ILLINOIS POLLUTION CONTROL BOARD
November 21, 1996

IN MATTER OF:	)	
	)	
TRIENNIAL WATER QUALITY REVIEW	)	R 94-1(B)
AMENDMENTS TO 35 Ill. Adm. Code	)	(Rulemaking - Water)
302.202, 302.212, 302.213 and 304.301	)	
(Ammonia Nitrogen)	)	

Proposed Rule. Second Notice.

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

This matter comes before the Board on a regulatory proposal initially filed on February 24, 1994 by the Illinois Environmental Protection Agency (Agency). Today's action concerns the most recently amended version of the Agency's proposal, filed on April 8, 1996, and solely addresses the ammonia nitrogen provisions of that proposal.

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, while the Agency bears primary responsibility for the administration of the Act and Board regulations. The latter includes administering today's proposed amendments.

The Agency filed the instant proposal as part of its required review of the applicable water quality standards of Illinois pursuant to the Federal Water Pollution Control Act, commonly known as the Clean Water Act (CWA) (33 U.S.C. § 1251 et seq. (1993)). Under section 101-607 of the CWA, the Agency is required to periodically, but at least every three years, review the water quality standards applicable in the State. This review, which is commonly known as the "triennial review," lends its name to the instant proceeding.

The Board today proposes amendments to the ammonia nitrogen standards for second notice. The Board proposes the same amendments as proposed at first notice, except for a number of formatting and other nonsubstantive technical changes recommended by the Joint Committee on Administrative Rules (JCAR).

PROCEDURAL HISTORY

This proceeding has an extensive history that includes a severed docket, a pre-hearing conference, five public hearings, numerous exhibits,[1] several amended and counter proposals, 41 public comments,[2] and a variety of motions filings. This history was recounted in detail in the Board's first notice opinion and will not be repeated here, except to note such particulars as bear on today's decision to proceed to second notice.[3]

This docket originally included a variety of amendments to the Board's water quality rules at 35 Ill. Adm. Code 302-304. In a prior part of this docket, R94-1(A), the Board adopted all the proposed amendments, except for those relating to ammonia nitrogen. The ammonia nitrogen provisions have been reserved for the instant docket, R94-1(B), and, as noted earlier, are the subject of today's opinion and order.

First notice of the instant proposal was adopted by the Board on July 18, 1996. The first notice proposal closely followed the Agency's final proposal, filed on April 8, 1996 (PC 8(B)). An overview of the proposed amendments is presented below.

MOTION TO STRIKE PC 15(B)

Before discussing the proposed amendments, the Board will initially address the Agency's motion to strike certain portions of a public comment. On September 24, 1996 the Ammonia Group[4] filed a post-first notice public comment, PC 15(B). On October 1, 1996 the Agency filed a motion to strike portions of PC 15(B). On October 4, 1996 the Ammonia Group filed a response to the motion and a motion to accept the filing.

The Agency asserts that the portions of PC 15(B) that comment on the proposed amendments to Section 302 should be stricken because these comments were not timely filed. The Agency observes that the proposed amendments to Section 302 were published in the Illinois Register on August 9, 1996, and the amendment to Section 304 was published on August 16, 1996. The publications were accompanied by statements that the Board would accept comments for a period of 45 days from the date of publication. Therefore, the Agency concludes that any comments on Section 302 needed to be filed by September 23, 1996. Since

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

[2] The Board received two public comments after publication of first notice in the *Illinois Register*, PC 14(B), filed by John C. Hall & Associates, and PC 15(B), filed by the Ammonia Group. These comments have been reviewed and were considered in reaching our decision today.

[3] Anyone interested in reviewing the full procedural history of this case may consult the first notice opinion. See In the Matter of: TRIENNIAL WATER QUALITY REVIEW: AMENDMENTS TO 35 ILL. ADM. CODE 302.202, 302.212, 302.213, 304.122, AND 304.301, First Notice Opinion and Order, July 18, 1996.

