ILLINOIS POLLUTION CONTROL BOARD
December 6, 1989

IN THE MATTER OF:	)	
	)	
PROPOSED AMENDMENTS TO TITLE 35, SUBTITLE C (TOXICS CONTROL)	)	R88-21, DOCKET A
	)	

PROPOSED REGULATIONS SECOND NOTICE

OPINION OF THE BOARD (by R. C. Flemal)

This matter comes before the Board upon a regulatory proposal filed August 5, 1988 by the Illinois Environmental Protection Agency ("Agency"). The purpose of the proposal is to make additions to and to amend the Board's regulations for the control of toxic substances in surface waters, as required pursuant to Section 303(c)(2)(B) of the federal Clean Water Act ("CWA").

Today the Board splits the docket into two parts, sending materials of Docket A to Second Notice and the materials of Docket B to First Notice. The Docket A materials consist of those portions of the proposal which have already received First Notice publication in their substantive form. These portions constitute the core of the proposal, including all elements which are necessary to meet the federal requirement. Today the Board, by separate Order, adopts these portions for Second Notice.

Docket B contains several amendments which have not yet been published for First Notice, but which have been recommended by various participants as necessary adjuncts to the materials adopted for Second Notice. Today the Board, by separate Opinion and Order, adopts these portions for First Notice. It is the Board's present anticipation that no additional hearings will be necessary for the Docket B proposal, and that the proposal can therefore proceed expeditiously toward promulgation.

The Board believes that this splitting of the docket is necessary to: (1) keep those portions of the proposed amendments which are federally required on a schedule which will allow their adoption by February, 1990, and (2) allow for Illinois Administrative Procedure Act ("APA") First Notice for sections not previously given First Notice. The Board notes that it is not sure that all of the materials which it includes in Docket B would necessarily be APA-impermissable as amendments within Docket A. However, the Board has generally taken the conservative approach by placing all questionable materials into Docket B.

In general, the Board will not repeat today the discussion presented in the First Notice of Docket A, other than where the perspectives presented there have evolved.

PROCEDURAL HISTORY

On August 31, 1989 the Board adopted a modified version[1] of the Agency's proposal for First Notice. First Notice publication occurred at 13 Ill. Reg. 14152 September 15, 1989. The Board's adoption of its First Notice proposal was based upon a record consisting of 77 Exhibits, 12 Public Comments ("PC"), and testimony received during seven days of public hearings. The interested person is directed to the First Notice Opinion for a summary of this portion of the record.

Additionally, various procedural matters were addressed prior to First Notice via pre-hearing conferences and Hearing Officer Orders. The interested person is further directed to the First Notice Opinion for a summary of these matters.

The Agency has certified that adoption of the instant rules is federally required pursuant to the procedures of Section 28.2 of the Illinois Environmental Protection Act ("Act"). The resulting deadline date for submission of the EcIS pursuant to Section 28.2(d) was therefore calculated to be August 9, 1989. A partial-draft EcIS was duly filed by the Illinois Department of Energy and Natural Resources ("DENR") on August 9, 1989, titled: "Analysis of Proposed Revisions to Subtitle C Toxics Control Program: Pollution Control Board Docket R88-21" (Exh. 82). Additionally, on November 2, 1989 DENR, filed a supplemental EcIS document titled: "Analysis of Cost Relating to Proposed Revisions to Toxics Control Program: Pollution Control Board Docket R88-21" (Exh. 96). This document was updated and submitted as Exhibit 108. On November 17, 1989 DENR provided further economic analysis within PC #24.

In its First Notice Opinion the Board noted its belief that February 4, 1990 constitutes the State's deadline for compliance with Section 303(c)(2)(B) of the CWA. This view is based on the assertion to that end by the United States Environmental Protection Agency ("USEPA") (Exh. 75). Although public comment has been requested and received on this issue, the Board finds nothing in this comment which causes it to recede from its earlier belief. The Board has accordingly expedited this

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[1] Modifications made to the Agency's proposal by the Board at First Notice are discussed at pages 22-34 of the First Notice Opinion: In the Matter of: Proposed Amendments to Title 35, Subtitle C (Toxics Control), R88-21, August 31, 1989.

proceeding to allow for adoption of final rules by the deadline date of February 4, 1990.

Post-First Notice Hearing Record

Subsequent to First Notice seven additional days (September 18-19, October 2-3, and November 6-8) of public hearings have been held. The September hearings included discussion by various participants of the First Notice Opinion and Order[2], as well as presentation by the DENR of its August 9 EcIS document.

At the October hearings additional testimony was received from the Agency, the Illinois Environmentral Regulatory Group ("IERG"), and the Illinois Steel Group ("Steel Group") addressing issues including replacement of the General Use Standard for iron, an exception to the TRC standard applicable to intermittent discharges of TRC, mixing zones for thermal discharges, and various portions of the Subpart F procedures for calculating toxicity criteria. The Steel Group also provided the expert testimony of new witness John A. Lowe (R. at 782 et seq.).

The November hearings focused on the presentation by DENR of the cost analysis of the proposed rule (Exh. 96) and presentation of additional testimony by the Agency, IERG, the Steel Group, and the Village of Sauget ("Sauget"). IERG presented the expert testimony of new witness Dr. Philip B. Dorn (R. at 1185 et seq.), the Steel Group presented the expert testimony of new witness Dr. Thomas E. Simpson (R. at 1321 et seq.), and Sauget presented the expert testimony of new witness Michael R. Corn (R. at 1479 et seq.).

Collectively, the seven post-First Notice hearings produced 44 additional exhibits, Exh. 78 through Exh. 121.

JCAR Preliminary Review

On October 25, 1989 the Joint Committee on Administrative Rules of the Illinois General Assembly ("JCAR") filed a response to the Board request for preliminary review of the instant proposal[3]. Additionally, by letters of October 25 and 30, 1989 the Board sought and received expedited preliminary review from JCAR of incorporations by reference materials.

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[2] On September 28, 1989 the Board issued a Supplemental First Notice Opinion in response to some of this discussion, wherein it addressed some matters not contained in the First Notice Opinion.

[3] Due to Board oversight, the October 25 JCAR document was not previously entered into the record. It is hereby accepted as Exhibit 122.

Post-First Notice Public Comments

Twenty-one Public Comments have been filed during the First Notice Comment period. PC# 13-15 consist of questions pre-filed by the Steel Group, Sauget, and Amerock Corporation ("Amerock"), respectively, and addressed at the September hearings. PC #16, filed by the Administrative Code Division of the Illinois Office of the Secretary of State ("Code Division"), consists of comments regarding conforming the proposal to Code Division standards. PC #17 and #18 contain general comments of the Illinois and National Wildlife Federations ("IWF/NWF"). PC #19 and #21 contain comments and analysis of the Illinois Department of Commerce and Community Affairs. PC #20 and #25 contain general comments of the Agency, in part based upon comments the Agency had received from the USEPA. PC #22 contains comments of Wildman, Harrold, Allen & Dixon regarding the acute to chronic ratio found at proposed Section 302.627. PC #23 consists of general comments of the USEPA. PC #24 consists of comments of DENR, including revised economic impact analyses. PC #26 and #30 consist of general comments and economic analysis submited by the Steel Group. PC #27 consists of general comments of Sauget. PC #28 and #32[4] consist of comments of Outboard Marine Corporation ("OMC"). PC #29[4] consists of comments of IERG. PC #31 consists of comments of Amerock. PC #33 consists of comments of the Agency addressed to questions posed by JCAR (Exh. 122).

OVERVIEW OF PROPOSAL

The purpose of the instant proposal is to respond to the need to update State regulations, pursuant to Federal Clean Water Act ("CWA") and to advances in the sciences of toxicology and chemical detection, for the control of toxic substances in Illinois surface waters. Accordingly, the instant proposals both add to and amend the Board's existing water quality regulations (35 Ill. Adm. Code 302.101 et seq.). The underlying policy of both the existing regulations and the proposed regulations is that the waters of Illinois must not be impacted by toxic substances in toxic amounts.

Implementation of this policy under the instant proposal is achieved by two basic refinements of the existing regulations. The first consists of refining the value of the numeric standards found at 302.208 to bring them into agreement with the best

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[4] PC #32 consists of a corrected version of otherwise identical PC #28. PC #29 was filed on November 20, 1989 (one business day after the close of record) with a motion for leave to file instanter. The motion is hereby granted.

available current knowledge. The second consists of providing a detailed, specific set of directives and procedures, found at 302.210 and 302.Subpart F, via which criteria which define what constitutes a toxic amount can be determined for those substances for which numeric toxicity criteria are not provided. For further explanation of these two refinements, the interested person is directed to the First Notice Opinion.

Beyond the amendments required to bring these two basic refinements to fruition, the instant proposal, in both Dockets A and B, contains a variety of additional amendments which are required to bring the rest of the Board's water regulations into conformity with the basic refinements. These range over such matters as supplying an Incorporations by Reference section at 301.106 and a Definitions section at 302.100, and refinement of the Allowed Mixing concept at Section 301.102, Monitoring and Reporting requirements at Section 305.102, and NPDES requirements at Sections 309.103 and 309.152. The interested person is directed to the First Notice Opinion for a discussion of how these conforming amendments dovetail with the basic refinements to the toxicity prohibition.

DISCUSSION OF ALLOWED MIXING

Today's rules affirm a long-standing tenet of Illinois environmental law. That tenet is that a discharger unable to meet treatment and effluent standards after making every effort to fulfill the obligations of the discharger (see discussion below), and given the limits imposed by the nature of the receiving water body and the character of the outfall(s), is entitled to use a limited, designated portion of the receiving body of water to effect mixing of the effluent with the receiving water. This is the "allowed mixing concept", which is developed principally in Section 301.102.

There has been much debate, and confusion to some measure, over a variety of issues related to this concept. The Board here addresses these issues.

Obligations of the Discharger and Allowed Mixing

In a rulemaking with as many facets as are present in the instant proceeding, it is not uncommon that controlling principles are sometimes overlooked by some participants. The Board believes that one such instance in the instant proceeding concerns the obligations which reside with a discharger, and how these interact with the concept of allowed mixing.

