

Readopt with amendment Env-Wq 1700, eff. 12-1-16 (Document #12042), to read as follows:

CHAPTER Env-Wq 1700 SURFACE WATER QUALITY REGULATIONS

Statutory Authority: RSA 485-A:6, I & XI-c and RSA 485-A:8, VI

PART Env-Wq 1701 PURPOSE; APPLICABILITY; COMPLIANCE SCHEDULES; ***VARIANCES***

Env-Wq 1701.01 Purpose. The purpose of these rules is to establish water quality standards for the state's surface water uses as set forth in RSA 485-A:8, I, II, III and V. These standards are intended to protect public health and welfare, enhance the quality of water and serve the purposes of the federal Clean Water Act, 33 U.S.C. 1251 ~~et seq.~~, and RSA 485-A. These standards provide for the protection and propagation of fish, shellfish, and wildlife, and provide for such uses as recreational activities in and on the surface waters, public water supplies, agricultural and industrial uses, and navigation in accord with RSA 485-A:8, I and II.

Env-Wq 1701.02 Applicability. These rules shall apply to:

- (a) All surface waters ***except as provided in (c), below***; and
- (b) Any person who:
 - (1) Causes any point or nonpoint source discharge ~~of any pollutant~~ to surface waters;
 - (2) Undertakes hydrologic modifications, such as dam construction or water withdrawals; or
 - (3) Undertakes any other activity that affects the beneficial uses or the water quality of surface waters.

(c) For purposes of this chapter, the following legally constructed artificial waters are not surface waters:

- (1) Bodies of water designed and constructed in uplands in order to manage stormwater run-off;***
- (2) Bodies of water that are exempt from permitting pursuant to RSA 482-A:3, IV(b); and***
- (3) Wastewater facilities designed and constructed to convey or treat sewage or waste, as defined in RSA 485-A:2, X and RSA 485-A:2, XVI respectively, and permitted in accordance with RSA 485-A:13.***

Env-Wq 1701.03 Compliance Schedules in NPDES Permits.

(a) A National Pollutant Discharge Elimination System (NPDES) permit issued or renewed for a discharge to New Hampshire surface waters, as defined herein, shall not specify a schedule leading to compliance with New Hampshire or federal surface water quality standards, or both, unless:

- (1) The permittee cannot comply with the permit limits or other requirements immediately upon issuance of the permit; and
- (2) The compliance schedule is provided to afford the permittee adequate time to comply with one or more permit requirements or limitations that are: ~~based on~~
 - a. new;***
 - b. newly interpreted;*** or
 - c. revised water quality standards that became effective after issuance of the original discharge permit and after July 1, 1977.***

(b) A compliance schedule established to meet any surface water quality standard that applies to the New Hampshire waters receiving the discharge shall:

- (1) Include dates for specified tasks or activities leading to compliance;
- (2) Include interim effluent limits as the U.S. Environmental Protection Agency (EPA) ***permitting agency, or agencies if multiple,*** deems necessary; and
- (3) Require compliance at the earliest practicable time.

Env-Wq 1701.04 Water Quality Standards Variances. Variances from this chapter shall comply with the requirements of 40 CFR § 131.14 and RSA 541-A:3

PART Env-Wq 1702 DEFINITIONS

Env-Wq 1702.01 “7Q10” means the lowest average flow that occurs for 7 consecutive days on an annual basis with a recurrence interval of once in 10 years on average, expressed in terms of volume per time period.

~~Env-Wq 1702.02 “Acute toxicity” means an adverse effect such as mortality or debilitation caused by an exposure of 96 hours or less to a toxic substance.~~

Env-Wq 1702.0302 “Antidegradation” means a provision of the water quality standards that maintains and protects existing water quality and uses.

Env-Wq 1702.0403 “Assimilative capacity” means the ***concentration or mass*** amount of a pollutant ***that can be released to a waterbody, or the volume, area, depth or flow rate of water that can be altered,*** combination of pollutants that can safely be released to a waterbody without causing violations of applicable water quality criteria or negatively impacting ***impairing any existing or designated*** uses.

Env-Wq 1702.0504 “Benthic community” mean the community of plants and animals that live on, over, or in the substrate of the surface water.

Env-Wq 1702.0605 “Benthic deposit” means any sludge, sediment, or other organic or inorganic accumulations on the bottom of the surface water.

Env-Wq 1702.0706 “Best management practices” means those practices that are determined, after problem assessment and examination of all alternative practices and technological, economic, and institutional considerations, to be the most effective practicable means of preventing or reducing the amount of pollution, ***including hydrologic modification,*** generated by point or nonpoint sources to a level compatible with water quality goals.

Env-Wq 1702.0807 “Biological integrity” means the ability of an aquatic ecosystem to support and maintain a balanced, integrated, adaptive community of organisms having a species composition, diversity, and functional organization comparable to that of similar natural habitats of a region.

Env-Wq 1702.0908 “Biota” means species of plants or animals occurring in surface waters.

Env-Wq 1702.1009 “Chronic toxicity” means an adverse effect, such as reduced reproductive success or growth or poor survival of sensitive life stages, that occurs as a result of prolonged exposure to a toxic substance.

Env-Wq 1702.1110 “Class A and B waters” means those surface waters that are legislatively classified as Class A or B waters pursuant to RSA 485-A:8, I, II and III.

Env-Wq 1702.4211 “Clean Water Act (CWA)” means the federal Clean Water Act, Pub. L. 92-500, as amended by Pub. L. 95-217, Pub. L. 95-576, Pub. L. 96-483, Pub. L. 97-117, Pub. L. 100-4, 33 U.S.C. 1251 et seq.

Env-Wq 1702.4312 “Community” means one or more populations co-occurring in surface waters.

Env-Wq 1702.4413 “Criterion” means:

- (a) A designated concentration of a pollutant;
- (b) A narrative statement concerning that pollutant that when not exceeded, will protect an organism, a population, a community, or a prescribed water use; or
- (c) A numeric value or narrative statement related to other characteristics of the surface waters, such as flow and biological community integrity.

Env-Wq 1702.4514 “Cultural eutrophication” means the human-induced addition of wastes that contain nutrients to surface waters, resulting in excessive plant growth or a decrease in dissolved oxygen, or both.

Env-Wq 1702.4615 “Department” means the department of environmental services.

Env-Wq 1702.4716 “Designated uses” means those uses specified in water quality standards for each waterbody or segment whether or not such uses are presently occurring. The term includes the following:

- (a) Swimming and other recreation in and on the water, meaning the surface water is suitable for swimming, wading, boating of all types, fishing, surfing, and similar activities;
- (b) Fish consumption, meaning the surface water can support a population of fish free from toxicants and pathogens that could pose a human health risk to consumers;
- (c) Shellfish consumption, meaning the tidal surface water can support a population of shellfish free from toxicants and pathogens that could pose a human health risk to consumers;
- (d) Aquatic life integrity, meaning the surface water can support aquatic life, including a balanced, integrated, and adaptive community of organisms having a species composition, diversity, and functional organization comparable to that of similar natural habitats of the region;
- (e) Wildlife, meaning the surface water can provide habitat capable of supporting any life stage or activity of undomesticated fauna on a regular or periodic basis; and
- (f) Potential drinking water supply, meaning the surface water could be suitable for human intake and meet state and federal drinking water requirements after adequate treatment.

Env-Wq 1702.4817 “Discharge” means:

- (a) ***Additions, introductions, leakage, spillage, emissions, or flow*** ~~The addition, introduction, leaking, spilling, or emitting of a pollutant~~ to surface waters, either directly, or indirectly through the groundwater, whether done intentionally, unintentionally, negligently or otherwise; or
- (b) The placing of a pollutant in a location where the pollutant is likely to enter surface waters.

Env-Wq 1702.4918 “Dissolved oxygen” means the oxygen dissolved as a gas in sewage, water or other liquid expressed in milligrams per liter (mg/L), parts per million (ppm), or percent saturation.

Env-Wq 1702.~~2019~~**2119** “Effluent limitation(s)” means any restriction(s) imposed by the department pursuant to RSA 485-A on quantities, discharge rates, characteristics, or concentrations of pollutants, or any combination thereof, that are allowed to be discharged to surface waters.

Env-Wq 1702.~~2120~~**2220** “Epilimnion” means the upper, well-circulated warm layer of a thermally stratified lake, pond, impoundment or reservoir.

Env-Wq 1702.~~2221~~**2321** “Existing uses” means those uses, other than assimilation or waste transport, that actually occurred in the waterbody on or after November 28, 1975, whether or not they are included in the water quality standards.

Env-Wq 1702.~~2322~~**2422** “High quality waters” means any surface water whose water quality is better than required by any aquatic life and/or human health water quality criteria contained in these rules or other criteria assigned to the surface water, or whose qualities and characteristics make the surface water critical to the propagation or survival of important living natural resources.

Env-Wq 1702.~~2423~~**2523** “Industrial waste” means “industrial waste” as defined in RSA 485-A:2, VI, as reprinted in Appendix C.

Env-Wq 1702.~~2524~~**2624** “Maintain and protect” means to preserve the existing and designated uses of surface waters.

Env-Wq 1702.~~2625~~**2725** “Mixing zone” means a defined area or volume of the surface water surrounding or adjacent to a ~~wastewater~~ discharge where the surface water, as a result of the discharge, might not meet all applicable water quality standards.

Env-Wq 1702.~~2726~~**2826** “Most sensitive use” means the use that is most susceptible to degradation by a specific pollutant, combination of pollutants, or activity, such as drinking, swimming, boating, fish and aquatic life propagation, fish consumption by higher level consumers including man, or irrigation.

Env-Wq 1702.~~2827~~**2927** “Naturally-occurring conditions” means conditions that exist in the absence of human influences.

Env-Wq 1702.~~2928~~**3028** “Nephelometric turbidity unit (NTU)” means a standard used to measure the optical property that causes light to be scattered and absorbed rather than transmitted in straight lines through water, as measured by a nephelometer.

Env-Wq 1702.~~3029~~**3129** “Noncontact cooling water” means water used for cooling that does not come into direct contact with any raw material, intermediate product, waste product or finished product and to which no pollutants, other than heat, have been added.

Env-Wq 1702.~~3130~~**3230** “Nonpoint source” means any source other than a point source.

Env-Wq 1702.~~3231~~**3331** “No observed effect concentration (NOEC)” means the highest measured continuous concentration, in percent, of an effluent at which no adverse effects are observed on the aquatic test organisms.

Env-Wq 1702.~~3332~~**3432** “Nuisance species” means any species of flora or fauna living in or near the water whose noxious characteristics or presence in sufficient number or mass prevent or interfere with a designated use of those surface waters.

Env-Wq 1702.~~3433~~**3533** “Other wastes” means “other wastes” as defined in RSA 485-A:2, VIII, as reprinted in Appendix C.

Env-Wq 1702.~~3534~~ **34** “Outstanding resource water (ORW)” means surface waters of exceptional recreational or ecological significance.

Env-Wq 1702.~~3635~~ **35** “pH” means a measure of the hydrogen ion concentration in a solution, expressed as the logarithm to the base 10, of the reciprocal of the hydrogen ion concentration in gram moles per liter.

Env-Wq 1702.~~3736~~ **36** “Point source” means a discernible, confined, and discrete conveyance from which pollutants are or might be discharged, excluding return flows from irrigated agriculture or agricultural stormwater runoff. The term includes, but is not limited to, a pipe, ditch, channel, tunnel, conduit, well, discrete fissure, container, rolling stock, concentrated animal feeding operation, or vessel or other floating craft.

Env-Wq 1702.~~3837~~ **37** “Pollutant” means “pollutant” as defined in 40 CFR 122.2, as reprinted in Appendix D.

Env-Wq 1702.~~3938~~ **38** “Pollution” means the man-made or man-induced alteration of the chemical, physical, biological, or radiological integrity of water.

Env-Wq 1702.~~4039~~ **39** “Population” means a group of individuals of one biological species co-occurring in time and space.

~~Env-Wq 1702.41 “Publicly owned treatment works (POTW)” means any device or system used in the treatment of municipal sewage and/or industrial wastewater that is owned by the state or a political subdivision of the state.~~

Env-Wq 1702.~~4240~~ **40** “Radionuclide” means a radioactive atomic nucleus specified by its atomic number, atomic mass and energy state.

Env-Wq 1702.~~4341~~ **41** “Sewage” means “sewage” as defined in RSA 485-A:2, X, as reprinted in Appendix C.

Env-Wq 1702.~~4442~~ **42** “Surface waters” means “surface waters of the state” as defined in RSA 485-A:2, XIV, as reprinted in Appendix C, and waters of the United States as defined in 40 CFR 122.2.

Env-Wq 1702.~~4543~~ **43** “Tainting substance” means any material that can impart objectionable taste, odor, or color to the flesh of fish or other edible aquatic organisms.

Env-Wq 1702.~~4644~~ **44** “Tidal waters” means those portions of the Atlantic Ocean within the jurisdiction of the state, and all other surface waters subject to the rise and fall of the tide.

~~Env-Wq 1702.47 “Toxicity test” means a test to determine the toxicity of a chemical or an effluent that involves exposing test organisms in a laboratory setting to one or more concentrations of the chemical or dilutions of the effluent in accordance with standard laboratory procedures.~~

Env-Wq 1702.~~4845~~ **45** “Toxic unit chronic (TU_c)” means the reciprocal of the effluent dilution that causes no unacceptable effect to the test organisms by the end of the chronic exposure period, which can be calculated by dividing 100 by the chronic NOEC value.

Env-Wq 1702.~~4946~~ **46** “Waste” means “waste” as defined in RSA 485-A:2, XVI, as reprinted in Appendix C.

Env-Wq 1702.47 “Wastewater facility” means “wastewater facility” as defined in RSA 485-A:2, XIX, namely the structures, equipment, and processes required to collect, convey, and treat domestic and industrial wastes, and dispose of the effluent and sludge.

Env-Wq 1702.~~504748~~ **48** “Water quality standards” means the combination of designated uses of surface waters, and the water quality criteria for such surface waters based upon such uses ***and antidegradation requirements.***

Env-Wq 1702.49 “Water quality standards variance” means “water quality standards variance” as defined in 40 CFR 131.13(o), namely a time-limited designated use and criterion for a specific pollutant(s) or water quality parameter(s) that reflect the highest attainable condition during the term of water quality standards variance.

Env-Wq 1702.51~~50~~ “Wetlands” means “wetlands” as defined in RSA 482-A:2, X, as reprinted in Appendix C. Wetlands include, but are not limited to, swamps, marshes, bogs and similar areas as delineated in accordance with Env-Wt 100 et seq.

Env-Wq 1702.52~~51~~ “Zone of passage” means an area bordering a mixing zone that is free from pollutants and allows for unobstructed movement of aquatic organisms.

PART Env-Wq 1703 WATER QUALITY STANDARDS

Env-Wq 1703.01 Water Use Classifications; Designated Uses.

(a) All surface waters shall be classified as provided in RSA 485-A:8, based on the standards established therein for class A and class B waters. Each classification shall identify the most sensitive use it is intended to protect.

(b) All surface waters shall be restored to meet the water quality criteria for their designated classification including existing and designated uses, and to maintain the chemical, physical, and biological integrity of surface waters.

(c) All surface waters shall provide, wherever attainable, for the protection and propagation of fish, shellfish and wildlife, and for recreation in and on the surface waters.

(d) Unless ***alterations in water quantity in terms of flow rate, volume, area or depth*** ~~high or low flows~~ are caused by naturally-occurring conditions, surface water quantity shall be maintained at levels that protect existing uses and designated uses.

Env-Wq 1703.02 Wetlands Criteria.

(a) Subject to (b), below, wetlands shall be subject to the criteria listed in this part.

(b) Wherever the naturally-occurring conditions of the wetlands are different from the criteria listed in these rules, the naturally-occurring conditions shall be the applicable water quality criteria.

Env-Wq 1703.03 General Water Quality Criteria.

(a) The presence of pollutants in the surface waters shall not justify further introduction of pollutants from point or nonpoint sources, alone or in any combination.

(b) Once classified, state surface waters shall retain their legislated classification until such time as they are reclassified in accordance with RSA 485-A:10, even if they fail to meet any or all of the general, class-specific, or toxic criteria contained in this part.

(c) ~~Unless otherwise specifically allowed by a statute, rule, order, or permit, t~~The following physical, chemical, and biological criteria shall apply to all surface waters:

(1) All surface waters shall be free from substances in kind or quantity that:

- a. Settle to form harmful benthic deposits;
- b. Float as foam, debris, scum or other visible substances;

- c. Produce odor, color, taste or turbidity that is not naturally occurring and would render the surface water unsuitable for its designated uses;
 - d. Result in the dominance of nuisance species; or
 - e. Interfere with recreational activities;
- (2) The level of radioactive materials in all surface waters shall not be in concentrations or combinations that would:
- a. Be harmful to human, animal or aquatic life or the most sensitive designated use;
 - b. Result in radionuclides in aquatic life exceeding the recommended limits for consumption by humans; or
 - c. Exceed limits specified in EPA's national drinking water regulations or subtitle Env-Dw, whichever are more stringent; and
- (3) Tainting substances shall not be present in concentrations that individually or in combination are detectable by taste and odor tests performed on the edible portions of aquatic organisms.

Env-Wq 1703.04 Class-Specific Criteria.

(a) In addition to the general water quality criteria specified in Env-Wq 1703.03, the class-specific criteria specified in Env-Wq 1703.05 through Env-Wq 1703.33 shall apply to all surface waters ~~unless otherwise specifically allowed by a statute, rule, order, or permit.~~

(b) The surface waters in each classification shall satisfy all criteria applicable to the lower classification(s).
Env-Wq 1703.05 Combined Sewer Overflows.

(a) An applicant for a surface water discharge permit under RSA 485-A:13 who asserts that class B criteria cannot reasonably be met at all times in the receiving water due to combined sewer overflows shall conduct a use attainability analysis (UAA) in accordance with 40 CFR §131.10 and submit the UAA to the department.

(b) If, after public notice and comment, the department determines, based on the UAA and any public comments received, that the UAA supports the establishment of less stringent criteria, the department shall recommend a change in the classification of the waterbody to the legislature.

(c) Exceedances of class B criteria and uses due to combined sewer overflows shall be limited to those identified in the long-term combined sewer overflow plan developed in accordance with "EPA Combined Sewer Overflow (CSO) Control Policy", EPA 830-B-94-001, dated April, 1994, available as noted in Appendix B, after full implementation of the control measures.

Env-Wq 1703.06 Bacteria.

