ILLINOIS POLLUTION CONTROL BOARD
March 24, 1988

IN THE MATTER OF:	)	
	)	
AMENDMENTS TO WATER QUALITY AND	)	
EFFLUENT STANDARDS APPLICABLE TO	)	R87-27
THE CHICAGO RIVER SYSTEM AND	)	
CALUMET RIVER SYSTEM.	)	

PROPOSED RULE SECOND NOTICE

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

This matter comes before the Board upon a petition ("Petition") and accompanying proposal[1] ("Proposal") filed jointly on August 18, 1987 by the Metropolitan Sanitary District of Greater Chicago ("MSDGC") and the Illinois Environmental Protection Agency ("Agency").

Today the Board sends the proposed rule to second notice with certain substantive changes in response to comments received at first notice. These are:

1) Elimination of effective date for the dissolved oxygen standard applicable to the Cal-Sag Channel (see pages 13-14 herein).

2) Inclusion of a requirement that MSDGC undertake a comprehensive water quality review and report results of same to the Board by January 15, 1992 (see page 24 herein).

Nonsubstantive changes have also been made in some of the language of the proposed rule to provide grammatical consistency and conformity to the Illinois Administrative Procedures Act.

PROCEDURAL HISTORY

Public hearings were held October 19, 1987 in Chicago, and November 9, 1987 in Joliet; members of the public were in attendance, although all witnesses who testified testified on behalf of the Proponents. Subsequent to the second hearing certain amendments to the original Proposal were filed by the Joint Proponents on November 30, 1987 (P.C. #3).

[1] The full title of this document is "Water Quality Proposal", June 1987, Revised August 1987, prepared by the MSDGC.

On December 21, 1987 the Department of Energy and Natural Resources filed its determination that an economic impact study was not necessary in this matter. The Board was informed of the Economic and Technical Advisory Committee's concurrence with this determination on January 22, 1988.

By Order of December 22, 1987 the Board sent the proposal, as amended in P.C. #3, to first notice. Publication occurred in the Illinois Register Vol. 12 at 2060, January 22, 1988.

Eighteen public comments ("P.C.") have been received in this matter, six prior to first notice and twelve subsequent to first notice. The public comments received prior to first notice were considered by the Board in the First Notice Opinion of December 22, 1987, and will not in general be reconsidered here. The public comments received subsequent to first notice, which principally involve the reporting requirements and admendments to ammonia standards as presented at first notice, are considered herein.

RELATIONSHIP TO FEDERAL REGULATIONS

The Federal Clean Water Act ("CWA") (33 USC 1251 et seq.) requires that all publically owned sewage treatment works ("POTWs") be in compliance with final effluent standards by July 1, 1988. Failure to meet this deadline constitutes grounds for imposition of federal sanctions and monetary penalties (R. at 188-9; Ex. 8 at 16). In Illinois it is the responsibility of this Board, within federal guidelines, to determine what are appropriate final effluent standards. This the Board has done, and accordingly there currently are in place final effluent standards for the full State.

The United States Environmental Protection Agency ("USEPA") assists POTWs, in part, by authorizing construction grants to assist POTWs in making the facilities improvements necessary to come into compliance. Substantial grant funds have been distributed to Illinois POTWs, including grants made to the MSDGC. These grants have enabled the MSDGC to effect major improvements in the quality of effluent from the various MSDGC facilities, as well as to improve the quality of the receiving waterways. These grants have also assisted the MSDGC in bringing the majority, but not the entirety, of its facilities into compliance with existing final effluent standards.

In 1982 USEPA determined that it would not authorize the additional grant funding necessary to bring the remaining MSDGC facilities into compliance with existing final effluent standards

by the July 1988 deadline (Ex. 11[2]). In so determining, USEPA noted that, pursuant to Congressional directives, "Federal funding for all deferred advanced treatment facilities shall not be provided unless the Administrator personally determines that construction and operation of these facilities will definitely result in significant water quality improvement" (Ex. 11 at 6). No such determination by the USEPA Administrator has been made, nor is there reason to believe that it will be made.

In 1986 the Joint Proponents entered into an agreement under which, among other matters, Proponents explored the possibility of modifying the established final effluent standards in such a manner as to have this be the vehicle for compliance by the July 1988 deadline. The agreement required that the MSDGC undertake a modeling and field study to identify needed revisions of water quality and effluent standards, including revisions not motivated by the July 1988 deadline. The agreement further specified that the Agency and the MSDGC prepare a joint proposal for the needed regulatory revisions; that the Agency and MSDGC resolve any issues raised by USEPA review of the proposed regulatory revisions; and that the final proposal be submitted to the Board. The result is the Petition and Proposal before the Board, as amended by P.C. #3.

Although the USEPA is not a proponent in the instant matter, and although it can not provide formal approval until this matter has been disposed of by the Board, the USEPA is on record as offering its conceptual support to all elements of the proposed amendments (Ex. 3).

PROPOSED AMENDMENTS

The proposed amendments contain five elements. The first would change the dissolved oxygen ("DO") water quality standard applicable to the Calumet-Sag Channel from its present value of 4.0 mg/l to a new value of 3.0 mg/l[3]. This change would be effected by amending 35 Ill. Adm. Code 302.405, as specified in the accompanying Order[4].

[2] "Summary of Findings on Advanced Treatment Facilities proposed for Metropolitan Sanitary District of Greater Chicago", prepared by Environmental Protection Agency, Advanced Treatment Task Force, Washington, D.C., August 1982.

[3] Proponents' original proposal was to maintain the DO concentration at a minimum of 2.0 mg/l. This was amended in P.C. #3 to the 3.0 mg/l minimum considered herein.

[4] The amendment as proposed would additionally delete now superfluous language relating to pre-1977 DO standards which no longer are applicable.

The second element of the proposed amendments consists of up-grading the use designation of certain portions of the MSDGC waterways from their present classification as Secondary Contact and Indigenous Aquatic Life waters to classification as General Use waters. These waterways are that portion of the Calumet River system located between Lake Michigan and the O'Brien Locks and Dam, a distance of 6.8 miles, and that portion of the North Shore Channel located between Lake Michigan and the MSDGC North Side Sewage Treatment Works, a distance of 4.3 miles. This change would be effected by amending 35 Ill. Adm. Code Section 303.441, as specified in the accompanying Order.