[4] The Ammonia Group consists of municipalities and sanitary districts that have participated collectively in this proceeding. In their most recent filing, the group is identified as consisting of the Cities of Batavia, Geneva, and St. Charles, and the Galesburg Sanitary District. (PC 15(B).)

the Ammonia Group's comments were filed on September 24, 1996, the Agency contends that those portions of the Ammonia Group's comment referencing Section 302 should be stricken.

The Ammonia Group counters that since the amendments to Sections 302 and 304 are part of the same docket and are inextricably intertwined and cross-reference each other, all first notice comments should have been due no later than September 30, 1996 (45 days after August 16, 1995, the date the amendments to Section 304 were published in the Illinois Register). Additionally, if the Board finds that the comments were filed late, the Ammonia Group requests that the Board accept the comments as filed since the comments were only one day late and were not filed at that time for purposes of delay. Further, the Ammonia Group believes that no material prejudice has resulted to any participant by the late filing.

The Board accepts the comments of the Ammonia Group as filed. The Board finds no reason to strike those portions of the Ammonia Group's comments pertaining to Section 302. The separate publication of the amendments in the Illinois Register resulted from the way the documents were filed with the Secretary of State. The Board did not intend to create two separate comment periods for the two sections. Further, the Board finds that the filing of comments in a rulemaking one day beyond the date designated in the Illinois Register is an insufficient reason for the Board to strike the comments. Moreover, the Board concludes that no prejudice will result to the participants by accepting the comments as filed. The Board notes that this is a rulemaking proceeding in which we seek public comments to obtain a complete record on which to base our decision. Striking the comments of the Ammonia Group would only prejudice the Board by depriving us of information relevant to this proceeding.

OVERVIEW OF THE PROPOSAL

Having dealt with preliminary matters, we now turn to discuss the proposed amendments. The Board today proposes adoption of amendments to the ammonia nitrogen general use water quality standards as submitted by the Agency for second notice. As mentioned earlier, today's second notice proposal is substantially the same as the proposal adopted for first notice. The following is a summary of the salient provisions of that proposal.

Ammonia: General Use Water Quality Standards

The Board's water quality standards are found at 35 Ill. Adm. Code 302. At interest today are the Board's general use water quality standards for ammonia, found at 35 Ill. Adm. Code 302.212.

One of the general use water quality standards for ammonia is a total ammonia nitrogen standard of 15 mg/L. This standard is not proposed to be changed today.

The current standards also include an un-ionized ammonia of 0.04 mg/L, applicable at times when total ammonia nitrogen concentrations are between 1.5 mg/L and 15 mg/L. This standard is proposed to be replaced by four separate un-ionized ammonia standards: acute and chronic un-ionized ammonia standards applicable in the summer months, and acute and chronic un-ionized ammonia standards applicable in the winter months. The four proposed values are:

Acute Standard (AS) - Summer	0.33 mg/L
Chronic Standard (CS) - Summer	0.057 mg/L
Acute Standard (AS) - Winter	0.14 mg/L
Chronic Standard (CS) - Winter	0.025 mg/L

Revised tables showing the allowable total ammonia nitrogen concentrations at each of the four un-ionized ammonia standards are also included in today's proposal.

Effluent Modified Waters (Ammonia)

Today's newly proposed Sections 302.213 and 304.122(c) and (d) define and give the Agency authority to implement a new concept in water quality management, Effluent Modified Waters (EMW). EMW are waters downstream from an effluent outfall and outside of any allowable mixing zone, wherein discharges to the EMW are driven by general effluent standards rather than by back-calculation from the water quality standards. EMW are to be identified by the Agency.

For an EMW designation to apply, there must be a showing that total ammonia discharge concentrations are 1.5 mg/L or less in summer and 4.0 mg/L or less in winter, 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.

Today's action also includes proposed repeal of Section 302.301, which provided for an exception to compliance with water quality standards for certain discharges during the winter months. This section expired by its own terms on July 1, 1991. The EMW provisions are intended to replace in part Section 302.301.

DISCUSSION

It is the Board's responsibility whenever it engages in rulemaking to assure that the rule, as adopted, protects the environment, as well as conserves the public and private resources needed to maintain that protection. It is often a daunting responsibility. Nevertheless, we believe rules that are simultaneously environmentally responsive and economically responsible can be achieved. We further believe that today's action represents such a balance.

