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**ILLINOIS SANITARY WATER BOARD**

**Rules and Regulations SWB-8**

**WATER QUALITY STANDARDS**

**Interstate Waters  
Illinois River and  
Lower Section of Des Plaines River**

**Criteria Adopted-December 1, 1966  
Implementation Plan Submitted August 10, 1967  
Approved by U.S. Department of Interior January 27, 1968  
Sanitary Water Board Reapproved March 5, 1968**

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## **Rule 1.02 STREAM SECTORS AND USES**

- a) The Illinois River and the Des Plaines River downstream from the Chicago Sanitary and Ship Canal to the mouth of the Fox River is designated as an Industrial Water *Supply* Sector. Industrial Water *Supply* criteria shall apply.
- b) The Illinois River from the mouth of the Fox River to the mouth of Bureau Creek is designated as an Aquatic Life Sector. Aquatic life criteria shall apply.
- c) The Illinois River from the mouth of Bureau Creek to the Peoria and Pekin Union RR Bridge at Peoria is designated as an Aquatic Life, Recreational and Public Water Supply Sector. Aquatic, Recreational Criteria shall apply. The Public Water Supply Criteria shall apply at the point at which water is withdrawn for treatment and distribution as a potable supply.
- d) The Illinois River from the Peoria and Pekin Union RR Bridge to the Mississippi River is designated as an Aquatic Life Sector. Aquatic life criteria shall apply.

## **Rule 1.03 MINIMUM CONDITIONS**

These Minimum Criteria shall apply to all waters at all places and at all times in addition to specific criteria applicable to specific sectors.

- a) Free from substances attributable to municipal, industrial or other discharges that will settle to form putrescent or otherwise objectionable sludge deposits; or which will form bottom deposits that may be detrimental to bottom biota (such as coal fines, limestone dust, fly ash, etc.)
- b) Free from floating debris, oil, scum and other floating materials attributable to municipal, industrial or other discharges in amounts sufficient to be unsightly or deleterious;  
*Oils, grease and floating solids shall be reduced to a point such that they will not create fire hazards, coat hulls of watercraft, injure fish or wildlife or their habitat, or will adversely affect public or private recreational development or other legitimate shoreline developments or uses.*
- c) Free from materials attributable to municipal, industrial or other discharges producing color, odor or other conditions in such degree as to create a nuisance;
- d) Free from substances attributable to municipal, industrial or other discharges in concentrations or combinations which are toxic or harmful to human, animal, *plant* or aquatic life.

## **Rule 1.04 FOR PUBLIC WATER SUPPLY and FOOD PROCESSING INDUSTRY**

The following criteria are for evaluation of river quality at the point at which water is withdrawn for treatment and distribution as a potable supply;

- a) Bacteria: Coliform group not to exceed 5,000 per 100 ml as a monthly average value (either MPN or MF count); nor exceed this number in more than 20 per cent of the samples examined during any month; nor exceed 20,000 per 100 ml in more than five per cent of such samples.

c) Temperature:

Not to exceed 90 deg. F. at any time during the months of *April* through November, and not to exceed 60 deg. F. at any time during the months of December to *April*.

d) Toxic substances:

Not to exceed one-tenth of the 48-hour median tolerance limit, for fish, except that other limiting concentrations may be used in specific cases. Chemical constituents listed below are not to exceed the specific concentration at any time at any point in aquatic sectors of the basin, except for areas immediately adjacent to outfalls:

Constituent	Concentration mg/l
Ammonia Nitrogen (N)	2.5
*Arsenic	1.0
*Barium	5.0
*Cadmium	0.05
*Chromium-Hexavalent	0.05
*Chromium-Trivalent	1.00
*Copper	0.04
Cyanide	0.025
Iron	1.00
*Lead	0.1
Phenols	0.2
*Silver	0.05
*Zinc	1.00

\*Heavy Metals

e) Taste and Odor:

*Waters shall be free of substances from other than natural origin which will result in impairment of taste, odor or other factors which would reduce the acceptability of fishes for human consumption.*