The third element of the proposed amendments consists of amendment of certain final effluent standards applicable to two MSDGC treatment plants, the Calumet Treatment Plant and North Side Sewage Treatment Works. The revisions would be effected by amending 35 Ill. Adm. Code 304.201, as specified in the accompanying Order, and would produce the following changes in final effluent standards[5]:

		Calumet STW		North Side STW	
		Current	Proposed	Current	Proposed
BOD_5	(mg/l)	10		10	
$CBOD_5$	(mg/l)		24		12
SS	(mg/l)	12	28	12	20
NH4-N	(mg/l)	2.5/4.0[6]	13	2.5/4.0	2.5/4.0

The fourth element of the proposed amendments would change the ammonia water quality standard applicable to Secondary Contact and Indigenous Aquatic Life waters. The change consists of replacement of the current total ammonia nitrogen ("NH4-N") standard of 2.5 mg/l during April through October and 4.0 mg/l during November through March by a standard for un-ionized ammonia nitrogen ("NH3-N") of 0.1 mg/l applicable at all times. This change would be effected by amending 35 Ill. Adm. Code 302.407, as specified in the accompanying Order.

The final element consists of a proposed comprehensive water quality review to be undertaken by the MSDGC in cooperation with the Agency and the USEPA starting in 1991. The review is intended to assist in the 1992 reissuance of NPDES permits for

[5] It is to be noted that the two plants in question do not currently operate under final effluent standards for BOD, SS, or NH4-N, but rather under interim NPDES limits (see following).

[6] 2.5/4.0 refers to a limitation of 2.5 mg/l during the months of April through October and 4.0 mg/l during the months November through March.

the Calumet STW and the North Side STW, plus the West-Southwest STW. It also is intended to allow a revisitation of the rule changes proposed herein.

BACKGROUND

MSDGC collects and treats the wastewater of 125 communities in Cook County. It serves a connected population of 5,100,000 plus a commercial and industrial wastewater equivalent of approximately 4,500,000. MSDGC operates, among other items, a network of intercepting sewers, tunnels, and seven wastewater and sewage treatment works ("STWs"). Discharges from the STWs are to local streams and channels, all of which are ultimately tributary to the Illinois River.

The three receiving "streams" of interest in the instant matter are all artifical channels. They are the Sanitary and Ship Canal (alternatively as "Main Channel"), which connects Lake Michigan through the Chicago River system to the Des Plaines River, the North Shore Channel, which connects Lake Michigan to the North Branch of the Chicago River, and the Cal-Sag Channel, which connects the Calumet River system to the Sanitary and Ship Channel. All three channels serve to convey waters away from Lake Michigan and the Chicago Metropolitan area via the lower Des Plaines River into the Illinois River. The combined length of the three channels is approximately 80 miles.

The three channels are currently classified as Secondary Contact and Indigenous Aquatic Life ("Secondary Use") waters throughout their entire lengths. A fourth waterway which is involved in the Proposal, and which is also classified as a Secondary Use waterway, is that reach of the Des Plaines River between its confluence with the Sanitary and Ship Canal and the I-55 bridge. The I-55 bridge marks the downstream limit of the waterways to which secondary contact standards apply.

Secondary contact is defined at 35 Ill. Adm. Code 301.380:

> Secondary Contact: Any recreational or other water use in which contact with the water is either incidental or accidental and in which the probability of ingesting appreciable quantities of water is minimal, such as fishing, commercial and recreational boating and any limited contact incident to shoreline activity.

The purpose of the Secondary Contact and Indigenous Aquatic Life standards is defined at 35 Ill. Adm. Code 302.402:

> Secondary contact and indigenous aquatic life standards are intended for those waters not suited

> for general use activities but which will be appropriate for all secondary contact uses and which will be capable of supporting an indigenous aquatic life limited only by the physical configuration of the body of water, characteristics and origin of the water and the presence of contaminants in amounts that do not exceed the water quality standards listed in Subpart D.

Three of the five elements of the proposed rule change would modify certain facets of the application of secondary contact standards and use designations. These are changing of the DO standard applicable to the Cal-Sag portion of the waterways, upgrading two reaches of secondary contact waters to the General Use classification, and replacing the secondary contact NH4-N standard with an NH3-N standard. A fourth element of the proposed rule change addresses final effluent standards. These final effluent standards are those current rules and regulations of the Board found at 35 Ill. Adm. Code, Part 304.

MSDGC operates three STWs which discharge to the Secondary Use waterways. These are the West-Southwest STW, which discharges to the Sanitary and Ship Channel, the Calumet STW, which discharges to the Cal-Sag Channel, and the North Side STW, which discharges to the North Shore Channel.

The Calumet and North Side STWs are currently undergoing $27 million and $130 million expansions and modifications, respectively. Nevertheless, they apparently will not be able to produce an effluent capable of meeting all present final effluent standards even when the modifications are complete (R. at 20-21). The five other MSDGC wastewater treatment plants, including the West-Southwest plant, currently are or will be in compliance with established final effluent standards by the July, 1988 CWA deadline (Proposal, p. 1; R. at 21).

JUSTIFICATION FOR PROPOSED AMENDMENTS

The proposed amendments consist of three types: (1) downgrading of standards in circumstances where the existing standards are unachievable and purportedly not necessary for the attainment of use goals; (2) upgrading of standards where aspirations for attaining a quality aquatic environment have been met and surpassed; and, (3) replacement of a standard where current knowledge indicates that an alternative parameter constitutes a better standard of environmental quality.

Proponents assert that the amendments as proposed are premised on four controlling criteria. These are:

1. No degradation of waterway usage.

2. No adverse impacts on the downstream or surrounding "General Use" waters.

3. Upgrading of the MSDGC waterway use designation wherever possible.

4. Sidestream Elevated Pool Aeration stations ("SEPA").

The Board agrees that satisfaction of at least the first two of these criteria constitutes the sine qua non of the instant proposal; the evidence that they will indeed be satisfied is presented below. The Board applauds the third criterion, and recognizes that the fourth criterion constitutes a cost-effective and environmentally sound measure.

An additional guiding condition emphasized by the Proponents is that "it is not cost effective to expend taxpayers' money for major wastewater treatment facilities which result in marginal water quality improvements" (R. at 13). The Proponents further note:

> Equivalent benefits will be achieved [under the proposed rule changes] with a small fraction of the high capital costs necessitated by the present IPCB standards.
>
> Three hundred million dollars of taxpayers money remains to be spent to achieve full compliance with the IPCB effluent standards with corresponding minimal incremental benefits to water quality. The MSD proposes to achieve benefits consistent with the IPCB Water Quality Standards for an expenditure of only [$28.3][7] million.
>
> (Id. at 13)

The $300 million cost which MSDGC contends it would be required to incur to meet established standards consists of $110 million for the Calumet STW to comply with the BOD and SS standards, $84 million for the Calumet STW to comply with the ammonia standard, and $106 million for the North Side STW to comply with the BOD and SS standards (Ex. 8 at 10). These costs

[7] This figure was $15 million under the original proposal. It was increased to the cited figure in P.C. #3, due to the proposed increase from three to five SEPA stations (see following). Neither figure includes annual operations costs of the SEPA stations, which were $470,000 under the original proposal and are $700,000 under the revised proposal (P.C. #3, Attachment I at 2).

are in addition to costs associated with current upgradings in progress at these two plants (Id. at 11).