Our long experience also reflects that we are most likely to achieve well-balanced rules when we have the active participation of the various interested and affected persons during the rulemaking process. That has certainly occurred here. Beginning in 1991, the Agency began

corroborating with the Illinois Association of Wastewater Agencies (IAWA),[5] the association that represents all municipal dischargers in Illinois, on revisions to the State's general use water quality standards for ammonia nitrogen. (Statement of Reasons at 4.) We have also been aided by the participation of the United States Environmental Protection Agency (USEPA), environmental groups including the Sierra Club and Trout Unlimited, and a number of communities (exemplified by the Ammonia Group) and other dischargers. The instant proposal has evolved over the tenure of this rulemaking proceeding in reaction to the perspectives of the participants. It reached maturity, we believe, in April 1996 when the Agency filed its amended proposal (PC 8(B)). That proposal not only provided resolution of many of the contentious issues that had been raised throughout the rulemaking process, but also reflected consideration of environmental responsiveness and economic responsibility that is necessary for the Board to adopt the proposal. We accordingly adopted the proposal for first notice, and we today move the proposal forward to second notice.

In the remaining portions of this opinion we set forth the rationale for today's action. Additionally, because the instant proposal does not include all the provisions advocated by all participants, we also explain why those provisions were not included. Moreover, we note that most of the discussion that follows focuses on the standards proposed in the ammonia-related amendments (Section 302.212). We emphasize that it is these proposed standards and their environmental consequences, and the consequences related to National Pollutant Discharge Elimination System (NPDES) permits, that have been the focal point of this proceeding and consequently are the focal point of our discussion here.

Environmental Impact

The Board's action today is based on the need to protect the State's lakes and streams from an elevated concentration of ammonia. Ammonia at elevated concentrations is toxic to aquatic organisms. Healthy aquatic communities are an integral part of a healthy environment. Accordingly, maintenance of a healthy environment requires placing a ceiling (i.e., a standard) on the amount of ammonia in our lakes and streams. The value of the ceiling (i.e., the value of standard) should be set at a level that prevents toxicity to the aquatic organisms.

We are fortunate that ammonia's effects on aquatic organisms constitute one of the better-studied aspects of environmental toxicology. We therefore know the concentrations at which ammonia becomes toxic to a large number of aquatic organisms, including a variety of fishes, shellfish, insects, and other invertebrates indigenous to Illinois waters. This wealth of information is summarized in the USEPA's "Ambient Water Quality Criteria for Ammonia - 1984," also known as the National Criteria Document (NCD) for ammonia. This document is present in the record as Exhibit E of the Agency's original proposal.

We are also fortunate that there is a straightforward procedure used to convert raw toxicological data, such as that contained in the NCD, into meaningful water quality standards.

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[5] The IAWA generally supports today's proposal and has long stressed the importance of adopting scientifically-based water quality standards in Illinois. (PC 13(B).)

This procedure essentially consists of identifying the aquatic species that are present and that need protection, noting the record of toxicology information for the species and contaminant at issue, and by using a set of protocols, deriving the ceiling value(s) that ensure the survival of the species at issue. The protocols are well-developed and accepted. They can be found in the USEPA's "Guidelines for Deriving Numerical National Water Quality Criteria for the Protection of Aquatic Organisms and Their Uses." This document is present in the record as Exhibit D of the Agency's original proposal. The protocols are also contained in our own regulations at 35 Ill. Adm. Code 302.Subpart F.

The Agency has carried out the exercise of calculating standards necessary to protect aquatic life indigenous to Illinois. They have used the most recent data, including some data more recent than that provided in the NCD. On this basis, the Agency has proposed water quality standards that are necessary to assure protection of aquatic life in the general use waters of this State. We also note that the NCD provides a "default" set of standards, premised on the presence of ammonia-sensitive species that do not exist in Illinois general use waters. By recalculating the standards using only indigenous species, the Agency was able to propose standards less stringent than would follow from simply accepting the "default" standards.

