

Presented below are water quality standards that are in effect for Clean Water Act purposes.

EPA is posting these standards as a convenience to users and has made a reasonable effort to assure their accuracy. Additionally, EPA has made a reasonable effort to identify parts of the standards that are not approved, disapproved, or are otherwise not in effect for Clean Water Act purposes.

Title 6 New York Codes, Rules and Regulations (NYCRR)

Article 2: Classifications and Standards of Quality and Purity

Effective March 7, 2018

The attached provisions are in effect for Clean Water Act (CWA) purposes with this exception:

6 NYCRR §§ 703.4(a) and 703.4(b)

The EPA **disapproved** the revised water quality criteria for Class I and Class SD surface waters because they are not scientifically defensible and not protective of the primary contact recreation designated use of Class I and Class SD saline surface waters.

Section 703.4. Water Quality Standards for Coliforms

Class I waters total coliform:

EPA disapproved the following: “The monthly median value and more than 20 percent of the samples, from a minimum of five examinations, shall not exceed 2,400 and 5,000, respectively.”

The criteria that remains in effect for CWA purposes: “The monthly geometric mean, from a minimum of five examinations, shall not exceed 10,000.”

Class I water fecal coliform:

EPA disapproved the following: “The monthly geometric mean, from a minimum of five examinations, shall not exceed 200.”

The criteria that remains in effect for CWA purposes: “The monthly geometric mean, from a minimum of five examinations, shall not exceed 2,000.”

Class SD waters total coliform:

EPA disapproved the following: “The monthly median value and more than 20 percent of the samples, from a minimum of five examinations, shall not exceed 2,400 and 5,000, respectively.”

The criteria that remains in effect for CWA purposes: No applicable total coliform criterion

Class SD water fecal coliform:

EPA disapproved the following: “The monthly geometric mean, from a minimum of five examinations, shall not exceed 200.”

The criteria that remains in effect for CWA purposes: No applicable fecal coliform criterion

Compilation of Codes, Rules and Regulations of the State of New York Currentness
Title 6. Department of Environmental Conservation
Chapter X. Division of Water Resources
Subchapter A. General
Article 2. Classifications and Standards of Quality and Purity
Part 700. Definitions, Samples and Tests

NYCRR T. 6, Ch. X, Subch. A, Art. 2, Pt. 700, Refs & Annos

Credits

(Statutory authority: [Environmental Conservation Law](#), §§ 3-0301[2][m], 15-0313, 17-0301, 17-0303, 17-0809)

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Title 6. Department of Environmental Conservation
Chapter X. Division of Water Resources
Subchapter A. General
Article 2. Classifications and Standards of Quality and Purity
Part 700. Definitions, Samples and Tests (Refs & Annos)

6 NYCRR 700.1

Section 700.1. Definitions

(a) The terms, words, or phrases used in Parts 700-706 of this Title shall have the meanings described below.

(1) *Acute toxic effect* means an effect that usually occurs shortly after the administration of either a single dose or multiple doses of a chemical or other toxic pollutant.

(2) *Administrator* means the Administrator of the United States Environmental Protection Agency.

(3) *Approved treatment* as applied to water supplies means treatment accepted as satisfactory by the authorities responsible for exercising supervision over the quality of water supplies.

(4) *Aquatic life* or *aquatic biota* means fish, shellfish and those species of wildlife and plants that spend at least part of their life in water.

(5) *Best usages* as specified for each class of water means those uses as determined by the commissioner in accordance with the considerations prescribed by the Environmental Conservation Law.

(6) *Biologically-based dose-response model* means a model that describes and quantifies the key events in the molecular, cellular, tissue, or organismal responses to a chemical or other toxic pollutant across a range of doses. Model parameters should represent biological phenomena rather than arbitrary statistically-derived values such as polynomial regression coefficients. Such models, if they accurately describe the relationship between dose and response within the range of experimental observation, may provide biological justification for predicted responses at doses below the range of observation.

(7) *Chronic toxic effect* means an effect that is irreversible or progressive or occurs because the rate of injury is greater than the rate of repair during prolonged exposure to a chemical or other toxic pollutant.

(8) *Coastal waters* mean those marine waters within the territorial limits of the State other than estuaries and enclosed bays. Long Island Sound is designated as coastal waters for the purposes of thermal discharges.

(9) *Commissioner* means the Commissioner of the Department of Environmental Conservation.

(10) *Consolidated rock or bedrock* means the compact or solid hard rock beneath or exposed at the surface of the earth or overlain by surface waters.

(11) *Cooling water* means water used for contact or noncontact cooling, including water used for equipment cooling, evaporative cooling tower makeup, and dilution of effluent heat content. The intended use of the cooling water is to absorb waste heat rejected from the process or processes used, or from auxiliary operations on the facility's premises.

(12) *Cooling water intake structure* means the total physical structure and any associated constructed waterways used to withdraw cooling water from waters of the State. The cooling water intake structure extends from the point at which water is withdrawn from the waters of the State up to, and including, the intake pumps.

(13) *Department* means the New York State Department of Environmental Conservation.

(14) *Disposal system* means a system for disposing of sewage, industrial waste or other wastes, including sewer systems and treatment works.

(15) *Effluent limitations* mean any restriction on quantities, qualities, rates and concentrations of chemical, physical, biological, and other constituents of effluents that are discharged into or allowed to run from an outlet or point source or any other discharge within the meaning of [section 17-0501 of the Environmental Conservation Law](#) into surface waters, groundwater or unsaturated zones.

(16) *Enclosed bays* mean those marine waters within the territorial limits of New York State, other than coastal waters or estuaries, in which exchange of sea water is severely limited by barrier beaches. For the purpose of thermal discharges, the following are designated as enclosed bays: Jamaica Bay, Hempstead Bay, Great South Bay, Moriches Bay, Shinnecock Bay and Mecox Bay.

(17) *Estuary* means the tidal portion of a river or stream.

(18) *Fish* means all varieties of the super-class Pisces.

(19) *Flow* means the volume of water passing through the cross-sectional area of stream (or river) per unit of time.

(20) *Fresh groundwaters* mean those groundwaters having a chloride concentration equal to or less than 250 mg/L or a total dissolved solids concentration equal to or less than 1,000 mg/L.

(21) *Great Lakes System* means classified segments identified in Part 805; Parts 835 through 839; Parts 845 through 848; Parts 820 and 821; Parts 895 through 899; and Items 1a, 1b and 441 through 1661 of Part 910 of this Title.

(22) *Groundwaters* mean those waters in saturated zones.

(23) *Groundwater effluent limitations* mean those effluent limitations that have been adopted in section 703.6 or developed in accordance with section 702.16(c) of this Title for protection of groundwater.

(24) *Guidance value* means such measure of purity or quality for any waters in relation to their reasonable and necessary use as may be established by the department pursuant to sections 702.1 and 702.15 of this Title.

(25) *Heat of artificial origin* means all heat from other than natural sources, including but not limited to cumulative effects of multiple and proximate thermal discharges.

(26) *Industrial waste* means any liquid, gaseous, solid or waste substance, or a combination thereof, resulting from any process of industry, manufacturing, trade, or business or from the development or recovery of any natural resources, that may cause or might reasonably be expected to cause pollution of the waters of the State in contravention of the standards adopted pursuant to the Environmental Conservation Law, article 17.

(27) *Key event* means a measurable and necessary step in a mode-of-action or a measurable indicator of such a step.

(28) *Land application techniques* include the following three basic methods of waste discharge application: irrigation, infiltration-percolation, and overland flow.

(29) *Land utilization practices* entail the use of plants, the soil surface, and soil matrix for removal of certain wastewater constituents.

(30) *Liner at low doses* means the frequency or severity of a molecular, cellular, tissue, or organismal response (*i.e.*, key event) to a chemical or other toxic pollutant varies proportionally with dose at human doses that are at or near the standard or guidance value for that chemical or toxic pollutant.

(31) *Lowest-observed-effect level (LOEL)* means the lowest dose or exposure level of a chemical or other toxic pollutant at which a statistically or biologically significant change in the frequency or severity of any effect is observed in the exposed population compared with an appropriate unexposed control population.

(32) *Micrograms per liter (ug/L)* means the weight in micrograms of any specific substance or substances contained in one liter of liquid.

(33) *Milligrams per liter (mg/L)* means the weight in milligrams of any specific substance or substances contained in one liter of liquid.

(34) *Model* means a mathematical function with parameters that can be adjusted so that the function closely describes a set of empirical data.

(35) *Mode-of-action* means a sequence of key events that provides a biologically-plausible explanation for how a chemical or other toxic pollutant interacts with a biological target in humans or experimental animals to cause a given effect.

(36) *New York/New Jersey harbor* means saltwater classified segments identified in Part 859; Part 864; Part 890, except Item 1 and its tributaries; Part 891; and Items 1, 2 and 3 and their tributaries of Part 935 of this Title.

(37) *No-observed-effect level (NOEL)* means the highest dose or exposure level of a chemical or other toxic pollutant at which there are not statistically or biologically significant changes in the frequency or severity of any observed effect in the exposed population compared with an appropriate unexposed control population.

(38) *Nonlinear at low doses* means the frequency or severity of a molecular, cellular, tissue, or organismal response (*i.e.*, key event) to a chemical or other toxic pollutant does not vary proportionally with dose at human doses that are at or near the standard or guidance value for that chemical or toxic pollutant.

(39) *Oncogenic effect* means the induction of tumors that has been demonstrated in:

(i) humans;

(ii) two mammalian species;

(iii) one mammalian species, independently reproduced;

(iv) one mammalian species, to an unusual degree with respect to incidence, latency period, site, tumor type or age at onset;

(v) one mammalian species, supported by positive results in short-term tests that are indicative of potential oncogenic activity; or

(vi) one mammalian species, supported by positive results for another substance for which similar oncogenic effects are anticipated because of similarity of functional groups or metabolic or toxicologic pathways.

(40) *Other wastes* means garbage, refuse, decayed wood, sawdust, shavings, bark, sand, lime, cinders, ashes, offal, oil, tar, dyestuffs, acids, chemicals, leachate, sludge, salt and all other discarded matter not sewage or industrial waste that may cause or might reasonably be expected to cause pollution of the waters of the State in contravention of the standards adopted pursuant to the Environmental Conservation Law, article 17.

(41) *Outlet* means the terminus of a sewer system, or the point of emergence of any waterborne sewage, industrial waste or other wastes or the effluent therefrom, into the waters of the State.

(42) *Pathogenic organism* means any disease-producing organism.

(43) *Person or persons* means any individual, public or private corporation, political subdivision, government agency, municipality, industry, co-partnership, association, firm, trust, estate or any other legal entity whatsoever.

(44) *Point-of-departure* means a point on a dose-reponse curve for an effect of a chemical or other toxic pollutant that is within or near the range of experimental or observational data for the effect. It shall be the lower 95 percent confidence limit on a dose for an estimated level of excess risk for an effect, or it can be a NOEL or LOEL for an effect. It is the starting point for the extrapolation from the range of observation in human or animal studies to the human doses at or near the standard or guidance value for that chemical or toxic pollutant.

(45) *Point source* means any discernible, confined and discrete conveyance, including but not limited to any pipe, ditch, channel, tunnel, conduit, well, discrete fissure, container, rolling stock, concentrated animal feeding operation or vessel or other floating craft from which pollutants are or may be discharged.

(46) *Pollutant* means dredged spoil, solid waste, incinerator residue, sewage, garbage, sewage sludge, munitions, chemical wastes, biological materials, radioactive materials, heat, wrecked or discarded equipment, rock, sand, and industrial, municipal, and agricultural waste discharged into water.

(47) *Pollution* means the presence in the environment of conditions and/or contaminants in quantities of characteristics that are or may be injurious to human, plant or animal life or to property or that unreasonably interfere with the comfortable enjoyment of life and property throughout such areas of the State as shall be affected thereby.

(48) *Potable waters* mean those fresh waters usable for drinking, culinary or food processing purposes.

(49) *Primary contact recreation* means recreational activities where the human body may come in direct contact with raw water to the point of complete body submergence. Primary contact recreation includes, but is not limited to, swimming, diving, water skiing, skin diving and surfing.

(50) *Principal organic contaminant classes* means the classes of organic chemicals listed below.

(i) Halogenated alkane: compound containing carbon (C), hydrogen (H) and halogen (X) where X = fluorine (F), chlorine (Cl), bromine (Br) and/or iodine (I), having the general formula $C_nH_yX_z$, where $y + z = 2n + 2$; n, y and z are integer variables; n and z are equal to or greater than one and y is equal to or greater than zero. Specifically excluded from this class are chloroform, bromoform, bromodichloromethane and dibromochloromethane.

(ii) Halogenated ether: compound containing carbon (C), hydrogen (H), oxygen (O) and halogen (X) (where X = F, Cl, Br and/or I) having the general formula $C_nH_yX_zO$, where $y + z = 2n + 2$; the oxygen is bonded to two carbons; n, y and z are integer variables; n is equal to or greater than two, y is equal to or greater than zero and z is equal to or greater than one.

(iii) Halobenzenes and substituted halobenzenes: derivatives of benzene which have at least one halogen atom attached to the ring and which may or may not have straight or branched chain hydrocarbon, nitrogen or oxygen substituents.

(iv) Benzene and alkyl- or nitrogen-substituted benzenes: benzene or a derivative of benzene which has either an alkyl- and/or a nitrogen-substituent.

(v) Substituted, unsaturated hydrocarbons: a straight or branched chain unsaturated hydrocarbon compound containing one of the following: halogen, aldehyde, nitrile or amide.

(vi) Halogenated nonaromatic cyclic hydrocarbons: a nonaromatic cyclic compound containing a halogen.

(51) *Reference dose (RfD)* means an estimate of a daily oral exposure of the human population (including sensitive subgroups) to a chemical or other toxic pollutant that is likely to be without an appreciable risk of deleterious effects during a lifetime.

(52) *Saline groundwater* means groundwater having a chloride concentration of more than 250 mg/L or a total dissolved solids concentration of more than 1,000 mg/L.

(53) *Saline surface waters* mean all waters that are so designated by the commissioner.

(54) *Salmonids*, see *trout*.

(55) *Saturated zones* means any extensive portion of the earth's crust that contains sufficient water to fill all interconnected voids or pore spaces.

(56) *Secondary contact recreation* means recreational activities where contact with the water is minimal and where ingestion of the water is not probable. Secondary contact recreation includes, but is not limited to, fishing and boating.

(57) *Sewage* means the water-carried human or animal wastes from residences, buildings, industrial establishments or other places, together with such groundwater infiltration and surface water as may be present.

(58) *Shellfish* includes oysters, scallops, clams, mussels, and other aquatic mollusks, and lobsters, shrimp, crayfish, crabs, and other aquatic crustaceans.

(59) *Source of water supply for drinking, culinary or food processing purposes* means any water source, either public or private, that is used for domestic consumption or used in connection with the processing of milk, beverages or food.

(60) *Specific MCL* means a maximum contaminant level (MCL) included in [10 NYCRR 5-1.51](#), [5-1.52](#) or [5-1.55](#) for either an individual substance or group of substances. A Specific MCL does not include the 10 NYCRR Part 5 MCLs for principal organic contaminants or unspecified organic contaminants.

(61) *Standards* mean such measures of purity or quality for any waters in relation to their reasonable and necessary use as may be established by the department pursuant to [section 17-0301 of the Environmental Conservation Law](#).

(62) *Subsurface sewage disposal system* means a disposal system that discharges sewage beneath the surface of the ground.

(63) *Thermal discharge* means a discharge that results or would result in a temperature change of the receiving water.

(64) *Toxic pollutant* means those pollutants, or combination of pollutants, including disease-causing agents, that after discharge and upon exposure, ingestion, inhalation or assimilation into any organism, either directly from the environment or indirectly through food chains, will, on the basis of information available to the department, cause death, disease, behavioral abnormalities, cancer, genetic mutations, physiological malfunctions, including malfunctions in reproduction, or physical deformations, in such organisms or their offspring.

(65) *Treatment works* means any plant, disposal field, lagoon, pumping station, constructed drainage ditch or surface water intercepting ditch, incinerator, area devoted to sanitary landfills or other works not specifically mentioned here, installed for the purpose of treating, neutralizing, stabilizing or disposing of sewage, industrial waste or other wastes.

(66) *Trout* means any fish in the following genera: *Coregonus*, *Oncorhynchus*, *Prosopium*, *Salmo*, *Salvelinus* and *Thymallus*.

(67) *Trout waters* are waters that provide habitat in which trout can survive and grow within a normal range on a year-round basis, or on a year-round basis excepting periods of time during which almost all of the trout inhabiting such waters could and would temporarily retreat into and survive in adjoining or tributary waters due to natural circumstances. When these conditions exist or have been met a water may be classified as a trout water and identified with the symbol (T), appearing in an entry in the “standards” column in the classification tables of parts 800 through 941 of this Title.

(68) *Trout spawning waters* are trout waters in which trout eggs can be deposited and be fertilized by trout inhabiting such waters (or connecting waters) and in which those eggs can develop and hatch, and the trout hatched therefrom could survive and grow to a sufficient size and stage of development to enable them to either remain and grow to adult trout therein, or migrate into and survive in other trout waters. When these conditions exist or have been met a water may be classified as a trout spawning water and identified with the symbol (TS), appearing in an entry in the “standards” column in the classification tables of Parts 800 through 941 of this Title.

(69) *Unconsolidated deposits* means all non- or poorly indurated soil materials above the bedrock.

(70) *Waste management system* includes the management of mechanical equipment, crops, irrigation and monitors as an operational unit.

(71) *Water quality-based effluent limitations* means effluent limitations for surface waters that are derived from water quality standards or guidance values.

(72) *Wildlife* means wild game and all other animal life existing in a wild state, except fish, shellfish and crustacea.

Credits

Sec. repealed, new filed: April 28, 1972; Feb. 25, 1974; August 2, 1991; amds filed Feb. 10, 1998; July 16, 1999 eff. Aug. 4, 1999; amds filed Jan. 17, 2008 eff. Feb. 16, 2008.

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6 NYCRR 700.1, 6 NY ADC 700.1

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Chapter X. Division of Water Resources
Subchapter A. General
Article 2. Classifications and Standards of Quality and Purity
Part 700. Definitions, Samples and Tests (Refs & Annos)

6 NYCRR 700.2

Section 700.2. Collection of Samples

(a) The determination of compliance or non-compliance of sewage, industrial waste or other waste discharges with the requirements of Parts 700 through 705 of this Title shall be made through analytical methods or tests of groundwater, surface water or effluent samples collected in such manner as approved by the department.

(b) In selecting or approving the locations at which such samples are collected, the department shall consider all relevant factors, including but not limited to subdivisions (c) through (e) of this section.

(c) For groundwater samples:

(1) the mobility of pollutants in unsaturated zones, which, among other things, is affected by the rate of movement of percolating water; and

(2) attenuation of pollutants that may occur in passage through unsaturated and saturated zones.

(d) For surface water samples:

(1) there must be prompt mixing of the discharge with the receiving waters;

(2) mixing shall not interfere with biological communities to a degree that is damaging to the ecosystem;

(3) the zone of mixing shall not include intakes for potable water supplies; and

(4) mixing shall not diminish other beneficial uses disproportionately.

(e) The location at which effluent samples are collected shall be at a point where the effluent emerges from a treatment works, disposal system, outlet or point source, and prior to being discharged to surface water or the ground, unless specified otherwise by a State Pollutant Discharge Elimination System (SPDES) permit issued pursuant to Parts 750 - 758 of this Title.

Credits

Sec. repealed, new filed: April 28, 1972; Feb. 25, 1974; amd. filed Nov. 5, 1984; repealed, new filed Aug. 2, 1991; amd. filed Feb. 10, 1998 eff. 30 days after filing.

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6 NYCRR 700.3

Section 700.3. Tests or Analytical Methods

(a) Tests or analytical methods for measurement of surface water or groundwater to determine compliance with standards or guidance values shall be made in accordance with the following requirements:

- (1) 40 CFR Part 136, as of July 1, 1988 (see section 705.1 of this Title); or
- (2) other tests or analytical methods approved by the department.

