15A NCAC 02B .0211 is amended as published in 36:05 NCR 294-298 with changes as follows:

15A NCAC 02B .0211 FRESH SURFACE WATER QUALITY STANDARDS FOR CLASS C WATERS

In addition to the standards set forth in Rule .0208 of this Section, the following water quality standards shall apply to all Class C waters. Additional standards applicable to other freshwater classifications are specified in Rules .0212, .0214, .0215, .0216, .0218, .0219, .0223, .0224, .0225, and .0231 of this Section.

(1) The best usage of waters shall be aquatic life propagation, survival, and maintenance of biological integrity (including fishing and fish); wildlife; secondary contact recreation; agriculture; and any other usage except for primary contact recreation or as a source of water supply for drinking, culinary, and food processing purposes. All freshwaters shall be classified to protect these uses at a minimum.

(2) The conditions of waters shall be such that waters are suitable for all best uses specified in this Rule. Sources of water pollution that preclude any of these uses on either a short-term or long-term basis shall be deemed to violate a water quality standard;

(3) Chlorine, total residual: 17 ug/l;

(4) Chlorophyll a (corrected): except as specified in Sub-Item (a) of this Item, not greater than 40 ug/l for lakes, reservoirs, and other waters subject to growths of macroscopic or microscopic vegetation not designated as trout waters, and not greater than 15 ug/l for lakes, reservoirs, and other waters subject to growths of macroscopic or microscopic vegetation designated as trout waters (not applicable to lakes or reservoirs less than 10 acres in surface area). The Commission or its designee may prohibit or limit any discharge of waste into surface waters if the surface waters experience or the discharge would result in growths of microscopic or macroscopic vegetation such that the standards established pursuant to this Rule would be violated or the intended best usage of the waters would be impaired;

(a) Site-specific High Rock Lake Reservoir [Index Numbers 12-(108.5), 12-(114), 12-117-(1), 12-117-(3), 12-118.5, and the uppermost portion of 12-(124.5) to the dam of High Rock Lake] Chlorophyll a (corrected): not greater than one exceedance of a growing season geometric mean of 35 ug/L in the photic zone within a three-year period [~~based on samples collected in a minimum of five different months during the growing season~~].

(b) For the purpose of [~~this Sub-Item,~~] Sub-Item (a) of this Item: [~~the growing season is April 1 through October 31 and the photic zone is represented by a composite sample taken from the water surface down to twice the measured Secchi depth.~~] [~~Chlorophyll a shall not occur in amounts that result in an adverse impact as defined in 15A NCAC 02H .1002.~~]

(i) The growing season is April 1 through October 31;

(ii) Samples shall be collected in a minimum of five different months within each growing season with a minimum of two growing season geometric means collected in a three-year period;

(iii) The photic zone shall be defined as the surface down to twice the Secchi depth;

(iv) Samples shall be collected as a composite sample of the photic zone; and

(v) Samples that do not satisfy the requirements in Sub-Item (iv) of this Sub-Item shall be excluded from the calculation of the geometric mean.

(5) Cyanide, available or total: 5.0 ug/l;

(6) Dissolved oxygen: not less than 6.0 mg/l for trout waters; for non-trout waters, not less than a daily average of 5.0 mg/l with an instantaneous value of not less than 4.0 mg/l; swamp waters, lake coves, or backwaters, and lake bottom waters may have lower values if caused by natural conditions;

(7) Fecal coliform: shall not exceed a geometric mean of 200/100ml (MF count) based upon at least five samples taken over a 30-day period, nor exceed 400/100ml in more than 20 percent of the samples examined during such period. Violations of this Item are expected during rainfall events and may be caused by uncontrollable nonpoint source pollution. All coliform concentrations shall be analyzed using the membrane filter technique. If high turbidity or other conditions would cause the membrane filter technique to produce inaccurate data, the most probable number (MPN) 5-tube multiple dilution method shall be used.

(8) Floating solids, settleable solids, or sludge deposits: only such amounts attributable to sewage, industrial wastes, or other wastes as shall not make the water unsafe or unsuitable for aquatic life and wildlife or impair the waters for any designated uses;

(9) Fluoride: 1.8 mg/l;

(10) Gases, total dissolved: not greater than 110 percent of saturation;

(11) Metals:

(a) With the exception of mercury, acute and chronic freshwater aquatic life standards for metals shall be based upon measurement of the dissolved fraction of the metal. Mercury water quality standards shall be based upon measurement of the total recoverable metal;

(b) With the exception of mercury, aquatic life standards for metals listed in this Sub-Item shall apply as a function of the pollutant's water effect ratio (WER). The WER shall be assigned a value equal to one unless any person demonstrates to the Division's satisfaction in a permit proceeding that another value is developed in accordance with the "Water Quality Standards Handbook: Second Edition" published by the US Environmental Protection Agency (EPA-823-B-12-002), which is hereby incorporated by reference, including subsequent amendments and editions, and can be obtained free of charge at http://water.epa.gov/scitech/swguidance/standards/handbook/. Alternative site-specific standards may also be developed when any person submits values that demonstrate to the Commission that they were derived in accordance with the "Water Quality Standards Handbook: Second Edition, Recalculation Procedure or the Resident Species Procedure",

which is hereby incorporated by reference including subsequent amendments and can be obtained free of charge at http://water.epa.gov/scitech/swguidance/standards/handbook/.