Moreover, we believe that a large number of participants in this proceeding agree with us fully, or in major part, concerning the need for the water quality standards in today's proposal. We do note, however, that some doubtfulness and some dissension with this viewpoint has been voiced. There is a perspective that the proposed standards are not strict enough, while another perspective is that the proposed standards are too strict.

The view that the proposed standards are not strict enough stems, in part, from the observation that there are some waters in Illinois where unusually ammonia-sensitive fish, particularly salmonid fish, including trout, are present. We agree that such waters do exist, although they are quite limited. It is because they are limited in extent that we do not today support incorporating salmonid fish into any derivation of ammonia standards for Illinois' general use waters. We believe that the general use water quality standards should have general applicability and are accordingly an inappropriate vehicle to address support of very special and geographically-restricted areas. The Board observes that it has long utilized special standards for special needs[6] and that it will always entertain proposals to utilize this concept to give necessary protection to any Illinois waters that have special needs, including needs based on the presence of trout or other organisms.

The opposing viewpoint that the proposed standards are too strict stems largely from the observation that most streams seem to be quite healthy now at current ammonia levels.[7] In fact, even the Agency admits that only short reaches of streams in Illinois today warrant classification as "ammonia impaired." The Board disagrees that this is a reason to not

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[6] The Board maintains a 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.

[7] The record is indeed full of anecdotal information regarding the success of fisherman in the general use waters of Illinois.

undertake today's action. Today's action is necessary to ensure that our waters stay healthy or become more healthy than they are now. We maintain Illinois' water by knowing and establishing such standards, as are presented today, that assure the continued protection of these waters.

The Issue of Permit Limits

As we noted above, we believe that today's proposed water quality standards are fully defensible and are necessary to protect aquatic life generally in Illinois. Were this the sole issue before the Board, this proceeding would in all likelihood have been completed a long time ago, and the standards we still entertain as a proposal herein would have been adopted earlier.

The fact of the matter is that this has not happened, and it has not happened because water quality standards serve more than the one purpose of defining the ceiling concentration necessary to protect life in our streams and lakes. Water quality standards also serve the very practical purpose of being the beginning point for determining limits in discharge permits. It is in this second purpose, and in fears that permit limits might change as a result of modifying the standards, that the disagreement in this proceeding has been most pronounced.

The problem is essentially making practice comport with theory. The theory is that it is possible to determine the maximum amount that any discharger may discharge into a stream by determining the maximum amount the discharger may release without causing the in-stream water quality standard to be exceeded. Unfortunately, the theory falls short in practice.

There are too many variables in most discharger/water body pairs to make simple associations between the discharger and the in-stream water quality. Variations in the operations of the discharging plant, variations in discharge concentration, variations in stream flow, stream mixing, ambient in-stream concentrations, up-stream activities, and even season of the year all contribute to the confounding of any simple relationship.

Nevertheless, difficult or not, it is necessary that it be determined how much anyone can discharge without causing the water quality standards to be violated. It is necessary because it is the law that discharges be limited, so as not to cause or contribute to water quality violations. It is also the law that no one may discharge unless they have a permit that specifies the limits of their discharging (i.e., they must have an NPDES permit).

Under the Act, the Agency makes the determination of what limits are permissible in any Illinois NPDES permits. In turn, this Board reviews such Agency decisions that are contested. Moreover, the USEPA has oversight granted to it by Congress over all NPDES permits and may disapprove those that are found by USEPA to be inappropriate.

The permitting decision begins by the Agency noting the applicable water quality standard(s) and using this information, in combination with other stream-specific and discharger-specific information, to come up with requisite permit limits. There is an "Agency way" of doing this that involves a mass balance procedure. The Agency procedure is not

necessarily the only way the requisite permit limits could be determined, nor is it necessarily the way permitting authorities in other states accomplish this task. It is, however, a procedure that is established and has the endorsement of the USEPA.