(b) Tests or analytical methods to determine compliance with effluent limitations shall be made in accordance with subdivision (a) of this section, unless a different test or analytical method is specified in a State Pollutant Discharge Elimination System permit.

Credits

Sec. filed Aug. 2, 1991 eff. 30 days after filing.

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6 NYCRR 700.3, 6 NY ADC 700.3

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6 NYCRR 700.4

Section 700.4. Severability

If any provision of this Part or its application to any person or circumstance is held to be invalid, the remainder of this Part and the application of that provision to other persons or circumstances will not be affected.

Credits

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Article 2. Classifications and Standards of Quality and Purity
Part 701. Classifications--Surface Waters and Groundwaters

NYCRR T. 6, Ch. X, Subch. A, Art. 2, Pt. 701, Refs & Annos

Credits

(Statutory authority: [Environmental Conservation Law](#), §§ 1-0101, 3-0301[2][m], 15-0313, 17-0101, 17-0301, 17-0303, 17-0809)

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Part 701. Classifications--Surface Waters and Groundwaters (Refs & Annos)

6 NYCRR 701.1

Section 701.1. General Conditions Applying to All Water Classifications

The discharge of sewage, industrial waste or other wastes shall not cause impairment of the best usages of the receiving water as specified by the water classifications at the location of discharge and at other locations that may be affected by such discharge.

Credits

Sec. repealed, new filed April 28, 1972; amds. filed: Nov. 5, 1984; July 3, 1985; repealed, new filed Aug. 2, 1991 eff. 30 days after filing.

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6 NYCRR 701.1, 6 NY ADC 701.1

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Part 701. Classifications--Surface Waters and Groundwaters
Fresh Surface Waters. (Refs & Annos)

6 NYCRR 701.2

Section 701.2. Class N Fresh Surface Waters

- (a) The best usages of Class N waters are the enjoyment of water in its natural condition and, where compatible, as a source of water for drinking or culinary purposes, bathing, fishing, fish propagation, and recreation. The waters shall be suitable for shellfish and wildlife propagation and survival and fish survival.
- (b) There shall be no discharge of sewage, industrial wastes, or other wastes, waste effluents or any sewage effluents not having had filtration resulting from at least 200 feet of lateral travel through unconsolidated earth. A greater distance may be required if inspection shows that, due to peculiar geologic conditions, this distance is inadequate to protect the water from pollution.
- (c) These waters shall contain no deleterious substances, hydrocarbons or substances that would contribute to eutrophication, nor shall they receive surface runoff containing any such substance.
- (d) There shall be no alteration to flow that will impair the waters for their best usages.

Credits

Sec. repealed, new filed: April 28, 1972; Feb. 25, 1974; amd. filed July 3, 1985; repealed, new filed Aug. 2, 1991 eff. 30 days after filing; amd. filed Jan. 17, 2008 eff. Feb. 16, 2008.

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Part 701. Classifications--Surface Waters and Groundwaters
Fresh Surface Waters. (Refs & Annos)

6 NYCRR 701.3

Section 701.3. Class AA--Special (AA-S) Fresh Surface Waters

- (a) The best usages of Class AA-S waters are: a source of water supply for drinking, culinary or food processing purposes; primary and secondary contact recreation; and fishing. The waters shall be suitable for fish, shellfish, and wildlife propagation and survival.
- (b) These waters shall contain no floating solids, settleable solids, oil, sludge deposits, toxic wastes, deleterious substances, colored or other wastes or heated liquids attributable to sewage, industrial wastes or other wastes.
- (c) There shall be no discharge or disposal of sewage, industrial wastes or other wastes into these waters.
- (d) These waters shall contain no phosphorus and nitrogen in amounts that will result in growths of algae, weeds and slimes that will impair the waters for their best usages.
- (e) There shall be no alteration to flow that will impair the waters for their best usages.
- (f) There shall be no increase in turbidity that will cause a substantial visible contrast to natural conditions.

Credits

Sec. amd. filed May 26, 1967; repealed, new filed: April 28, 1972; Feb. 25, 1974; renum. 701.18, new filed July 3, 1985; repealed, new filed Aug. 2, 1991 eff. 30 days after filing; amd. filed Jan. 17, 2008 eff. Feb. 16, 2008.

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6 NYCRR 701.3, 6 NY ADC 701.3

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Article 2. Classifications and Standards of Quality and Purity
Part 701. Classifications--Surface Waters and Groundwaters
Fresh Surface Waters. (Refs & Annos)

6 NYCRR 701.4

Section 701.4. Class A--Special (A-S) Fresh Surface Waters

(a) The best usages of Class A-S waters are: a source of water supply for drinking, culinary or food processing purposes; primary and secondary contact recreation; and fishing. The waters shall be suitable for fish, shellfish, and wildlife propagation and survival.

(b) This classification may be given to those international boundary waters that, if subjected to approved treatment, equal to coagulation, sedimentation, filtration and disinfection with additional treatment, if necessary, to reduce naturally present impurities, meet or will meet New York State Department of Health drinking water standards and are or will be considered safe and satisfactory for drinking water purposes.

Credits

Sec. repealed, new filed: April 28, 1972; Feb. 25, 1974; amd. filed Sept. 20, 1974; renum. 701.19, new filed July 3, 1985; repealed, new filed Aug. 2, 1991 eff. 30 days after filing; amd. filed Jan. 17, 2008 eff. Feb. 16, 2008.

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Part 701. Classifications--Surface Waters and Groundwaters
Fresh Surface Waters. (Refs & Annos)

6 NYCRR 701.5

Section 701.5. Class AA Fresh Surface Waters

(a) The best usages of Class AA waters are: a source of water supply for drinking, culinary or food processing purposes; primary and secondary contact recreation; and fishing. The waters shall be suitable for fish, shellfish, and wildlife propagation and survival.

(b) This classification may be given to those waters that, if subjected to approved disinfection treatment, with additional treatment if necessary to remove naturally present impurities, meet or will meet New York State Department of Health drinking water standards and are or will be considered safe and satisfactory for drinking water purposes.

Credits

Sec. repealed, filed March 20, 1967; new filed Feb. 25, 1974; amd. filed Sept. 20, 1974; renum. 701.20, new filed July 3, 1985; repealed, new filed Aug. 2, 1991 eff. 30 days after filing; amd. filed Jan. 17, 2008 eff. Feb. 16, 2008.

Current with amendments included in the New York State Register, XXXVIII, Issue 24 dated June 15, 2016.

6 NYCRR 701.5, 6 NY ADC 701.5

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Part 701. Classifications--Surface Waters and Groundwaters
Fresh Surface Waters. (Refs & Annos)

6 NYCRR 701.6

Section 701.6. Class A Fresh Surface Waters

(a) The best usages of Class A waters are: a source of water supply for drinking, culinary or food processing purposes; primary and secondary contact recreation; and fishing. The waters shall be suitable for fish, shellfish, and wildlife propagation and survival.

(b) This classification may be given to those waters that, if subjected to approved treatment equal to coagulation, sedimentation, filtration and disinfection, with additional treatment if necessary to reduce naturally present impurities, meet or will meet New York State Department of Health drinking water standards and are or will be considered safe and satisfactory for drinking water purposes.

Credits

Sec. filed July 3, 1985; repealed, new filed Aug. 2, 1991 eff. 30 days after filing; amd. filed Jan. 17, 2008 eff. Feb. 16, 2008.

Current with amendments included in the New York State Register, XXXVIII, Issue 24 dated June 15, 2016.

6 NYCRR 701.6, 6 NY ADC 701.6

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Fresh Surface Waters. (Refs & Annos)

6 NYCRR 701.7

Section 701.7. Class B Fresh Surface Waters

The best usages of Class B waters are primary and secondary contact recreation and fishing. These waters shall be suitable for fish, shellfish, and wildlife propagation and survival.

Credits

Sec. filed July 3, 1985; new filed Aug. 2, 1991, eff. 30 days after filing; amd. filed Jan. 17, 2008 eff. Feb. 16, 2008.

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6 NYCRR 701.7, 6 NY ADC 701.7

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Fresh Surface Waters. (Refs & Annos)

6 NYCRR 701.8

Section 701.8. Class C Fresh Surface Waters

The best usage of Class C waters is fishing. These waters shall be suitable for fish, shellfish and wildlife propagation and survival. The water quality shall be suitable for primary and secondary contact recreation, although other factors may limit the use for these purposes.

Credits

Sec. filed July 3, 1985; new filed Aug. 2, 1991 eff. 30 days after filing; amd. filed Jan. 17, 2008 eff. Feb. 16, 2008.

Current with amendments included in the New York State Register, XXXVIII, Issue 24 dated June 15, 2016.

6 NYCRR 701.8, 6 NY ADC 701.8

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Fresh Surface Waters. (Refs & Annos)

6 NYCRR 701.9

Section 701.9. Class D Fresh Surface Waters

The best usage of Class D waters is fishing. Due to such natural conditions as intermittency of flow, water conditions not conducive to propagation of game fishery, or stream bed conditions, the waters will not support fish propagation. These waters shall be suitable for fish, shellfish, and wildlife survival. The water quality shall be suitable for primary and secondary contact recreation, although other factors may limit the use for these purposes.

Credits

Sec. filed July 3, 1985; new filed Aug. 2, 1991, eff. 30 days after filing; amd. filed Jan. 17, 2008 eff. Feb. 16, 2008.

Current with amendments included in the New York State Register, XXXVIII, Issue 24 dated June 15, 2016.

6 NYCRR 701.9, 6 NY ADC 701.9

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Part 701. Classifications--Surface Waters and Groundwaters
Saline Surface Waters. (Refs & Annos)

6 NYCRR 701.10

Section 701.10. Class SA Saline Surface Waters

The best usages of Class SA waters are shellfishing for market purposes, primary and secondary contact recreation and fishing. These waters shall be suitable for fish, shellfish and wildlife propagation and survival.

Credits

Sec. filed July 3, 1985; repealed, new filed Aug. 2, 1991 eff. 30 days after filing; amd. filed Jan. 17, 2008 eff. Feb. 16, 2008.

Current with amendments included in the New York State Register, XXXVIII, Issue 24 dated June 15, 2016.

6 NYCRR 701.10, 6 NY ADC 701.10

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Saline Surface Waters. (Refs & Annos)

6 NYCRR 701.11

Section 701.11. Class SB Saline Surface Waters

The best usages of Class SB waters are primary and secondary contact recreation and fishing. These waters shall be suitable for fish, shellfish and wildlife propagation and survival.

Credits

Sec. filed July 3, 1985; repealed, new filed Aug. 2, 1991, eff. 30 days after filing; amd. filed Jan. 17, 2008 eff. Feb. 16, 2008.

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6 NYCRR 701.11, 6 NY ADC 701.11

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Saline Surface Waters. (Refs & Annos)

6 NYCRR 701.12

Section 701.12. Class SC Saline Surface Waters

The best usage of Class SC waters is fishing. These waters shall be suitable for fish, shellfish and wildlife propagation and survival. The water quality shall be suitable for primary and secondary contact recreation, although other factors may limit the use for these purposes.

Credits

Sec. filed July 3, 1985; repealed, new filed Aug. 2, 1991, eff. 30 days after filing; amd. filed Jan. 17, 2008 eff. Feb. 16, 2008.

Current with amendments included in the New York State Register, XXXVIII, Issue 24 dated June 15, 2016.

6 NYCRR 701.12, 6 NY ADC 701.12

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Saline Surface Waters. (Refs & Annos)

6 NYCRR 701.13

Section 701.13. Class I saline surface waters

The best usages of Class I waters are secondary contact recreation and fishing. These waters shall be suitable for fish, shellfish, and wildlife propagation and survival. In addition, the water quality shall be suitable for primary contact recreation, although other factors may limit the use for this purpose.

Credits

Sec. filed July 3, 1985; repealed, new filed Aug. 2, 1991, eff. 30 days after filing; amd. filed Jan. 17, 2008 eff. Feb. 16, 2008; amd. filed Oct. 20, 2015 eff. Nov. 4, 2015.

Current with amendments included in the New York State Register, XXXVIII, Issue 24 dated June 15, 2016.

6 NYCRR 701.13, 6 NY ADC 701.13

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Saline Surface Waters. (Refs & Annos)

6 NYCRR 701.14

Section 701.14. Class SD saline surface waters

The best usage of Class SD waters is fishing. These waters shall be suitable for fish, shellfish, and wildlife survival. In addition, the water quality shall be suitable for primary and secondary contact recreation, although other factors may limit the use for these purposes. This classification may be given to those waters that, because of natural or man-made conditions, cannot meet the requirements for fish propagation.

Credits

Sec. filed July 3, 1985; repealed, new filed Aug. 2, 1991, eff. 30 days after filing; amd. filed Jan. 17, 2008 eff. Feb. 16, 2008; amd. filed Oct. 20, 2015 eff. Nov. 4, 2015.

Current with amendments included in the New York State Register, XXXVIII, Issue 24 dated June 15, 2016.

6 NYCRR 701.14, 6 NY ADC 701.14

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Part 701. Classifications--Surface Waters and Groundwaters
Groundwaters. (Refs & Annos)

6 NYCRR 701.15

Section 701.15. Class GA Fresh Groundwaters

The best usage of Class GA waters is as a source of potable water supply. Class GA waters are fresh groundwaters.

Credits

Sec. filed July 3, 1985; repealed, new filed Aug. 2, 1991, eff. 30 days after filing.

Current with amendments included in the New York State Register, XXXVIII, Issue 24 dated June 15, 2016.

6 NYCRR 701.15, 6 NY ADC 701.15

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Groundwaters. (Refs & Annos)

6 NYCRR 701.16

Section 701.16. Class GSA Saline Groundwaters

The best usages of Class GSA waters are as a source of potable mineral waters, or conversion to fresh potable waters, or as raw material for the manufacture of sodium chloride or its derivatives or similar products. Class GSA waters are saline groundwaters.

Credits

Sec. filed July 3, 1985; repealed, new filed Aug. 2, 1991, eff. 30 days after filing.

Current with amendments included in the New York State Register, XXXVIII, Issue 24 dated June 15, 2016.

6 NYCRR 701.16, 6 NY ADC 701.16

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Groundwaters. (Refs & Annos)

6 NYCRR 701.17

Section 701.17. Class GSB Saline Groundwaters

The best usage of Class GSB waters is as a receiving water for disposal of wastes. Class GSB waters are saline groundwaters that have a chloride concentration in excess of 1,000 milligrams per liter or a total dissolved solids concentration in excess of 2,000 milligrams per liter.

Credits

Sec. filed July 3, 1985; repealed, new filed Aug. 2, 1991, eff. 30 days after filing.

Current with amendments included in the New York State Register, XXXVIII, Issue 24 dated June 15, 2016.

6 NYCRR 701.17, 6 NY ADC 701.17

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Groundwaters. (Refs & Annos)

6 NYCRR 701.18

Section 701.18. Assignment of Groundwater Classifications

(a) The groundwater classifications defined in sections 701.15 and 701.16 of this Part are assigned to all the groundwaters of New York State.

(b) The Class GSB shall not be assigned to any groundwaters of the state, unless the commissioner finds that adjacent and tributary groundwaters and the best usages thereof will not be impaired by such classification.

Credits

Sec. added by renum 701.3, filed July 3, 1985; repealed, new filed Aug. 2, 1991; amd. Feb. 10, 1998, eff. 30 days after filing.

Current with amendments included in the New York State Register, XXXVIII, Issue 24 dated June 15, 2016.

6 NYCRR 701.18, 6 NY ADC 701.18

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Part 701. Classifications--Surface Waters and Groundwaters
Discharge Restriction Categories. (Refs & Annos)

6 NYCRR 701.19

Section 701.19. Discharge Restriction Categories

Discharge restriction categories may be assigned to surface waters or groundwaters by the department. When used, the discharge restriction category will be applied to such classified waters along with the applicable best usage and other existing standards.

Credits

Sec. added by renum. and amd. 701.4, filed July 3, 1985; amd. filed Sept. 20, 1985; repealed, new filed Aug. 2, 1991; renum. 701.25, new filed Sept. 7, 1993 eff. 30 days after filing.

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6 NYCRR 701.19, 6 NY ADC 701.19

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Part 701. Classifications--Surface Waters and Groundwaters
Discharge Restriction Categories. (Refs & Annos)

6 NYCRR 701.20

Section 701.20. Purpose

(a) The discharge restriction categories may be assigned to:

- (1) waters of particular public health concern;
- (2) significant recreational or ecological waters where the quality of the water is critical to maintaining the value for which the waters are distinguished; and
- (3) other sensitive waters where the department has determined that existing standards are not adequate to maintain water quality.

(b) Waters of particular public health concern may include:

- (1) Waters within a 60-day water time-of-travel of unfiltered public water supply intake points;
- (2) Public water supply watersheds with reservoirs experiencing accelerated eutrophication;
- (3) Groundwaters requiring such protection as specified in watershed rules and regulations or wellhead protection programs; and
- (4) Marine waters certified by the department for taking of shellfish.

(c) Significant recreational and ecological waters may include:

- (1) Wild and scenic rivers designated as per [ECL 15-2701](#) and Part 666 of this Title;
- (2) Critical aquatic habitat for fishes, amphibians, or aquatic invertebrates listed as endangered, threatened, or of special concern in Part 182 of this Title;

(3) State park waters;

(4) State and federal wildlife management area waters;

(5) Groundwaters and surface waters tributary to and within freshwater wetlands designated class I pursuant to Part 664 of this Title;

(6) Classified waters within intertidal marsh and coastal fresh marsh tidal wetlands designated as per Part 661 of this Title;

(7) Waters protected under the constitution of the state; and

(8) Pristine, minimally impacted waters with a diversity of naturally reproducing aquatic species.

(d) Other sensitive waters may include:

(1) Recreational waters where accelerated eutrophication threatens current and future use of the waters;

(2) Waters where physical accumulation or bioaccumulation of contaminants produce water use impairments;

(3) Small trout spawning streams; and

(4) Waters with little assimilative capacity due to natural background conditions or human activities.

Credits

Sec. added by renum. 701.5, filed July 3, 1985; amd. filed Sept. 20, 1985; repealed, filed Aug. 2, 1991; new filed Sept. 7, 1993 eff. 30 days after filing.

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6 NYCRR 701.20, 6 NY ADC 701.20

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Discharge Restriction Categories. (Refs & Annos)

6 NYCRR 701.21

Section 701.21. Criteria

(a) In assigning discharge restriction categories, the department will consider factors including the size of the waterbody, the nature of the surrounding district including the watershed, and the uses and quality of the waters. The department will also weigh the need for the additional water quality protection of the discharge restriction categories as compared with the assigned standards and best uses and the likelihood that the discharge restriction category will contribute to achieving the protection goals.

(b) As appropriate, additional consideration may be given to:

- (1) the potential effects of additional discharges from new, expanded, or changed facilities or activities on the water quality value of resource;
- (2) the risk to the waters or the use of the waters from unintended or incidental discharges from new facilities; and
- (3) the potential effects of physical accumulation or bioaccumulation of substances not addressed by ambient standards.

(c) Substantial weight will be given to obtaining consistency with provisions of existing watershed management or protection plans adopted or certified by the state or an entity of local government.

Credits

Sec. filed Sept. 7, 1993 eff. 30 days after filing.

Current with amendments included in the New York State Register, XXXVIII, Issue 24 dated June 15, 2016.

6 NYCRR 701.21, 6 NY ADC 701.21

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Part 701. Classifications--Surface Waters and Groundwaters
Discharge Restriction Categories. (Refs & Annos)

6 NYCRR 701.22

Section 701.22. Allowable Discharges

New discharges may be permitted for waters where discharge restriction categories are assigned when such discharges result from environmental remediation projects, from projects correcting environmental or public health emergencies, or when such discharges result in a reduction of pollutants for the designated waters. In all cases, best usages and standards will be maintained.