### Rule 1.06 FOR RECREATION SECTOR

The following criterion is for evaluation of conditions at any point in a recreation sector used for such water contact activities as swimming and water skiing:

Bacteria - Number per 100 ml by MT Fermentation or MF Techniques

*Bacteria: As determined by multiple-tube fermentation or membrane filter procedures, and based on a minimum of not less than five samples taken over not more than a 30-day period, the fecal coliform content of primary contact recreation waters shall not exceed a geometric mean of 200/100 ml, nor shall more than 10% of total samples during any 30-day period exceed 400/100 ml.*

*(Primary contact recreation is intended to include activities in which there is prolonged and intimate contact with the water involving considerable risk of ingesting water.)*

### Rule 1.07 FOR INDUSTRIAL WATER SUPPLY SECTOR

The following criteria are applicable to stream water at the point at which the water is withdrawn for use for industrial cooling and processing; and at any point in the industrial water use sector:

a) Dissolved Oxygen: Not less than 3.0 mg/l during at least 16 hours of any 24-hour period, nor less than 2.0 mg/l at any time.

b) pH: Not less than 6.0 nor greater than 9.0 at any time.

- c) Temperature: Not to exceed 93 deg. F. at any time.
- d) Dissolved Solids: Not to exceed 750 mg/1 as a monthly average value, nor exceed 1,000 mg/1 at any time.
- e) All items of Minimum Conditions applicable to all waters at all places and at all times. (See Rule 1.03)
- f) *Bacteria: The fecal coliform content of secondary contact recreation waters, as determined by either multiple-tube fermentation or membrane filter techniques, shall not exceed a geometric mean of 1,000/100 ml, nor shall they equal or exceed 2,000/100 ml in more than 10% of the samples.*

*(This criterion is intended to provide for water uses customarily described as "secondary contact uses", including boating, fishing, and limited contact with water incident to shoreline activities; in which contact with the water is either incidental or accidental and the probability of ingesting appreciable quantities of water is minimal.)*

#### **Rule 1.08 IMPLEMENTATION AND ENFORCEMENT PLAN**

1. The Illinois Sanitary Water Board, under the 1951 Sanitary Water Board Act as amended (Ch. 19, Par. 145.1 - 145.18, IRS 1965), has the responsibility to control and prevent pollution in the waters of this State exclusive of the area embraced by Metropolitan Sanitary District of Greater Chicago. Authority to adopt and enforce water quality standards within the Metropolitan Sanitary District is contained in the recently adopted HB 1177, 75th General Assembly.
2. The Board adopted the criteria, Rules and Regulations SWB-8, December 1, 1966 as standards of water quality for the waters of the Illinois River and the Des Plaines River downstream from the confluence with the Chicago Sanitary and Ship Canal and each tributary at its confluence with the main stream. All waters will be required to meet the standards for the appropriate public and industrial water supply, aquatic life, recreational and agricultural uses. *Compliance with these standards will enhance the quality of waters within these streams.*  
  
*Waters whose existing quality is better than the established standards as of the date which such standards become effective will be maintained in their present high quality within the powers granted by the "Illinois" water pollution control statutes. Such waters will not be lowered in quality unless and until it has been affirmatively demonstrated to the Federal Water Pollution Control Administration that such change is justifiable as a result of necessary economic or social development and will not interfere with or become injurious to, any appropriate beneficial uses made of, or presently possible in, such waters.*
3. *The minimum weekly flow, which occurs once in 10 years, will be used in applying the standards.* The Board plans to require compliance with the bacteriological standards for recreation during the recreational season of April through October inclusive. It is recognized that there are uncontrollable sources of bacterial pollution other than that of sewage treatment plant effluents.
4. *Drastic or sudden temperature changes will not be permitted. The Board will insist upon controlled changes in temperature not to exceed 2 deg. F. per hour, nor more than a 5 deg. cumulative change from natural water temperature.*
5. The Board collects samples bimonthly from various locations on streams in the Illinois River Basin. Monthly samples are collected from most of the Illinois River stations and weekly samples from one station during May through October. Additional stations are being added as needed and two electronic stations are programmed for the Fall of 1967.
6. Rules and Regulations, SWB 2, require the certification of waste treatment plant operators. The prompt and regular submission of monthly operational reports is required to enable evaluation of effluent quality. Certification and record of operation report submissions are recorded in a computer system to facilitate periodic data processing. The frequency of inspections of wastewater treatment plants by representatives of the Board have been increased and will be increased more to insure compliance with the standards.

