

NAVAJO NATION SURFACE WATER QUALITY STANDARDS 2015



(Photograph of the Colorado River near Lees Ferry on October 27, 2003)

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PART I
SURFACE WATER QUALITY STANDARDS - GENERAL PROVISIONS

§ 101 TITLE

These regulations are cited as the Navajo Nation Surface Water Quality Standards 2015 (NNSWQS 2015).

§ 102 AUTHORITY

These regulations are adopted pursuant to §104(b) and §201 of the Navajo Nation Clean Water Act (NNCWA), C.J.Y.-81-99; they establish surface water quality standards applicable to the surface waters of the Navajo Nation pursuant to §303 and §518 of the Federal Clean Water Act.

§ 103 PURPOSE

- A. The purpose of these surface water quality standards is to protect, maintain, and improve the quality of Navajo Nation surface waters for public and private drinking water supplies; to promote the habitation, growth, and propagation of native and other desirable aquatic plant and animal life; to protect existing, and future, domestic, cultural, agricultural, recreational and industrial uses; and to protect any other existing and future beneficial uses of Navajo Nation surface waters. These standards provide the water quality goals for each body of surface water within the Navajo Nation and provide the basis for establishing treatment controls and strategies through regulation.
- B. These standards apply to all Waters of the Navajo Nation.

§ 104 DEFINITIONS

- A. "Acute Standard" means a standard that applies to any single sample; acute standards shall not be exceeded at any time.
- B. "Acute Toxicity" means toxicity involving a stimulus severe enough to induce a deleterious response (e.g., mortality, disorientation, immobilization) in 96 hours of exposure or less.
- C. "Agricultural Water Supply (AgWS)" means the use of the water for the irrigation of crops that could be used for human consumption.
- D. "Aquatic and Wildlife (A&W)" means the use of the water by animals, plants or other organisms, including salmonids and non-salmonids, and non-domestic animals

- (including migratory birds) for habitation, growth or propagation. Water body supports or is capable of supporting either cold water fishes, including trout species or warm water fishes including bass species, catfish species, and bluegill species. Water body supports the aquatic communities upon which cold and warm water fishes depend. Cold waters are waters that typically have temperatures below 20 °C. Warm waters are waters that typically have temperatures exceeding 20 °C. Water body supports prey base for non-domestic animals (including migratory birds).
- E. “Assimilative Capacity” means the difference between the baseline water quality concentration of a pollutant and the most stringent applicable water quality criterion for that pollutant.
- F. "Best Management Practices" or "BMPs" means methods, measures or practices selected by an agency to meet its nonpoint source pollution control needs, or, in the case of the National Pollutant Discharge Elimination System, schedules of activities, prohibitions of practices, maintenance procedures and other management practices to prevent or reduce the pollution of waters of the Navajo Nation. BMPs include, but are not limited to, structural and non-structural controls, treatment requirements, operation and maintenance procedures and practices to control plant site runoff, spillage or leaks, sludge or waste disposal, or drainage from raw material storage, and can be applied before, during, or after pollution-producing activities to reduce or eliminate the introduction of pollutants into Waters of the Navajo Nation.
- G. "Bioaccumulation" means the process of a chemical accumulating in a biological food chain by being passed from one organism to another as the contaminated organism is preyed upon by another organism.
- H. "Bioconcentration" means the process by which there is a net accumulation of a chemical directly from water into aquatic organisms resulting from simultaneous uptake and elimination.
- I. "Chronic Standard" means a standard that applies to the geometric mean of the analytical results of the last four samples taken at least 24 hours apart; chronic standards shall not be exceeded more than once every three years.
- J. "Chronic Toxicity" means toxicity involving a stimulus that lingers or continues for a relatively long period relative to the life span of an organism before effects are observed (e.g., 28 days for small fish test species). Chronic effects include, but are not limited to, lethality, growth impairment, behavioral modifications, disease and reduced or impaired reproduction.
- K. "Clean Water Act" means the Federal Water Pollution Control Act of 1972, as amended,

33 U.S.C., § 1251 *et seq.*

- L. “Critical Flow Condition” means the lowest flow over seven consecutive days that has a probability of occurring once in 10 years (7 Q 10).
- M. "Criteria" means elements of water quality standards that are expressed as chemical, physical, biological, or radiological concentrations, levels, properties or narrative statements representing a water quality that supports a designated use. When criteria are met, water quality should protect the designated use.
- N. “Deep lake” means a lake or reservoir with an average depth over 6 meters.
- O. "Designated Use" means a use described in §206 and specified in Table 206.1 of these standards for a surface water body or surface water body segment of the Navajo Nation.
- P. “Diel” means a measurement obtained during 24 hours.
- Q. "Director" means the Executive Director of the Navajo Nation Environmental Protection Agency.
- R. "Dissolved" means the concentration of a constituent in a water sample that is analytically determined following filtration through a 0.45 micron filter.
- S. "Domestic Water Supply (Dom)" means the use of the water as a potable water supply.
- T. "Ephemeral Surface Water" means a flowing or non-flowing surface water that has a stream bed, lake bed, or pond bed that is at all times above the water table and water above the bed is only present in direct response to precipitation.
- U. “Exceptional Waters of the Navajo Nation” means ground or surface waters that have been determined to be of exceptional cultural, ecological and/or recreational significance due to the nature of their flora, fauna, water quality, aesthetic value, or wilderness characteristics.
- V. “Fish Consumption (FC)” means the use of the water by humans for harvesting aquatic organisms for consumption. Harvestable aquatic organisms include, but are not limited to, fish, shell-fish, turtles, crayfish, and frogs.
- W. "Geometric Mean" means the nth root of the product of n items or values. A minimum of four samples shall be used to calculate the geometric mean. The geometric mean is calculated using the following formula:

$$GM_Y = n\sqrt{(Y_1)(Y_2)(Y_3)...(Y_n)}$$

- X. "Hardness" means the sum of the calcium and magnesium concentrations, expressed as calcium carbonate (CaCO₃), in milligrams per liter (mg/L) and may be calculated using the following formula: Hardness (as CaCO₃) = 2.5 × Ca²⁺ (mg/L) + 4.1 × Mg²⁺ (mg/L). Hardness analysis is done from a dissolved water sample.
- Y. "Igneous lake" means a lake or reservoir located in volcanic or basaltic geology and soils.
- Z. "Intermittent Surface Water" means a flowing or non-flowing surface water with water above the stream bed, pond bed, or lake bed only at certain times of the year, receiving water from springs or surface sources; also, a watercourse that does not flow continuously, when water losses from evaporation or seepage exceed available stream flow.
- AA. "Livestock Watering (LW)" means water used by livestock for consumption (ingestion).
- BB. "Micrograms per Liter (µg/l)" means micrograms of solute per liter of solution (equivalent to parts per billion when the specific gravity of the solution = 1.000).
- CC. "Milligrams per Liter (mg/l)" means milligrams of solute per liter of solution (equivalent to parts per million when the specific gravity of the solution = 1.000).
- DD. "Nonpoint Source" means any source of water pollution that is not a point source, as defined herein.
- EE. "NTU" is a nephelometric turbidity unit based on a standard method using formazin polymer or its equivalent as the standard reference suspension. Nephelometric turbidity measurements expressed in units of NTU are numerically identical to the same measurements expressed in units of FTU (formazin turbidity units).
- FF. "Oil" means oil of any kind or in any form, including but not limited to petroleum, crude oil, gasoline, fuel oil, diesel oil, lubricating oil, oil refuse, sludge, vegetable oil, animal oil, and oil mixed with wastes.
- GG. "Perennial Surface Water" means a flowing or non-flowing surface water that is present continuously throughout the year.
- HH. "Photic zone" means the lighted region of a lake where photosynthesis takes place. Extends down to a depth where plant growth and respiration are balanced by the amount of light available.

- II. "Picocurie (pCi)" is a measure of radioactivity equal to the quantity of a radioactive substance in which the rate of disintegrations is 2.22 per minute. Expressed in picocuries per liter (pCi/l).
- JJ. "Point Source" means any discernible, confined, and discrete conveyance including but not limited to any pipe, ditch, channel, tunnel, conduit, well, discrete fissure, landfill leachate collection system, container, rolling stock (except to the extent excluded from the NPDES program by section 601 of the National and Community Services Act of 1990, P.L. 101-610, 104 Stat. 3185), concentrated animal feeding operation, or vessel or other floating craft, from which pollutants are or may be discharged into a body of water. This term does not include agricultural storm water discharges or return flows from irrigated agriculture.
- KK. "Pollutant" means fluids, contaminants, toxic wastes, toxic pollutants, dredge spoil, solid waste, substances and chemicals, pesticides, herbicides, fungicides, rodenticides, fertilizers, and other agricultural chemicals, incinerator residue, sewage, garbage, sewage sludge, munitions, petroleum products, oils, chemical wastes, biological materials, radioactive materials, heat, wrecked or discarded equipment, rock, sand, dirt, and mining, industrial, municipal, and agricultural wastes or any other liquid, solid, gaseous, or hazardous substance.
- LL. "Pollution" means any human-made or human-induced alteration of the chemical, physical, biological, or radiological integrity of waters of the Navajo Nation.
- MM. "Primary Human Contact (PrHC)" means the use of the water that causes the human body to come into direct contact with the water, typically to the point of submergence in the water body, or probable ingestion of the water, or contact by the water with membrane material of the body. Examples include ceremonial uses, swimming and water-skiing.
- NN. "Recreational Uses" are the Primary Human Contact and Secondary Human Contact designated uses.
- OO. "Regional Administrator" means the Regional Administrator of Region 9 of the U.S. Environmental Protection Agency.
- PP. "Secondary Human Contact (ScHC) " means the use of water which may cause the water to come into direct contact with the skin of the body but normally not to the point of submergence, ingestion of the water, or contact of the water with membrane material of the body. Such contact would occur incidentally and infrequently. Examples include ceremonial and other cultural uses, boating and fishing.
- QQ. "Sedimentary lake" means a lake or reservoir in sedimentary or karst geology and soils.

- RR. "Shallow lake" means a lake or reservoir with an average depth of less than 3 meters and a maximum depth of less than 4 meters.
- SS. "TDS" means total dissolved solids, also termed "total filterable residue."
- TT. "Total Concentration" means the concentration of a constituent in a water sample which is analytically determined without filtration through a 0.45 micron filter.
- UU. "Total Nitrogen" means the sum of the concentrations of ammonia (NH₃), ammonium ion (NH₄⁺), nitrite (NO₂⁻), nitrate (NO₃⁻) and dissolved and particulate organic nitrogen in a water sample, expressed as elemental nitrogen (N).
- VV. "Total Phosphorus" means all the phosphorus species present in a water sample, regardless of form, as measured by a persulfate digestion procedure.
- WW. "Toxic Pollutant" means a pollutant, or combination of pollutants, including disease-causing agents, which, after discharge and upon exposure, ingestion, inhalation or assimilation into any organism, either directly from the environment or indirectly by ingestion through food chains, will, on the basis of information available to the Administrator, cause death, disease, behavioral abnormalities, cancer, genetic mutations, physiological malfunctions (including malfunctions in reproduction) or physical deformations, in such organisms or their offspring. Aquatic toxicity may be determined by the "National Whole Effluent Toxicity (WET) Implementation Guidance Under the NPDES Program, Draft, U.S. Environmental Protection Agency, Office of Wastewater Management, (EPA-832-B-04-003) (November, 2004)" which is incorporated by reference.
- XX. "Turbidity" means the optical clarity of water that causes incident light to be scattered or absorbed rather than transmitted in straight lines.
- YY. "Wastewater Mixing Zone" means a defined and limited part of a surface water body, with defined boundaries adjacent to a point source of pollution, in which initial dilution of wastewater occurs.
- ZZ. "Waters of the Navajo Nation" means all surface waters including, but not limited to, perennial, intermittent and ephemeral reaches and portions of rivers, streams, lakes, ponds, dry washes, marshes, waterways, wetlands, mudflats, sandflats, sloughs, prairie potholes, wet meadows, playa lakes, impoundments, riparian areas, springs, tributaries and all other bodies or accumulations of water, surface, natural or artificial, public or private, including those dry during part of the year, which are within the Navajo Nation. This definition shall be interpreted as broadly as possible to include all waters which are currently used, were used in the past, or may be susceptible to use in interstate, intertribal or foreign commerce. Consistent with federal requirements, the Director may exclude

from waters of the Navajo Nation certain waste treatment systems.