It has been clear from the earliest stages of this proceeding that a principal and even sole concern of many of the participants from the regulated community is that the Agency would use the proposed ammonia standards as the basis for imposing new, more stringent NPDES ammonia permit limits. More stringent NPDES permit limits could in turn require more extensive treatment and treatment facilities, each of which could impose a perceived unnecessary cost upon the discharger. This concern was certainly brought into focus when the Agency, at a hearing in November 1994, identified 20 municipal treatment facilities that, in the worst case, it believed would need to have their NPDES permits adjusted downward, as a result of this proposed water quality standards, to such degree that additional treatment would be required.

This concern has been compounded by the fact that none of the dischargers are able to determine what NPDES permit limits they would face under the proposed rules, short of actually applying for a new NPDES permit under the new standards and seeing what permit limits would come out of the Agency procedure. Nor could they tell in advance what might provide a successful basis for challenge should they disagree with the new permit limits determined by the Agency. Thus, none of the "target 20" could tell whether they were indeed a worst case example, or in fact whether there was any consequence to them at all.

Accordingly, a large part of the debate encountered within this proceeding has focused on the methodology used by the Agency to derive permit limits from water quality standards. Indeed, uncertainty about this matter has been at the core of why this proceeding has taken so long. Although the Agency has included, in the record, guidelines that it follows in developing permits (See Exhs. 2L and 2M) and asserts that it intends to adopt regulations concerning the permitting procedures (Tr2. at 156; Tr3. at 261), the uncertainty still remains largely unaddressed.

The Board has had to weigh whether the proposed standards can in fact move forward, while the issue of permit calculating procedures remains in limbo. The Board determined at first notice that the standards could move forward. The Board again today makes that same determination. We do so because we believe that protection of the environment requires the proposed standards and because we believe that features associated with today's proposal, including many of the revisions the Agency made to its proposal in the April 1996 filing and the use of the EMWs, resolve the problematic areas for most ammonia dischargers.

Some of the participants, particularly the Ammonia Group, have suggested that the Board itself adopt, as Board rules, procedures by which the Agency must calculate permit limits. We declined at first notice to do so and reiterate that position today. There are several reasons that support our decision, including that we are not ready today, in the absence of a record, to adopt or even consider for review such detailed, specific rules as would be necessary. Moreover, we are not today convinced that it is either appropriate or necessary to do so. The Agency is the State's permitting authority, and we are reluctant to substantially

alter the permitting structure in the way advocated without more justification than has yet been presented to us. We prefer instead the alternative that the Ammonia Group itself has posed to us that "the Agency [be] allowed to implement the standards … on a case-by-case basis through the permitting process subject to Board review" (PC 4(B) at 11). That is the current procedure, and we deem it appropriate under this proposed rules.

This is not to say, however, that we put the issue of permit calculating procedures to rest. Indeed, we fully expect to look very closely at all permit calculation procedures brought to us in any ammonia permit appeal and to demand that the procedures be completely justified. Moreover, we stand ready to develop Board standards for the determination of permit limits to the degree our authority under the Act allows and as circumstances require. The Board also notes that under Section 28.1 of the Act the Board is authorized to grant an adjusted standard for those who can support such an adjustment.

We finally note that the Ammonia Group also suggested that the Board provide by rule for the use of "scientifically defensible alternatives" to whatever water-quality based effluent limit procedure is used by the Agency. (PC 15(B) at 5.) The Board is not prepared at this time to do so, given that there is little evidence in the record to justify how details of this concept could be fashioned. However, as we note above, the Board intends to remain attentive to the ammonia permitting process and to whatever additional rulemaking efforts may be needed to assure that all NPDES permit limits are indeed "scientifically defensible."

Numerical Value of the Standards

During the tenure of this proceeding, there has been disagreement regarding the numerical value of some of the standards. As we noted earlier, much of this disagreement was resolved when the Agency in PC 8(B) acceded to several of the recommendations made by other participants, including the IAWA. Moreover, at the final hearing in this matter, the Agency presented a revision of the standards calculations and, based on very recent new toxicity information, recommended numbers closer to those previously recommended by other participants. (Tr4. at 34; PC 8(b).)