Revision of Cal-Sag Channel Dissolved Oxygen Standard

Current data indicate that not only is the present 4.0 mg/l minimum DO concentration not consistently met in the Cal-Sag Channel, but also that concentrations below 4.0 mg/l are a regular occurrence during the summer months. DO difficulties of the Cal-Sag Channel are related to several factors, including the character of the effluent from the Calumet STW, the geometry and flow conditions within the Channel, and the presence on the channel floor of thick accumulations of sediment (R. at 66).

The Calumet STW is currently undergoing an extensive modification and upgrading program which, among other matters, will allow it to produce an effluent of significantly higher quality than that currently produced (see pages 14-16 herein). Nevertheless, even with this upgrading, the character of the expected effluent will not provide for continuous attainment of a 4.0 mg/l DO level in the Cal-Sag Channel. Moreover, even if the Calumet STW was meeting the established rather than the proposed effluent standards, the dissolved oxygen standards in the Cal-Sag Channel would still not meet the 4.0 mg/l applicable DO standard (R. at 29, 66).

The bottom sediments of the Cal-Sag Channel are typically anaerobic, and therefore they exert a substantial sediment oxygen demand ("SOD") on the overlying water column (R. at 80). Moreover, constant resuspension of the sediments by barges plying the channel allows the SOD to exert a strong control over the DO in the water. The bottom sediments have been derived principally from combined sewer overflows (R. at 75). Efforts by MSDGC to control combined sewer overflow discharges, particularly through construction of the Tunnel and Reservoir Project ("TARP") have produced, and continue to promise, a significant reduction in combined sewer overflow discharges to the Cal-Sag waterway (R. at 77). MSDGC therefore projects that the SOD will decrease in the future, and that a corresponding improvement in DO concentrations in the Cal-Sag waterway will occur at some time in the future.

This circumstance suggests that dredging of the sediments from the Cal-Sag Channel would offer at least a partial resolution of the Cal-Sag DO problem. However, in view of the expected stabilization of the sediments following complete elimination of combined sewer discharges, this option has been rejected by the MSDGC as not being cost-effective (R. at 83).

Assuming that a complete upgrading of the Calumet STW would not itself allow consistent attainment of adequate DO concentrations in the Cal-Sag Channel and the alleged non-cost-effective nature of dredging of the bottom sediments, the

Proponents propose to maintain a minimum DO concentration by directly re-oxygenating the waterway. This is to be accomplished by the use of SEPA stations. A SEPA station includes an elevated channel-side pool into which water from the channel is pumped. The water is then returned to the channel by allowing it to flow over a cascade built along the channel bank. The water incorporates atmospheric oxygen in the process of tumbling over the cascade[8].

Pilot-scale tests of the SEPA concept conducted by MSDGC indicate that oxygen-depleted water can be raised to a content of approximately 96% of saturation (Ex. 9 at 3; R. at 124). Five SEPA stations are proposed to be built at strategic locations on the Calumet waterway: three on the the Cal-Sag Channel itself, a fourth on the Little Calumet River, and a fifth on the Calumet River (P.C. #3, Attachment I at 5,6). MSDGC has stipulated to beginning construction of the SEPAs if and when the Board adopts these proposed amendments (R. at 52).

As originally proposed, MSDGC intended to trigger operation of the SEPA stations whenever DO concentrations threatened to fall below 2.0 mg/l (R. at 101). USEPA subsequently recommended that operation of the SEPA stations be triggered by an upstream minimum DO concentration of 4.0 mg/l (Ex. 3 at 2). At the November 9, 1987 hearing the MSDGC stipulated to acceptance of this higher triggering concentration (Ex. 9 at 5; R. at 125-7). MSDGC contends that the higher triggering concentration will have no effect on the DO concentrations encountered in the worst-case scenario (Ex. 9 at 5; R. at 126). However, it should decrease the percentage of time that the worst-case condition prevails.

The minimum DO concentration that the Proponents propose to maintain in the Cal-Sag Channel is 3.0 mg/l. However, the design and operational plan of the SEPA stations is such as to allow only reaches immediately upstream from each SEPA station to experience DO concentrations as low as 3.0 mg/l, and then only under the worst-case scenario. Under the worst-case scenario approximately half of the Cal-Sag Channel would experience DO concentrations above 4.0 mg/l and approximately half would experience DO concentrations between 3.0 and 4.0 mg/l (P.C. #3, Attachment I at 5). Moreover, due to aeration at each SEPA station, reaches immediately downstream from each station are projected to maintain minimum DO concentrations of between 4.5 and 6.2 mg/l during all times when the SEPA stations are in operation (Id.).

[8] More extensive description of SEPA station construction and operation is contained in the Proposal (Appendix A), Ex. 8 at 11-12, Ex. 9, and R. at 121-138.

While it is admitted that the 3.0 mg/l DO proposal constitutes a lowering of the present 4.0 mg/l minimum acceptable level of in-stream DO applicable to the Cal-Sag waterway (R. at 93), Proponents contend that no degradation of usage of the Cal-Sag waterway, or any downstream waterway, would be occasioned by adoption of the proposal. The basis for this contention is that a minimum DO "level of 2.0 mg/l will adequately support the Secondary Contact and Indigenous Life Use classification" (R. at 29). Moreover, maintenance of a minimum DO concentration of 3.0 mg/l would constitute a very significant improvement over the existing state, wherein zero oxygen concentrations occur annually. It may even provide an improvement over the present 4.0 mg/l level by providing reaches below SEPA stations where DO concentrations are higher than 4.0 mg/l during even the worst-case conditions.

Instructive are data on existing fish populations in the affected waterways (Ex. 7 at W-3, W-5, W-7, W-9/W-14), as determined from electrofishing surveys. These data indicate that the number and diversity of fish which currently exist in the Calumet waterway is highly variable in time and place. Catches have ranged from a total of 1157 individuals representing 12 species at a site on the Calumet River upstream from the Calumet STW (Id. at W-9) to several episodes on the Cal-Sag Channel downstream from the Calumet STW when no fish were collected (Id. at W-11, W-12). The data also indicate that the low fish catches tend to coincide with the occurrence of low DO. In particular, the lowest catches occurred at DO concentrations of 2.0 mg/l and less, whereas higher catches occurred at DO concentations of 3.0 mg/l and more. Factors other than DO, including both physical and other chemical factors, limit the aquatic habitat potential of the Cal-Sag Channel[9] (R. at 71). It would therefore be unwarranted to conclude from the electrofishing data alone that maintaining a minimum DO concentration of 3.0 mg/l would provide

[9] USEPA concurs in this finding, noting:

> The necessary physical characteristics for a balanced, diversified fishery are riffles and back water areas for spawning, and vegetation on the channel bottom for protection of young fish. Physical characteristics for fish life are good downstream from confluence of Des Plaines River. However, based on analyses of US EPA Research Laboratory at Corvallis, Oregon, the channelized waterways do not have the meanderings, vegetation (both instream and riparian), and variable velocities that provide the diversity of habitat required by most kinds of fish to successfully live and reproduce. (Ex. 11 at 3)

for rich fish populations. However, it is reasonable to conclude that removing the trauma caused by DO concentrations below 3.0 mg/l would encourage the expansion of the indigenous fish populations.