- AAA. "Wetlands" means those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas.
- BBB. "Zone of passage" means a continuous water route of volume, cross-sectional area and quality necessary to allow passage of free-swimming or drifting organisms with no toxic effect produced on the organisms.

§ 105 SEVERABILITY

If any provision of these regulations or the application thereof to any person or circumstance is held invalid, the remainder of these regulations and the application of such provision to other persons or circumstances shall remain unaffected, and to this end the provisions of these regulations are declared to be severable.

PART II SURFACE WATER QUALITY STANDARDS

§ 201 ANTIDegradation POLICY

The following antidegradation policy is promulgated under § 201(a) of the Navajo Nation Clean Water Act (C.J.Y.-81-99).

- A. Existing designated uses and the level of water quality necessary to protect the existing designated uses shall be maintained and protected.
- B. Where the quality of any water body is of a higher quality than is necessary to support existing designated uses, including the protection and propagation of fish, shellfish, and wildlife and recreation in and on the water body, that quality shall be maintained and protected unless the Navajo Nation finds, after full interagency coordination and public participation, that allowing lower water quality is necessary to accommodate important economic or social development in the area in which the water body is located. In allowing such degradation or lower water quality, the Navajo Nation shall assure water quality adequate to protect existing designated uses fully.
- C. The Navajo Nation shall assure that there shall be achieved the highest statutory and regulatory requirements for all new and existing point sources and all cost effective and reasonable best management practices for nonpoint source pollution control.

- D. This policy of antidegradation includes protection against water quality impairment associated with thermal discharges and shall be implemented consistent with §316 of the Federal Clean Water Act (33 U.S.C. §1326).
- E. The Director shall determine whether there is degradation of water quality in a surface water on a pollutant-by-pollutant basis.
- F. Tier 1: The level of water quality necessary to protect existing uses shall be maintained and protected. No degradation of existing water quality is permitted in a surface water where the existing water quality does not meet the applicable water quality standard.
- G. Tier 2: Where existing water quality in a surface water is better than the applicable water quality standard, the existing water quality shall be maintained and protected. The Director may allow limited degradation of existing water quality in the surface water, provided that the Department holds a public hearing on whether degradation should be allowed and the Director makes all of the following findings:
- 1 The level of water quality necessary to protect existing uses is fully protected. Water quality shall not be lowered to a level that does not comply with applicable water quality standards.
 - 2 The highest statutory and regulatory requirements for new and existing point sources are achieved.
 - 3 All cost-effective and reasonable best management practices for non-point source pollution control are implemented.
 - 4 Allowing lower water quality is necessary to accommodate important economic or social development in the area where the surface water is located.
- H. Tier 3: Existing water quality shall be maintained and protected in a surface water that is classified as a Exceptional Water of the Navajo Nation under NNSWQS 2015 Section 209. The Director shall not allow degradation of an Exceptional Water of the Navajo Nation under Section 209 Subsection (C).

§ 202 ANTIDEGRADATION IMPLEMENTATION PROCEDURES

The following antidegradation policy is promulgated under § 201(a) of the Navajo Nation Clean Water Act (C.J.Y.-81-99).

- A. This section applies to a regulated discharge that may degrade the existing water quality of a surface water. “Regulated discharge” means a point source discharge regulated under a

National Pollutant Discharge Elimination System (NPDES) permit, any discharge regulated by an individual, nationwide or regional §404 permit, and any discharge authorized by a federal permit or license that is subject to Navajo Nation water quality certification under §401 of the US Clean Water Act.

- B. Tier 1 antidegradation protection: The level of water quality necessary to meet applicable water quality standards shall be maintained and protected in a surface water. A regulated discharge shall not cause a violation of an applicable surface water quality standard for a surface water.
1. Tier 1 antidegradation protection applies to the following surface waters:
 - a. A surface water listed as impaired under the US Clean Water Act §303(d) list and/or listed as effluent limited under the Navajo Nation Clean Water Act §205 and/or for the pollutant that results in a listing;
 - b. An ephemeral water;
 - c. A perennial water; and
 - d. An intermittent surface water.
 2. A regulated discharge shall not cause further degradation of existing water quality in an water listed as impaired under the US Clean Water Act §303(d) list and/or listed as effluent limited under the Navajo Nation Clean Water Act §205 for the pollutant that resulted in the listing.
 3. Tier 1 antidegradation review requirements are satisfied for a point source discharge regulated under a NPDES permit to an ephemeral water, a perennial water or an intermittent water provided water quality-based effluent limitations designed to achieve compliance with surface water quality standards are established in the permit and technology-based requirements of the Clean Water Act for the point source discharge are met.
- C. Tier 2 antidegradation protection applies to a perennial surface water with existing water quality that is better than applicable water quality standards. Existing water quality water shall be maintained and protected in a perennial surface water. A perennial surface water that is not listed as impaired under the US Clean Water Act §303(d) list and/or listed as effluent limited under the Navajo Nation Clean Water Act §205 for the pollutant that results in a listing nor classified as an Exceptional Water of the Navajo Nation is presumed to have Tier 2 antidegradation protection for all pollutants of concern. The Department may allow

degradation of existing water quality on a pollutant-by-pollutant basis in accordance with the following procedures:

- 1 A new or expanded regulated discharge resulting in significant degradation of existing water quality of a perennial surface water is subject to a comprehensive antidegradation review. For purposes of this section, “significant degradation” means the consumption of 20 percent or more of the available assimilative capacity of a surface water for a pollutant of concern at critical flow conditions.
- 2 The Department may allow significant degradation provided the Department determines, after public participation and intergovernmental coordination requirements are satisfied, that there are no reasonable, cost-effective, less-degrading or non-degrading alternatives and allowing significant degradation is necessary to accommodate important economic or social development in the area where the surface water is located.
- 3 A new or expanded regulated discharge shall not significantly degrade existing water quality to the level where the discharge causes a violation of surface water quality standards.
- 4 The Department may require a person seeking authorization for a new or expanded regulated discharge to a perennial water to provide baseline water quality data on pollutants of concern reasonably expected to be in the discharge. The Department will use existing data where available to characterize baseline water quality. The Department may require the person seeking authorization for a new or expanded regulated discharge to provide data to the Department to characterize baseline water quality where no data exist or there are insufficient data to characterize baseline water quality for a pollutant of concern. Baseline water quality shall be characterized at a location upstream of the proposed discharge location.
- 5 A person seeking authorization for a new or expanded regulated discharge that will significantly degrade water quality of a perennial water shall prepare and submit to the Department a written analysis of alternatives to the discharge. The alternatives analysis shall provide information on all reasonable, cost-effective, less degrading or non-degrading pollution control alternatives that do not result in

significant degradation. Alternatives may include, but are not limited to, wastewater treatment process changes or upgrades, pollution prevention measures, source reduction, water reclamation, alternative discharge locations, groundwater recharge, land application or treatment, local pretreatment programs, improved operation and maintenance of existing systems, and seasonal or controlled discharge to avoid critical flow conditions.

- a. An alternatives analysis shall include cost information on base pollution control measures associated with the regulated discharge. Base pollution control measures are water pollution control measures required to meet technology-based requirements of the US Clean Water Act and water quality-based effluent limits designed to achieve compliance with applicable water quality standards.
 - b. An alternatives analysis shall include the treatment costs of each alternative that produces an effluent that does not result in significant degradation.
 - c. An alternative is deemed to be cost-effective and reasonable if treatment costs associated with the alternative are less than 110 percent of the cost of base pollution control measures.
 - d. The Department will require that the alternative or combination of alternatives that results in the least degradation and does not exceed 110 percent of the cost of base pollution control measures be implemented.
- 6 A person seeking authorization for a new or expanded regulated discharge to a perennial water that will result in significant degradation shall prepare a written statement demonstrating that the discharge and significant degradation are necessary to accommodate important social and economic development in the area of the discharge.
- 7 In accordance with the Navajo Nation Environmental Protection Agency's Uniform Regulations, Permit Review, Administrative Enforcement Orders, Hearings, and Rulemaking Under Navajo Nation Environmental Acts, the Department shall provide public notice of an antidegradation review, provide an opportunity for public comment on its antidegradation review, and hold public hearings on antidegradation reviews. Intergovernmental coordination is required

before the Department approves a regulated discharge that will significantly degrade a perennial water.

- D. Tier 3 antidegradation protection applies only to Exceptional Waters of the Navajo Nation and their tributaries. Existing water quality in an Exceptional Water of the Navajo Nation shall be maintained and protected.
- 1 A new or expanded regulated discharge directly to an Exceptional Water of the Navajo Nation is prohibited.
 - 2 The Department may authorize a regulated discharge to a tributary or upstream of an Exceptional Water of the Navajo Nation provided the person seeking authorization for the regulated discharge demonstrates in a permit application or in other written documentation submitted to the Department that the regulated discharge will not degrade existing water quality in the downstream Exceptional Water of the Navajo Nation
 - 3 The Department may allow temporary and short-term changes to existing water quality of an Exceptional Water of the Navajo Nation on a case-by-case basis. Temporary and short-term changes are defined as those occurring for a period of six months or less.
- E. The Department shall conduct the antidegradation review of a regulated discharge authorized by an individual, nationwide or regional §404 permit issued by the U.S. Army Corps of Engineers as part of the US CWA §401 water quality certification process. A regulated discharge authorized by a §404 permit that receives §401 water quality certification from the Department is deemed to have satisfied antidegradation requirements provided the permittee complies with the conditions of the §404 permit and any conditions required by the Department for §401 water quality certification. The Department shall conduct the antidegradation review for a nationwide or a regional §404 permit at the time of issuance or re-issuance of the permit by the U.S. Army Corps of Engineers. A person seeking authorization to discharge under a nationwide or regional §404 permit that has been certified by the Department under §401 of the Clean Water Act is not required to undergo an individual antidegradation review at the time of submittal of the Notice of Intent to be

covered by the permit except where a person seeks authorization to discharge to an Exceptional Water of the Navajo Nation. A discharge regulated under a nationwide or regional §404 permit that may affect water quality of an Exceptional Water of the Navajo Nation requires individual §401 water quality certification to ensure that water quality impacts are temporary.

- F. The Department shall conduct the antidegradation review of a regulated discharge authorized by a general permit for the entire class of discharges covered by the general permit at the time a general permit is issued or renewed. A person seeking authorization to discharge under a general permit that the Department has reviewed on a categorical basis is not required to undergo an individual antidegradation review at the time of submittal of the Notice of Intent to be covered by the general permit except where the discharge may affect water quality of an Exceptional Water of the Navajo Nation. Any discharge authorized by a general permit that may affect water quality of an Exceptional Water of the Navajo Nation requires an individual antidegradation review by the Department to ensure that the water quality impacts to the Exceptional Water of the Navajo Nation are temporary.

§ 203 NARRATIVE SURFACE WATER QUALITY STANDARDS

- A. All Waters of the Navajo Nation shall be free from pollutants in amounts or combinations that, for any duration:
1. Cause injury to, are toxic to, or otherwise adversely affect human health, public safety, or public welfare.
 2. Cause injury to, are toxic to, or otherwise adversely affect the habitation, growth, or propagation of aquatic life and wildlife.
 3. Settle to form bottom deposits, including sediments, precipitates and organic materials that cause injury to, are toxic to, or otherwise adversely affect the habitation, growth, or propagation of aquatic life and wildlife.
 4. Cause physical, chemical, or biological conditions that promote the habitation, growth, or propagation of undesirable, non-indigenous species of plant or animal life

in the water body.