For the purpose of the record, we note that there is only one area of apparent continued disagreement. It is in regard to the chronic standards proposed for un-ionized ammonia. The Agency proposed, and we adopted for first notice, values of 0.057 mg/L applicable during the summer months and 0.025 mg/L applicable in the winter months. The Ammonia Group has urged that these values be 0.06 and 0.03 mg/L,[8] respectively. (PC 4(B) at 2, 8, and 19.) We decline to adopt the Ammonia Group's numbers because we find nothing in the discussion of this issue that warrants rejecting the Agency's calculations and because the difference in the two sets of numbers is of small consequence.

[8] The Board notes that in its post-first notice public comment the Ammonia Group urged a winter chronic standard of 0.04 mg/L. (See PC 15(B) at 11.) To the Board's knowledge, in all prior argument the Ammonia Group had urged a standard of 0.03 mg/L. (See, for example, PC 4(B) at 2, 8, and 19.)

The Ammonia Group's reason for preferring the values of 0.06 and 0.03 mg/L may stem from the notion that the two numbers should be expressed with only one significant figure each. If so, the Board disagrees with this contention. Un-ionized ammonia is an unusual water quality parameter in that it is a calculated rather than directly measured parameter. Thus, the accuracy with which un-ionized ammonia can be specified is dependent upon the accuracy with which the three components (pH, temperature, and total ammonia) of an un-ionized ammonia calculation can be measured. pH and temperature are characteristically measured accurate to two significant figures, and total ammonia to two or three significant figures. The derived un-ionized ammonia is appropriately specified to the same number of significant figures as is encountered in the least of the component measurements. That is, un-ionized ammonia is appropriately specified to two significant figures, which is what we propose.

Economic Impact

There are several components concerning the economic impact of the proposed rules. The first is that the adoption of the instant proposed water quality standards may require some facilities to incur costs. The significant costs will occur if facilities need to upgrade or add nitrification to their wastewater treatment to comply with new, lower permit limits. We cannot, however, at this point be certain whether any facilities will definitely find themselves in this position.

As we noted, the Agency did, in the initial stages of this proceeding, identify 20 municipal wastewater treatment facilities that it then believed might need upgrading, as the worst case scenario. (Mosher at 34.) The Agency estimated that the total cost of upgrading all of these facilities would be approximately $42 million. (Mosher at 34.) The Agency subsequently revised these figures downward to 11 facilities and a total cost of about $20 million (Exh. 41 at 39), still as the worst-case scenario.

Whether these latest cost figures are likely to occur remains uncertain. Since the Agency's list includes only municipal dischargers, and some industrial discharges would conceivably also need treatment updates, the Agency figures may be underestimations. However, a number of the municipal dischargers that were on the Agency's list, particularly those located on the Fox River, have made some forceful arguments during the course of this proceeding that, notwithstanding the Agency's placing them on the list, they may not need to significantly upgrade their facilities to keep their receiving streams in compliance with the new standards.

Another factor that confounds our ability to calculate the actual cost of the instant proposal is that some facilities will need to upgrade, including possibly adding additional ammonia removal capability, at some future date irrespective of whether the current or proposed standards are used. Ammonia removal occurs at facilities now because there are places where the safe ammonia carrying capacity of the receiving waters is taxed. As populations grow and discharge loadings increase, this will become progressively more the case whatever the in-stream ammonia standard may be. It would be inappropriate to totally

attribute such growth-related needs for increased treatment to the small modifications of the ammonia standards today proposed.

While there may be costs associated with today's proposal, there are also distinct benefits. The new standards better protect Illinois' waterways now and for the future. This, in turn, promises a better, cleaner, healthier environment for the State. A healthier environment is an enormous benefit, albeit even more difficult to quantify than are the costs.

The benefits to the environment and the potential costs to some dischargers both stem from the portion of today's proposal dealing with standards: the standards protect the environment, while some dischargers may have to provide better treatment so that the standards are achieved. We find that the balance presented in the instant case is not unreasonable.

The Agency points out that there is also a benefit associated with adoption of the EMW provisions of today's proposal. Expiration of the winter ammonia exemption at 35 Ill. Adm. Code 304.301 has produced a circumstance where many major municipal dischargers will have to comply with lowered winter ammonia permit limits. In many of these cases, compliance with the lowered limits will have implementation costs. The EMW provisions would provide an exemption similar to that previously available under Section 304.301 and hence allow the implementation costs to be avoided. The Agency estimates these avoidance costs to be approximately $157 million. (PC 12(B) at 11.)