(a) Uses and criteria associated with bacteria shall be as set forth in RSA 485-A:8, I, II, and V, as summarized in Appendix E.

(b) Subject to (~~ed~~), below, the bacteria criteria shall be applied at the end of a wastewater ~~treatment~~ facility's discharge pipe.

(c) Tidal waters must meet the national shellfish sanitation program, guide for the control of molluscan shellfish within the shellfish beds as specified in RSA 485-A:8, V.

(ed) For any combined sewer overflow that discharges into non-tidal surface waters, a bacteria criteria of 1,000 Escherichia coli per 100 milliliters shall apply at the end of the combined sewer overflow's discharge pipe.

Env-Wq 1703.07 Dissolved Oxygen.

(a) Class A waters shall have a dissolved oxygen content of at least 75% saturation, based on a daily average, and an instantaneous minimum of at least 6 mg/l at any place or time except as naturally occurs.

(b) Except as naturally occurs and subject to (c) ~~and~~ ***through*** (e), below, class B waters shall have a dissolved oxygen content of:

(1) At least 75% of saturation, ~~as specified in RSA 485-A:8, II~~, based on a daily average; and

(2) An instantaneous minimum dissolved oxygen concentration of at least 5 mg/l.

(c) In areas identified by the New Hampshire fish and game department (NHF&G) as cold water fish spawning areas of species whose early life stages are buried in the gravel on the bed of the surface water, the 7 day mean dissolved oxygen concentration shall be at least 9.5 mg/l and the instantaneous minimum dissolved oxygen concentration shall be at least 8 mg/l for the period from October 1 of one year to May 14 of the next year, provided that the time period shall be extended to June 30 for a specific discharge to a specific waterbody if modeling done in consultation with the NHF&G determines the extended period is necessary to protect spring spawners or late hatches of fall spawners, or both.

(d) Unless naturally occurring or subject to (a), above, surface waters within the top 25 percent of depth of thermally unstratified lakes, ponds, impoundments, and reservoirs or within the epilimnion shall contain a dissolved oxygen content of at least 75 percent saturation, based on a daily average and an instantaneous minimum dissolved oxygen content of at least 5 mg/l. Unless naturally occurring, the dissolved oxygen content below those depths shall be consistent with that necessary to maintain and protect existing and designated uses.

(e) As specified in RSA 485-A:8, III, waters in a temporary partial use area established under RSA 485-A:8, II as a surface water that is receiving a combined sewer overflow discharge shall contain not less than 5 parts per million of dissolved oxygen for the duration of the discharge and up to 3 days following cessation of the discharge.

Env-Wq 1703.08 Benthic Deposits.

(a) Class A waters shall contain no benthic deposits, unless naturally occurring.

(b) Class B waters shall contain no benthic deposits that have a detrimental impact on the benthic community, unless naturally occurring.

Env-Wq 1703.09 Oil and Grease.

(a) Class A waters shall contain no oil or grease, unless naturally occurring.

(b) Class B waters shall contain no oil or grease in such concentrations that would impair any existing or designated uses.

Env-Wq 1703.10 Color.

(a) Class A waters shall contain no color, unless naturally occurring.

(b) Class B waters shall contain no color in such concentrations that would impair any existing or designated uses, unless naturally occurring.

Env-Wq 1703.11 Turbidity.

(a) Class A waters shall contain no turbidity, unless naturally occurring.

(b) Class B waters shall not exceed naturally occurring conditions by more than 10 NTUs.

(c) Turbidity in waters identified in RSA 485-A:8, III shall comply with the applicable long-term combined sewer overflow plan prepared in accordance with Env-Wq 1703.05(c).

(d) For purposes of state enforcement actions, if a discharge causes or contributes to an increase in turbidity of 10 NTUs or more above the turbidity of the receiving water upstream of the discharge or otherwise outside of the visible discharge, a violation of the turbidity standard shall be deemed to have occurred.

Env-Wq 1703.12 Slicks, Odors, and Surface Floating Solids.

- (a) Class A waters shall contain no slicks, odors, or surface floating solids unless naturally occurring.
- (b) Class B waters shall contain no slicks, odors, or surface floating solids that would impair any existing or designated use, unless naturally occurring.
- (c) Slicks, odors, and surface floating solids in waters in temporary partial use areas shall comply with the applicable long-term combined sewer overflow plan prepared in accordance with Env-Wq 1703.05(c).

Env-Wq 1703.13 Temperature.

- (a) There shall be no change in temperature in class A waters, unless naturally occurring.
- (b) Temperature in class B waters shall be as specified in RSA 485-A:8, II and VIII.

Env-Wq 1703.14 Nutrients.

- (a) Class A waters shall contain no phosphorus or nitrogen unless naturally occurring.
- (b) Class B waters shall contain no phosphorus or nitrogen in such concentrations that would impair any existing or designated uses, unless naturally occurring.
- (c) Existing discharges containing phosphorus or nitrogen, or both, which encourage cultural eutrophication shall be treated to remove the nutrient(s) to ensure attainment and maintenance of water quality standards.
- (d) There shall be no new or increased discharge of phosphorus into lakes or ponds.
- (e) There shall be no new or increased discharge containing phosphorus or nitrogen to tributaries of lakes or ponds that would contribute to cultural eutrophication or growth of weeds or algae in such lakes and ponds.

Env-Wq 1703.15 ~~Gross Beta Radioactivity~~***Radionuclide Contaminants.*** ~~Class A and B waters shall not contain gross beta radioactivity in excess of 1,000 picocuries per liter.~~

(a) These criteria apply as a water and fish ingestion human health criteria to waters within 20 miles upstream of any active surface water intake for a public water system as described in Env-Wq 1703.22 (l).

(b) The following criteria are to be met as a running annual average:

(1) Compliance Gross Alpha shall not exceed 15 pCi/L.

(2) Radium 226 + 228 shall not exceed 5 pCi/L, calculated as follows:

- a. The combined radium-226 and radium-228 value shall be determined by the addition of the results of the analysis for radium-226; and***
- b. The analysis for radium-228, provided both analyses are performed on samples collected on the same day.***

(3) Uranium shall not exceed 30 ug/L.

(4) Beta Particle and Photon Radioactivity shall not exceed 5 mrem/year.

Env-Wq 1703.16 ~~Strontium-90~~ ***Average Annual Concentrations Assumed to Produce a Total Body or Organ Dose of 4 mrem/year.*** Class A and B waters shall not contain strontium-90 in excess of 10 picocuries per liter.

(a) These criteria apply as a water and fish ingestion human health criteria to waters within 20 miles upstream of any active surface water intake for a public water system as described in Env-Wq 1703.22 (l).

(b) If 2 or more radionuclides are present, the sum of their annual dose equivalent to the total body or to any organ shall not exceed 4 mrem/year.

(c) The following criteria are to be met as a running annual average:

(1) Tritium shall not exceed 20000 pCi/L; and

(2) Strontium 90 shall not exceed 8 pCi/L.

Env-Wq 1703.17 ~~Radium-226~~ ***Cyanotoxins.*** Class A and B waters shall contain no radium-226 in excess of 3 picocuries per liter.

(a) The recreational human health criteria to protect swimming and other recreation in and on the water from excessive microcystin and cylindrospermopsin toxins shall be as follows:

(1) Microcystin shall not exceed 8 ug/L in three or more 10-day periods during a 12-month rolling period; or

(2) Cylindrospermopsin shall not exceed 15 ug/L in three or more 10-day periods during a 12-month rolling period.

(b) The values in (a)(1) and (2) are chronic concentrations not to be exceeded more than once in five years.

(c) Other cyanotoxins will be evaluated based on known health risks and potential for cyanotoxin production and accumulation.

Env-Wq 1703.18 ***pH.***

(a) The pH of class A waters shall be as naturally occurs.

(b) As specified in RSA 485-A:8, II, the pH of class B waters shall be 6.5 to 8.0 unless due to natural causes.

(c) As specified in RSA 485-A:8, III, the pH of waters in temporary partial use areas shall be 6.0 to 9.0 unless due to natural causes.

Env-Wq 1703.19 ***Biological and Aquatic Community Integrity.***

(a) All surface waters shall support and maintain a balanced, integrated, and adaptive community of organisms having a species composition, diversity, and functional organization comparable to that of similar natural habitats of a region.

(b) Differences from naturally-occurring conditions shall be limited to non-detrimental differences in community structure and function.

Env-Wq 1703.20 ***Risk Factors for Human Health Criteria.***

(a) Except as provided in (d) below, the department shall use a risk factor of one in 1,000,000 when determining human health criteria for all new discharges.

(b) ***Except as provided in (d) below,*** ~~The~~ department shall use a one in 1,000,000 risk factor when determining human health criteria for any modification to a permit for an existing discharge unless the applicant for a water discharge permit can demonstrate that the criteria obtained using the one in 1,000,000 risk factor cannot be achieved because it is either technologically impossible or economically unfeasible.

(c) When establishing an alternative risk factor under (b), above, the department shall not allow ~~amore~~ risk ***than allowed by a*** factor ~~greater than~~ ***of*** one in 100,000.

(d) The department shall use a risk factor of one in 100,000 when determining human health criteria for all existing and new discharges that contain arsenic.

Env-Wq 1703.21 Water Quality Criteria for Toxic Substances.

(a) Unless naturally occurring or allowed under Env-Wq 1707, all surface waters shall be free from toxic substances or chemical constituents in concentrations or combinations that:

- (1) Injure or are inimical to plants, animals, humans or aquatic life; or
- (2) Persist in the environment or accumulate in aquatic organisms to levels that result in harmful concentrations in:
 - a. Edible portions of fish, shellfish, other aquatic life, or
 - b. Wildlife that might consume aquatic life.

(b) Unless allowed under Env-Wq 1707 or naturally occurring, concentrations of toxic substances in all surface waters shall not exceed the recommended safe exposure levels of the most sensitive surface water use shown in Table 1703-1, subject to the notes in Env-Wq 1703.22, as follows:

Table 1703-01: Water Quality Criteria for Toxic Substances

CAS Number	Chemical Name	Protection of Aquatic Life Concentration in micrograms per liter (µg/L) ^v				Protection of Human Health Units per Liter	
		Fresh Acute Criteria	Fresh Chronic Criteria	Marine Acute Criteria	Marine Chronic Criteria	Water & Fish Ingestion	Fish Consumption Only
83-32-9	Acenaphthene	1,700	520	970	710	20 µg ^j	20 µg ^j
107-02-8	Acrolein	3	3	55	--	63 µg	400 µg
107-13-1	Acrylonitrile	7,550	2,600	--	--	0.061 µg ^c	7 µg ^c
15972-60-8	Alachlor (Lasso)	--	--	--	--	<i>Note l</i>	--
116-06-3	Aldicarb (Temik)	--	--	--	--	<i>Note l</i>	--
1646-87-3	Aldicarb sulfoxide	--	--	--	--	<i>Note l</i>	--
1646-88-4	Aldicarb sulfone(aldoxycarb)	--	--	--	--	<i>Note l</i>	--

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309-00-2	Aldrin	3.0 ^k	--	1.3 ^k	--	0.049 <i>0.0007</i> ng ^c	0.05 <i>0.0007</i> ng ^c
N/A	Alkalinity	--	20,000 ^u	--	--	--	--
7429-90-5	Aluminum	750 ^s	87 ^s	--	--	--	--
7664-41-7	Ammonia ^a	Note a	Note a	Note a	Note a	--	--
62-53-3	Aniline	28	14	77	37	--	--
120-12-7	Anthracene	(see Polynuclear Aromatic Hydrocarbons)				8,300 <i>300</i> µg	40,000 <i>400</i> µg
7440-36-0	Antimony	9,000	1,600	--	--	5.6 µg	640 µg
7440-38-2	Arsenic	340 ^{d, i}	150 ^{d, i}	69 ^{d, i}	36 ^{d, i}	18 ng <i>0.19/0.18</i> ^{b, c, w}	140 ng <i>4.1/2.2</i> ^{b, c, w}
1332-21-4	Asbestos	--	--	--	--	7,000,000 fibres ^c	--
1912-24-9	Atrazine (Atranex, Crisazine)	--	--	--	--	<i>Note 1</i>	--
7440-39-3	Barium	--	--	--	--	1.0 mg	--
71-43-2	Benzene	5,300	--	5,100	700	2.2 <i>2.1</i> µg ^c	58 µg ^c
92-87-5	Benzidine	2,500	--	--	--	0.14 ng ^c	11 ng ^c
56-55-3	Benzo(a) Anthracene	(see Polynuclear Aromatic Hydrocarbons)				0.0038 <i>0.0012</i> µg ^c	0.018 <i>0.0013</i> µg ^c
50-32-8	Benzo(a) Pyrene	(see Polynuclear Aromatic Hydrocarbons)				0.0038 <i>0.00012</i> µg ^c	0.018 <i>0.00013</i> µg ^c
205-99-2	Benzo(b) Fluoranthene	(see Polynuclear Aromatic Hydrocarbons)				0.0038 <i>0.0012</i> µg ^c	0.018 <i>0.0013</i> µg ^c
192-97-2	Benzo(e) Pyrene	(see Polynuclear Aromatic Hydrocarbons)				--	--
191-24-2	Benzo(g,h,i) Perylene	(see Polynuclear Aromatic Hydrocarbons)				--	--
205-82-3	Benzo(j) Fluoranthene	(see Polynuclear Aromatic Hydrocarbons)				--	--

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207-08-9	Benzo(k) Fluoranthene	(see Polynuclear Aromatic Hydrocarbons)				0.012 µg ^c	0.018 µg ^c
7440-41-7	Beryllium	130	5.3	--	--	Note <i>l</i>	--
N/A-608-73-1	BHC (Hexachloro-cyclohexane)	100 ^{ck}	--	0.34 ^{ck}	--	(see individual compounds)	
319-84-6	alpha-BHC	(see BHC (<i>Hexachloro-cyclohexane</i>))				2.6 0.36 ng ^c	4.9 0.39 ng ^c
319-85-7	beta-BHC	(see BHC (<i>Hexachloro-cyclohexane</i>))				9.1 8 ng ^c	17 14 ng ^c
319-86-8	delta-BHC	(see BHC (<i>Hexachloro-cyclohexane</i>))				0.0123 µg	0.0414 µg
58-89-9	gamma-BHC (Lindane)	0.95	0.08 ^k	0.16 ^k	--	4.2 µg ^l	4.4 µg
608-73-1	technical-BHC	(see Hexachlorocyclo-hexane-(Technical))				(see Hexachlorocyclo-hexane-(Technical))	
111-91-1	Bis (2-Chloroethoxy) methane	(see Chloroalkyl ethers)				--	--
111-44-4	Bis (2-Chloroethyl) Ether	(see Chloroalkyl ethers)				0.03 µg ^c	2.2 µg ^c
108-60-1	Bis (2-Chloroisopropyl) ether	(see Chloroalkyl ethers)				1,400 200 µg	65,000 4,000 µg
117-81-7	Bis (2-Ethylhexyl) Phthalate	(see Phthalate esters)				1.2 0.32 µg ^c	2.2 0.37 µg ^c
75-25-2	Bromoform	(see Halomethanes)				7 µg ^c	140 120 µg ^c
101-55-3	4-Bromophenyl phenyl ether	(see Haloethers)				--	--
85-68-7	Butyl benzyl phthalate	(see Phthalate esters)				1,500 0.1 µg ^c	1,900 0.1 µg ^c
7440-43-9	Cadmium ⁱ	0.39 ^{f, d}	0.21 ^{f, d}	33 ^d	7.9 ^d	Note <i>l</i>	--
63-25-2	Carbaryl	2.1	2.1	1.6	--	--	--
1563-66-2	Carbofuran (Furadon, 4F)	--	--	--	--	Note l	--
56-23-5	Carbon Tetrachloride	35,200	--	50,000	--	0.4 µg ^c	5 µg ^c
57-74-9	Chlordane	2.4 ^k	0.0043 ^k	0.09 ^k	0.004 ^k	0.8 0.31 ng ^c	0.81 0.32 ng ^c
N/A	Chlorinated benzenes	250 ^e	50 ^e	160 ^e	129 ^e	(see individual compounds)	
108-90-7	Chlorobenzene	(See Chlorinated benzenes)				20 µg ^j	20 µg ^j
16887-00-6	Chlorides	860,000	230,000	--	--	--	--

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70776-03-3	Chlorinated naphthalenes	1,600 ^e	--	7.5 ^e	--	(see individual compounds)	
7782-50-5	Chlorine	19	11	13	7.5	Note 1	--
10049-04-4	Chlorine Dioxide, as ClO ₂	--	--	--	--	Note 1	--
N/A	Chloroalkyl ethers	238,000 ^e	--	--	--	(see individual compounds)	
10599-90-3	Chloramines, as Cl ₂	--	--	--	--	Note 1	--
111-44-4	Chloroethyl ether (Bis-2)	(see Bis (2-Chloroethyl) Ether)				(see Bis (2-Chloroethyl) Ether)	
110-75-8	Chloroethyl vinyl ether-2	(see Chloroalkyl ethers)				--	--
124-48-1	Chlorodibromomethane	(see Halomethanes)				0.8 µg ^c	21 µg ^c
111-91-1	Chloroethoxy methane (Bis-2)	(see Bis (2-Chloroethoxy) methane)				(see Bis (2-Chloroethoxy) methane)	
67-66-3	Chloroform	28,900	1,240	(see Halomethanes)		60 µg ^c	2,000 µg ^c
108-60-1	Chloroisopropyl ether (Bis-2)	(see Bis (2-Chloroisopropyl) ether)				(see Bis (2-Chloroisopropyl) ether)	
59-50-7	p-Chloro-m-cresol	(see 3-Methyl-4-chlorophenol)				(see 3-Methyl-4-chlorophenol)	
542-88-1	Chloromethyl ether (Bis)	(see Chloroalkyl ethers)				0.15 ng ^c	0.17 17 ng ^c
91-58-7	Chloronaphthalene 2	(see Chlorinated naphthalenes)				1,000 800 µg	1,600 1,000 µg
95-57-8	Chlorophenol 2	4,380	2,000	--	--	0.1 µg ^j	0.1 µg ^j
108-43-0	Chlorophenol 3	--	--	--	--	0.1 µg ^j	0.1 µg ^j
106-48-9	Chlorophenol 4	--	--	29,700	--	0.1 µg ^j	0.1 µg ^j
93-72-1	Chlorophenoxy herbicides (2,4,5-TP)	--	--	--	--	100 µg ^l	-- 400 ug
94-75-7	Chlorophenoxy herbicides (2,4-D)	--	--	--	--	1,300 µg ^l	-- 12,000 ug
7005-72-3	Chlorophenyl phenyl ether 4	(see Haloethers)				--	--
2921-88-2	Chlorpyrifos	0.083	0.041	0.011	0.0056	--	--
59-50-7	Chloro-4 Methyl-3 Phenol	(see 3-Methyl-4-chlorophenol)				(see 3-Methyl-4-chlorophenol)	