In agreeing to maintain a minimum 3.0 mg/l DO concentration in the Cal-Sag Channel, the Proponents note:

> ... it is technologically achievable to maintain a 3.0 mg/l or higher instream concentration and ... associated incremental costs have been estimated to be $13.3 million capital investment and $230,000 annual O & M in excess of the cost associated with a 2.0 mg/l minimum standard. While proponents have reservations that an increase of the minimum D.O. concentration from 2.0 mg/l to 3.0 mg/l will result in any perceptible improvement in the aquatic community of the Cal-Sag, the proposal is being modified to specify the higher standard of 3.0 mg/l in deference to the Board's concerns and to avoid controversy that would delay progress toward achieving the July 1, 1988 federal compliance date. (P.C. #3 at 3)

It is more difficult to ascertain whether an incremental increase to a minimum DO of 4.0 mg/l would be justified. The costs necessary for the additional DO elevation would undoubtedly be significant, although the record does not expressly identify these costs. On the other hand, there is good reason to believe that the additional one mg/l of DO would do little to promote better aquatic populations in a waterway which is otherwise physically and chemically limited. The Proponents contend, for their part, that the indigenous aquatic life is acclimated to DO concentrations as low as 0.4 mg/l (R. at 45) and that 2.0 mg/l would be sufficient to maintain the indigenous aquatic life (R. at 103).

In keeping with their controlling criteria, as noted above, the Proponents also present evidence that the proposed DO modification will have no negative effect on downstream General Use waterways. This evidence includes DO data independently collected from the Illinois River by both MSDGC and the Agency. These data indicate that on all but a single occasion DO concentrations in the Illinois River have been above 6.0 mg/l at all times during the period 1984-86 when data was collected by either of the Proponents (R. at 48, 86). Since the data were collected under essentially the status quo condition within the MSDGC waterways, and since the proposed DO rule changes would constitute a significant improvement over the status quo within the MSDGC waterways, it is logical to expect that the proposed changes would reflect positively on the prospect of future downstream DO water quality violations.

MSDGC has also conducted DO modeling of the Illinois River mainstem which indicates that under the worst-case conditions the proposal would cause no downstream violations of the General Use DO standard (R. at 62). Finally, the Proponents also assure that the DO of the Des Plaines River located between the Lockport Powerhouse and the I-55 Bridge will be elevated as a result of adoption of the proposal (R. at 184, 233-4).

In the First Notice Opinion the Board noted that the ability of the DO levels in both the Cal-Sag Channel and the downstream reaches to be maintained as proposed is dependent upon the timely construction and operation of the SEPA stations. Accordingly, the Board requested that the Joint Proponents address within the first notice period whether the MSDGC committment to construct and operate the SEPA stations should be formalized by the Board in some manner, either by writing the committment into the proposed amendments or by another means. The Board further requested that Proponents address whether the stipulation to trigger SEPA operation at 4.0 mg/l should be written into the proposed amendments, as opposed to its proposed inclusion within the Calumet STW's NPDES permit (R. at 127-8).

Joint Proponents have responded that they believe that the operational criteria for the SEPA facilities lie more appropriately in the NPDES operating permit and not as a specific element of the Board regulations (P.C. #15 at 2). As witness to the intent to impose and abide by the specified operational criteria, Proponents have provided as an attachment to PC #15 a copy of the proposed NPDES permit which the Agency intends to issue and under which the MSDGC intends to operate "shortly after adoption of the final Board ruling and prior to July 1, 1988" (Id. at 1-2). This proposed permit contains a special condition as follows:

> SPECIAL CONDITION 16. The District shall construct and maintain supplemental stream aeration for the Cal-Sag Channel sufficient to achieve consistent compliance with the minimum acceptable Dissolved Oxygen concentration of 3.0 mg/l. Design of aeration stations shall provide for multiple operating levels with varying oxygen transfer rates consistent with values identified in the preliminary design report. Operational procedures shall include continuous instream D.O. monitoring during the period May 1 through September 30. Individual aeration stations shall commence operation when the immediate upstream monitoring station drops below 4.0 mg/l. The District shall adhere to the following schedule:
>
> 1. Complete preliminary design April 1, 1988

2.	Award detail design contract	April 15, 1988
3.	Complete design/secure construction permit	
	Stations 3 and 4	April 1, 1989
	Station 1, 2, and 5	April 1, 1990
4.	Initiate construction	
	Stations 3 and 4	July 1, 1989
	Station 1, 2, and 5	July 1, 1990
5.	Attain operational level	
	Stations 3 and 4	May 15, 1991
	Stations 1, 2, and 5	May 15, 1992

P.C. #15, Attachment at 14.

The Board agrees with Proponents that imposition of Special Condition #16 satisfactorily meets the operational conditions intended for the SEPA stations, and as such provides sufficient directive that the operational conditions will be followed.

Consistent with the compliance schedule presented in the proposed NPDES permit, Joint Proponents have requested in their final comment (P.C. #15) that the effective date for the 3.0 mg/l standard on the Cal-Sag Channel be changed from the July 1, 1988 date (as originally proposed) to May 15, 1992. This the Board declines to do based on the record as it currently exists. Joint Proponent's justification for pushing the effective date outward would appear to be entirely based on the appropriateness of the design, construction, and operation dates in the proposed NPDES permit. These dates have been introduced into the record only in the last of the Public Comments, and therefore have not had opportunity for the scrutiny due them. Given this circumstance, the Board can delay the entirety of this instant action until the matter of these dates is more fully addressed, or, in the alternative, move forward absent the change requested. The Board believes that the matter is best served by moving forward. The Board does note that if, at a later time, Joint Proponents believe that the effective date needs reconsideration, this could be addressed in a later proceeding.

The Board does question whether a May 1992 operational date for the SEPA stations is consistent with the stated intent of conducting a comprehensive water quality review to be submitted by January 15, 1992 (see pages 22-24 herein). The Board would encourage the MSDGC to accelerate the SEPA implementation schedule.