It must be recognized that all dischargers are first and foremost required to comply with all effluent standards specified in the Board's effluent regulations, 35 Ill. Adm. Code Part

304. Included in these effluent regulations are not only a number of specific maximum concentration limits, but also a requirement to do the best job of treating an effluent before discharge. In particular, it is specified at Section 304.102 that:

> [I]t shall be the obligation of any person discharging contaminants of any kind to the waters of the state to provide the best degree of treatment of wastewater consistent with technological feasibility, economic reasonableness and sound engineering judgement. (emphasis added)

It is thereby only in the special circumstance where further treatment is not technologically feasible, economically reasonable and in accord with sound engineering judgement, and where the effluent standards are being met, and where the discharger would nevertheless still potentially cause or contribute to the violation of a water quality standard, that the issue of in-stream (or lake) mixing should even arise. If, in fact, our current effluent regulations are sound -- and we see no reason to believe otherwise -- and if our current effluent regulations are being generally adhered to -- which likewise we see no reason to doubt -- there should be no great demand on in-stream mixing. We believe that this analysis is borne out by the limited degree to which in-stream mixing is currently invoked. Moreover, this is the status quo circumstance, which we do not see as being substantially changed under today's proposal. On this basis we view as misplaced the fear of those persons who believe that today's proposal would savage the State's waters by allowing massive new in-stream mixing. Similarly, we view as misplaced the perception of others that today's proposal would cause mayhem on large numbers of dischargers for whom in-stream mixing constitutes an avenue of last resort.

"Zone of Mixing" versus "Mixing Zone"

A second issue concerns the distinction between a "zone of mixing" as a physical reality and a "mixing zone" as a regulatory construct. It is elemental that mixing occurs when effluents are discharged into a receiving body. This is the physical reality of mixing. To the extent that such mixing occurs over some volume of the receiving water body, there is also an inherent, physical "zone of mixing" wherein the two fluids experience commingling. A "zone of mixing" is thus a physical reality associated with all mixing effluents.

As used herein, the term "mixing zone" is a formal regulatory construct, which is not necessarily identical to the physically existing "zone of mixing". An essential difference is that the very existence of a mixing zone requires acknowledgement to that end by the Agency. Also, the bounds of a mixing zone are

established with the intent to minimize the region within which the water quality standards need not be fully met and are determined not solely by the bounds of the "zone of mixing", but also by strictures associated with the nature of the receiving body of water, the nature of the outfall(s), and the maximum size associated with mixing zones, pursuant to subsection 302.102(b). Other differences also exist, such as the boundaries of a mixing zone are fixed over the time period for which the regulatory mixing zone is acknowledged, rather than fluctuating in time as is the nature of any "zone of mixing".

The specification that a mixing zone is a regulatory construct is not a departure from the existing allowed mixing policy. This is apparent from a plain reading of existing 302.102. Existing 302.102 is replete with language specifying that a mixing zone takes on form only after a variety of determinations have been made. Examples include (emphases added):

> [The] principle [that the proportion of any body of water or segment thereof within mixing zones must be quite small] shall be applied on a case-by-case basis...
>
> Single sources of effluents which have more than one outfall shall be limited to a total mixing area not larger....
>
> In determining the size of the mixing zone for any discharge, the following must be considered: ...
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> ... the mixing zone shall be so designed as to assure ...

It is perhaps inartful construction that in all of these instances the passive-voice verb forms are used. Nevertheless, there is a clearly implied set of actions which must be completed to give effect to a mixing zone. It is the need for these actions which distinguishes the physical "zone of mixing" from the regulatory construct which is a mixing zone.

Although the concept of the mixing zone as regulatory construct is therefore not new today, the manner in which the Board makes that specification is provided in a modified, and hopefully clearer form. Among other matters, we intentionally remove all passive voice constructions. Additionally, we purposely specify the persons responsible for making the various decisions which effectuate a mixing zone. One such person is the NPDES permit applicant, who may ask for the recognition of a mixing zone; alternatively, the Agency may require a NPDES applicant to address mixing. A second is the Agency, which is charged with reviewing the application pursuant to its

responsibilities as permitter. The third is the Board, which stands in an appellate posture pursuant to its charges under the Act to resolve disputes between permit applicants and the Agency. The Board views none of this role-designation as being new, but rather as explicit identification in the instant context of the roles assigned under the Act in all similar circumstances.

An aspect of the instant proposal which is new under the instant proposal is the specification that an NPDES permit may include a mixing zone as a permit condition. The Board's purpose here is, in part, to afford a mixing zone determination the same panoply of procedures and safeguards employed under the NPDES permitting system. Any effluent discharger who may desire the establishment of a mixing zone is, in general, also required to hold an NPDES permit. Therefore, the joining of the two procedures provides for a single system within which both the regulated and regulating persons can function. Moreover, there exists a well-developed and tested set of procedures and practices for the application, granting, and review of NPDES permits. The Board therefore believes that joining the mixing zone determination to the NPDES permitting process offers a significant administrative economy for all involved.

A second reason for linking mixing zones with NPDES permits is associated with the fact that certainly the most common reason why a discharger is likely to want a mixing zone is that the existence of a mixing zone affords the discharger the prospect of lessened effluent limits in its NPDES permit. Mixing zones and NPDES permits therefore have an inevitable natural linkage which entreats their administrative association.

Aside from their natural asscciation and aside from the procedural advantages gained by linking the mixing zone determination with the NPDES permitting process, the Board has additional purposes for making this linkage. One such purpose is to provide a directive to the Agency specifying that mixing zones (and ZIDs) are valid elements of NPDES permits. A second is to require the Agency's consideration of mixing zones under their statutory obligation as NPDES permit issuer pursuant to Section 39(b) of the Act.

The Board is aware of concerns that occasions may arise where, for one reason or another, a mixing zone determination might not be wanted within the context of an NPDES application (e.g., R. at 470-3[5]). Although the Board believes that most of

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[5] Page numbers citing to the transcribed hearing record (i.e., R. at ____) begin with the hearing in this matter held on June 13, 1989. The transcripts of earlier hearings are independently numbered.

these concerns may be misplaced, the Board is not unmindful that any process, particularly a new process such as the one before us now, may require later tuning if concrete examples of problems arise. The Board will stand ready, as always, to entertain modifications of the instant rules if and when such problems are brought to us. Moreover, although the Board does not speak for the Agency in matters such as this, the Board can at least note that the Agency has attested to its desire to assist applicants during the formative phases of making mixing zone determinations (R. at 452).

Given the intimate association of mixing zones with NPDES permits which the Board herein envisions, the Board speculates as to whether it might not have been advisable to present the whole mixing zone concept within Part 309 (NPDES Permits) rather than Part 302 (Water Quality Standards). Merits aside, however, the Board believes that the instant matter has proceeded too far and is under too severe of a time constraint to warrant a repositioning now. Moreover, the Board sees no functional impairment occasioned by the instant placement, but rather only an arguable organizational awkwardness.

Allowed Mixing's Applicability to Effluents

Another issue concerns the question: to what type of discharges does allowed mixing apply? Under present regulations allowed mixing applies only to the mixing of effluents, as is apparent in the plain reading of the first sentence of existing Section 302.102(a) (i.e., "... opportunity shall be allowed for the mixture of an effluent with its receiving water..."). "Effluent", in turn, is defined at Section 301.275 as:

> Any wastewater discharge, directly or indirectly, to the waters of the State or to any storm sewer, and the runoff from land used for the disposition of wastewater or sludges, but does not otherwise include nonpoint source discharges such as runoff from land or any livestock management facility or livestock wastehandling facility subject to regulation under Subtitle E.

Under current regulations, therefore, allowed mixing is available only to dischargers of effluent as defined in 301.275. Today's proposal does not alter this concept.

No Allowed Mixing in Zero 7Q10 Streams/Contaminated Waters

It is important to note that the concept of allowed mixing presumes that there is something to "mix with" the effluent and something to "dilute" the effluent to a safe level. These mixing and diluting concepts will simply never come into play where : (1) the receiving stream has no flow, or, (2) the water quality standard at issue is already violated in the receiving water.

The interplay between stream flow and water quality standards is found at 35 Ill. Adm. Code 302.103, which provides that water quality standards must be met at all times except when flows are less than the average minimum seven-day low-flow which occurs once in 10 years, the "7Q10". Obviously, when the 7Q10 is zero, water quality standards must be met by the effluent. In a similar manner, a receiving water that already violates a water quality standard is incapable of diluting an effluent containing that parameter to the safe level represented by the water quality standard, and the effluent would have to meet the water quality standard at a minimum.

Allowed Mixing Outside of the Context of NPDES Permits

The association of mixing zones with NPDES permits raises the question regarding whether any allowances may ever be made for mixing of effluents which either are not NPDES-permitted or do not contain a mixing zone as a condition within an NPDES permit (e.g., Exh. 109 at 5). The Board intends that the answer be yes. The Board believes that allowed mixing outside of the context of NPDES permits is a basic tenet of the Board's existing rules, and sees nothing in the instant record which warrants departure from this tenet at this time.

The Board also believes, that as a practical matter, the mixing zone issue should not need to be visited in every NPDES permit. Mixing zones studies can be expensive (PC #31 at 1) and time-consuming, both for the applicant and the Agency. As well, many dischargers will not require mixing to comply with water quality standards. Thus, the whole process of defining a mixing zone should be undertaken only where there is reasonable grounds to believe that the effort will lead to better protection for the environment, the discharger, or both. The Board believes that this can only happen where discretion is available to both the Agency and the discharger to pursue mixing zones as either of these persons sees fit. The Board believes that this discretion would be compromised or even lost if the only prospect for allowed mixing occurred in the context of a NPDES permit.

We nevertheless again emphasize that allowed mixing must always occur only as a last resort when there is not otherwise a tenable alternative for the discharger. Moreover, whenever anyone invokes allowed mixing as a method of compliance with water quality standards absent an NPDES-recognized mixing zone, the Board intends that there be a heavy burden of proof on that person to show that the portion, area, and volume of the receiving water used for mixing is no less restrictive than would have occurred with an NPDES mixing zone. For this reason we today explicitly state this burden of proof in Section 302.102(j).

We further believe that a decision regarding a mixing zone made in the NPDES context must be given controlling status. A discharger must abide by an NPDES decision (with the protections afforded by its due-process provisions), and should not be allowed multiple "bites at the apple" by later invoking some other construct of allowed mixing. Similarly, the Agency or any other person should not be allowed to bring an action alleging violation of allowed mixing for waters in which mixing is expressly allowed in an NPDES permit. Therefore, we explicitly state at Section 302.102(h) and (i) that a decision made regarding allowed mixing in a NPDES permit shall control for the duration of that permit.