5. Cause solids, oil, grease, foam, scum, or any other form of objectionable floating debris on the surface of the water body; may cause a film or iridescent appearance on the surface of the water body; or that may cause a deposit on a shoreline, on a bank, or on aquatic vegetation.
 6. Cause objectionable odor in the area of the water body.
 7. Cause objectionable taste, odor, color, or turbidity in the water body.
 8. Cause objectionable taste in edible plant and animal life, including waterfowl that reside in, on, or adjacent to the water body.
 9. Cause the growth of algae or aquatic plants that inhibit or prohibit the habitation, growth, or propagation of other aquatic life or that impair recreational uses.
- B. All Waters of the Navajo Nation shall be free of toxic pollutants from other than natural sources in amounts, concentrations, or combinations which affect the propagation of fish or which are toxic to humans, livestock or other animals, fish or other aquatic organisms, wildlife using aquatic environments for habitation or aquatic organisms for food, or which will or can reasonably be expected to bioaccumulate in tissues of fish, shellfish, or other aquatic organisms to levels which will impair the health of aquatic organisms or wildlife or result in unacceptable tastes, odors or health risks to human consumers. Aquatic toxicity may be determined by the “National Whole Effluent Toxicity (WET) Implementation Guidance Under the NPDES Program, Draft, U.S. Environmental Protection Agency, Office of Wastewater Management, (EPA-832-B-04-003) (November, 2004)” which is incorporated by reference.
- C. No person shall place animal carcasses, refuse, rubbish, demolition or construction debris, trash, garbage, motor vehicles, motor vehicle parts, batteries, appliances, tires, or other solid waste into Waters of the Navajo Nation or onto their banks.

§ 204 IMPLEMENTATION PLAN

The Navajo Nation Water Quality Program (NNWQP) within the Navajo Nation Environmental Protection Agency (NNEPA), pursuant to the NNCWA, shall implement these water quality standards, including the antidegradation policy, by establishing and maintaining controls on the introduction of pollutants into waters of the Navajo Nation. Specifically, NNWQP shall do the following:

1. Develop a comprehensive database that fully identifies all waters of the Navajo Nation, their quality and designated uses, and any activities which may detrimentally impact

those waters and uses.

2. Monitor water quality to assess the effectiveness of pollution controls, and to determine whether designated uses are being supported and narrative and numeric water quality standards are being met.
3. Obtain information as to the impact of effluent on receiving waters.
4. Advise prospective dischargers of discharge requirements.
5. Assess the probable impact of effluent on the capability of receiving waters to support designated uses and achieve narrative and numeric water quality standards.
6. Require the highest degree of wastewater treatment practicable to maintain designated uses and existing water quality.
7. Develop water quality-based effluent limitations and provide comment on technology-based effluent limitations as appropriate for inclusion in any permit to be issued to a discharger pursuant to §301 of the NNCWA, C.J.Y.-81-99, and §402 of the Federal Clean Water Act (33 U.S.C. §1342).
8. Require that effluent limitations or any other appropriate limitations applicable to activities with the potential for discharge to waters of the Navajo Nation be included in any permit as a condition for Navajo Nation certification pursuant to §209 of the NNCWA, C.J.Y.-81-99, and §401 of the Federal Clean Water Act (33 U.S.C. §1341).
9. Coordinate water pollution control activities with other Navajo Nation, local, state, and federal agencies as appropriate.
10. Develop and pursue inspection and enforcement programs in order to ensure that dischargers comply with requirements of the NNCWA and any regulations promulgated there under (including these water quality standards), and in order to support the enforcement of federal permits issued by the U.S.EPA and permits issued by the NNEPA.
11. Provide technical assistance to wastewater treatment facility operators.
12. Assist publicly owned wastewater treatment facilities in the pursuit of wastewater treatment construction funds through construction grants authorized by the Federal Clean Water Act (33 U.S.C. §1281) and other federal funding available for this purpose.
13. Encourage, in conjunction with other agencies, voluntary implementation of best management practices (BMPs) to control nonpoint sources of pollutants in order to support designated uses and meet Navajo Nation narrative and numeric water quality

standards.

14. Examine existing and future Navajo Nation policies pertaining to septic systems, solid waste disposal, range management practices, and any other relevant activities to ensure that these policies are sufficient to meet narrative and numeric water quality standards.
15. Require that sufficient instream flows be maintained to support designated uses and meet narrative and numeric water quality standards.
16. Require that surface and groundwater withdrawals do not cause degradation of surface or ground water bodies.
17. Conduct an antidegradation analysis for regulated actions that may potentially impair water quality.

§ 205 NARRATIVE NUTRIENT STANDARD IMPLEMENTATION PLAN

- A. The implementation plan in this Section applies to lakes and reservoirs.
- B. The narrative nutrient standard in Section 202(A)(9) is met if sampling conducted during the peak season for lake productivity shows:
 1. The mean chlorophyll-a concentration is less than the lower value in the target range chlorophyll-a for the lake category; or
 2. The mean chlorophyll-a concentration is within the target range for the lake category and:
 - a. The mean blue green algae count is at or below 20,000 per milliliter, and
 - b. The blue green algae count is less than 50 percent of the total algae count, and
 - c. There is no evidence of nutrient-related impairments such as:
 - i. An exceedance of dissolved oxygen or pH exceedance;
 - ii. A fish kill occurring with dissolved oxygen or pH exceedance;
 - iii. A fish kill or other aquatic organism mortality occurring with algal toxicity;
 - iv. Secchi depth is less than the lower value prescribed for the lake category;

- v. A nuisance algal bloom is present in the lacustrine portion of the lake or reservoir; or
 - vi. The concentration of total phosphorous, total nitrogen, or total Kjeldahl nitrogen (TKN) is greater than the upper value in the range prescribed for the lake category;
3. Submerged aquatic vegetation covers 50 percent or less of the lake bottom of a shallow lake and there is less than a 5 milligram per liter change in diel dissolved concentrations measured within the photic zone.

C. The following threshold ranges apply during the peak season for lake productivity:

- 1. Warm water lakes peak season, April - October;
- 2. Cold water lakes peak season, May – September.

D. Table 205.1 lists the numeric targets for lakes and reservoirs:

| Table 205.1 Numeric Targets for Lakes and Reservoirs | | | | | | | | | | |
|--|---------------|--------------|------------------|-------------------------|-----------------------|-------------------------------|---------------------------|-------------------------------|-------------------------|---------|
| Designated Use | Lake Category | Chl-a (ug/L) | Secchi Depth (m) | Total Phosphorus (ug/L) | Total Nitrogen (mg/L) | Total Kjeldahl Nitrogen (TKN) | Blue-Green Algae (per ml) | Blue-Green Algae (% of total) | Dissolved Oxygen (mg/L) | pH |
| PrHC | Deep | 10–15 | 1.5-2.5 | 70-90 | 1.2-1.4 | 1.0-1.1 | 20,000 | | | 6.5-9.0 |
| | Shallow | 10-15 | 1.5-2.5 | 70-90 | 1.2-1.4 | 1.0-1.1 | | | | |
| | Igneous | 20-30 | 0.5-1.0 | 100-125 | 1.5-1.7 | 1.2-1.4 | | | | |
| | Sedimentary | 20-30 | 1.5-2.0 | 100-125 | 1.2-1.4 | 1.2-1.4 | | | | |
| A&W H _{bt} (cold water) | All | 5-15 | 1.5-2.0 | 50-90 | 1.0-1.4 | 0.7-1.1 | <50 | | 6.5-9.0 | |
| A&W H _{bt} (warm water) | All | 25-40 | 0.8-1.0 | 115-140 | 1.6-1.8 | 1.3-1.6 | | | | |
| Dom | All | 10-20 | 0.5-1.5 | 70-100 | 1.2-1.5 | 1.0-1.2 | 20,000 | | | 5.0-9.0 |

§ 206 DESIGNATED USE CLASSIFICATION SYSTEM FOR NAVAJO NATION SURFACE WATERS

A. The following are the designated uses for the surface waters of the Navajo Nation:

- Dom** **Domestic Water Supply:** Water body supports use of the water as a potable water supply.
- FC** **Fish Consumption:** Water body supports the use of the water by humans for harvesting aquatic organisms for consumption. Harvestable aquatic organisms include, but are not limited to, fish, shell-fish, turtles, crayfish, and frogs.
- PrHC** **Primary Human Contact:** Water body supports the use of the water that causes the human body to come into direct contact with the water, typically to the point of submergence in the water body, or probable ingestion of the water, or contact by the water with membrane material of the body. Examples include ceremonial uses, swimming and water-skiing.
- ScHC** **Secondary Human Contact:** Water body supports the use of water which may cause the water to come into direct contact with the skin of the body, but normally not to the point of submergence, ingestion of the water, or contact of the water with membrane material of the body. Such contact would occur incidentally and infrequently. Examples include ceremonial and other cultural uses, boating and fishing.
- AgWS** **Agricultural Water Supply:** Water body supports the use of the water for the irrigation of crops which could be used for human consumption.
- A&W** **Aquatic and Wildlife:** Water body supports the use of the water by animals, plants or other organisms, including salmonids and non-salmonids, and non-domestic animals (including migratory birds) for habitation, growth or propagation. Water body supports or is capable of supporting either cold water fishes, including trout species or warm water fishes including bass species, catfish species, and bluegill species. Water body supports the aquatic communities upon which cold and warm water fishes depend. Cold waters are waters that typically have temperatures below 20 °C. Warm waters are waters that typically have temperatures exceeding 20 °C. Water body supports prey base for non-domestic animals (including migratory birds).
- LW** **Livestock Watering:** Water body supports the use of the water by

livestock for consumption (ingestion).

- B. The Director shall adopt or remove a designated use or subcategory of a designated use by rule.
- C. The Director shall revise the designated uses of a surface water if water quality improvements result in a level of water quality that permits a use that is not currently listed as a designated use in Table 206.1.
- D. A use attainability analysis shall be conducted prior to removal of a designated use or adoption of a subcategory of a designated use that requires less stringent water quality criteria if the requirements of 40 CFR Section 131.10 are met.
- E. Table 206.1 lists the uses designated for the surface waters of the Navajo Nation. Each surface water body is geographically listed according to the Hydrologic Unit Code system developed by the United States Geological Survey (USGS) and published in the USGS's "Water Supply Paper Number 2294". The name of the water body is followed by columns listing the Sub region (or Basin) and Cataloging Unit. A sub region includes the area drained by a river system, a reach of a river and its tributaries in that reach. A cataloging unit is a geographic area representing part or all of a surface drainage basin, a combination of drainage basins, or a distinct hydrologic feature.
- F. If a surface water has more than one designated use listed in Table 206.1, the most stringent water quality standard applies.
- G. Water quality standards established for the attainment and maintenance of upstream surface water designated uses shall be sufficient to protect the attainment and maintenance of downstream surface water designated uses.
- H. The following minimum designated uses apply to a surface water that is not listed in Table 206.1 but that is a tributary to a listed surface water:
 - 1 The aquatic and wildlife, agricultural water supply, secondary human contact and livestock watering designated uses apply to a tributary that is an ephemeral water.
 - 2 The aquatic and wildlife, agricultural water supply, secondary human contact, primary human contact, fish consumption and livestock watering designated uses apply to an unlisted tributary that is a perennial or intermittent surface water.

§ 207 NUMERIC SURFACE WATER QUALITY STANDARDS

When a Water of the Navajo Nation has more than a single designated use, the applicable numeric standards shall be the most stringent of those established for that body of water.

