, Sterling and Rock Falls (the Cities or Ammonia Group) filed proposed amendments and a statement of reason. The proposal raises concerns by the Cities on the implementation of the standards and the arbitrary, calendar cut-off dates for the summer and winter standards. The Cities propose amendments to the proposal to ensure that the standards are implemented in a manner which takes actual instream conditions into consideration to the maximum extent practicable. The proposed amendments require the gathering of monitoring data to determine whether there is a water quality problem. If a problem is detected, the discharger would be required to remedy the problem.

The proposal by the Cities recommends that dischargers be allowed a year to upgrade facilities to ensure that best degree treatment is being provided. The discharger would than conduct a one year monitoring program to detect possible water violations. If any violations are detected, the discharger would develop an appropriate compliance schedule to bring the facility into compliance. Under the Cities' proposal, existing permit limits would remain in effect while data is being collected.

The Cities also suggest that the proposal allow for the use of actual data to demonstrate that an exceedence of the winter water quality standard would not be in violation if the instream temperature is greater than 12°C at the time of the exceedence. The Cities agree that it is impractical to base the winter standard solely on temperature since the temperature of many waterways is not monitored. However, the Cities believe that when temperature data is available, the temperature should be used to determine the allowable ammonia level.

A response to this proposal was filed on behalf of the Sierra Club, Trout Unlimited, Citizens for a Better Environment, Lake Michigan Federation and Friends of the Chicago River on January 13, 1995. The response maintains that the proposal of the Cities should be rejected because it attempts to carve out special rules for determining effluent limits for ammonia without any showing that the rules for determining effluent limits for ammonia should be any weaker. In fact, the response argues, that the current procedures for determining effluent limits probably is not strict enough to prevent acute and chronic toxicity under critical conditions. The response also states that the Cities proposal fails to spell out the details of the monitoring program.

HEARING RECORD

In addition to extensive documentation in support of the proposed amendments, the Agency has presented the testimony, both in prefiled testimony and at hearing,[3] of Joel Cross, Manager of the Planning Section of the Agency's Division of Water Pollution Control; Robert G. Mosher, Supervisor of the Standards and Monitoring Support Unit, Planning Section of the Agency's Division of Water Pollution Control; and Dean J. Studer, Environmental Protection Engineer at the Division of Water Pollution Control.

Agency Witnesses - Cross at November 10, 1994 Hearing

Mr. Cross testified to the general need for the State of Illinois to regularly review its water quality standards as part of the triennial review process. (Tr1. at 16-17.)

Mr. Cross also testified to the particular need to update the Board's ammonia water quality standards. He noted that the last update of these standards was undertaken in 1982, and there have been significant advancements in the derivation of ammonia water quality standards since that time. (Cross at 1-2.) Among these has been the development of a National Criteria Document (NCD) for ammonia.[4] (Cross at 6.) Mr. Cross observed that the Agency has reviewed this document and later studies in an attempt to determine what levels of ammonia would be protective of native and aquatic life under stream conditions found in Illinois. (Id. at 2.) On the basis of this review the Agency has recommended to the Board, ammonia standards that are less restrictive than the ammonia NCD values, but which the Agency finds are protective of the native and resident species in Illinois General Use Waters. (Id. at 3.)

Mr. Cross further testified to the rationale behind the proposed ammonia exemption process and the EMW concept. Mr. Cross observed:

> An additional goal of the standards review process was to identify the compliance abilities of wastewater plants designed to remove ammonia from effluent using a nitrification stage of treatment. These treatment plants could not consistently produce effluents that met existing ammonia water quality standards during the winter months and were formerly given winter effluent limitations based on the facility's ability to treat ammonia. Resurrecting an exemption approach for facilities demonstrating the best degree of treatment currently recognized as economically reasonable, is necessary to rectify the disparity between protective water quality standards and technical feasibility.

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[3] For the purposes of citation herein, the prefiled testimonies are cited according to author and page (e.g., Mosher at ___) or to Exhibit number (Exh.) and hearing transcripts are cited according to hearing number and page (e.g., Tr1. at __).

[4] This document is Exhibit E to the Agency's proposal of February 24, 1994.

> Such an exemption must be based on design standards for nitrification, the use attainment of receiving waters and the actual performance of individual facilities. To accommodate the disparity between technical feasibility and the devised water quality standards, a new regulatory concept for some receiving streams is proposed. Effluent modified waters would be designated where the best reasonable treatment has been provided but chronic ammonia standards in the low dilution receiving stream may not be met. (Cross at 3-4.)

Finally, Mr. Cross observed that prior to approaching the Board with the instant proposal the Agency had consulted various interested persons regarding the content of the proposal. Among these was the USEPA, with whom "many hours of negotiation" were spent. (Cross at 4.) Mr. Cross contends that, although this process "added many months to the time needed to bring [the Agency's] petition to the Board", it was necessary to insure the eventual viability of the proposal. (Id. at 4.)

Agency Witnesses - Mosher at November 10, 1994 Hearing

The testimony of Mr. Mosher focused on the technical justification for the proposed new water quality standards and on the anticipated economic impact of the new water quality standards. The largest portion of Mr. Mosher's testimony focused on the technical justification for the proposed ammonia water quality standards. Mr. Mosher characterizes the central theme of the ammonia standard as a "not to be exceeded" value of 0.04 mg/L un-ionized ammonia, applicable outside of a designated mixing zone. (Mosher at 1.)

Un-ionized ammonia (NH_3) is regulated because it is the toxic component of ammonia in aqueous solutions where it forms an equilibrium with the relatively non-toxic ammonium (NH_4^+) ion. (Mosher at 2.) Together un-ionized and ionized ammonia are referred to as total ammonia. (Mosher at 2.) The Agency recognizes the well documented relationship between pH, temperature and ammonia. (Mosher at 2.) As pH and temperature increase, the proportion of un-ionized ammonia also increases. (Mosher at 2.)

The Agency contends that the current standard (no single sample may exceed 0.04 mg/L un-ionized ammonia) results in an over-protective chronic standard because this concentration of un-ionized ammonia would only be toxic to Illinois organisms over a long period of exposure. (Mosher at 2.) In addition, the Agency believes that there is a problem with the current standard of allowing ammonia levels of 1.5 mg/L regardless of the un-ionized concentration present. (Mosher at 2.) The Agency contends that studies have shown that this level is not always protective of aquatic life. (Mosher at 2.)

The ammonia NCD provided important toxicology data and concepts used by the Agency in developing the proposed ammonia water quality standards. (Mosher at 8.) These contributions include: 1) a two number standard allowing implementation based on exposure period, 2) a wholly toxicity based approach allowing for protection of aquatic life, and 3) a

comprehensive compilation of ammonia toxicity literature. (Mosher at 8.) Other concepts contained in the NCD were determined to be unjustified for use in Illinois. (Mosher at 8.)

The Agency recognizes that a large number of wastewater treatment plants will be unable to meet the proposed water quality standards for ammonia even after providing the best degree of treatment. (Mosher at 15.) These facilities discharge to receiving streams with little or no permanent upstream flow to provide dilution for ammonia bearing effluents and cannot be expected to meet the proposed water quality standards. (Mosher at 15.) Proposed Section 302.213 creates a category of waters (effluent modified waters) that would not have an applicable ammonia standard other than the 15 mg/L total ammonia limit of Section 302.212(a) and the acute standard of subsection (b). (Mosher at 15.) This provision affords relief to dischargers meeting the Agency's concept of best degree of treatment. (Mosher at 15.) The Agency sees no alternative but to recognize the limitations of available technologies to remove ammonia by proposing the subcategory of effluent modified waters. (Mosher at 17.) The Agency believes that recognition of the ammonia situation will serve to fully inform the public concerning use attainment; however, it will not cause standards to be exceeded or degradation to occur from increased loading or new discharges to highly valued waters. (Mosher at 18.)

Mr. Mosher's final area of testimony was directed to the Agency's analysis of the probable economic impact of adoption of the proposed new standards. (Mosher at 28-38.) Mr. Mosher observed that it is the Agency's belief that adoption of the proposed ammonia water quality standards would carry economic consequences for a number of individual dischargers. In particular, Mr. Mosher identified a list of major municipal wastewater dischargers that the Agency believed would need to upgrade existing ammonia treatment so as not to cause or contribute to a violation of the ammonia standards as proposed. (Exh. 4, Agency Exh. S.)

The Agency maintains that any evaluation of the impact of the proposed ammonia standards must be done on a facility specific basis. (Mosher at 29.) There are 181 municipal dischargers with a design average flow of 1 mgd or greater in Illinois. (Mosher at 30.) The Agency's research found that 115 of the 181 major municipal dischargers have permit limits of 1.5 and 4.0 and would not be impacted by the proposed amendments. (Mosher at 30.) Dischargers to the Mississippi, Ohio and Wabash Rivers have adequate dilution available to comply with the new standards and therefore will not be impacted by the proposed amendments. (Mosher at 31.) The Illinois River has unique ammonia standards that are not impacted by this rulemaking. (Mosher at 31.) Some smaller major dischargers to the Kaskaskia, Kankakee and Rock Rivers have not had ammonia limits in their NPDES permits because of the available dilution and will not be impacted by the proposed standards. (Mosher at 31.) Five of the 181 facilities discharge to secondary contact waters which are not affected by the proposed standards. (Mosher at 31.) Nine dischargers were identified that discharge to low dilution receiving waters but do not have nitrification facilities. (Mosher at 31.) Several of these facilities are working toward compliance while one has a site-specific exemption from the Board. (Mosher at 31.) The Agency contends that compliance with the new standard for

these facilities will be no more expensive than compliance with the existing standards and therefore did not include these costs in its economic analysis. (Mosher at 31.)