(c) Freshwater metals standards that are not hardness-dependent shall be as follows:

(i) Arsenic, dissolved, acute: WER· 340 ug/l;

(ii) Arsenic, dissolved, chronic: WER· 150 ug/l;

(iii) Beryllium, dissolved, acute: WER· 65 ug/l;

(iv) Beryllium, dissolved, chronic: WER· 6.5 ug/l;

(v) Chromium VI, dissolved, acute: WER· 16 ug/l;

(vi) Chromium VI, dissolved, chronic: WER· 11 ug/l;

(vii) Mercury, total recoverable, chronic: 0.012 ug/l;

(viii) Silver, dissolved, chronic: WER· 0.06 ug/l;

(d) Selenium, chronic: The standard for chronic selenium has the following components: fish egg/ovary tissue, fish whole body or muscle tissue, and water column (lentic and lotic). These components shall be used in the following order of preference provided data is available:

(i) Fish egg/ovary tissue;

(ii) Fish whole body or muscle tissue;

(iii) Water column.

Fish tissue concentrations are determined as dry weight and water column concentrations are based on the dissolved fraction of selenium. Fish tissue components are expressed as steady-state concentrations and provide instantaneous point measurements that reflect integrative accumulation of selenium over time and space in fish populations at a given site. Fish tissue components supersede the water column component when both fish tissue and water concentrations are measured. Egg-ovary tissue results, where available, supersede all other tissue and water column components. The chronic selenium standards are as follows:

Component		Magnitude	Duration
Fish tissue	Fish egg/ovary tissue	15.1 mg/kg	Instantaneous
	Fish whole body or muscle tissue	8.5 mg/kg whole body	Instantaneous
		11.3 mg/kg muscle	Instantaneous
Water column	Lentic or Lotic	1.5 ug/l lentic	30-day average
		3.1 ug/l lotic	30-day average

(e) Hardness-dependent freshwater metals standards shall be derived using the equations specified in Table A: Dissolved Freshwater Standards for Hardness-Dependent Metals. If the actual instream hardness (expressed as $CaCO_3$ or Ca+Mg) is less than 400 mg/l, standards shall be calculated based upon the actual instream hardness. If the instream hardness is greater than 400 mg/l, the maximum applicable hardness shall be 400 mg/l.

Table A: Dissolved Freshwater Standards for Hardness-Dependent Metals

Numeric standards calculated at 25 mg/l hardness are listed below for illustrative purposes. The Water Effects Ratio (WER) is equal to one unless determined otherwise under Sub-Item (11)(b) of this Rule.

Metal	Equations for Hardness-Dependent Freshwater Metals (ug/l)	Standard at 25 mg/l hardness (ug/l)
Cadmium, Acute	WER·[{1.136672-[ln hardness](0.041838)} · e^{0.9789 [ln hardness]-3.443}]	0.75
Cadmium, Acute, Trout waters	WER·[{1.136672-[ln hardness](0.041838)} · e^{0.9789 [ln hardness]-3.866}]	0.49
Cadmium, Chronic	WER·[{1.101672-[ln hardness](0.041838)} · e^{0.7977[ln hardness]-3.909}]	0.25
Chromium III, Acute	WER· [0.316 · e^{0.8190[ln hardness]+3.7256}]	180
Chromium III, Chronic	WER· [0.860 · e^{0.8190[ln hardness]+0.6848}]	24
Copper, Acute	WER· [0.960 · e^{0.9422[ln hardness]-1.700}] Or, Aquatic Life Ambient Freshwater Quality Criteria-Copper 2007 Revision (EPA-822-R-07-001)	3.6 NA
Copper, Chronic	WER· [0.960 · e^{0.8545[ln hardness]-1.702}] Or, Aquatic Life Ambient Freshwater Quality Criteria-Copper 2007 Revision (EPA-822-R-07-001)	2.7 NA

Lead, Acute	WER· [{1.46203-[ln hardness](0.145712)} · e^{1.273[ln hardness]-1.460}]	14
Lead, Chronic	WER· [{1.46203-[ln hardness](0.145712)} · e^{1.273[ln hardness]-4.705}]	0.54
Nickel, Acute	WER· [0.998 · e^{0.8460[ln hardness]+2.255}]	140
Nickel, Chronic	WER· [0.997 · e^{0.8460[ln hardness]+0.0584}]	16
Silver, Acute	WER· [0.85 · e^{1.72[ln hardness]-6.59}]	0.30
Zinc, Acute	WER· [0.978 · e^{0.8473[ln hardness]+0.884}]	36
Zinc, Chronic	WER· [0.986 · e^{0.8473[ln hardness]+0.884}]	36