ZID Available Only as a Regulatory Construct

The Board at this time limits the existence of a ZID solely to a regulatory construct. That is, a ZID does not exist until it has been formally recognized by the Agency as an NPDES permit condition. Moreover, such rights as may flow from the existence of a ZID do not exist until the ZID itself has been established as an NPDES permit condition. This circumstance is effectuated by the provision at Section 302.102(c) that acute water quality standards must be met within all waters of the state unless the Agency has recognized a ZID pursuant to 302.102(e).

In reaching this determination, the Board takes recognition that a ZID is a volume of the waters of the state within which acute toxicity is allowed. The Board views the existence of acute toxicity as a drastic circumstance which cannot be allowed without careful and considerate review of the special and individual circumstances which might warrant its allowance. The Board believes that anything less would be contrary to the elemental principles enunciated in Section 2 and 11 of the Act.

Allowed Mixing for Other Than Toxic Constituents

This record has focused largely on toxic constituents. Nevertheless, the issue has been raised (e.g., R. at 741-3) as to whether the allowed mixing provisions of Section 302.102 apply to other than the toxic constituents identified in Sections 302.208 and 302.210. The Board intends that the allowed mixing provisions do generally apply to all the water quality standards within Part 302. The notable exception is that the concept of a ZID does apply only to toxic constituents, as is explicit in the definition of a ZID (i.e., it is a portion of waters within which water quality standards for acute toxicity do not apply).

Dimensions of Allowed Mixing

A final question has been whether the waters within mixing is allowed have the dimensions of an area (L^2) or of a volume (L^3). The dimensions are those of a volume. This is implicit

pursuant to subsections (b)(8) and (b)(11) of Section 302.102. Subsection (b)(8) specifies that allowed mixing may not contain more than 25% of the cross-sectional area of a stream. This subsection thus set limits on size (breadth and depth) in the plane perpendicular to stream flow. Subsection (b)(11), in turn, specifies that the total surface area involved in allowed mixing may not exceed 26 acres. This subsection thus sets limits on size (breadth and length) in the horizontal plane. Read together, the two subsections specify a three-dimensional volume within which mixing is allowed.

DISCUSSION OF THE APPLICATION OF "CRITERIA"

"Criterion" Versus "Standard"

Some confusion has existed regarding the distinction between a criterion, as referenced in Section 302.210 and calculated pursuant to 302.Subpart F, and a standard. A standard is a rule adopted by the Board, after notice is given and written and oral comments and testimony are received, pursuant to Title VII of the Act and Sections 5, 5.01, 5.02 or 5.03 of the APA. As defined in Section 3.09 of the APA, a rule means "each agency statement of general applicability that implements, applies, interprets or prescribes law or policy".

In contrast, a criterion, as that word is used herein and even though it is a number derived by the Agency pursuant to the rules adopted by the Board in 302.Subpart F, cannot be considered to be a statement of general applicability. Criteria will be derived by the Agency in the course of the NPDES permitting and other site-specific situations, and applied on a case-by-case basis, taking into account the nature of the waterbody of interest. USEPA has recently stated:

> Water quality criteria express water quality objectives for protecting aquatic life and human health and for meeting a defined level of water quality protection. Where a discharge has a reasonable potential to cause or contribute to an excursion above a water quality criterion, [NPDES permit] effluent limitations are necessary to ensure that water quality standards will always be met. (Exh. 61 at 54 Fed. Reg. 23872).

Because criteria numbers will be generated without the benefit of statewide public participation,and because application of the Subpart F procedures necessarily require the use of assumptions and professional judgment about which reasonable experts may disagree, the validity and correctness of application of a criterion must be reviewable by the Board on a case-by-case basis when the criterion is applied to a particular situation.

Where the Agency believes that any criterion which it may derive in a particular case should appropriately be given statewide applicability, the Agency can and should propose pursuant to Title VII of the Act addition of that criterion to the list of numeric water quality standards contained in Section 302.208.

Criteria and APA Rulemaking

Additional confusion has existed concerning the procedures by which the Agency "promulgates" criteria. The Agency had construed the First Notice proposal as requiring criteria to be adopted in an APA rulemaking (PC #20 at 11-13). This was not the Board's intent. In addition to the observations above, the Board notes that if criteria were to be adopted as an APA rule, such criteria would not be reviewable by the Board. The Act does not provide for appeal of Agency rules to the Board; the Admistrative Review Act dictates that such appeals would be heard in the circuit court. Additionally, the Board doubts its ability to grant variances or adjusted standards from Agency rules. In short, use of the APA process would result in Agency action which would escape any review or alteration by the Board, a situtation which the Board cannot allow to occur. This would amount to a gross abdication and unlawful subdelegation of the Board's duties to "determine, define and implement environmental control standards" (Act at Section 5).

The Agency has testified that in the ordinary course, criteria would be derived during its review of an NPDES permit application, based on data supplied by the individual discharger. Criteria developed would, however, be applied thereafter in permitting and enforcement situations involving persons who had no opportunity to provide input into the criteria derivation process. To ameliorate this situation, the Board had required the Agency to notify the public by publication of notice in the Illinois Register, and also provided opportunity to challenge the validity of the criteria in any proceeding in which they are applied to that person. The Board had provided that in such actions, the burden of going forward with proof and of persuading the Board of the validity and correctness of application of the criteria rested with the Agency.

Sequential Challenge Opportunities

The USEPA has expressed concern that First Notice Section 302.210(f) might provide sequential opportunities for any given individual to challenge any single criterion (e.g., PC #23). This was not the Board's intent. Rather, First Notice subsection (f) was intended in pertinent part to specify where, within various types of actions, a challenge right presently exists under Illinois law. It was not intended to create new challenge rights, and certainly not to create an opportunity for sequential challenges within a single action. The Agency correctly observes

that the challenge rights enunciated within subsection (f) are the standard challenge rights under Illinois law:

> The criteria will serve as the basis for the water quality protection program which includes NPDES permit, non-point source management programs and pollution remediation programs. In any of these forums, provision ... exists for a party to challenge the accuracy with which the Agency adheres to the Board's established procedures (Subpart F) in criteria derivation. During the NPDES permit issuance process, public notice and appeal provisions protect the interests of the permittee. In an Agency enforcement proceeding for violation of the narrative standard, the Agency must support the allegations with proof that the narrative standard was exceeded and that any criteria utilized in this context were properly derived consistent with the Board's Subpart F procedures. Thus, this program relies on the same legal framework and functional elements of existing [water quality protection programs]. (PC #20 at 3-4).

Nevertheless, the Board believes that the issue of sequential challenges is best explicitly addressed in subsection (f). Accordingly, the subsection has been amended to clarify the Board's original intention that only one appeal opportunity is given to any one person. A criterion may be challenged only at the time it is first applied to a person, whether that be in an NPDES permit appeal or enforcement action; failure to make such challenge at the first opportunity constitutes a waiver of any challenge.

Burden of Proof

USEPA is critical of its perception of the burden of proof imposed on the Agency in the proposed rules (PC #23). Were criteria designed to be promulgated by the Agency as APA rules (see above), the Board would agree that any question of burden of proof would be inappropriate, since the Agency would have been required to justify criteria and accept public comment during the rulemaking process, and a 35-day appeal period would be provided by the law during which persons could challenge the criteria. Given the non-reviewability by the Board of Agency-adopted APA rules, the only mechanism available to the Board to guarantee due process is to allow challenge to be made to criteria at the time they are applied. The Board agrees that this will place some administrative burden on the Agency, in that it may need to persuade the Board of the validity of any one criterion in several permit appeals and enforcement actions in which it may be applied. However, the Board notes, as also does the Agency (PC #20 at 3-4), that this administrative burden is explicit under Illiniois law. Moreover, the Board notes that the Agency can

minimize such burden by proposing to the Board that criteria be adopted as Section 302.208 numeric water quality standards, reducing the number of challenges to the criteria.

As originally proposed, Section 302.210(f) explicitly stated that the burden of proof as to the general correctness and validity of the criterion was on the Agency. The Agency asserts that, when applied in a permit appeal context, this represents a conflict with Section 40(a)(1) of the Act, which places the burden of proof on the petitioner in permit appeals (PC #20 at 13). Section 302.210(f) has been modified to require the Agency to include in its permit appeal record all information on which it has relied in developing and applying criteria in a permit. The revised Section recites the burden of proof language of Section 40, but notes that there is no presumption in favor of the general correctness and validity of the application of criteria. This is consistent with the general case law which has developed in the permit appeal area, in which no presumption of validity attaches to Agency permitting decisions. While the burden remains on the permittee to demonstrate that a criterion-based condition is not necessary to accomplish the "no toxic substances in toxic amounts" requirement of Section 302.210(a), the Agency must "go forward" with information supporting its inclusion of a condition based on a criterion. This is no departure from existing practice, wherein challenged permit conditions are stricken if the record contains no or insufficient information supporting their inclusion.

DISCUSSION OF SUBPART F

Several witnesses have raised questions regarding both the purpose and utility of proposed Subpart F. Subpart F lays out procedures to be used to calculate criteria for those chemical substances for which numeric standards do not exist.

It cannot be disputed that there are instances where it is necessary to be able to estimate the concentration at which toxic substances not otherwise supplied with numeric standards are toxic. Such instances arise at any time it becomes necessary to estimate what constitutes the "toxic amount" in the fundamental prohibition of "no toxic substances in toxic amounts". Such instances include, but are not necessarily limited to, the establishment of permit limits in the NPDES permitting process.

The purpose of Subpart F is to provide some order and framework within which these estimations can be made. It is intended to provide directive to the Agency as to what it must and must not include when it does such estimations. It is also intended to let the regulated community know what the Agency can and cannot consider when it does such estimations. Moreover, it is intended to let any person, from the regulated community or

otherwise, know what this Board views as permissible procedures for estimating the toxic concentration of any chemical. In short, the purpose of Subpart F is to provide an out-in-the-open set of procedures for estimating toxicity.

It is equally important to note what Subpart F is not intended to be. In particularly, it is not intended to be an NPDES permitting manual, as some would apparently wish it to be. It does not, for example, specify the detailed procedures the Agency must use in translating an estimation of toxicity into an NPDES permit limit. This and similar matters are within the purview of the Agency as the State authority responsible for awarding NPDES permits. The Board can only accept the word, and past actions, of the Agency that it intends to fully comply with its NPDES role, including the compilation of such "manuals" and permit writers guides as may be necessary (R. at 1207; PC #25 at 8-9).