The Agency identified 19 facilities[5] that were at risk of noncompliance under the proposed standards. (Mosher at 32.) Nine of the identified facilities cannot meet the 30 day average ammonia concentrations to allow compliance with the chronic standard. (Mosher at 32.) The Agency contends that an investigation of some of the facilities would find that minor changes in operation could bring about some degree of nitrification and allow compliance with the new standards. (Mosher at 32.) However, the Agency is fairly certain that most of the identified facilities will have to be partially redesigned to meet the proposed standards. (Mosher at 32.)

The Agency estimated the costs for complete nitrification at the nine facilities identified as not being able to meet the 30 day ammonia concentrations at $32,420,000.[6] (Mosher at 34.) The Agency maintains that this represents the worst-case estimate of costs. (Mosher at 34.) The Agency maintains that actual costs could be substantially less because many of the facilities will not have to institute changes of the magnitude figured into the estimate. (Mosher at 34.)

The remaining ten facilities can meet thirty day averages, but can not meet daily maximum limits as required by the acute standards. (Mosher at 36.) Compliance at these facilities may be possible through advanced modeling of the zone of dilution, the construction of a high rate diffuser, or changes in management of the process. (Mosher at 36.)

The Agency has not studied the impact of the proposed amendments on minor municipal dischargers which number approximately 600. (Mosher at 35.) The Agency believes that a smaller proportion of these facilities will require modifications due to higher dilution ratios for the smaller facilities. (Mosher at 35.) The Agency also recognizes the possible impact on industrial dischargers but believes that the incidence of discharges containing significant ammonia are much less common among industrial dischargers. (Mosher at 35.)

The Agency maintains that the conclusions of its economic impact study will be impacted by changing conditions such as population growth and decline, physical and chemical

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[5] The Agency originally identified 20 facilities but later removed the Libertyville facility from the list because the facility had completed construction of an expanded facility which provided more efficient ammonia removal. (Tr2. at 12.)

[6] The original figure provided by the Agency of $35,720,000 was reduced by 3.3 million to reflect the removal of the Libertyville facility from the list of impacted facilities. (Tr2. at 12.) This cost estimate was further reduced by the Agency at subsequent hearings due to additional information that was obtained about some of the facilities. (Exh. 41 at 38.) The Agency estimates the cost for compliance for these facilities at $20,000,000.00. (Exh. 41 at 38; See page 14 of this opinion.)

features of the waterbodies, and improvements in technology. (Mosher at 37.) The Agency asserts that the need for compliance action by municipal dischargers will be made during the application process for individual NPDES permits. (Mosher at 37.)

Agency Witnesses - Studer at November 10, 1994 Hearing

The Agency's final witness, Mr. Studer, focused his testimony on the technologies available for removing ammonia from wastewater. He testified that there are two categories of treatment technologies for nitrogen; nitrification which is the oxidation of ammonia to form nitrates and denitrification which is the removal of nitrogen containing components by conversion to nitrogen gas. (Studer at 1-2.) The technologies reviewed by Mr. Studer include breakpoint chlorination, ammonia stripping, ion exchange, reverse osmosis, and biological removal technologies (lagoons, recirculating sand filters, algal harvesting, wetland utilization and land application). (Studer at 2 -7) He testified that conventional biological treatment, the treatment of sewage to establish a population of nitrifying bacteria, is capable of achieving monthly average ammonia concentrations in the effluent for domestic wastewater of 1.5 mg/L from April through October, and 4.0 mg/L from November through March. (Tr1. at 25.)

Mr. Studer also explained the establishment of effluent modified waters (EMW). EMWs are waters downstream from a wastewater treatment facility that, at a minimum, can comply with a summer monthly average of 1.5 mg/L (total ammonia as N) during all months from April through October and a winter monthly average of 4.0 mg/L (total ammonia as N) during all months from November through March, yet cannot consistently comply with the chronic ammonia water quality standard. (Studer at 13.) EMWs will continue downstream of the facility, the distance that it takes for the chronic ammonia water quality standard to be met on a consistent basis. (Studer at 13.) Waters showing aquatic life impairment from ammonia will not be listed as EMWs. (Studer at 14.) Facilities which cannot consistently meet the monthly averages of 1.5 mg/L or 4.0 mg/L will not be considered for EMW status, but will generally be required to modify the facility. (Studer at 14.)

Additional Testimony from Hearings on November 10 and 22, 1994

James Daugherty from the Illinois Association of Wastewater Agencies (IAWA) testified on behalf of the members of that association. IAWA supports the numbers proposed by the Agency but believes that additional data is needed. (Daugherty at 1.) IAWA urges that additional studies be performed before the next proposal on ammonia standards. (Daugherty at 1.) In its testimony IAWA stated that it endorsed the need for a study to define the effects of ammonia, supports the adoption of a factor of three in the averaging rule, and endorses the setting of higher effluent limits for individual facilities. (Daugherty at 8.) IAWA recommends the adoption of the proposed regulations with comments on the application of ammonia action levels for the implementation of effluent modified waters. (Daugherty at 8.) IAWA also believes that the implementation policy should allow individual dischargers to use models other than the mass balance calculation. (Tr3. at 262.)

Jim Mick from the Illinois Department of Conservation (IDOC)[7] testified that Illinois anglers spend more than 11,600,000 days annually fishing in Illinois and impact Illinois' economy by over $870 million. (Mick at 1.) IDOC maintains that protection of Illinois streams, which provide the last available habitat for some 78 endangered and threatened aquatic species, is important to preserve the biodiversity of Illinois' natural resources. (Mick at 1.) IDOC believes that removal of the 1.5 mg/L total ammonia floor is an improvement in the water quality standards for Illinois streams but using the actual un-ionized ammonia levels as the standard would provide better protection. (Mick at 1.)

IDOC notes that no guidelines or criteria are proposed to protect the highly valued streams from potential degradation. (Mick at 1.) IDOC contends that the ammonia toxicity may effect early life stages of fish. (Mick at 1.) IDOC claims that ammonia related toxicity effects are not always apparent and could be deleterious to native fish populations. (Mick at 1.)

IDOC recommends that stream basins designated as "A" or "B"[8] be protected from lower water quality than currently exists. (Mick at 2.) IDOC observes that there is a lack of warm water stream species toxicity data. (Mick at 2.) IDOC recommends that the Board be cautious and err in favor of the aquatic natural resources, until more definitive data from research is collected. (Mick at 2.) IDOC recommends that streams which are annually stocked with trout be protected from lowered water quality standards. (Mick at 2.)

Bob Evans, the Executive Director of the Water and Sewer Commission in Freeport, Illinois, testified on the previous expenditures incurred by the City of Freeport due to changes in chlorination in its permit and changes in sludge regulations. (Tr2. at 118.) He also states that the lowest ammonia level measured in the Pecatonica River, to which Freeport discharges, is 0.4 mg/L. (Tr2. at 119.) He contends that the level of ammonia in the River is due to agricultural runoff. (Tr2. at 120.) He concludes that the proposed regulations would require Freeport to expend additional money to treat its water for ammonia with no beneficial effect on the receiving stream. (Tr2. at 120.)

Testimony from Hearing on January 26, 1995

At the third hearing on January 26, 1995, testimony was presented by Mary Ross on behalf of the Sierra Club. Ms. Ross stated that the Sierra Club believes that the proposed ammonia standard is not strong enough because it does not consider cold water species. (Ross

[7] The IDOC has been reorganized and is now part of the Department of Natural Resources.

[8] The designation of the stream basins is provided in "Biological Stream Characterization: A Biological Assessment of Illinois Stream Quality" which was submitted as public comment #5 by the IDOC.

at 1.) The Sierra Club also supports the adoption of standards for zinc, selenium, nickel and phosphorous. (Ross at 3.)

Edward Michael testified on behalf of Trout Unlimited that the underlying assumptions that prompted the Agency's action are basically invalid. (Michael at 1.) Trout Unlimited supports adoption of water quality standards consistent with USEPA's national criteria document. (Michael at 2.) Trout Unlimited contends that an acceptable proposal should protect the most sensitive species and provide an exemption for waters which cannot contain those species. (Michael at 2.) Trout Unlimited believes that the proposed rule fails to provide for the preservation of the integrity of aquatic habitat in Illinois which is known to be or to have been utilized by salmonids. (Michael at 2.)

Mayors from the cities of St. Charles, Geneva, Batavia, Sterling, Rock Falls, Dixon and Moline (Mayors) presented statements at the third hearing. The Mayors testified that they support the use of ammonia standards as a means to protect the quality of the waterways but object to the limited amount of information used by the Agency in deriving the standards. (Tr3. at 28.) The Mayors support the alternate proposal submitted by the Cities as a means to allow dischargers to optimize their ammonia treatment capabilities and determine where the standards are being achieved. (Tr3. at 26.) The Mayors observe that the Agency has acknowledged that it does not have any actual water quality data or biological surveys to demonstrate that current discharges are causing instream exceedences of the proposed standards or that the receiving streams are suffering any biological damage. (Tr3. at 25.) The Mayors support the collection of additional data to determine whether a problem actually exists and to determine the benefits of the proposal. (Tr3. at 26.)