ILLINOIS SANITARY WATER BOARD

Rules and Regulations SWB-15

WATER QUALITY STANDARDS

Interstate Waters,  
Chicago River and Calumet River System  
and Calumet Harbor Basin

Adopted by Board June 28, 1967

Approved by U. S. Department of Interior January 27, 1968

Sanitary Water Board reapproval March 5, 1968

ILLINOIS SANITARY WATER BOARD

Rules and Regulations SWB-15

Interstate Waters,  
Chicago River and Calumet River Systems

AUTHORITY

Pursuant to the authority contained in Sections 1, and 6 (b) and (c) of "An Act to establish a Sanitary Water Board and to control, prevent, and abate pollution of the streams, lakes, ponds, and other surface and underground waters in the State" approved and in force July 12, 1951, (Ch. 19, ¶ 145.1&.6, Ill. Rev. Stat. 1965), as amended by HB 1177, 75th GA, 1967, the Sanitary Water Board adopts the following Rules and Regulations:

STATEMENT OF POLICY

In the above Act it has been declared to be the public policy of this State to maintain reasonable standards of purity of the waters of the State consistent with their use for domestic and industrial water supplies, for the propagation of wildlife, fish and aquatic life, and for domestic, agricultural, industrial, recreational and other legitimate uses, including their use in the final distribution of the water-borne wastes of our economy. It has also been declared to be the public policy of this State to provide that no waste be discharged into any waters of the State without first being given the degree of treatment necessary to prevent the pollution of such waters.

WATER QUALITY CRITERIA

ARTICLE I

Rule 1.01. Introduction

These criteria of water quality prescribe the qualities or properties of the waters of the State which are necessary for the designated public use or benefit, and which, if the limiting conditions given are exceeded, shall be considered indicative of a polluted condition subject to abatement.

These water quality standards shall be applicable to the following interstate waters:

1. The Calumet River System. Calumet Harbor Basin -- Calumet River -- Little Calumet River -- Calumet Sag Channel.
2. The Chicago River System. North Shore Channel -- North Branch Chicago River -- Chicago River -- South Branch Chicago River -- Chicago Sanitary and Ship Canal to the confluence with the Des Plaines River near Lockport, Illinois.

"Standard Methods for the Examination of Water and Waste Water", Twelfth Edition, 1965, American Public Health Association, Inc. should be employed where applicable, but it is recognized that other approved methods may be required in applying some of the criteria. The Illinois Sanitary Water Board shall designate the alternate procedure in "Standard Methods", and approve any departure from these procedures, with the concurrence of the Federal Water Pollution Control Administration.