- A. The numeric surface water quality standards for all Designated Uses may be found in Table 207.1.
- B. **E. coli Bacteria:** The following water quality standards for *Escherichia coli* (*E. coli*) are expressed in Colony Forming Units per 100 milliliters of water (CFU/100 ml), or as a Most Probable Number (MPN):

| E. coli | Dom | PrHC | ScHC |
|---|------------|-------------|-------------|
| Geometric mean (minimum of four samples in 30 days) | 126 | 126 | 126 |
| Single sample maximum | 235 | 235 | 575 |

- C. **pH:** The following water quality standards for pH are expressed in standard units:

| pH | Dom | PrHC, ScHC, & A&W | AgWS | LW |
|-----------|------------|----------------------------------|-------------|-----------|
| Maximum | 9.0 | 9.0 | 9.0 | 9.0 |
| Minimum | 5.0 | 6.5 | 4.5 | 6.5 |

- D. **Salinity:** To preserve the basin-wide approach to salinity control developed by the Colorado River Basin states, the NNSWQS adopts the plan of implementation contained in the "2014 Review, Water Quality Standards for Salinity, Colorado River System," Colorado River Basin Salinity Control Forum (October 2014).
- E. **Suspended Solids:** The following water quality standards for suspended solids concentration are expressed as a median value determined from a minimum of four samples collected at least 7 days apart. A suspended solids sample collected during or within 48 hours of a local precipitation event shall not be used to determine the median value. The suspended solids standards in this section only apply to lotic (flowing) surface waters.

A&W (warm water)

A&W (cold water)

80 mg/L

25 mg/L

F. **Temperature:** The maximum allowable increases in ambient water temperature, expressed in degrees Celsius, due to a thermal discharge are as follows:

| A&W (warm water) | A&W (cold water) |
|------------------|------------------|
| 3.0 | 1.0 |

This does not apply to a storm water discharge.

G. **Dissolved Oxygen:** The following are the water quality standards for dissolved oxygen:

| 1. Dissolved Oxygen | A&W (warm water) | A&W (cold water) |
|--|------------------|------------------|
| Single sample minimum (from a depth no greater than one meter.) | 6.0 mg/L | 7.0 mg/L |
| Single sample minimum (from a depth greater than one meter.) | 1.0 mg/L | 1.0 mg/L |

2. A surface water complies with the water quality standard for dissolved oxygen if the percent saturation of dissolved oxygen is equal to or greater than 90 percent from a depth no greater than one meter.

H. **Turbidity:** Turbidity attributable to other than natural causes shall not reduce light transmission to the point that the normal growth, function, or reproduction of aquatic life is impaired or that will cause substantial visible contrast with the natural appearance of the water. Turbidity shall not exceed 10 Nephelometric Turbidity Units (NTU) over background turbidity when the background turbidity is 50 NTU or less, or increase more than 20 percent when the background turbidity is more than 50 NTU. Background turbidity shall be measured at a point immediately upstream of the turbidity-causing activity.

I. **Mercury and Methylmercury:** The following are the water quality standards for mercury and methylmercury in total concentrations which apply only to Waters of the Navajo Nation listed in this section (§ 207 (I)):

| | A&W (chronic) |
|---------------|---------------|
| Mercury | 0.001 ug/L |
| Methylmercury | 0.00011 ug/L |

The mercury and methylmercury water quality standards listed in this section (§ 206 (I)) apply only to the following Waters of the Navajo Nation:

Colorado River and perennial tributaries,
Navajo Creek, perennial reaches
Little Colorado River, perennial reaches
Cow Springs Lake
White Mesa Lake
Asaayi Lake
Asaayi Creek, perennial reaches
Asaayi Creek – East Fork, perennial reaches
Red Lake
Trout Lake
Zuni River perennial tributaries
Bluewater Creek, perennial reaches
San Juan River and perennial tributaries
Cutter Dam Reservoir
Chuska Lake
Morgan Lake
Whiskey Lake
Chinle Creek/Chinle Wash, perennial reaches
Nazlini Wash, perennial reaches
Whiskey Creek, perennial reaches
Wheatfields Lake,
Canyon del Muerto Wash, perennial reaches
Tsaile Lake
Tsaile Creek, perennial reaches
Wheatfields Creek, perennial reaches
Aspen Lake
Round Rock Lake
Mancos River, perennial reaches

Information on the mercury and methylmercury chronic numeric standards for the aquatic and wildlife designated use may be found in the United States Fish and Wildlife Service's July 2006 fish tissue study entitled: "Methylmercury and Other Environmental Contaminants in Water and Fish Collected from Four Recreational Fishing Lakes on the Navajo Nation, 2004".

§ 208 SAMPLE COLLECTION AND ANALYSIS

- A. All sample collection methods used to obtain surface water and effluent samples shall be conducted according to the "Quality Assurance Plan (QAP) for Surface Water Quality Data Collection" and other applicable sample collection guidance documents approved by the Navajo Nation EPA Water Quality Program.

- B. All analytical methods conducted to evaluate compliance with water quality standards and to support any revisions to those standards, including all field and laboratory analyses to determine chemical, physical or biological conditions of water on the Navajo Nation, shall be conducted in accordance with approved procedures published in 40 CFR §136, "Guidelines Establishing Test Procedures for the Analysis of Pollutants" unless the Navajo Nation selects, by regulation, alternative test methods, including methods under review by EPA for inclusion in 40 CFR §136. Analytical test procedures referenced in and approved in 40 CFR §136 include but are not limited to those published by the American Public Health Association (*Standard Methods for the Examination of Water and Wastewater, 17th edition or latest edition*); by the American Society of Testing Materials; by the U.S. Environmental Protection Agency (*Methods for Chemical Analysis of Water and Wastes* and others); and by the U.S. Geological Survey (*Techniques of Water Resource Investigations of the U.S. Geological Survey publication series*).
- C. When an analytical result is reported as $<X$ or as $=X$, where X is the Method Reporting Limit for the analyte and the Method Reporting Limit is less than or equal to the surface water quality standard, the result will be considered as meeting the water quality standard.

§ 209 EXCEPTIONAL WATERS OF THE NAVAJO NATION

- A. The Director may classify a surface water as an Exceptional Water of the Navajo Nation (EWNN) by rule.
- B. The Director may adopt, under NNSWQS Section 212, a site-specific standard to maintain and protect existing water quality in an EWNN.
- C. Any person may nominate a surface water for classification as an EWNN by filing a nomination with the Director. The nomination shall include:
1. A map and a description of the surface water;
 2. A written statement in support of the nomination, including specific reference to the applicable criteria for an EWNN classification prescribed in Subsection (D);
 3. Supporting evidence demonstrating that the criteria in subsection (D) are met; and
 4. Available water quality data relevant to establishing the baseline water quality for the proposed EWNN
- D. The Director may classify a surface water as an EWNN based upon the following criteria:
1. The surface water is a perennial or intermittent water;
 2. The surface water is in a free-flowing condition. For the purposes of this subsection, "in a free-flowing condition" means that a surface waters does not have an impoundments, diversion, channelization, rip-rapping or other bank armor, or another hydrological modification within the reach nominated for an EWNN classification;
 3. The surface water has good water quality. For purposes of this subsection, "good

- water quality” means that the surface water has water quality that meets or is better than applicable surface water quality standards. A surface water that is listed as impaired is ineligible for EWNN classification; and
4. The surface water meets one or both of the following conditions:
 - a. The surface water is of exceptional cultural, ecological, and/or recreational significance because of its unique attributes, such as the geology, flora and fauna, water quality, aesthetic value, cultural resource value, and/or the wilderness characteristic of the surface water;
 - b. An endangered or threatened species is associated with the surface water and the existing water quality is essential to the species’ maintenance and propagation and/or the surface water provides critical habitat for the threatened or endangered species. An endangered or threatened species is identified by the Navajo Nation Fish and Wildlife Service.
 - E. The Director shall hold at least one public meeting in the local area of a surface water that is nominated for classification as an EWNN to solicit public comment on the nomination.
 - F. The Director shall consider the following factors when deciding whether to classify a surface water as an EWNN;
 1. Whether there is the ability to manage the surface water and its watershed to maintain and protect existing water quality;
 2. The social and economic impact of Tier 3 antidegradation protection;
 3. The public comments in support of, or in opposition to, an EWNN classification,
 4. The timing of the nomination relative to the triennial review of surface water quality standards;
 5. The consistency of an EWNN classification with applicable water quality management plans; and
 6. Whether the nominated surface water is located within a Navajo Nation park, National Monument, wilderness area, conservation area, area of critical environmental concern, or within another area with special use designation.

§ 210 VARIANCES

- A. The Director may grant a variance from a water quality standard for a point source discharge provided the discharger demonstrates that treatment more advanced than that required to comply with technology-based effluent limitations is necessary to comply with the water quality standard and:
 1. It is not technically feasible to achieve compliance within the next three years; or
 2. The cost of the treatment would result in substantial and widespread economic and social impact.

- B. A variance may be granted only on a pollutant-specific basis. A point source discharge is required to comply with all other applicable water quality standards for which a variance is not granted.
- C. A variance applies only to a specific point source discharge. The granting of a variance does not modify a water quality standard. Other point source dischargers to the surface water shall comply with applicable water quality standards, including any water quality standard for which a variance has been granted for a specific point source discharge.
- D. A variance is for a fixed term not to exceed three years. Variances are not renewable but may be reissued upon adequate justification.
- E. The Director shall reevaluate a variance upon the issuance, reissuance, or modification of the National Pollutant Discharge Elimination System permit for the point source discharge.
- F. A person who seeks a variance from a water quality standard shall submit a letter to the Director requesting a variance. A request for a variance shall include the following information:
1. Identification of the specific pollutant and water quality standard for which a variance is sought;
 2. Identification of the receiving surface water;
 3. For an existing point source discharge, a detailed description of the existing discharge control technologies that are used to achieve compliance with applicable water quality standards. For a new point source discharge, a detailed description of the proposed discharge control technologies that will be used to achieve compliance with applicable water quality standards;
 4. Documentation that the existing or proposed discharge control technologies will comply with applicable technology-based effluent limitations and that more advanced treatment technology is necessary to achieve compliance with the water quality standard for which a variance is sought;
 5. A detailed discussion of the reasons why compliance with the water quality standard cannot be achieved;
 6. A detailed discussion of the discharge control technologies that are available for achieving compliance with the water quality standard for which a variance is sought;
 7. Documentation of one or both of the following:

- a. That it is not technically feasible to install and operate any of the available discharge control technologies to achieve compliance with the water quality standard for which a variance is sought; or
 - b. That installation and operation of each of the available discharge technologies to achieve compliance with the water quality standard would result in substantial and widespread economic and social impact;
8. Documentation that the point source discharger has reduced, to the maximum extent practicable, the discharge of the pollutant for which a variance is sought through implementation of pretreatment, source reduction, or waste minimization program;
 9. A detailed description of proposed interim discharge limitations that represent the highest level of treatment achievable by the point source discharge during the term of the variance. Interim discharge limitations shall not be less stringent than technology-based effluent limitations.
- G. In making a decision on whether to grant or deny the request for a variance, the Director shall consider the following factors: bioaccumulation, bioconcentration, predicted exposure on biota and the likelihood that resident biota will be adversely affected, the known or predicted safe exposure levels for the pollutant of concern, and the likelihood of adverse human health effects.
- H. The Director shall issue public notice and shall provide an opportunity for a public hearing on whether the request for a variance should be granted or denied.
- I. The Director shall not grant a variance for a point source discharge to an Exceptional Water of the Navajo Nation.
- J. A variance is subject to review and approval by the Regional Administrator.

§ 211 WASTEWATER MIXING ZONES

- A. A wastewater mixing zone is a defined and limited part of a surface water body with defined boundaries adjacent to a point source of pollution, in which initial dilution of wastewater occurs, and in which certain numeric water quality standards may apply. All mixing zones are subject to the following requirements:
1. Mixing zones shall be limited to perennial streams, lakes and reservoirs;

2. All mixing zones shall have defined boundaries, beyond which applicable water quality standards shall be met;
 3. In no instance shall narrative water quality standards described in §202 of this document be violated;
 4. In no instance shall the concentration of any toxic pollutant exceed the aquatic and wildlife acute numeric standard for the pollutant. The aquatic and wildlife acute numeric standard for all toxic pollutants shall be met at the point of discharge;
 5. In perennial streams, a continuous zone of passage around a mixing zone shall be maintained in which all applicable water quality standards are met, and which provides for migration of aquatic life without exposure to pollutant concentrations that exceed chronic toxicity for aquatic and wildlife numeric standards. The zone of passage shall be at least 50 % of the cross-sectional area of the stream;
 6. In no instance shall mixing zones constitute more than 10% of the surface area of a lake or reservoir; boundaries of adjacent mixing zones in a lake or reservoir shall be no closer than the largest horizontal dimension of either mixing zone; and
 7. A mixing zone is prohibited for the following persistent, bioaccumulative pollutants:
 - a) Chlordane,
 - b) DDT and its metabolites (DDD and DDE),
 - c) Dieldrin,
 - d) Dioxin,
 - e) Endrin,
 - f) Endrin aldehyde,
 - g) Heptachlor,
 - h) Heptachlor epoxide,
 - i) Lindane,
 - j) Mercury,
 - k) PCBs, and
 - l) Toxaphene.
- B. The Navajo Nation shall consider the requirements in subsections 1 through 6 in determining whether to grant or deny a mixing zone.
- C. The water quality criteria in these regulations shall apply within a mixing zone unless specific alternative criteria have been approved by the Navajo Nation Environmental Protection Agency and concurred upon by the U.S. Environmental Protection Agency.