In reflecting further on issue of the effective date of the rule, the Board in fact sees no merit in specifying even the July 1, 1988 effective date. A purpose of water quality standards is to quantify the level of environmental protection necessary to "restore, maintain and enhance the purity of the waters of this State in order to protect health, welfare, property, and the

quality of life" (Environmental Protection Act, Ill. Rev. Stat. ch. 111 1/2, Section 11(b)). In finding that the 3.0 mg/l DO level is necessary for the protection of the Cal-Sag Channel, as the Board herein does, it would be arbitrary for the Board to find that this necessity exists only after a specified date where there is no record to so justify. Accordingly, the Board will delete the July 1, 1988 effective date for the 3.0 mg/l DO standard applicable to the Cal-Sag Channel as proposed at first notice.

Reclassification of Use Designation

Element two of the proposed amendments would upgrade the use classification of two segments of the Chicagoland waterways from Secondary Use to General Use. The Board applauds this proposal, as well as the substantial improvement in water quality manifest in it.

Revision of North Side STW and Calumet STW Effluent Standards

As proposed, the amended effluent standards for the North Side and Calumet STWs would differ both from the current interim limits, as expressed in the NPDES permits of the respective facilities, and from the existing final effluent standards. The following table summarizes the three sets of numbers:

	Interim Limits	Final Standards	
		Existing	Proposed
Calumet STW			
BOD_5 (mg/l)[10]		10	
$CBOD_5$ (mg/l)[10]	40		24
SS (mg/l)	40	12	28
NH4-N (mg/l)	25	2.5/4.0	13
North Side STW			
BOD_5 (mg/l)[10]		10	
$CBOD_5$ (mg/l)[10]	20		12
SS (mg/l)	25	12	20
NH4-N (mg/l)	9	2.5/4.0	2.5/4.0

A further means of comparing the three sets of standards is in terms of daily loadings to the receiving waterways. Expressed as lbs/day, these values are (Ex. 8 at 8-9):

[10] Although the existing oxygen demand standard is expressed as BOD_5, the standard specified in MSDGC's current and proposed NPDES permit is expressed as $CBOD_5$. The proposed amendment would acknowledge this distinction by identifying $CBOD_5$ as the pertinent parameter.

	North Side STW		Calumet STW	
	BOD	NH4-N	BOD	NH4-N
Interim Limits	49,000	22,000	85,000	53,000
Existing Final Effluent Standards	24,000	6,000	21,000	5,000
Proposed Final Effluent Standards	29,000	6,000	51,000	28,000

It may thus be concluded that, although adoption of the proposal would constitute a tightening of effluent limitations over the status quo as represented by the interim limits, it would represent a loosening of standards relative to the existing final effluent standards. The exception is for the ammonia effluent standard for the North Side Plant, which would remain at the existing value.

Proponents contend that selection of the proposed standards has been guided by several principles. For both plants the overriding principles are the previously enunciated criteria of "no degradation of waterway usage" and "no adverse impacts on the downstream or surrounding General Use waterways". Thus, the oxygen demand limits are proposed consistent with maintaining a minimum DO concentration of 3.0 mg/l in the Cal-Sag Channel and 4.0 mg/l in the remainder of the Secondary Use waterways, and causing no violation of the General Use DO standards in any General Use waterway. Similarly, the 13 mg/l proposed NH4-N effluent limitation for the Calumet STW is derived as that quantity necessary to insure that the in-stream ammonia concentration in the Des Plaines River at the I-55 bridge never exceeds the General Use NH3-N standard of 0.04 mg/l (R. at 32).

A further guiding criterion concerns the certainty with which the STWs can be expected to perform to the proposed standards. In the case of the North Side STW, Proponents contend that the effluent quality which will result when the current expansion and modification program has been completed is readily predictable, and that this expected effluent level is integrated into the proposed effluent standards. This same condition does not occur for the Calumet STW. In the latter case the effluent quality is not fully predictable, in part because of the magnitude of the ongoing modification program and in part because of uncertainties related to the high-level of industrial waste in the influent (R. at 21, 31). The proposed effluent standards for the Calumet STW are therefore set for worst-case conditions rather than expected conditions. Accordingly, Proponents contend that the Calumet plant might perform significantly better than the standards here proposed (R. at 157, 209).

Proponents also contend that in the absence of federal funding for more advanced treatment facilities, the limits as proposed constitute reasonable goals. The USEPA itself has reviewed the proposed effluent standards, and concludes:

> Region V believes that the proposed effluent limits for the ... Northside and Calumet plants will protect the designated uses and achieve the proposed water quality standards for the Chicago Waterways. (Ex. 3 at 1)

However, USEPA cautions that acceptability of the proposed effluent limits is tied to acceptability of the proposed DO and ammonia water quality proposals:

> Please note, the water quality standards for dissolved oxygen and ammonia must be changed consistent with the Proposal in order for the effluent limitations in the Proposal to be acceptable. (Ex. 3 at 1)

Amendment of Ammonia Water Quality Standard

The next element of the Proposal and the proposed amendments as offered at first notice is replacement of the existing Secondary Contact NH4-N standard with a standard based on NH3-N. It is this element which has been the principal focus of comments received during the first notice comment period.

It is well recognized that the principal toxic form of ammonia is the un-ionized form (Proposal; P.C. #5, #6, #8, #9, #10, #12, #13, and #14). For this reason there is no opposition expressed in the record to the concept of changing the secondary use ammonia standard to a standard based on the un-ionized portion of the ammonia.[11] Rather, the questions are:

1) Is the 0.1 mg/l NH3-N standard as proposed at first notice sufficient to protect aquatic life within the secondary use waterways?, and

2) Is the 0.1 mg/l NH3-N standard sufficient to insure protection of the downstream general use waterways?

[11] The Board notes that recognition of the toxicity of un-ionized ammonia was also the basis for replacing the previously existing General Use standard for NH4-N with a standard for NH3-N (See: In the Matter of: Amendments to Title 35: Environmental Protection; Subtitle C: Water Pollution; Chapter I: Pollution Control Board (Ammonia Nitrogen), R 81-23, 45 PCB 357, 47 PCB 293, and 47 PCB 467).

The Joint Proponents contend that the 0.1 mg/l standard is based on consideration of 96-hour LC50 values for fish species presently found in the MSDGC waterways, in such a manner as to offer protection of these species (R. at 46; P.C. #15, Attachment at 3-5). Petitioners note that in current regulations the maximum allowable concentration for toxic substances in Secondary Use waterways is set at 1/2 or less of the 96-hour toxicity measure[12] (R. at 99). In the case at hand, the 0.1 mg/l value is approximately 1/3 of the the 96-hour LC50 for the the yellow perch, which has the lowest 96-hour LC50 (0.29 mg/l) of the species for which such data have been presented (Ex. 7 at W-16).

On the matter of effect on downstream general use waters, Joint Proponents contend that adoption of the proposed NH3-N standard, in company with the proposed effluent limits for the Calumet and North Side STWs, should have no negative effect on the downstream General Use waterways. Proponents present modeling results which indicate that the combination of the two proposal elements will assure that the maximum NH3-N concentration at the I-55 bridge does not exceed the 0.04 mg/l General Use standard (R. at 98).