Credits

Sec. filed Sept. 7, 1993 eff. 30 days after filing.

Current with amendments included in the New York State Register, XXXVIII, Issue 24 dated June 15, 2016.

6 NYCRR 701.22, 6 NY ADC 701.22

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Part 701. Classifications--Surface Waters and Groundwaters
Discharge Restriction Categories. (Refs & Annos)

6 NYCRR 701.23

Section 701.23. No New Discharge

For waters designated “no new discharge,“ no new discharges shall be permitted, and no increase in any existing discharges shall be permitted. Storm water discharges are excepted from these restrictions. Storm water discharges and nonpoint sources of pollution shall be controlled by use of management practices to minimize the impact on the designated waters and shall comply with other applicable requirements of this Title.

Credits

Sec. filed Sept. 7, 1993 eff. 30 days after filing.

Current with amendments included in the New York State Register, XXXVIII, Issue 24 dated June 15, 2016.

6 NYCRR 701.23, 6 NY ADC 701.23

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Part 701. Classifications--Surface Waters and Groundwaters
Discharge Restriction Categories. (Refs & Annos)

6 NYCRR 701.24

Section 701.24. No New Discharge of a Specified Substance

For waters designated “no new discharge of a specified substance“, the specified substance shall not be permitted in new discharges. No increase in the release of the specified substance shall be permitted for any existing discharges. Storm water discharges are excepted from these restrictions. Storm water discharges and nonpoint sources of pollution shall be controlled by use of management practices to minimize the release of the specified substance to the designated waters and shall comply with other applicable requirements of this Title. The substance will be specified at the time the waters are designated.

Credits

Sec. filed Sept. 7, 1993 eff. 30 days after filing.

Current with amendments included in the New York State Register, XXXVIII, Issue 24 dated June 15, 2016.

6 NYCRR 701.24, 6 NY ADC 701.24

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Part 701. Classifications--Surface Waters and Groundwaters
Trout Waters. (Refs & Annos)

6 NYCRR 701.25

Section 701.25. Trout waters (T or TS)

(a) The *symbol (T)*, appearing in an entry in the “standards“ column in the classification tables of Parts 800 through 941 of this Title, means that the classified waters in that specific item are trout waters. Any water quality standard, guidance value, or thermal criterion that specifically refers to trout or trout waters applies.

(b) The *symbol (TS)*, appearing in an entry in the “standards“ column in the classification tables of Parts 800 through 941 of this Title, means that the classified waters in that specific item are trout spawning waters. Any water quality standard, guidance value, or thermal criterion that specifically refers to trout, trout spawning, trout waters, or trout spawning waters applies.

Credits

Sec. added by renum. 701.19, filed Sept. 7, 1993; renum. 701.26, new filed Jan. 17, 2008 eff. 30 days after filing.

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6 NYCRR 701.25, 6 NY ADC 701.25

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Trout Waters. (Refs & Annos)

6 NYCRR 701.26

Section 701.26. Severability

If any provision of this Part or its application to any person or circumstance is held to be invalid, the remainder of this Part and the application of that provision to other persons or circumstances will not be affected.

Credits

Sec. added by renum. 701.19, filed Sept. 7, 1993 eff. 30 days after filing; renum. from 701.25 filed Jan. 17, 2008 eff. Feb. 16, 2008.

Current with amendments included in the New York State Register, XXXVIII, Issue 24 dated June 15, 2016.

6 NYCRR 701.26, 6 NY ADC 701.26

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Part 702. Derivation and Use of Standards and Guidance Values

NYCRR T. 6, Ch. X, Subch. A, Art. 2, Pt. 702, Refs & Annos

Credits

(Statutory authority: [Environmental Conservation Law](#), ss 3-0301,15-0313, 17-0301, 17-0303, 17-0809)

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Part 702. Derivation and Use of Standards and Guidance Values (Refs & Annos)

6 NYCRR 702.1

Section 702.1. Basis for Derivation of Water Quality Standards and Guidance Values

(a) The control of taste-, color- and odor-producing, toxic and other deleterious substances is implemented through the use of standards and guidance values. Standards and guidance values for such substances shall be derived according to the procedures set forth in this Part.

(b) The derivation of standards and guidance values will consider, to the extent possible, variations in natural or background conditions of waters, including but not limited to alkalinity, temperature, hardness and pH.

(c) Standards and guidance values shall be of the following Types to protect the best usages of the waters as described in Part 701 of this Title:

(1) Health (Water Source) or H(W);

(2) Health (Fish Consumption) or H(FC);

(3) Aquatic (Chronic) or A(C);

(4) Aquatic (Acute) or A(A);

(5) Wildlife or W;

(6) Aesthetic (Water Source) or E(W);

(7) Aesthetic (Food Source) or E(FS); and

(8) Recreation or R.

Credits

Sec. repealed, new filed: April 28, 1972; Feb. 25, 1974; ams. filed: Sept. 20, 1974; July 3, 1985; repealed, new filed Aug. 2, 1991; amd. Feb. 10, 1998, eff. 30 days after filing; amd. filed Jan. 17, 2008 eff. Feb. 16, 2008.

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6 NYCRR 702.1, 6 NY ADC 702.1

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Part 702. Derivation and Use of Standards and Guidance Values (Refs & Annos)

6 NYCRR 702.2

Section 702.2. Standards and Guidance Values for Protection
of Human Health and Sources of Potable Water Supplies

(a) Standards and guidance values for protection of the best usage as a source of potable water supply shall protect human health and drinking water sources and are referred to as Health (Water Source) values.

(b) The standard or guidance value shall be the most stringent of the values derived using the procedures found in sections 702.3 through 702.7 of this Part.

(c) Standards or guidance values based on oncogenic effects that are based on the 95 percent lower confidence limit on the human dose corresponding to an excess lifetime cancer risk of one-in-one million or on chemical correlation to such effects shall be derived using age-specific water consumption rates and points-of-departure for a lifetime exposure period of 70 years if scientific evidence is sufficient to show that children may be more sensitive than adults to such oncogenic effects. If such scientific evidence is not available, a consumption rate of two liters of water per day for a lifetime exposure period of 70 years shall be used.

(d) Standards or guidance values based on oncogenic effects that are based on the human equivalent dose at the point-of-departure divided by an uncertainty factor, chronic nononcogenic effects, or chemical correlation to such effects shall be derived using age-specific water consumption rates for a childhood exposure period (18 years or less) if scientific evidence is sufficient to show that children may be more sensitive than adults to such effects. If such scientific evidence is not available, a consumption rate of two liters of water per day shall be used.

(e) Standards or guidance values based on acute nononcogenic effects or chemical correlation to acute nononcogenic effects shall be derived using a consumption rate of one liter of water per day or a different water consumption rate if deemed more appropriate based on scientific evidence.

Credits

Sec. repealed, new filed: April 28, 1972; Feb. 25, 1974 eff. 30 days after filing; provided, however, if the application, pursuant to Parts 800 to 941, inclusive, of Title 6, of any provision of Part 701 or 702 shall be found to be invalid, the corresponding provision of Part 701 or 702 in effect immediately prior to such effective date shall be deemed not to have been repealed and shall remain in effect until such time as the provision, the application of which was found to be invalid, can lawfully be made applicable. Amd. filed June 20, 1988; repealed, new filed Aug. 2, 1991; amd. Feb. 10, 1998, eff. 30 days after filing; amd. filed Jan. 17, 2008 eff. Feb. 16, 2008.

Current with amendments included in the New York State Register, XXXVIII, Issue 24 dated June 15, 2016.

6 NYCRR 702.2, 6 NY ADC 702.2

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Part 702. Derivation and Use of Standards and Guidance Values (Refs & Annos)

6 NYCRR 702.3

Section 702.3. Procedures for Deriving Standards and Guidance Values
Based on Specific MCLs and Principal Organic Contaminant Classes

(a) The standard or guidance value shall be equal to the value of a Specific MCL unless the Specific MCL is based solely on aesthetic considerations.

(b) For a substance belonging to any of the principal organic contaminant classes and for which there is no Specific MCL, the standard or guidance value shall be 5 ug/L or a less stringent value as determined by the Commissioner of the New York State Department of Health.

Credits

Sec. amd. filed March 27, 1972; repealed, new filed: April 28, 1972; Feb. 25, 1974; amds. filed: Sept. 20, 1974; Sept. 20, 1985; repealed, new filed Aug. 2, 1991; amd. filed Feb. 10, 1998, eff. 30 days after filing.

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6 NYCRR 702.3, 6 NY ADC 702.3

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6 NYCRR 702.4

Section 702.4. Procedures for Deriving Standards and Guidance Values Based on Oncogenic Effects

(a) Standards and guidance values based on oncogenic effects shall be calculated using dose-response data from scientifically valid human or animal studies. Considering factors including but not limited to route, duration and timing of exposure, species, strain, tumor types and sites, nature and severity of effects, pharmacokinetics, mode-of-action, study quality, and statistical significance, the dose-response data deemed to be the most appropriate for evaluating potential human health risks at environmental exposures shall be used as the basis of the value.

(b) Standards and guidance values shall be based on the point-of-departure for the selected dose-response data.

(1) The point-of-departure shall be the LED10, which is the 95 percent lower confidence limit on the dose associated with 10 percent excess risk for oncogenic effects adjusted for background risk. A different level of excess risk may be used if deemed more appropriate based on scientific evidence.

(2) The point-of-departure shall be estimated using a validated, biologically-based dose-response model. If such a model does not exist, the point-of-departure shall be estimated using a mathematical model (i.e., the multistage, probit, logistic, or Weibull model) that best describes the dose-response data within the range of observation. Statistical measures, including the Chi-squared goodness-of-fit test, shall be used to determine which model best describes the data.

(3) If the selected dose-response data are not adequately described by methods in section 702.4(b)(2) of this Part, an alternative point-of-departure (e.g., a NOEL or LOEL) shall be used.

(c) If the point-of-departure is derived from an animal study, the human equivalent dose (milligrams of substance per kilogram of body weight per day) at the point-of-departure shall be estimated by multiplying the animal-to-human body weight ratio raised to the 0.25 power by the animal dose in milligrams of substance per kilogram of body weight per day. An alternative trans-species conversion method may be used if deemed more appropriate based on scientific evidence.

(d) The standard or guidance value shall be derived by extrapolating from the point-of-departure to the human dose at the standard or guidance value.

(1) If a validated biologically-based dose-response model is used to estimate the point-of-departure, the standard or guidance value shall be based on the 95 percent lower confidence limit on the human dose corresponding to an excess lifetime cancer risk of one-in-one million and shall be estimated using the model. If such a model is not available or is not

validated for humans, the extrapolation method from the point-of-departure to the human dose at the standard or guidance value shall depend on the results of a mode-of-action analysis.

(2) If data on mode-of-action are unavailable, or if the mode-of-action analysis provides evidence of linearity at low doses or does not provide unequivocal evidence of nonlinearity at low doses, the standard or guidance value shall be based on the 95 percent lower confidence limit on the human dose corresponding to an excess lifetime cancer risk of one-in-one million. The human dose at the standard or guidance value shall be estimated by multiplying the human equivalent dose at the point-of-departure derived according to sections 702.4(b)(1) and 702.4(b)(2) of this Part by a factor equal to the risk level of one-in-one million divided by the risk level at the point-of-departure.

(3) If a mode-of-action analysis provides no evidence for linearity at low doses and provides unequivocal evidence of nonlinearity at low doses, the standard or guidance value shall be based on the human equivalent dose at the point-of-departure identified by the methods in section 702.4(b) of this Part divided by an uncertainty factor that will insure that the human dose at the standard or guidance value will be without appreciable risk to the human population, including children. The magnitude of this factor will generally range from 10 to 3,000. Factors that will be considered in determining the magnitude of the uncertainty factor shall include: the nature of the dose-response curve and the point-of-departure; the relative sensitivities of experimental animals and humans; the nature and extent of human variation, including age-dependent differences in sensitivity during a lifetime; and the data gaps in the toxicological database.

(e) Standards and guidance values based on the 95 percent lower confidence limit on the human dose corresponding to an excess lifetime cancer risk of one-in-one million shall be derived using age-specific body weights for a lifetime exposure period of 70 years if scientific evidence is sufficient to show that children may be more sensitive than adults to the oncogenic effect. If such evidence is not available, a body weight of 70 kilograms and a lifetime exposure period of 70 years shall be used.

(f) Standards and guidance values based on the human equivalent dose at the point-of-departure divided by an uncertainty factor shall allow no more than 20 percent of the human dose at the standard or guidance value to come from drinking water and shall be derived using age-specific body weights for a childhood exposure period (18 years or less) if scientific evidence is sufficient to show that children may be more sensitive than adults to the oncogenic effect. If such evidence is not available, a body weight of 70 kilograms shall be used.

Credits

Sec. amd. filed March 27, 1972; repealed, new filed: April 28, 1972; filed Feb. 25, 1974 eff. 30 days after filing; provided, however, if the application, pursuant to Parts 800 to 941, inclusive, of Title 6, of any provision of Part 701 or 702 shall be found to be invalid, the corresponding provision of Part 701 or 702 in effect immediately prior to such effective date shall be deemed not to have been repealed and shall remain in effect until such time as the provision, the application of which was found to be invalid, can lawfully be made applicable. Repealed, filed June 20, 1988; new filed Aug. 2, 1991; amd. filed Feb. 10, 1998, eff. 30 days after filing; amd. filed Jan. 17, 2008 eff. Feb. 16, 2008.

Current with amendments included in the New York State Register, XXXVIII, Issue 24 dated June 15, 2016.

6 NYCRR 702.4, 6 NY ADC 702.4

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6 NYCRR 702.5

Section 702.5. Procedures for Deriving Standards and Guidance Values Based on NonOncogenic Effects

(a) Standards and guidance values based on nononcogenic effects shall be calculated using dose-response data from scientifically valid human or animal studies. Considering factors, including but not limited to route, duration and timing of exposure, species, strain, nature and severity of effects, pharmacokinetics, mode-of-action, study quality and statistical significance, the dose-response data deemed to be the most appropriate for evaluating potential human health risks at environmental exposures shall be used as the basis of the value.

(b) Standards and guidance values shall be based on the point-of-departure for the selected dose-response data.

(1) The point-of-departure shall be the no-observed-effect level (NOEL), expressed as a dose in milligrams of substance per kilogram of body weight per day. Where a valid NOEL is not available, a lowest-observed-effect level (LOEL) may be used.

(2) If neither a NOEL or a LOEL are available, an alternative point-of-departure, e.g., the 95 percent lower confidence limit on the dose associated with a specified percentage of excess risk (e.g., 10 percent) for a nononcogenic effect adjusted for background risk, may be used. The alternative point-of-departure shall be estimated using one of the mathematical models that are appropriate for analysis of dichotomous or continuous dose-response data (e.g., power, polynomial, or linear), and shall be the model that best describes the dose-response data within the range of experimental observation. Statistical measures, including the Chi-squared goodness-of-fit test, shall be used to determine which model best describes the data.

(c) The standard or guidance value shall be derived by extrapolating from the point-of-departure to the reference dose (RfD). The RfD shall be estimated by dividing the NOEL (or LOEL, or an alternative point-of-departure) by an uncertainty factor. The magnitude of this factor shall insure that exposures at or below the reference dose are without appreciable risk to the human population, including children, and will generally range from 10 to 3,000. It shall account for the following areas of uncertainty:

(1) LOEL to NOEL extrapolation (where necessary, to account for uncertainty where extrapolating from a LOEL to a NOEL);

(2) subchronic to chronic extrapolation (where necessary, to account for uncertainty where extrapolating from a less-than-chronic study NOEL (or LOEL, or other point-of-departure) to a chronic NOEL, LOEL, or other point-of-departure;

(3) animal to human extrapolation (where necessary, to account for uncertainty where extrapolating from experimental animals to humans);

(4) inter-human variability (where necessary, to account for variation in sensitivity among the human population, including special consideration of the potential sensitivity of children); and

(5) data gaps (where necessary, to account for areas of scientific uncertainty in the toxicological database).

(d) Standards and guidance values based on chronic toxic effects shall allow no more than 20 percent of the reference dose to come from drinking water and shall be derived using age-specific body weights for a childhood exposure period (18 years or less) if scientific evidence is sufficient to show that children may be more sensitive than adults to such effects. If such evidence is not available, a body weight of 70 kilograms shall be used.

(e) Standards and guidance values based on acute toxic effects shall allow 20 percent of the reference dose to come from drinking water and shall be derived using a child body weight of 10 kilograms. Alternative values for percentage of reference dose or for body weight may be used if deemed more appropriate based on scientific evidence.

Credits

Sec. repealed, new filed April 28, 1972; repealed, filed Feb. 25, 1974 eff. 30 days after filing; provided, however, if the application, pursuant to Parts 800 to 941, inclusive, of Title 6, of any provision of Part 701 or 702 shall be found to be invalid, the corresponding provision of Part 701 or 702 in effect immediately prior to such effective date shall be deemed not to have been repealed and shall remain in effect until such time as the provision, the application of which was found to be invalid, can lawfully be made applicable. New filed Aug. 2, 1991; amd. filed Feb. 10, 1998, eff. 30 days after filing; amd. filed Jan. 17, 2008 eff. Feb. 16, 2008.

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6 NYCRR 702.5, 6 NY ADC 702.5

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6 NYCRR 702.6

Section 702.6. (Repealed)

Credits

Sec. repealed, filed March 22, 1968; new filed Aug. 2, 1991 eff. 30 days after filing; repealed, filed Feb. 10, 1998 effective 30 days after filing.

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6 NYCRR 702.6, 6 NY ADC 702.6

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6 NYCRR 702.7

Section 702.7. Procedure for Deriving Standards and Guidance Values Based on Chemical Correlation

If the available data are deemed insufficient for deriving a standard or guidance value on the basis of either of sections 702.4 or 702.5 of this Part, a standard or guidance value may be based on correlation to a chemical for which a standard or guidance value has been established pursuant to those sections. Standards or guidance values based on chemical correlation may be established if similar toxic effects are anticipated because of similarity of functional groups or metabolic or toxicologic pathways.

Credits

Sec. repealed, filed March 22, 1968; new filed Aug. 2, 1991; amd. filed Feb. 10, 1998, eff. 30 days after filing; amd. filed Jan. 17, 2008 eff. Feb. 16, 2008.

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6 NYCRR 702.7, 6 NY ADC 702.7

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6 NYCRR 702.8

Section 702.8. Procedures for Deriving Standards and Guidance
Values for Protection of Human Health From Consumption of Fish

Standards and guidance values for the protection of the best usage of fishing shall protect the health of human consumers of fish and, for Class SA waters, human consumers of shellfish from chemicals that may bioaccumulate and are referred to as Health (Fish Consumption) values.

(a) Standards and guidance values based on bioaccumulation and human consumption of fish shall be equal to the acceptable daily intake from fish consumption divided by a fish consumption rate of 0.033 kilograms per day and by a bioaccumulation factor.

(b) The acceptable daily intake, in micrograms per day, from fish consumption shall be the more stringent of:

(1) 20 percent of the reference dose (for nononcogenic effects) as determined from section 702.5 or 702.7 of this Part; or

(2) the human dose at the standard or guidance value (for oncogenic effects) as determined from section 702.4 or 702.7 of this Part.

(c) The bioaccumulation factor is the ratio of the concentration of a substance in fish flesh, in micrograms per kilogram, to the concentration in water, in micrograms per liter. Bioaccumulation factors will generally be based on measured values which may be supported by bioaccumulation factors derived from octanol/water partition coefficients.

Credits

Sec. filed May 24, 1967; repealed, new filed April 28, 1972; repealed, filed Feb. 25, 1974 eff. 30 days after filing; provided, however, if the application, pursuant to Parts 800 to 941, inclusive, of Title 6, of any provision of Part 701 or 702 shall be found to be invalid, the corresponding provision of Part 701 or 702 in effect immediately prior to such effective date shall be deemed not to have been repealed and shall remain in effect until such time as the provision, the application of which was found to be invalid, can lawfully be made applicable. New filed Aug. 2, 1991; amd. filed Feb. 10, 1998, eff. 30 days after filing; amd. filed Jan. 17, 2008 eff. Feb. 16, 2008.