The Mayors also explained the economic impact that the proposed regulations will have on their communities. The Mayors noted that previously wastewater treatment plants could receive at least 75% grant funding for improvements to the facilities. (Tr3. at 29.) However, these grants are no longer available and most of the costs would need to be passed on to the citizens. (Tr3. at 29.)

Kirby Holland of New Water Development testified on a land treatment system to manage wastewater. (Tr3. at 84 - 93.)

James Huff of the engineering consulting firm of Huff & Huff testified in support of the amendments proposed by the Cities. Mr. Huff recognizes that the Agency's proposed chronic ammonia water quality standards are 50% to 68% more restrictive than the existing regulations. (Huff at. 4.) He further contends that benefits from the proposed change have not been identified and the change will result in a large economic burden for some communities. (Huff at 4.) In support of the recommendation that the parties be allowed to submit temperature data to prove that there was no actual violation, Mr. Huff testified to the temperature of two Illinois streams, one in the northern part of the state and one in the southern part of the state. (Huff at 7.) He found that there were periods in November and March where the temperature exceeded 12°C. (Huff at 7.) Mr. Huff maintains that the use of

temperatures to determine ammonia levels as described in the Cities proposal is protective of the environment. (Huff at 8.) Concerning the number of significant digits of the standard, he testified that three significant digits is impractical due to confidence levels and accuracy. (Huff at 10.) Mr. Huff maintains that the approach for deriving effluent limits proposed by the Cities is consistent with federal regulations and assures that water quality standards will be achieved. (Huff at 11.) He estimated the cost of once-a-week monitoring to obtain additional data on ammonia levels in streams at $4,000 per year. (Tr3. at 116.)

Chad Tuttle, Environmental Manager for Indian Refining Limited Partnership[9] (IRLP), testified on the impact of the proposed regulation on IRLP. He estimates the cost of adding the preferred treatment of activated sludge with nitrification at between $10 to $15 million and would not guarantee consistent compliance with permit limits. (Tr3. at 201.) At the Agency's recommendation IRLP considered the use of breakpoint chlorination but found that it did not present a feasible form of treatment.[10] (Tr3. at 202.)

Testimony from Hearings on February 22 and 23, 1996

On November 8, 1995, the Board held a pre-hearing conference to further define the issues related to hearing in this rulemaking and as such, presented the Agency and the participants with various issues which were to be addressed at hearings held on February 22 and 23, 1996.

Agency Comments. The Agency maintains that the proposed standards are consistent with the Federal Water Pollution Control Act, 33 U.S.C §§1251-1387 (1987), commonly referred to as the Clean Water Act and the federal regulations. (Exh. 41 at 2.) The Agency asserts that the USEPA will approve the amendments in the present form but even a slight change may result in disapproval by the USEPA. (Exh. 41 at 2.) The Agency also indicates that USEPA has stated that it could not accept the amendments proposed by the Ammonia Group. (Exh. 41 at 2.)

The Agency provided a summary of the positions neighboring states (Indiana, Ohio, Michigan, Missouri, Kentucky, Wisconsin, Iowa and Minnesota) have taken with respect to ammonia nitrogen standards and effluent limits. (Exh. 41 at 3.) Illinois is the first state in Region V to develop and propose new ammonia nitrogen limits different than those proposed

[9] In November 1995 Indian Refining ceased operation of the refinery. The refinery was purchased by American Western Refining Limited Partnership which intends to reinitiate operation of the facility once financing has been obtained. (Tr4. at 175.) On April 4, 1996, American Western Refining, L.P. filed a motion to incorporate past comments and testimony of Indian Refining Limited Partnership. The Board granted the motion on May 2, 1996.

[10] See also In the Matter of: Proposal of Mobil Oil Corporation to Amend the Water Pollution Regulations (January 7, 1988), R84-16 at 3, where the Board acknowledged that the use of breakpoint chlorination is inappropriate since it would result in the formation of chlorinated hydrocarbons.

by the NCD. (Exh. 41 at 3.) Other states in Region 5 are looking to Illinois to the lead the way with respect to ammonia nitrogen . (Exh. 41 at 3.)

The Agency has not formulated a position on specific facilities being granted adjusted standards, variances or site specific relief from the proposed ammonia standards. (Exh. 41 at 10.) However, the Agency notes that relief from ammonia nitrogen water quality standards requires federal approval and the Agency believes that the relief allowed by the proposed EMW provision is the extent to which the USEPA will grant relief. (Exh. 41 at 10.) With the exception of waterways that support viable populations of trout, the Agency does not view any rivers or streams as having unique characteristics such that site specific relief may be warranted. (Exh. 41 at 10.)

The Agency believes that loan funding will be available for projects necessary to meet the proposed ammonia nitrogen water quality standards. (Exh. 41 at 12.)

The Agency has specified three reasons why many of the facilities identified as potentially not meeting the provisions of the proposed amendments are substantially direct dischargers to the Rock and Fox Rivers:

1. The Rock and Fox River are medium in size and do not provide the dilution that a larger river would provide.
2. The population density in Northern Illinois is much greater than in other parts of the state.
3. The pH level, which is the most influential water quality factor in determining permit limits for ammonia nitrogen, is relatively high in the Rock and Fox Rivers.
(Exh. 41 at 13-15.)

Despite these characteristics, the aquatic life communities in the Rock and Fox Rivers are not substantially different from other rivers in the state of Illinois. (Exh. 41 at 15.) With the exception of salmonid fishes, the Agency finds no valid basis to suggest that any particular region should have ammonia nitrogen standards different from those proposed. (Exh. 41 at 16.)

The Agency conducted an update of its literature search and found four additional papers related to ammonia nitrogen. (Exh. 41 at 18-21.) The Agency also provided an update of the nine facilities that were identified in previous testimony as not meeting existing ammonia nitrogen standards. (Exh. 41 at 21-26.)

In its prefiled testimony from the November 10, 1994 hearing, the Agency submitted a list of major municipal treatment plants listed as potentially unable to comply with the proposed ammonia nitrogen standards and provided a cost estimate for compliance at these facilities. (See Exh. 2-S.) Based on additional information on several of these facilities, the Agency updated its cost estimates for compliance. (Exh. 41 at 26.) The Agency calculates that

under the worst case scenario the estimated cost for compliance with the proposed ammonia nitrogen standards for major municipal dischargers is $20,034,000. (Exh. 41 at 39.) The Agency observes that this is more than a 50% reduction from the initial estimated cost. (Exh. 41 at 26.) In addition, the Agency notes that at least seven facilities have been identified as being unable to comply with the existing water quality standards that are able to comply with the proposed standards. (Exh. 41 at 26.)

Under existing standards, the ammonia nitrogen concentration a facility discharges to its receiving stream must not cause the receiving stream to exceed 0.04 mg/L un-ionized ammonia nitrogen unless the total ammonia nitrogen concentration is less than 1.5 mg/L. (Exh. 41 at 40.) As a result, a substantial number of major municipal dischargers will have to comply with winter monthly average ammonia nitrogen permit limits more stringent than 4.0 mg/L. (Exh. 41 at 40.) Since 1993, the Agency has drafted NPDES permits with winter ammonia nitrogen effluent limits set at appropriate levels to comply with current ammonia nitrogen standards. (Exh. 41 at 40.) At least four permits were issued with a three year compliance plan, which when completed will require compliance with the water quality based ammonia nitrogen limits. (Exh. 41 at 40.) In addition, four other facilities have such compliance plans in their draft NPDES permits. (Exh. 41 at 41.) The Agency expects the number of facilities unable to meet the winter water quality based effluent ammonia nitrogen limit to double. (Exh. 41 at 41.) The Agency estimates a capital cost of $66 million for these facilities to comply with the existing ammonia standards. (Tr4. at 13.) If the trend continues, it is reasonable to assume that these numbers would double when the current five year NPDES cycle is complete and the cost could exceed $132 million. (Tr4. at 13.) However, these costs could be avoided if the proposal as amended is adopted within a reasonable time period prior to the affected facilities having constructed hardware. (Tr.4. at 168.)

The Agency has committed to promulgating a rulemaking implementing EMW procedures. (Tr4. at 156.)

Borden Chemical. Sailesh Jantrania, technical manager for Borden Chemicals & Plastics Operating Limited Partnership (BCP) in Illiopolis, Illinois testified that the proposed ammonia nitrogen standard is too stringent and that the EMW provision will not provide relief to dischargers to low flow streams. (Exh. 49 at 1.) BCP contends that: 1)exceedences of the standards by dischargers to low flow streams will not be rare and infrequent; 2)the proposed standards are not necessary to protect Illinois waters; 3)the EMW provision needs to be modified to provide the relief intended by the Agency; 4)Section 304.122 should be modified to make clear that daily variability around monthly average limitations is not precluded by the regulation; and 5)additional monitoring costs may result from the proposed standards. (Exh. 49 at 1.)