Illinois Department of Conservation Director Mark Frech originally objected to the proposed amendment of the ammonia standard on the grounds that water quality might be degraded (P.C. #8). This objection was subsequently withdrawn:

> According to IEPA, if USEPA finds that MSDGC can not comply with state water quality standards in July, 1988, federal funding for planned improvements of MSDGC facilities will be withheld. After consulting with staffs from the Illinois Department of Energy and Natural Resources and IEPA, I concur with extenuating circumstances and withdraw Department of Conservation objections to the proposed ammonia standard. Thus, rather than have MSDGC facility improvement halted due to their non-compliance with existing standards, we would prefer that the standards be revised so that construction can continue and ammonia effluent loads eventually be reduced from present levels. The alternative of continued opposition to the proposed standards and possible cessation of planned facility improvements

[12] 35 Ill. Adm. Code 302.410, Substances Toxic to Aquatic Life, specifies that: "Any substance toxic to aquatic life not listed in Section 302.407 shall not exceed one half of the 96-hour median tolerance limit (96-hour TLM) for native fish or essential fish food organisms".

> might initially be more acceptable to our constituents, but the loss would be in the resource we are trying to protect. (P.C. #17 at 1)

Concern that the proposal would permit an increase in ammonia loadings to the MSDGC waterways was also expressed by Mr. Peter Howe in P.C. #9. It is important to bear in mind that what is proposed here does not constitute license to pollute up to and equal to the standard. A water quality standard is appropriately based on the intended level of environmental protection; in the instant case the record indicates that the proposed 0.1 mg/l standard constitutes an appropriate standard. This is not to say, however, that the Board endorses, or expects, that the NH3-N concentrations in the MSDGC waterways now all increase to 0.1 mg/l. To the contrary, the proposal contains provisions, particularly a substantial decrease in the allowable discharge of ammonia from the STWs, which should work to decrease NH3-N concentrations. Thus the proposal in its entirety should work to substantially improve water quality.

Mr. Howe in P.C. #9 and Dr. Richard E. Sparks of the Illinois Natural History Survey in P.C. #13 also question the Joint Proponent's conclusion that the proposal would not contribute to violations of the general use NH3-N standard in the upper Illinois River. Mr. Howe points out that average ammonia loading contributed from the Des Plaines River, as provided by MSDGC, coupled with an expected range of ambient conditions within the Illinois River, could produce NH3-N concentrations well in excess of the 0.04 mg/l general use standard (P.C. #9 at 3). He notes that some observed water temperatures exceed by several degrees the highest temperatures assumed by the Joint Proponents in their model runs; he believes that the "higher temperatures can be attributed to Commonwealth Edison's power plants" (Id.). Both Mr. Howe and Dr. Sparks also note that pH levels higher than used by the Joint Proponents have been observed.

At question here is whether the ambient conditions identified by Mr. Howe and Dr. Sparks occur in combination such as to imply that NH3-N violations would be expected to occur in spite of the Joint Proponent's analysis to the contrary. The record does not allow a definite answer to the this question. The historical record does indeed show that there have been past violations of the NH3-N standard in the upper Illinois River (P.C. #9 at 2; P.C. #13 at 1-2). However, the substantial decrease in total ammonia loadings entailed in the instant action can only work to reduce such violations. Whether the reduction will be complete, as suggested by the Joint Proponents, or something less, as suggested by Mr. Howe and Mr. Sparks, will have to await further data. It is expected by the Board that the comprehensive water quality review portion of this proposal will address this matter.

In P.C. #12 Mr. Albert Ettinger of the Sierra Club characterizes the proposed change of ammonia standards applicable to secondary use waterways as a "lowering" of standards, and hence as an action contrary to the antibacksliding provision of the CWA. The Board notes that the change is not a lowering of standards, but rather a change to that parameter generally recognized as the environmentally detrimental component of ammonia. The Board also notes that the USEPA has not only approved this provision of the proposal, but has conditioned its approval of the whole of the the instant proposal on the promulgation of the new standard (Ex. 3 at 1; see also page 16 herein).

The U.S. Fish and Wildlife Service in P.C. #10 and Dr. Sparks in P.C. #13 bring to the Board's attention the results of a sediment toxicity study undertaken by the U.S. Fish and Wildlife Service. The study was conducted on sediment from both the MSDGC waterways and from the Illinois River and its backwaters. Clean water was mixed with the sediment and the mixture was allowed to stand for 24 hours. The water was then drawn off and test fish were placed in the water. The results show 100% fish mortality in some samples, particularly those collected from the MSDGC waterways, and mortalities over 48 hours ranging from zero to 70% in the samples from the general use waterways (P.C. #13, attachment). Analysis of the waters indicated that ammonia was elevated in them, in most cases at concentrations in excess of that found to be toxic in other studies. Moreover, there is a strong correlation between the observed un-ionized ammonia in the test waters and the observed fish mortality (Id. at 2).

It would appear that the results of this study allow several conclusions to be drawn, among which are that (a) sediments found in the MSDGC/Illinois River waterways contain leachable/soluble levels of toxicants, and (b) amounts of ammonia sufficient to be toxic can be leached/dissolved from the sediments. The study does leave open several critical questions. Among these are the source of the sediment ammonia (e.g., in situ generation from organic matter, introduction of ammonia-bearing sediment, desorption from the water column, etc.) and the interaction of the sediment ammonia with the water column under field conditions. Given these types of uncertainties, the best that can be concluded at this stage is that discovery of the sediment toxicity is indeed disturbing, and that further investigation of this phenomena is most warranted such that a responsible course of action can be charted.

Prior to first notice, Joint Proponents were requested by the Board to address whether some of the concerns raised regarding the ammonia water quality standards would be answered by placing a ceiling on NH4-N concentrations, in parallel to the

ceiling on NH4-N concentrations found in the general use ammonia standards[13]. Joint Proponents responded:

> The bases for limiting ammonia nitrogen in the Chicago River System are two fold: a) to protect the indigenous aquatic community from ammonia toxicity, and b) to assure compliance with applicable water quality standards in downstream general use waters. Effective protection against aquatic toxicity necessitates restriction of unionized ammonia since that is the toxic portion of the ammonia nitrogen. As reflected in the record, the proposed 0.1 mg/l unionized ammonia standard will protect against toxicity. Total ammonia nitrogen within the Secondary Contact Waterway will be regulated more directly under this proposal through effluent limitations placed upon MSDGC treatment facilities rather than a water quality standard for total ammonia. There is substantial difference between this situation and general use waters where most discharges are not subject to a total ammonia limit. In general use waters an upper limit on total ammonia was desirable as the only means to preclude discharges of essentially unlimited ammonia concentrations. Such is clearly not the case in this proceeding. Addition of a total ammonia water quality standard to this proposal would not only be duplicative but also arbitrary in selection of the specific numeric value. While the proposed unionized ammonia water quality standard is based on toxicity information and the proposed effluent limits are based on treatability and downstream needs, there is no clear basis from which to project a meaningful total ammonia standard for the waterway itself. (P.C. #3 at 2)

On the basis of this response the Board at first notice declined to propose simultaneous NH4-N and NH3-N standards for secondary use waters. The Board remains persuaded of the merits of this position.