This perspective notwithstanding, there would still appear to be some who would question whether Subpart F accomplishes its purposes. The Board believes that at least a part of this doubt derives from less than complete or authoritative review of Subpart F. Among the remaining, the principal doubt appears to flow from the perspective that Subpart F contains some elements of choice about which reasonable experts might be expected to differ. The Board agrees that some such elements are present in Subpart F, but nonetheless believes that they are minor, perhaps inevitable, and neither of the frequency of occurrence nor of the magnitude to significantly influence the utility of Subpart F.

Subpart F follows well-accepted procedures used in toxicological assessment. Toxicological assessment is, however, not without its inherent uncertainties. It is a science much burdened by complex, interrelated phenomena that now and into any foreseeable future has to be expected to present instances where reasonable experts are going to disagree (e.g., Exh. 117 at 2). However, most emphatically this situation must not provide excuse for us to set aside that wealth of "accepted" toxicological principle which can so usefully instruct us towards the proper economic, social, and environmental management we are charged to pursue. In its simplest fashion, part and parcel of using toxicological assessment is the acceptance of its occasional wart, including that reasonable experts may sometimes disagree.

It has not in fact been demonstrated within this record, even allowing that experts may sometimes disagree, that such incidents are likely to occur other than rarely. It has also not been demonstrated that, should experts disagree, any result which would flow from their disagreement would necessarily lead to different regulatory results. In any event, the Board again emphasizes that it stands ready to resolve such disputes if and when they are brought before it.

In sum, the Board believes that Subpart F has a necessary and well-defined purpose. It believes that, as constructed, Subpart F incorporates the best pertinent procedures of toxicological assessment. It also believes that Subpart F has utility in achieving its purpose.

ECONOMIC CONSIDERATIONS

Estimations

Obtaining estimates of the costs associated with the instant proposal has proven difficult beyond that normally encountered in making environmental cost/benefit analyses. Principal compounding factors include: (1) determining marginal costs of the instant proposal; (2) uncertainty as to the effects of exception procedures; (3) inability to determine the most effective compliance methods; and (4) uncertainty about the number of affected facilities.

Marginal costs are difficult to estimate because a number of facilities are arguably out of compliance with current water quality standards, effluent regulations, and/or pretreatment requirements. If these facilities were in compliance with these existing regulations, at least some of them would not require additional actions to come into compliance with the provisions of the instant proposal. However, it is uncertain, short of doing site-specfic analyses of each, as to how many such facilities there are.

Three exception procedures are of particular importance. The first is the chlorination exception found at Section 304.121(b), the second is the proposed exception for intermittent chlorination at proposed Section 304.221 (see Docket B), and the third is the allowed mixing provisions found at 302.102. Among the facilities which would be out of compliance as a consequence of adoption of the instant rule, the largest number are probably facilities which would be out of compliance with the TRC standard of 302.208 (Exh. 107; PC #24 at 3). However, those facilities which qualify for the 304.102(b) exception can comply with the TRC standard by the simple, no-cost expedient of ceasing to chlorinate (PC #25 at 2-5). Similarly, those facilities which qualify for the intermittent chlorination exception, mostly within the steam electric category, would incur no compliance costs related to the TRC parameter. Lastly, those facilities which qualify for allowed mixing may require no action to remain in compliance.

Estimation of the proper control strategies is compounded by the wide differences among potentially-affected facilities and facility-types, plus the certainty that the chemicals of concern

will differ among facilities; again, a definitive answer would be available only through a site-specific analysis of each facility. It is likely that some facilities would have to use add-on controls to meet the requirements of the instant proposal. Others, however, are likely to be able to comply by making relatively minor, low-cost adjustments within their current methods of operation (Exh. 96 at 4-8). Still others are likely to be able to comply via pre-treatment options at no direct cost (PC #25 at 6-7).

Lastly, there is uncertainty which arises concerning the number of potentially affected facilities. This uncertainty is of two types: uncertainty related to projected performance of facilities, and uncertainty related to presence of regulated substances in Illinois effluents in general. In the first context, it is uncertain whether past discharge records are a significant predictor of future ability to comply with the proposed regulations. As the Agency points out, a single past-exceedance of one of the proposed standards is not evidence of a need for remediation, given that the "quality, reliability and representativeness of individual measurements must receive some consideration in formulating reasonable assumptions before any remediation is warranted" (PC. #25 at 6). The Agency adds that a single value exceeding a standard could be the result of analytical error or a unique event that is non-representative, and that the Agency "[c]ertainly ... would not impose additional treatment on a discharger with such an information base" (Id.).

The second context within which there is uncertainty regarding the number of affected facilities relates to inadequate data on the number of potentially regulated substances, and to what degree these might occur in Illinois discharges. The data base is simply not available to say that there are "x" number of facilities which discharge substance "y" in such a manner as to cause toxicity in Illinois waters, let alone to identify the various "y" substances which may exist. This condition relates to the fact that Section 302.210 is intended to cover all toxic substances capable of causing toxicity in Illinois waters. No-one knows either the identity or number of all such substances. It is only known that when they are recognized to be toxic and to occur in toxic amounts, action to control them below toxic amounts must be undertaken.

DENR Cost Analysis

In spite of the inherent problems associated with doing a cost analysis in the instant arena, as noted above, DENR has taken on the difficult task of attempting to quantify the costs of the proposed rule. The DENR analysis is of limited scope. It only addresses costs related to compliance with the arsenic, cadmium, TRC, chromium, cyanide, and lead water quality standards

of Section 302.208, and then only as "major[6]" facilities might need to comply with these standards.

Within these limitations, however, the DENR analysis consists of "worst-case" conditons, in that it assumes that (1) one past occurrence of an exceedance warrants remediation, and (2) all remediations will be via add-on control systems. Within this framework, DENR presents three scenarios wherein there is no allowed mixing, 5% of available flow is allowed for mixing, and 25% of available flow is allowed for mixing. DENR initially estimates the total costs of these three scenarios, over a 30-year period, to be $778.4 million, $598.1 million, and $514.7 million, respectively[7] (PC #24 at 4).

These costs include full compliance with current regulations and permit limitations, and hence are not marginal costs related to the instant proposal. DENR estimates the costs necessary to comply with current permit limitations to be $478.4 million over a 30-year period, applicable to all three mixing scenarios. If this figure is subtracted from each of the above figures, the marginal costs within the three scenarios are $300 million, $119.7 million, and $36.3 million, respectively, over a 30-year period (PC #24 at 5).

Similarly, if recognition of the Section 304.211 chlorination exemption is made, DENR estimates that the total costs would be reduced by $63.7, $56.4, and $53.5 million over 30 years for the three mixing scenarios, respectively (PC #24 at Table 19A, 20A, and 21A). Margin costs for the instant proposal become, in turn, $280.6, $108.4, and $27.1 million over 30 years, respectively.

The Board believes the weight given to these "worst case" figures must be tempered with consideration of the assumption of universal use of add-on controls, and the degree to which the add-on control assumption inflates the estimated costs. This

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[6] A "major" facility is any facility named on a list negotiated between the Agency and the USEPA (R. at 890-1). At present there are approximately 275 "major" facilities in Illinois (R. at 1063).

[7] The Board notes that the cost figures cited herein are different from the figures originally offered by DENR in Exh. 96. DENR revised its cost estimates based upon comments at hearing and has presented these revised cost estimates in PC #24. It is these latest, PC #24 figures, which are herein cited. The Board appreciates the extensive effort DENR has made to prepare the revised figures in time for their consideration herein.

assumption seems to cause particular difficulties with the costs assigned to municipal dischargers. A municipal discharger would not obviously use add-on treatment systems to address a metals problem. Metals in municipal discharges, with rare exception, derive from a few industrial sources tributary to the municipal treatment works. If a municipal works needs to reduce its metals output, it would not logically attempt to do so after these sources have mixed with other in-coming wastestreams, but rather prior to mixing. It is simply not sensible to combine influent streams, and then have to treat the whole, when the offending smaller portion can be addressed directly at lesser cost. Moreover, the Board's pretreatment regulations provide a regulatory mechanism wherein the muncipal discharger can bring about this type of program.

The Agency takes something of the same view regarding costs assigned to municipal dischargers, from which it concludes that "[t]he extreme costs reported for removal technology and sludge disposal at municipal treatment plants should be removed in their entirety from the impact statement" (PC #25 at 7). The Board is uncertain as to what the total effect of removing the municipal costs from the DENR estimates would be, since at least some fraction of the costs would seemingly have to be shifted to the tributary industrial dischargers. However, the Board does note that add-on metals treatment costs attributed to municipal treatment works range from 63.4% of the total estimated costs in the no-mixing scenario to 75.7% of the total estimated costs in the 25% mixing scenario (PC #24 at Tables 19A, 20A, and 21A).

Steel Group Estimated Costs

The Steel Group estimates costs to its five facilities which discharge to Illinois waterways to be approximately $19 million per facility (PC #30 at 13-14). This figure includes sludge disposal costs over a thirty year period. It does not include costs to mills which discharge to POTWs or costs for compliance with the narrative standard of Section 302.208 (Id.).

The Steel Group's figures contrast with DENR's estimated 30-year $5.25 million average total cost per primary metals facility (PC #24 at Tables 19A, 20A, and 21A). Additionally, approximately half of the DENR estimated cost is for compliance with current regulations (Id. at Table 22A), rather than for compliance with the instant proposal.

Benefits

DENR opines that, given the time frame of the instant proposal, it was not possible for DENR to conduct a formal, rigorous study of environmental benefits of the instant proposal (PC #24 at 23). In lieu thereof DENR conducted a spatial analysis to identify the areas of the State mostly likely to

benefit from adoption of the proposed rules (Id. at 24-36 and Figures 1-12). On this basis, DENR finds that waterways in most of the stream basins of Illinois are impacted by at least one toxic pollutant, and thus that benefits from reduction in discharges of toxic pollutants would occur in most stream basins (Id.).

DENR has further reviewed the degree to which Illinois waterways are impacted by various categories of toxic pollutants. From this analysis DENR concludes that toxic metals, priority organics, and pesticides impact 6.2%, 2.2%, and 0.9% of Illinois' stream miles, respectively (Exh. 82 at 3-5). Similarly, DENR concludes that 12.3%, 2.8%, and 7.9% of Illinois' acreage in inland lakes is impacted by toxic metals, priority organics, and pesticides, respectively (Id. at 306). One benefit to be derived from effective toxics control would be to eliminate the toxic impact in all of these waters.