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18540-29-9	Chromium+6	16 ^{d, i}	11 ^{d, i}	1,100 ^{d, i}	50 ^{d, i}	note 1 Note 1	--
16065-83-1	Chromium+3	152 ^{f, d, i}	19.8 ^{f, d, i}	10300	--	note 1 Note 1	--
218-01-9	Chrysene	(see Polynuclear Aromatic Hydrocarbons)				0.12 µg ^c	0.13 µg ^c
7440-50-8	Copper ⁱ	2.9 ^{f, d}	2.3 ^{f, d}	4.8 ^d	3.1 ^d	1,000 µg ^j	1,000 µg ^j
57-12-5	Cyanide	22 ^m	5.2 ^m	1.0 ^m	1.0 ^m	140 µg ^q	140 µg ^q
72-55-9	DDE(4,4')	1050	--	14	--	0.22 ng ^c	0.22 ng ^c
72-54-8	DDD(4,4')	0.6	--	3.6	--	0.31 ng ^c	0.31 ng ^c
50-29-3	DDT(4,4')	1.1 ^{k, t}	0.001 ^{k, t}	0.13 ^{k, t}	0.001 ^{k, t}	0.22 ng ^c	0.22 ng ^c
75-99-0	Dalapon	--	--	--	--	Note 1	--
8065-48-3	Demeton	--	0.1	--	0.1	--	--
333-41-5	Diazinon	0.17	0.17	0.82	0.82	--	--
53-70-3	Dibenzo(a,h)Anthracene	(see Polynuclear Aromatic Hydrocarbons)				0.0038 µg 0.12 ng^c	0.018 µg 0.13 ng^c
96-12-8	<i>Dibromochloropropane (DBCP)</i>	--	--	--	--	Note 1	--
84-74-2	Dibutyl Phthalate	(see Di-n-butyl Phthalate)				(see Di-n-butyl Phthalate)	
N/A	Dichlorobenzenes	1,120 ^e	763 ^e	1,970 ^e	--	(see individual compounds)	
95-50-1	Dichlorobenzene(1,2)	(see Dichlorobenzenes)				1,000 µg ^l	3,000 µg
541-73-1	Dichlorobenzene(1,3)	(see Dichlorobenzenes)				320 7 µg	960 10 µg
106-46-7	Dichlorobenzene(1,4)	(see Dichlorobenzenes)				300 µg ^l	900 µg
91-94-1	Dichlorobenzidine(3,3')	--	--	--	--	0.049 µg ^c	0.15 µg ^c
75-27-4	Dichlorobromomethane	(see Halomethanes)				0.95 µg ^c	27 µg ^c
75-71-8	Dichlorodifluoromethane	(see Halomethanes)				6.9 mg ^c	570 mg ^c
107-06-2	Dichloroethane(1,2)	118,000	20,000	113,000	--	9.9 µg ^{c, l}	650 µg ^c
25323-30-2	Dichloroethylenes	11,600 ^e	--	224,000 ^e	--	(see individual compounds)	
75-35-4	Dichloroethylene(1,1)	(see Dichloroethylenes)				330 300 µg ^l	20,000 µg

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156-59-2	Dichloroethylene (1,2-cis)	--	--	--	--	<i>Note 1</i>	--
156-60-5	Dichloroethylene (1,2-Trans)	(see Dichloroethylenes)				140 <i>100</i> µg ^l	10,000 <i>4,000</i> µg
576-24-9	Dichlorophenol(2,3)	--	--	--	--	0.04 µg ^j	0.04 µg ^j
120-83-2	Dichlorophenol(2,4)	2020	365	--	--	0.3 µg ^j	0.3 µg ^j
583-78-8	Dichlorophenol(2,5)	--	--	--	--	0.5 µg ^j	0.5 µg ^j
87-65-0	Dichlorophenol(2,6)	--	--	--	--	0.2 µg ^j	0.2 µg ^j
95-77-2	Dichlorophenol(3,4)	--	--	--	--	0.3 µg ^j	0.3 µg ^j
26638-19-7	Dichloropropanes	23,000 ^e	5,700 ^e	10,300 ^e	3,040 ^e	(see individual compounds)	
78-87-5	Dichloropropane(1,2)	(see Dichloropropanes)				0.9 µg ^c	31 µg ^c
26952-23-8	Dichloropropenes	6,060 ^e	244 ^e	790 ^e	--	(see individual compounds)	
542-75-6	Dichloropropene(1,3)	(see Dichloropropenes)				0.34 <i>0.27</i> µg ^c	24 <i>12</i> µg ^c
60-57-1	Dieldrin	0.24	0.056 ^k	0.71 ^k	0.0019 ^k	0.052 <i>0.001</i> ng ^c	0.054 <i>0.0012</i> ng ^c
84-66-2	Diethyl Phthalate	--	--	--	--	17 mg <i>600 ug</i>	44 mg <i>600 ug</i>
105-67-9	Dimethyl Phenol(2,4)	1,300	530	270	110	380 <i>100</i> µg	400 µg ^j
131-11-3	Dimethyl Phthalate	(see Phthalate esters)				270 mg <i>2,000 ug</i>	1.1 g <i>2,000 ug</i>
84-74-2	Di-n-butyl Phthalate	(see Phthalate esters)				2 mg <i>20 ug</i>	4.5 mg <i>30 ug</i>
N/A	Dinitrotoluenes	330 ^e	230 ^e	590 ^e	370 ^e	(see individual compounds)	
121-14-2	Dinitrotoluene(2,4)	(see Dinitrotoluenes)				0.11 <i>0.049</i> µg ^c	3.4 <i>1.7</i> µg ^c
606-20-2	Dinitrotoluene(2,6)	(see Dinitrotoluenes)				--	--
N/A	Dinitro-o-cresol (2,4)	(see Nitrophenols)				13.4 µg	765 µg
534-52-1	Dinitro-o-cresol (4,6)	(see 2 Methyl-4,6-Dinitrophenol)				(see 2 Methyl-4,6-Dinitrophenol)	
25550-58-7	Dinitrophenols	(see Nitrophenols)				69 <i>10</i> µg	5,300 <i>1,000</i> µg
51-28-5	Dinitrophenol(2,4)	(see Nitrophenols)				69 <i>10</i> µg	5,300 <i>300</i> µg

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117-84-0	Di-n-octyl phthalate	(see Phthalate esters)				--	--
88-85-7	<i>Dinoseb</i>	--	--	--	--	<i>Note 1</i>	--
85-00-7	<i>Diquat</i>	--	--	--	--	<i>Note 1</i>	--
1746-01-6	2,3,7,8-TCDD (Dioxin)	--	--	--	--	0.000005 ng ^c	0.0000051 ng ^c
122-66-7	Diphenylhydrazine(1,2)	270	--	--	--	0.036 0.03 µg ^c	0.2 µg ^c
103-23-1	<i>Di(2-ethylhexyl)adipate</i>	--	--	--	--	<i>Note 1</i>	--
117-81-7	Di-2-ethylhexyl phthalate	(see Bis (2-Ethylhexy)Phthalate)				(see Bis (2-Ethylhexy)Phthalate)	
959-98-8	alpha-Endosulfan	0.22 ^{k, r}	0.056 ^{k, r}	0.034 ^{k, r}	0.0087 ^{k, r}	62 20 µg	89 30 µg
33213-65-9	beta-Endosulfan	0.22 ^{k, r}	0.056 ^{k, r}	0.034 ^{k, r}	0.0087 ^{k, r}	62 20 µg	89 40 µg
1031-07-8	Endosulfan Sulfate	--	--	--	--	62 20 µg	89 40 µg
145-73-3	<i>Endothall</i>	--	--	--	--	<i>Note 1</i>	--
72-20-8	Endrin	0.086	0.036	0.037 ^k	0.0023 ^k	0.059 0.03 µg	0.06 0.03 µg
7421-93-4	Endrin Aldehyde	--	--	--	--	1 µg	1 µg
100-41-4	Ethylbenzene	32000	--	430	--	530 68 µg	2,100 130 µg
106-93-4	<i>Ethylene Dibromide (EDB)</i>	--	--	--	--	<i>Note 1</i>	--
206-44-0	Fluoranthene	(see Polynuclear Aromatic Hydrocarbons)				130 20 µg	140 20 µg
86-73-7	Fluorene	(see Polynuclear Aromatic Hydrocarbons)				1,100 50 µg	5,300 70 µg
16984-48-8	<i>Flouride</i>	--	--	--	--	<i>Note 1</i>	--
1071-83-6	<i>Glyphosate</i>	--	--	--	--	<i>Note 1</i>	--
86-50-0	Guthion	--	0.01	--	0.01	--	--
N/A	Haloethers	360 ^e	122 ^e	--	--	(see individual compounds)	
N/A	Halomethanes	11,000 ^e	--	12,000 ^e	6,400 ^e	(see individual compounds)	

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76-44-8	Heptachlor	0.52 ^k	0.0038 ^k	0.053 ^k	0.0036 ^k	0.079 0.0059 ng ^c	0.079 0.0059 ng ^c
1024-57-3	Heptachlor Epoxide	0.52 ^k	0.0038 ^k	0.053 ^k	0.0036 ^k	0.039 0.032 ng ^c	0.039 0.032 ng ^c
67-72-1	Hexachloroethane	980	540	940	--	1.4 0.1 µg ^c	3.3 0.1 µg ^c
118-74-1	Hexachlorobenzene	(see Chlorinated benzenes)				0.28 0.079 ng ^c	0.29 0.079 ng ^c
87-68-3	Hexachlorobutadiene	90	9.3	32	--	0.44 0.01 µg ^c	18 0.01 µg ^c
608-73-1	Hexachlorocyclohexane-(Technical)	(see BHC (<i>Hexachloro-cyclohexane</i>))				0.0123 0.0066 µg	0.0414 0.01 µg
77-47-4	Hexachlorocyclopentadiene	7	5.2	7	--	1.0 ^j	1.0 ^j
193-39-5	<i>Indeno</i> (1,2,3-cd)Pyrene	(see Polynuclear Aromatic Hydrocarbons)				0.0038 0.0012 µg ^c	0.018 0.0013 µg ^c
7439-89-6	Iron	--	1000	--	--	0.3 mg ^j	--
78-59-1	Isophorone	117,000	--	12,900	--	35 34 µg ^c	1,800 µg ^c
7439-92-1	Lead ⁱ	10.5 ^{f,d}	0.41 ^{f,d}	210 ^d	8.1 ^d	--	--
121-75-5	Malathion	--	0.1	--	0.1	--	--
7439-96-5	Manganese	--	--	--	--	50 µg ^j	100 µg
7439-97-6	Mercury	1.4 ^{d,i}	0.77 ^{d,i}	1.8 ^{d,i}	0.94 ^{d,i}	0.05 µg	0.051 µg
72-43-5	Methoxychlor	--	0.03	--	0.03	100 0.02 µg ⁱ	-- 0.02 µg
74-83-9	Methyl Bromide	(see Halomethanes)				100 µg	10,000 µg
74-87-3	Methyl Chloride	(see Halomethanes)				--	--
1634-04-4	<i>Methyl tertiary-butyl ether (MtBE)</i>	--	--	--	--	<i>Note 1</i>	--
75-09-2	Methylene Chloride	(see Halomethanes)				20 µg ^c	1,000 µg ^c
22967-92-6	Methylmercury	(see Mercury)				--	0.3 mg/kg ^g

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534-52-1	2 Methyl-4,6-Dinitrophenol	(see Nitrophenols)				13 2 µg	280 30 µg
1570-64-5	2-Methyl-4-chlorophenol	--	--	--	--	1,800 µg ^j	1,800 µg ^j
59-50-7	3-Methyl-4-chlorophenol	30	--	--	--	3,000 500 µg ^j	3,000 2,000 µg ^j
615-74-7	3-Methyl-6-chlorophenol	--	--	--	--	20 µg ^j	20 µg ^j
2385-85-5	Mirex	--	0.001	--	0.001	--	--
91-20-3	Naphthalene	2,300	620	2,350	--	--	--
7440-02-0	Nickel ⁱ	120.0 ^{f, d}	13.3 ^{f, d}	74 ^d	8.2 ^d	610 µg	4,600 µg
<i>14797-65-0</i>	<i>Nitrite-N</i>	--	--	--	--	<i>Note l</i>	--
14797-55-8	Nitrates	--	--	--	--	10 mg ^l	--
<i>14797-55-8 + 14797-65-0</i>	<i>Nitrate-N + Nitrite-N</i>	--	--	--	--	<i>Note l</i>	--
98-95-3	Nitrobenzene	27000	--	6680	--	47 10 µg	30 µg ^j
25154-55-6	Nitrophenols	230 ^e	150 ^e	4,850 ^e	--	(see individual compounds)	
88-75-5	Nitrophenol 2	(see Nitrophenols)				--	--
100-02-7	Nitrophenol 4	(see Nitrophenols)				--	--
N/A	Nitrosamines	5,850 ^e	--	3,300,000 ^e	--	0.8 ng	1.24 µg
924-16-3	Nitrosodibutylamine N	(see Nitrosamines)				6.3 ng ^e	220 ng ^e
55-18-5	Nitrosodiethylamine N	(see Nitrosamines)				0.8 ng ^e	1,240 ng ^e
62-75-9	Nitrosodimethylamine N	(see Nitrosamines)				0.69 ng ^e	3 µg ^e
621-64-7	Nitrosodi-n-propylamine N	(see Nitrosamines)				0.005 µg ^e	0.51 µg ^e
86-30-6	Nitrosodiphenylamine N	(see Nitrosamines)				3.3 µg ^e	6 µg ^e
930-55-2	Nitrosopyrrolidine N	(see Nitrosamines)				16 ng ^e	34,000 ng ^e
84852-15-3	Nonylphenol	28	6.6	7	1.7	--	--
56-38-2	Parathion	0.065	0.013	--	--	--	--

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1336-36-3	PCB	2.0 ^{e, n}	0.014 ^{e, n}	10.0 ^{e, n}	0.03 ^{e, n}	0.064 ng ^{c, n}	0.064 ng ^{c, n}
N/A	PCB-1242	(see PCB)				(see PCB)	(see PCB)
N/A	PCB-1254	(see PCB)				(see PCB)	(see PCB)
N/A	PCB-1221	(see PCB)				(see PCB)	(see PCB)
N/A	PCB-1248	(see PCB)				(see PCB)	(see PCB)
N/A	PCB-1260	(see PCB)				(see PCB)	(see PCB)
N/A	PCB-1016	(see PCB)				(see PCB)	(see PCB)
76-01-7	Pentachloroethane	7240	1100	390	281	--	--
608-93-5	Pentachlorobenzene	(see Chlorinated benzenes)				1.4 <i>0.1</i> µg	1.5 <i>0.1</i> µg
87-86-5	Pentachlorophenol	5.28 ^h	4.05 ^h	13	7.9	0.27 <i>0.03</i> µg ^c	3 <i>0.04</i> µg ^c
85-01-8	Phenanthrene	(see Polynuclear Aromatic Hydrocarbons)				--	--
108-95-2	Phenol	10,200	2,560	5,800	--	300 µg ^j	300 µg ^j
N/A	Phthalate Esters	940 ^e	3 ^e	2,944 ^e	3.4 ^e	--	--
1336-36-3	Polychlorinated Biphenyls	(see PCBs)				(see PCB)	(see PCB)
N/A	Polynuclear Aromatic Hydrocarbons	--	--	300 ^e	--	(see individual compounds)	
<i>23135-22-0</i>	<i>Oxamyl (Vydate)</i>	--	--	--	--	<i>Note 1</i>	--
<i>355-46-4</i>	<i>Perfluorohexane sulfonic acid (PFHxS)</i>	--	--	--	--	<i>Note 1</i>	--
<i>375-95-1</i>	<i>Perfluorononanoic acid (PFNA)</i>	--	--	--	--	<i>Note 1</i>	--
<i>1763-23-1</i>	<i>Perfluorooctane sulfonic acid (PFOS)</i>	--	--	--	--	<i>Note 1</i>	--
<i>335-67-1</i>	<i>Perfluorooctanoic Acid (PFOA)</i>	--	--	--	--	<i>Note 1</i>	--
<i>1918-02-1</i>	<i>Picloram</i>	--	--	--	--	<i>Note 1</i>	--
129-00-0	Pyrene	(see Polynuclear Aromatic Hydrocarbons)				830 <i>20</i> µg	4,000 <i>30</i> µg

CAS Number	Chemical Name	Protection of Aquatic Life Concentration in micrograms per liter (µg/L) ^v				Protection of Human Health Units per Liter	
		Fresh Acute Criteria	Fresh Chronic Criteria	Marine Acute Criteria	Marine Chronic Criteria	Water & Fish Ingestion	Fish Consumption Only
7782-49-2	Selenium	-- <i>Note o</i>	5 <i>Note o</i>	290 ^{d,i}	71 ^{d,i}	170 µg ^l	4,200 µg
7440-22-4	Silver	0.20 ^{d,f,i,k}	--	1.9 ^{d,i,k}	--	105 µg ^p	65 mg ^p
<i>122-34-9</i>	<i>Simazine</i>	--	--	--	--	<i>Note l</i>	--
<i>100-42-5</i>	<i>Styrene</i>	--	--	--	--	<i>Note l</i>	--
7783-06-4	Sulfide-Hydrogen Sulfide	--	2	--	2	--	--
95-94-3	Tetrachlorobenzene 1,2,4,5	(see Chlorinated benzenes)				0.97 µg	1.1 µg
79-34-5	Tetrachloroethane 1,1,2,2	(see Tetrachloroethanes)	2400	9020	--	0.2 µg ^c	4 µg ^c
25322-20-7	Tetrachloroethanes	9,320 ^c	--	--	--	(see individual compounds)	
127-18-4	Tetrachloroethylene	5,280	840	10,200	450	10 µg ^c	29 µg ^c
935-95-5	Tetrachlorophenol 2,3,5,6	--	--	440	--	--	--
58-90-2	Tetrachlorophenol 2,3,4,6	--	--	--	--	1.0 µg ^j	1.0 µg ^j
7440-28-0	Thallium	1,400	40	2,130	--	0.24 µg	0.47 µg
108-88-3	Toluene	17,500	--	6,300	5,000	1.3 mg <i>57 µg</i>	15 mg <i>520 µg</i>
8001-35-2	Toxaphene	0.73	0.0002	0.21	0.0002	0.70 ng ^c	0.71 ng ^c
N/A	Tributyltin (TBT)	0.46	0.072	0.42	0.0074	--	--
N/A	Trichlorinated Ethanes	18,000 ^c	--	--	--	(see individual compounds)	
120-82-1	Trichlorobenzene 1,2,4	(see Chlorinated benzenes)				35 <i>0.071 µg^c</i>	70 <i>0.076 µg^c</i>
71-55-6	Trichloroethane 1,1,1	--	--	31,200	--	Note 1 <i>10 mg^l</i>	-- <i>200 mg</i>
79-00-5	Trichloroethane 1,1,2	--	9,400	--	--	0.59 <i>0.55 µg^c</i>	16 <i>8.9 µg^c</i>
79-01-6	Trichloroethylene	45,000	21,900	2,000	--	2.5 µg ^c	30 µg ^c
75-69-4	Trichlorofluoromethane	(see Halomethanes)				10 mg	860 mg

CAS Number	Chemical Name	Protection of Aquatic Life Concentration in micrograms per liter (µg/L) ^v				Protection of Human Health Units per Liter	
		Fresh Acute Criteria	Fresh Chronic Criteria	Marine Acute Criteria	Marine Chronic Criteria	Water & Fish Ingestion	Fish Consumption Only
95-95-4	Trichlorophenol 2,4,5	--	--	--	--	1.0 µg ^j	1.0 µg ^j
88-06-2	Trichlorophenol 2,4,6	--	970	--	--	1.5 µg ^c	2.0 µg ^{c, j}
75-01-4	Vinyl Chloride	--	--	--	--	0.025 0.022 µg ^c	2.4 1.6 µg ^c
1330-20-7	<i>Xylene, Total</i>	--	--	--	--	<i>Note 1</i>	--
7440-66-6	Zinc ⁱ	30.0 ^{f, d}	30.0 ^{f, d}	90 ^d	81 ^d	5,000 µg ^j	5,000 µg ^j

Env-Wq 1703.22 Notes For Table 1703-1. The following shall apply to Table 1703-1:

(a) The letter “a” shall indicate that the freshwater and saltwater aquatic life criteria for ammonia are shown in Env-Wq 1703.25 through Env-Wq 1703.32.