Fox Metro Water Reclamation District. Greg Buchner, special projects coordinator for the Fox Metro Water Reclamation District (FMWRD)[11] testified on the impact of the proposed

[11]The Fox Metro Water Reclamation District was formerly know as the Aurora Sanitary District.

standards on the FMWRD. The FMWRD submitted a report containing data gathered on the Fox River. (Exh. 50.) Samples taken over a one year period were analyzed for dissolved oxygen (DO), temperature, pH and ammonia nitrogen. (Exh. 50 at 5.) The report supports the Agency's earlier observation that the Fox River has a naturally occurring high pH. (Exh 50 at 6.) Using the data, FMWRD calculated water quality based ammonia nitrogen effluent standards for its facility under different scenarios. (Exh. 50 at 7.) The calculations show that due to the high pH of the Fox River, FMWRD would be subject to un-ionized ammonia nitrogen levels far below the proposed water quality standards. (Exh. 50 at 9.)

FMWRD's main concern is that the proposal will result in effluent limits for its facility that are more stringent than 1.5 mg/L summer and 4.0 mg/L winter. (Exh. 50 at 10.) While the facility may currently be able to meet these standards it is doubtful that these levels could be maintained as community growth increases. (Exh. 50 at 10.) FMWRD is also concerned that the USEPA could strike down the agreement between the Agency and FMWRD to use data from the downstream sampling and result in the recalculation of effluent limits. (Exh. 50 at 10.) FMWRD also objects to the use of "Existing Effluent Quality" in determining future effluent limits because its does not take into account future community growth and it penalizes well run treatment facilities. (Exh. 50 at 10.)

FMWRD suggests that the proposal be modified to create an exception to the general rule where there is high naturally occurring pH.

Illinois Association of Wastewater Agencies. James Daugherty testified on behalf of IAWA. IAWA expressed its concern over the limited amount of toxicity data available to derive the standards. (Tr5. at 65.) IAWA believes that standards of 1.5/4.0 mg/L are the lowest effluent levels that should be written because these are levels that are achieved through present technology. (Tr5. at 266.) IAWA stresses the importance of adopting the proposal given the expiration of Section 304.301. (Tr5. at 267.) IAWA notes that it did not pursue an extension of Section 304.301 since this rulemaking was pending. (Tr5. at 267.)

Ammonia Group. James Huff testified on behalf of the Ammonia Group (Cities of Batavia, Geneva, Rock Falls, St. Charles, Sterling and Galesburg). Mr. Huff provided an update on what the communities have done since the previous hearing. (Exh. 52 at 1 - 12.) Mr. Huff notes the excellent fishing conditions on the Fox River and the abundance of fish near outfalls and in mixing zones and questions the effects of ammonia at existing levels on aquatic life. (Exh 52 at 13.)

A one year sampling program consisting of weekly samples from nineteen stations on the Fox River and eight tributaries was developed by a group of dischargers along the Fox River. (Exh. 52 at 13.) Mr. Huff acted as project manager of the study and submitted a report of the study "Ammonia Water Quality Study of the Fox River" to the Board. (Exh. 53.) Based on the data obtained from this study, Mr. Huff concludes that a further tightening of the effluent limits is not justified. (Exh. 52 at 15.)

The Ammonia Group suggests the following changes to the proposal:

1) Allow stream temperatures to be measured at discharger's option to determine appropriate water quality standard (0.020 or 0.050 mg/L).
2) Incorporate the extension of time as originally proposed by the six communities for implementation of the revised effluent limits.
3) Drop the extra zero in the un-ionized ammonia limits.
4) Allow scientifically defensible alternatives to the Agency's mass balance procedure for deriving effluent ammonia limits.
5) Adopt the four-sample average concept, as proposed by the Agency.
6) Adopt a winter un-ionized ammonia limit of 0.03 mg/L and/or consider keeping the 1.5 mg/L total ammonia "floor" limit.
7) Effluent modified waters should be tied strictly to NPDES permit limits of 1.5 mg/L summer and/or 4.0 mg/L winter.
8) Allow seasonal EMW designations.
9) Ammonia effluent limits should not be set below 1.5/4.0 mg/L.

(Exh. 52 at 20-21.)

PUBLIC COMMENTS

Comments filed in R94-1 relating to ammonia

The Board received 26 public comments on the proposal as originally filed in R94-1. One comment (PC #12) concerned the portion of the proposal concerning lead and mercury (Subdocket) and the remaining 25 public comments concerned the proposed amendments to the ammonia standard, the origin and content of which are summarized in this section.

PC #1: By Linda Brand, Manager of Regulatory Flexibility Unit, Illinois Department of Commerce and Community Affairs: a review of the proposed amendments found no impact on small businesses. Filed 10/5/94.

PC #2: The City of Sterling, Illinois, by Stephen Berly, City Manager; the community became aware of the proposed rule on November 10, 1994 and requests more time to understand the effects of the proposed rulemaking. Filed 11/29/94.

PC #3: The City of Rock Falls, Illinois, by Glen R. Kuhlmeier, Mayor; requests additional time to evaluate the proposed rules. Filed 11/29/94.

PC #4: The City of St. Charles, Illinois; requests a 12-month delay for evaluation of its wastewater treatment facility. Filed 11/29/94.

PC #5: The Illinois Department of Conservation (IDOC) by Jim Mick, Streams Program Manager, Division of Fisheries; copy of a 1989 study "Biological

Stream Characterization: A Biological Assessment of Illinois Stream Quality." Filed 12/27/94.

PC #6: By Arthur R. Allan who opposes the proposed rulemaking. Mr. Allen expresses concern over the present decline of fish species in the Fox River and the potential for future degradation. He characterizes the Cities' proposal as a request to skate up close to the illegal parameters. Filed 1/17/95.

PC #7: The City of Dixon by Donald E. Sheets, Mayor; a resolution of the City Council of Dixon passed on January 17, 1995. The resolution requests that the Board approve the amendments proposed by the Cities. Filed 1/23/95.

PC #8: By James Warchall on behalf of Borden Chemicals and Plastics Operating Limited Partnership.[12] Mr. Warchall suggests that the concept of effluent modified waters (EMW) be modified. Mr. Warchall suggests that an NPDES permittee should be able to request that the Agency make a determination as to whether a stream is an EMW. The modifications suggested by Borden also include deleting the requirement that EMWs meet the water quality standard and that the language of Section 302.213(a)(2) be rewritten to avoid ambiguity. Filed 1/13/95.

PC #9: Agency Comments and Questions in response to the comments of James Warchall. The Agency foresees problems in implementing the suggestion concerning determinations on EMWs. The Agency believes that the determination of an EMW should be part of the permitting process but that informal and tentative determinations will be made in some situations. The Agency maintains that requiring EMWs to meet the water quality standard is necessary to protect aquatic life and for USEPA approval. The Agency objects to any change in the language of Section 302.213(a)(2) since this section was the subject of some rather long and intense discussions with the USEPA. Filed 1/24/95.

PC #10: By J. Dennis Hastert, Member of Congress, in support of the Cities' request for additional time. Mr. Hastert believes that before requiring the expenditure of millions of dollars every assurance should be made that there is a real problem. Filed 3/9/95.

PC #11: The Sierra Club, Illinois Chapter of Trout Unlimited, Citizens for a Better Environment, Lake Michigan Federation, and Friends of the Chicago River, by Albert F. Ettinger; This comment recommends adoption of USEPA

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[12] This document was originally filed as pre-filed testimony; however, since no-one appeared at hearing to present the testimony, the hearing officer entered the testimony as well as the questions of the Agency on the testimony (PC # 9) as public comments.

standards for ammonia. The commenters assert that the proposed amendments are requests for site-specific relief and the objection of the Cities is to the implementation of the standards. The comment also suggests that standards for zinc, selenium, nickel and phosphorous should be adopted. Filed 3/10/95.

PC #13: By Cynthia L. Skrukud, McHenry County Defenders; supports adoption of standards but believes that more stringent USEPA standard for ammonia should be adopted. In addition, the comment states that effluent modified waters only serve to protect polluted waters from the possibility of becoming cleaner. Filed 3/10/95.

PC #14: By Billita Jacobsen, Fox Path Association; asserts that lower ammonia standards are needed to protect recreational uses of the Fox River. Filed 3/10/95.

PC #15: By Barbara Marquardt, President Fox Valley Land Foundation; cites the effects of sewage discharge on rivers and encourages the investigation of land application of sewage. Filed 3/10/95.

PC #16: Fuji Photo Film, Inc. by Nancy Neely; Fuji notes that ammonia compounds are used extensively in photo imaging processes. Fuji believes that the proposed limits will place an undue burden on photoprocessors and the cost of compliance will filter down to small business owners. Filed 3/13/95.

PC #17: Indian Refining Limited Partnership (IRLP) by Christina Riewer; IRLP asserts that it will not be able to meet the proposed ammonia standards. IRLP supports the proposal of the Cities for deriving effluent limits based on actual stream data. Filed 3/13/95.

PC #18: The Chemical Industry Council of Illinois (CICI), by Mark Homer. This comment asserts that sufficient evidence has not been provided by the Agency to show that the proposed ammonia nitrogen limits are necessary to protect Illinois waterways. CICI claims that chemical manufacturers will be effected since their effluent contains ammonia. CICI maintains that any standard above two significant digits is unjustified. Filed 3/13/95.