Mixing zones shall not be granted in lieu of reasonable control measures to reduce point source pollutant discharges but will be granted to complement such control measures. A limited mixing zone, serving as a zone of initial dilution in the immediate area of a point source of pollution, may be allowed if the conditions set out in this part are met.

§ 212 SITE-SPECIFIC STANDARDS

- A. The Director shall adopt a site-specific standard by rule.
- B. The Director may modify an existing water quality standard to protect aquatic life to be more or less stringent or adopt a new site-specific standard for any of the following reasons:
 - 1. Local physical, chemical, or hydrological conditions of a surface water such as pH, hardness, or temperature alters the biological availability or toxicity of a pollutant.
 - 2. The sensitivity of resident aquatic organisms that occur in a surface water to a pollutant differs from the sensitivity of the species used to derive the numeric water quality standards to protect aquatic life in Table 207.1.
 - 3. Resident aquatic organisms that occur in a surface water represent a different mix of species than those in the dataset used by Navajo Nation EPA to derive numeric water quality standards to protect aquatic life in Table 207.1; or
 - 4. The natural background concentration of a pollutant is greater than the numeric water quality standard to protect aquatic life prescribed in Table 207.1.
- C. A site-specific standard shall be supported by a site-specific standards study. A site-specific standard study shall be conducted according to approved procedures, including any of the following:
 - 1. The Recalculation Procedure,
 - 2. Water-Effects Ratio Procedure,
 - 3. Resident Species Procedure,
 - 4. Streamlined Water Effects Ratio Procedure for Discharges of Copper, and
 - 5. Natural Background Determination Procedures.
- D. The Recalculation, Water-Effects Ratio and Resident Species procedures are contained in

§3.7 and Appendix L of the Water Quality Standards Handbook, Second Edition, U.S. Environmental Protection Agency, Office of Water, EPA 823-8-94-005a, (August 1994) (and no future editions). The Streamlined Water Effects Ratio Procedure for Copper is contained in “Streamlined Water-Effect Ratio Procedure for Discharges of Copper,” U.S. Environmental Protection Agency, Office of Water, (EPA-822-R-01-005) (March, 2001) (and no future editions) which are incorporated by reference.

- E. The Director may establish a site-specific standard based on the natural background condition. For purposes of this subsection, “natural background” means the background concentration of a pollutant in a surface water due only to non-anthropogenic sources. A site-specific standard based on the natural background condition shall be established at a concentration that is equal to the natural background concentration. A determination of natural background shall:
1. Consider natural spatial and temporal variability as appropriate;
 2. Document the natural sources of the pollutant;
 3. Document the absence of human sources of the pollutant or quantify the human contribution; and
 4. Rely on analytical methods, statistical methods and/or modeling methods to quantify the natural background.
- F. The Director shall not adopt site-specific standards to protect human health.

§ 213 NATURAL BACKGROUND

Where the concentration of a pollutant exceeds a water quality standard and the exceedance is not anthropogenic but is due to natural background conditions, the exceedance shall not be considered a violation of the water quality standard.

§ 214 BIOLOGICAL STANDARDS (RESERVED)

Table 206.1 Designated Uses for Navajo Nation Surface Waters

| Surface Water Body (Within the jurisdiction of the Navajo Nation) | Basin | Cataloging Unit | Domestic Water Supply (Dom) | Primary Human Contact (PrHC) | Secondary Human Contact (ScHC) | Agricultural Water Supply (AgWS) | Fish Consumption (FC) | Aquatic & Wildlife (A&W) | Livestock Watering (LW) |
|--|-----------------------------------|--|-----------------------------|------------------------------|--------------------------------|----------------------------------|-----------------------|--------------------------|-------------------------|
| Big Canyon, ephemeral reaches | Little Colorado | Lower Colorado-Marble Canyon | | | ScHC | AgWS | | A&W | LW |
| Big Canyon, perennial and intermittent reaches | Little Colorado | Lower Colorado-Marble Canyon | | PrHC | ScHC | AgWS | FC | A&W | LW |
| Salt Trail Canyon, ephemeral reaches | Little Colorado | Lower Colorado-Marble Canyon | | | ScHC | AgWS | | A&W | LW |
| Salt Trail Canyon, perennial and intermittent reaches | Little Colorado | Lower Colorado-Marble Canyon | | PrHC | ScHC | AgWS | FC | A&W | LW |
| Tatahatso Wash, ephemeral reaches | Lower Colorado | Lower Colorado-Marble Canyon | | | ScHC | AgWS | | A&W | LW |
| Tatahatso Wash, perennial and intermittent reaches | Lower Colorado | Lower Colorado-Marble Canyon | | PrHC | ScHC | AgWS | FC | A&W | LW |
| Shinumo Wash, ephemeral reaches | Lower Colorado | Lower Colorado-Marble Canyon | | | ScHC | AgWS | | A&W | LW |
| Shinumo Wash, perennial and intermittent reaches | Lower Colorado | Lower Colorado-Marble Canyon | | PrHC | ScHC | AgWS | FC | A&W | LW |
| Tiger Wash, ephemeral reaches | Lower Colorado | Lower Colorado-Marble Canyon | | | ScHC | AgWS | | A&W | LW |
| Tiger Wash, perennial and intermittent reaches | Lower Colorado | Lower Colorado-Marble Canyon | | PrHC | ScHC | AgWS | FC | A&W | LW |
| Tanner Wash, ephemeral reaches | Lower Colorado | Lower Colorado-Marble Canyon | | | ScHC | AgWS | | A&W | LW |
| Tanner Wash, perennial and intermittent reaches | Lower Colorado | Lower Colorado-Marble Canyon | | PrHC | ScHC | AgWS | FC | A&W | LW |
| Colorado River, warm water reaches | Lower Colorado and Upper Colorado | Lower Colorado-Marble Canyon and Lower Lake Powell | Dom | PrHC | ScHC | AgWS | FC | A&W | LW |
| Colorado River, cold water reaches | Lower Colorado and Upper Colorado | Lower Colorado-Marble Canyon and Lower Lake Powell | Dom | PrHC | ScHC | AgWS | FC | A&W | LW |
| Antelope Creek, ephemeral reaches | Upper Colorado | Lower Lake Powell | | | ScHC | AgWS | | A&W | LW |
| Antelope Creek, perennial and intermittent reaches | Upper Colorado | Lower Lake Powell | | PrHC | ScHC | AgWS | FC | A&W | LW |
| Kaibito Creek, ephemeral reaches | Upper Colorado | Lower Lake Powell | | | ScHC | AgWS | | A&W | LW |

Table 206.1 Designated Uses for Navajo Nation Surface Waters (continued)

| Surface Water Body (Within the jurisdiction of the Navajo Nation) | Basin | Cataloging Unit | Domestic Water Supply (Dom) | Primary Human Contact (PrHC) | Secondary Human Contact (ScHC) | Agricultural Water Supply (AgWS) | Fish Consumption (FC) | Aquatic & Wildlife (A&W) | Livestock Watering (LW) |
|--|-----------------|-----------------------|-----------------------------|------------------------------|--------------------------------|----------------------------------|-----------------------|--------------------------|-------------------------|
| Kaibito Creek, perennial and intermittent reaches | Upper Colorado | Lower Lake Powell | | PrHC | ScHC | AgWS | FC | A&W | LW |
| Navajo Creek, ephemeral reaches | Upper Colorado | Lower Lake Powell | | | ScHC | AgWS | | A&W | LW |
| Navajo Creek, perennial and intermittent reaches | Upper Colorado | Lower Lake Powell | | PrHC | ScHC | AgWS | FC | A&W | LW |
| Aztec Creek, ephemeral reaches | Upper Colorado | Lower Lake Powell | | | ScHC | AgWS | | A&W | LW |
| Aztec Creek, perennial and intermittent reaches | Upper Colorado | Lower Lake Powell | | PrHC | ScHC | AgWS | FC | A&W | LW |
| Little Colorado River, mouth to origin of perennial flow (between mouth of Lee Canyon and USGS Gaging Station) | Little Colorado | Lower Little Colorado | Dom | PrHC | ScHC | AgWS | FC | A&W | LW |
| Little Colorado River, ephemeral reaches | Little Colorado | Lower Little Colorado | | | | AgWS | | A&W | LW |
| Little Colorado River, perennial and intermittent reaches | Little Colorado | Lower Little Colorado | | PrHC | ScHC | AgWS | FC | A&W | LW |
| Lee Canyon, ephemeral reaches | Little Colorado | Lower Little Colorado | | | ScHC | AgWS | | A&W | LW |
| Lee Canyon, perennial and intermittent reaches | Little Colorado | Lower Little Colorado | | PrHC | ScHC | AgWS | FC | A&W | LW |
| Moenkopi Wash, ephemeral reaches | Little Colorado | Moenkopi Wash | | | ScHC | AgWS | | A&W | LW |
| Moenkopi Wash, perennial and intermittent reaches | Little Colorado | Moenkopi Wash | | PrHC | ScHC | AgWS | FC | A&W | LW |
| Hamblin Wash, ephemeral reaches | Little Colorado | Moenkopi Wash | | | ScHC | AgWS | | A&W | LW |
| Hamblin Wash, perennial and intermittent reaches | Little Colorado | Moenkopi Wash | | PrHC | ScHC | AgWS | FC | A&W | LW |
| Begashibito Wash, ephemeral reaches | Little Colorado | Moenkopi Wash | | | ScHC | AgWS | | A&W | LW |
| Begashibito Wash, perennial and intermittent reaches | Little Colorado | Moenkopi Wash | | PrHC | ScHC | AgWS | FC | A&W | LW |
| Shonto Wash, ephemeral reaches | Little Colorado | Moenkopi Wash | | | ScHC | AgWS | | A&W | LW |
| Shonto Wash, perennial and intermittent reaches | Little Colorado | Moenkopi Wash | | PrHC | ScHC | AgWS | FC | A&W | LW |