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6 NYCRR 702.8, 6 NY ADC 702.8

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6 NYCRR 702.9

Section 702.9. Standards and Guidance Values for Protection of Aquatic Life

- (a) Protection of the best usage of fishing shall include standards and guidance values for the protection of aquatic life.
- (b) Standards and guidance values for the protection of propagation of aquatic life are referred to as Aquatic (Chronic) values.
- (c) Standards and guidance values for the protection of survival of aquatic life are referred to as Aquatic (Acute) values.
- (d) Where the waters are to be suitable for fish, shellfish, and wildlife propagation and survival, both Aquatic (Chronic) and Aquatic (Acute) standards or guidance values shall apply.
- (e) Where the waters are to be suitable for fish, shellfish, and wildlife survival, Aquatic (Acute) standards and guidance values shall apply.
- (f) Standards and guidance values shall be derived using the procedures found in subdivision (h) of this section 706.1 of this Title.
- (g) If the available data are deemed insufficient for deriving a standard or guidance value on the basis of section 706.1 of this Title, a value may be based on either:
- (1) an alternative procedure if deemed appropriate based on scientific evidence; or
 - (2) correlation to a chemical for which a standard or guidance value has been established pursuant to section 706.1 of this Title if similar toxic effects are anticipated because of similarity of functional groups or metabolic or toxicologic pathways.

Credits

Sec. filed Aug. 2, 1991; repealed, new filed Feb. 10, 1998, eff. 30 days after filing; amd. filed Jan. 17, 2008 eff. Feb. 16, 2008.

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6 NYCRR 702.9, 6 NY ADC 702.9

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6 NYCRR 702.10 to 702.11

Sections 702.10 to 702.11. (Repealed)

Credits

Secs. filed Aug. 2, 1991, repealed, filed Feb. 10, 1998 eff. 30 days after filing.

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6 NYCRR 702.10 to 702.11, 6 NY ADC 702.10 to 702.11

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6 NYCRR 702.12

Section 702.12. Procedures for Deriving Standards and Guidance Values for Protection of Recreation

(a) Protection of the best usage of recreation shall include standards and guidance values to protect the quality of the water for primary and secondary contact recreation, including aesthetic conditions. Such values are referred to as Recreation values and derived based on an evaluation of reported levels of the pollutant (such as pathogens or pathogen indicators, nutrients or vegetation) that affect the quality of the water and its suitability for primary and secondary contact recreation.

Credits

Sec. filed Jan. 17, 2008 eff. Feb. 16, 2008.

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6 NYCRR 702.12, 6 NY ADC 702.12

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6 NYCRR 702.13

Section 702.13. Procedures for Deriving Standards and Guidance Values for Protection of Wildlife

(a) Protection of the best usage of fishing shall include standards and guidance values for protection of the health of wildlife consumers of aquatic life and water. Such values are referred to as Wildlife values.

(b) Standards and guidance values to protect wildlife shall be derived using levels of chemicals known to be toxic to wildlife in conjunction with a bioaccumulation factor and wildlife consumption rates of aquatic life and water.

(c) Where the available data are deemed insufficient for deriving a value on the basis of subdivision (b) of this section, a value may be based on correlation to a chemical for which a standard or guidance value has been established pursuant to that subdivision. Values based on chemical correlation may be established where similar toxic effects are anticipated because of similarity of functional groups or metabolic or toxicologic pathways.

Credits

Sec. filed Aug. 2, 1991; repealed, new filed Feb. 10, 1998; amd July 16, 1999 eff Aug. 4, 1999.

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6 NYCRR 702.13, 6 NY ADC 702.13

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6 NYCRR 702.14

Section 702.14. Procedures for Deriving Standards and Guidance Values Based on Aesthetic Quality

(a) Protection of the best usage as a source of potable water supply shall include standards and guidance values to protect the aesthetic quality of the water, including but not limited to taste, odor, and discoloration, both as a source of potable water and for other human uses such as clothes washing and showering. Such values are referred to as Aesthetic (Water Source) values and shall be derived based on an evaluation of reported levels of the substance that affect the aesthetic quality of the water. Values derived shall not exceed the value of a Specific MCL that is based on aesthetic considerations.

(b) Protection of the best usage of fishing shall include standards and guidance values to prevent tainting of aquatic food, including but not limited to taste, odor, and discoloration. Such values are referred to as Aesthetic (Food Source) values and derived based on an evaluation of reported levels of the substance that affect the aesthetic quality of the fish flesh, aquatic life, wildlife, or livestock that are consumed by humans and that acquire such flavor, odor, or color because of habitation in, passage through, or ingestion of waters.

(c) If the available data are deemed insufficient for deriving a value based on subdivision (a) or (b) of this section, a value may be established based on chemical correlation to a chemical for which a standard or guidance value has been established pursuant to that subdivision, if similar aesthetic considerations are anticipated because of similarity of functional groups or metabolic or toxicologic pathways.

Credits

Sec. filed Aug. 2, 1991; repealed, new filed Feb. 10, 1998, eff. 30 days after filing; amd. filed Jan. 17, 2008 eff. Feb. 16, 2008.

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6 NYCRR 702.14, 6 NY ADC 702.14

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6 NYCRR 702.15

Section 702.15. Derivation of Guidance Values

(a) For those substances that do not have an applicable Health (Water Source) standard in section 703.5 of this Title and that the department determines may pose a threat to human health if discharged to the waters of the State, a guidance value may be derived and shall be the most stringent of the following:

(1) the values derived by applying the procedures from sections 702.3 through 702.7 of this Part;

(2) a “general organic guidance value“ of 50 ug/L for an individual organic substance. This paragraph does not apply if adequate and sufficient data are available to justify values greater than 50 ug/L using procedures from both sections 702.4 and 702.5 of this Part. The general organic guidance value applies only to those substances specified by the department; or

(3) a “specific organic mixture guidance value“ of 100 ug/L for a commercially available mixture of individual organic substances. This paragraph does not apply if adequate and sufficient data are available to justify values greater than 100 ug/L using procedures from both sections 702.4 and 702.5 of this Part. The derivation of this value for any specified mixture does not preclude the existence or derivation of a Health (Water Source) standard or guidance value for any individual organic substance in the mixture. The specific organic mixture guidance value applies only to those mixtures specified by the department.

(b) For those substances that do not have an applicable Health (Fish Consumption) standard in section 703.5 of this Title and that the department determines may pose a threat to human health if discharged to the waters of the state, a guidance value may be derived by applying the procedures from section 702.8 of this Part.

(c)(1) For those substances that do not have an applicable Aquatic (Chronic) standard in section 703.5 of this Title and that the department determines may pose a threat to aquatic life or the environment if discharged to the waters of the state, a guidance value may be derived by applying the appropriate procedure from section 702.9 of this Part.

(2) For those substances that have an identified applicable Aquatic (Chronic) standard in section 703.5 of this Title, a guidance value shall be substituted where the procedures in section 702.9 of this Part yield a more stringent value. Remarks in Table 1 of section 703.5(f) of this Title identify the standards to which this paragraph applies. This paragraph applies only to the waters of the Great Lakes System.

(d)(1) For those substances that do not have an applicable Aquatic (Acute) standard in section 703.5 of this Title and that the department determines may pose a threat to aquatic life or the environment if discharged to the waters of the State, a guidance value may be derived by applying the appropriate procedure from section 702.9 of this Part.

(2) For those substances that have an identified applicable Aquatic (Acute) standard in section 703.5 of this Title, a guidance value shall be substituted where the procedures in section 702.9 of this Part yield a more stringent value. Remarks in Table 1 of section 703.5(f) of this Title identify the standards to which this paragraph applies. This paragraph applies only to the waters of the Great Lakes System.

(e) For those substances that do not have an applicable Wildlife standard in section 703.5 of this Title and that the department determines may pose a threat to wildlife if discharged to the waters of the State, a guidance value may be derived by applying the appropriate procedure from section 702.13 of this Part.

(f) For those substances that do not have an applicable Aesthetic (Water Source) standard in section 703.5 of this Title and that the department determines may pose a threat to the aesthetic quality of sources of potable water if discharged to the waters of the State, a guidance value may be derived by applying the appropriate procedure from section 702.14 of this Part.

(g) For those substances that do not have an applicable Aesthetic (Food Source) standard in section 703.5 of this Title and that the department determines may pose a threat to the aesthetic quality of food for human consumption if discharged to the waters of the State, a guidance value may be derived by applying the appropriate procedure from section 702.14 of this Part.

(h) For those parameters that do not have an applicable Recreation standard in section 703.5 of this Title and that the department determines may pose a threat to the quality of the water for recreation if discharged to the waters of the State, a guidance value may be derived by applying the appropriate procedure from section 702.12 of this Part.

Credits

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6 NYCRR 702.15, 6 NY ADC 702.15

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6 NYCRR 702.16

Section 702.16. Derivation and Implementation of Effluent Limitations

(a) Standards and guidance values shall be used to control taste-, color- and odor-producing, toxic and deleterious substances, as specified in the narrative standards for fresh and saline surface waters and groundwaters and shall be the basis of water quality-based effluent limitations and groundwater effluent limitations for use in SPDES permits issued pursuant to Parts 750 - 758 of this Title.

(b) Surface water effluent limitations.

(1) When deriving a water quality-based effluent limitation from a surface water standard or guidance value, the department may take into account factors, including but not limited to analytical detectability, treatability, natural background levels, intermittent streamflow, wet weather events, and the waste assimilative capacity of the receiving waters.

(2) Where these factors indicate that achieving a water quality-based effluent limitation would be clearly unreasonable, the department may substitute a modified effluent limitation. Where the effluent limitation had been derived from an aquatic standard or guidance value, the department shall also require biological monitoring.

(3) A surface water effluent limitation for the total of organic substances that have a Health (Water Source) standard for surface water in Table 1 of section 703.5(f) of this Title or a guidance value for surface water derived pursuant to section 702.15(a) of this Part shall be established based upon an ambient value of 100 ug/L. Where such standards or guidance values are 100 ug/L or greater, they shall not be included in the total.

(c) Groundwater effluent limitations.

(1) Groundwater effluent limitations are provided in Table 3 of section 703.6(e) of this Title. For those substances not included in Table 3 of section 703.6(e) of this Title and for which a guidance value has been derived as provided in section 702.15(a) or section 702.15(f) of this Part, the groundwater effluent limitation shall be equal to the guidance value.

(2) When implementing a groundwater effluent limitation, the department may take into account factors, including but not limited to analytical detectability and treatability.

(3) Where these factors indicate that achieving a groundwater effluent limitation as set forth in paragraphs (1) and (2) of this subdivision would be clearly unreasonable, the department may substitute a modified effluent limitation.

(4) A groundwater effluent limitation for the total of organic substances that have a groundwater standard in Table 1 of section 703.5(f) of this Title or a groundwater guidance value derived pursuant to section 702.15(a) of this Part shall be established at 100 ug/L. However, substances that have a groundwater standard or guidance value or groundwater effluent limitation of 100 ug/L or greater shall not be included in this total.

Credits

Sec. filed Aug. 2, 1991; amds. filed Feb. 10, 1998; March 22, 1999, July 16, 1999 eff. Aug. 4, 1999; amd. filed Jan. 17, 2008 eff. Feb. 16, 2008.

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6 NYCRR 702.16, 6 NY ADC 702.16

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6 NYCRR 702.17

Section 702.17. Variances to Effluent Limitations Based on Standards and Guidance Values

(a) The department may grant, to an applicant for a SPDES permit or to a SPDES permittee, a variance to a water quality-based effluent limitation or groundwater effluent limitation included in a SPDES permit.

(1) A variance applies only to the permittee identified in such variance and only to the pollutant specified in the variance. A variance does not affect or require the department to modify a corresponding standard or guidance value. A variance does not affect or require the department to modify a corresponding groundwater effluent limitation for the groundwater as a whole.

(2) A variance shall not apply to a new or recommencing discharger in the Great Lakes System unless the proposed discharge is a temporary one that is necessary to alleviate an imminent and substantial danger to the public health or the environment that is greater than the danger from not achieving the standard or guidance value. For the purpose of this Part, an imminent and substantial danger to the public health or the environment shall include, but not be limited to, a significant threat to the environment as defined in Part 375 of this Title.

(3) A variance shall not be granted that would likely jeopardize the continued existence of any endangered or threatened species or result in the destruction or adverse modification of such species' critical habitat.

(4) A variance shall not be granted if standards or guidance values will be attained by implementing effluent limits required under section 750-1.11(a) of this Title and by the permittee implementing cost-effective and reasonable best management practices for nonpoint source control.

(5) A variance term shall not exceed the term of the SPDES permit. Where the term of the variance is the same as the permit, the variance shall stay in effect until the permit is reissued, modified or revoked.

(b) A variance may be granted if the requester demonstrates that achieving the effluent limitation is not feasible because:

(1) naturally occurring pollutant concentrations prevent attainment of the standard or guidance value;

(2) natural, ephemeral, intermittent or low flow conditions or water levels prevent attainment, unless these conditions may be compensated for by the discharge of sufficient volume of effluent to enable the standard or guidance value to be met without violating water conservation requirements;

(3) human-caused conditions or sources of pollution prevent attainment of the standard or guidance value and cannot be remedied or would cause more environmental damage to correct than to leave in place;

(4) dams, diversions or other types of hydrologic modifications preclude attainment of the standard or guidance value, and it is not feasible to restore the waterbody to its original condition or to operate such modification in a way that would result in such attainment;

(5) physical conditions related to the natural features of the waterbody, such as the lack of a proper substrate cover, flow, depth, pools, riffles, and the like, unrelated to chemical water quality, preclude attainment of the standard or guidance value; or

(6) controls more stringent than those required by section 750-1.11(a) of this Title would result in substantial and widespread economic and social impact.

(c) In addition to the requirements of subdivision (b) of this section, the requestor shall also characterize, using adequate and sufficient data and principles, any increased risk to human health and the environment associated with granting the variance compared with attainment of the standard or guidance value absent the variance, and demonstrate to the satisfaction of the department that the risk will not adversely affect the public health, safety and welfare.

(d) The requestor shall submit a written application for a variance to the department. The application shall include:

(1) all relevant information demonstrating that achieving the effluent limitation is not feasible based on subdivision (b) of this section; and

(2) all relevant information demonstrating compliance with the conditions in subdivision (c) of this section.

(e) Where a request for a variance satisfies the requirements of this section, the department shall authorize the variance through the SPDES permit. The variance request shall be available to the public for review during the public notice period for the permit. The permit shall contain all conditions needed to implement the variance. Such conditions shall, at minimum, include:

(1) compliance with an initial effluent limitation that, at the time the variance is granted, represents the level currently achievable by the requestor, and that is no less stringent than that achieved under the previous permit where applicable;

(2) that reasonable progress be made toward achieving the effluent limitation based on the standard or guidance value, including, where reasonable, an effluent limitation more stringent than the initial effluent limitation;

(3) additional monitoring, biological studies and pollutant minimization measures as deemed necessary by the department;

(4) when the duration of a variance is shorter than the duration of a permit, compliance with an effluent limitation sufficient to meet the underlying standard or guidance value, upon the expiration of the variance; and

(5) a provision that allows the department to reopen and modify the permit for revisions to the variance.

(f) The department shall deny a variance request if the requestor fails to make the demonstrations required under subdivisions (b) and (c) of this section.

(g) A variance may be renewed, subject to the requirements of this section. As part of any renewal application, the permittee shall again demonstrate that achieving the effluent limitation is not feasible based on the requirements of this section. The permittee's application shall also contain information concerning its compliance with the conditions incorporated into its permit as part of the original variance pursuant to subdivisions (b) and (c) of this section. Renewal of a variance may be denied if the permittee did not comply with the conditions of the original variance.

(h) Where the department determines that a multiple discharge variance is necessary to address widespread standard or guidance value attainment issues including the presence of a ubiquitous pollutant or naturally high levels of a pollutant in a watershed, the department, in lieu of the discharger, may conduct the variance demonstration requirements in subdivisions (b) and (c) of this section. Any permittee accepting such variance shall be subject to the provisions of subdivision (e) of this section.

(i) The department will make available to the public a list of every variance that has been granted and that remains in effect.

Credits

Sec. filed Aug. 2, 1991; repealed, new filed Feb. 10, 1998, eff. 30 days after filing; amd. filed June 20, 2011 eff. July 6, 2011.

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6 NYCRR 702.17, 6 NY ADC 702.17

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6 NYCRR 702.18

Section 702.18. More Stringent Groundwater Effluent Limitations

(a) The department, after consultation with the New York State Department of Health, may establish, on a case-by-case basis, more stringent effluent limitations than those set forth in section 703.6 of this Title or established by section 702.16(c)(1) of this Part, where necessary, to prevent pollution and protect the groundwaters for their best usages. The department shall consider rules and regulations promulgated by the administrator or the New York State Department of Health in establishing such limitations. Additionally, the department shall consider action levels for compounds determined to exhibit toxic effects which are established by the Commissioner of the New York State Department of Health.

(b) Circumstances under which the department may consider more stringent effluent limitations include but are not limited to the following:

- (1) a discharge to an aquifer that is the sole or principal source of potable water supply;
- (2) an existing or proposed discharge that is directly on or into consolidated rock or bedrock;
- (3) a discharge containing one or more substances that in combination with precipitation and/or natural soil constituents is likely to produce a toxic pollutant; or
- (4) where adverse cumulative or synergistic effects can be established for constituents in a discharge.

Credits

Sec. filed Aug. 2, 1991; amd. filed Feb. 10, 1998; July 16, 1999, eff. Aug. 4, 1999.

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6 NYCRR 702.18, 6 NY ADC 702.18

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6 NYCRR 702.19

Section 702.19. Modifications of Groundwater Effluent Limitations

(a)(1) An applicant for a SPDES permit or a SPDES permittee may make written application for a modification of a groundwater effluent limitation listed in Table 3 of section 703.6(e) of this Title or established pursuant to section 702.16(c)(1) of this Part.

(2) Such applicant shall have the burden of establishing to the satisfaction of the commissioner, that one or more of the effluent limitations are unnecessarily restrictive as to a particular discharge in that such modification would, notwithstanding noncompliance with such limitations, prevent pollution and protect the groundwaters for their best usages.

(b) Where a request for a modification of a groundwater effluent limitation satisfies the requirements of this section, the department shall authorize the modification through the SPDES permit. The modification request shall be available to the public for review during the public notice period for the permit. The permit shall contain all conditions needed to implement the modification.

Credits

Sec. filed Aug. 2, 1991; amds. filed Feb. 10, 1998; March 22, 1999, eff. April 7, 1999.

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6 NYCRR 702.19, 6 NY ADC 702.19

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6 NYCRR 702.20

Section 702.20. Studies and Monitoring for Discharges to Groundwater

(a) The department may require the submission of information by any person responsible for a discharge in order that the department may evaluate the short- and long-term effect the discharge may have on groundwaters of the State or for the purpose of determining additional (section 702.15[a] of this Part) or more stringent (section 702.18 of this Part) effluent limitations or modifications (section 702.19 of this Part) thereto. Such information may include but is not limited to the following:

- (1) a statement of the property to be affected by a discharge and the extent to which such property is under the control of the person responsible for such discharge;
- (2) a geohydrologic analysis of the aquifers that may be affected;
- (3) a determination of the direction and rate of movement of the discharge and the natural groundwater;
- (4) an evaluation of adverse effects a discharge may have on any aquifer, source of potable water supply, or other surface waters or groundwaters of the State; and
- (5) an evaluation of the ability of unconsolidated deposits, consolidated rock or bedrock and the groundwaters to attenuate potential pollutants such that the best usage of the groundwaters is maintained.