PC #19: The National Photographic Manufacturers, Inc., by Thomas Duffy; expresses agreement with PC #20 from Eastman Kodak and suggests that USEPA standards be adopted. Filed 3/13/95.

PC #20: The Eastman Kodak Company by Linda J. Liszewski; Eastman Kodak believes that the standards should be consistent with USEPA guidance. Filed 3/15/95.

PC #21: The Graphic Arts Technical Foundations by Gary A. Jones; suggests the possible effect on small businesses of the proposal. Filed 3/15/95.

PC #22: The Cities of Batavia, Geneva, Rock Falls, St. Charles, and Sterling (Ammonia Group) by Lee Cunningham. The Ammonia Group believes that it is wrong to require expenditure without any known environmental benefit. The Ammonia Group maintains that the Agency has no biological survey reports that show that the discharge of ammonia from any of the affected facilities has caused instream degradation. The key elements of the Ammonia Group's proposal include providing an opportunity for dischargers to determine whether ammonia degradation will occur, dischargers would maximize the ammonia treatment in light of existing operational conditions, where temperature data exists it can be used to determine if a violation occurred and there is no support for adding a zero to the standards. Filed 3/15/95.[13]

PC #23: Illinois Association of Wastewater Agencies (IAWA) by James L. Daugherty; supports adoption of the standards as proposed with amendments presented in their testimony. IAWA believes that the addition of a third decimal place is inappropriate. Filed 3/22/95.

PC #24: Agency's Final Comment by Margaret Howard; (This comment addresses many issues of contention; in view of its length and content, the comment is summarized in a separate following section.) Filed 4/11/95.

PC #25: Index Department of the Administrative Code Division of the Office of the Secretary of State; notes corrections that must be made to the text of the rule before the rule can be adopted. The Board today makes the suggested corrections to the text. Filed 11/7/94.

PC #26: Illinois Environmental Regulatory Group submitted by Katherine Hodge. This comment expresses concerns on the Board's scheduling a pre-hearing conference at this point in the proceeding. Filed 10/31/95.

Summary of Agency's Comment (PC #24). The Agency believes that the limited criticism of the actual numbers proposed for the water quality standards indicates that the regulated community concurs with the basic precepts of the rulemaking. The Agency argues that the addition of the third digit is necessary to ensure that rounding practices would not compromise the integrity of the standards. The standards are to be considered as "not to exceed" values. The Agency is agreeable to adopting the standards with three significant digits

[13] Public Comments #22 and #23 were accompanied by motions to file instanter. Those motions are hereby granted.

or including a narrative on rounding practices or adopting the three digits from the original calculations.

The Agency does not support the amendments proposed by the Cities (Ammonia Group) and notes that the USEPA has also indicated that it does not support the amendments.

The Agency contends that some facilities will need to add nitrification to meet the proposed standards. For facilities that employ the highest level of ammonia nitrogen removal but are unable to meet the proposed standards, the regulations include the concept of effluent modified water. The Agency maintains that the proposed regulations are technically feasible.

The Agency maintains that the proposed regulations are economically reasonable. The Agency recognizes that the ammonia standards will have a potential effect on approximately 20 major municipal dischargers and one industrial discharger. The Agency has provided worst case costs for the upgrading of these facilities. The Agency maintains that the proposed regulations are economically reasonable and from a statewide perspective, the economic impact for a handful of municipal dischargers will be minimal.

The Agency maintains that implementation is not an issue in the proposed regulation. However, in recognition of criticisms from potentially affected dischargers, the Agency notes the proposed regulations will be implemented according to the Agency's existing implementation procedures. The Agency also recognizes that portions of the implementation procedures will need to be updated to match portions of the proposed regulations. The Agency also states that new implementation procedures will be proposed in an Agency rulemaking after the Board enters its final order in this rulemaking.

The Agency believes that a temperature based water quality standard is inappropriate. The Agency maintains that the use of 12° is not supported on the record and that the Agency used 12° as the break between summer and winter based an the lack of toxicity information in the range between 10° and 14°. The Agency also believes that the use of a temperature based water quality standard is inappropriate when the standard is implemented as an average. The Agency contends that the temperature standard will be difficult to implement. Thermal variations in the stream would result in different standards for different parts of the stream.

The Agency is opposed to allowing time to study compliance with the proposed ammonia standards. The Agency contends that the "wait and see" monitoring approach is inconsistent with the intent of the protection principles of the CWA. The Agency maintains that treatment plants should already be taking measures to minimize ammonia effluent concentrations. The Agency maintains that data collection should occur simultaneously with other items in a compliance schedule. The Agency contends that optimization of ammonia removal at a treatment plant and monitoring programs can be incorporated into the three year compliance schedule in a NPDES permit.

The Agency agrees that a viable population of trout exists in one five mile long reach of a stream in Illinois. The Agency also acknowledges that trout toxicity data was removed from consideration in deriving the proposed standards. The Agency states that a special ammonia standard could be derived for this stream segment but there are no point sources to this segment so no consequences of the special standard would be immediately felt. The Agency contends that the warm water conditions of Illinois waterbodies rather than ammonia nitrogen prevent trout from permanently establishing in Illinois waterways.

The Agency believes that the comments from the photographic industry reflect a misunderstanding of the proposed regulations. The Agency states that the comments of the photographic industry imply that the proposed limitations apply to effluent dischargers instead of water quality in the waters of the State. The Agency maintains that the proposed standards are consistent with current USEPA policies and guidelines. The Agency also maintains that the proposed standards are not more stringent than USEPA requirements. The Agency believes that imposing limits on ammonia contributors to pretreatment is not a viable option.

The Agency describes the comments from the Chemical Industry Council of Illinois as suffering from major misconceptions of the details of the rulemaking. The Agency notes that only one industrial facility was identified as being potentially impacted. The Agency maintains that streams will be designated as EMW when NPDES permits are issued and that there is no reason to pre-designate these streams. The Agency believes that the regulations are clear in specifying the criteria necessary to designate a water as effluent modified. The Agency believes that in impacted communities, industrial users will pay only a proportionate share of costs based on their relative contribution to the system.

The Agency disputes IAWA's contention that the factors used to obtain un-ionized ammonia values were inaccurate. The Agency supports IAWA's suggestion that the Agency should be open to other models in its rules of implementation but the Agency maintains that the proper time for the presentation of these models is in the updating process of the implementation procedures.

While the Agency does not completely agree with the comments submitted by IRLP, the Agency and IRLP have continued to discuss the issues regarding IRLP's facility. The Agency makes the following statement concerning IRLP:

> IRLP and the Agency have reached conceptual agreement resolving the chronic water quality issues. That agreement involves using an effluent design average discharge rate ("Q_E") for IRLP of 2.3 million gallons per day ("MGD"). The Agency would also use monthly ("$7Q_{10}$") values based upon a June 1993 Illinois State Survey Report for the Embarras River. The acute water quality issues remain to be solved.

Comments filed in R94-1(B)

PC #1(B)[14] Granite City Division, National Steel Corporation (GCD). GCD contends that the Agency has not shown that the proposed standard is economically or technically feasible for industrial dischargers. Filed 3/29/96.

PC #2(B) McHenry County Defenders and the Friends of the Fox River submitted by Gerald Paulson. The comment objects to the provision that establishes effluent modified waters and the lack of an ammonia standard that is protective of cold water fish species. The comment notes that parties who cannot meet the proposed standards may request an adjusted standard from the Board and a special procedure is not necessary. The comment notes that streams that flow into the Kishawaukee River are able to support cold water species not found in other parts of the state. The comment urges adoption of USEPA standards for these streams instead of the proposed standards which are not protective of cold water species. Filed 3/29/96

PC #3(B) Sierra Club, Illinois Chapter of Trout Unlimited, Citizens for a Better Environment, Lake Michigan Federation, and Friends of the Chicago River submitted by Albert Ettinger. This comment contends that the Board must: 1) eliminate or at least clarify the provision regarding EMW; 2) adopt ammonia water quality standards consistent with the USEPA national criteria for ammonia or adopt those criteria for Illinois waters known to have harbored or to harbor cold water species and 3) reject the arguments which ask the Board to adopt standards that are wholly inadequate to protect aquatic life. Filed 3/29/96.

PC #4(B) The Ammonia Group submitted by Lee Cunningham. This comment provides an overview of the Ammonia Group's position as presented in testimony and other filings. The comment explains the differences between the Ammonia Group's proposal and the Agency's proposal. The Ammonia Group supports the amendments submitted by IAWA clarifying the EMW requirements. The Ammonia Group withdraws the concept of using actual stream temperature to determine ammonia standards from its proposal. Filed on 3/29/96.

PC #5(B) William Leja, member of the Sierra Club. Mr. Leja refers the Board to several scientific studies and their findings. In addition, he questions whether the findings of these studies have been considered in the proposed rules. Filed on 4/1/96.

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[14] The public comments filed in Subdocket (B) were entered into the Docket beginning with number 1, a (B) is added after the public comment number to indicate that the comment was filed in Subdocket (B).