Table 206.1 Designated Uses for Navajo Nation Surface Waters (continued)

| Surface Water Body (Within the jurisdiction of the Navajo Nation) | Basin | Cataloging Unit | Domestic Water Supply (Dom) | Primary Human Contact (PrHC) | Secondary Human Contact (ScHC) | Agricultural Water Supply (AgWS) | Fish Consumption (FC) | Aquatic & Wildlife (A&W) | Livestock Watering (LW) |
|--|-----------------|-----------------------|-----------------------------|------------------------------|--------------------------------|----------------------------------|-----------------------|--------------------------|-------------------------|
| Cow Springs Lake | Little Colorado | Moenkopi Wash | | PrHC | ScHC | AgWS | FC | A&W | LW |
| White Mesa Lake | Little Colorado | Moenkopi Wash | | PrHC | ScHC | AgWS | FC | A&W | LW |
| Tappan Wash, ephemeral reaches | Little Colorado | Lower Little Colorado | | | ScHC | AgWS | | A&W | LW |
| Tappan Wash, perennial and intermittent reaches | Little Colorado | Lower Little Colorado | | PrHC | ScHC | AgWS | FC | A&W | LW |
| Cedar Wash, ephemeral reaches | Little Colorado | Lower Little Colorado | | | ScHC | AgWS | | A&W | LW |
| Cedar Wash, perennial and intermittent reaches | Little Colorado | Lower Little Colorado | | PrHC | ScHC | AgWS | FC | A&W | LW |
| Deadman Wash, ephemeral reaches | Little Colorado | Lower Little Colorado | | | ScHC | AgWS | | A&W | LW |
| Deadman Wash, perennial and intermittent reaches | Little Colorado | Lower Little Colorado | | PrHC | ScHC | AgWS | FC | A&W | LW |
| Canyon Diablo, ephemeral reaches | Little Colorado | Canyon Diablo | | | ScHC | AgWS | | A&W | LW |
| Canyon Diablo, perennial and intermittent reaches | Little Colorado | Canyon Diablo | | PrHC | ScHC | AgWS | FC | A&W | LW |
| San Francisco Wash, ephemeral reaches | Little Colorado | Canyon Diablo | | | ScHC | AgWS | | A&W | LW |
| San Francisco Wash, perennial and intermittent reaches | Little Colorado | Canyon Diablo | | PrHC | ScHC | AgWS | FC | A&W | LW |
| Padre Canyon, ephemeral reaches | Little Colorado | Canyon Diablo | | | ScHC | AgWS | | A&W | LW |
| Padre Canyon, perennial and intermittent reaches | Little Colorado | Canyon Diablo | | PrHC | ScHC | AgWS | FC | A&W | LW |
| Youngs Canyon, ephemeral reaches | Little Colorado | Canyon Diablo | | | ScHC | AgWS | FC | A&W | LW |
| Youngs Canyon, perennial and intermittent reaches | Little Colorado | Canyon Diablo | | PrHC | ScHC | AgWS | FC | A&W | LW |
| Yellow Jacket Canyon, ephemeral reaches | Little Colorado | Canyon Diablo | | | ScHC | AgWS | | A&W | LW |
| Yellow Jacket Canyon, perennial and intermittent reaches | Little Colorado | Canyon Diablo | | PrHC | ScHC | AgWS | FC | A&W | LW |

Table 206.1 Designated Uses for Navajo Nation Surface Waters (continued)

| Surface Water Body (Within the jurisdiction of the Navajo Nation) | Basin | Cataloging Unit | Domestic Water Supply (Dom) | Primary Human Contact (PrHC) | Secondary Human Contact (ScHC) | Agricultural Water Supply (AgWS) | Fish Consumption (FC) | Aquatic & Wildlife (A&W) | Livestock Watering (LW) |
|---|-----------------|------------------------|------------------------------------|-------------------------------------|---------------------------------------|---|------------------------------|---|--------------------------------|
| Dinnebito Wash, ephemeral reaches | Little Colorado | Dinnebito Wash | | | ScHC | AgWS | | A&W | LW |
| Dinnebito Wash, perennial and intermittent reaches | Little Colorado | Dinnebito Wash | | PrHC | ScHC | AgWS | FC | A&W | LW |
| East Fork Dinnebito Wash, ephemeral reaches | Little Colorado | Dinnebito Wash | | | ScHC | AgWS | | A&W | LW |
| East Fork Dinnebito Wash, perennial and intermittent reaches | Little Colorado | Dinnebito Wash | | PrHC | ScHC | AgWS | FC | A&W | LW |
| Corn Creek Wash, ephemeral reaches | Little Colorado | Corn-Oraibi | | | ScHC | AgWS | | A&W | LW |
| Corn Creek Wash, perennial and intermittent reaches | Little Colorado | Corn-Oraibi | | PrHC | ScHC | AgWS | FC | A&W | LW |
| Oraibi Wash, ephemeral reaches | Little Colorado | Corn-Oraibi | | | ScHC | AgWS | | A&W | LW |
| Oraibi Wash, perennial and intermittent reaches | Little Colorado | Corn-Oraibi | | PrHC | ScHC | AgWS | FC | A&W | LW |
| Polacca Wash, ephemeral reaches | Little Colorado | Polacca Wash | | | ScHC | AgWS | | A&W | LW |
| Pollaca Wash, perennial and intermittent reaches | Little Colorado | Polacca Wash | | PrHC | ScHC | AgWS | FC | A&W | LW |
| Jeddito Wash, ephemeral reaches | Little Colorado | Jeddito Wash | | | ScHC | AgWS | | A&W | LW |
| Jeddito Wash, perennial and intermittent reaches | Little Colorado | Jeddito Wash | | PrHC | ScHC | AgWS | FC | A&W | LW |
| Little Colorado River ephemeral reaches | Little Colorado | Middle Little Colorado | | | ScHC | AgWS | | A&W | LW |
| Little Colorado River, perennial and intermittent reaches | Little Colorado | Middle Little Colorado | | PrHC | ScHC | AgWS | FC | A&W | LW |
| Cottonwood Wash, ephemeral reaches | Little Colorado | Cottonwood Wash | | | ScHC | AgWS | | A&W | LW |
| Cottonwood Wash, perennial and intermittent reaches | Little Colorado | Cottonwood Wash | | PrHC | ScHC | AgWS | FC | A&W | LW |
| Kinlichee Creek , ephemeral reaches | Little Colorado | Cottonwood Wash | | | ScHC | AgWS | | A&W | LW |

Table 206.1 Designated Uses for Navajo Nation Surface Waters (continued)

| Surface Water Body (Within the jurisdiction of the Navajo Nation) | Basin | Cataloging Unit | Domestic Water Supply (Dom) | Primary Human Contact (PrHC) | Secondary Human Contact (ScHC) | Agricultural Water Supply (AgWS) | Fish Consumption (FC) | Aquatic & Wildlife (A&W) | Livestock Watering (LW) |
|--|-----------------|-----------------------------|-----------------------------|------------------------------|--------------------------------|----------------------------------|-----------------------|--------------------------|-------------------------|
| Kinlichee Creek , perennial and intermittent reaches | Little Colorado | Cottonwood Wash | | PrHC | ScHC | AgWS | FC | A&W | LW |
| Scattered Willow Wash , ephemeral reaches | Little Colorado | Cottonwood Wash | | | ScHC | AgWS | | A&W | LW |
| Scattered Willow Wash , perennial and intermittent reaches | Little Colorado | Cottonwood Wash | | PrHC | ScHC | AgWS | FC | A&W | LW |
| Black Soil Wash , ephemeral reaches | Little Colorado | Cottonwood Wash | | | ScHC | AgWS | | A&W | LW |
| Black Soil Wash , perennial and intermittent reaches | Little Colorado | Cottonwood Wash | | PrHC | ScHC | AgWS | FC | A&W | LW |
| Willow Creeek , ephemeral reaches | Little Colorado | Cottonwood Wash | | | ScHC | AgWS | | A&W | LW |
| Willow Creek, perennial and intermittent reaches | Little Colorado | Cottonwood Wash | | PrHC | ScHC | AgWS | FC | A&W | LW |
| Ganado Lake | Little Colorado | Cottonwood Wash | | PrHC | ScHC | AgWS | FC | A&W | LW |
| Pueblo Colorado Wash, ephemeral reaches | Little Colorado | Cottonwood Wash | | | ScHC | AgWS | | A&W | LW |
| Pueblo Colorado Wash, perennial and intermittent reaches | Little Colorado | Cottonwood Wash | | PrHC | ScHC | AgWS | FC | A&W | LW |
| Leroux Wash, ephemeral reaches | Little Colorado | Leroux Wash | | | ScHC | AgWS | | A&W | LW |
| Leroux Wash, perennial and intermittent reaches | Little Colorado | Cottonwood Wash | | PrHC | ScHC | AgWS | FC | A&W | LW |
| Antelope Lake (cold water) | Little Colorado | Leroux Wash | | PrHC | ScHC | AgWS | FC | A&W | LW |
| Puerco River, ephemeral reaches | Little Colorado | Upper Puerco & Lower Puerco | | | ScHC | AgWS | | A&W | LW |
| Puerco River, perennial and intermittent reaches | Little Colorado | Upper Puerco & Lower Puerco | | PrHC | ScHC | AgWS | FC | A&W | LW |
| Black Creek, ephemeral reaches | Little Colorado | Upper Puerco | | | ScHC | AgWS | | A&W | LW |
| Black Creek, perennial and intermittent reaches | Little Colorado | Upper Puerco | | PrHC | ScHC | AgWS | FC | A&W | LW |
| Tohdildonih Wash, ephemeral reaches | Little Colorado | Upper Puerco | | | ScHC | AgWS | | A&W | LW |
| Tohdildonih Wash, perennial and intermittent reaches | Little Colorado | Upper Puerco | | PrHC | ScHC | AgWS | FC | A&W | LW |
| Asaayi Lake (cold water) | Little Colorado | Upper Puerco | | PrHC | ScHC | AgWS | FC | A&W | LW |

Table 206.1 Designated Uses for Navajo Nation Surface Waters (continued)

| Surface Water Body (Within the jurisdiction of the Navajo Nation) | Basin | Cataloging Unit | Domestic Water Supply (Dom) | Primary Human Contact (PrHC) | Secondary Human Contact (ScHC) | Agricultural Water Supply (AgWS) | Fish Consumption (FC) | Aquatic & Wildlife (A&W) | Livestock Watering (LW) |
|--|-----------------|-----------------|-----------------------------|------------------------------|--------------------------------|----------------------------------|-----------------------|--------------------------|-------------------------|
| Asaayi Creek, ephemeral reaches | Little Colorado | Upper Puerco | | | ScHC | AgWS | | A&W | LW |
| Asaayi Creek, perennial and intermittent reaches | Little Colorado | Upper Puerco | | PrHC | ScHC | AgWS | FC | A&W | LW |
| Asaayi Creek - East Fork, ephemeral reaches | Little Colorado | Upper Puerco | | | ScHC | AgWS | | A&W | LW |
| Asaayi Creek - East Fork, perennial and intermittent reaches | Little Colorado | Upper Puerco | | PrHC | ScHC | AgWS | FC | A&W | LW |
| Bonito Creek, ephemeral reaches | Little Colorado | Upper Puerco | | | ScHC | AgWS | | A&W | LW |
| Bonito Creek, perennial and intermittent reaches | Little Colorado | Upper Puerco | | PrHC | ScHC | AgWS | FC | A&W | LW |
| Red Lake | Little Colorado | Upper Puerco | | PrHC | ScHC | AgWS | FC | A&W | LW |
| Trout Lake (cold water) | Little Colorado | Upper Puerco | | PrHC | ScHC | AgWS | FC | A&W | LW |
| Rio Pescado, ephemeral reaches | Little Colorado | Zuni River | | | ScHC | AgWS | | A&W | LW |
| Rio Pescado, perennial and intermittent reaches | Little Colorado | Zuni River | | PrHC | ScHC | AgWS | FC | A&W | LW |
| Zuni River tributaries, ephemeral reaches | Little Colorado | Zuni River | | | ScHC | AgWS | | A&W | LW |
| Zuni River tributaries, perennial and intermittent reaches | Little Colorado | Zuni River | | PrHC | ScHC | AgWS | FC | A&W | LW |
| Arroyo Chico and tributaries, ephemeral reaches | Rio Grande | Arroyo Chico | | | ScHC | AgWS | | A&W | LW |
| Arroyo Chico and tributaries perennial and intermittent reaches | Rio Grande | Arroyo Chico | | PrHC | ScHC | AgWS | FC | A&W | LW |
| Torreón Wash, ephemeral reaches | Rio Grande | Arroyo Chico | | | ScHC | AgWS | | A&W | LW |
| Torreón Wash, perennial and intermittent reaches | Rio Grande | Arroyo Chico | | PrHC | ScHC | AgWS | FC | A&W | LW |
| Unnamed ephemeral tributaries and playas | Rio Grande | North Plains | | | ScHC | AgWS | | A&W | LW |
| Unnamed perennial and intermittent tributaries and playas | Rio Grande | North Plains | | PrHC | ScHC | AgWS | FC | A&W | LW |
| Rio Puerco and tributaries, ephemeral reaches | Rio Grande | Rio Puerco | | | ScHC | AgWS | | A&W | LW |