(b) The department may require the installation and operation of monitoring facilities in order to assure compliance with effluent limitations or to evaluate the effect of the discharge on the quality of the groundwater. Specific monitoring requirements shall be established by the department on a case-by-case basis and as may be required by Part 756 of this Title.

Credits

Sec. filed Aug. 2, 1991; amd. filed Feb. 10, 1998, eff. 30 days after filing.

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6 NYCRR 702.20, 6 NY ADC 702.20

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6 NYCRR 702.21

Section 702.21. Exceptions to Groundwater Effluent Limitations

(a) Activities and conditions. The effluent limitations set forth in section 703.6 of this Title or established pursuant to section 702.16(c)(1) of this Part for discharges to Class GA waters are not applicable to the following activities:

(1) the discharge of sewage without the admixture of industrial waste or other wastes where:

(i) a disposal system, point source or outlet consists of a subsurface sewage disposal system designed, constructed and maintained in accordance with guidelines and standards satisfactory to the department;

(ii) monitoring facilities are utilized in accordance with requirements as may be specified by the department; and

(iii) the disposal system is designed to discharge, and discharges, less than 30,000 gallons per day;

(2) normally accepted agricultural practice of utilizing chemicals and fertilizers for growing of crops for human and animal consumption; and

(3) waste management systems that employ land application techniques and have renovative capabilities provided it has been demonstrated to the satisfaction of the commissioner that:

(i) there will be no actual or potential public health hazard;

(ii) applicable water quality standards will be met in saturated zones; and

(iii) applicable water quality standards will not be contravened in any adjacent waters of the state.

(b) Nothing contained in this section shall be construed to allow any discharge that would preclude the best usage of Class GA waters specified in section 701.15 of this Title.

Credits

Sec. filed Aug. 2, 1991; amd. filed Feb. 10, 1998, eff. 30 days after filing.

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6 NYCRR 702.21, 6 NY ADC 702.21

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6 NYCRR 702.22

Section 702.22. Severability

If any provision of this Part or its application to any person or circumstance is held to be invalid, the remainder of this Part and the application of that provision to other persons or circumstances will not be affected.

Credits

Sec. filed Aug. 2, 1991 eff. 30 days after filing.

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6 NYCRR 702.22, 6 NY ADC 702.22

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NYCRR T. 6, Ch. X, Subch. A, Art. 2, Pt. 703, Refs & Annos

Credits

(Statutory authority: [Environmental Conservation Law](#), §§ 3-0301[2][m], 15-0313, 17-0301, 17-0809)

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6 NYCRR 703.1

Section 703.1. Substance Form

A water quality standard, guidance value or groundwater effluent limitation includes all (total) forms of the substance, unless indicated otherwise. Where a standard or guidance value is for a specific form of the substance, water quality-based effluent limitations for SPDES permits may include other forms of the substance to account for changes in the substance that occur in the receiving water.

Credits

Sec. filed March 20, 1967; repealed, new filed: April 28, 1972; Aug. 2, 1978; Aug. 2, 1991; July 16, 1999 eff. Aug. 4, 1999.

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6 NYCRR 703.1, 6 NY ADC 703.1

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6 NYCRR 703.2

Section 703.2. Narrative Water Quality Standards

Narrative standards for specific water classes are provided in this section. Narrative standards for classes N and AA-Special are provided in Part 701 of this Title.

Parameter Classes Standard
=====

Taste-, color-, AA, A, B, C, D, None in amounts that will adversely and odor-producing SA, SB, SC, I, affect the taste, color or odor toxic and other SD, A-Special, thereof, or impair the waters for deleterious GA, GSA, GSB their best usages.
substances

Turbidity AA, A, B, C, D, No increase that will SA, SB, SC, I, cause a substantial SD, A-Special visible contrast to natural conditions.

Suspended, colloidal AA, A, B, C, D, None from sewage, industrial wastes and settleable SA, SB, SC, I, or other wastes that will cause solids SD, A-Special deposition or impair the waters for their best usages.

Oil and floating AA, A, B, C, D, No residue attributable to sewage, substances SA, SB, SC, I, industrial wastes or other wastes, SD, A-Special nor visible oil film nor globules of grease.

Garbage, cinders, SA, SB, SC, I, None in any amounts.
ashes, oils, SD
sludge and other
refuse

Phosphorus and AA, A, B, C, D, None in amounts that will result in nitrogen SA, SB, SC, I, growths of algae, weeds and slimes SD, A-Special that will impair the waters for their best usages.

Radioactivity A-Special Should be kept at the lowest practicable levels, and in any event should be controlled to the extent necessary to prevent harmful effects

on health.

Thermal discharges GA, GSA, GSB None in amounts that will impair the
waters for their best usages.

Thermal discharges AA, A, B, C, D, See Part 704 of this Title.
SA, SB, SC, I,
SD, A-Special

Flow AA, A, B, C, D, No alteration that will
A-Special impair the waters for
their best usages.

Credits

Sec. filed March 20, 1967; repealed, new filed: April 28, 1972; Aug. 2, 1978; Aug. 2, 1991 eff. 30 days after filing; amd. filed
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6 NYCRR 703.2, 6 NY ADC 703.2

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6 NYCRR 703.3

Section 703.3. Water Quality Standards for pH, Dissolved Oxygen, Dissolved Solids, Odor, Color and Turbidity

Standards for specific classes are provided in this section.

Parameter	Classes	Standard

pH	AA, A, B, C, AA-Special, A-Special, GA	Shall not be less than 6.5 nor more than 8.5.

D		Shall not be less than 6.0 nor more than 9.5.

SA, SB, SC, I, SD		The normal range shall not be extended by more than one-tenth (0.1) of a pH unit.

Dissolved oxygen	A-Special	In rivers and upper waters of lakes, (DO) not less than 6.0 mg/L at any time. In hypolimnetic waters, it should not be less than necessary for the support of fishlife, particularly cold water species.

AA, A, B, C, AA-Special		For trout spawning waters (TS) the DO concentration shall not be less than 7.0 mg/L from other than natural conditions. For trout waters (T), the minimum daily average shall not be less than 6.0 mg/L, and at no time shall the concentration be less than 5.0 mg/L. For nontrout waters, the minimum daily average shall not be less than 5.0 mg/L, and at no time shall the DO concentration be less than 4.0 mg/L.

D		Shall not be less than 3.0 mg/L at any time.

SA, SB, SC	Chronic:	Shall not be less than a daily average of 4.8 mg/L*

Remark: *The DO concentration may fall below
4.8 mg/L for a limited number of days, as
defined by the formula:

DO_i

=

13.0

where DO_i = DO

2.80 + 1.84e-0.1t_i

concentration in mg/L between 3.0 - 4.8 mg/L

and t_i = time in days. This equation is

applied by dividing the DO range of 3.0 - 4.8

mg/L into a number of equal intervals. DO_i is

the lower bound of each interval (i) and t_i is

the allowable number of days that the DO

concentration can be within that interval. The

actual number of days that the measured DO

concentration falls within each interval (i)

is divided by the allowable number of days

that the DO can fall within interval (t_i). The

sum of the quotients of all intervals (i

/n) cannot exceed 1.0: i.e.,

n

i=1

t_i(actual)

< 1.0.

t_i(allowed)

The DO concentration shall not fall below the

acute standard of 3.0 mg/L at any time.

SA, SB, SC, SD Acute: Shall not be

less than 3.0 mg/L at

any time.

I Shall not be less than

4.0 mg/L at any time.

Dissolved solids A-Special Shall not exceed 200 mg/L.

AA, A, B, C, Shall be kept as low as practicable

AA-Special, GA to maintain the best usage of waters

but in no case shall it exceed 500

mg/L.

Odor GA Shall not exceed a threshold odor

number of 3.

Color GA Shall not exceed 15 color units

(platinum-cobalt method).

Turbidity GA Shall not exceed 5 nephelometric

units.

Credits

Sec. filed March 20, 1967; repealed, new filed: April 28, 1972; Aug. 2, 1978; Aug. 2, 1991 eff. 30 days after filing; amd. filed Jan. 17, 2008 eff. Feb. 16, 2008.

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6 NYCRR 703.3, 6 NY ADC 703.3

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6 NYCRR 703.4

Section 703.4. Water Quality Standards for Coliforms

Total and fecal coliform standards for specific classes are provided in this section.

(a) Total coliforms (number per 100 ml).

-----	Classes Standard
=====	=====
AA	The monthly median value and more than 20 percent of the samples, from a minimum of five examinations, shall not exceed 50 and 240, respectively.

A, B, C, D, SB, SC,	The monthly median value and more than 20 percent of the I, SD samples, from a minimum of five examinations, shall not exceed 2,400 and 5,000, respectively.

SA	The median most probable number (MPN) value in any series of representative samples shall not be in excess of 70.

A-Special	The geometric mean, of not less than five samples, taken over not more than a 30-day period shall not exceed 1,000.

GA	The maximum allowable limit is 50.

(b) Fecal coliforms (number per 100 ml).

-----	Classes Standard
=====	=====
A, B, C, D, SB, SC,	The monthly geometric mean, from a minimum of five I, SD examinations, shall not exceed 200.

A-Special	The geometric mean, of not less than five samples, taken over not more than a 30-day period shall not exceed 200.

(c) The total and fecal coliform standards for classes B, C, D, SB, SC, and I shall be met during all periods:

- (1) when disinfection is required for SPDES permitted discharges directly into, or affecting the best usage of, the water; or
- (2) when the department determines it necessary to protect human health.

Credits

Sec. filed March 20, 1967; repealed, new filed: April 28, 1972; Aug. 2, 1978; amd. filed Nov. 5, 1984; repealed, new filed Aug. 2, 1991; amd. filed Dec. 10, 1993 eff. 30 days after filing; amd. filed Jan. 17, 2008 eff. Feb. 16, 2008; amd. filed Oct. 20, 2015 eff. Nov. 4, 2015.

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6 NYCRR 703.4, 6 NY ADC 703.4

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6 NYCRR 703.5

Section 703.5. Water Quality Standards for Taste-, Color- and
Odor-Producing, Toxic and Other Deleterious Substances

(a) Water quality standards for specific substances or groups of substances are listed in Table 1 of subdivision (f) of this section for the applicable water classes. The substance name is listed with the associated Chemical Abstract Service Registry Number (CAS No.) where applicable. For entries in Table 1 of subdivision (f) of this section that refer to chemical groups, congeners or other expressions of multiple substances, the standard applies to the sum of the substances, unless otherwise indicated.

(b) Standards are Health (Water Source), Health (Fish Consumption), Aquatic (Chronic), Aquatic (Acute), Wildlife, Aesthetic (Water Source), Aesthetic (Food Source), or Recreation based and are respectively designated as H(WS), H(FC), A(C), A(A), W, E(WS), E(FS), or R in the column headed "Type." Where more than one Type of standard is listed for a water class, the most stringent applies.

(c) The "Basis Code" in Table 1 of subdivision (f) of this section provides a further description of the basis of the standard. A list of basis codes is found in Table 2 of subdivision (f) of this section.

(d) The standard is the maximum allowable concentration in micrograms per liter (ug/L), unless otherwise noted. A standard defined by the symbol "ND" means not detectable by the analytical tests specified or approved pursuant to Part 700 of this Title.

(e) Special interpretive remarks are provided as necessary.

(f) *Tables.*

Table 1

(cf. section 703.5)

WATER QUALITY STANDARDS SURFACE WATERS AND GROUNDWATER

Table 1



Image 1 within document in PDF format.

Table 2
BASIS OF STANDARDS
(cf. section 703.5)

BASIS BASIS
CODE

A Oncogenic, Human Health
B Non-oncogenic, Human Health
F Former Groundwater Regulations, 6 NYCRR § 703.5(a)(3), Human Health or Aesthetics
G Specific MCL, Human Health or Aesthetics
H Former Use of or Reference to 10 NYCRR Part 170, Human Health or Aesthetics
I Principal Organic Contaminant Classes, Human Health
J Former Groundwater Reference to 10 NYCRR Subpart 5-1, General Standards, Human Health
U Potable Water, Aesthetics
V Food Source, Aesthetics

Credits

Sec. filed April 15, 1968; repealed, new filed: April 28, 1972; Aug. 2, 1978; amd. filed Nov. 5, 1984; repealed, new filed Aug. 2, 1991; amds. filed: Dec. 10, 1993; Feb. 10, 1998; March 22, 1999; Jan. 17, 2008 eff. 30 days after filing. Amended (f), Tables (1)-(2).

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6 NYCRR 703.5, 6 NY ADC 703.5

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 (Refs & Annos)

6 NYCRR 703.6

Section 703.6. Groundwater effluent limitations for discharges to Class GA waters

- (a) The groundwater effluent limitations in Table 3 of subdivision (e) of this section and effluent limitations as established by section 702.16(c)(1) of this Title apply to a discharge from a point source or outlet or any other discharge within the meaning of the [Environmental Conservation Law, section 17-0501](#) that will or may enter the waters of the State. Unless a demonstration is made to the contrary, it shall be presumed that a discharge to the ground or unsaturated zone is a discharge to groundwater. The groundwater effluent limitation is the maximum allowable concentration in micrograms per liter (ug/L), unless otherwise noted.
- (b) In addition to the chemical characteristics provided in subdivision (a) of this section, coliform or pathogenic organisms shall not be discharged in amounts sufficient to render groundwaters detrimental to public health, safety or welfare.
- (c) The department may establish additional groundwater effluent limitations as set forth in Part 702 of this Title.
- (d) The groundwater effluent limitations shall be incorporated in SPDES permits (under Part 750 *et seq.* of this Title) for discharges to groundwaters, where applicable.
- (e) *Tables.*

Table 3

(cf. section 703.6)

GROUNDWATER EFFLUENT LIMITATIONS CLASS GA

SUBSTANCE	CAS NO.	MAXIMUM ALLOWABLE CONCENTRATION (ug/L)
Acetaldehyde	75-07-0	8
Alachlor	15972-60-8	0.5
Aldicarb and Methomyl	116-06-3; 16752-77-5	0.35
Aldrin	309-00-2	Not Detectable
Aluminum	Not Applicable	2,000
Antimony	Not Applicable	6
Arsenic	Not Applicable	50

Asbestos (fibers>10um) Not Applicable 1.4 x 10⁷(fibers/L)
Atrazine 1912-24-9 7.5
Azinphosmethyl 86-50-0 4.4
Barium Not Applicable 2,000
Benefin 1861-40-1 35
Benzene 71-43-2 1
Benzo(a)pyrene 50-32-8 Not Detectable
Bis(2-chloroethyl)ether 111-44-4 1.0
bis(2-ethylhexyl)phthalate 117-81-7 5
Bromacil 314-40-9 4.4
Butachlor 23184-66-9 3.5
Cadmium Not Applicable 10
Captan 133-06-2 18
Carbaryl 63-25-2 29
Carbon disulfide 75-15-0 120
Carbon tetrachloride 56-23-5 5
Chloramben¹ Not Applicable 50
Chlordane 57-74-9 0.05
Chloride Not Applicable 500,000
Chlorinated dibenzo-p-dioxins Not Applicable 7 x 10⁻⁷ equivalents
and Chlorinated dibenzofurans⁷ of 2, 3, 7, 8 - TCDD
Chloroform 67-66-3 7
Chromium (Hexavalent) Not Applicable 100
Copper Not Applicable 400
Cyanide Not Applicable 400
p,p'-DDD 72-54-8 0.3
p,p'-DDE 72-55-9 0.2
p,p'-DDT 50-29-3 0.2
Diazinon 333-41-5 0.7
1,2-Dibromo-3-chloropropane 96-12-8 0.04
Di-n-butylphthalate 84-74-2 50
Dicamba 1918-00-9 0.44
1,2-Dichlorobenzene 95-50-1 3
1,3-Dichlorobenzene 541-73-1 3
1,4-Dichlorobenzene 106-46-7 3
1,2-Dichloroethane 107-06-2 0.6
2,4-Dichlorophenoxyacetic acid 94-75-7 50
(2,4-D)
1,2-Dichloropropane 78-87-5 1
1,3-Dichloropropene (sum of 542-75-6 (sum of 0.4
cis- and trans-isomers) 10061-01-5 and
10061-02-6)
Dieldrin 60-57-1 0.004
Di(2-ethylhexyl)adipate 103-23-1 20
N,N-Dimethylaniline 121-69-7 1
Diphenylhydrazine 122-66-7 Not Detectable
Diquat 2764-72-9 20
Endrin 72-20-8 Not Detectable
Ethylene dibromide 106-93-4 6 x 10⁻⁴
Ethylenethiourea 96-45-7 Not Detectable
Ferbam 14484-64-1 4.2
Fluoride Not Applicable 3,000
Foaming agents² Not Applicable 1,000
Folpet 133-07-3 50
Formaldehyde 50-00-0 8
Heptachlor 76-44-8 0.04
Heptachlor epoxide 1024-57-3 0.03

Hexachlorobenzene 118-74-1 0.04
Hexachlorobutadiene 87-68-3 0.5
alpha-Hexachlorocyclohexane 319-84-6 0.01
beta-Hexachlorocyclohexane 319-85-7 0.04
delta-Hexachlorocyclohexane 319-86-8 0.04
epsilon-Hexachlorocyclohexane 6108-10-7 0.04
gamma-Hexachlorocyclohexane 58-89-9 0.05
Hexachlorophene 70-30-4 See Note 3
Iron⁴ Not Applicable 600
Kepone 143-50-0 Not Detectable
Lead Not Applicable 50
Malathion 121-75-5 7.0
Mancozeb 8018-01-7 1.8
Maneb 12427-38-2 1.8
Manganese⁴ Not Applicable 600
Mercury Not Applicable 1.4
Methoxychlor 72-43-5 35
2-Methyl-4-chlorophenoxyacetic acid 94-74-6 0.44
Methylene chloride 75-09-2 5
(Dichloromethane)
Methyl methacrylate 80-62-6 50
Metolachlor 51218-45-2 10
Mirex 2385-85-5 0.03
Nabam 142-59-6 1.8
Nickel Not Applicable 200
Nitralin 4726-14-1 35
Nitrate (expressed as N) Not Applicable 20,000
Nitrate and Nitrite (expressed as N) Not Applicable 20,000
Nitrioltriacetic acid⁵ Not Applicable 3
Nitrite (expressed as N) Not Applicable 2,000
Nitrobenzene 98-95-3 0.4
Octachlorostyrene 29082-74-4 0.2
Oil and Grease Not Applicable 15,000
Paraquat 4685-14-7 3.0
Parathion and Methyl parathion 56-38-2; 298-00-0 1.5
Pentachloronitrobenzene 82-68-8 Not Detectable
pH Not Applicable See Note 6
Phenolic compounds (total phenols) Not Applicable 2
Phorate and Disulfoton 298-02-2; 298-04-4 Not Detectable
Polychlorinated biphenyls Not Applicable 0.09
Propachlor 1918-16-7 35
Propanil 709-98-8 7.0
Propazine 139-40-1 16
Selenium Not Applicable 20
Silver Not Applicable 100
Simazine 122-34-9 0.5
Styrene 100-42-5 5
Sulfate Not Applicable 500,000
Sulfide Not Applicable 1,000
Thiram 137-26-8 1.8
Toxaphene 8001-35-2 0.06
1,1,2-Trichloroethane 79-00-5 1
Trichloroethene 79-01-6 5
2,4,5-Trichlorophenoxyacetic acid 93-76-5 35

acid
2,4,5-Trichlorophenoxypropionic 93-72-1 0.26
acid
1,2,3-Trichloropropane 96-18-4 0.04
Trifluralin 1582-09-8 35
Vinyl chloride 75-01-4 2
Zinc Not Applicable 5,000
Zineb 12112-67-7 1.8
Ziram 137-30-4 4.2

1. Includes related forms that convert to the organic acid upon acidification to a pH of 2 or less; and esters of the organic acid.
2. Foaming agents determined as methylene blue active substances (MBAS) or other tests as specified by the commissioner.
3. Refer to groundwater effluent limitation for "Phenolic compounds (total phenols)".
4. Combined concentration of iron and manganese shall not exceed 1000 ug/L.
5. Includes related forms that convert to nitrilotriacetic acid upon acidification to a pH of 2.3 or less.
6. pH shall not be lower than 6.5 or the pH of the natural groundwater, whichever is lower, nor shall be greater than 8.5 or the pH of the natural groundwater, whichever is greater.
7. Value is for the total of the chlorinated dibenzo-p-dioxins and chlorinated dibenzofurans as equivalents of 2,3,7,8-tetrachlorodibenzo-p-dioxin (2,3,7,8-TCDD) as specified by the Class GA H(W)S standard in Table 1 of section 703.5 of this Part.