PC #6(B) American Western Refining submitted by Bill Forcade. American Western Refining suggests that the Board mandate a rational implementation of the proposed ammonia water quality standard as part of the rulemaking. Such implementation shall include a provision for an affirmative defense when the permittee can show that actual stream data shows no violation of the water quality standard, provide American Western with dry weather discharge levels and stream low flow levels and provide American Western with a Zone of Initial Dilution equal to 2% of the Embarras River's flow. Filed 4/4/96.

PC #7(B) Chemical Industry Council of Illinois (CICI) by Mark Homer. CICI contends that further technical support of any adverse impact on Illinois waterways is necessary before changing the ammonia nitrogen standard especially considering the cost of compliance. CICI submits that no additional action should be taken in this matter due to the confusion and controversy surrounding the federal ammonia nitrogen water quality standards. CICI reports that USEPA Region VIII is drafting a white paper on ammonia standards. CICI observes that other states in Region V have not taken any action but are looking to Illinois to lead the way. CICI also observes that the EMW provision creates an uncertainty as to which facilities will be effected by the proposal. Filed 4/5/96.

PC #8(B) Illinois Environmental Protection Agency submitted by Margaret Howard. This comment presents a summary of the Agency's position and responses to issues and comments. This comment contains a revised proposal consisting of language agreed to between USEPA and the Agency. (Attachment BB.) The Agency anticipates that loans will be available to fund some of the modifications to facilities that will be required by the proposed amendments. Filed on 4/8/96.

PC#9(B)[15] Supplemental Comments of the Ammonia Group submitted by Lee Cunningham. The Ammonia Group provided a copy of the Hall report providing additional information on the regulatory history of the development of national ammonia water quality criteria, a summary of post-1984 research on ammonia toxicity impacts, some additional information on actions by other states and recommendations for revisions. (Attachment C to PC #9(B).) The comment also provides a summary of a teleconference with two USEPA employees concerning this proceeding. Filed on 6/3/96.

PC#10(B) City of Belleville. Belleville reports that it has received a draft permit containing more stringent ammonia limits than previous permits and a

[15] The Agency filed a motion to strike this comment. The motion and the response to the motion are addressed in a section following the discussion of the comments.

compliance schedule. Belleville moves for the expeditious adoption of revisions to the ammonia regulations. Filed on 6/3/96

PC#11(B) Illinois Environmental Protection Agency's Comments on "Final Report of Ammonia Group Prepared by the Wisconsin Department of Natural Resources".[16] The Agency distinguishes the findings of the Wisconsin Report and Illinois regulations and the water quality standards contained in the proposal. The Agency notes that the Wisconsin Report is a summary of recommendations with no indication whether the suggestions are workable. Filed on 6/5/96.

PC#12(B) Illinois Environmental Protection Agency's Additional Supplemental Final Comments. The Agency maintains that the planned drafting of an issue paper by USEPA Region VIII on ammonia nitrogen is irrelevant to this proceeding and therefore, this proceeding should not be delayed in anticipation of that paper. The Agency urges the Board to review the record in this matter and adopt the regulation as proposed. Filed on 6/5/96.

PC#13(B) Supplemental Comments of the Illinois Association of Wastewater Agencies. IAWA urges the expeditious adoption of the amendments to the ammonia water quality standards including the language proposed on EMW. IAWA notes the serious shortage of data on chronic ammonia toxicity and requests that the Board give full consideration to all information before adopting more stringent chronic standards. IAWA also suggests that the Board defer all implementation details to the Agency. Filed on 6/17/96.

Motions concerning PC#9(B)

On June 27, 1996, the Agency filed a motion to strike the supplemental comments of the Ammonia Group. (PC #9(B)) The Agency contends that the comments contain information that is outside of the type of information requested by the Board's order allowing the filing of additional comments and that the information submitted is irrelevant. The Agency maintains that the information in the Ammonia Group's supplemental comment was available prior to the filing of the supplemental comment. The Agency also maintains that portions of the comments are hearsay testimony and therefore should be stricken.

On June 3, 1996, the Ammonia Group filed a response to the Agency's motion. The Ammonia Group notes that this proceeding is at the pre-First Notice stage and therefore the record is still open. While the Ammonia Group recognizes that the information regarding the teleconferences represents hearsay, it argues that the information is admissible in that it is relevant and non-repetitious. The Ammonia Group also observes that this type of information

[16] This report was attached to the Ammonia Group's Post-hearing Comments (PC#4(B)). On May 2, 1996, the Board denied the Agency's motion to strike the Wisconsin Report.

does not differ in nature from information concerning USEPA policy submitted in this proceeding by the Agency.

On July 8, 1996, the Illinois Steel Group (Steel Group) filed a response to the motion to strike. The Steel Group argues that the conversations between Mr. Cunningham and the USEPA do not constitute inadmissible hearsay. The Steel Group contends that this is not hearsay since Mr. Cunningham has personal knowledge of the conversations, and the question of whether the content of the conversation is fact is an area for further investigation in this rulemaking. The Steel Group also notes that striking this comment will result in material prejudice to the dischargers impacted by the rule in that substantial expenditures will be required to comply with the standard that may not be necessary.

On July 17, 1996, the Agency filed a motion to file a reply along with a reply to the Ammonia Group's response. The Board grants the Agency leave to file a reply and accepts the reply filed by the Agency. The Agency recognizes the fact that these proceedings are not closed but believes that the comments filed were to summarize the positions of the participants and not to present new information. The Agency maintains that the summary of the conversations represents hearsay and should not be allowed in a regulatory proceeding. In addition the Agency differentiate these conversations from other information on USEPA policy presented in this proceeding.

The Board denies the Agency's motion to strike the supplemental comments of the Ammonia Group. The Board will include the supplemental comments of the Ammonia Group as filed as part of the record to be considered by the Board in this rulemaking. Section 102.282 allows for all information that is relevant and not repetitious to be entered into the record of a rulemaking. The Board also notes that the information was submitted in a public comment and not as sworn testimony. The Board will consider the comment as filed, giving it the appropriate weight in this matter.

DISCUSSION

The Board recognizes the concern among some of the participants in this matter that for some special uses, particularly the support of salmonid fish populations, the ammonia standards herein proposed may not be sufficient to support the special use. However, it must also be recognized that the General Use Water Quality Standards are intended to apply to general waters of the State, and are accordingly an inappropriate vehicle to address support of very special, and geographically-restricted needs. The Board observes that it has long utilized special standards for special needs,[17] and that it would always entertain proposals to utilize this concept to give necessary protection to any Illinois waters.

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[17] The Board's observes that it maintains a special section in its water quality rules titled "Water Use Designations and Site Specific Water Quality Standards" at 35 Ill. Adm. Code Part 303. The Board promulgates the standards that are necessary to support special uses.

Significant Figures

The number of significant digits in the ammonia standards is no longer at issue in this matter since the new proposal submitted by the Agency did not contain levels to three significant digits. However, the Board offers the following comments on this issue.

As regards the dispute over the number of significant figures to be used in specifying the ammonia standards, the Board is convinced that three significant figures is not in the instant circumstance justified, given the statistical errors of rounding and analysis.

Standard Methods for the Examination of Water and Wastewater (18th ed.) discusses the relative error and relative standard deviation between laboratories and between method for NH_3-N analysis. Depending on the analytical method and the ammonia nitrogen concentration present, relative errors to the test range from 0% to 20.0%. Relative standard deviations ranged from 5.3% to 69.8%. In some cases the low relative error between laboratories is easily explained by the high relative standard deviation found within laboratories. Given that standard deviations often exceed 10% of the result, reporting more than two significant figures cannot be technically justified.

Determination of un-ionized ammonia requires: 1) the collection of a representative sample; 2) determination of sample temperature in the field; 3) measurement of pH; and 4) analysis of NH_3 - N. Errors of sampling and analysis occur at each point. Statistical support can only begin for the measurement yielding the least number of significant figures. Measurement of pH is usually carried only to two significant figures. Measurement of temperatures using field thermometers is seldom accurate to a third significant figure. Accordingly, the statistical necessity of compounding method errors indicates that a regulatory requirement for three significant digits is technically infeasible in this instance.

As an alternative to the addition of a third significant digit the Agency requested that the Board include a narrative on rounding practices. However, the Agency did not specify the contents of that narrative or include any reference on the standard rounding practices to be employed by the Board. In addition, the Board recognizes that the rounding of analytical data is an issue in other areas before the Agency and the Board and therefore any discussion of rounding practices in this proceeding could have far reaching implications. Therefore, the Board declines to elaborate on rounding practices concerning the data of the proposed standards.

Effluent Modified Waters

The Board recognizes that the standard treatment methodology for ammonia N is nitrification in a biological treatment plant, usually activated sludge. This treatment method does not assure compliance with the chronic ammonia standards proposed at all times outside of a mixing zone, especially in small streams. The Board further recognizes that additional treatment would come at great cost, and with little or no benefit. The concept of effluent

modified waters is proposed to ensure that well run treatment plants are not found to be routinely in violation where no harm is done to the aquatic environment.

To obtain the relief intended by this section, a discharger must demonstrate that limits of 1.5 mg/L in summer and 4.0 mg/L in winter of ammonia can be attained in the discharge, that the existing level of treatment will be maintained, and that new or increased ammonia loadings to the stream would meet nondegradation standards in the stream. Further, acute ammonia standards must be met, and there can be no known uses of the stream that would be adversely affected by the discharge. Once these demonstrations are made, the Agency may designate a portion of the stream to be effluent modified waters.