Conclusion

The Board is charged under the Act to take into account the technical feasibility and economic reasonableness of all regulatory proposals before it (Act at Section 27(a)). Compliance with the proposed regulations can be achieved with existing technology (e.g., Exh. 108). Therefore, the substantive issue before the Board is solely whether implementation of the instant proposal is economically reasonable.

The Board has considered the various cost and benefit analyses presented in the record, as noted above. From this record it is reasonable to conclude that implementation of toxics control will have costs ranging upwards of several million dollars per year now and into the foreseeable future. Expected benefits include an improved aquatic environment and a probable benefit to human health through reduced presence of toxic substances in the human environment. Given this balance, it would be difficult to conclude that the instant proposal, in isolation, is not economically reasonable.

However, the instant proposal is not properly viewed in isolation. Rather, the instant proposal is but one of two alternatives, both of which have costs. If the instant proposal is not adopted by the State, then the USEPA will impose a similar, but not necessarily identical, program. The real question before this Board is therefore whether the instant proposal is economically reasonable when compared to the only other alternative, the USEPA-imposed program.

The USEPA has not specified the details of the program it would impose upon Illinois if Illinois fails to adopt its own program. However, given the relatively little latitude afforded by the CWA, it is unlikely that either the costs or benefits

associated with any alternative program would differ substantially from those associated with the instant proposal. Any program will have to cause the elimination of toxic substances in toxic amounts in Illinois waters. Whether this is done as a result of a Board mandate or a USEPA mandate should not change in significant measure the number of dischargers who are required to take corrective action. Neither should it affect the basic methods and costs of compliance (capital, operating, and sludge management costs), nor the environmental benefits.

MODIFICATIONS IN DOCKET A (SECOND NOTICE) PROPOSAL

Various changes from the First Notice proposal occur in today's proposal. These changes are made based upon comment received subsequent to First Notice. These changes are identified below in the order in which they occur in the Second Notice proposal.

Additionally, various changes necessary to conform the proposal to Code Division standards, as specified in PC #16 and as requested by JCAR, have been made. Where these are a matter solely of format, the changes have been made without additional comment below. Where these possibly affect substance, the nature of the changes is identified below.

Section 301.106 Incorporations by Reference

Reference to the American Public Health Association's "Standard Methods" has been changed to the 16th Edition, 1985. In the Supplemental Opinion of September 28, 1989 the Board noted that the 17th Edition was now generally available, and therefore suggested that the newer edition be cited. However, the USEPA and the Agency note that the 17th Edition has not yet been approved by the USEPA (PC #20 at 22). Accordingly, they suggest that "the Board may want to conform to endorsing only approved U.S. EPA methods and adopt the 16th Edition of Standard Methods as the most recent approved edition" (Id.). The Board accepts this suggestion.

Reference to "Quality Criteria for Water 1986" has been deleted from subsection (b) in conformity with deletion of this reference from Section 302.654(b)(7) (see below). In addition, 40 CFR 136 has been added and reference to ATMS Standard D 1126-86 and ASTM Standard D 1253-86 has been deleted in conformity to the change in citation in the definitions of "Hardness" and "TRC" (see below).

Ten ASTM toxicity testing standards have been added in response to JCAR's concern over the lack of identity of ASTM standards specified in First Notice Section 302.606 (see below).

Section 301.108 Adjusted Standards

A new section has been added at 301.108 which states the statutory language of the Illinois Environmental Act regarding adjusted standards. It is arguable whether it is necessary to repeat statutory language within the body of the Board rules. Nevertheless, the Board deems that it is advisable to do so in this instance. Substantial discussion has arisen in the context of the instant proposal regarding how the adjusted standard procedure interplays with the proposal. Since the adjusted standard is a new procedure before the Board, it is likely that similar questions will also arise in other, future proceedings and perhaps during USEPA review. The Board believes that inclusion within Subtitle C of the statutory description of the adjusted standards procedure offers a reasonable prospect of addressing some of these current and future questions.

Because new Section 302.108 includes nothing but statutory language, the Board believes that its introduction at this time is not inappropriate under the APA.

Section 302.100 Definitions

JCAR requests that the phrase "or other adverse effects" in the definition of "Acute Toxicity" be clarified (Exh. 122, Part 302, par. 1). In response, the Agency recommends that the phrase be struck (PC #33 at 2). The result of the Agency's suggestion would be to limit the definition of acute toxicity to mortality caused by a single or short-term exposure. However, the Board believes that the concept of "other adverse effects" should remain a critical facet of the definition. Accordingly, the pharse "or other adverse effects" is retained and a definition of "Adverse Effect" is added.

The Board notes that the phrase "adverse effect" is also used in other places within the instant proposal (e.g., Sections 302.603, 302.633, 302.642, 302.645, and 302.663), and that its definition here accordingly supports all of these usages.

The language "including but not limited to the growth phase, the reproductive phases or such critical portions of the natural life cycle of that organism" has been appended to the definition of "Chronic Toxicity". The intent is to clarify the meaning of "substantial portion" per JCAR's request (Exh. 122, Part 302, par. 2) and following the Agency's recommendation (PC #33 at 2).

The acceptable measurements procedures for Hardness and Total Residual Chlorine ("TRC") have been limited to those specified in 40 CFR 136, which includes the USEPA list of approved methods. As IERG notes, there is concern "that adoption of the definition[s] as proposed [at First Notice] could mislead dischargers into employing non-approved methods and proposes that

the Board restrict the definition to EPA-approved methods" (R. at 728).

A definition of "Mixing Zone" has been added, consistent with the content of Section 302.102.

The word "and" in the sixth line of the First Notice definition of "Toxic Substance" has been replaced with the word "or". This is done at the recommendation of the USEPA and Agency (PC #20 at 22) and is intended to avoid the misconception that only those substances found in both cited references are to be considered toxic. Additionally, the phrase "harmful physiological or behavioral" has been replace by the word "adverse" in response to JCAR (Exh. 122 at 1).

The definition of "ZID" has been modified to better reflect the Board's intentions regarding the nature of ZID's (see pages 5-12, above) and the movement of the subsidiary definitions of "immediate" and "rapid" dispersion into the body of Section 302.102(e).

Section 302.102 Allowed Mixing, Mixing Zones and ZIDs

Section 302.102 has been modified in a number of ways to better reflect the principles of allowed mixing enunciated earlier in this Opinion. Some rearrangement has also occurred for the purpose of placing like provisions in proximity.

"Allowed Mixing" has been added to the title of Section 302.102, to better reflect emphasis of the Section on allowed mixing in general.

At the recommendation of IERG (R. at 1141; Exhs. 109 and 110), the core of the first sentence of existing 302.102(a), which had been proposed for deletion at First Notice, is here retained. As the Board has noted above, some confusion regarding the interplay of effluent standards and allowed mixing has occurred absent this sentence. Restoration of the sentence is intended to remove that confusion. Additional clarity is intended to be added to the sentence by explicitly stating that the purpose of mixing is to allow for compliance with the prohibition of Section 304.105 against causing or contributing to water quality violations, by explicitly stating that mixing is valid whether or not there is a corresponding effluent standard, and by explicit addition of reference to the discharger's obligation under Section 304.102 (see p. 5, above).

Subsection (b) retains all the basic proscriptions on allowed mixing present at First Notice. The interested person is directed to the First Notice Opinion, p. 26-29, for a detailed exposition of these proscriptions. However, subsection (b) as presented today has been generally modified to allow that the

proscriptions apply to allowed mixing whether or not a formal mixing zone has been granted.

Several other clarifying alterations have been made in subsection (b) at the suggestion of IERG (R. at 1144; Exhs. 109 and 110), the Steel Group (PC #26 at 24), Sauget (PC #27 at 3), and the Agency (PC #33 at 4-6), in response to JCAR (Exh. 122). The principal of these is the addition to subsection (b)(4) of the clause "in such a manner that the maintenance of aquatic life in the body of water as a whole would be adversely affected". The Board believes that addition of this qualifier is consistent with the language of existing Section 302.102(c) and with use of the identical construction in proposed subsection (b)(7).

A sentence has been added to the end of subsection (b)(8) and subsection (b)(9) has been inserted. These additions clarify the circumstance of allowed mixing where the 7Q10 is zero or where the water quality standard in question is already violated in the receiving water body (see p. 9, above).

Subsection (c) specifies the requirement that water quality standards must be met outside of any waters within which allowed mixing occurs. This requirement exists in both the existing and First Notice Section 302.102(a). It is here given its own subsection commensurate with its significance. In addition, subsection (c) contains the proviso that acute toxicity is never allowed unless there has been provision made for a ZID (see p. 11, above).

Subsection (d) draws together several previously-separated precepts regarding the regulatory construct nature of a mixing zone (see p. 6-9, above).

Subsection (e) draws together several previously-separated precepts regarding ZIDs. Among these is the incorporation of the definitions of "immediate" and "rapid" into subsection (e). These at First Notice had been listed only in the definition of a ZID found at 302.100. In addition, subsection (e) also contains several changes to the ZID concept based upon the post-First Notice record. Among these are:

1) The condition that a ZID be "proportional to the width of the receiving body of water" has been deleted. This condition is vague to the point of fault (R. at 160-2, 1514-5). Moreover, the Board believes that it is redundant of several of the conditions in subsection (b), which apply to ZIDs by virtue of ZIDs being components of mixing zones.

2) The 1,000 square-foot limitation on ZID size has been deleted. Such limitation has been reasonably shown to be arbitrary (R. at 173, 268, 302-305, 329-47, 353,

1155-6, 1275, 1493, 1512-3) and hence not justifiable. While the Board does not intend that ZIDs be unlimited in size, it does believe that the proscriptions of subsection (b), combined with the definitional provisions of a ZID, are sufficient to provide practical size limits.

3) The condition that a ZID "shall not cause actual impairment of the aquatic environment" has been deleted as redundant of subsection (b).

Subsection (f) brings together concepts regarding the Agency's and Board's authorities in the NPDES process as these relate to mixing zones. The first sentence is drawn from the recommendation of IERG (Exh. 110, p. 2), and incorporates IERG's and the Steel Group's (PC #26 at 24) recommendation that there be explicit statement of the Agency's authority to require mixing information as part of an NPDES permit application (R. at 1157, 1168-9). The second sentence is the second sentence of First Notice subsection (d).

Subsections (g) and (h) give expression to the Board's intent regarding the controlling status of decisions made in the NPDES process. Subsection (i) states the burden of proof where an NPDES permit is silent regarding allowed mixing or where no NPDES permit is in effect. See allowed mixing discussion, pages 5-12 above, for discussion of these provisions.