In addition to the effluent limitations above, the following also apply in the counties of Nassau and Suffolk:

SUBSTANCE MAXIMUM ALLOWABLE CONCENTRATION
IN mg/L*

(1) Dissolved solids, total 1,000

(2) Nitrogen, total (as N) 10

Credits

Sec. filed Aug. 2, 1978; repealed, new filed Aug. 2, 1991 eff 30 days after filing; amd filed Feb. 10, 1998 eff 30 days after filing; amd filed Mar. 3, 1998 eff Mar. 18, 1998; amd filed Mar. 22, 1999, eff April 7, 1999; Jan. 17, 2008 eff. 30 days after filing. Amended (e), (Table 3).

Current with amendments included in the New York State Register, XXXVIII, Issue 24 dated June 15, 2016.

6 NYCRR 703.6, 6 NY ADC 703.6

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Compilation of Codes, Rules and Regulations of the State of New York Currentness

Title 6. Department of Environmental Conservation

Chapter X. Division of Water Resources

Subchapter A. General

Article 2. Classifications and Standards of Quality and Purity

Part 703. Surface Water and Groundwater Quality Standards and Groundwater Effluent Limitations

(Refs & Annos)

6 NYCRR 703.7

Section 703.7. Severability

If any provision of this Part or its application to any person or circumstance is held to be invalid, the remainder of this Part and the application of that provision to other persons or circumstances will not be affected.

Credits

Sec. filed Aug. 2, 1978; repealed, new filed Aug. 2, 1991 eff. 30 days after filing.

Current with amendments included in the New York State Register, XXXVIII, Issue 24 dated June 15, 2016.

6 NYCRR 703.7, 6 NY ADC 703.7

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Title 6. Department of Environmental Conservation
Chapter X. Division of Water Resources
Subchapter A. General
Article 2. Classifications and Standards of Quality and Purity
Part 703. Surface Water and Groundwater Quality Standards and Groundwater Effluent Limitations
(Refs & Annos)

6 NYCRR 703.8 to 703.11

Sections 703.8 to 703.11. (Repealed)

Credits

Secs. filed Aug. 2, 1978; repealed, filed Aug. 2, 1991 eff. 30 days after filing.

Current with amendments included in the New York State Register, XXXVIII, Issue 24 dated June 15, 2016.

6 NYCRR 703.8 to 703.11, 6 NY ADC 703.8 to 703.11

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Compilation of Codes, Rules and Regulations of the State of New York Currentness
Title 6. Department of Environmental Conservation
Chapter X. Division of Water Resources
Subchapter A. General
Article 2. Classifications and Standards of Quality and Purity
Part 704. Criteria Governing Thermal Discharges

NYCRR T. 6, Ch. X, Subch. A, Art. 2, Pt. 704, Refs & Annos

Credits

(Statutory authority: [Environmental Conservation Law](#), §§ 3-0301[2][m], 15-0313, 17-0301)

Current with amendments included in the New York State Register, XXXVIII, Issue 24 dated June 15, 2016.

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Title 6. Department of Environmental Conservation
Chapter X. Division of Water Resources
Subchapter A. General
Article 2. Classifications and Standards of Quality and Purity
Part 704. Criteria Governing Thermal Discharges (Refs & Annos)

6 NYCRR 704.1

Section 704.1. Water quality standards for thermal discharges

(a) All thermal discharges to the waters of the State shall assure the protection and propagation of a balanced, indigenous population of shellfish, fish, and wildlife in and on the body of water.

(b) The criteria contained in this Part shall apply to all thermal discharges and shall be complied with, except as provided in this Part.

Credits

Sec. filed Aug. 12, 1969; repealed, new filed: Apr. 28, 1972; Sept. 20, 1974 eff. 30 days after filing with the Secretary of State, provided, however, if the application, pursuant to Parts 800 to 941 inclusive of Title 6, of any provision of Part 704 shall be found to be invalid, the corresponding provision of Part 704 in effect immediately prior to such effective date shall be deemed not to have been repealed and shall remain in effect until such time as the provision, the application of which was found to be invalid, can lawfully be made applicable.

Current with amendments included in the New York State Register, XXXVIII, Issue 24 dated June 15, 2016.

6 NYCRR 704.1, 6 NY ADC 704.1

Compilation of Codes, Rules and Regulations of the State of New York Currentness
Title 6. Department of Environmental Conservation
Chapter X. Division of Water Resources
Subchapter A. General
Article 2. Classifications and Standards of Quality and Purity
Part 704. Criteria Governing Thermal Discharges (Refs & Annos)

6 NYCRR 704.2

Section 704.2. Criteria governing thermal discharges

(a) General criteria. The following criteria shall apply to all waters of the State receiving thermal discharges, except as provided in section 704.6 of this Part:

- (1) The natural seasonal cycle shall be retained.
- (2) Annual spring and fall temperature changes shall be gradual.
- (3) Large day-to-day temperature fluctuations due to heat of artificial origin shall be avoided.
- (4) Development or growth of nuisance organisms shall not occur in contravention of water quality standards.
- (5) Discharges which would lower receiving water temperature shall not cause a violation of water quality standards and section 704.3 of this Part.
- (6) For the protection of the aquatic biota from severe temperature changes, routine shut down of an entire thermal discharge at any site shall not be scheduled during the period from December through March.

(b) Special criteria. The following criteria shall apply to all waters of the State receiving thermal discharges, except as provided in section 704.6 of this Part:

- (1) Non-trout waters.
 - (i) The water temperature at the surface of a stream shall not be raised to more than 90 degrees Fahrenheit at any point.
 - (ii) At least 50 percent of the cross sectional area and/or volume of flow of the stream including a minimum of one-third of the surface as measured from shore to shore shall not be raised to more than five Fahrenheit degrees over the temperature that existed before the addition of heat of artificial origin or to a maximum of 86 degrees Fahrenheit whichever is less.

(iii) At least 50 percent of the cross sectional area and/or volume of flow of the stream including a minimum of one-third of the surface as measured from shore to shore shall not be lowered more than five Fahrenheit degrees from the temperature that existed immediately prior to such lowering.

(i) No discharge at a temperature over 70 degrees Fahrenheit shall be permitted at any time to streams classified for trout.

(ii) From June through September no discharge shall be permitted that will raise the temperature of the stream more than two Fahrenheit degrees over that which existed before the addition of heat of artificial origin.

(iii) From October through May, no discharge shall be permitted that will raise the temperature of the stream more than five Fahrenheit degrees over that which existed before the addition of heat of artificial origin or to a maximum of 50 degrees Fahrenheit whichever is less.

(iv) From June through September no discharge shall be permitted that will lower the temperature of the stream more than two Fahrenheit degrees from that which existed immediately prior to such lowering.

(3) Lakes.

(i) The water temperature at the surface of a lake shall not be raised more than three Fahrenheit degrees over the temperature that existed before the addition of heat of artificial origin.

(ii) In lakes subject to stratification as defined in Part 652 of this Title, thermal discharges that will raise the temperature of the receiving waters shall be confined to the epilimnion.

(iii) In lakes subject to stratification as defined in Part 652 of this Title, thermal discharges that will lower the temperature of the receiving waters shall be discharged to the hypolimnion and shall meet the water quality standards contained in Part 703 of this Title in all respects.

(4) Coastal waters.

(i) The water temperature at the surface of coastal waters shall not be raised more than four Fahrenheit degrees from October through June nor more than 1.5 Fahrenheit degrees from July through September over that which existed before the addition of heat of artificial origin.

(ii) The water temperature at the surface of coastal waters shall not be lowered more than four Fahrenheit degrees from October through June nor more than 1.5 Fahrenheit degrees from July through September from that which existed immediately prior to such lowering.

(5) Estuaries or portions of estuaries.

(i) The water temperature at the surface of an estuary shall not be raised to more than 90 degrees Fahrenheit at any point.

(ii) At least 50 percent of the cross sectional area and/or volume of the flow of the estuary including a minimum of one-third of the surface as measured from water edge to water edge at any stage of tide, shall not be raised to more than four Fahrenheit degrees over the temperature that existed before the addition of heat of artificial origin or a maximum of 83 degrees Fahrenheit whichever is less.

(iii) From July through September, if the water temperature at the surface of an estuary before the addition of heat of artificial origin is more than 83 degrees Fahrenheit an increase in temperature not to exceed 1.5 Fahrenheit degrees at any point of the estuarine passageway as delineated above, may be permitted.

(iv) At least 50 percent of the cross sectional area and/or volume of the flow of the estuary including a minimum of one-third of the surface as measured from water edge to water edge at any stage of tide, shall not be lowered more than four Fahrenheit degrees from the temperature that existed immediately prior to such lowering.

(6) Enclosed bays. No additional temperature change except that which occurs naturally shall be permitted in enclosed bays.

Credits

Sec. filed Aug. 12, 1969; repealed, new filed: Apr. 28, 1972; Sept. 20, 1974 eff. 30 days after filing with the Secretary of State, provided, however, if the application, pursuant to Parts 800 to 941 inclusive of Title 6, of any provision of Part 704 shall be found to be invalid, the corresponding provision of Part 704 in effect immediately prior to such effective date shall be deemed not to have been repealed and shall remain in effect until such time as the provision, the application of which was found to be invalid, can lawfully be made applicable. Amended (b)(3)(iii), filed: August 2, 1991, eff. 30 days after filing; amd. filed Jan. 17, 2008 eff. Feb. 16, 2008.

Current with amendments included in the New York State Register, XXXVIII, Issue 24 dated June 15, 2016.

6 NYCRR 704.2, 6 NY ADC 704.2

Compilation of Codes, Rules and Regulations of the State of New York Currentness
Title 6. Department of Environmental Conservation
Chapter X. Division of Water Resources
Subchapter A. General
Article 2. Classifications and Standards of Quality and Purity
Part 704. Criteria Governing Thermal Discharges (Refs & Annos)

6 NYCRR 704.3

Section 704.3. Mixing zone criteria

The following criteria shall apply to all waters of the State receiving thermal discharges, except as provided in section 704.6 of this Part.

- (a) The department shall specify definable, numerical limits for all mixing zones (e.g., linear distances from the point of discharge, surface area involvement, or volume of receiving water entrained in the thermal plume).
- (b) Conditions in the mixing zone shall not be lethal in contravention of water quality standards to aquatic biota which may enter the zone.
- (c) The location of mixing zones for thermal discharges shall not interfere with spawning areas, nursery areas and fish migration routes.

Credits

Sec. filed Aug. 12, 1969; repealed, new filed: Apr. 28, 1972; Sept. 20, 1974 eff. 30 days after filing with the Secretary of State, provided, however, if the application, pursuant to Parts 800 to 941 inclusive of Title 6, of any provision of Part 704 shall be found to be invalid, the corresponding provision of Part 704 in effect immediately prior to such effective date shall be deemed not to have been repealed and shall remain in effect until such time as the provision, the application of which was found to be invalid, can lawfully be made applicable.

Current with amendments included in the New York State Register, XXXVIII, Issue 24 dated June 15, 2016.

6 NYCRR 704.3, 6 NY ADC 704.3

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Title 6. Department of Environmental Conservation
Chapter X. Division of Water Resources
Subchapter A. General
Article 2. Classifications and Standards of Quality and Purity
Part 704. Criteria Governing Thermal Discharges (Refs & Annos)

6 NYCRR 704.4

Section 704.4. Additional limitations or modifications

- (a) An applicant may apply for a modification of the criteria set forth in sections 704.2 and 704.3 of this Part.
- (b) Upon receipt of such application, the commissioner shall confer with the U.S. Environmental Protection Agency and shall transmit to that agency information to enable the administrator to fulfill responsibilities under Federal Law.
- (c) The applicant shall have the burden of establishing to the satisfaction of the commissioner that one or more of the criteria are unnecessarily restrictive as to a particular project in that a modification of such criterion, or criteria, as the case may be, would assure the protection and propagation of a balanced indigenous population of shellfish, fish, and wildlife in and on the body of water into which the discharge is to be made.
- (d) The applicant shall consult with the Department of Environmental Conservation to determine appropriate studies which shall be conducted by the applicant. Prior approval shall be obtained by the applicant for a program of studies that will determine the impact of any proposed modification. Such studies shall include, but shall not be limited to:
- (1) A comparative analysis of environmental effects of the thermal discharge on the receiving waters when subject to the stated criteria of this Part, and when subject to the applicant's proposed modification.
 - (2) An analysis of the different discharge modes (e.g., surface or subsurface) and the advantages and disadvantages of each mode with regard to effects on aquatic life.
- (e) A public hearing shall be held upon the application.
- (f) The commissioner may authorize a modification of the stated criteria, which modifications shall be conditioned upon post-operational experience. The commissioner may require additional treatment of, or change in, a thermal discharge in the event that post-operational experience shows a trend toward impairment by the discharge of the quality of the receiving waters for the protection and propagation of a balanced indigenous population of shellfish, fish and wildlife in and on the body of water.

Credits

Sec. filed Aug. 12, 1969; repealed, new filed: April 28, 1972; Sept. 20, 1974 eff. 30 days after filing.

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6 NYCRR 704.4, 6 NY ADC 704.4

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Subchapter A. General
Article 2. Classifications and Standards of Quality and Purity
Part 704. Criteria Governing Thermal Discharges (Refs & Annos)

6 NYCRR 704.5

Section 704.5. Intake structures

The location, design, construction and capacity of cooling water intake structures, in connection with point source thermal discharges, shall reflect the best technology available for minimizing adverse environmental impact.

Credits

Sec. filed Sept. 20, 1974 eff. 30 days after filing.

Current with amendments included in the New York State Register, XXXVIII, Issue 24 dated June 15, 2016.

6 NYCRR 704.5, 6 NY ADC 704.5

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Chapter X. Division of Water Resources
Subchapter A. General
Article 2. Classifications and Standards of Quality and Purity
Part 704. Criteria Governing Thermal Discharges (Refs & Annos)

6 NYCRR 704.6

Section 704.6. Applicability of criteria

(a) In determining that a discharge existing prior to July 25, 1969 has violated the standard for thermal discharges, as provided in section 704.1(a) of this Part, the violation of any of the criteria contained in this Part shall not constitute evidence of a violation of such standard unless it is also shown that the violation of such criteria has contributed to the violation of the standard.

(b) The provisions of subdivision (a), subparagraphs (1)(iii), (2)(iv), (3)(iii), (4)(ii), (5)(iv), and paragraph (b)(6) of section 704.2 of this Part, and section 704.3, shall apply only to thermal discharges which have been brought into existence subsequent to July 31, 1973, or to which the criteria contained in this Part were intended to apply pursuant to any certification issued by the commissioner pursuant to section 401(d) of the Federal Water Pollution Control Act amendments of 1972.

(c) Whenever the commissioner has reason to believe that a thermal discharge, existing prior to the adoption of this Part, does not conform to section 704.1(a) of this Part, he may impose appropriate criteria contained in this Part upon such thermal discharge, unless, after public hearing, the owner or operator of any such thermal discharge establishes to the satisfaction of the commissioner that either such thermal discharge does conform to such subdivision (a) or that any such criteria are more stringent than necessary to assure conformance with such subdivision (a).

Credits

Sec. filed Sept. 20, 1974 eff. 30 days after filing.

Current with amendments included in the New York State Register, XXXVIII, Issue 24 dated June 15, 2016.

6 NYCRR 704.6, 6 NY ADC 704.6

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Title 6. Department of Environmental Conservation
Chapter X. Division of Water Resources
Subchapter A. General
Article 2. Classifications and Standards of Quality and Purity
Part 704. Criteria Governing Thermal Discharges (Refs & Annos)

6 NYCRR 704.7

Section 704.7. Severability

If any provision of this Part or its application to any person or circumstance is held to be invalid, the remainder of this Part and the application of that provision to other persons or circumstances will not be affected.

Credits

Sec. filed August 2, 1991, eff. 30 days after filing.

Current with amendments included in the New York State Register, XXXVIII, Issue 24 dated June 15, 2016.

6 NYCRR 704.7, 6 NY ADC 704.7

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Title 6. Department of Environmental Conservation
Chapter X. Division of Water Resources
Subchapter A. General
Article 2. Classifications and Standards of Quality and Purity
Part 705. References

NYCRR T. 6, Ch. X, Subch. A, Art. 2, Pt. 705, Refs & Annos

Credits

(Statutory authority: [Environmental Conservation Law](#), §§ 3-0301[2][m], 15-0313, 17-0301)

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Title 6. Department of Environmental Conservation
Chapter X. Division of Water Resources
Subchapter A. General
Article 2. Classifications and Standards of Quality and Purity
Part 705. References (Refs & Annos)

6 NYCRR 705.1

Section 705.1. Federal statutes or regulations

The following Federal statutes or regulations have been referenced in Parts 700—704 of this Title:

- (a) “40 CFR Part 136” means Part 136 of title 40 of the Code of Federal Regulations, as of July 1, 1988 (Protection of the Environment).
- (b) The Federal Water Pollution Control Act of 1972, [33 USC 466 et seq.](#), effective October 18, 1972.
- (c) All United States publications referenced above are available from the Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402.

Credits

Sec. filed Nov. 5, 1984; amd. filed Aug. 2, 1991 eff. 30 days after filing.

Current with amendments included in the New York State Register, XXXVIII, Issue 24 dated June 15, 2016.

6 NYCRR 705.1, 6 NY ADC 705.1

Compilation of Codes, Rules and Regulations of the State of New York Currentness
Title 6. Department of Environmental Conservation
Chapter X. Division of Water Resources
Subchapter A. General
Article 2. Classifications and Standards of Quality and Purity
Part 705. References (Refs & Annos)

6 NYCRR 705.2

Section 705.2. (Repealed)

Credits

Sec. filed Nov. 5, 1984; repealed, new filed Aug. 2, 1991; repealed, filed Feb. 10, 1998, eff. 30 days after filing.

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6 NYCRR 705.2, 6 NY ADC 705.2

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Chapter X. Division of Water Resources
Subchapter A. General
Article 2. Classifications and Standards of Quality and Purity
Part 705. References (Refs & Annos)

6 NYCRR 705.3

Section 705.3. Availability

All material referenced in Parts 700 - 704 of this Title is available for copying and inspection at the Department of Environmental Conservation, Division of Water, 625 Broadway, Albany, NY 12233.

Credits

Sec. filed Nov. 5, 1984 eff. Nov. 5, 1984; June 19, 2001 eff. July 3, 2001.

Current with amendments included in the New York State Register, XXXVIII, Issue 24 dated June 15, 2016.

6 NYCRR 705.3, 6 NY ADC 705.3

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Chapter X. Division of Water Resources
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Article 2. Classifications and Standards of Quality and Purity
Part 705. References (Refs & Annos)

6 NYCRR 705.4

Section 705.4. Severability

If any provision of this Part or its application to any person or circumstance is held to be invalid, the remainder of this Part and the application of that provision to other persons or circumstances will not be affected.

Credits

Sec. filed Aug. 2, 1991 eff. 30 days after filing.

Current with amendments included in the New York State Register, XXXVIII, Issue 24 dated June 15, 2016.