(b) The letter “b” shall indicate that the criteria refer to the inorganic form only.

(c) The letter “c” shall indicate that these criteria for the protection of human health are based on carcinogenicity using a risk factor of one in 1,000,000, ***except for arsenic which shall be based on a risk factor of one in 100,000***, while the human health criteria without this footnote are based on systemic toxicity. Other risk factors shall be allowed only as specified in Env-Wq 1703.20.

(d) The letter “d” shall indicate that criteria for these metals are expressed as a function of the water effect ratio (WER) as defined in 40 CFR 131.36(c), and that because the values displayed in Table 1703-1 correspond to a WER of 1.0, metals criteria for different WERs shall be determined using the procedures described in the EPA publication “Interim Guidance on Determination and Use of Water-Effect Ratios for Metals”, EPA-823-B-94-001, dated February 1994, available as noted in Appendix B, provided that for copper, either of the following references, both available as noted in Appendix B, may ***also*** be used:

(1) The “Streamlined Water-Effect Ratio procedure for Discharges of Copper”, EPA-822-R-01-005, dated March 2001; or

(2) The Biotic Ligand Model (freshwater only) as described in “Aquatic Life Ambient Freshwater Quality Criteria - Copper”, EPA-822-R-07-001, dated February 2007.

(e) The letter “e” shall indicate that the following classes of compounds have 2 or more isomers and the appropriate aquatic life criteria apply to the sum of the concentrations of each isomer:

- (1) BHC;
- (2) Chlorinated benzenes;
- (3) Chlorinated naphthalenes;
- (4) Chloroalkyl ethers;

- (5) Dichlorobenzenes;
- (6) Dichloroethylenes;
- (7) Dichloropropanes;
- (8) Dichloropropenes;
- (9) Dinitrotoluenes;
- (10) Haloethers;
- (11) Halomethanes;
- (12) Nitrophenols;
- (13) Nitrosamines;
- (14) PCB;
- (15) Phthalate esters;
- (16) Polynuclear aromatic hydrocarbons;
- (17) Tetrachloroethanes; and
- (18) Trichlorinatedethanes.

(f) The letter “f” shall indicate that the freshwater aquatic criteria for these metals are expressed as a function of the total hardness, as mg/l CaCO₃ of the surface water, and that because the values displayed in Table 1703-1 correspond to a total hardness of 20 mg/l the aquatic life criteria for other hardness values expressed as calcium carbonate shall be calculated using the equations and tables in Env-Wq 1703.23 and Env-Wq 1703.24.

(g) The letter “g” shall indicate that if the methylmercury concentration in the edible portion of the aquatic species of concern exceeds 0.3 mg/kg, a risk assessment shall be conducted to determine whether a consumption advisory should be issued for the surface water. If a consumption advisory is issued by the department, the surface water shall be considered in non-attainment of the fish and/or shellfish consumption designated uses and in violation of these surface water quality regulations.

(h) The letter “h” shall indicate that the freshwater aquatic life criteria for pentachlorophenol are expressed as a function of pH. Values displayed in Table 1703-1 correspond to a pH value of 6.5. For other pH values, the formulas shown in Env-Wq 1703.3233 shall be used.

(i) The letter “i” shall indicate that the values presented for aquatic life protection are dissolved metals and for hardness-dependent metals are based on a hardness of 20 mg/L. To convert dissolved to total recoverable metal, the equations and tables in Env-Wq 1703.23 shall be used. To calculate dissolved or total recoverable fresh water criteria for hardness-dependent metals for hardness values other than 20 mg/l, the equations and tables shown in Env-Wq 1703.23 and Env-Wq 1703.24 shall be used.

(j) The letter “j” shall indicate that these human health criteria prevent taste and odor effects in the surface water and in fish and other aquatic life as prohibited in Env-Wq 1703.03(c)(1)c. and (3).

(k) The letter “k” shall indicate that ~~the acute these~~ criteria are based on EPA’s 304(a) criteria in the 1980 documents listed below and were derived to be used as instantaneous maximum values, or to be applied after division by 2, to obtain a value comparable to an acute criterion ~~as a 1-hour average derived using the 1985 Guidelines~~, when assessment is done using an averaging period:

- (1) Aldrin/Dieldrin, document number 440/5-80-019;
- (2) Chlordane, document number 440/5-80-027;

- (3) DDT, document number 440/5-80-038;
- (4) Endosulfan, document number 440/5-80-046;
- (5) Endrin, document number 440/5-80-047;

(6) gamma-BHC (lindane), document number 440/5-80-054

~~(7)(6)~~ Heptachlor, document number 440/5-80-052;

~~(8)(7)~~ Hexachlorocyclohexane, document number 440/5-80-054; or

~~(9)(8)~~ Silver, document number 440/5-80-071.

(I) The letter “P” shall indicate that there is a more stringent drinking water maximum contaminant level (MCL) specified in Env-Dw 700, so if the surface water is a source for a public water system as defined in RSA 485:1-a, XV or is within 20 miles upstream of any active surface water intake for a public water system, the department shall use the MCL values shown in table 1703-2A, below, for the water and fish ingestion human health criteria. ***The following criteria are to be met as a running annual average except for Nitrite-N and Nitrite-N + Nitrate-N which are instantaneous acute criteria:***

Table 1703-2A: MCL Values for Water and Fish Ingestion Criteria

CAS Number	Chemical Name	MCL (Units per Liter)
<i>15972-60-8</i>	<i>Alachlor (Lasso)</i>	<i>2 ug</i>
<i>116-06-3</i>	<i>Aldicarb (Temik)</i>	<i>3 ug</i>
<i>1646-87-3</i>	<i>Aldicarb sulfoxide</i>	<i>4 ug</i>
<i>1646-88-4</i>	<i>Aldicarb sulfone (aldoxycarb)</i>	<i>2 ug</i>
<i>1912-24-9</i>	<i>Atrazine (Atranex, Crisazine)</i>	<i>3 ug</i>
7440-41-7	Beryllium	4 µg
7440-43-9	Cadmium	5 µg
<i>1563-66-2</i>	<i>Carbofuran (Furadon, 4F)</i>	<i>40 ug</i>
7782-50-5	Chlorine (as Cl ₂)	4 mg
<i>10599-90-3</i>	<i>Chloramines, as Cl2</i>	<i>4 mg</i>
<i>10049-04-4</i>	<i>Chlorine Dioxide, as ClO2</i>	<i>0.8 mg</i>
94-75-7	Chlorophenoxy herbicides (2,4-D)	70 µg
93-72-1	Chlorophenoxy herbicides (2,4,5-TP)	50 µg
18540-29-9	Chromium+6	see Chromium Total
16065-83-1	Chromium+3	see Chromium Total
7440-47-3	Chromium Total (equal to the sum of Chromium+3 plus Chromium+6)	100 µg
<i>75-99-0</i>	<i>Dalapon</i>	<i>200 ug</i>
<i>96-12-8</i>	<i>Dibromochloropropane (DBCP)</i>	<i>0.2 ug</i>
95-50-1	Dichlorobenzene (1,2)	600 µg
106-46-7	Dichlorobenzene(1,4)	75 µg
107-06-2	Dichloroethane (1,2)	5 µg
75-35-4	Dichloroethylene(1,1)	7 µg
<i>156-59-2</i>	<i>Dichloroethylene (1,2-cis)</i>	<i>70 ug</i>
156-60-5	Dichloroethylene(1,2-Trans)	100 µg
<i>88-85-7</i>	<i>Dinoseb</i>	<i>7 ug</i>
<i>85-00-7</i>	<i>Diquat</i>	<i>20 ug</i>
<i>103-23-1</i>	<i>Di(2-ethylhexyl)adipate</i>	<i>400 ug</i>
<i>145-73-3</i>	<i>Endothall</i>	<i>100 ug</i>
<i>106-93-4</i>	<i>Ethylene Dibromide (EDB)</i>	<i>0.05 ug</i>

Table 1703-2A: MCL Values for Water and Fish Ingestion Criteria

CAS Number	Chemical Name	MCL (Units per Liter)
<i>16984-48-8</i>	<i>Fluoride</i>	<i>4 mg</i>
58-89-9	gamma-BHC (Lindane)	0.2 µg
<i>1071-83-6</i>	<i>Glyphosate</i>	<i>700 ug</i>
72435	Methoxychlor	40 µg
<i>74-87-3</i>	<i>Methyl Chloride</i>	<i>5 ug</i>
<i>1634-04-4</i>	<i>Methyl tertiary-butyl ether (MtBE)</i>	<i>13 ug</i>
<i>14797-65-0</i>	<i>Nitrite-N</i>	<i>1 mg</i>
<i>14797-55-8</i>	<i>Nitrate-N</i>	<i>10 mg</i>
<i>14797-55-8</i> + <i>14797-65-0</i>	<i>Nitrate-N + Nitrite-N</i>	<i>10 mg</i>
<i>23135-22-0</i>	<i>Oxamyl (Vydate)</i>	<i>200 ug</i>
<i>355-46-4</i>	<i>Perfluorohexane sulfonic acid (PFHxS)</i>	<i>18 ng</i>
<i>375-95-1</i>	<i>Perfluorononanoic acid (PFNA)</i>	<i>11 ng</i>
<i>1763-23-1</i>	<i>Perfluorooctane sulfonic acid (PFOS)</i>	<i>15 ng</i>
<i>335-67-1</i>	<i>Perfluorooctanoic Acid (PFOA)</i>	<i>12 ng</i>
<i>1918-02-1</i>	<i>Picloram</i>	<i>500 ug</i>
7782-49-2	Selenium	50 µg
<i>122-34-9</i>	<i>Simazine</i>	<i>4 ug</i>
<i>100-42-5</i>	<i>Styrene</i>	<i>100 ug</i>
108883	Toluene	1 mg
71-55-6	Trichloroethane 1,1,1	200 µg
<i>1330-20-7</i>	<i>Xylene, Total</i>	<i>10 mg</i>

(m) The letter “m” shall indicate that ~~this~~***these*** criteria ~~is~~***are*** expressed as micrograms of free cyanide per liter.

(n) The letter “n” shall indicate that ~~this~~***these*** criteria ~~applies~~ to total PCBs or the sum of all of its congener or isomer or homolog or Arochlor analyses.

(o) ***The letter “o” shall indicate that the freshwater aquatic life criteria for selenium are shown in Env-Wq 1703.34.*** The letter “o” shall indicate that the freshwater acute criteria for selenium shall be calculated using the values for the fraction f_1 of selenite and f_2 of selenate measured in the receiving water. To calculate the acute criteria, in µg/L, the number 1 shall be divided by the sum of the fractions f_1 divided by 185.9 and f_2 divided by 12.83, as follows:

$$\text{Acute Criteria} = \frac{1}{(f_1/185.9) + (f_2/12.83)}$$

(p) The letter “p” shall indicate that these human health criteria for silver shall be for the protection of humans from argyria.

(q) The letter “q” shall indicate that this value is expressed as total cyanide.

(r) The letter “r” shall indicate that this data was derived from data for endosulfan and is most appropriately applied to the sum of alpha-endosulfan and beta-endosulfan.

(s) The letter “s” shall indicate that ~~this value is expressed as acid-soluble aluminum~~ ***there are two methods to evaluate the aluminum criteria and the appropriate method shall be determined as follows:***

(1) The values in Table 1703-1 are expressed as acid-soluble-aluminum and shall be used subject to (2) below.

(2) Where waterbody specific pH, dissolved organic carbon and hardness are available, sample specific total aluminum criteria shall be determined using the procedures described in the EPA publication “Final Aquatic Life Ambient Water Quality Criteria for Aluminum”, EPA-822-R-18-001, dated December 2018, available as noted in Appendix B, provided that for aluminum, either of the following references shall be used to calculate the site-specific criteria:

a. The “Aluminum Criteria Calculator V2.0 (Excel)(xslm)”, dated December 2018; or

b. The “Aluminum Criteria Calculator R Code and Data V2.0(R)”, dated November 15, 2019.

(t) The letter “t” shall indicate that the total concentration of DDT and its metabolites shall not exceed this value.

(u) The letter “u” shall indicate that the chronic criterion of 20 mg/L shall be the minimum value except where alkalinity is naturally lower, in which case the criterion shall not be lower than 25 percent of the natural level.

(v) Unless otherwise indicated in Env-Wq 1703.22 (k), (o), or Env-Wq 1703.26(c), the protection of aquatic life concentration values in Table 1703-1 are acute as a 1-hour average and chronic as a 4-day average, both of which shall not to be exceeded more than once in three years.

(w) The letter “w” shall indicate that for arsenic, the first value is for freshwaters and the second value is for marine waters as it relates to protection of human health.

Env-Wq 1703.23 Conversion Factors For Metals.

(a) Dissolved metal shall be determined by multiplying total recoverable metal by the conversion factor listed in Table 1703-2 for that metal, shown in equation form as follows:

$$\text{Dissolved Metal} = \text{Total Recoverable Metal} \times \text{Conversion Factor}$$

(b) Total recoverable metals shall be determined by dividing dissolved metals by the conversion factor listed in table 1703-2, shown in equation form as follows:

$$\text{Total Recoverable Metal} = \text{Dissolved Metal} / \text{Conversion Factor}$$

(c) The conversion factors in Table 1703-2 shall be used as translators to go from the dissolved metals criteria listed in Table 1703-1 to permit limits expressed as total recoverable metals by dividing dissolved metal by the conversion factor.

(d) If the hardness of the receiving water is different than 20 mg/l, then aquatic life criteria for hardness-dependent metals shall be calculated as follows:

(1) The equations in Env-Wq 1703.24(a) and (b) shall be used in conjunction with the coefficients shown in Table 1703-3 to calculate the total recoverable metal for freshwater;

(2) The equations shown in (a) and (b), above, shall be used in conjunction with the factors shown in Table 1703-2 to convert total recoverable metal to dissolved metal or dissolved metal to total recoverable metal;

(3) For hardness less than 20 mg/l, a hardness of 20 mg/l shall be used in the equations; and

(4) For hardness values greater than 400 mg/l, a hardness of 400 mg/l shall be used in the equations.

(e) Table 1703-2 shall be as follows, provided that the conversion factors for cadmium and lead shall be no greater than 1.0:

Table 1703-2: Factors to Convert Total Recoverable Metals to Dissolved Metals

	FRESHWATER Conversion Factors		MARINE Conversion Factors	
	Acute	Chronic	Acute	Chronic
Arsenic	1.0	1.0	1.0	1.0
Cadmium	$1.136672 - [(\ln \text{Hardness})(0.041838)]$	$1.101672 - [(\ln \text{Hardness})(0.041838)]$	0.994	0.994
Chromium (+3)	0.316	0.860	-	-
Chromium (+6)	0.982	0.962	0.993	0.993
Copper	0.960	0.960	0.83	0.83
Lead	$1.46203 - [(\ln \text{Hardness})(0.145712)]$	$1.46203 - [(\ln \text{Hardness})(0.145712)]$	0.951	0.951
Mercury	0.85	0.85	0.85	0.85
Nickel	0.998	0.997	0.990	0.990
Selenium	-	-	0.998	0.998
Silver	0.85	-	0.85	-
Zinc	0.978	0.986	0.946	0.946

Env-Wq 1703.24 Freshwater Aquatic Life Criteria For Metals. To calculate freshwater aquatic life criteria for total recoverable metals, the equations described in (a) and (b), below, shall be used in conjunction with the coefficients shown in (c), Table 1703-3, below, provided that the values used for hardness in the equations shall be as specified in Env-Wq 1703.23 (d):

(a) To calculate the acute criteria, in µg/l, for the metals shown Table 1703-3, the exponent “e” shall be raised to the power “x” where “x” is equal to the parenthetical expression “m_a” multiplied by the natural logarithm (ln) of the hardness and to which product the value “b_a” shall be added, as follows:

$$\text{Acute Criteria} = e^x \text{ where } x = (m_a [\ln (\text{hardness})] + b_a)$$

(b) To calculate the chronic criteria, in µg/l, for the metals shown in Table 1703-3, the exponent “e” shall be raised to the power “x” where “x” is equal to the parenthetical expression “m_c” multiplied by the natural logarithm of the hardness and to which product the value “b_c” shall be added, as follows:

$$\text{Chronic Criteria} = e^x \text{ where } x = (m_c [\ln (\text{hardness})] + b_c)$$

(c) Table 1703-3 shall be as follows:

Table 1703-3: Coefficients in Equations for Calculating Total Recoverable Aquatic Life Criteria for Metals

	m_a	b_a	m_c	b_c
Cadmium	0.9789	-3.866	0.7977	-3.909
Copper	0.9422	-1.700	0.8545	-1.702
Chromium+3	0.8190	3.7256	0.8190	0.6848
Lead	1.273	-1.460	1.273	-4.705
Nickel	0.8460	2.255	0.8460	0.0584
Silver	1.72	-6.59	-----	-----
Zinc	0.8473	0.884	0.8473	0.884

Source. (See Revision Notes at beginning of chapter)
#12042, eff 12-1-16

Env-Wq 1703.25 Freshwater Acute Aquatic Life Criteria For Ammonia.