Rule 1.02. Stream Sectors and Uses

1. The Chicago River, from Lake Michigan to the confluence of the North Branch and the South Branch located west of the Franklin Street Bridge and north of the Lake Street Bridge, is the first segment of the Illinois Waterways System. It is now used and will continue to be used for commercial deep water vessel and barge shipping, for recreational use, for commercial passenger and sight-seeing boat service including marinas, and for the withdrawal of industrial cooling and process waters. These waters shall be improved to provide increased recreational use and to support fish and aquatic life. The water quality criteria included in Rule 1.03 shall apply.
2. The North Shore Channel, from Lake Michigan to the confluence with North Branch Chicago River (approximately 5100 North), and the North Branch Chicago River from the North Shore Channel to Addison Street (3600 North), are used for recreation and are receiving effluents from municipal waste treatment facilities. These waters shall be improved to provide increased recreational use and to support fish and aquatic life. The water quality criteria included in Rule 1.03 shall apply.
3. The Calumet Harbor Basin shoreward from the Breakwater and Indiana State Line, within the State of Illinois. It is now used and will continue to be used for public water supply, commercial shipping, withdrawal of industrial cooling and process water, recreation, fish and aquatic life. The water quality criteria included in Rule 1.05 shall apply.
4. The Calumet River, from Lake Michigan to the junction with the Grand Calumet River, and the Little Calumet River.
5. The Little Calumet River from the junction of the Grand Calumet River to the Calumet-Sag Channel, about 1200 W.
6. The Calumet-Sag Channel to its confluence with the Chicago Sanitary and Ship Canal west of Illinois Highway 83.
7. The North Branch Chicago River from Addison Street (3600 N.) to the junction with the Chicago River at a point west of Franklin Street Bridge.

8. The South Branch Chicago River, from the Chicago River, west of Franklin Street Bridge, to the Chicago Sanitary and Ship Canal at Damen Avenue (2000 W.).
9. The South Fork of the South Branch Chicago River from Pershing Road (39th St.) to the South Branch Chicago River.
10. The Chicago Sanitary and Ship Canal from Damen Avenue (2000 W.) to the Des Plaines River downstream from the Lock and Dam at Lockport.

Waters from Stream Sectors 4 through 10 are now used and will continue to be used for commercial vessel and barge shipping, for recreational boating transit, for withdrawal and return of industrial cooling and process water, and to receive effluents from industrial and domestic waste treatment facilities. These waters shall be improved to provide increased recreational use and to sustain fish and aquatic life.

The water quality criteria included in Rule 1.04 shall apply to waters of Sectors 4 through 10.

#### Rule 1.03. Stream Criteria

##### 1. General Criteria

These General Criteria, in addition to specific criteria, shall apply to all waters at all places and at all times.

- a. Free from substances attributable to municipal, industrial or other discharges that will settle to form putrescent or otherwise objectionable sludge deposits; or substances (coal fines, quarry fines, fly ash, limesludge, etc.) which will form bottom deposits that may be detrimental to bottom biota.
- b. Free from floating debris, oil, scum and other floating materials attributable to municipal, industrial or other discharges in amounts sufficient to be unsightly or deleterious.

Oils, grease and floating solids shall be reduced to a level such that they will not create fire hazards, coat hulls of watercraft, injure fish or wildlife or their habitat, and will not adversely affect public or private recreational development or other legitimate shoreline developments or uses.

- c. Free from materials attributable to municipal, industrial or other discharges producing color, odor or other conditions in such degree as to create a nuisance.
- d. Free from substances attributable to municipal, industrial or other discharges in concentrations or combinations which are toxic or harmful to human, animal, or aquatic life.

## 2. Specific Criteria

These criteria are for evaluation of conditions at any point in the stream other than areas in proximity of outfalls. In such areas cognizance will be given to opportunities for the admixture of waste effluents with stream water.

### a. Dissolved oxygen:

For maintenance of well-balanced fish habitats a dissolved oxygen content not less than 5.0 milligrams per liter (mg/l) during 16 hours of any 24-hour period, and not less than 4.0 mg/l at any time.

### b. pH:

No value less than 6.0 or greater than 9.0 at any time, and preferably between 6.5 and 8.5. Samples shall be collected away from the influence of an outfall sewer. (More than 100 feet is suggested).

### c. Temperature:

Not to exceed 90 degrees F. at any time during the months of *April* through November, and not to exceed 60 deg. F. at any time during the months of December to *April*.