In summary, the Board finds the matter of the appropriateness of the proposed NH3-N standard to be a difficult call. Conflicting evidence exists in the record regarding the adequacy of protection that would be provided under the proposal.

[13] 35 Ill. Adm. Code 302.212(a) provides that total ammonia nitrogen shall not exceed 15 mg/l in any general use waterway, irrespective of the concentration of un-ionized ammonia nitrogen.

Nevertheless, several factors persuade the Board to adopt the proposal as offered by the Joint Proponents. Among these are that the proposal guarantees (see pages 22-24 herein) revisitation of the proposal in the near future when the data necessary to support a more convincing analysis should be available. These data will include a record of performance of the Calumet STW in its reconstructed form and record of both water quality and aquatic community as these exist under the proposed amendments. These data are critically absent in the instant record, and their inclusion should provide the direction necessary for an ultimate and clear resolution of this matter.

A second factor which persuades the Board to adopt the proposal is that it at least offers a significant step forward by offering a major improvement over the status quo. This fact is particularly demonstrated in the reduction in total ammonia loadings at the North Side STW from 22,000 to 6,000 lbs/day and at the Calumet STW from 53,000 to 28,000 lbs/day. Thus, the proposal provides for a reduction in total load from these two facilities of 41,000 lbs/day, which is a reduction of more than 50%. Additionally, should the Calumet STW perform better than the worst case (see page 15 herein) the reduction would be even greater. This reduction can not but help improve the quality of the receiving secondary use waters; also, since the secondary use waters are ultimately tributary to general use waters, the reduction can not but also help improve the quality of the downstream general use waterways.

A third factor is assurance offered by the Joint Proponents, one of whom is the chief executive agency charged with the responsiblity for environment protection and enforcement, that adoption of the proposal will not cause any violation of downstream ammonia water quality standards. It, of course, must be kept in mind that the existing general use ammonia standards are not altered by the instant proposal.

A fourth factor is the existence of law which provides that violation of water quality standards, should they exist, are subject to an enforcement action and possible penalty. Thus, there is an institutional remedy available should the assurance of no water quality violations not be met.

Reporting Requirement

The Proponents emphasize that because extensive improvements in MSDGC facilities are under construction or planned, future upgradings of waterway use and improvement in effluent quality may be possible (R. at 32). The USEPA has also recognized the need for continuing review, noting:

> The Chicago Waterway system is undergoing significant changes due to the upgrading of the wastewater

> treatment plants, operation of TARP and the stabilization of sediments. We therefore believe a subsequent water quality study of the waterway system is clearly needed to verify that water quality standards and designated uses are maintained and protected after implementation of the necessary controls. The results of this study may lead to a requirement for additional controls at the wastewater treatment plants. (Ex. 3 at 1)

In this light, the Proponents were requested at the November 9 hearing to comment on the setting of an expiration date ("sunsetting") for some part of the proposed amendments, such that the Proponents would be required to return to the Board at a future date and to demonstrate then that the proposed amendments continue to be justified.

Proponents contend that sunsetting would present difficulties with Federal regulations, noting:

> The National Municipal Policy specifies that POTW's achieve "final" effluent standards consistent with state discharge and water quality requirements and does not acknowledge or accept variances or other temporary delays. A sunset provision would be in direct contradiction to this policy and could potentially negate this entire undertaking. A further drawback in this particular case related to the existence and applicability of any standard whatsoever upon arrival of the sunset date. Effluent and water quality standards that specifically terminate on a fixed date are contrary to the notion of final limits and therefore in conflict with the national municipal policy. (P.C. #3 at 3-4)

Proponents further believe that sufficient mechanism is in place to provide for review of the proposed amendments at the proper time:

> Proponents are opposed to a sunset provision in the proposed rules. The intent and commitment to reassess treatment plant performance capabilities, CSO load reductions realized through implementation of TARP, changes in sediment characteristics, instream water quality and biological conditions in 1991 have been clearly stated and reiterated numerous times throughout this proceeding. If any necessary or desirable regulatory adjustments are identified through that reassessment, modifications will be proposed for the Board through another rule making proceeding.

* * * * *

> Petitioners believe the Board can achieve the desired end of retaining options for future action with even more flexibility through a reporting requirement rather than a sunset clause. Under this concept, a report of the previously committed to 1991 reassessment can be submitted to the Board as an additional requirement upon the District; an approach that will preserve several options. Either proponent, MSDGC or IEPA, can individually or cooperatively propose further modification to the Board rules at that time, the Board itself can choose to propose regulatory modification, schedule inquiry hearings, provide notice and opportunity for public comment without hearings, or choose to take no further action. This approach has the additional benefit that all rules remain in place and fully enforceable until and unless they are specifically and deliberately modified through subsequent Board action.
>
> P.C. #3 at 3-4

In the First Notice Opinion the Board noted that the record was silent on the matter of whether the reporting requirement referred to in this statement should be formalized, and if so, how. The Board further noted its belief that it might be advisable to formalize the reporting requirement by writing it into the amended regulations[14]. Accordingly, the Board requested that the Joint Propoents propose the necessary language, or to provide guidance on how the same end might be alternatively achieved.

In response, the Joint Proponents have recommended in P.C. #15 the addition of the following language to Section 304.201(c):

> c) Chicago Waterway Evaluation
>
> The MSDGC shall complete and submit to the Board a comprehensive water quality evaluation of the Chicago Waterway System and its influence on the lower Des Plaines and Upper Illinois Rivers by January 15, 1992. Such evaluation shall include assessment of performance levels for North Side, Calumet and Stickney wastewater reclamation plants and the extent of sewer overflow reduction through MSDGC's Tunnel and Reservoir Plan.

[14] The Board notes that the Northeastern Illinois Planning Commission expressed the same view in P.C. 11.

The Board believes that this additional language is responsive to the expressed concerns regarding the reporting requirement, and accordingly will adopt the language as offered. The Board further notes that at such time of its review of the comprehensive water quality evaluation, opportunity for interested persons to express their views on the study would be provided.

CONCLUSION

The Board finds much empathy with the statement of Director Mark Frech of the Illinois Department of Conservation in his comment on this matter:

> We are pleased to see the elevation of standards on 4.3 miles of the North Shore Channel and 6.8 miles of the Calumet River. Although certainly not pleased with the lowering of dissolved oxygen standards on the Calumet-Sag Channel (from 4 ppm to 3) and the loosening of effluent standards at the Calumet and North Side sewage treatment works, we can reluctantly accept these actions recognizing that the proposed standards (if met) can still provide improvement over the existing quality and will probably not worsen present water quality. (P.C. # 8 at 1).