Table 206.1 Designated Uses for Navajo Nation Surface Waters (continued)

| Surface Water Body (Within the jurisdiction of the Navajo Nation) | Basin | Cataloging Unit | Domestic Water Supply (Dom) | Primary Human Contact (PrHC) | Secondary Human Contact (ScHC) | Agricultural Water Supply (AgWS) | Fish Consumption (FC) | Aquatic & Wildlife (A&W) | Livestock Watering (LW) |
|---|------------|-----------------------------|-----------------------------|------------------------------|--------------------------------|----------------------------------|-----------------------|--------------------------|-------------------------|
| Rio Puerco and tributaries perennial and intermittent reaches | Rio Grande | Rio Puerco | | PrHC | ScHC | AgWS | FC | A&W | LW |
| Rio Salado and tributaries, ephemeral reaches | Rio Grande | Rio Salado | | | ScHC | AgWS | | A&W | LW |
| Rio Salado and tributaries perennial and intermittent reaches | Rio Grande | Rio Salado | | PrHC | ScHC | AgWS | FC | A&W | LW |
| Alamo Creek, ephemeral reaches | Rio Grande | Rio Salado | | | ScHC | AgWS | | A&W | LW |
| Alamo Creek, perennial and intermittent reaches | Rio Grande | Rio Salado | | PrHC | ScHC | AgWS | FC | A&W | LW |
| Rio San Jose ephemeral tributaries | Rio Grande | Rio San Jose | | | ScHC | AgWS | | A&W | LW |
| Rio San Jose perennial and intermittent tributaries | Rio Grande | Rio San Jose | | PrHC | ScHC | AgWS | FC | A&W | LW |
| Bluewater Creek, ephemeral reaches | Rio Grande | Rio San Jose | | | ScHC | AgWS | | A&W | LW |
| San Juan River | San Juan | Lower San Juan Four Corners | Dom | PrHC | ScHC | AgWS | FC | A&W | LW |
| Ephemeral tributaries to the San Juan River (except as listed below) | San Juan | Lower San Juan Four Corners | | | ScHC | AgWS | | A&W | LW |
| Perennial and intermittent tributaries to the San Juan River (except as listed below) | San Juan | Lower San Juan Four Corners | | PrHC | ScHC | AgWS | FC | A&W | LW |
| Desert Creek, ephemeral reaches | San Juan | Lower San Juan Four Corners | | | ScHC | AgWS | | A&W | LW |
| Desert Creek, perennial and intermittent reaches | San Juan | Lower San Juan Four Corners | | PrHC | ScHC | AgWS | FC | A&W | LW |
| Gothic Creek, ephemeral reaches | San Juan | Lower San Juan Four Corners | | | ScHC | AgWS | | A&W | LW |
| Gothic Creek, perennial and intermittent reaches | San Juan | Lower San Juan Four Corners | | PrHC | ScHC | AgWS | FC | A&W | LW |
| McCraken Canyon, ephemeral reaches | San Juan | Lower San Juan Four Corners | | | ScHC | AgWS | | A&W | LW |
| McCraken Canyon, perennial and intermittent reaches | San Juan | Lower San Juan Four Corners | | PrHC | ScHC | AgWS | FC | A&W | LW |
| Teec Nos Pos Wash, perennial and intermittent reaches | San Juan | Lower San Juan Four Corners | | PrHC | ScHC | AgWS | FC | A&W A&W | LW |
| Teec Nos Pos Wash, ephemeral reaches | San Juan | Lower San Juan Four Corners | | | ScHC | AgWS | | A&W | LW |

Table 206.1 Designated Uses for Navajo Nation Surface Waters (continued)

| Surface Water Body (Within the jurisdiction of the Navajo Nation) | Basin | Cataloging Unit | Domestic Water Supply (Dom) | Primary Human Contact (PrHC) | Secondary Human Contact (ScHC) | Agricultural Water Supply (AgWS) | Fish Consumption (FC) | Aquatic & Wildlife (A&W) | Livestock Watering (LW) |
|---|----------|-----------------------------|-----------------------------|------------------------------|--------------------------------|----------------------------------|-----------------------|--------------------------|-------------------------|
| Toh Dahstini Wash ephemeral reaches | San Juan | Lower San Juan Four Corners | | | ScHC | AgWS | FC | A&W A&W | LW |
| Toh Dahstini Wash perennial and intermittent reaches | San Juan | Lower San Juan Four Corners | | PrHC | ScHC | AgWS | FC | A&W | LW |
| San Juan River | San Juan | Lower San Juan River | Dom | PrHC | ScHC | AgWS | FC | A&W | LW |
| Ephemeral tributaries to the San Juan River (except as listed below) | San Juan | Lower San Juan River | | | ScHC | AgWS | | A&W | LW |
| Perennial and intermittent tributaries to the San Juan River (except as listed below) | San Juan | Lower San Juan River | | PrHC | ScHC | AgWS | FC | A&W | LW |
| Cha Canyon - perennial reaches | San Juan | Lower San Juan River | Dom | PrHC | ScHC | AgWS | FC | A&W | LW |
| Cha Canyon - intermittent reaches | San Juan | Lower San Juan River | | PrHC | ScHC | AgWS | FC | A&W | LW |
| Cha Canyon - ephemeral reaches | San Juan | Lower San Juan River | | | ScHC | AgWS | | A&W | LW |
| Gypsum Creek, , ephemeral reaches | San Juan | Lower San Juan River | | | ScHC | AgWS | | A&W | LW |
| Gypsum Creek, perennial and intermittent reaches | San Juan | Lower San Juan River | | PrHC | ScHC | AgWS | FC | A&W | LW |
| Nokai Canyon, ephemeral reaches | San Juan | Lower San Juan River | | | ScHC | AgWS | | A&W | LW |
| Nokai Canyon, perennial and intermittent reaches | San Juan | Lower San Juan River | | PrHC | ScHC | AgWS | FC | A&W | LW |
| Oljeto Wash, ephemeral reaches | San Juan | Lower San Juan River | | | ScHC | AgWS | | A&W A&W | LW |
| Oljeto Wash, perennial and intermittent reaches | San Juan | Lower San Juan River | | PrHC | ScHC | AgWS | FC | A&W A&W | LW |
| Piute Canyon, ephemeral reaches | San Juan | Lower San Juan River | | | ScHC | AgWS | | A&W | LW |
| Piute Canyon, perennial and intermittent reaches | San Juan | Lower San Juan River | | PrHC | ScHC | AgWS | FC | A&W | LW |
| San Juan River | San Juan | Middle San Juan River | Dom | PrHC | ScHC | AgWS | FC | A&W | LW |
| Ephemeral tributaries to the San Juan River (except as listed below) | San Juan | Middle San Juan River | | | ScHC | AgWS | | A&W | LW |
| Perennial and intermittent tributaries to the San Juan River (except as listed below) | San Juan | Middle San Juan River | | PrHC | ScHC | AgWS | FC | A&W | LW |

Table 206.1 Designated Uses for Navajo Nation Surface Waters (continued)

| Surface Water Body (Within the jurisdiction of the Navajo Nation) | Basin | Cataloging Unit | Domestic Water Supply (Dom) | Primary Human Contact (PrHC) | Secondary Human Contact (ScHC) | Agricultural Water Supply (AgWS) | Fish Consumption (FC) | Aquatic & Wildlife (A&W) | Livestock Watering (LW) |
|---|----------|-----------------------|-----------------------------|------------------------------|--------------------------------|----------------------------------|-----------------------|--------------------------|-------------------------|
| Baker Arroyo, ephemeral reaches | San Juan | Middle San Juan River | | | ScHC | AgWS | | A&W | LW |
| Baker Arroyo, perennial and intermittent reaches | San Juan | Middle San Juan River | | PrHC | ScHC | AgWS | FC | A&W | LW |
| Cove Wash, ephemeral reaches | San Juan | Middle San Juan River | | | ScHC | AgWS | | A&W | LW |
| Cove Wash, perennial and intermittent reaches | San Juan | Middle San Juan River | | PrHC | ScHC | AgWS | FC | A&W | LW |
| Eagle Nest Arroyo, ephemeral reaches | San Juan | Middle San Juan River | | | ScHC | AgWS | | A&W | LW |
| Eagle Nest Arroyo, perennial and intermittent reaches | San Juan | Middle San Juan River | | PrHC | ScHC | AgWS | FC | A&W | LW |
| Pine Wash, ephemeral reaches | San Juan | Middle San Juan River | | | ScHC | AgWS | | A&W | LW |
| Pine Wash, perennial and intermittent reaches | San Juan | Middle San Juan River | | PrHC | ScHC | AgWS | FC | A&W | LW |
| Ojo Amarillo, ephemeral reaches | San Juan | Middle San Juan River | | | ScHC | AgWS | | A&W | LW |
| Ojo Amarillo, perennial and intermittent reaches | San Juan | Middle San Juan River | | PrHC | ScHC | AgWS | FC | A&W | LW |
| Salt Creek Wash, ephemeral reaches | San Juan | Middle San Juan River | | | ScHC | AgWS | | A&W | LW |
| Salt Creek Wash, perennial and intermittent reaches | San Juan | Middle San Juan River | | PrHC | ScHC | AgWS | FC | A&W | LW |
| Standing Redrock Creek, ephemeral reaches | San Juan | Middle San Juan River | | | ScHC | AgWS | | A&W | LW |
| Standing Redrock Creek, perennial and intermittent reaches | San Juan | Middle San Juan River | | PrHC | ScHC | AgWS | FC | A&W | LW |
| Red Wash, ephemeral reaches | San Juan | Middle San Juan River | | | ScHC | AgWS | | A&W | LW |
| Red Wash, perennial and intermittent reaches | San Juan | Middle San Juan River | | PrHC | ScHC | AgWS | FC | A&W | LW |
| San Juan River | San Juan | Upper San Juan River | Dom | PrHC | ScHC | AgWS | FC | A&W | LW |
| Ephemeral tributaries to the San Juan River (except as listed below) | San Juan | Upper San Juan River | | | ScHC | AgWS | | A&W | LW |
| Perennial and intermittent tributaries to the San Juan River (except as listed below) | San Juan | Upper San Juan River | | PrHC | ScHC | AgWS | FC | A&W | LW |