6 NYCRR 705.4, 6 NY ADC 705.4

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Title 6. Department of Environmental Conservation
Chapter X. Division of Water Resources
Subchapter A. General
Article 2. Classifications and Standards of Quality and Purity
Part 706. Appendices for Parts 700-705

NYCRR T. 6, Ch. X, Subch. A, Art. 2, Pt. 706, Refs & Annos

Credits

(Statutory authority: [Environmental Conservation Law, § 17-0301](#))

Current with amendments included in the New York State Register, XXXVIII, Issue 24 dated June 15, 2016.

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Title 6. Department of Environmental Conservation
Chapter X. Division of Water Resources
Subchapter A. General
Article 2. Classifications and Standards of Quality and Purity
Part 706. Appendices for Parts 700-705(Refs & Annos)

6 NYCRR 706.1

Section 706.1. Appendix for section 702.9

AQUATIC LIFE PROCEDURES

I. Introduction

A. This Appendix provides procedures to derive standards and guidance values to protect aquatic life from acute and chronic effects. Tier I procedures, sections III through XI, are used where the required data described in section III.B for freshwater species or Section III.C for saltwater species are available. Tier II procedures, sections XII through XVI, are used where the data requirements in sections III.B or III.C are not met.

II. Applicability

A. These procedures will generally be used to derive state-wide standards or guidance values according to the classified uses described in section 702.9 of this Title. Site-specific modifications to such statewide standards or guidance values are required or allowed as described below.

B. Site-specific modifications to chronic or acute aquatic life values may be developed where:

(1) The local water quality characteristics such as pH, hardness, temperature, color, etc., alter the biological availability or toxicity of a pollutant; or

(2) The sensitivity of the aquatic organisms species that occur at the site differs from the species actually tested in developing the criteria. The phrase “occur at the site“ includes the species, genera, families, orders, classes, and phyla that: are usually present at the site; are present at the site only seasonally due to migration; are present intermittently because they periodically return to or extend their ranges into the site; were present at the site in the past, are not currently present at the site due to degraded conditions, and are expected to return to the site when conditions improve; are present in nearby bodies of water, are not currently present at the site due to degraded conditions, and are expected to be present at the site when conditions improve. The taxa that occur at the site cannot be determined merely by sampling downstream and/or upstream of the site at one point in time. “Occur at the site“ does not include taxa that were once present at the site but cannot exist at the site now due to permanent physical alteration of the habitat at the site resulting, for example, from dams, etc.

C. Site-specific modifications also may be developed to acute and chronic aquatic life values to reflect local physical and hydrological conditions.

D. Endangered species considerations.

(1) Any site-specific modifications that result in less stringent values must not be likely to jeopardize the continued existence of endangered or threatened species or result in the destruction or adverse modification of such species' critical habitat.

(2) More stringent modifications shall be developed to protect endangered or threatened species where such modifications are necessary to ensure that water quality is not likely to jeopardize the continued existence of such species or result in the destruction or adverse modification of such species, critical habitat.

Procedures for Deriving Aquatic Life—Tier I Standards and Guidance Values; Sections III - XI

III. Required Data

A. Certain data should be available to help ensure that each of the major kinds of possible adverse effects receive adequate consideration.

B. To derive an acute or chronic standard or guidance value for freshwater aquatic organisms and their uses, the following must be available:

1. Results of acceptable acute tests (see section IV or VI of this Appendix) with at least one species of freshwater animal in at least eight different families such that all of the following are included:

- a. The family Salmonidae in the class Osteichthyes;
- b. one other family (preferably a commercially or recreationally important, warmwater species) in the class Osteichthyes (e.g., bluegill, channel catfish);
- c. A third family in the phylum Chordata (e.g., fish, amphibian);
- d. A planktonic crustacean (e.g., a cladoceran, copepod);
- e. A benthic crustacean (e.g., ostracod, isopod, amphipod, crayfish);
- f. An insect (e.g., mayfly, dragonfly, damselfly, stonefly, caddisfly, mosquito, midge);
- g. A family in a phylum other than Arthropoda or Chordata (e.g., Rotifera, Annelida, Mollusca);

h. A family in any order of insect or any phylum not already represented.

2. Acute-chronic ratios (see section VI of this Appendix) with at least one species of aquatic animal in at least three different families provided that of the three species:

a. At least one is a fish;

b. At least one is an invertebrate; and

c. At least one species is an acutely sensitive freshwater species (the other two may be saltwater species).

3. Results of at least one acceptable test with a freshwater alga or vascular plant is desirable but not required for standard or guidance value derivation (see section VIII of this Appendix). If plants are among the aquatic organisms most sensitive to the material, results of a test with a plant in another phylum (division) should also be available.

C. To derive a standard or guidance value for saltwater aquatic organisms and their uses, the following must be available:

1. Results of acceptable acute tests (see Section IV or VI of this Appendix) with at least one species of saltwater animal in at least eight different families such that all of the following are included:

a. two families in the phylum Chordata;

b. a family in a phylum other than Arthropoda or Chordata;

c. either the Mysidae or Penaeidae family;

d. three other families not in the phylum Chordata (may include Mysida or Penaeidae, whichever was not used above);

e. any other family.

2. Acute-chronic ratios (see Section VI of this Appendix) with species of aquatic animals in at least three different families provided that of the three species:

a. at least one is a fish;

b. at least one is an invertebrate; and

c. at least one is an acutely sensitive saltwater species (the other two may be freshwater species).

3. Results of at least one acceptable test with a saltwater alga or vascular plant is desirable but not required for standard or guidance value derivation (see section VIII of this Appendix). If plants are among the aquatic organisms most sensitive to the material, results of a test with a plant in another phylum (division) should also be available.

D. If all required data are available, a numerical standard or guidance value can usually be derived except in special cases. For example, derivation of a chronic standard or guidance value might not be possible if the available ACRs vary by more than a factor of 10 with no apparent pattern. Also, if a standard or guidance value is to be related to a water quality characteristic (see sections V and VII of this Appendix), more data will be required.

E. Confidence in a standard or guidance value usually increases as the amount of available pertinent information increases. Thus, additional data are usually desirable.

IV. Final Acute Value

A. Appropriate measures of the acute (short-term) toxicity of the material to a variety of species of aquatic animals are used to calculate the Final Acute Value (FAV). The Final Acute Value is a calculated estimate of the concentration of a test material such that 95 percent of the genera (with which acceptable acute toxicity tests have been conducted on the material) have higher Genus Mean Acute Values (GMAVs). An acute test is a comparative study in which organisms, that are subjected to different treatments, are observed for a short period usually not constituting a substantial portion of their life span. However, in some cases, the Species Mean Acute Value (SMAV) of a commercially or recreationally important species is lower than the calculated FAV, then the SMAV replaces the calculated FAV in order to provide protection for that important species.

B. Acute toxicity tests shall be conducted using acceptable procedures.

C. Except for results with saltwater annelids and mysids, results of acute tests during which the test organisms were fed should not be used, unless data indicate that the food did not affect the toxicity of the test material.

D. Results of acute tests conducted in unusual dilution water, e.g., dilution water in which total organic carbon or particulate matter exceeded five mg/L, should not be used, unless a relationship is developed between acute toxicity and organic carbon or particulate matter, or unless data show that organic carbon or particulate matter, etc., do not affect toxicity.

E. Acute values must be based upon endpoints which reflect the total severe adverse impact of the test material on the organisms used in the test. Therefore, only the following kinds of data on acute toxicity to aquatic animals shall be used:

1. Tests with daphnids and other cladocerans must be started with organisms less than 24 hours old and tests with midges must be started with second or third instar larvae. It is preferred that the results should be the 48-hour EC50 based on the total percentage of organisms killed and immobilized. If such an EC50 is not available for a test, the 48-hour LC50 should be used in place of the desired 48-hour EC50. An EC50 or LC50 of longer than 48 hours can be used as long as the animals were not fed and the control animals were acceptable at the end of the test. An EC50 is a statistically or graphically estimated concentration that is expected to cause one or more specified effects in 50 percent

of a group of organisms under specified conditions. An LC50 is a statistically or graphically estimated concentration that is expected to be lethal to 50 percent of a group of organisms under specified conditions.

2. It is preferred that the results of a test with embryos and larvae of barnacles, bivalve molluscs (clams, mussels, oysters and scallops), sea urchins, lobsters, crabs, shrimp and abalones be the 96-hour EC50 based on the percentage of organisms with incompletely developed shells plus the percentage of organisms killed. If such an EC50 is not available from a test, of the values that are available from the test, the lowest of the following should be used in place of the desired 96-hour EC50: 48- to 96-hour EC50s based on percentage of organisms with incompletely developed shells plus percentage of organisms killed, 48- to 96-hour EC50s based on percentage of organisms with incompletely developed shells, and 48-hour to 96-hour LC50s.

3. It is preferred that the result of tests with all other aquatic animal species and older life stages of barnacles, bivalve molluscs (clams, mussels, oysters and scallops), sea urchins, lobsters, crabs, shrimp and abalones be the 96-hour EC50 based on percentage of organisms exhibiting loss of equilibrium plus percentage of organisms immobilized plus percentage of organisms killed. If such an EC50 is not available from a test, of the values that are available from a test the lower of the following should be used in place of the desired 96-hour EC50: the 96-hour EC50 based on percentage of organisms exhibiting loss of equilibrium plus percentage of organisms immobilized and the 96-hour LC50.

4. Tests whose results take into account the number of young produced, such as most tests with protozoans, are not considered acute tests, even if the duration was 96 hours or less.

5. If the tests were conducted properly, acute values reported as “greater than” values and those which are above the solubility of the test material should be used, because rejection of such acute values would bias the Final Acute Value by eliminating acute values for resistant species.

F. If the acute toxicity of the material to aquatic animals has been shown to be related to a water quality characteristic such as hardness or particulate matter for freshwater animals, refer to section V of this Appendix.

G. The agreement of the data within and between species must be considered. Acute values that appear to be questionable in comparison with other acute and chronic data for the same species and for other species in the same genus must not be used. For example, if the acute values available for a species or genus differ by more than a factor of 10, rejection of some or all of the values would be appropriate, absent countervailing circumstances.

H. If the available data indicate that one or more life stages are at least a factor of two more resistant than one or more other life stages of the same species, the data for the more resistant life stages must not be used in the calculation of the SMAV because a species cannot be considered protected from acute toxicity if all of the life stages are not protected.

I. For each species for which at least one acute value is available, the SMAV shall be calculated as the geometric mean of the results of all acceptable flow-through acute toxicity tests in which the concentrations of test material were measured with the most sensitive tested life stage of the species. For a species for which no such result is available, the SMAV shall be calculated as the geometric mean of all acceptable acute toxicity tests with the most sensitive tested life stage, i.e., results of flow-through tests in which the concentrations were not measured and results of static and renewal tests based on initial concentrations (nominal concentrations are acceptable for most test materials if measured concentrations

are not available) of test material. A renewal test is a test with aquatic organisms in which either the test solution in a test chamber is removed and replaced at least once during the test or the test organisms are transferred into a new test solution of the same composition at least once during the test. A static test is a test with aquatic organisms in which the solution and organisms that are in a test chamber at the beginning of the test remain in the chamber until the end of the test, except for removal of dead test organisms.

Note 1: Data reported by original investigators must not be rounded off. Results of all intermediate calculations must not be rounded off to fewer than four significant digits.

Note 2: The geometric mean of N numbers is the Nth root of the product of the N numbers. Alternatively, the geometric mean can be calculated by adding the logarithms of the N numbers, dividing the sum by N, and taking the antilog of the quotient. The geometric mean of two numbers is the square root of the product of the two numbers, and the geometric mean of one number is that number. Either natural (base e) or common (base 10) logarithms can be used to calculate geometric means as long as they are used consistently within each set of data, i.e., the antilog used must match the logarithms used.

Note 3: Geometric means, rather than arithmetic means, are used here because the distributions of sensitivities of individual organisms in toxicity tests on most materials and the distributions of sensitivities of species within a genus are more likely to be lognormal than normal. Similarly, geometric means are used for ACRs because quotients are likely to be closer to lognormal than normal distributions. In addition, division of the geometric mean of a set of numerators by the geometric mean of the set of denominators will result in the geometric mean of the set of corresponding quotients.

J. For each genus for which one or more SMAVs are available, the GMAV shall be calculated as the geometric mean of the SMAVs available for the genus.

K. Order the GMAVs from high to low.

L. Assign ranks, R, to the GMAVs from “1” for the lowest to “N” for the highest. If two or more GMAVs are identical, assign them successive ranks.

M. Calculate the cumulative probability, P, for each GMAV as $R / (N + 1)$.

N. Select the four GMAVs which have cumulative probabilities closest to 0.05 (if there are fewer than 59 GMAVs, these will always be the four lowest GMAVs).

O. Using the four selected GMAVs, and Ps, calculate

$$S^2 = \frac{\sum (\ln \text{GMAV})^2 - \frac{(\sum \ln \text{GMAV})^2}{4}}{\sum (P)^2 - \frac{(\sum P)^2}{4}}$$

$$L = \frac{\sum (\ln \text{GMAV}) - S (\sum (\frac{1}{P}))}{4}$$

$$A = S (\#8730;0.05) + L$$

$$FAV = e^A$$

P. If for a commercially or recreationally important species the geometric mean of the acute values from flow-through tests in which the concentrations of test material were measured is lower than the calculated Final Acute Value (FAV), then that geometric mean must be used as the FAV instead of the calculated FAV.

Q. See section VI of this Appendix.

V. Final Acute Equation

A. When enough data are available to show that acute toxicity to two or more species is similarly related to a water quality characteristic, the relationship shall be taken into account as described in sections V.B through V.G of this Appendix or using analysis of covariance. The two methods are equivalent and produce identical results. The manual method described below provides an understanding of this application of covariance analysis, but computerized versions of covariance analysis are much more convenient for analyzing large data sets. If two or more factors affect toxicity, multiple regression analysis shall be used.

B. For each species for which comparable acute toxicity values are available at two or more different values of the water quality characteristic, perform a least squares regression of the acute toxicity values on the corresponding values of the water quality characteristic to obtain the slope and its 95 percent confidence limits for each species.

Note: Because the best documented relationship is that between hardness and acute toxicity of metals in fresh water and a log-log relationship fits these data, geometric means and natural logarithms of both toxicity and water quality are used in the rest of this section. For relationships based on other water quality characteristics, such as pH, temperature, no transformation or a different transformation might fit the data better, and appropriate changes will be necessary throughout this section.

C. Decide whether the data for each species are relevant, taking into account the range and number of the tested values of the water quality characteristic and the degree of agreement within and between species. For example, a slope based on six data points might be of limited value if it is based only on data for a very narrow range of values of the water quality characteristic. A slope based on only two data points, however, might be useful if it is consistent with other information and if the two points cover a broad enough range of the water quality characteristic. In addition, acute values that appear to be questionable in comparison with other acute and chronic data available for the same species and for other species in the same genus should not be used. For example, if after adjustment for the water quality characteristic, the acute values available for a species or genus differ by more than a factor of 10, rejection of some or all of the values would be appropriate, absent countervailing justification. If useful slopes are not available for at least one fish and one invertebrate or if the available slopes are too dissimilar or if too few data are available to adequately define the relationship between acute toxicity and the water quality characteristic, return to section IV.G of this Appendix, using the results of tests conducted under conditions and in waters similar to those commonly used for toxicity tests with the species.

D. For each species, calculate the geometric mean of the available acute values and then divide each of the acute values for the species by the geometric mean for the species. This normalizes the acute values so that the geometric mean of the normalized values for each species individually and for any combination of species is 1.0.

E. Similarly normalize the values of the water quality characteristic for each species individually using the same procedure as above.

F. Individually for each species perform a least squares regression of the normalized acute values of the water quality characteristic. The resulting slopes and 95 percent confidence limits will be identical to those obtained in section V.B. of this Appendix. If, however, the data are actually plotted, the line of best fit for each individual species will go through the point 1,1 in the center of the graph.

G. Treat all of the normalized data as if they were all for the same species and perform a least squares regression of all of the normalized acute values on the corresponding normalized values of the water quality characteristic to obtain the pooled acute slope, V , and its 95 percent confidence limits. If all of the normalized data are actually plotted, the line of best fit will go through the point 1,1 in the center of the graph.

H. For each species calculate the geometric mean, W , of the acute toxicity values and the geometric mean, X , of the values of the water quality characteristic. (These were calculated in sections V.D and V.E of this Appendix).

I. For each species, calculate the logarithm, Y , of the SMAV at a selected value, Z , of the water quality characteristic using the equation:

$$Y = \ln W - V (\ln X - \ln Z)$$

J. For each species calculate the SMAV at X using the equation:

$$\text{SMAV} = \exp(y)$$

Note: Alternatively, the SMAVs at Z can be obtained by skipping step H above, using the equations in steps I and J to adjust each acute value individually to Z , and then calculating the geometric mean of the adjusted values for each species individually. This alternative procedure allows an examination of the range of the adjusted acute values for each species.

K. Obtain the FAV at Z by using the procedure described in sections IV.J through IV.O of this Appendix.

L. If, for a commercially or recreationally important species the geometric mean of the acute values at Z from flow-through tests in which the concentrations of the test material were measured is lower than the FAV at Z , then the geometric mean must be used as the FAV instead of the FAV.

M. The Final Acute Equation is written as:

$$\text{FAV} = \exp (V[\ln(\text{water quality char.})] + A - V[\ln Z])$$

where:

V = pooled acute slope, and

A = $\ln(\text{FAV at } Z)$.

Because V , A , and Z are known, the FAV can be calculated for any selected value of the water quality characteristic.

VI. Final Chronic Value

A. There are two methods for calculating a Final Chronic Value (FCV). Selection of the appropriate methodology is dependent upon the availability of chronic toxicity data. If chronic toxicity data for the species described in section III.B.1 for freshwater species or section III.C.1 for saltwater species are available, the FCV can be calculated in the same manner as the FAV.

Otherwise, the FCV can be calculated by dividing the FAV by the Final Acute-Chronic Ratio (FACR). The data requirements for calculating the FACR are identified in sections III.B.2 and III.C.2 for freshwater and saltwater species respectively. In some cases, it might not be possible to calculate a FCV. The FCV is (a) a calculated estimate of the concentration of a test material such that 95 percent of the genera (with which acceptable chronic toxicity tests have been conducted on the material) have higher GMCVs, or (b) the quotient of an FAV divided by an appropriate ACR, or (c) the SMCV of a commercially or recreationally important species, if the SMCV is lower than the calculated estimate or the quotient, whichever is applicable.

Note: As the name implies, the ACR is a way of relating acute and chronic toxicities.

B. A chronic standard or guidance value shall be based on results of flow-through (except renewal is acceptable for daphnids) chronic tests in which the concentrations of test material in the test solutions were properly measured at appropriate times during the test. A chronic test is a comparative study in which organisms, that are subjected to different treatments, are observed for a long period or a substantial portion of their life span.

C. Results of chronic tests in which survival, growth, or reproduction in the control treatment was unacceptably low shall not be used. The limits of acceptability will depend on the species.

D. Results of chronic tests conducted in unusual dilution water, e.g., dilution water in which total organic carbon or particulate matter exceeded five mg/L, should not be used, unless a relationship is developed between chronic toxicity and organic carbon or particulate matter, or unless data show that organic carbon, particulate matter, etc., do not affect toxicity.

E. Chronic values must be based on endpoints and lengths of exposure appropriate to the species. Therefore, only results of the following kinds of chronic toxicity tests shall be used:

1. Life-cycle toxicity tests consisting of exposures of each of two or more groups of individuals of a species to a different concentration of the test material throughout a life cycle. To ensure that all life stages and life processes are exposed, tests with fish should begin with embryos or newly hatched young less than 48 hours old, continue through maturation and reproduction, and should end not less than 24 days (90 days for salmonids) after the hatching of the next generation. Tests with daphnids should begin with young less than 24 hours old and last for not less than 21 days, and for ceriodaphnids not less than seven days. Tests with mysids should begin with young less than 24 hours old and continue until seven days past the median time of first brood release in the controls. For fish, data should be obtained and analyzed on survival and growth of adults and young, maturation of males and females, eggs spawned per female, embryo viability (salmonids only), and hatchability. For daphnids, data should be obtained and analyzed on survival and young per female. For mysids, data should be obtained and analyzed on survival, growth, and young per female.