(a) Subject to (b) through (d), below, to determine freshwater acute aquatic life criteria for ammonia, in milligrams of nitrogen per liter (mg N/l), the applicant shall use:

(1) Table 1703-4A, where salmonids in the genus Oncorhynchus are or might be present; and

(2) Table 1703-4B, where salmonids in the genus Oncorhynchus are absent.

(b) The freshwater acute water quality criteria for ammonia in Table 1703-4A where salmonids in the genus Oncorhynchus are or might be present have been calculated by taking the lesser of the value resulting from dividing 0.275 by the sum of one plus 10 raised to the power of 7.204 minus the pH, and adding the resulting value to the value found by dividing 39.0 by the sum of one plus 10 raised to the power of the pH minus 7.204, to the value resulting from dividing 0.0114 by the sum of one plus 10 raised to the power of the pH minus 7.204, and adding the resulting value found by dividing 1.6181 by the sum of one plus 10 raised to the power of the pH minus 7.204 and multiplying this value by 0.7249 multiplied by the value resulting from multiplying 23.12 by 10 raised to the power of 0.036 multiplied by value of 20 minus the temperature, as shown in the following equation:

Freshwater Acute Criteria, Salmonids in the Genus Oncorhynchus Present =

$$\text{MIN} \{ [0.275 / (1+10^{7.204-\text{pH}}) + 39.0 / (1+10^{\text{pH}-7.204})], [0.7249 \times [0.0114 / (1+10^{7.204-\text{pH}}) + 1.6181 / (1+10^{\text{pH}-7.204})] \times (23.12 \times 10^{0.036 \times (20-T)})] \}$$

Where MIN indicates the lesser of the two values separated by a comma.

(c) The freshwater acute water quality criteria for ammonia in table 1703-4B where salmonids in the genus Oncorhynchus are absent have been calculated by dividing 0.0114 by the sum of one plus 10 raised to the power of 7.204 minus the pH, and adding the resulting value to the value found by dividing 1.6181 by the sum of one plus 10 raised to the power of the pH minus 7.204, and multiplying this value by 0.7249 multiplied by the lesser of 51.93 or the value resulting from multiplying 23.12 by 10 raised to the power of 0.036 multiplied by value of 20 minus the temperature as shown in the following equation:

Freshwater Acute Criteria, Salmonids in the Genus Oncorhynchus Absent =

$$\{0.7249 \times [0.0114 / (1+10^{7.204-\text{pH}}) + 1.6181 / (1+10^{\text{pH}-7.204})]\} \times \text{MIN} [51.93, (23.12 \times 10^{0.036 \times (20-T)})]$$

Where MIN indicates the lesser of the 2 values separated by a comma.

(d) The equations described in (b) and (c), above, shall be used to calculate freshwater acute water quality criteria for ammonia at unlisted pH and temperature values.

(e) Table 1703-4A and table 1703-4B shall be as follows:

Table 1703-4A: Freshwater Acute Aquatic Life Criteria For Ammonia in mg N/liter Salmonids in the Genus <u>Oncorhynchus</u> Present										
pH	Temperature, Degrees C									
	0-14	15	16	18	20	22	24	26	28	30
6.5	33	33	32	27	23	19	16	14	12	9.9
6.6	31	31	30	26	22	18	16	13	11	9.5
6.7	30	30	29	24	21	18	15	13	11	9.0
6.8	28	28	27	23	20	17	14	12	10	8.5
6.9	26	26	25	21	18	15	13	11	9.4	7.9
7.0	24	24	23	20	17	14	12	10	8.6	7.3
7.1	22	22	21	18	15	13	11	9.3	7.9	6.7
7.2	20	20	19	16	14	12	9.8	8.3	7.1	6.0
7.3	18	18	17	14	12	10	8.7	7.4	6.3	5.3
7.4	15	15	15	13	11	9.0	7.7	6.5	5.5	4.7

Table 1703-4A: Freshwater Acute Aquatic Life Criteria For Ammonia in mg N/liter Salmonids in the Genus <u>Oncorhynchus</u> Present										
pH	Temperature, Degrees C									
	0-14	15	16	18	20	22	24	26	28	30
7.5	13	13	13	11	9.2	7.8	6.6	5.6	4.8	4.0
7.6	11	11	11	9.3	7.9	6.7	5.7	4.8	4.1	3.5
7.7	9.6	9.6	9.3	7.9	6.7	5.7	4.8	4.1	3.5	3.0
7.8	8.1	8.1	7.9	6.7	5.6	4.8	4.0	3.4	2.9	2.5
7.9	6.8	6.8	6.6	5.6	4.7	4.0	3.4	2.9	2.4	2.1
8.0	5.6	5.6	5.4	4.6	3.9	3.3	2.8	2.4	2.0	1.7
8.1	4.6	4.6	4.5	3.8	3.2	2.7	2.3	2.0	1.7	1.4
8.2	3.8	3.8	3.7	3.1	2.7	2.3	1.9	1.6	1.4	1.2
8.3	3.1	3.1	3.1	2.6	2.2	1.9	1.6	1.3	1.1	0.96
8.4	2.6	2.6	2.5	2.1	1.8	1.5	1.3	1.1	0.93	0.79
8.5	2.1	2.1	2.1	1.8	1.5	1.3	1.1	0.90	0.77	0.65
8.6	1.8	1.8	1.7	1.5	1.2	1.0	0.88	0.75	0.63	0.54
8.7	1.5	1.5	1.4	1.2	1.0	0.87	0.74	0.62	0.53	0.45
8.8	1.2	1.2	1.2	1.0	0.86	0.73	0.62	0.52	0.44	0.37
8.9	1.0	1.0	1.0	0.85	0.72	0.61	0.52	0.44	0.37	0.32
9.0	0.88	0.88	0.86	0.73	0.62	0.52	0.44	0.37	0.32	0.27

Table 1703-4B: Freshwater Acute Aquatic Life Criteria For Ammonia in mg N/liter, Salmonids in the Genus <u>Oncorhynchus</u> Absent											
pH	Temperature, Degrees C										
	0-10	12	14	16	18	20	22	24	26	28	30
6.5	51	44	37	32	27	23	19	16	14	12	9.9
6.6	49	42	36	30	26	22	18	16	13	11	9.5
6.7	46	40	34	29	24	21	18	15	13	11	9.0
6.8	44	38	32	27	23	20	17	14	12	10	8.5
6.9	41	35	30	25	21	18	15	13	11	9.4	7.9
7.0	38	33	28	23	20	17	14	12	10	8.6	7.3
7.1	34	30	25	21	18	15	13	11	9.3	7.9	6.7
7.2	31	27	23	19	16	14	12	9.8	8.3	7.1	6.0
7.3	27	24	20	17	14	12	10	8.7	7.4	6.3	5.3
7.4	24	21	18	15	13	11	9.0	7.7	6.5	5.5	4.7
7.5	21	18	15	13	11	9.2	7.8	6.6	5.6	4.8	4.0
7.6	18	15	13	11	9.3	7.9	6.7	5.7	4.8	4.1	3.5
7.7	15	13	11	9.3	7.9	6.7	5.7	4.8	4.1	3.5	2.9
7.8	13	11	9.3	7.9	6.7	5.6	4.8	4.0	3.4	2.9	2.5
7.9	11	9.1	7.7	6.6	5.6	4.7	4.0	3.4	2.9	2.4	2.1
8.0	8.8	7.6	6.4	5.4	4.6	3.9	3.3	2.8	2.4	2.0	1.7
8.1	7.2	6.3	5.3	4.5	3.8	3.2	2.7	2.3	2.0	1.7	1.4
8.2	6.0	5.2	4.4	3.7	3.1	2.7	2.3	1.9	1.6	1.4	1.2
8.3	4.9	4.3	3.6	3.1	2.6	2.2	1.9	1.6	1.3	1.1	0.96
8.4	4.1	3.5	3.0	2.5	2.1	1.8	1.5	1.3	1.1	0.93	0.79
8.5	3.3	2.9	2.4	2.1	1.8	1.5	1.3	1.1	0.90	0.77	0.65
8.6	2.8	2.4	2.0	1.7	1.5	1.2	1.0	0.88	0.75	0.63	0.54
8.7	2.3	2.0	1.7	1.4	1.2	1.0	0.87	0.74	0.62	0.53	0.45
8.8	1.9	1.7	1.4	1.2	1.0	0.86	0.73	0.62	0.52	0.44	0.37
8.9	1.6	1.4	1.2	1.0	0.85	0.72	0.61	0.52	0.44	0.37	0.32
9.0	1.4	1.2	1.0	0.86	0.73	0.62	0.52	0.44	0.37	0.32	0.27

Env-Wq 1703.26 Freshwater Chronic Aquatic Life Criteria For Ammonia.

(a) Subject to (b) through (d), below, Table 1703-4C shall be used to determine freshwater chronic aquatic life criteria for ammonia, in mg N/l.

(b) The freshwater chronic water quality criteria for ammonia in Table 1703-4C have been calculated by adding the value found by dividing 0.0278 by the sum of one plus 10 raised to the power of 7.688 minus the pH to the value found by dividing 1.1994 by one plus 10 raised to the power of pH minus 7.688, and multiplying the resulting value by 0.8876 multiplied by the value resulting from multiplying 2.126 by 10 raised to the power of 0.028 times the value of 20 minus the greater of the temperature or 7, as shown in the following equation:

Freshwater Chronic Criteria for Ammonia:

$$\text{Criteria} = 0.8876 \times [0.0278/(1+10^{7.688-\text{pH}}) + 1.1994/(1+10^{\text{pH}-7.688})] \times [2.126 \times 10^{0.028 \times (20-\text{MAX}(T,7))}]$$

Where MAX indicates the greater of the two values separated by a comma.

(c) The chronic criteria in Table 1703-4C represent a 30-day rolling average, but the highest 4-day average within any 30-day averaging period shall not exceed 2.5 times the chronic criteria.

(d) The equation described in (b), above, shall be used to calculate criteria at unlisted pH and temperature values.

(e) Table 1703-4C shall be as follows:

Table 1703-4C: Freshwater Chronic Aquatic Life Criteria For Ammonia in mg N/l													
pH	Temperature, Degrees C												
	0-7	8	10	12	14	16	18	20	22	24	26	28	30
6.5	4.9	4.6	4.1	3.6	3.1	2.8	2.4	2.1	1.9	1.6	1.5	1.3	1.1
6.6	4.8	4.5	4.0	3.5	3.1	2.7	2.4	2.1	1.8	1.6	1.4	1.3	1.1
6.7	4.8	4.5	3.9	3.5	3.0	2.7	2.3	2.1	1.8	1.6	1.4	1.2	1.1
6.8	4.6	4.4	3.8	3.4	3.0	2.6	2.3	2.0	1.8	1.6	1.4	1.2	1.1
6.9	4.5	4.2	3.7	3.3	2.9	2.5	2.2	2.0	1.7	1.5	1.3	1.2	1.0
7.0	4.4	4.1	3.6	3.2	2.8	2.4	2.2	1.9	1.7	1.5	1.3	1.1	0.99
7.1	4.2	3.9	3.5	3.0	2.7	2.3	2.1	1.8	1.6	1.4	1.2	1.1	0.95
7.2	4.0	3.7	3.3	2.9	2.5	2.2	2.0	1.7	1.5	1.3	1.2	1.0	0.90
7.3	3.8	3.5	3.1	2.7	2.4	2.1	1.8	1.6	1.4	1.3	1.1	0.97	0.85
7.4	3.5	3.3	2.9	2.5	2.2	2.0	1.7	1.5	1.3	1.2	1.0	0.90	0.79
7.5	3.2	3.0	2.7	2.3	2.1	1.8	1.6	1.4	1.2	1.1	0.95	0.83	0.73
7.6	2.9	2.8	2.4	2.1	1.9	1.6	1.4	1.3	1.1	0.98	0.86	0.76	0.67
7.7	2.6	2.4	2.2	1.9	1.7	1.5	1.3	1.1	1.0	0.88	0.78	0.68	0.60
7.8	2.3	2.2	1.9	1.7	1.5	1.3	1.2	1.0	0.89	0.79	0.69	0.61	0.53
7.9	2.1	1.9	1.7	1.5	1.3	1.2	1.0	0.89	0.79	0.69	0.61	0.53	0.47
8.0	1.8	1.7	1.5	1.3	1.1	1.0	0.88	0.78	0.68	0.60	0.53	0.44	0.41
8.1	1.5	1.5	1.3	1.1	0.99	0.87	0.76	0.67	0.59	0.52	0.46	0.40	0.35
8.2	1.3	1.2	1.1	0.96	0.84	0.74	0.65	0.57	0.50	0.44	0.39	0.34	0.30
8.3	1.1	1.1	0.93	0.82	0.72	0.63	0.55	0.49	0.43	0.38	0.33	0.29	0.26
8.4	0.95	0.89	0.79	0.69	0.61	0.53	0.47	0.41	0.36	0.32	0.28	0.25	0.22
8.5	0.80	0.75	0.67	0.58	0.51	0.45	0.40	0.35	0.31	0.27	0.24	0.21	0.18
8.6	0.68	0.64	0.56	0.49	0.43	0.38	0.33	0.29	0.26	0.23	0.20	0.18	0.15
8.7	0.57	0.54	0.47	0.42	0.37	0.32	0.28	0.25	0.22	0.19	0.17	0.15	0.13
8.8	0.49	0.46	0.40	0.35	0.31	0.27	0.24	0.21	0.19	0.16	0.14	0.13	0.11
8.9	0.42	0.39	0.34	0.30	0.27	0.23	0.21	0.18	0.16	0.14	0.12	0.11	0.09

Table 1703-4C: Freshwater Chronic Aquatic Life Criteria For Ammonia in mg N/l													
pH	Temperature, Degrees C												
	0-7	8	10	12	14	16	18	20	22	24	26	28	30
9.0	0.36	0.34	0.30	0.26	0.23	0.20	0.18	0.16	0.14	0.12	0.11	0.09	0.08

Env-Wq 1703.27 Saltwater Acute Aquatic Life Criteria for Ammonia at a Salinity of 10 g/kg. The values shown in Table 1703-5 shall be used to determine saltwater acute aquatic life criteria for ammonia, in milligrams of NH₃ per liter (mg NH₃/l), for a salinity of 10 g/kg:

Table 1703-5: Saltwater Acute Aquatic Life Criteria for Ammonia in mg NH₃/l; Salinity = 10 g/kg									
pH	Temperature (°C)								
	0	5	10	15	20	25	30	35	
7.0	270	191	131	92	62	44	29	21	
7.2	175	121	83	58	40	27	19	13	
7.4	110	77	52	35	25	17	12	8.3	
7.6	69	48	33	23	16	11	7.7	5.6	
7.8	44	31	21	15	10	7.1	5.0	3.5	
8.0	27	19	13	9.4	6.4	4.6	3.1	2.3	
8.2	18	12	8.5	5.8	4.2	2.9	2.1	1.5	
8.4	11	7.9	5.4	3.7	2.7	1.9	1.4	1.0	
8.6	7.3	5.0	3.5	2.5	1.8	1.3	0.98	0.75	
8.8	4.6	3.3	2.3	1.7	1.2	0.92	0.71	0.56	
9.0	2.9	2.1	1.5	1.1	0.85	0.67	0.52	0.44	

Env-Wq 1703.28 Saltwater Acute Aquatic Life Criteria for Ammonia at a Salinity of 20 g/kg. The values shown in Table 1703-6 shall be used to determine saltwater acute aquatic life criteria for ammonia, in mg NH₃ /l, for a salinity of 20 g/kg:

Table 1703-6: Saltwater Acute Aquatic Life Criteria for Ammonia in mg NH₃/l; Salinity = 20 g/kg								
pH	Temperature (°C)							
	0	5	10	15	20	25	30	35
7.0	291	200	137	96	64	44	31	21
7.2	183	125	87	60	42	29	20	14
7.4	116	79	54	37	27	18	12	8.7
7.6	73	50	35	23	17	11	7.9	5.6
7.8	46	31	23	15	11	7.5	5.2	3.5
8.0	29	20	14	9.8	6.7	4.8	3.3	2.3
8.2	19	13	8.9	6.2	4.4	3.1	2.1	1.6
8.4	12	8.1	5.6	4.0	2.9	2.0	1.5	1.1
8.6	7.5	5.2	3.7	2.7	1.9	1.4	1.0	0.77
8.8	4.8	3.3	2.5	1.7	1.3	0.94	0.73	0.56
9.0	3.1	2.3	1.6	1.2	0.87	0.69	0.54	0.44

Env-Wq 1703.29 Saltwater Acute Aquatic Life Criteria for Ammonia at a Salinity of 30 g/kg. The values shown in Table 1703-7 shall be used to determine saltwater acute aquatic life criteria for ammonia, in mg NH₃ /l, for a salinity of 30 g/kg:

Table 1703-7: Saltwater Acute Aquatic Life Criteria for Ammonia in mg NH₃/l; Salinity = 30 g/kg								
pH	Temperature (°C)							
	0	5	10	15	20	25	30	35
7.0	312	208	148	102	71	48	33	23