Temperature Based Standards

While the Ammonia Group did not agree with the Agency that a temperature standard would create an unnecessary burden, it withdrew the provision of its proposal for a temperature based standard due in part to the confusion as to how the standard would be implemented. (PC #4(B) at 14.) However, due to the amount of the record that pertains to this issue the Board will comment on the provision.

The Board agrees that the addition of the temperature provision to the regulation will result in unnecessary confusion. The Board finds that the use of temperature would be applicable only in a limited number of incidents due to the limited monitoring of temperature and the limited number of times that the water temperature would require a different standard than that imposed by the date. The Board also believes that the use of temperature would unnecessarily complicate any determinations of compliance with the regulations. The Board is concerned with the variation in temperature that results from different measuring practices and the possible use of various methods to obtain a more favorable temperature reading.

Additional Studies

The Board recognizes the utility of additional toxicity studies on ammonia nitrogen, lead, mercury and other contaminants. The Board notes that these proposed standards are part of the Agency's triennial review and therefore, the water quality standards in this proposal may be subject to review in subsequent triennial reviews by the Agency. Information obtained from any studies would be instrumental in the next review period and other proposals relating to water quality standards.

The proposal by the Cities and IAWA for additional studies failed to provide sufficient information on the types of studies to be performed, the parties responsible for the studies and the use of the studies. The Board believes that it could not allow additional time for studies without providing specific guidelines on the performance and use of the studies. The record before the Board was insufficient for the Board to determine an appropriate testing procedure. In addition, the Board believes that the specific facilities and waterways would require distinct

testing and sampling mechanisms that could not be adequately addressed in a rule of general applicability.

In addition, the Board notes that the delays in this rulemaking have provided additional time for the participants to conduct studies and review compliance options. Several studies have been undertaken during the course of this rulemaking, in particular the Board notes the study of the Fox River presented by the Ammonia Group and additional data from dischargers provided by IAWA. and the study by the Fox Metro Water Reclamation District.

Alternative Relief

The Board recognizes that the proposed standards will adversely affect some facilities. However, relief for some facilities may be available in the provision of the proposal on effluent modified waters. Also as noted by the Agency, compliance schedules will be included in many NPDES permits to allow time for the facilities to implement the necessary modifications needed to achieve compliance. In addition, the Board notes that relief may also be available through variance, adjusted standard or site-specific rule from the Board.

In reviewing the petitions of the affected facilities, the Board finds that it is not appropriate at this time to grant the types of relief requested. The proposal is a rule of general applicability to the general use waters of the State. Virtually all of the participants in this rulemaking agree that the rule is appropriate as a water quality standard. The affected facilities are comprised of municipalities and industrial facilities that the Agency has informed will be impacted by this rule. The Agency made that determination by calculating theoretical ammonia limits for a hypothetical permit for these facilities using a draft algorithm, and comparing the results to performance data from the plant effluents. The Board finds that the assertion by those facilities identified as being affected by the proposed amendments that additional relief will be needed is too tenuous a link for the Board to fashion relief for the affected facilities within this rule.

Other Water Quality Standards

The Sierra Club has urged the Board to adopt water quality standards for zinc, selenium, nickel and phosphorous. However, the record does not contain any proposed standards for these elements nor any studies or information concerning the effects of these elements. The consideration of water quality standards for constituents other than ammonia nitrogen is not appropriate in this rulemaking. A proposal for rulemaking containing the required information may be filed by any person pursuant to Section 102.120.

Implementation

While implementation of the proposed standards is not included in the proposal before the Board, one cannot consider the proposal without considering the effect the standards will have in determining permit limitations. Permit limits are derived by the Agency through the

use of water quality standards and are imposed to maintain the quality of the waterway and protect aquatic life.

In support of the proposal the Agency included the implementation guidelines that the Agency follows. (Exh. 2L and 2M.) The Agency has asserted that it intends to adopt regulations concerning the implementation of the water standards.

The Board recognizes that much of the opposition to the regulations by participants centered around the implementation of the standards and the ultimate effect the standards would have on ammonia nitrogen levels in permits. The Board believes that implementation standards should be promptly promulgated by the Agency, allowing for input from the regulated community. The Board also reminds the participants in this proceeding that any person may submit a regulatory proposal for adoption of a regulation to the Board pursuant to 35 Ill. Adm. Code 102.120.

ORDER

The Board directs the Clerk to cause publication of the following amendments in the Illinois Register for first notice:

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

PART 302
WATER QUALITY STANDARDS

SUBPART A: GENERAL WATER QUALITY PROVISIONS

Section	
302.100	Definitions
302.101	Scope and Applicability
302.102	Allowed Mixing, Mixing Zones and ZIDs
302.103	Stream Flows
302.104	Main River Temperatures
302.105	Nondegradation

SUBPART B: GENERAL USE WATER QUALITY STANDARDS

Section	
302.201	Scope and Applicability
302.202	Purpose
302.203	Offensive Conditions

SUBPART C: PUBLIC AND FOOD PROCESSING WATER SUPPLY STANDARDS

SUBPART D: SECONDARY CONTACT AND INDIGENOUS AQUATIC LIFE STANDARDS

SUBPART E: LAKE MICHIGAN WATER QUALITY STANDARDS

SUBPART F: PROCEDURES FOR
DETERMINING WATER QUALITY CRITERIA

AUTHORITY: Implementing Section 13 and authorized by Section 27 of the Environmental Protection Act (415 ILCS 5/13 and 27).

SOURCE: Filed with the Secretary of State January 1, 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; 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; peremptory amendments at 10 Ill. Reg. 461, effective December 23, 1985; amended in R87-27 at 12 Ill. Reg. 9911, effective May 27, 1988; amended in R85-29 at 12 Ill. Reg. 12082, effective July 11, 1988; amended in R88-1 at 13 Ill. Reg. 5998, effective April 18, 1989; amended in R88-21(A) at 14 Ill. Reg. 2899, effective February 13, 1990; amended in R88-21(B) at 14 Ill. Reg. 11974, effective July 9, 1990; amended in R94-1(A) at 20 Ill. Reg. 7682, effective May 24, 1996; amended in R94-1(B) at _____ Ill. Reg. _____, effective _____

BOARD NOTE: This Part implements the Illinois Environmental Protection Act as of July 1, 1994.

Section 302.202 Purpose

The general use standards will protect the State's water for aquatic life (except as provided in Section 302.213), wildlife, agricultural use, secondary contact use and most industrial uses and ensure the aesthetic quality of the State's aquatic environment. Primary contact uses are protected for all general use waters whose physical configuration permits such use.

(Source: Amended at 20 Ill. Reg. _____, effective _____)

Section 302.212 Total Ammonia Nitrogen and Un-ionized Ammonia

a) Total Aammonia nitrogen (as N: STORET Storet Number 3161600610) shall in no case exceed 15 mg/lL.

b) If ammonia nitrogen is less than 15 mg/1 and greater than or equal to 1.5 mg/1, then un-ionized ammonia (as N) shall not exceed 0.04 mg/1.

b) Un-ionized ammonia nitrogen (as N: STORET Number 00612) shall not exceed the acute and chronic standards given below subject to the provisions of Section 302.208(a) and (b), and 302.213.

1) From April through October the Acute Standard (AS) shall be 0.33 mg/L and the Chronic Standard (CS) shall be 0.057 mg/L.

2) From November through March the AS shall be 0.14 mg/L and the CS shall be 0.025 mg/L.

~~c) Ammonia nitrogen concentrations of less than 1.5 mg/1 are lawful regardless of un-ionized ammonia concentration~~.

c~~d~~) For purposes of this S~~s~~ection the concentration of un-ionized ammonia nitrogen as N and total ammonia nitrogen as N shall be computed according to the following equation~~s~~:

~~$U = \frac{1.0013N}{(1+10^{x})}$~~

$$U = \frac{N}{[0.94412(1+10^{x}) + 0.0559]}$$

and $N = U\,[0.94412(1+10^{x})+0.0559]$

where: $X = 0.09018 + \frac{2729.92}{(T + 273.16)} - pH$

U = Concentration of un-ionized ammonia as N in mg/L
N = Concentration of ammonia nitrogen as N in mg/~~l~~L
T = Temperature in degrees Celsius

d~~e~~) The following table~~s~~ indicate~~s~~ the maximum total ammonia nitrogen concentrations (mg/~~l~~L as N) allowable pursuant to subsections (a) and (b) for certain combinations of pH and temperature

~~AMMONIA NITROGEN~~
~~WATER QUALITY STANDARD (mg/l)~~

~~TEMP.~~		~~pH~~						
~~$^{\theta}$C~~	~~($^{\theta}$F)~~	~~6.0~~	~~6.5~~	~~7.0~~	~~7.5~~	~~8.0~~	~~8.5~~	~~9.0~~
~~5~~	~~(41)~~	~~15~~	~~15~~	~~15~~	~~9.6~~	~~3.1~~	~~1.5~~	~~1.5~~
~~10~~	~~(50)~~	~~15~~	~~15~~	~~15~~	~~6.5~~	~~2.1~~	~~1.5~~	~~1.5~~
~~15~~	~~(59)~~	~~15~~	~~15~~	~~13.9~~	~~4.4~~	~~1.5~~	~~1.5~~	~~1.5~~
~~20~~	~~(68)~~	~~15~~	~~15~~	~~9.6~~	~~3.1~~	~~1.5~~	~~1.5~~	~~1.5~~
~~25~~	~~(77)~~	~~15~~	~~15~~	~~6.7~~	~~2.1~~	~~1.5~~	~~1.5~~	~~1.5~~
~~30~~	~~(86)~~	~~15~~	~~14.9~~	~~4.7~~	~~1.5~~	~~1.5~~	~~1.5~~	~~1.5~~