Section 302.208 Numeric Standards for Chemical Constituents

The Section title has been changed by the addition of the words "Numeric Standards for" before the existing "Chemical Constituents". The change is made upon the recommendation of the Agency (PC #20 at 23). The Board agrees with the Agency that the revised title more correctly describes the contents of the Section.

Subsection (c) has been generally amended to better conform its language to concepts regarding allowed mixing, mixing zones, and ZIDs, as enunciated previously in this Opinion. In particular, "mixing zone" is replaced by "waters within which mixing is allowed", or a similar phrase, to emphasize that the conditions apply whether or not a mixing zone has been formally established. Similarly, it specified that the acute toxicity standards apply everywhere except in a ZID.

Several changes have also been made in this Section to conform the table of subsection (d) to Code Division standards. Code Division notes:

In Section 302.208(d) please move the table to the right 1/2 inch. Since you have text at subsection

(d), this table equates to text at the next level of subsection and must be indented appropriately. (PC #16 at p. 2).

Due to the required line length of the materials in the subsection (d) table, the Board finds it impractical to move the table the requisite distance to the right. In alternative, therefore, the Board has deleted the leading text at subsection (d), thus eliminating the need for additional indentation. Further, the text deleted from subsection (d) has been incorporated into subsections (a) and (b). This is accomplished by adding the phrase "for the chemical constituents listed in subsection (d)" after "AS" and "CS", respectively.

Four additional changes have been made in subsection (b) to improve clarity. The first is addition of the word "arithmetic" before the word "average" to indicate the type of average intended (PC #20 at 24). The second is the addition of the phrase "except as provided in subsection (c)" to the end of the first sentence to provide a parallel structure to that present in subsection (a). The third is movement of the word "consecutive" from its position prior to the word "days" to a position prior to the word "samples". The third change is made upon the recommendation of the Agency (Id. at 23-4) following questions raised at hearing concerning the meaning intended by the Agency (R. at 515, 696, 711-6, 719-21). As the Agency points out, its intention has been that the samples may be taken over any period of time equal to or greater than four days, but that no sample taken during that interval may be omitted (PC #20 at 23-4). Movement of the word "consecutive" effectuates this intent. The fourth change consists of replacing "four day period" with "sampling period" at the end of the last line in conformity with the third change.

Due to a typographical error, the acute toxicity standard for lead found at First Notice Section 302.208(d) incorrectly contained the limit "not to exceed 50 ug/l" (R. at 499). This should have read "not to exceed 100 ug/l" per the Board's current General Use Standard for lead and per the Agency's recommendation to retain this value. There is no justification in the record for other than the 100 ug/l ceiling. The Board notes that this errata was identified at hearing in the Board's Supplemental Opinion of September 28, 1989.

Although not so noted in the Code Division's Public Comment, the requirement for indentation of tables would also apparently apply to the table of subsection (e). Because line length does not restrict the ability to additionally indent this table, the indentation has been made.

Finally, "mixing zone" has been replaced in subsection (e) with "waters for which mixing is allowed pursuant to Section

302.102" to again specify that it is not required that the standards be met in allowed mixing waters.

Section 302.210 Other Toxic Substances

Pursuant to a recommendation by IERG (R. at 1154-5), the second sentence of this section has been changed from:

> Individual chemical substances listed in Section 302.208 are not subject to this Section.

to:

> Individual chemical substances or parameters for which numeric standards are specified in this Subpart are not subject to this Section.

As IERG correctly observes, it has been the intention to limit the applicability of Section 302.210 to only those substances for which the Board has not already adopted numeric General Use Water Quality Standards. Numeric General Use Standards occur at more locations than just Section 302.208. IERG suggests a remedy by way of listing in the amended sentence those Sections, in addition to 302.208, wherein specific numeric General Use standards occur. The Board has alternatively chosen the construction above, which it believes is less likely to lead to error by omission.

Various changes have been made in subsections (a) through (c) to better express the nature of the criteria derived pursuant to Subpart F (see pages 12-17, above). Among these is the replacement of the three occurrences of the phrase "developed pursuant to" found in First Notice subsections (a)(1), (a)(2), and (b) by the phrase "validly derived and correctly applied pursuant to". The word "presumed" has also been altered to "deemed" in subsections (a), (b), and (c), and the phrase "validly derived and correctly applied" has been inserted after the word "criteria" in subsection (c).

Subsection (d) has been generally amended to better conform its language to concepts regarding allowed mixing, mixing zones, and ZIDs, as enunciated previously in this Opinion. In particularly, "mixing zone" is replaced by "waters within which mixing is allowed", or a similar phrase, to emphasize that the conditions apply whether or not a mixing zone has been formally established. Similarly, it specified that the acute toxicity limitations apply everywhere except in a ZID.

Two new sentences have been added to the end of subsection (e). These sentences explicitly establish the basis for challenges to criteria, as previously discussed (see pages 13-14, above).

Subsection (f) has been modified to conform it with the preceding discussion regarding challenges to criteria calculations (see pages 13-14, above). Additionally, the Board has deleted that portion of subsection (f) which previoulsy provided that publication of a criterion in the Illinois Register or inclusion of a condition based on a criterion in an NPDES permit was a necessary precondition to an enforcement action alleging excursion of the criterion as a basis for violation of the toxicity water quality standard. As the complainant bears the burden of establishing the validity and correctness of any criterion derived from the regulation, upon reflection the Board finds that no prejudice would result to a respondent who would still be subject to suit for violation of the "no toxic substance in toxic amount standard" regardless of derivation of any criterion.

The three uses of the modifier "enforcement" before the word "action" have been deleted from subsection (f), pursuant to the recommendation of IERG (R. at 1140-1; Exh. 109, p. 4). This change is intended to avoid controversy over what constitutes an enforcement action. Finally, to enhance readability, Section 302.210(f) has been divided into subsections.

Reference to the Act citing the Illinois Department of Agriculture and Illinois Department of Public Health has been deleted from subsection (g). As the Code Division notes, this Act was repealed by P.A. 81-197, effective July 1, 1980 (PC #16 at p. 2). The name of the Act referenced with the Department of Energy and Natural Resouces has also been added, per the request of the Code Division (Id.).

Section 302.603 Definitions

The word "substantial" has been replaced by the words "statistically significant" in the definition of "Carcinogen" in accordance with JCAR's request for clarification of "substantial" (Exh. 122, Part 302, par. 14; PC #33 at 10).

The definitions of "LOAEL" and "NOAEL" have been amended in general accordance with the recommendation of the Steel Group (Exh. 119 at p. 3). A principal change is reference to "adverse effects", as defined in Section 302.100.

Section 302.606 Data Requirements

JCAR questions the sufficiency of identification of the ASTM methods cited at First Notice Section 302.606 (Exh. 122 at par. 18). In response, the Board adds citation to specific ASTM standards, as incorporated by reference in Section 301.106.

Section 302.615 Determining the Acute Aquatic Toxicity Criterion - Toxicity Independent of Water Chemistry

The word "be" has been inserted at the end of line 6 of subsection (f). As noted at hearing (R. at 523, 701) and in the Board's Supplemental Opinion of September 28, 1989, this change is necessary to supply grammatical sense.

Additionally in subsection (f), the First Notice use of the word "families" has been replaced with the word "taxa" in lines 9, 11, 13, 14, 17, and 18 (PC #20 at 24). These changes are made at the request of the Agency, which notes:

> Taxonomic families are not consistently used when listing required types of organisms to be used in toxicity tests. Sometimes organisms from a specific family are required while other requirements can be satisfied with any member of an Order or Phylum. The term "taxa" refers to any unit of taxonomic hierarchy and is therefore more appropriate than the restrictive term "family". (R. at 701).

The phrase "family from a" has also been stricken from subsection (f)(2), in conformity with the same argument (R. at 702).

The last sentence of subsection (f) has also been changed from:

> When toxicity data on the three taxa listed are available, they must be used along with the data sets obtained for subsection (a).

to:

> When toxicity data on any of the three taxa listed below are available, they must be used along with the minimum data required pursuant to Section 302.612.

The change is made principally to address the incorrect reference to subsection (a) used in the First Notice version. This reference should properly be to Section 302.612 (PC #8, Proposal p. 12). The remaining changes to the sentence are intended solely to provide greater clarity.

Section 302.618 Determining the Acute Aquatic Toxicity Criterion - Toxicity Dependent on Water Chemistry

IERG has expressed concern as to whether First Notice subsections (b) through (j) of Section 302.618 mandate adherence

to a log-log relationship in all circumstances, whereas subsection (a) clearly states that other relationships may be used (e.g., R. at 1244, 1254-6). IERG has also questioned some of the formulations used in Section 302.618 and companion Section 302.621 (Exh. 111 at 4-5).

The Board fully understands that Section 302.618 is drawn essentially unaltered from USEPA guidance documents. The Board also appreciates that the Agency's purpose in the construction it offers for Section 302.618 is to, by way of example, "familiarize interested parties with a proven way in which these relationships between a substance's toxicity and some water quality constituent are treated" (PC #25 at 20). The Board is also aware that in a scientific context an investigator would proceed in manner such as outlined in the Agency's proposed Section 302.618. Finally, the Board is aware, as the Agency properly points out, that the number of possible relationships is "almost infinitely varied" in a mathematical sense, and thus not easily amenable to treatment other than proposed by the Agency (Id.).

Nevertheless, the Board believes that Section 302.618 can be made both more explict and more clear, as proposed by IERG (PC #29 at Exhibit A). Accordingly, the Board is today proposing revised language for Section 302.618. The new form of Section 302.618 follows the general outline of IERG's proposal, with the only changes intended to provide still greater clarity and to conform the IERG proposal with Code Division strictures regarding indentation and subscripting.

Section 302.621 Determining the Acute Aquatic Toxicity Criterion - Procedure for Combinations of Substances

At the recommendation of the Agency (R. at 523, 702-3), the last sentence of subsection (b) has been modified for the purpose of increased clarity. At First Notice this sentence read: "If data are not available for resident or indigenous species, data from non-resident species may be used if the non-resident species is of the same family or genus and has a similar habitat and environmental tolerance". The replacement sentence reads: "If resident or indigenous species are not available for testing, non-resident species may be used if the non-resident species is of the same family or genus and has a similar habitat and environmental tolerance".