Table 1703-7: Saltwater Acute Aquatic Life Criteria for Ammonia in mg NH₃/l; Salinity = 30 g/kg								
pH	Temperature (°C)							
	0	5	10	15	20	25	30	35
7.2	196	135	94	64	44	31	21	15
7.4	125	85	58	40	27	19	13	9.4
7.6	79	54	37	25	21	12	8.5	6.0
7.8	50	33	23	16	11	7.9	5.4	3.7
8.0	31	21	15	10	7.3	5.0	3.5	2.5
8.2	20	14	9.6	6.7	4.6	3.3	2.3	1.7
8.4	12.7	8.7	6.0	4.2	2.9	2.1	1.6	1.1
8.6	8.1	5.6	4.0	2.7	2.0	1.4	1.1	0.81
8.8	5.2	3.5	2.5	1.8	1.3	1.0	0.75	0.58
9.0	3.3	2.3	1.7	1.2	0.94	0.71	0.56	0.46

Env-Wq 1703.30 Saltwater Chronic Aquatic Life Criteria for Ammonia at a Salinity of 10 g/kg. The values shown in Table 1703-8 shall be used to determine saltwater chronic aquatic life criteria for ammonia, in mg NH₃ /l, for a salinity of 10 g/kg:

Table 1703-8: Saltwater Chronic Aquatic Life Criteria for Ammonia in mg NH₃/l; Salinity = 10 g/kg								
pH	Temperature (°C)							
	0	5	10	15	20	25	30	35
7.0	41	29	20	14	9.4	6.6	4.4	3.1
7.2	26	18	12	8.7	5.9	4.1	2.8	2.0
7.4	17	12	7.8	5.3	3.7	2.6	1.8	1.2
7.6	10	7.2	5.0	3.4	2.4	1.7	1.2	0.84
7.8	6.6	4.7	3.1	2.2	1.5	1.1	0.75	0.53
8.0	4.1	2.9	2.0	1.40	0.97	0.69	0.47	0.34
8.2	2.7	1.8	1.3	0.87	0.62	0.44	0.31	0.23
8.4	1.7	1.2	0.81	0.56	0.41	0.29	0.21	0.16
8.6	1.1	0.75	0.53	0.37	0.27	0.20	0.15	0.11
8.8	0.69	0.50	0.34	0.25	0.18	0.14	0.11	0.08
9.0	0.44	0.31	0.23	0.17	0.13	0.10	0.08	0.07

Env-Wq 1703.31 Saltwater Chronic Aquatic Life Criteria for Ammonia at a Salinity of 20 g/kg. The values shown in Table 1703-9 shall be used to determine saltwater chronic aquatic life criteria for ammonia, in mg NH₃ /l, for a salinity of 20 g/kg:

Table 1703-9: Saltwater Chronic Aquatic Life Criteria for Ammonia in mg NH₃/l; Salinity = 20 g/kg								
pH	Temperature (°C)							
	0	5	10	15	20	25	30	35
7.0	44	30	21	14	9.7	6.6	4.7	3.1
7.2	27	19	13	9.0	6.2	4.4	3.0	2.1
7.4	18	12	8.1	5.6	4.1	2.7	1.9	1.3
7.6	11	7.5	5.3	3.4	2.5	1.7	1.2	0.84
7.8	6.9	4.7	3.4	2.3	1.6	1.1	0.78	0.53
8.0	4.4	3.0	2.1	1.5	1.0	0.72	0.50	0.34
8.2	2.8	1.9	1.3	.94	.66	.47	.31	.24
8.4	1.8	1.2	.84	.59	.44	.30	.22	.16
8.6	1.1	.78	.56	.41	.28	.20	.15	.12
8.8	.72	.50	.37	.26	.19	.14	.11	.08
9.0	.47	.34	.24	.18	.13	.10	.08	.07

Env-Wq 1703.32 Saltwater Chronic Aquatic Life Criteria for Ammonia at a Salinity of 30g/kg. The values shown in table 1703-10 shall be used to determine saltwater chronic aquatic life criteria for ammonia, in mg NH₃ /l, for a salinity of 30 g/kg:

pH	Temperature (°C)							
	0	5	10	15	20	25	30	35
7.0	47	31	22	15	11	7.2	5.0	3.4
7.2	29	20	14	9.7	6.6	4.7	3.1	2.2
7.4	19	13	8.7	5.9	4.1	2.9	2.0	1.4
7.6	12	8.1	5.6	3.7	3.1	1.8	1.3	0.90
7.8	7.5	5.0	3.4	2.4	1.7	1.2	0.81	0.56
8.0	4.7	3.1	2.2	1.6	1.1	0.75	0.53	0.37
8.2	3.0	2.1	1.4	1.0	0.69	0.50	0.34	0.25
8.4	1.9	1.3	0.90	0.62	0.44	0.31	0.23	0.17
8.6	1.2	0.84	0.59	0.41	0.30	0.22	0.16	0.12
8.8	0.78	0.53	0.37	0.27	0.20	0.15	0.11	0.09
9.0	0.50	0.34	0.26	0.19	0.14	0.11	0.08	0.07

Env-Wq 1703.33 Freshwater Aquatic Life Criteria for Pentachlorophenol.

(a) To calculate the freshwater aquatic life acute criteria, in µg/l, for pentachlorophenol, the exponent “e” shall be raised to the power “x” where “x” is equal to the parenthetical expression 1.005 multiplied by the pH and to which product the value of 4.869 shall be subtracted, as follows:

$$\text{Acute Criteria} = e^x \text{ where} \\ x = [1.005 (\text{pH}) - 4.869]$$

(b) To calculate the freshwater aquatic life chronic criteria, in µg/l, for pentachlorophenol, the exponent “e” shall be raised to the power “x” where “x” is equal to the parenthetical expression 1.005 multiplied by the pH and to which product the value of 5.134 shall be subtracted, as follows:

$$\text{Chronic Criteria} = e^x \text{ where} \\ x = [1.005 (\text{pH}) - 5.134]$$

Env-Wq 1703.34 Freshwater Aquatic Life Criteria for Selenium

(a) Subject to (b), below, the freshwater aquatic life criteria for selenium are hierarchal where egg-ovary measurements have primacy, then whole-body or muscle, and finally the water column measures.

(b) In instances of a new discharge or fishless waters, the water column measures shall be used to determine if the criteria are met.

(c) The department shall use the values shown in table 1703-11, below, for the freshwater aquatic life protection criteria:

Table 1703-11: Freshwater Selenium Ambient Chronic Water Quality Criteria for Protection of Aquatic Life

<i>Media</i>	<i>Fish Tissue</i>		<i>Water Column</i>	
<i>Measurement</i>	<i>Egg/Ovary</i>	<i>Fish Whole Body or</i>	<i>Monthly Average Exposure</i>	<i>Intermittent Exposure</i>

		<i>Muscle</i>		
<i>Criteria</i>	<i>15.1 mg/kg dw</i>	<i>8.5 mg/kg dw whole body or 11.3 mg/kg dw muscle (skinless, boneless filet)</i>	<i>1.5 µg/L in lentic aquatic systems 3.1 µg/L in lotic aquatic systems</i>	<i>$Criteria_{int\ exp} = [Criteria_{monthly\ average} - C_{bkgnd}(1-f_{int})] / f_{int}$</i>

Env-Wq 1703.35 Notes for Table 1703-11

(a) *Fish tissue measures, egg/ovary and whole-body or muscle, are instantaneous measures expressed as steady-state and are not to be exceeded.*

(b) *Water column values are based on the total of the dissolved species of selenium in water. Water column values are the applicable criterion in the absence of fish tissue in a steady-state condition and are not to be exceeded more than once in 3-years.*

(c) *Intermittent exposure criteria ($Criteria_{int\ exp}$) is the $Criteria_{monthly\ average}$ from the monthly measurements, for either lentic or lotic waters, minus the C_{bkgnd} which is the average background selenium concentration times one minus the f_{int} which is the fraction of any 30-day period during which elevated selenium concentrations occur, divided by the f_{int} .*

PART Env-Wq 1704 ALTERNATIVE SITE SPECIFIC CRITERIA

Env-Wq 1704.01 **Purpose.** The purpose of this part is to establish a procedure for determining alternative site specific criteria in the following cases:

- (a) For toxic substances not listed in Env-Wq 1703.21 through Env-Wq 1703.33;
- (b) Where site specific information is available and substantiates the use of different criteria; or
- (c) Where new information that was not considered in the development of the criteria becomes available.

Env-Wq 1704.02 **Procedures.** The procedure for determining alternative site specific criteria for the protection of human health shall be as specified in EPA's "Methodology for Deriving Ambient Water Quality Criteria for the Protection of Human Health," EPA 822-B-00-004, dated October 2000, and the following accompanying technical support documents, all of which are available as noted in Appendix B:

- (a) "Volume 1: Risk Assessment", EPA 822-B-00-005, dated October 2000;
- (b) "Volume 2: Development of National Bioaccumulation Factors", EPA-822-R-03-030, dated December 2003; and
- (c) "Volume 3: Development of Site-Specific Bioaccumulation Factors", EPA-822-R-09-008, dated September 2009.

Env-Wq 1704.03 **Modifications to Surface Water Quality Standards.** If the department determines, based on scientifically valid documentation, that alternative site specific criteria will protect the existing and designated uses of the waterbody, the department shall revise these rules to incorporate those criteria.

PART Env-Wq 1705 ~~FLOW~~ PERMITTING RELATED STANDARDS**Env-Wq 1705.01 Assimilative Capacity.**

- (a) Subject to (b), below, the department shall hold not less than 10 percent of the assimilative capacity of each surface water in reserve to provide for future needs.

(b) For purposes of combined sewer overflows, the department shall determine compliance based on 99 percent of the assimilative capacity of the receiving surface water.

Env-Wq 1705.02 ~~Low Flow~~ ***Dilution and Conditions for Permitting.***

(a) The ***ambient upstream*** flow used to calculate permit limits shall be as specified in (b) through (dg), below.

(b) For tidal waters, the low flow condition shall be equivalent to the conditions that result in a dilution that is exceeded 99% of the time.

(c) For non-tidal rivers and streams, permit limits for all human health criteria for carcinogens shall be developed based on the long-term harmonic mean flow, which is the number of daily flow measurements divided by the sum of the reciprocals of the daily flows.

(d) ***Except as defined in (e) and (f) below, for non-tidal rivers and streams, permit limits for all aquatic life and human health nutrient criteria for non-carcinogens shall be based on 7Q10 flow including but not limited to nitrogen and phosphorus species, shall be based on the following downstream ambient targets and flows:***

(1) For total phosphorus, the ambient target shall be based on August median flow and an instream concentration of 30 ug/L, unless one of the following methods indicates alternative limits are fully protective of existing and designated uses:

- a. Modeling accepted by the department and EPA;***
- b. An EPA approved Total Maximum Daily Load (TMDL) study pursuant to 40 CFR 130.7;***
- c. A TMDL alternative accepted by the department and EPA; or***
- d. One of the following federal requirements if deemed by the department to be protective of all existing and designated uses:***
 - i. Criteria published by EPA pursuant to 33 U.S.C. 1314(a)(1); or***
 - ii. Permits issued pursuant to 40 CFR 122.***
- e. A data-based or empirical demonstration that alternative concentrations or loads are protective of all existing and designated uses accepted by the department and EPA.***

(2) For total nitrogen, the ambient target shall be set based on the methods in (1)a. through, d. above, that are accepted to be are fully protective of existing and designated uses-by the department and EPA.

(e) ***For non-tidal rivers and streams, permit limits to prevent ammonia toxicity in aquatic life shall be based on a flow equal to the 7Q10 flow.***

(f) ***Nutrient effluent permit limits may be based on the 7Q10 flow if the nutrient limit is needed to achieve compliance with other water quality criteria that must have permit limits based on the 7Q10 flow in accordance with (h) below.***

(g) ***Data used for setting permit limits and calculating reasonable potential pursuant to 40 CFR 122.44(d)(1)(ii) shall be based upon:***

(1) Ambient data representative in space and time of the limiting conditions as defined in (a) through (e) above for a particular criterion; and

(2) ***Ambient data representative of the conditions on which the criteria are based.***

(h) ***For non-tidal rivers and streams, permit limits for all non-nutrient aquatic life criteria and human health criteria for non-carcinogens shall be based on the 7Q10 flow except as described in (f), above.***

Env-Wq 1705.03 Restoration Permitting.

(a) ***Temporary and infrequent impacts resulting from ecological restoration projects approved by the department are exempt from the assimilative capacity requirements of Env-Wq 1705.01 and dilution requirements of Env-Wq 1705.02.***

(b) ***Any water quality or water quantity impacts shall be minimized to the extent practicable and be treated or controlled using best management practices approved by the department.***

PART Env-Wq 1706 SAMPLING AND ANALYSIS

Env-Wq 1706.01 Procedures.

(a) Unless alternative procedures are specified in the surface water discharge permit, all procedures used for the purpose of collecting, preserving, and analyzing samples shall be as specified in 40 CFR Part 136 for wastewater and 40 CFR Part 141 for drinking water.

(b) ***All methods approved in 40 CFR 136 for bacteria testing, as well as analytical methods approved for use in national shellfish sanitation program as specified pursuant to RSA 485-A:8, V are approved methods for NPDES permit compliance.***

PART Env-Wq 1707 MIXING ZONES

Env-Wq 1707.01 Designation of Mixing Zones.

(a) Because RSA 485-A:8, I prohibits the discharge of any sewage or other wastes into class A waters, mixing zones shall be prohibited in such waters.

(b) For class B waters, the department shall designate a limited area or volume of the surface water as a mixing zone if the applicant provides sufficient scientifically valid documentation to allow the department to independently determine that all criteria in Env-Wq 1707.02 have been met.

Env-Wq 1707.02 Criteria for Approval of Mixing Zones. The department shall not approve a mixing zone unless the proposed mixing zone:

- (a) Meets the criteria in Env-Wq 1703.03(c)(1);
- (b) Does not interfere with biological communities or populations of indigenous species;
- (c) Does not result in the accumulation of pollutants in the sediments or biota;
- (d) Allows a zone of passage for swimming and drifting organisms;
- (e) Does not interfere with existing and designated uses of the surface water;
- (f) Does not impinge upon spawning grounds or nursery areas, or both, of any indigenous aquatic species;
- (g) Does not result in the mortality of any plants, animals, humans, or aquatic life within the mixing zone;
- (h) Does not exceed the chronic toxicity value of 1.0 TUc at the mixing zone boundary; and
- (i) Does not result in an overlap with another mixing zone.

Env-Wq 1707.03 Conditions for Mixing Zones. If the department approves a mixing zone, the department shall include such conditions as are needed to ensure that the criteria on which the approval is based are met.

Env-Wq 1707.04 Technical Standards. Mixing zones shall be established in accordance with “Technical Support Document for Water Quality-based Toxics Control”, EPA/505/2-90-001, dated March 1991, available as noted in Appendix B.

PART Env-Wq 1708 ANTIDEGRADATION

Env-Wq 1708.01 Purpose. The purpose of these antidegradation provisions is to ensure that the following requirements of 40 CFR 131.12 are met:

(a) Existing uses and the level of water quality necessary to protect the existing uses shall be maintained and protected;

(b) Where the quality of a surface water exceeds the level necessary to support recreation in and on the water and propagation of fish, shellfish, and wildlife, such quality shall be maintained and protected, subject to the following:

(1) The department shall not approve a proposed discharge or activity that would cause a significant change in water quality as specified in Env-Wq 1708.09 unless the department finds, after full satisfaction of the intergovernmental coordination and public participation requirements and the analysis required by Env-Wq 1708.10, that allowing lower water quality is necessary to accommodate important economic or social development in the area in which the surface water is located; and

(2) The department shall not approve any proposed discharge or activity that might cause degradation or lower water quality, without such conditions as are necessary to ensure that:

a. Water quality will be adequate to fully protect existing uses;

b. The highest statutory and regulatory requirements will be achieved for all new and existing point sources; and

c. All cost effective and reasonable best management practices for nonpoint source control will be implemented;

(c) Where high quality ~~surface~~ waters constitute an outstanding resource waters (ORW), that water quality shall be maintained and protected; and

(d) In those cases where a potential water quality impairment is associated with a thermal discharge, the antidegradation provisions shall ensure that the requirements of Section 316 of the Clean Water Act are met.

Env-Wq 1708.02 Applicability. Antidegradation shall apply to:

(a) Any proposed new or increased activity, including point source and nonpoint source discharges of pollutants, that would lower water quality or adversely affect existing or designated uses;

(b) Any proposed increase in loadings to a waterbody when the proposal is associated with existing activities;

(c) Any increase in flow alteration over an existing alteration; and

(d) Any hydrologic modifications, such as dam construction and water withdrawals.

Env-Wq 1708.03 Protection of Existing Uses.

(a) A proposed discharge or activity shall not eliminate any existing uses or the water quality needed to maintain and protect those uses.

(b) The department shall determine the existing uses for the waters in question using the information provided pursuant to Env-Wq 1708.07.

Env-Wq 1708.04 Protection of Water Quality in ORW.

(a) Surface waters of national forests and surface waters designated as natural under RSA 483:7-a, I, shall be considered outstanding resource waters (ORW).

(b) Subject to (c), below, water quality shall be maintained and protected in surface waters that constitute ORW.

(c) The department shall allow a limited ***activity, or*** point or nonpoint source discharge to an ORW only if:

(1) The discharge ***or activity*** will result in no more than temporary and short-term changes in water quality, wherein “temporary and short term” means that degradation is limited to the shortest possible time;

(2) The discharge ***or activity*** will not permanently degrade water quality or result at any time in water quality lower than that necessary to protect the existing and designated uses in the ORW; and

(3) All practical means of minimizing water quality degradation are implemented.

Env-Wq 1708.05 Protection of Class A Waters.

(a) As specified in RSA 485-A:8, I, discharges of sewage or waste to class A waters shall be prohibited.

(b) Proposed new or increased activities that the department determines do not involve the discharge of sewage or waste shall be reviewed in accordance with this part.

Env-Wq 1708.06 Protection of Water Quality in High Quality Waters.

(a) Subject to (b) through (d), below, high quality waters shall be maintained and protected.

(b) The department shall evaluate and authorize insignificant changes in water quality as specified in Env-Wq 1708.09.

(c) The department shall allow degradation of significant increments of water quality, as determined in accordance with Env-Wq 1708.09, in high quality waters only if the applicant can demonstrate to the department, in accordance with Env-Wq 1708.10, that allowing the water quality degradation is necessary to accommodate important economic or social development in the area in which the receiving waters are located.

(d) If the waterbody is class A water, the requirements of Env-Wq 1708.05 also shall apply.