### d. Toxic Substances:

Not to exceed one-tenth of the 48-hour median tolerance limit for fish, except that other limiting concentrations may be used in specific cases. Concentrations of the chemical constituents listed below are the maximum for any time at any point in aquatic sectors of the basin, except for areas in proximity of outfalls:

<u>Constituent</u>	<u>Concentration mg/l</u>
Ammonia Nitrogen (N)	2.5
*Arsenic	1.0
*Barium	5.0
*Cadmium	0.05
*Chromium-Hexavalent	0.05
*Chromium-Trivalent	1.00
*Copper	0.04
Cyanide	0.025
Iron	1.00
*Lead	0.1
Phenols	0.2
*Silver	0.05
*Zinc	1.00

\*Heavy Metals

Editors Note: Changes requested by U. S. Department of Interior are italized.

- e. Bacteria: As determined by multiple-tube fermentation or membrane filter procedures, and based on a minimum of not less than five samples taken over not more than a 30-day period, the fecal coliform content of primary contact recreation waters shall not exceed a geometric mean of 200/100 ml, nor shall more than 10% of total samples during any 30-day period exceed 400/100 ml.

(Primary contact recreation is intended to include activities in which there is prolonged and intimate contact with the water involving considerable risk of ingesting water.)

#### Rule 1.04. Stream Criteria

##### 1. General Criteria

These General Criteria, in addition to specific criteria, shall apply to all waters at all places and at all times.

- a. Free from substances attributable to municipal, industrial or other discharges that will settle to form putrescent or otherwise objectionable sludge deposits; or substances (coal fines, quarry fines, fly ash, limesludge, etc.) which will form bottom deposits that may be detrimental to bottom biota.
- b. Free from floating debris, oil, scum and other floating materials attributable to municipal, industrial or other discharges in amounts sufficient to be unsightly or deleterious.

Oils, grease and floating solids shall be reduced to a level such that they will not create fire hazards, coat hulls of watercraft, injure fish or wildlife or their habitat, and will not adversely affect public or private recreational development or other legitimate shoreline developments or uses.

- c. Free from materials attributable to municipal, industrial or other discharges producing color, odor or other conditions in such degree as to create a nuisance.
- d. Free from substances attributable to municipal, industrial or other discharges in concentrations or combinations which are toxic or harmful to human, animal, or aquatic life.

##### 2. Specific Criteria

These criteria are applicable to stream water at any point in the river, except for areas in proximity of outfalls. In such areas cognizance will be given to opportunities for the admixture of treated effluents with stream water:

- a. Dissolved Oxygen: Not less than 3.0 mg/l during 16 hours of any 24-hour period, and not less than 2.0 mg/l at any time.
- b. pH: Not less than 6.0 nor greater than 9.0 at any time.
- c. Temperature: Not to exceed 93 deg. F. at any time.
- d. Bacteria: The fecal coliform content of secondary contact recreation waters, as determined by either multiple-tube fermentation or membrane filter techniques, shall not exceed a geometric mean of 1,000/100 ml, nor shall they equal or exceed 2,000/100 ml in more than 10% of the samples.

(This criterion is intended to provide for water uses customarily described as "secondary contact uses", including boating, fishing, and limited contact with water incident to shoreline activities; in which contact with the water is either incidental or accidental and the probability of ingesting appreciable quantities of water is minimal.)

Rule 1.05. Calumet Harbor Basin Criteria

Control Points - Calumet Harbor Breakwater at State Line. This does not exclude sampling at such other points in the Harbor area as may be necessary to insure effective monitoring and pollution control.

Coliform Bacteria - MPN/100 ml.

Annual Average (Arithmetic)	Not more than 2,000
Single Daily Value or Average	Not more than 5,000 *

<u>Fecal Streptococci - Number/100 ml</u>	Not more than 100
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Turbidity

No turbidity of other than natural origin that will cause substantial visible contrast with the natural appearance of water.

True Color - Units

Annual Average	Not more than 5
Single Daily Value or Average	Not more than 15

Threshold Odor (Hydrocarbon and/or Chemical) Units

Annual Average	Not more than 8
Single Daily Value or Average	Not more than 20

Odor

No obnoxious odor of other than natural origin.