2. Partial life-cycle toxicity tests consist of exposures of each of two more groups of individuals of a species of fish to a different concentration of the test material through most portions of a life cycle. Partial life-cycle tests are allowed with fish species that require more than a year to reach sexual maturity, so that all major life stages can be exposed to the test material in less than 15 months. A life-cycle test is a comparative study in which organisms, that are subjected to different treatments, are observed at least from a life stage in one generation to the same life-stage in the next generation. Exposure to the test material should begin with immature juveniles at least two months prior to active gonad development, continue through maturation and reproduction, and end not less than 24 days (90 days for salmonids) after the hatching of the next generation. Data should be obtained and analyzed on survival and growth of adults and young, maturation of males and females, eggs spawned per female, embryo viability (salmonids only), and hatchability.

3. Early life-stage toxicity tests consisting of 28- to 32-day (60 days post hatch for salmonids) exposures of the early life stages of a species of fish from shortly after fertilization through embryonic, larval, and early juvenile development. Data should be obtained and analyzed on survival and growth.

Note: Results of an early life-stage test are used as predictions of results of life-cycle and partial life-cycle tests with the same species. Therefore, when results of a life-cycle or partial life-cycle test are available, results of an early life-stage test with the same species should not be used. Also, results of early life-stage tests in which the incidence of mortalities or abnormalities increased substantially near the end of the test shall not be used because the results of such tests are possibly not good predictions of comparable life-cycle or partial life-cycle tests.

F. A chronic value may be obtained by calculating the geometric mean of the lower and upper chronic limits from a chronic test or by analyzing chronic data using regression analysis.

1. A lower chronic limit is the highest tested concentration:

- a. In an acceptable chronic test;
- b. Which did not cause an unacceptable amount of adverse effect on any of the specified biological measurements; and
- c. Below which no tested concentration caused an unacceptable effect.

2. An upper chronic limit is the lowest tested concentration:

- a. In an acceptable chronic test;
- b. Which did cause an unacceptable amount of adverse effect on one or more of the specified biological measurements; and,
- c. Above which all tested concentrations also caused such an effect.

Note: Because various authors have used a variety of terms and definitions to interpret and report results of chronic tests, reported results should be reviewed carefully. The amount of effect that is considered unacceptable is often based on a statistical hypothesis test, but might also be defined in terms of a specified percent reduction from the controls. A small percent reduction (e.g., three percent) might be considered acceptable even if it is statistically significantly different from the control, whereas a large percent reduction (e.g., 30 percent) might be considered unacceptable even if it is not statistically significant.

G. If the chronic toxicity of the material to aquatic animals has been shown to be related to a water quality characteristic such as hardness or particulate matter for freshwater animals, refer to section VII of this Appendix.

H. If chronic values are available for the species in eight families as described in section III.B.1 or section III.C.1 of this Appendix, respective SMCVs shall be calculated for each species for which at least one chronic value is available by calculating the geometric mean of the results of all acceptable life-cycle and partial life-cycle toxicity tests with the species; for a species of fish for which no such result is available, the SMCV is the geometric mean of all acceptable early life-stage tests. Appropriate GMCVs shall also be calculated. A GMCV is the geometric mean of the SMCVs for the genus. The FCV shall be obtained using the procedure described in sections IV.J through IV.O of this Appendix, substituting SMCV and GMCV for SMAV and GMAV respectively. See section VI.M of this Appendix.

Note: Section VI.I through VI.L are for use when chronic values are not available for freshwater species in eight taxonomic families as described in section III.B.1 of this Appendix, or for saltwater species in eight taxonomic families as described in section III.C.1 of this Appendix.

I. For each chronic value for which at least one corresponding appropriate acute value is available, calculate an ACR, using for the numerator the geometric mean of the results of all acceptable flow-through (except static is acceptable for daphnids and midges) acute tests in the same dilution water in which the concentrations are measured. For fish, the acute test(s) should be conducted with juveniles. The acute test(s) should be part of the same study as the chronic test. If acute tests were not conducted as part of the same study, but were conducted as part of a different study in the same laboratory and dilution water, then they may be used. If no such acute tests are available, results of acute tests conducted in the same dilution water in a different laboratory may be used. If no such acute tests are available, an ACR shall not be calculated.

J. For each species, calculate the SMACR as the geometric mean of all ACRs available for that species. If the minimum ACR data requirements for calculation of a freshwater chronic standard or guidance value (as described in section III.B.2 of this Appendix) are not met with freshwater data alone, saltwater data may be used along with the freshwater data. Conversely, if the minimum ACR data requirements for calculation of a saltwater chronic standard or guidance value (as described in section III.C.2 of this Appendix) are not met with saltwater data alone, freshwater data may be used along with the saltwater data.

K. For some materials, the ACR seems to be the same for all species, but for other materials the ratio seems to increase or decrease as the SMAV increases. Thus the FACR can be obtained in three ways, depending on the data available:

1. If the species mean ACR seems to increase or decrease as the SMAVs increase, the FACR shall be calculated as the geometric mean of the ACRs for species whose SMAVs are close to the FAV.
2. If no major trend is apparent and the ACRs for all species are within a factor of ten, the FACR shall be calculated as the geometric mean of all of the SMACRs.
3. If the most appropriate SMACRs are less than 2.0, and especially if they are less than 1.0, acclimation has probably occurred during the chronic test. In this situation, because continuous exposure and acclimation cannot be assured to provide adequate protection in field situations, the FACR should be assumed to be two, so that the FCV is equal to the Aquatic (Acute) value A(A). (See section X.B of this Appendix.) If the available SMACRs do not fit one of these cases, a FACR may not be obtained and a Tier I FCV probably cannot be calculated.

L. Calculate the FCV by dividing the FAV by the FACR.

$$FCV = FAV \div FACR$$

If there is a Final Acute Equation rather than a FAV, see also section V of this Appendix.

M. If the SMCV of a commercially or recreationally important species is lower than the calculated FCV, then that SMCV must be used as the FCV instead of the calculated FCV.

N. See section VIII of this Appendix.

VII. Final Chronic Equation

A. A Final Chronic Equation can be derived in two ways. The procedure described in section VII.A of this Appendix will result in the chronic slope being the same as the acute slope. The procedure described in sections VII.B through N of this Appendix will usually result in the chronic slope being different from the acute slope.

1. If ACRs are available for enough species at enough values of the water quality characteristic to indicate that the ACR appears to be the same for all species and appears to be independent of the water quality characteristic, calculate the FACR as the geometric mean of the available SMACRs.

2. Calculate the FCV at the selected value Z of the water quality characteristic by dividing the FAV at Z (see section V.M of this Appendix) by the FACR.

3. Use V = pooled acute slope (see section V.M of this Appendix), and L = pooled chronic slope.

4. See section VII.M of this Appendix.

B. When enough data are available to show that chronic toxicity to at least one species is related to a water quality characteristic, the relationship should be taken into account as described in sections C through G below or using analysis of covariance. The two methods are equivalent and produce identical results. The manual method described below provides an understanding of this application of covariance analysis, but computerized versions of covariance analysis are much more convenient for analyzing large data sets. If two or more factors affect toxicity, multiple regression analysis shall be used.

C. For each species for which comparable chronic toxicity values are available at two or more different values of the water quality characteristic, perform a least squares regression of the chronic toxicity values on the corresponding values of the water quality characteristic to obtain the slope and its 95 percent confidence limits for each species.

Note: Because the best documented relationship is that between hardness and acute toxicity of metals in fresh water and a log-log relationship fits these data, geometric means and natural logarithms of both toxicity and water quality are used in the rest of this section. For relationships based on other water quality characteristics, such as pH, temperature, no transformation or a different transformation might fit the data better, and appropriate changes will be necessary throughout this section. It

is probably preferable, but not necessary, to use the same transformation that was used with the acute values in section V of this Appendix.

D. Decide whether the data for each species are relevant, taking into account the range and number of the tested values of the water quality characteristic and the degree of agreement within and between species. For example, a slope based on six data points might be of limited value if it is based only on data for a very narrow range of values of the water quality characteristic. A slope based on only two data points, however, might be more useful if it is consistent with other information and if the two points cover a broad range of the water quality characteristic. In addition, chronic values that appear to be questionable in comparison with other acute and chronic data available for the same species and for other species in the same genus in most cases should not be used. For example, if after adjustment for the water quality characteristic, the chronic values available for a species or genus differ by more than a factor of 10, rejection of some or all of the values is, in most cases, absent countervailing circumstances, appropriate. If a useful chronic slope is not available for at least one species or if the available slopes are too dissimilar or if too few data are available to adequately define the relationship between chronic toxicity and the water quality characteristic, it might be appropriate to assume that the chronic slope is the same as the acute slope, which is equivalent to assuming that the ACR is independent of the water quality characteristic. Alternatively, return to section VI.H of this Appendix, using the results of tests conducted under conditions and in waters similar to those commonly used for toxicity tests with the species.

E. Individually for each species, calculate the geometric mean of the available chronic values and then divide each chronic value for a species by the mean for the species. This normalizes the chronic values so that the geometric mean of the normalized values for each species individually, and for any combination of species, is 1.0.

F. Similarly, normalize the values of the water quality characteristic for each species individually.

G. Individually for each species, perform a least squares regression of the normalized chronic toxicity values on the corresponding normalized values of the water quality characteristic. The resulting slopes and the 95 percent confidence limits will be identical to those obtained in section VII.B of this Appendix. Now, however, if the data are actually plotted, the line of best fit for each individual species will go through the point 1,1 in the center of the graph.

H. Treat all of the normalized data as if they were all the same species and perform a least squares regression of all of the normalized chronic values on the corresponding normalized values of the water quality characteristic to obtain the pooled chronic slope, L, and its 95 percent confidence limits.

If all normalized data are actually plotted, the line of best fit will go through the point 1.1 in the center of the graph.

I. For each species, calculate the geometric mean, M, of the toxicity values and the geometric mean, P, of the values of the water quality characteristic. (These are calculated in sections VII.E and F of this Appendix.)

J. For each species, calculate the logarithm, Q, of the SMCV at a selected value, Z, of the water quality characteristic using the equation:

$$Q = \ln M - L(\ln P - \ln Z)$$

Note: Although it is not necessary, it is recommended that the same value of the water quality characteristic be used here as was used in section V of this Appendix.

K. For each species, calculate a SMCV at Z using the equation:

$$SMCV = \exp(Q)$$

Note: Alternatively, the SMCV at Z can be obtained by skipping section VII.J of this Appendix, using the equations in sections VII.J and K of this Appendix to adjust each chronic value individually to Z, and then calculating the geometric means of the adjusted values for each species individually. This alternative procedure allows an examination of the range of the adjusted chronic values for each species.

L. Obtain the FCV at Z by using the procedure described in sections IV.J through O of this appendix.

M. If the SMCV at Z of a commercially or recreationally important species is lower than the calculated FCV at Z, then that SMCV shall be used as the FCV at Z instead of the calculated FCV.

N. The Final Chronic Equation is written as:

$$FCV = \exp(L[\ln(\text{water quality characteristic})] + \ln S - L[\ln Z])$$

where:

L = pooled chronic slope and

S = FCV at Z.

Because L, S, and Z are known, the FCV can be calculated for any selected value of the water quality characteristic.

VIII. Final Plant Value

A. A Final Plant Value (FPV) is the lowest plant value that was obtained with an important aquatic plant species in an acceptable toxicity test for which the concentrations of the test material were measured and the adverse effect was biologically important. Appropriate measures of the toxicity of the material to aquatic plants are used to compare the relative sensitivities of aquatic plants and animals. Although procedures for conducting and interpreting the results of toxicity tests with plants are not well-developed, results of tests with plants usually indicate that criteria which adequately protect aquatic animals and their uses will, in most cases, also protect aquatic plants and their uses.

B. A plant value is the result of a 96-hour test conducted with an alga or a chronic test conducted with an aquatic vascular plant.

Note: A test of the toxicity of a metal to a plant shall not be used if the medium contained an excessive amount of a complexing agent, such as EDTA, that might affect the toxicity of the metal. Concentrations of EDTA above 200 ug/L should be considered excessive.

C. The FPV shall be obtained by selecting the lowest result from a test with an important aquatic plant species in which the concentrations of test material are measured and the endpoint is biologically important.

IX. Other Data

Pertinent information that could not be used in earlier sections might be available concerning adverse effects on aquatic organisms. The most important of these are data on cumulative and delayed toxicity, reduction in survival, growth, or reproduction, or any other adverse effect that has been shown to be biologically important. Delayed toxicity is an adverse effect to an organism that results from, and occurs after the end of, its exposure to one or more test materials. Especially important are data for species for which no other data are available. Data from behavioral, biochemical, physiological, microcosm, and field studies might also be available. Data might be available from tests conducted in unusual dilution water (see sections IV.D and VI.D of this Appendix), from chronic tests in which the concentrations were not measured (see section VI.B of this Appendix), from tests with previously exposed organisms, and from tests on formulated mixtures or emulsifiable concentrates. Such data might affect a criterion if the data were obtained with a commercially or recreationally important species, the test concentrations were measured, and the endpoint was biologically important.

X. Standards and Guidance Values, Tier I

A. Standards or guidance values to protect aquatic life include: the Aquatic (Acute) or A(A) and the Aquatic (Chronic) or A(C).

B. The A(A) is equal to one-half the FAV. The A(A) is an estimate of the highest concentration of a material in the water column to which an aquatic community can be exposed briefly without resulting in an unacceptable effect.

C. The A(C) is equal to the lowest of the FCV or the FPV (if available) unless other data (see section IX of this Appendix) show that a lower value should be used. The A(C) is an estimate of the highest concentration of a material in the water column to which an aquatic community can be exposed indefinitely without resulting in an unacceptable effect. If toxicity is related to a water quality characteristic, the A(C) is obtained from the Final Chronic Equation or FPV (if available) that results in the lowest concentrations in the usual range of the water quality characteristic, unless other data (see section IX) show that a lower value should be used.

D. Round both the A(A) and the A(C) to two significant digits.

XI. Final Review

A. The derivation of the standard or guidance value should be carefully reviewed by rechecking each step of the guidance in this part. Items that should be especially checked are:

1. If unpublished data are used, are they well documented?
2. Are all required data available?
3. Is the range of acute values for any species greater than a factor of 10?
4. Is the range of SMAVs for any genus greater than a factor of 10?
5. Is there more than a factor of 10 difference between the four lowest GMAVs?

6. Are any of the lowest GMAVs questionable?
7. Is the FAV reasonable in comparison with the SMAVs and GMAVs?
8. For any commercially or recreationally important species, is the geometric mean of the acute values from flow-through tests in which the concentrations of test material were measured lower than the FAV?
9. Are any of the chronic values used questionable?
10. Are any chronic values available for acutely sensitive species?
11. Is the range of acute-chronic ratios greater than a factor of 10?
12. Is the FCV reasonable in comparison with the available acute and chronic data?
13. Is the measured or predicted chronic value for any commercially or recreationally important species below the FCV?
14. Are any of the other data important?
15. Do any data look like they might be outliers?
16. Are there any deviations from the guidance in this part? Are they acceptable?

B. On the basis of all available pertinent laboratory and field information, determine if the standard or guidance value is consistent with sound scientific evidence. If it is not, another standard or guidance value, either higher or lower, shall be derived consistent with the guidance in this part.

Procedures for Deriving Aquatic Life Tier II Standards and Guidance Values; Sections XII - XVII

XII. Secondary Acute Value

If all eight minimum data requirements for calculating an FAV using Tier I are not met, a Secondary Acute Value (SAV) shall be calculated for a chemical as follows:

To calculate a SAV, the lowest GMAV in the database is divided by the Secondary Acute Factor (SAF) (Table 1 of this Appendix) corresponding to the number of satisfied minimum data requirements listed in the Tier I methodology (section III.B.1 of this Appendix for freshwater species and section III.C.1 for saltwater species). Data requirements contained in sections I, II,

and IV shall be applied to calculation of a SAV. If all eight minimum data requirements are satisfied, a Tier I value calculation may be possible. In order to calculate a freshwater SAV, the database must contain, at a minimum, a genus mean acute value (GMAV) for one of the following three genera in the family Daphnidae—Ceriodaphnia sp., Daphnia sp., or Simocephalus sp. In order to calculate a saltwater SAV, it would be desirable if the database contained, at a minimum: a genus mean acute value (GMAV) for a species or genus in one of the following families—Mysidae or Penaeidae; and a GMAV for a saltwater fish.

If appropriate, the SAV shall be made a function of a water quality characteristic in a manner similar to that described in Tier I.

Table 1. Secondary Acute Factors.

Number of Minimum Data Requirements Satisfied	Secondary Acute Factor
1	21.9
2	13.0
3	8.0
4	7.0
5	6.1
6	5.2
7	4.3

XIII. Secondary Acute-Chronic Ratio

If three or more experimentally determined ACRs, meeting the data collection and review requirements of Section VI of this appendix, are available for the chemical, determine the FACR using the procedure described in Section VI. If fewer than three acceptable experimentally determined ACRs are available, use enough assumed ACRs of 18 so that the total number of ACRs equals three. Calculate the Secondary Acute-Chronic Ratio (SACR) as the geometric mean of the three ACRs. Thus, if no experimentally determined ACRs are available, the SACR is 18.

XIV. Secondary Chronic Value

Calculate the Secondary Chronic Value (SCV) using one of the following:

A. $SCV = FAV \div SACR$ (use FAV from Tier I)

B. $SCV = SAV \div FACR$

C. $SCV = SAV \div SACR$

If appropriate, the SCV will be made a function of a water quality characteristic in a manner similar to that described in Tier I.

XV. Commercially or Recreationally Important Species

If for a commercially or recreationally important species the geometric mean of the acute values or chronic values from flow-through tests in which the concentrations of the test materials were measured is lower than the calculated SAV or SCV, then that geometric mean must be used as the SAV or SCV instead of the calculated SAV or SCV.

XVI. Standards and Guidance Values, Tier II

A. Standards or guidance values to protect aquatic life shall include: the Aquatic (Acute) or A(A) value and the Aquatic (Chronic) or A(C) value.

B. The A(A) is equal to one-half of the SAV.

C. The A(C) is equal to the lowest of the SCV or the Final Plant Value, if available, unless other data (see section IX of this Appendix) show that a lower value should be used.

If toxicity is related to a water quality characteristic, the A(C) is obtained from the Secondary Chronic Equation or FPV, if available, that results in the lowest concentrations in the usual range of the water quality characteristic, unless other data (See section IX of this Appendix) show that a lower value should be used.

D. Round both the A(A) and the A(C) to two significant digits.

XVII. Appropriate Modifications

On the basis of all available pertinent laboratory and field information, determine if the Tier II value is consistent with sound scientific evidence. If it is not, another value, either higher or lower, shall be derived consistent with the guidance in this Appendix.

Credits

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Current with amendments included in the New York State Register, XXXVIII, Issue 24 dated June 15, 2016.

6 NYCRR 706.1, 6 NY ADC 706.1

Compilation of Codes, Rules and Regulations of the State of New York Currentness
Title 6. Department of Environmental Conservation
Chapter X. Division of Water Resources
Subchapter A. General
Article 2. Classifications and Standards of Quality and Purity
Part 706. Appendices for Parts 700-705(Refs & Annos)

6 NYCRR 706.2

Section 706.2. Severability

If any provision of this Part or its application to any person or circumstance is held to be invalid, the remainder of this Part and the application of that provision to other persons or circumstances will not be affected.

Credits

Sec. filed Feb. 10, 1998, eff. 30 days after filing.

Current with amendments included in the New York State Register, XXXVIII, Issue 24 dated June 15, 2016.

6 NYCRR 706.2, 6 NY ADC 706.2

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