Env-Wq 1708.07 Submittal of Data. The applicant shall provide all information necessary to:

(a) Identify all existing uses, including:

(1) Freshwater, estuarine, and marine aquatic life present in the affected surface waters;

(2) Other wildlife that use or otherwise are dependent on the affected surface waters;

- (3) Presence of water quality and physical habitat that support, or would support, aquatic life or other animal or plant life;
 - (4) Presence of indigenous species and communities;
 - (5) Presence of a specialized use of the waterbody, such as a spawning area or as a habitat for a federally- or state-listed threatened or endangered species;
 - (6) Use of the surface waters for recreation in or on the water, such as fishing, swimming, and boating, or use of the surface waters for commercial activity; and
 - (7) Whether or not current conditions or uses of the surface waters conflict with achieving and maintaining goal uses of the CWA at Section 101(a)(2) and the primary CWA objective to restore and maintain the chemical, physical, and biological integrity of the nation's surface waters;
- (b) Determine the level of water quality necessary to maintain and protect all uses identified in (a), above;
- (c) Evaluate the potential impacts on existing uses due to the proposed discharge or activity by itself, and in combination with other discharges or activities presently occurring;
- (d) Ensure that existing uses and the level of water quality necessary to protect those uses will be maintained and protected;
- (e) Evaluate the magnitude, duration, and upstream and downstream extent of any lowering of high quality water due to the proposed discharge or activity by itself, and in combination with other discharges or activities presently occurring;
- (f) Evaluate other factors as necessary to determine whether the proposed activity would cause significant or insignificant degradation, in accordance with Env-Wq 1708.09;
- (g) If the discharge or activity is determined by the department to be significant, in accordance with Env-Wq 1708.08 and Env-Wq 1708.09, determine if a proposed lowering of water quality is necessary to achieve important economic or social development in accordance with Env-Wq 1708.10; and
- (h) Ensure that all water quality criteria applicable to the waterbody in question will not be violated.
- Env-Wq 1708.08 Assessing Waterbodies.
- (a) The applicant shall characterize the existing water quality and determine whether there is remaining assimilative capacity for each parameter in question.
- (b) Existing water quality shall be calculated in accordance with Env-Wq 1705.02, based on point sources discharging at their allowed loadings and the highest loadings anticipated from nonpoint sources.
- (c) Where flows will or might be altered, existing conditions shall be established based on the existing maximum allowed water withdrawals or impoundment, diversion, or fluctuation of stream flow, as applicable.
- (d) Remaining assimilative capacity shall be evaluated by comparing existing water quality, as specified in (b) and (c), above, to the state's water quality criteria.
- (e) If the type and frequency of the proposed discharge or activity will or might cause the waterbody to be impacted at flows other than those listed in Env-Wq 1705.02, the applicant shall evaluate the impact of the proposed discharge at those other flows.
- (f) Subject to (h), below, if the department determines, based on the information submitted, that there is no remaining assimilative capacity for a specific parameter, no further degradation with regard to that parameter shall be allowed.

(g) Subject to (h), below, if the department determines, based on the information submitted, that there is some remaining assimilative capacity, then the department shall proceed in accord with Env-Wq 1708.09.

(h) Determinations made pursuant to (f) or (g), above, shall account for Env-Wq 1705.01, which requires the department to reserve no less than 10% of a surface water's assimilative capacity.

Env-Wq 1708.09 Significant or Insignificant Determination.

(a) Any discharge or activity that is projected to use 20% or more of the remaining assimilative capacity for a water quality parameter, in terms of either concentration or mass of pollutants, or volume, ***area, depth*** or flow rate ~~for~~ ***of*** water ~~quantity~~, shall be considered a significant lowering of water quality.

(b) The department shall not approve a discharge or activity that will cause a significant lowering of water quality unless the applicant demonstrates, in accordance with Env-Wq 1708.10, that the proposed lowering of water quality is necessary to achieve important economic or social development in the area where the waterbody is located.

(c) Subject to (e), below, any applicant proposing an activity that will cause an insignificant lowering of water quality shall not be required to demonstrate that the activity is necessary to provide important economic or social development, provided the applicant implements best management practices to minimize degradation.

(d) Activities allowed under (c), above shall include, but not be limited to:

(1) Short term or intermittent discharges such as hydrostatic testing of pipelines, fire pump test water, and uncontaminated stormwater discharges or site clean-up activities;

(2) Permanent discharges such as uncontaminated noncontact cooling water, uncontaminated groundwater seepage, or unchlorinated or dechlorinated swimming pool water;

(3) Facilities whose nonpoint source runoff is controlled through the use of best management practices; and

(4) Any discharge or activity that is projected to use less than 20% of the remaining assimilative capacity for a water quality parameter, in terms of either concentration or mass for pollutants or volume, ***area, depth*** or flow rate ~~for~~ ***of*** water ~~quantity~~.

(e) If the department determines based on the following factors that the effect of a discharge ***or activity*** results in a greater impact to the water quality than that normally found in insignificant discharges ***or activities***, the department shall determine that the proposed activity or discharge is significant, regardless of the proposed consumption of the remaining assimilative capacity, and require the applicant to demonstrate, in accordance with Env-Wq 1708.10, that a lowering of water quality is necessary to achieve an important economic or social development:

(1) The magnitude, duration, and spatial extent of the proposed change in water quality;

(2) The cumulative lowering of water quality over time resulting from the proposed activity in combination with previously approved activities;

(3) The possible additive or synergistic effects of the activity in combination with existing activities;

(4) The magnitude of the mass load independent of the total assimilative capacity or change in receiving water pollutant concentration;

(5) The toxic or bioaccumulative characteristics of the pollutant(s) in question;

- (6) The potential to stress sensitive biological resources such as indigenous species, rare species, and threatened or endangered species and their habitat;
- (7) The potential to stress sensitive recreational uses or water supply uses; or
- (8) The quality and value of the resource.

Env-Wq 1708.10 Alternatives Analysis; Determination of Net Economic or Social Benefits.

(a) For purposes of this section, the following definitions shall apply:

- (1) “Activity” means any of the activities listed in Env-Wq 1708.02 as being subject to this part, including all associated construction;
- (2) “Area in which the water-body is located” means the directly affected municipality(ies) and, if necessary to quantify the net social and economic benefits of the activity, one or more of the municipalities that abut the directly affected municipality(ies), as determined by the applicant in consultation with the department;
- (3) “Directly affected municipality(ies)” means the municipality or municipalities in which the waterbody that will be impacted by the activity is located; and
- (4) “High value resource” means a natural or developed resource that is of particular value to the nation, region, state, or area in which the waterbody is located, including but not limited to state- or federally-listed threatened or endangered species, state or federal parks, public freshwater or saltwater beaches, and lands that are subject to conservation easements.

(b) For any activity that is determined to result in a significant impact to the existing water quality pursuant to Env-Wq 1708.09, the applicant shall provide documentation in accordance with (c) through (f), below, to demonstrate that:

- (1) Lowering the water quality is necessary to accommodate the activity;
- (2) The activity will provide net economic or social benefits in the area in which the waterbody is located; and
- (3) The net social and economic benefits of constructing and operating or otherwise engaging in the activity outweigh the environmental impact that could be caused by the lower water quality.

(c) To determine whether the criteria specified in (b)(1)-(3), above, have been met, the applicant shall complete an alternatives analysis as described in (d), below, and submit the analysis and a request for approval of the preferred alternative to the department together with technically and scientifically valid supporting information.

(d) The alternatives analysis required by (c), above, shall describe the net social and economic benefits, as described in (e), below, and the water quality impacts, as described in (f), below, of constructing and operating or otherwise engaging in the activity and all practicable alternatives, including but not limited to the following:

- (1) Alternative methods of production or operation;
- (2) Improved process controls;
- (3) Water conservation practices;
- (4) Wastewater minimization technologies;
- (5) Non-discharging alternatives;

- (6) Improved wastewater ~~treatment~~ facility operation;
 - (7) Alternative methods of treatment, including advanced treatment beyond applicable technology requirements of the Clean Water Act;
 - (8) Alternative sites, and associated water quality impacts at those sites; and
 - (9) For activities that involve alteration of terrain, alternative site design that incorporates low impact development elements, including but not limited to creating less impermeable area or infiltrating or reusing stormwater.
- (e) To determine whether the activity will provide net social and economic benefits in the area in which the waterbody is located, the applicant shall submit information on, and the department shall evaluate, each of the following:
- (1) Whether the activity is consistent with municipal and regional master plans and economic development strategies; and
 - (2) An explanation of the effect that constructing and operating or otherwise engaging in the activity will have, or an explanation of why there will be no effect, on the following factors:
 - a. Public and social services;
 - b. Public health and safety;
 - c. Employment;
 - d. Tourism and recreation; and
 - e. Other social or economic factors that are specific to the area in which the waterbody is located.
- (f) To determine the environmental impacts of lower water quality, the applicant shall submit information on, and the department shall evaluate, each of the following:
- (1) Relative to designated uses, the sensitivity of existing and designated uses to the effects of constructing and operating or otherwise engaging in of the activity;
 - (2) Relative to pollutants, whether any pollutants are expected to be discharged as a result of constructing and operating or otherwise engaging in the activity and, if so, the nature of the pollutants and the anticipated fate and transport of the pollutants in the waterbody;
 - (3) Relative to water quality, whether water quality is expected to change as a result of constructing and operating or otherwise engaging in activity, and if so, the estimated degree of change in water quality;
 - (4) Relative to high value resources, whether any high value resources are present that would be affected by constructing and operating or otherwise engaging in the activity, and if so, the degree to which such resources are expected to be affected;
 - (5) Relative to flow characteristics or hydrologic modifications, whether any alterations to existing flows or other hydrologic modifications are expected as a result of constructing and operating or otherwise engaging in the proposed activity, and if so, the impacts of such alterations or modifications;
 - (6) Relative to water treatment technology, whether the activity incorporates any such technology other than passive stormwater treatment best management practices and, if so, the reliability of the treatment technology proposed, and the risk management plan for non-standard situations such as accidents, upsets, or failures; and

(7) Relative to any other factors that are specific to the affected waterbody or the area in which the waterbody is located, a description of the factor and an explanation of the effect of constructing and operating or otherwise engaging in the proposed activity on that factor.

(g) After reviewing the information submitted pursuant to (c) through (f), above, the department shall make a preliminary determination to:

(1) Approve the request, if it determines that the criteria specified in (b)(1)-(3), above, have been met; or

(2) Deny the request, if it determines that the criteria specified in (b)(1)-(3), above, have not been met.

(h) If the department's preliminary determination is to approve the applicant's request, the department shall provide the opportunity for public comment on its preliminary decision in accordance with Env-Wq 1708.11.

Env-Wq 1708.11 Public Participation and Intergovernmental Coordination.

(a) The department shall provide the opportunity for public comment and an opportunity to request a public hearing on preliminary decisions to allow any significant lowering of water quality determined in accordance with Env-Wq 1708.09(b) or (e).

(b) The department shall issue a written notice to the public, the municipality in which the activity is located or proposed to be located, and all potentially affected municipalities of a preliminary decision to allow a significant lowering of water quality.

(c) The notice provided pursuant to (b), above, shall:

(1) Invite written comments to be submitted to the department;

(2) Be posted by the department on its website and in at least one public place in the municipality in which the proposed activity will occur;

(3) Contain the information specified in (d), below; and

(4) For activities related to state surface water discharge permits, be a part of the normal public participation procedures associated with the issuance of the permit.

(d) The notice provided pursuant to (b), above, shall include the following information:

(1) A description of the proposed activity;

(2) A description of each surface water that would be affected and its use classification;

(3) A summary of the antidegradation provisions in these rules;

(4) A determination that existing uses and the water quality necessary thereto will be maintained and protected;

(5) A summary of the expected impacts on high quality waters, if any;

(6) A determination that where a lowering of water quality is allowed, all applicable water quality criteria will be met, designated uses will be protected, and any higher water quality achievable by the most stringent applicable technology-based requirements will be maintained;

(7) A summary of any other information that is relevant to how the activity complies or does not comply with the requirements of these rules;

(8) The summary of the important economic or social development that will be achieved by allowing the proposed activity, if applicable;

- (9) A summary of the alternatives analysis and a finding that the lowering of water quality is necessary to provide a net economic and social benefit;
 - (10) The deadlines for submitting a request for public hearing and submitting written comments; and
 - (11) The name, address, and telephone number of the department employee to whom all written comments or requests for public hearing can be sent.
- (e) To fulfill intergovernmental coordination, the department shall send a copy of the public notice to the following agencies and request comments:
- (1) NH department of resources and economic development;
 - (2) NH department of health and human services;
 - (3) NH fish and game department;
 - (4) NH office of energy and planning;
 - (5) Local river advisory committees, if applicable;
 - (6) US EPA Region I;
 - (7) US Army Corps of Engineers;
 - (8) US Fish and Wildlife Service;
 - (9) National Marine Fisheries Service;
 - (10) National Park Service; and
 - (11) Natural Resources Conservation Service.
- (f) The department shall:
- (1) Prepare a summary of all comments received as a result of public participation and intergovernmental coordination and provide responses; and
 - (2) Post the summary of comments and responses on its website.
- (g) If the department receives a request to hold a public hearing, the department shall issue public notice and conduct a public hearing in accordance with the provisions of Env-C 200 that apply to non-adjudicative proceedings.
- (h) Following this public participation process, the department shall consider all comments and other information submitted during the process and make a final decision to allow or deny the proposed impact on water quality.
- (i) The department shall notify the applicant in writing of its decision. If the application is denied and the applicant wishes to pursue the project, the applicant shall:
- (1) Revise the submittal to decrease or eliminate the projected impact to high quality waters and resubmit the application for consideration under the full review process; or
 - (2) Appeal the decision as a permitting decision pursuant to RSA 21-O:14.

Env-Wq 1708.12 Transfer of Water.

(a) In this section, “transfer” means the intentional conveyance of water from one surface water to another surface water for the purpose of increasing the volume of water available ~~for withdrawal from~~ *in* the receiving surface water. The term does not include the transfer of stormwater, for the purpose of managing stormwater during construction, between basins created or otherwise lawfully used for stormwater detention or treatment, or both, and does not include the discharge of stormwater from a detention or treatment basin to a surface water.

(b) A transfer shall be subject to (c) and (d), below, if one or more of the following apply:

- (1) The transfer was not in active operation, as determined pursuant to (f) through (i), below, prior to the effective date of the 2011 readoption of this section, August 23, 2011;
- (2) The transfer is causing or contributing to a violation of surface water quality standards in the source water or receiving water; or
- (3) A change that could impact any designated use of the source water or receiving water is made to the transfer on or after August 23, 2011 such that a water quality certification is required under RSA 485-A:12, III or IV.

(c) The transfer of water from one surface water to another shall be allowed only if all of the following conditions are met:

- (1) The transferred water does not contain exotic aquatic species or other species of aquatic life that could result in a violation of Env-Wq 1703.19, relative to the integrity of the biological and aquatic community, in the receiving water;
- (2) Existing and designated uses will be maintained and supported in the source water and in the receiving water;
- (3) The withdrawal from the source water and transfer to the receiving water either:
 - a. Will not result in any degradation of water quality; or
 - b. Have both been reviewed under the process specified in Env-Wq 1708.10 and determined by the department to meet the criteria specified for approval in Env-Wq 1708.10(b)(1)-(3); and
- (4) A water conservation plan that meets the water conservation requirements set forth in Env-Wq 2101 has been approved by the department and is being complied with.

(d) Transferred water may be treated to comply with the requirements of this section.

(e) The transfer of water shall not constitute a discharge under RSA 485-A:8, I, or RSA 485-A:13, I(a) if:

- (1) The transfer is not subject to (c) and (d), above, pursuant to (b), above; or
- (2) All of the conditions specified in (c), above, are met.

(f) A transfer shall be deemed to have been in active operation prior to August 23, 2011 if all of the following are true:

- (1) The infrastructure necessary for the transfer is in place and in usable condition;
- (2) Water has been transferred for at least one day in each of at least 3 years from 2000 through 2011; and
- (3) At the time of its original initiation, the transfer complied with applicable legal requirements.

(g) If a transfer does not meet the conditions specified in (f), above, the person responsible for the transfer may request the department to make a determination that the transfer was in active operation by submitting the following information in writing:

- (1) The reason(s) why the infrastructure necessary for the transfer is not in place or is not in usable condition, if applicable;
- (2) The total time span, in years, over which the transfer has occurred from the first known transfer to the present;
- (3) The most recent year during which the transfer occurred; and
- (4) Why, based on the information provided in (1)-(3), above, it would be a fair and just result for the department to determine that the transfer qualifies as a transfer that was in active operation prior to August 23, 2011.

(h) If the department determines, based on information provided pursuant to (g), above, that it would be fair and just to determine that the transfer qualifies as a transfer that was in active operation prior to August 23, 2011, then the department shall make that determination.

(i) The department shall notify the person who requested a determination pursuant to (g), above, in writing of its decision.

PART Env-Wq 1709 CHANGE IN DESIGNATED USES

Env-Wq 1709.01 Definition. For purposes of this part, “change in designated use” means the removal of a designated use that is not an existing use, or the establishment of subcategories of a designated use.

Env-Wq 1709.02 Use Attainability Analysis Required. Before determining whether to propose a change in designated use, the department shall conduct a use attainability analysis in accordance with 40 CFR § 131.10.

Env-Wq 1709.03 Process to Propose Change in Designated Use

(a) Based on the information obtained as a result of the use attainability analysis performed pursuant to Env-Wq 1709.02, the department shall determine whether a change in a designated use should be proposed as specified in (b), below.

(b) The department shall make the determination required by (a), above, when attaining a designated use is not feasible based on 40 CFR 131.10(g), as reprinted in Appendix F.

(c) If the department determines that a change in designated use should be proposed, the department shall conduct a non-adjudicative public hearing in accordance with the provisions of Env-C 200 applicable to non-adjudicative hearings to receive public comment on the determination.

(d) If the department continues to believe after the public comment period that a change in designated use should be proposed, the department shall propose that the change in designated use be made.

