

## Chapter NR 102

WATER QUALITY STANDARDS FOR  
INTERSTATE WATERS

NR 102.01	Guidelines for applica- tion of standards	NR 102.03	Enforcement
NR 102.02	Categories of standards	NR 102.04	Lake Michigan ther- mal standards

NR 102.01 Guidelines for application of standards. (1) Water used for hydropower and commercial shipping depends mainly on quantity, depth and elevation; consequently, no specific quality standards for these uses have been prepared. The minimum standards apply to these as well as to waters for wildlife and stock watering supply, irrigation and waste assimilation.

(2) Where 2 or more uses are designated in one water sector, the more exacting standard will apply. As an example, if the maximum permissible concentration of a substance in a water used for public supply is higher than allowable for fish and other aquatic life, and both of these uses are involved in one sector, then the allowable concentration cannot exceed that for fish and aquatic life.

(3) Test procedures shall conform with "Standard Methods for the Examination of Water and Wastewater," 12th Edition, 1965, prepared and edited by the American Public Health Association, American Waterworks Association and Water Pollution Control Federation, or by other methods acceptable to the department of natural resources and not contrary to the requirements of the federal government. The U. S. Atomic Energy Commission Rules and Regulations, Title 10, Part 20, Standards for Protection Against Radiation, December 22, 1965, will apply to the disposal and permissible concentrations of radioactive substances.

**Note:** Copies of the above publications are available for inspection at the office of the department of natural resources, secretary of state's office and the office of the revisor of statutes, and may be obtained for personal use from American Public Health Association, Inc., 1790 Broadway, New York, N. Y. 10019, and the United States Atomic Energy Commission, Washington, D. C.

(4) Water quality standards do not assure quantity and natural quality. Available water, when used in evaluating compliance with standards, will be based on the lowest average dilution for any period of 7 consecutive days in the most recent 10 years. In evaluating compliance, determinations of water quality will be made in accordance with procedures which will assure that the designated uses of such waters are fully protected. The department may require management of waste admixture zones depending on such factors as effluent quality and quantity, available dilution, temperature, current and restrictions to the movement of fish.

(5) Application of chemicals for water resource management purposes in accordance with statutory provisions is not subject to the

requirements of the standards except in case of water used for public water supply.

**Note:** The standards and water use designations are subject to revision as data become available and permit objectives to be stated by methods which define the variation or distribution of values in quantitative and statistically valid terms.

**History:** Cr. Register, May, 1967, No. 137, eff. 6-1-67; renum. from RD 2.01 to be NR 102.01, and am. (3), Register, May, 1971, No. 185, eff. 6-1-71.

**NR 102.02 Categories of standards.** To preserve and enhance the quality of waters the following standards are established to govern water management decisions. It should be recognized that these standards will be revised as new information or advancing technology indicate that revisions are in the public interest.

(1) **MINIMUM STANDARDS.** Regardless of the water quality standards and water use, untreated or inadequately treated wastes may not impair a designated use nor may standards be interpreted to permit a lower quality within a water sector than that now existing or required by outstanding orders. As a result of municipal, industrial, commercial, domestic, agricultural, land development or other activities, conditions may arise which will be controlled by the following standards:

(a) Substances that will cause objectionable deposits on the shore or in the bed of a body of water, shall not be present in such amounts as to create a nuisance.

(b) Floating or submerged debris, oil, scum or other material shall not be present in such amounts as to create a nuisance.

(c) Materials producing color, odor, taste or unsightliness shall not be present in such amounts as to create a nuisance.

(d) Substances in concentrations or combinations which are toxic or harmful to humans shall not be present in amounts found to be of public health significance, nor shall substances be present in amounts, which by bio-assay and other appropriate tests, indicate acute or chronic levels harmful to animal, plant or aquatic life.

(2) **FOR PUBLIC WATER SUPPLY.** The following standards are applicable where a surface water is classified for public water supply:

(a) **Bacteria.** Coliform number not to exceed 5,000 per 100 ml. as a monthly arithmetic average value; nor exceed this value in more than 20 percent of the samples examined during any month; nor exceed 20,000 per 100 ml. in more than 5 percent of the samples. Counts as Most Probable Number (MPN) or Membrane Filter Coliform Counts (MFCC).

(b) **Dissolved solids.** Not to exceed 500 mg/1 as a monthly average value, nor exceed 750 mg/1 at any time.

(c) **pH.** A range from 6.0 to 9.0 except in waters naturally having a pH of less than 6.5 or higher than 8.5 where effluent discharges may not reduce the low value or increase the high value of the surface water's pH by more than 0.5 standard units.

(d) The intake water supply will be such that by appropriate treatment and adequate safeguards it will meet the Public Health Service Drinking Water Standards, 1962.

**Note:** Copies of Public Health Service Drinking Water Standards, 1962 are available for inspection at the office of the department of natural resources, secretary of state's office and the office of the revisor of statutes, and may be obtained for personal use from the U. S. Department of Health, Education, and Welfare, Public Health Service, Washington, D.C.

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(e) Other. Concentrations of other constituents must not be hazardous to health.

(3) FOR FISH AND OTHER AQUATIC LIFE. (a) The following standards are applicable to surface waters where maintenance of fish reproduction is of primary importance in the public interest and natural conditions permit:

1. Dissolved oxygen. The dissolved oxygen content shall not be lowered to less than 80 percent of saturation nor to less than 5 mg/l at any time. There shall be no abrupt change from natural unpolluted background by more than 1 mg/l at any time.

2. The temperature shall not exceed 84° F. No change from natural unpolluted background by more than 5° F. at any time nor at a rate in excess of 2° F. per hour.