(f) Compliance with acute instream metals standards shall only be evaluated using an average of two or more samples collected within one hour. Compliance with chronic instream metals standards, except for selenium shall only be evaluated using an average of a minimum of four samples taken on consecutive days or as a 96-hour average;

(12) Oils, deleterious substances, or colored or other wastes: only such amounts as shall not render the waters injurious to public health, secondary recreation, or to aquatic life and wildlife, or adversely affect the palatability of fish, aesthetic quality, or impair the waters for any designated uses. For the purpose of implementing this Rule, oils, deleterious substances, or colored or other wastes shall include substances that cause a film or sheen upon or discoloration of the surface of the water or adjoining shorelines, as described in 40 CFR 110.3(a)-(b), incorporated by reference including subsequent amendments and editions. This material is available, free of charge, at: http://www.ecfr.gov/;

(13) Pesticides:

(a) Aldrin: 0.002 ug/l;

(b) Chlordane: 0.004 ug/l;

(c) DDT: 0.001 ug/l;

(d) Demeton: 0.1 ug/l;

(e) Dieldrin: 0.002 ug/l;

(f) Endosulfan: 0.05 ug/l;

(g) Endrin: 0.002 ug/l;

(h) Guthion: 0.01 ug/l;

(i) Heptachlor: 0.004 ug/l;

(j) Lindane: 0.01 ug/l;

(k) Methoxychlor: 0.03 ug/l;

(l) Mirex: 0.001 ug/l;

(m) Parathion: 0.013 ug/l; and

(n) Toxaphene: 0.0002 ug/l;

(14) pH: shall be between 6.0 and 9.0 except that swamp waters may have a pH as low as 4.3 if it is the result of natural conditions;

(15) Phenolic compounds: only such levels as shall not result in fish-flesh tainting or impairment of other best usage;

(16) Polychlorinated biphenyls (total of all PCBs and congeners identified): 0.001 ug/l;

(17) Radioactive substances, based on at least one sample collected per quarter:

(a) Combined radium-226 and radium-228: the average annual activity level for combined radium-226 and radium-228 shall not exceed five picoCuries per liter;

(b) Alpha Emitters: the average annual gross alpha particle activity (including radium-226, but excluding radon and uranium) shall not exceed 15 picoCuries per liter;

(c) Beta Emitters: the average annual activity level for strontium-90 shall not exceed eight picoCuries per liter, nor shall the average annual gross beta particle activity (excluding potassium-40 and other naturally occurring radionuclides) exceed 50 picoCuries per liter, nor shall the average annual activity level for tritium exceed 20,000 picoCuries per liter;

(18) Temperature: not to exceed 2.8 degrees C (5.04 degrees F) above the natural water temperature, and in no case to exceed 29 degrees C (84.2 degrees F) for mountain and upper piedmont waters and 32 degrees C (89.6 degrees F) for lower piedmont and coastal plain waters; the temperature for trout waters shall not be increased by more than 0.5 degrees C (0.9 degrees F) due to the discharge of heated liquids, but in no case to exceed 20 degrees C (68 degrees F);

(19) Toluene: 0.36 ug/l in trout classified waters or 11 ug/l in all other waters;

(20) Trialkyltin compounds: 0.07 ug/l expressed as tributyltin;

(21) Turbidity: the turbidity in the receiving water shall not exceed 50 Nephelometric Turbidity Units (NTU) in streams not designated as trout waters and 10 NTU in streams, lakes, or reservoirs designated as trout waters; for lakes and reservoirs not designated as trout waters, the turbidity shall not exceed 25 NTU; if turbidity exceeds these levels due to natural background conditions, the existing turbidity level shall not be increased. Compliance with this turbidity standard shall be deemed met when land management activities employ Best Management Practices (BMPs), as defined by Rule .0202 of this Section, recommended by the Designated Nonpoint Source Agency, as defined by Rule .0202 of this Section.

(22) Toxic Substance Level Applicable to NPDES Permits: Chloride: 230 mg/l. If chloride is determined by the waste load allocation to be exceeded in a receiving water by a discharge under the specified 7Q10 criterion for toxic substances, the discharger shall monitor the chemical or biological effects of the discharge. Efforts shall be made by all dischargers to reduce or eliminate chloride from their

effluents. Chloride shall be limited as appropriate in the NPDES permit if sufficient information exists to indicate that it may be a causative factor resulting in toxicity of the effluent.

History Note: *Authority G.S. 143-214.1; 143-215.3(a)(1);*
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