APPENDIX A: STATE OR FEDERAL STATUTES OR REGULATIONS IMPLEMENTED

Rule Section(s)	State Statute or Federal Statute or Regulation Implemented
Env-Wq 1701 (also see specific section listed below)	RSA 485-A:4, V; RSA 485-A:8, VI; 33 U.S.C. 1251 <i>et seq.</i>
Env-Wq 1701.03	RSA 485-A:13, I(a); 33 U.S.C. 1251 <i>et seq.</i> ; 40 CFR § 122.47
Env-Wq 1701.04	RSA 485-A:13, I(a); 40 CFR § 131.14
Env-Wq 1702	RSA 485-A:4, V; RSA 485-A:8, VI; 33 U.S.C. 1251 <i>et seq.</i>
Env-Wq 1703	RSA 485-A:4, V; RSA 485-A:8, I, II, & III; RSA 485-A:8, VI;

	33 U.S.C. 1251 <i>et seq</i>
Env-Wq 1704	RSA 485-A:4, V; RSA 485-A:8, VI; 33 U.S.C. 1251 <i>et seq</i>
Env-Wq 1705	RSA 485-A:4, V; RSA 485-A:6, VII; RSA 485-A:8, VI; RSA 485-A:13, I(a); 33 U.S.C. 1251 <i>et seq</i>
Env-Wq 1706	RSA 485-A:4, V; RSA 485-A:8, VI; 33 U.S.C. 1251 <i>et seq</i>
Env-Wq 1707	RSA 485-A:4, V; RSA 485-A:8, VI; 33 U.S.C. 1251 <i>et seq</i>
Env-Wq 1708	RSA 485-A:4, V; RSA 485-A:8, VI; 33 U.S.C. 1251 <i>et seq</i>
Env-Wq 1709	RSA 485-A:4, V; RSA 485-A:8, VI; 33 U.S.C. 1251 <i>et seq</i>

APPENDIX B: INCORPORATED REFERENCES

Rule (Env-Wq)	Reference	Obtain At:
1703.05(c)	“EPA Combined Sewer Overflow (CSO) Control Policy”, EPA 830-B-94-001, dated April, 1994	Available at no charge from EPA National Service Center for Environmental Publications at https://www.epa.gov/nscep or directly at https://nepis.epa.gov/Exe/ZyNET.exe/2000407X.TXT?ZyActionD=ZyDocument&Client=EPA&Index=1991+Thru+1994&Docs=&Query=&Time=&EndTime=&SearchMethod=1&TocRestrict=n&Toc=&TocEntry=&QField=&QFieldYear=&QFieldMonth=&QFieldDay=&IntQFieldOp=0&ExtQFieldOp=0&XmlQuery=&File=D%3A%5Czyfiles%5CIndex%20Data%5C91thru94%5CTxt%5C00000011%5C2000407X.txt&User=ANONYMOUS&Password=anonymous&SortMethod=h%7C-&MaximumDocuments=1&FuzzyDegree=0&ImageQuality=r75g8/r75g8/x150y150g16/i425&Display=hpfr&DefSeekPage=x&SearchBack=ZyActionL&Back=ZyActionS&BackDesc=Results%20page&MaximumPages=1&ZyEntry=1&SeekPage=x&ZyPURL
1703.22(d) intro	“Interim Guidance on Determination and Use of Water-Effect Ratios for Metals”, EPA-823-B-94-001, dated February 1994	Available at no charge from EPA National Service Center for Environmental Publications at https://www.epa.gov/nscep or directly at: http://nepis.epa.gov/Exe/ZyNET.exe/20003QI5.TXT?ZyActionD=ZyDocument&Client=EPA&Index=1991+Thru+1994&Docs=&Query=&Time=&EndTime=&SearchMethod=1&TocRestrict=n&Toc=&TocEntry=&QField=&QFieldYear=&QFieldMonth=&QFieldDay=&IntQFieldOp=0&ExtQFieldOp=0&XmlQuery=&File=D%3A\zyfiles\Index%20Data\91thru94\Txt\00000011\20003QI5.txt&User=ANONYMOUS&Password=anonymous&SortMethod=h -&MaximumDocuments=1&FuzzyDegree=0&ImageQuality=r75g8/r75g8/x150y150g16/i425&Display=plf&DefSeekPage=x&SearchBack=ZyActionL&Back=ZyActionS&BackDesc=Result s%20page&MaximumPages=1&ZyEntry=1&SeekPage=x&ZyPURL
1703.22(d) (1)	“Streamlined Water-Effect Ratio procedure for Discharges of Copper”, EPA-822-R-01-005, dated March 2001	Available at no charge from EPA National Service Center for Environmental Publications at https://www.epa.gov/nscep or directly at: https://nepis.epa.gov/Exe/ZyNET.exe/901Q0I00.TXT?ZyActionD=ZyDocument&Client=EPA&Index=2000+Thru+2005&Docs=&Query=&Time=&EndTime=&SearchMethod=1&TocRestrict=n&Toc=&TocEntry=&QField=&QFieldYear=&QFieldMonth=&QFieldDay=&IntQFieldOp=0&ExtQFieldOp=0&XmlQu

Rule (Env-Wq)	Reference	Obtain At:
		ery=&File=D%3A%5Czyfiles%5CIndex%20Data%5C00thru05%5CTxt%5C00000012%5C901Q0I00.txt&User=ANONYMOUS&Password=anonymous&SortMethod=h%7C-&MaximumDocuments=1&FuzzyDegree=0&ImageQuality=r75g8/r75g8/x150y150g16/i425&Display=hpfr&DefSeekPage=x&SearchBack=ZyActionL&Back=ZyActionS&BackDesc=Results%20page&MaximumPages=1&ZyEntry=1&SeekPage=x&ZyPURL
1703.22(d) (2)	“Aquatic Life Ambient Freshwater Quality Criteria - Copper”, EPA-822-R-07-001, dated February 2007	Available at no charge from EPA National Service Center for Environmental Publications at https://www.epa.gov/nscep or directly at: <a href="http://nepis.epa.gov/Exe/ZyNET.exe/P1000PXC.TXT?ZyActionD=ZyDocument&Client=EPA&Index=2006+Thru+2010&Docs=&Query=&Time=&EndTime=&SearchMethod=1&TocRestrict=n&Toc=&TocEntry=&QField=&QFieldYear=&QFieldMonth=&QFieldDay=&IntQFieldOp=0&ExtQFieldOp=0&XmlQuery=&File=D%3A\zyfiles\Index%20Data\06thru10\Txt\00000002\P1000PXC.txt&User=ANONYMOUS&Password=anonymous&SortMethod=h -&MaximumDocuments=1&FuzzyDegree=0&ImageQuality=r75g8/r75g8/x150y150g16/i425&Display=p f&DefSeekPage=x&SearchBack=ZyActionL&Back=ZyActionS&BackDesc=Result s%20page&MaximumPages=1&ZyEntry=1&SeekPage=x&ZyPURL</td></tr> <tr> <td>1703.22(s)</td><td>“Final Aquatic Life Ambient Water Quality Criteria For Aluminum”, EPA-822-R-18-001, dated December 2018</td><td>Available at no charge from EPA National Service Center for Environmental Publications at https://www.epa.gov/nscep or directly at: <a 2018-final-aquatic-life-criteria-aluminum-freshwater"="" href="https://nepis.epa.gov/Exe/ZyNET.exe/P100VWXJ.txt?ZyActionD=ZyDocument&Client=EPA&Index=2016%20Thru%202020&Docs=&Query=Final%20Aquatic%20Life%20Ambient%20Water%20Quality%20Criteria%20Aluminum%20&Time=&EndTime=&SearchMethod=2&TocRestrict=n&Toc=&TocEntry=&QField=&QFieldYear=&QFieldMonth=&QFieldDay=&UseQField=&IntQFieldOp=0&ExtQFieldOp=0&XmlQuery=&File=D%3A%5CZYFILES%5CINDEX%20DATA%5C16THRU20%5CTXT%5C00000010%5CP100VWXJ.txt&User=ANONYMOUS&Password=anonymous&SortMethod=-%7Ch&MaximumDocuments=15&FuzzyDegree=0&ImageQuality=r85g16/r85g16/x150y150g16/i500&Display=hpfr&DefSeekPage=x&SearchBack=ZyActionL&Back=ZyActionS&BackDesc=Results%20page&MaximumPages=1&ZyEntry=1&SeekPage=x</td></tr> <tr> <td>1703.22(s)(1)</td><td>The “Aluminum Criteria Calculator V2.0 (Excel)(xlsm)”, dated December 2018</td><td>Available at no charge from EPA at https://www.epa.gov/wqc/2018-final-aquatic-life-criteria-aluminum-freshwater
1703.22(s)(2)	The “Aluminum Criteria Calculator R Code and Data V2.0”, dated November 15, 2019	Available at no charge from EPA at https://www.epa.gov/wqc/2018-final-aquatic-life-criteria-aluminum-freshwater

Rule (Env-Wq)	Reference	Obtain At:
1704.02 intro	“Methodology for Deriving Ambient Water Quality Criteria for the Protection of Human Health,” EPA 822-B-00-004, dated October 2000	Available at no charge from EPA National Service Center for Environmental Publications at https://www.epa.gov/nscep or directly at: http://nepis.epa.gov/Exe/ZyNET.exe/20003D2R.TXT?ZyActionD=ZyDocument&Client=EPA&Index=2000+Thru+2005&Docs=&Query=&Time=&EndTime=&SearchMethod=1&TocRestrict=n&Toc=&TocEntry=&QField=&QFieldYear=&QFieldMonth=&QFieldDay=&IntQFieldOp=0&ExtQFieldOp=0&XmlQuery=&File=D%3A\zyfiles\Index%20Data\00thru05\Txt\00000001\20003D2R.txt&User=ANONYMOUS&Password=anonymous&SortMethod=h -&MaximumDocuments=1&FuzzyDegree=0&ImageQuality=r75g8/r75g8/x150y150g16/i425&Display=p f&DefSeekPage=x&SearchBack=ZyActionL&Back=ZyActionS&BackDesc=Results%20page&MaximumPages=1&ZyEntry=1&SeekPage=x&ZyPURL
1704.02(a)	“Volume 1: Risk Assessment”, EPA 822-B-00-005, dated October 2000	Available at no charge from EPA National Service Center for Environmental Publications at https://www.epa.gov/nscep or directly at: http://nepis.epa.gov/Exe/ZyNET.exe/20003D81.TXT?ZyActionD=ZyDocument&Client=EPA&Index=2000+Thru+2005&Docs=&Query=&Time=&EndTime=&SearchMethod=1&TocRestrict=n&Toc=&TocEntry=&QField=&QFieldYear=&QFieldMonth=&QFieldDay=&IntQFieldOp=0&ExtQFieldOp=0&XmlQuery=&File=D%3A\zyfiles\Index%20Data\00thru05\Txt\00000001\20003D81.txt&User=ANONYMOUS&Password=anonymous&SortMethod=h -&MaximumDocuments=1&FuzzyDegree=0&ImageQuality=r75g8/r75g8/x150y150g16/i425&Display=p f&DefSeekPage=x&SearchBack=ZyActionL&Back=ZyActionS&BackDesc=Results%20page&MaximumPages=1&ZyEntry=1&SeekPage=x&ZyPURL
1704.02(b)	“Volume 2: Development of National Bioaccumulation Factors”, EPA-822-R-03-030, dated December 2003	Available at no charge from EPA National Service Center for Environmental Publications at https://www.epa.gov/nscep or directly at: http://nepis.epa.gov/Exe/ZyNET.exe/P1005EZQ.TXT?ZyActionD=ZyDocument&Client=EPA&Index=2000+Thru+2005&Docs=&Query=&Time=&EndTime=&SearchMethod=1&TocRestrict=n&Toc=&TocEntry=&QField=&QFieldYear=&QFieldMonth=&QFieldDay=&IntQFieldOp=0&ExtQFieldOp=0&XmlQuery=&File=D%3A\zyfiles\Index%20Data\00thru05\Txt\00000022\P1005EZQ.txt&User=ANONYMOUS&Password=anonymous&SortMethod=h -&MaximumDocuments=1&FuzzyDegree=0&ImageQuality=r75g8/r75g8/x150y150g16/i425&Display=p f&DefSeekPage=x&SearchBack=ZyActionL&Back=ZyActionS&BackDesc=Results%20page&MaximumPages=1&ZyEntry=1&SeekPage=x&ZyPURL

Rule (Env-Wq)	Reference	Obtain At:
1704.02(c)	“Volume 3: Development of Site-Specific Bioaccumulation Factors”, EPA-822-R-09-008, dated September 2009	Available at no charge from EPA National Service Center for Environmental Publications at https://www.epa.gov/nscep or directly at: http://nepis.epa.gov/Exe/ZyNET.exe/P1005CAF.txt?ZyActionD=ZyDocument&Client=EPA&Index=2006%20Thru%202010&Docs=&Query=Methodology%20Deriving%20Ambient%20Water%20Quality%20Criteria%20Protection%20Human%20Health%20&Time=&EndTime=&SearchMethod=2&TocRestrict=&Toc=&TocEntry=&QField=&QFieldYear=&QFieldMonth=&QFieldDay=&UseQField=&IntQFieldOp=0&ExtQFieldOp=0&XmlQuery=&File=D%3A\ZYFILES\INDEX%20DATA\06THRU10\TXT\00000011\P1005CAF.txt&User=ANONYMOUS&Password=anonymous&SortMethod=f%3Atitle&MaximumDocuments=15&FuzzyDegree=1&ImageQuality=r85g16/r85g16/x150y150g16/i500&Display=hpfr&DefSeekPage=x&SearchBack=ZyActionE&Back=ZyActionS&BackDesc=Results%20page&MaximumPages=1&ZyEntry=1&SeekPage=x
1707.04	“Technical Support Document for Water Quality-based Toxics Control”, EPA/505/2-90-001, dated March 1991	Available at no charge from: https://www3.epa.gov/npdes/pubs/owm0264.pdf

APPENDIX C: STATUTORY DEFINITIONS

RSA 485-A:2:

VI. “Industrial waste” means any liquid, gaseous or solid waste substance resulting from any process of industry, manufacturing trade or business or from development of any natural resources.

VIII. “Other wastes” means garbage, municipal refuse, decayed wood, sawdust, shavings, bark, lime, ashes, offal, oil, tar, chemicals and other substances other than sewage or industrial wastes, and any other substance harmful to human, animal, fish or aquatic life.

X. “Sewage” means the water-carried waste products from buildings, public or private, together with such groundwater infiltration and surface water as may be present.

XIV. “Surface waters of the state” means perennial and seasonal streams, lakes, ponds, and tidal waters within the jurisdiction of the state, including all streams, lakes, or ponds bordering on the state, marshes, water courses, and other bodies of water, natural or artificial.

XVI. “Waste” means industrial waste and other wastes.

RSA 482-A:2:

X. “Wetlands” means an area that is inundated or saturated by surface water or groundwater at a frequency and duration sufficient to support, and that under normal conditions does support, a prevalence of vegetation typically adapted for life in saturated soil conditions.

APPENDIX D: FEDERAL DEFINITIONS

40 CFR 122.2:

Pollutant means dredged spoil, solid waste, incinerator residue, filter backwash, sewage, garbage, sewage sludge, munitions, chemical wastes, biological materials, radioactive materials (except those regulated under

the Atomic Energy Act of 1954, as amended (42 U.S.C. 2011 *et seq.*)), heat, wrecked or discarded equipment, rock, sand, cellar dirt and industrial, municipal, and agricultural waste discharged into water. It does not mean:

(a) Sewage from vessels; or

(b) Water, gas, or other material which is injected into a well to facilitate production of oil or gas, or water derived in association with oil and gas production and disposed of in a well, if the well [that is] used either to facilitate production or for disposal purposes is approved by authority of the State in which the well is located, and if the State determines that the injection or disposal will not result in the degradation of ground or surface water resources.

NOTE: Radioactive materials covered by the Atomic Energy Act are those encompassed in its definition of source, byproduct, or special nuclear materials. Examples of materials not covered include radium and accelerator-produced isotopes. See *Train v. Colorado Public Interest Research Group, Inc.*, 426 U.S. 1 (1976).

APPENDIX E: SUMMARY OF BACTERIA STANDARDS FROM RSA 485-A:8

Type of Waters	Standard
Class A other than designated beach areas	Not more than: (1) A geometric mean based on at least 3 samples obtained over a 60-day period of 47 <u>Escherichia coli</u> (<u>E. coli</u>) per 100 milliliters, unless naturally occurring; or (2) 153 <u>E. coli</u> per 100 milliliters in any one sample, unless naturally occurring.
Class B other than designated beach areas	Not more than: (1) A geometric mean based on at least 3 samples obtained over a 60-day period of 126 <u>E. coli</u> per 100 milliliters, unless naturally occurring; or (2) 406 <u>E. coli</u> per 100 milliliters in any one sample, unless naturally occurring.
Class A or Class B at designated beach areas	Not more than: (1) A geometric mean based on at least 3 samples obtained over a 60-day period of 47 <u>E. coli</u> per 100 milliliters, unless naturally occurring; or (2) 88 <u>E. coli</u> per 100 milliliters in any one sample, unless naturally occurring.
Tidal waters used for swimming	Not more than: (1) A geometric mean based on at least 3 samples obtained over a 60-day period of 35 <u>enterococci</u> per 100 milliliters, unless naturally occurring; or (2) 104 <u>enterococci</u> per 100 milliliters in any one sample, unless naturally occurring.
Tidal waters used for growing or taking of shellfish for human consumption	Same as for tidal waters used for swimming, <u>PLUS</u> must not exceed a geometric mean most probable number (MPN) of 14 organisms per 100 ml for fecal coliform, nor shall more than 10 percent of the samples exceed an MPN of 28 per 100 ml for fecal coliform, or other values of equivalent protection based on sampling and analytical methods used by the department of environmental services shellfish program and approved in the latest revision of the National Shellfish Sanitation Program, Guide For The Control of Molluscan Shellfish.

APPENDIX F: CRITERIA FOR DETERMINATION OF CHANGE IN DESIGNATED USE

40 CFR §131.10 Designation of uses.

(g) States may remove a designated use which is not an existing use, as defined in § 131.3, or establish sub-categories of a use if the State can demonstrate that attaining the designated use is not feasible because:

- (1) Naturally occurring pollutant concentrations prevent the attainment of the use; or
- (2) Natural, ephemeral, intermittent or low flow conditions or water levels prevent the attainment of the use, unless these conditions may be compensated for by the discharge of sufficient volume of effluent discharges without violating State water conservation requirements to enable uses to be met; or
- (3) Human caused conditions or sources of pollution prevent the attainment of the use and cannot be remedied or would cause more environmental damage to correct than to leave in place; or
- (4) Dams, diversions or other types of hydrologic modifications preclude the attainment of the use, and it is not feasible to restore the water body to its original condition or to operate such modification in a way that would result in the attainment of the use; or
- (5) Physical conditions related to the natural features of the water body, such as the lack of a proper substrate, cover, flow, depth, pools, riffles, and the like, unrelated to water quality, preclude attainment of aquatic life protection uses; or
- (6) Controls more stringent than those required by sections 301(b) and 306 of the Act would result in substantial and widespread economic and social impact.