Moreover, the Board would add that it is its belief, as it is also the Agency's, that the proposed actions, including the un-ionized ammonia provision, will provide improvement over the existing quality, and that the regulation as proposed, including the reporting requirement, is appropriate to the issues raised in this proceeding.

ORDER

The Board directs that second notice of the following proposed rule be submitted to the Joint Committee on Administrative Rules.

PART 302

WATER QUALITY STANDARDS

SUBPART D: SECONDARY CONTACT AND INDIGENOUS AQUATIC LIFE STANDARDS

Section 302.405 Dissolved Oxygen

Dissolved oxygen (STORET number 00300) shall not be less than ~~3.0 mg/l during at least 16 hours in any 24-hour period, nor less than 2.0 mg/l at any time, and after December 31, 1977 shall not be less than~~ 4.0 mg/l at any time~~.~~ except that the Calumet-Sag Channel shall not be less than 3.0 mg/l at any time.

Section 302.407 Chemical Constituents

Concentrations of other chemical constituents shall not exceed the following standards:

CONSTITUENT	STORET NUMBER	CONCENTRATION (mg/l)
~~Ammonia Nitrogen (as N)~~		
~~(April October)~~	~~00610~~	~~2.5~~
~~(November March)~~	~~00610~~	~~4.0~~
Ammonia, Un-ionized (as N)*	00619	0.1
Arsenic (total)	01002	1.0
Barium (total)	01007	5.0
Cadmium (total)	01027	0.15
Chromium (total hexavalent)	01032	0.3
Chromium (total trivalent)	01033	1.0
Copper (total)	01042	1.0
Cyanide (total)	00720	0.10
Fluoride (total)	00951	15.0
Iron (total)	01045	2.0
Iron (dissolved)	01046	0.5
Lead (total)	01051	0.1
Manganese (total)	01055	1.0
Mercury (total)	71900	0.0005
Nickel (total)	01067	1.0
Oil, fats and grease	00550, 00556 or 00560	15.0**

Phenols	32730	0.3
Selenium (total)	00147	1.0
Silver	01077	1.1
Zinc (total)	01092	1.0
Total Dissolved Solids	70300	1500

*For purposes of this section the concentration of un-ionized ammonia shall be computed according to the following equation:

$$U = \frac{N}{[0.94412(1 + 10^{X}) + 0.0559]} \text{ where:}$$

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

U = Concentration of un-ionized ammonia as N in mg/l

N = Concentration of ammonia nitrogen as N in mg/l

T = Temperature in degrees Celsius

**Oil shall be analytically separated into polar and non-polar components if the total concentration exceeds 15 mg/l. In no case shall either of the components exceed 15 mg/l (i.e., 15 mg/l polar materials and 15 mg/l non-polar materials).

PART 303

WATER USE DESIGNATIONS AND SITE SPECIFIC WATER QUALITY STANDARDS

SUBPART C: SPECIFIC USE DESIGNATIONS AND SITE SPECIFIC WATER QUALITY STANDARDS

Section 303.441 Secondary Contact Waters

The following are designated as secondary contact and indigenous aquatic life waters and must meet the water quality standards of ~~Subpart B, Part 302~~ 35 Ill. Adm. Code 302.Subpart D:

a) The Chicago Sanitary and Ship Canal;

b) The Calumet-Sag Channel;

c) The Little Calumet River from its junction with the Grand Calumet River to the Calumet-Sag Channel;

d) The Grand Calumet River;

e) The Calumet River, except the 6.8 mile segment extending

from the O'Brien Locks and Dam to Lake Michigan;

f) Lake Calumet;

g) The South Branch of the Chicago River;

h) The North Branch of the Chicago River from its confluence with the North Shore Channel to its confluence with the South Branch;

i) The Des Plaines River from its confluence with the Chicago Sanitary and Ship Canal to the Interstate 55 bridge; and

j) The North Shore Channel, ~~except that~~ excluding the segment extending from the North Side Sewage Treatment Works to Lake Michigan. The dissolved oxygen in said Channel shall be not less than 5 mg/l during 16 hours of any 24 hour period, nor less than 4 mg/l at any time.

PART 304

EFFLUENT STANDARDS

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

Section 304.201 ~~Calumet Treatment Plant Cyanide Discharges~~ Wastewater Treatment Plant Discharges of the Metropolitan Sanitary District of Greater Chicago

a) Calumet Treatment Plant Discharges:

The ~~general~~ effluent standards of Section 304.124 as applied to cyanide discharges, Sections 304.120 (b) and (c) and Section 304.122 ~~does~~ do not apply to ~~cyanide discharged from the Calumet Treatment Plant.~~ BOD_5, total suspended solids, cyanide, and ammonia-nitrogen discharged from the Calumet Sewage Treatment Works of the Metropolitan Sanitary District of Greater Chicago. Instead, it must meet the following effluent standard, subject to the averaging rule of Section 304.104(a), effective July 1, 1988:

CONSTITUENT	STORET NUMBER	CONCENTRATION (mg/l)
$CBOD_5$	80082	24
SS	00530	28

Ammonia-Nitrogen (as N)	00610	13
Cyanide	00720	0.15

b) North Side Sewage Treatment Works:

The effluent standards of Section 304.120(b) and (c) do not apply to BOD_5, total suspended solids, and ammonia-nitrogen discharged from the North Side Sewage Treatment Works of The Metropolitan Sanitary District of Greater Chicago. Instead, it must meet the following standard, subject to the averaging rule of Section 304.104(a) effective July 1, 1988:

CONSTITUENT	STORET NUMBER	CONCENTRATION (mg/l)
$CBOD_5$	80082	12
SS	00530	20
Ammonia-Nitrogen (as N)		
(April-October)	00610	2.5
November-March)	00610	4.0

c) Chicago Waterway Evaluation

The Metropolitan Sanitary District of Greater Chicago shall complete and submit to the Board a comprehensive water quality evaluation of the Chicago Waterway System and its influence on the lower Des Plaines and Upper Illinois Rivers by January 15, 1992. Such evaluation shall include assessment of performance levels for North Side, Calumet and Stickney wastewater reclamation plants and the extent of sewer overflow reduction through the Metropolitan Sanitary District of Greater Chicago's Tunnel and Reservoir Plan.

IT IS SO ORDERED.

I, Dorothy M. Gunn, Clerk of the Illinois Pollution Control Board, hereby certify that the above Opinion and Order was adopted on the 24th day of March, 1988, by a vote of 6-0.

Dorothy M. Gunn

Dorothy M. Gunn, Clerk
Illinois Pollution Control Board