(b) The following standards are applicable to surface waters where fishing is desirable in conjunction with other uses and natural conditions permit:

1. For a balanced warm water fishery the dissolved oxygen content should not be less than 5.0 mg/l during at least 16 hours of any 24-hour period, nor less than 4.0 mg/l at any time.

2. Temperature. The temperature shall not exceed 89° F. for warm water fish. No abrupt change from background by more than 5° F. at any time. In addition, authorization must be obtained for proposed installations where the discharge of a thermal pollutant may increase the natural maximum temperature of a stream by more than 3° F.

(c) Unauthorized concentrations of substances are not permitted that alone or in combination with other materials present are toxic to fish or other aquatic life.

(d) Streams classified by law as trout waters shall not be altered from natural background by effluents that affect the stream environment to such an extent that trout populations are adversely affected in any manner.

(4) FOR RECREATIONAL USE. A sanitary survey and/or evaluation to assure protection from fecal contamination is the chief criterion in determining the suitability of a surface water for recreational use. In addition, the following bacteriological guidelines are set forth:

(a) A water is acceptable for whole body contact if it has an arithmetic average coliform count of 1,000 per 100 ml. or less and a maximum not exceeding 2,500 per 100 ml. during the recreation season.

(b) A water is acceptable for partial body contact if it has an arithmetic average coliform count of 5,000 per 100 ml. or less and with no more than 1 of the last 5 samples exceeding 20,000 per 100 ml. during the recreation season.

(c) The Membrane Filter Coliform Count (MFCC) is the preferred method for determining coliform density; provided, however, that where turbidity due to algae or other material does not permit testing of a sample volume sufficient to produce significant results, or where low coliform estimates may be caused by high numbers of noncoliforms or the presence of substances toxic to the procedure, the Most Probable Number (MPN) is to be used to determine coliform density. The average is based on the last 5 test results. A more definitive test for fecal pollution is the Membrane Filter Fecal Coliform Count (MFFCC). Tests by this method are acceptable where correlation relat-

ing the count to sanitary hazards has been demonstrated. Acceptable values based on MFFCC are not shown, but may be adopted in future revisions.

(5) **FOR INDUSTRIAL AND COOLING WATER USE.** The following standards are applicable to surface waters designated for industrial processes and cooling purposes:

(a) Dissolved oxygen shall not be less than 2.0 mg/1 as a daily average value nor less than 1.0 at any time.

(b) Dissolved solids shall not exceed 750 mg/1 as a monthly average value, nor exceed 1,000 mg/1 at any time.

(c) pH shall range from 6.0 to 9.0 except in waters naturally having a pH of less than 6.5 or higher than 8.5 where effluent discharges may not reduce the low value or increase the high value of the surface water's pH by more than 0.5 standard units.

(d) Temperature shall not exceed 89° F. (32° C.).

**History:** Cr. Register, May, 1967, No. 137, eff. 6-1-67; renum. from RD 2.02 to be NR 102.02 and am. (2) (d), Register, May, 1971, No. 185, eff. 6-1-71.

**NR 102.03 Enforcement.** Financial assistance, industrial incentives, increased surveillance, orders and legal action will be the means used to implement and enforce the adopted water quality standards. Reasonable time schedules to comply with orders depend on the circumstances. In general, 1 year to provide disinfection, in-plant controls and minor treatment adjustments; or 2 years to install settleable solids removal facilities; or 2-3 years to complete a secondary treatment system should be adequate. Separation of excessive clear waters from sanitary sewerage systems may vary from 1 year for disconnection of roof leaders to 10 years or more where combined sanitary-storm water sewers are involved. All polluters will be required to conform to this timetable and to the annual listing of actions required to achieve the surface water quality standards adopted.

**History:** Cr. Register, May, 1967, No. 137, eff. 6-1-67; renum. from RD 2.03 to be NR 102.03, Register, May, 1971, No. 185, eff. 6-1-71.

**102.04 Lake Michigan thermal standards.** For Lake Michigan the following thermal standards are established so as to minimize effects on the aquatic biota in the receiving waters.

(1) (a) Thermal discharges shall not raise the receiving water temperature more than 3° F. at the boundary of mixing zones established by the department.

(b) In addition to the limitation set forth in subsection (1) (a), but excepting the Milwaukee Harbor, Port Washington Harbor and the mouth of the Fox River, thermal discharges shall not raise the temperature of the receiving waters at the boundary of the established mixing zones above the following limits:

January	-----	45° F.
February	-----	45°
March	-----	45°
April	-----	55°
May	-----	60°
June	-----	70°
July	-----	80°
August	-----	80°
September	-----	80°

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October	-----65°
November	-----60°
December	-----50°

(2) All owners utilizing, maintaining or presently constructing sources of thermal discharges exceeding a daily average of 500 million BTU per hour shall:

(a) Submit monthly reports of temperature and flow data on forms prescribed by the department commencing 60 days after the effective date of this rule.

(b) Within 24 months of the effective date of this rule, complete an investigation and study of the environmental and ecological impact of such discharge in a manner approved by the department. After a review of the ecological and environmental impact of the discharge, mixing zones shall be established by the department.

(c) Submit to the department within 6 months of the effective date of this rule a preliminary engineering report for the installation of alternative cooling systems.

(d) Submit within 6 months of the effective date of this rule a detailed chemical analysis of blowdown waters discharged to Lake Michigan and its tributaries.

(3) Any plant or facility, the construction of which is commenced after the effective date of this rule, shall be so designed as to avoid significant thermal discharge to Lake Michigan.

(4) The department may order the reduction of thermal discharges to Lake Michigan regardless of interim measures undertaken by the source owners in compliance with this rule if environmental damage appears imminent or existent.

(5) The provisions of this rule are not applicable to municipal waste and water treatment plants and vessels.

**History:** Cr. Register, January, 1972, No. 193, eff. 2-1-72.