Section 302.630 Determining the Acute Chronic Toxicity Criterion - Procedure for Combinations of Substances

An identical substitution of sentences has been made in Section 302.630(b) as has been made in Section 302.621(b) (see above).

Section 302.642 The Human Threshold Criterion

The wording of the first sentence has been altered to make clear that the Human Threshold Criterion is a concentration of substance.

Section 302.645 Determining the Acceptable Daily Intake

The title of this Section has been changed and shortened to reflect the actual content of the Section.

Section 302.648 Determining the Human Threshold Criterion

The Steel Group recommends replacement of the First Notice incidental "ingestion" factor of 0.01 liters per day with a new factor of 0.0025 liters per day, as found at proposed Section 302.648 (Exh. 119 at 7; PC #26 at 27). The Steel Group contends that the First Notice factor is too conservative, since it does not recognize that Illinois climate does not permit year-around swimming. The Steel Group apparently arrives at its recommeded factor by reducing the First Notice factor in proportion to the number of days Illinoians are expected not to swim (Id.).

Initially, the Board notes that the factor in question is not simply an "ingestion" factor, as apparently assumed by the Steel Group. Rather, it is a factor for "incidental exposure through body contact or ingestion" (proposed Section 302.648, emphasis added). Thus, it is intended to allow not only for ingestion exposure, but for exposure through other routes, such as dermal absorption (e.g., PC #18 at 2; PC #25 at 21), as well. Moreover, the First Notice incidental exposure factor expressly is not limited to exposure related to swimming, but rather as well to "other recreational activities in General Use waters" (proposed Section 302.648), such as boating and fishing, which have much less restricted "seasons" where they have seasons at all.

However, the Board believes that the Steel Group's observations are well taken to the extent that not all Illinois waters are used for either swimming or other recreational activities because of natural limitations of the water bodies. For these waters the 0.01 L/d lifetime average consumption rate would indeed appear to be too restrictive. The Board recognizes this circumstance by redefining the incidental exposure rate as follows:

> W = Per capita daily water consumption equal to 2 liters per day (L/d) for surface waters at the point of intake of a public or food processing water supply, or equal to 0.01 liters per day (L/d) which represents incidental exposure through contact or

ingestion of small volumes of water while swimming or during other recreational activities for areas which are determined to be public access areas pursuant to Section 302.201(b)(3), or 0.001 liters per day (L/d) for other General Use waters.

Section 302.651 The Human Nonthreshold Criterion

The acceptable cancer risk levels associated with single and additive substances are explicitly stated to be 1 in 1,000,000 and 1 in 100,000, respectively. At First Notice these figures, as used in related Sections, were 1 in 100,000 and 1 in 10,000, respectively.

IWF/NWF contends that the First Notice single-substance risk level "is not adequately protective of human health and does not represent a socially acceptable cancer risk level" (PC #18 at 2). IWF/NWF further contends that USEPA recommends a 1 in 1,000,000 risk level (Id.). In contrast, both the Agency and Sauget contend that the 1 in 100,000 level is well within the range commonly used in cancer risk assessments (PC #11 at 21-2; PC #25 at 22-23 and Attachment 6). They also argue that the USEPA guidelines do not recommend 1 in 1,000,000, but rather a number ranging between 1 in 10,000 and 1 in 10,000,000 (Id.).

The Board does not contest that the 1 in 100,000 value would be within the range used in some cancer risk assessments. Similarly, however, the 1 in 1,000,000 value is also within this range. In general the Board agrees with IWF/NWF that the 1 in 1,000,000 level achieves more adequate protection of human health and is the more socially acceptable cancer risk level The 1 in 100,000 additive risk level is chosen as one-tenth of the single-substance risk factor, consistent both with accepted practice and with the theory of additivity (PC #25 at 23-5).

The first sentence of the Section has also been slightly modified consistent with similar changes to the first sentence in Section 302.642 (see above).

Section 302.654 Determining the Risk Associated Intake

The title of this Section has been changed and shortened to reflect the actual content of the Section.

The cancer risk levels, as introduced in Section 302.651 (see above), are explicitly stated in the introductory section and in the definition of "K" in subsection (b).

The units for the Risk Associated Intake ("RAI") have been corrected to milligrams per day. Within the First Notice rule the units were incorrected expressed as milligrams per kilogram-day.

The equation in subsection (b) has been recast to conform it to the format used for other equations within the present Part. There is no change in the content of the equation.

The word "must" has been replaced by the word "shall" in subsection (b)(1), as recommended by the Agency (R. at 526).

At the recommendation of the Agency (R. at 527-8, 695, 705-6), reference to "Quality Criteria for Water 1986" in First Notice subsection (b)(7) has been replaced by reference to the USEPA document "Mutagenicity and Carcinogenicity Assessment of 1,3-butadiene". The latter reference is the same reference used in subsection (b)(2), and is the more appropriate reference for providing the guidance required in subsection (b)(7). Reference to "Quality Criteria for Water 1986" has also been deleted from the Incorporations by Reference, Section 301.106, in conformity with the change to subsection (b)(7).

Additionally, various rephrasings have been made to provide better clarity to the Section in general.

Section 302.657 Determining the Human Nonthreshold Criterion

The cancer risk factor specified in the definition of "RAI" has been decreased to 1 in 1,000,000, consistent with the discussion above. In addition, the definition of "W", as it relates to incidental exposure, has been modified consistent with the modification of this term in Section 302.648 (see above).

Section 302.663 Determination of Biocentration Factors

The equation for calculating the bioconcentration factor found at First Notice Section 302.663(c) has been altered to a generic form in response to questions regrading the appropriate constants to be used in the equation (R. at 1197, 1423; Exh. 111 at 6). Additionally, it is specified that the constants shall be -0.23 and 0.76, which are the constants recommended by the Steel Group and IERG (Id.), unless scientifically valid alternative constants can be demonstrated.

Section 302.669 Listing of Derived Criteria

Two subsections, (b) and (c), have been added to the First Notice language. Subsection (b) notes that the criteria published in the Illinois Register may at any time be proposed for adoption as numeric standards. Subsection (c) specifies that the Agency shall keep appropriate records of its criteria derivations, as necessary support to any appeal.

Section 304.362 Horseshoe Lake Mixing Zone and ZID

Section 304.362, as proposed as First Notice, has been moved to Docket B. Interested persons are directed to the Docket B Opinion and Order of this date for discussion.

Section 309.103 Application -- General

Code Division requests that the references to "NPDES" and "Agency" in Section 309.103(a) and to "CWA" in Section 309.103(d) be spelled out in full at some place within Part 309. This Code Division request is made in spite of the fact that each of these terms is fully defined in the general definitions portion of Subtitle C, specifically at Sections 301.325, 301.215, and 301.240, respectively. Pursuant to Section 301.200 the definitions of Part 301 apply to Subtitle C generally. This notwithstanding, in acquiescence to Code Division's request, the Board is today fully spelling out the three terms.

The Board notes that the terms are first used within Part 309 at Sections 309.101 and 309.102, and it would seem that the sensible position at which to fully spell out the terms, if at all, would be there at their first usage. This would be the option preferred by the Board. However, it would necessitate opening Sections 309.101 and 309.102, which have not previously been given First Notice in this proceeding. JCAR proposes to object to this tactic even though the only purpose of opening Sections 309.101 and 309.102 would be to spell out the abbreviated terms. The Board is therefore forced to take the only avenue available to it, which is to fully spell out the terms within Section 309.103.

A clarification change has also been in subsection (a)(3), where the phrase "Should aquatic toxicity be apparent" has been replaced with "If this toxicity testing shows the effluent to be toxic".

Section 309.152 Toxic Pollutants

Amendments to Section 309.152(a) and (b), as proposed as First Notice, has been moved to Docket B. Interested persons are directed to the Docket B Opinion and Order of this date for discussion.

Miscellaneous

Among miscellaneous modifications is the replacement of the lower case "l" with the upper case "L" in abbreviations of the form "mg/L" (milligrams per liter) and "L/d" (liters per day). This is done to prevent confusion of the lower case "l" with the numeral "1". This modification occurs in many places within the proposed rule.

PROPOSED MODIFICATIONS NOT ACCEPTED FOR SECOND NOTICE

The Board declines to accept various requests to modify the First Notice proposal. The bases of these actions are identified below.

Deletion of Severability Clause found at Section 301.108

The Steel Group recommends that the severability clause added by the Board at First Notice be stricken (PC #26 at 14-15). The Steel Group contends that the clause "does not appear to be mandated by any law or regulation", from which the Steel Group concludes that the the clause is "unnecessary" and "inappropriate" (Id.). The Board finds both the contention and conclusion faulty.

The Board is mandated under Title VII of the Act to promulgate regulations necessary to meet the purposes of the Act. The Board finds that the purposes of the Act would be flaunted if, through the Board's failure to affirmatively assert otherwise, a judgement of invalidity of one part caused the invalidity of additional parts or of the whole of the Board's water regulations. The Board therefore believes that a general severability clause is appropriate. Judgement as to whether it is also necessary cannot be made until its purpose is put to test, and it accomplishes its purpose within that test.

Village of Sauget ZID Demonstration at Section 302.102

Sauget requests that the Board adopt a new subsection within Section 302.102 "which would permit the Village of Sauget to make a demonstration of a ZID" (R. at 1473). Sauget opines:

> The reason that we [make this proposal] is that Sauget has a very real concern that if the 1,000 foot limitation [on a ZID] is finally adopted by the Board as part of the rules, that that might be relied upon in issuing a new permit to Sauget.
>
> And that if that were to happen -- there might be effluent limits that suddenly are engraved in stone somewhere in Washington, D.C. from which we would never be able to backslide.
>
> R. at 1475-6

To the extent that Sauget's concerns arise from the 1000 square-foot limitation on a ZID proposed at First Notice, the Board observes that this limitation is today deleted from the proposal (see pages 25-26, above). This appears to be sufficient to address Sauget's concerns (PC #27 at 5).

However, to the extent that Sauget's concerns arise from uncertainty regarding "antibacksliding", the Board observes that it shares the general concern, but does not believe that Sauget's proposal clarifies that uncertainty either for Sauget or for the broader audience desirous of clarification. As the record indicates, antibacksliding is an issue under interpretation by the USEPA, but that no official release of the interpretation has yet been made (e.g., R. at 1107-9). It is the Board's understanding that, since antibacksliding is a provision of the Clean Water Act, Illinois dischargers will be subject to the USEPA's official interpretation notwithstanding what might be done in the instant proceeding.