Effluent Modified Waters

As noted above, of particular import to today's proposal is the concept of EMW. This concept allows for environmental protection of those waterways needing protection at the same time that it minimizes the impact to dischargers to those waterways.

The Board recognizes that the standard treatment methodology for ammonia nitrogen 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 EMW 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.

The Ammonia Group suggests the use of seasonal EMW. (PC 15(B) at 5.) The Ammonia Group contends that there is no environmental basis for requiring a facility to treat for an ammonia level which exceeds the level necessary to comply with applicable water quality standards. The Board finds that the concept of seasonal effluent modified waters is not supported by the record, and accordingly, we again decline to accept this proposal.

Federal Approval of the Amendments

This proposal was accepted by the Board pursuant to Section 28.2 as a required rule to meet the requirements of the Clean Water Act. The Board is therefore required to adopt a rule that fully meets the applicable federal law and is consistent with Illinois statutes.

In proposing the amendments, the Agency referenced the National Criteria Document and the particular characteristics of the waterways and aquatic life in Illinois. The Agency also sought input from USEPA on the proposed amendments.

The Board finds that the proposed amendments meet the requirements of the Clean Water Act.

ORDER

The Board directs the Clerk to submit the proposed amendments to the rules JCAR, pursuant to Second Notice requirements of the Administrative Procedure Act.

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
302.204 pH
302.205 Phosphorus
302.206 Dissolved Oxygen
302.207 Radioactivity
302.208 Numeric Standards for Chemical Constituents
302.210 Other Toxic Substances

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.

SUBPART B: GENERAL USE WATER QUALITY STANDARDS

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 ammonia ~~Ammonia~~ nitrogen (as N: STORET ~~Storet~~ Number ~~31616~~00610) shall in no case exceed 15 mg/~~l~~L.

~~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 Section 302.213 of this Part.

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 equations:

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

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

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 tables indicate~~s~~ the maximum total ammonia nitrogen concentrations (mg/~~l~~L as N) allowable pursuant to subsections (a) and (b) of this Section for certain combinations of pH and temperature:

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

~~TEMP.~~		~~pH~~						
~~^{0}C~~	~~(^{0}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 0.025mg/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) of this Part.

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 _____)

PART 304
EFFLUENT STANDARDS

SUBPART A: GENERAL EFFLUENT STANDARDS

Section
304.101 Preamble
304.102 Dilution
304.103 Background Concentrations
304.104 Averaging
304.105 Violation of Water Quality Standards
304.106 Offensive Discharges
304.120 Deoxygenating Wastes
304.121 Bacteria
304.122 Total Ammonia Nitrogen (as N: STORET number 00610)
304.123 Phosphorus (STORET number 00665)
304.124 Additional Contaminants
304.125 pH
304.126 Mercury
304.140 Delays in Upgrading (Repealed)
304.141 NPDES Effluent Standards
304.142 New Source Performance Standards (Repealed)

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

Section
304.201 Wastewater Treatment Plant Discharges of the Metropolitan Sanitary District of Greater Chicago
304.202 Chlor-alkali Mercury Discharges in St. Clair County
304.203 Copper Discharges by Olin Corporation
304.204 Schoenberger Creek: Groundwater Discharges
304.205 John Deere Foundry Discharges
304.206 Alton Water Company Treatment Plant Discharges

SUBPART C: TEMPORARY EFFLUENT STANDARDS

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 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; amended in R 88-21(B) at 14 Ill. Reg. 12538, effective July 18, 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 R93-8 at 18 Ill. Reg. 11574, effective July 7, 1994; 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.

SUBPART A: GENERAL EFFLUENT STANDARDS

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/ɬL of total ammonia nitrogen as N during the months of April through October, or 4 mg/ɬL 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/ɬL of total ammonia nitrogen as N.

c) In addition to the effluent standards set forth in subsections (a) and (b) of this Section, 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.

Board Member K.M. Hennessey abstained.

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