~~35 (95) 15 10.7 3.4 1.5 1.5 1.5 1.5~~

1) Summer (April through October) Acute- un-ionized ammonia 0.33 mg/L

pH		6.5	7.0	7.5	7.75	8.0	8.25	8.5	9.0
^{0}F	^{0}C								
55	12.8	15.0	15.0	15.0	15.0	13.8	7.9	4.6	1.7
60	15.6	15.0	15.0	15.0	15.0	11.2	6.5	3.8	1.4
65	18.3	15.0	15.0	15.0	15.0	9.8	5.3	3.1	1.2
70	21.1	15.0	15.0	15.0	13.2	7.6	4.4	2.6	1.1
75	23.9	15.0	15.0	15.0	10.9	6.3	3.7	2.2	0.9
80	26.7	15.0	15.0	15.0	9.0	5.2	3.1	1.9	0.8
85	29.4	15.0	15.0	13.1	7.5	4.4	2.6	1.6	0.7
90	32.2	15.0	15.0	10.9	6.3	3.7	2.2	1.4	0.7

2) Summer (April through October) Chronic-un-ionized ammonia 0.057 mg/L

pH		6.5	7.0	7.5	7.75	8.0	8.25	8.5	9.0
^{0}F	^{0}C								
55	12.8	15.0	15.0	7.4	4.2	2.4	1.4	0.8	0.3
60	15.6	15.0	15.0	7.0	3.4	1.9	1.1	0.7	0.2
65	18.3	15.0	15.0	4.9	2.8	1.6	0.9	0.5	0.2
70	21.1	15.0	12.6	4.0	2.3	1.3	0.8	0.5	0.2
75	23.9	15.0	10.3	3.3	1.9	1.1	0.6	0.4	0.2
80	26.7	15.0	8.6	2.7	1.6	0.9	0.5	0.3	0.1
85	29.4	15.0	7.8	2.3	1.3	0.8	0.4	0.3	0.1
90	32.2	15.0	5.8	1.9	1.1	0.6	0.4	0.2	0.1

3) Winter (November through March) Acute un-ionized ammonia 0.14 mg/L

pH		6.5	7.0	7.5	7.75	8.0	8.25	8.5	9.0
^{0}F	^{0}C								
32	0.0	15.0	15.0	15.0	15.0	15.0	9.2	5.2	1.7
35	1.7	15.0	15.0	15.0	15.0	14.1	8.0	4.5	1.5
40	4.4	15.0	15.0	15.0	15.0	11.3	6.4	3.7	1.3
45	7.2	15.0	15.0	15.0	15.0	9.0	5.1	2.9	1.0
50	10.0	15.0	15.0	15.0	12.8	7.3	4.1	2.4	0.9
55	12.8	15.0	15.0	15.0	10.3	5.9	3.4	2.0	0.7
60	15.6	15.0	15.0	14.8	8.4	4.8	2.7	1.6	0.6

4) Winter (November through March) Chronic un-ionized ammonia 0.025 mg/L

pH	6.5	7.0	7.5	7.75	8.0	8.25	8.5	9.0

^{0}F	^{0}C								
32	0.0	15.0	15.0	9.1	5.1	2.9	1.6	0.9	0.3
35	1.7	15.0	15.0	7.9	4.4	2.5	1.4	0.8	0.3
40	4.4	15.0	15.0	6.3	3.6	2.0	1.1	0.7	0.2
45	7.2	15.0	15.0	5.0	2.8	1.6	0.9	0.5	0.2
50	10.0	15.0	12.7	4.0	2.3	1.3	0.7	0.4	0.2
55	12.8	15.0	10.2	3.3	1.8	1.0	0.6	0.3	0.1
60	15.6	15.0	8.3	2.6	1.5	0.9	0.5	0.3	0.1

(Source: Amended at 20 Ill. Reg. _____, effective_____)

Section 302.213 Effluent Modified Waters (Ammonia)

a) Effluent modified waters are those waters or portions of waters that the Agency has determined pursuant to 35 Ill. Adm. Code 309, Subpart A, to have the potential to exceed, and are therefore not subject to, the chronic ammonia standards of Section 302.212(b) downstream of an effluent outfall and outside of any allowable mixing zone. The Agency shall not identify a waterbody as an effluent modified water if it:

1) has uses known to be adversely impacted by ammonia as designated under 35 Ill. Adm. Code 303.201 outside of any allowable mixing zone; or

2) exceeds the acute standard of Section 302.212(b).

b) All effluent discharges to an effluent modified water must meet the requirements of 35 Ill. Adm. Code 304.122(d) prior to dilution with the receiving water.

(Source: Added at 20 Ill. Reg. _____, effective _____)

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

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

SUBPART C: TEMPORARY EFFLUENT STANDARDS

Section
304.301 Exception for Ammonia Nitrogen Water Quality Violations (Repealed)
304.302 City of Joliet East Side Wastewater Treatment Plant
304.303 Amerock Corporation, Rockford Facility

Appendix A References to Previous Rules

AUTHORITY: Implementing Section 13 and authorized by Section 27 of the Environmental Protection Act (415 ILCS 5/13 and 27).

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 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 R88-22 at 13 Ill. Reg. 8880, effective May 26, 1989; amended in R87-6 at 14 Ill. Reg. 6777, effective April 24, 1990; amended in R87-36 at 14 Ill. Reg. 9437, effective May 31, 1990; added at 14 Ill. Reg. 11979, effective July 9, 1990; amended in R84-44 at 14 Ill. Reg. 20719, effective December 11, 1990; amended in R86-14 at 15 Ill. Reg. 241, effective December 18, 1990; amended in R87-33 at 18 Ill. Reg. 11574, effective July 7, 1994; amended in R95-14 at 20 Ill. Reg. 3528, effective February 8, 1996; amended in R94-1 (B) at 20 Ill. Reg. ____, effective _____
____

BOARD NOTE: This Part implements the Illinois Environmental Protection Act as of July 1, 1994.

Section 304.122 Total Ammonia Nitrogen (as N: STORET number 00610)

a) No effluent from any source which discharges to the Illinois River, the Des Plaines River downstream of its confluence with the Chicago River System or the Calumet River System, and whose untreated waste load is 50,000 or more population equivalents shall contain more than 2.5 mg/l of total ammonia nitrogen as N during the months of April through October, or 4 mg/l at other times.

b) Sources discharging to any of the above waters and whose untreated waste load cannot be computed on a population equivalent basis comparable to that used for municipal waste treatment plants and whose total ammonia nitrogen as N discharge exceeds 45.4 kg/day (100 pounds per day) shall not discharge an effluent of more than 3.0 mg/l of total ammonia nitrogen as N.

c) In addition to the effluent standards set forth in subsections (a) and (b) above, all sources are subject to Section 304.105 unless the Agency determines as part of the NPDES Permit Program under 35 Ill. Adm. Code 309, Subpart A that alternate effluent standards are applicable pursuant to subsection (d) of this section.

d) All dischargers to effluent modified waters as defined at 35 Ill. Adm. Code 302.213, except for treatment works qualifying under Section 304.120(c) shall have an effective NPDES permit with monthly average effluent limits of 1.5 mg/L total ammonia as N during the months of April through October, and 4.0 mg/L total ammonia as N at other times, as well as the following restrictions:

1) Dischargers achieving lower ammonia concentrations than given above, yet not meeting the chronic water quality standards of 35 Ill. Adm. Code 302.212(b), shall maintain their existing level of performance consistent with the facility's expected organic and hydraulic loadings for the duration of their NPDES permit.

2) New or expanded discharges that increase ammonia loading to general use waters and/or create effluent modified waters or portions of waters must demonstrate compliance to the Agency with the nondegradation requirements at 35 Ill. Adm. Code 302.105.

(Source: Amended at 20 Ill. Reg. _____, effective _____)

SUBPART C: TEMPORARY EFFLUENT STANDARDS

Section 304.301 Exception for Ammonia Nitrogen Water Quality Violations (Repealed)

~~a) Section 304.105 shall not apply to 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 shall discharge an effluent containing a concentration of ammonia nitrogen greater than 4.0 mg/1 if the discharge, alone or in combination with other discharges, causes or contributes to a violation of 35 Ill. Adm. Code 302.212.~~

~~b) Compliance with the provisions of subsection (a) 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.~~

~~c) After July 1, 1991, the exemption provided in this Section shall terminate.~~

(Source: Repealed at 20 Ill. Reg. _____, effective _____)

IT IS SO ORDERED.

I, Dorothy M. Gunn, Clerk of the Illinois Pollution Control Board, hereby certify that the above opinion and order was adopted on the_____ day of _____, 1996, by a vote of _____.

_____
Dorothy M. Gunn, Clerk
Illinois Pollution Control Board