"Flexibility" Regarding Section 302.102(b) Limitations

OCM contends that the limitations proposed on allowed mixing at Section 302.102(b) are unnecessarily rigid and inflexible (PC #28 at 2-3). As remedy, OMC suggests that the Board make no alteration to the existing allowed mixing rule, or, in the alternative, either change some "must nots" to less explicit prohibitions (Id. at 3) or add to the Section a provision allowing the Agency to in effect waive certain of the limitations upon proper showing by a permittee (Id. at 4).

The Board initially notes that it does not accept that the Section 302.102(b) limitations are unnecessarily rigid or inflexible. Each of the limitations is fully appropriate for a rule of general applicability such as Section 302.102.

The Board also strongly believes that it is inadvisable to leave Section 302.102 in its present form. As the abundant record regarding Section 302.102 clearly attests, this Section has been the source of much confusion. It is the Board's intention to remove as much of this confusion as is possible. For this reason we proposed a major reorganization of Section 302.102 at First Notice, and today offer further fine tuning and extensive discussion (see pages 5-12, above).

We do not view as meritorious OCM's suggestions that we either soften the prohibitions of Section 301.102(b) or allow the Agency to waive certain of the limitations. We believe each of the limitations is necessary to insure that allowed mixing produces the minimum detrimental environmental impact, as a rule of general applicability. The Board does note, as OMC is certainly aware, that the "adjusted standard" provisions at Section 28.1 of the Act allow any person to obtain relief from a rule of general applicability where appropriate justification can be shown.

Allowed Mixing for Section 302.203 "Offensive Conditions"

IERG requests that the Board delete the last sentence of Section 302.203, which disallows the use of mixing as a method for compliance with the "Offensive Conditions" prohibition listed in the preceding sentence (R. at 1148-9). This the Board declines to do. The Board believes that mixing is a concept not applicable to some of the "Offensive Conditions", such as sludge or bottom deposits, floating debris, and plant or algal growth, since these are not dilutable in the receiving water. For the other listed "Offensive Conditions" the Board finds that the water quality standard of 302.203 is no more restrictive than the effluent standard found at 35 Ill. Adm. Code 304.106[8]. Since mixing has been allowable pursuant to 302.102 only when "a water quality standard is more restrictive than its corresponding effluent standard", the Board views mixing as never having been an acceptable method of compliance with the "Offensive Conditions" prohibition. The Board does not see any persuasive argument why this policy should now be generally reversed.

Equation for Cadmium AS at Section 302.208

The Board at First Notice requested that the Agency comment on whether the "A" term in the equation defining the acute toxicity standard for cadmium at 302.208 was the correct term. The Board accepts the Agency's explanation. As the Agency notes, the term as proposed does differ from the term present in the cadmium criterion document (Exh. 5). However, the cadmium criterion in that document is intended to protect rainbow trout. The Agency does not believe that it is necessary to apply this standard in Illinois General Use Waters (R. at 529). Accordingly, the Agency has determined an equation for calculating a cadmium AS which is appropriate for Illinios (Id.). It is this modified equation, with the "A" term differing from that in the criterion document, which was proposed to the Board by the Agency and adopted by the Board at First Notice. No change is today made.

Background Concentration at Subsection 302.210(h)

IERG proposed a rule at Section 309.141(i) (Exh. 59 at 16) which it subsequently reproposed for placement at Section 302.210(h) (R. at 1154). The proposal language addresses a dischargers responsibilities when in-stream background

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[8] Section 304.106 reads: In addition to the other requirements of this Part, no effluent shall contain settleable solids, floating debris, visible oil, grease, scum or sludge solids. Color, odor and turbidity must be reduced to below obvious levels.

concentrations are high. IERG opines "[b]y remaining silent as to background it could be concluded that the Board intends that a discharger be responsible for all contamination in a water body whether or not the contamination was resultant from that dischargers effluent stream" (R. at 1153).

The Board believes that the matter of background concentrations is already adequately addressed in Section 304.103, and that repeat of the provisions of that Section is not needed within Part 102.

Definitions at Section 302.603

Both the Steel Group and the Agency propose that the definition of "carcinogen" at First Notice Section 302.603 could be made more detailed (R. at 1387-7; Exh. 119 at 2-3; PC #25 at 14-15; PC #26 at 22). The Board agrees. However, a practical problem is raised in that the replacement definition recommended by the Steel Group and the Agency, as well as the alternative of adding a new Section 302.640 as proposed by the Agency (PC #25 at 14 and Attachment 3), both require an incorporation by reference. The Board is prohibited under the APA from making a new incorporation by reference at this stage in this proceeding.

The Board itself has considered whether the Steel Group/Agency definition might be inserted in Docket B. However, this seems impossible since the definition is contained in and contains reference to Sections not yet adopted. Thus, the Board cannot propose to amend the definition until the pertinent Sections are themselves promulgated (i.e., after final action in the instant Docket). Although this entire matter smacks of a bureaucratic catch-22, nevertheless the Board's hands are tied.

The Board believes that the only course of action at this time is to retain the First Notice definition. While the Board accepts that this definition may not be the ideal definition, there is no basis to doubt that it is a fully workable definition. The Board would, of course, entertain appropriate modifications of the definition when a mechanism for modification becomes ripe.

An IERG witness, Dr. Philip B. Dorn, apparently recommends replacement of the definitions of "EC-50" and "LC-50" found at First Notice 302.603 (Exh. 111 at 8). However, no specific replacement language, nor analysis of how replacement would better the existing definitions, has been offered. The Agency believes that the "current definitions are valid and functional" (PC #25 at 9), which the Board accepts in the absence of contrary evidence.

Dr. Dorn also recommends replacement of the terms "NOAEL" and "LOAEL" with "NOEL" and "LOEL", respectively, apparently

generally within Subpart F (Exh. 111 at 3). The Board sees no apparent justification for, nor analysis of the effects of, this general replacement (R. at 1421-2), and accordingly declines to make it.

Acute/Chronic Ratio at Section 302.627

The Board itself proposed the possible change of the value for the acute-chronic ratio specified in Section 302.627, the change to be from the First Notice value of 25 to some larger number (see First Notice Opinion at p. 32). Comment on this matter at post-First Notice hearings (R at 524-5, 703-5, 718) and in PC #22 and PC #27 at pages 6-9 convinces the Board that the value of 25, as proposed at First Notice, is appropriate.

Exposure Assumption at Sections 302.648 and 302.654

IWF/NWF questions whether additional safety factors should be built into the Human Threshold Criterion calculation at Section 302.648 and the "uncertainty factor" now found at Section 302.654(b)(7) (PC #18 at 2). The Agency responds, and we accept, that safety factors are already built into these Sections, and there is no "substantial data base which quantitatively supports" more restrictive safety factors (PC #25 at 21-22).

Lipid Factor at Section 302.666(a)(2)

IERG through Dr. Dorn questions the justification for the 7.6 percent lipid factor cited in Section 403.666(a)(2) (Exh. 111 at 6). The Agency responds that this value represents the mean lipid content of the fathead minnow (PC #25 at 11), a standard bioassay species. The Agency also points out that a correction mechanism is provided if a species other than a fathead minnow is used (Id.). On this basis the Board sees no justification for altering the cited factor.

IWF/NWF "Application Issues"

IWF/NWF raises in both Public Comments #6 and #18 several issues characterized as "application issues". Among IWF/NWF's concerns is that special restrictions should occur where the toxicant is either a persistent or bioaccumulative substance. Among the suggested restrictions is a prohibition against mixing zones for discharges to Lake Michigan for any persistent or bioaccumulative substance (PC #18 at p. 4). The Agency observes as follows, with which the Board concurs:

> [IWF/NWF] expressed concern over application of these regulations to Lake Michigan. The Agency continues to support the position that these water quality standards should apply to Lake Michigan in the same manner that the current General Use standards

> apply. By operation of Section 302.501 they are cummulative with Public and Food Processing Water Supply Standards and Lake Michigan specific standards in their applicability to Lake Michigan. At the present time a USEPA initiative is underway to develop national water quality criteria for specific application to the Great Lakes. The purpose of the effort is to have nationally developed and published criteria by 1992 to assist Great Lakes States in conducting their next triennial review. Issues of mixing zones and antidegradation implementation procedures are included on the agenda for the initiative. Environmental Agencies from each Great Lake State and the NWF, along with representatives of other interest groups and agencies are participants in this initiative. Until such time as the national criteria become available, the Agency recommends the standards emerging from this proceeding be applied to Lake Michigan in the same manner they would be applied to General Use waters. (PC #25 at 25-26)

IWF/NWF's request that an "antidegradation policy" be incorporated within the instant amendments is apparently based on IWF/NWF's understanding that this policy is absent in the current Illinois surface water regulations (P.C. #6 at p. 6 and PC #18 at p. 7). However, the Board notes that existing regulations do contain a nondegradation rule. The Board is uncertain as to whether the IWF/NWF is a are of this existing rule, whether the IWF/NWF considers the existing rule to be something different than an "antidegradation policy", and whether and how the IWF/NWF would have the Board amend the existing nondegradation rule. At any rate, neither nondegradation nor antidegradation are issues raised by the instant need to comply with Section 303(c)(2)(B) of the CWA. Likewise, there is insufficent record developed on this matter to justify the Board's proceeding on the subject in the instant docket.

"Tiered Approach" to Toxicity Testing

IERG witness Dorn noted his concern, based upon analysis of 302.Subpart, regarding the absence of allowance for a tiered approach to toxicity testing (R. at 1189). As the Agency points out, the tiered approach is available in the instant rule pursuant to provisions of Part 309 (PC #25 at 8, 10). The Board agrees, and cannot find that the proposal is in any way deficient in this regard. The allowance for tiered testing also apparently addresses Dr. Dorn's questions regarding additivity (Exh. 111 at 4-5; PC #25 at 11).

Inclusion of Controls on Sediments

It has been suggested that the proposed toxic control program is not complete because it does directly address control

of toxic substances in aquatic sediments (R. at 30; Exh. 24 at Attachment III). The Board does not disagree with this suggestion. However, the Board believes that the direct control of toxic substances in sediments is beyond the CWA mandate which the instant proposal is intended to address.

IT IS SO ORDERED.

Board Member J.D. Dumelle concurred.

I, Dorothy M. Gunn, Clerk of the Illinois Pollution Control Board, hereby certify that the above Opinion was adopted on the 6th day of December, 1989, by a vote of 6-0.

Dorothy M. Gunn, Clerk
Illinois Pollution Control Board