Table 206.1 Designated Uses for Navajo Nation Surface Waters (continued)

| Surface Water Body (Within the jurisdiction of the Navajo Nation) | Basin | Cataloging Unit | Domestic Water Supply (Dom) | Primary Human Contact (PrHC) | Secondary Human Contact (ScHC) | Agricultural Water Supply (AgWS) | Fish Consumption (FC) | Aquatic & Wildlife (A&W) | Livestock Watering (LW) |
|--|----------|----------------------|-----------------------------|------------------------------|--------------------------------|----------------------------------|-----------------------|--------------------------|-------------------------|
| Gallegos Canyon, ephemeral reaches | San Juan | Upper San Juan River | | | ScHC | AgWS | | A&W | LW |
| Gallegos Canyon, perennial and intermittent reaches | San Juan | Upper San Juan River | | PrHC | ScHC | AgWS | FC | A&W | LW |
| West Fork Gallegos Canyon, ephemeral reaches | San Juan | Upper San Juan River | | | ScHC | AgWS | | A&W | LW |
| West Fork Gallegos Canyon, perennial and intermittent reaches | San Juan | Upper San Juan River | | PrHC | ScHC | AgWS | FC | A&W | LW |
| Blanco Canyon, ephemeral reaches | San Juan | Blanco Canyon | | | ScHC | AgWS | | A&W | LW |
| Blanco Canyon, perennial and intermittent reaches | San Juan | Blanco Canyon | | PrHC | ScHC | AgWS | FC | A&W | LW |
| Largo Canyon, ephemeral reaches | San Juan | Blanco Canyon | | | ScHC | AgWS | | A&W | LW |
| Largo Canyon, perennial and intermittent reaches | San Juan | Blanco Canyon | | PrHC | ScHC | AgWS | FC | A&W | LW |
| Cutter Dam Reservoir (cold and warm water) | San Juan | Blanco Canyon | | PrHC | ScHC | AgWS | FC | A&W | LW |
| Chaco River/Chaco Wash, perennial and intermittent reaches | San Juan | Chaco | | PrHC | ScHC | AgWS | FC | A&W | LW |
| Chaco River/Chaco Wash, ephemeral reaches | San Juan | Chaco | | | ScHC | AgWS | | A&W | LW |
| Dead Man's Wash, ephemeral reaches | San Juan | Chaco | | | ScHC | AgWS | | A&W | LW |
| Dead Man's Wash, perennial and intermittent reaches | San Juan | Chaco | | PrHC | ScHC | AgWS | FC | A&W | LW |
| Chinde Wash, , ephemeral reaches | San Juan | Chaco | | | ScHC | AgWS | | A&W | LW |
| Chinde Wash, perennial and intermittent reaches | San Juan | Chaco | | PrHC | ScHC | AgWS | FC | A&W | LW |
| Cottonwood Arroyo, ephemeral reaches | San Juan | Chaco | | | ScHC | AgWS | | A&W | LW |
| Cottonwood Arroyo, perennial and intermittent reaches | San Juan | Chaco | | PrHC | ScHC | AgWS | FC | A&W | LW |
| Sanostee Wash, perennial and intermittent reaches | San Juan | Chaco | | PrHC | ScHC | AgWS | FC | A&W | LW |
| Sanostee Wash, ephemeral reaches | San Juan | Chaco | | | ScHC | AgWS | | A&W | LW |
| Tocito Wash, ephemeral reaches | San Juan | Chaco | | | ScHC | AgWS | | A&W | LW |

Table 206.1 Designated Uses for Navajo Nation Surface Waters (continued)

| Surface Water Body (Within the jurisdiction of the Navajo Nation) | Basin | Cataloging Unit | Domestic Water Supply (Dom) | Primary Human Contact (PrHC) | Secondary Human Contact (ScHC) | Agricultural Water Supply (AgWS) | Fish Consumption (FC) | Aquatic & Wildlife (A&W) | Livestock Watering (LW) |
|---|--------------|------------------------|------------------------------------|-------------------------------------|---------------------------------------|---|------------------------------|---|--------------------------------|
| Tocito Wash, perennial and intermittent reaches | San Juan | Chaco | | PrHC | ScHC | AgWS | FC | A&W | LW |
| Brimhall Wash, ephemeral reaches | San Juan | Chaco | | | ScHC | AgWS | | A&W | LW |
| Brimhall Wash, perennial and intermittent reaches | San Juan | Chaco | | PrHC | ScHC | AgWS | FC | A&W | LW |
| Captain Tom Wash, perennial and intermittent reaches | San Juan | Chaco | | PrHC | ScHC | AgWS | FC | A&W | LW |
| Captain Tom Wash, ephemeral reaches | San Juan | Chaco | | | ScHC | AgWS | | A&W | LW |
| Captain Tom Reservoir | San Juan | Chaco | | PrHC | ScHC | AgWS | FC | A&W | LW |
| Hunter Wash, ephemeral reaches | San Juan | Chaco | | | ScHC | AgWS | | A&W | LW |
| Hunter Wash, perennial and intermittent reaches | San Juan | Chaco | | PrHC | ScHC | AgWS | FC | A&W | LW |
| Sheep Springs Wash, ephemeral reaches | San Juan | Chaco | | | ScHC | AgWS | | A&W | LW |
| Sheep Springs Wash, perennial and intermittent reaches | San Juan | Chaco | | PrHC | ScHC | AgWS | FC | A&W | LW |
| Coyote Wash, ephemeral reaches | San Juan | Chaco | | | ScHC | AgWS | | A&W | LW |
| Coyote Wash, perennial and intermittent reaches | San Juan | Chaco | | PrHC | ScHC | AgWS | FC | A&W | LW |
| Indian Creek, ephemeral reaches | San Juan | Chaco | | | ScHC | AgWS | | A&W | LW |
| Indian Creek, perennial and intermittent reaches | San Juan | Chaco | | PrHC | ScHC | AgWS | FC | A&W | LW |
| Red Willow Wash, ephemeral reaches | San Juan | Chaco | | | ScHC | AgWS | | A&W | LW |
| Red Willow Wash, perennial and intermittent reaches | San Juan | Chaco | | PrHC | ScHC | AgWS | FC | A&W | LW |
| De Na Zin Wash, ephemeral reaches | San Juan | Chaco | | | ScHC | AgWS | | A&W | LW |
| De Na Zin Wash, perennial and intermittent reaches | San Juan | Chaco | | PrHC | ScHC | AgWS | FC | A&W | LW |
| Berland Lake (cold water) | San Juan | Chaco | | PrHC | ScHC | AgWS | FC | A&W | LW |
| Chuska Lake (cold water) | San Juan | Chaco | | PrHC | ScHC | AgWS | FC | A&W | LW |
| Morgan Lake | San Juan | Chaco | | PrHC | ScHC | AgWS | FC | A&W | LW |

Table 206.1 Designated Uses for Navajo Nation Surface Waters (continued)

| Surface Water Body (Within the jurisdiction of the Navajo Nation) | Basin | Cataloging Unit | Domestic Water Supply (Dom) | Primary Human Contact (PrHC) | Secondary Human Contact (ScHC) | Agricultural Water Supply (AgWS) | Fish Consumption (FC) | Aquatic & Wildlife (A&W) | Livestock Watering (LW) |
|--|----------|-----------------|-----------------------------|------------------------------|--------------------------------|----------------------------------|-----------------------|--------------------------|-------------------------|
| Toadlena Fish Hatchery un-named ephemeral tributaries | San Juan | Chaco | | | ScHC | AgWS | | A&W | LW |
| Toadlena Fish Hatchery un-named intermittent and perennial tributaries | San Juan | Chaco | | PrHC | ScHC | AgWS | FC | A&W | LW |
| Whiskey Lake (cold water) | San Juan | Chaco | | PrHC | ScHC | AgWS | FC | A&W | LW |
| Alcove Canyon, perennial and intermittent reaches | San Juan | Chinle | | PrHC | ScHC | AgWS | FC | A&W | LW |
| Alcove Canyon, ephemeral reaches | San Juan | Chinle | | | ScHC | AgWS | | A&W | LW |
| White Rock Wash, perennial and intermittent reaches | San Juan | Chinle | | PrHC | ScHC | AgWS | FC | A&W | LW |
| White Rock Wash, ephemeral reaches | San Juan | Chinle | | | ScHC | AgWS | | A&W | LW |
| Chinle Creek/Chinle Wash, ephemeral reaches | San Juan | Chinle | | | ScHC | AgWS | | A&W | LW |
| Chinle Creek/Chinle Wash, perennial and intermittent reaches | San Juan | Chinle | | PrHC | ScHC | AgWS | FC | A&W | LW |
| Many Farms Lake | San Juan | Chinle | | PrHC | ScHC | AgWS | FC | A&W | LW |
| Walker Creek, perennial and intermittent reaches | San Juan | Chinle | | PrHC | ScHC | AgWS | FC | A&W | LW |
| Walker Creek, ephemeral reaches | San Juan | Chinle | | | ScHC | AgWS | | A&W | LW |
| Bubbling Springs Canyon, perennial and intermittent reaches | San Juan | Chinle | | PrHC | ScHC | AgWS | FC | A&W | LW |
| Bubbling Springs Canyon, ephemeral reaches | San Juan | Chinle | | | ScHC | AgWS | | A&W | LW |
| Long Canyon, perennial and intermittent reaches | San Juan | Chinle | | PrHC | ScHC | AgWS | FC | A&W | LW |
| Long Canyon, ephemeral reaches | San Juan | Chinle | | | ScHC | AgWS | | A&W | LW |
| Dowozhiebito Canyon, perennial and intermittent reaches | San Juan | Chinle | | PrHC | ScHC | AgWS | FC | A&W | LW |
| Dowozhiebito Canyon, ephemeral reaches | San Juan | Chinle | | | ScHC | AgWS | | A&W | LW |
| Laguna Creek, perennial and intermittent reaches | San Juan | Chinle | | PrHC | ScHC | AgWS | FC | A&W | LW |
| Laguna Creek, ephemeral reaches | San Juan | Chinle | | | ScHC | AgWS | | A&W | LW |
| Tyende Creek, ephemeral reaches | San Juan | Chinle | | | ScHC | AgWS | | A&W | LW |
| Tyende Creek, perennial and intermittent reaches | San Juan | Chinle | | PrHC | ScHC | AgWS | FC | A&W | LW |
| Lukachukai Wash, perennial reaches | San Juan | Chinle | Dom | PrHC | ScHC | AgWS | FC | A&W | LW |

Table 206.1 Designated Uses for Navajo Nation Surface Waters (continued)

| Surface Water Body (Within the jurisdiction of the Navajo Nation) | Basin | Cataloging Unit | Domestic Water Supply (Dom) | Primary Human Contact (PrHC) | Secondary Human Contact (ScHC) | Agricultural Water Supply (AgWS) | Fish Consumption (FC) | Aquatic & Wildlife (A&W) | Livestock Watering (LW) |
|--|----------|-----------------|-----------------------------|------------------------------|--------------------------------|----------------------------------|-----------------------|--------------------------|-------------------------|
| Lukachukai Wash, intermittent reaches | San Juan | Chinle | | PrHC | ScHC | AgWS | FC | A&W | LW |
| Lukachukai Wash, ephemeral reaches | San Juan | Chinle | | | ScHC | AgWS | | A&W | LW |
| Black Mountain Wash, ephemeral reaches | San Juan | Chinle | | | ScHC | AgWS | | A&W | LW |
| Black Mountain Wash, perennial and intermittent reaches | San Juan | Chinle | | PrHC | ScHC | AgWS | FC | A&W | LW |
| Nazlini Wash, perennial and intermittent reaches | San Juan | Chinle | | PrHC | ScHC | AgWS | FC | A&W | LW |
| Nazlini Wash, ephemeral reaches | San Juan | Chinle | | | ScHC | | | A&W | LW |
| Cottonwood Wash, ephemeral reaches | San Juan | Chinle | | | ScHC | AgWS | | A&W | LW |
| Cottonwood Wash, perennial and intermittent reaches | San Juan | Chinle | | PrHC | ScHC | AgWS | FC | A&W | LW |
| Balakai Wash, ephemeral reaches | San Juan | Chinle | | | ScHC | AgWS | | A&W | LW |
| Balakai Wash, perennial and intermittent reaches | San Juan | Chinle | | PrHC | ScHC | AgWS | FC | A&W | LW |
| Canyon de Chelly Wash, ephemeral reaches | San Juan | Chinle | | | ScHC | AgWS | | A&W | LW |
| Canyon de Chelly Wash, perennial and intermittent reaches | San Juan | Chinle | | PrHC | ScHC | AgWS | FC | A&W | LW |
| Whiskey Creek, ephemeral reaches | San Juan | Chinle | | | ScHC | AgWS | | A&W | LW |
| Whiskey Creek, perennial and intermittent reaches | San Juan | Chinle | | PrHC | ScHC | AgWS | FC | A&W | LW |
| Wheatfields Lake | San Juan | Chinle | | PrHC | ScHC | AgWS | FC | A&W | LW |
| Coyote Wash, ephemeral reaches | San Juan | Chinle | | | ScHC | AgWS | | A&W | LW |
| Coyote Wash, perennial and intermittent reaches | San Juan | Chinle | | PrHC | ScHC | AgWS | FC | A&W | LW |
| Canyon del Muerto Wash, ephemeral reaches | San Juan | Chinle | | | ScHC | AgWS | | A&W | LW |
| Canyon del Muerto Wash, perennial and intermittent reaches | San Juan | Chinle | | PrHC | ScHC | AgWS | FC | A&W | LW |
| Tsaile Lake (cold and warm water) | San Juan | Chinle | | PrHC | ScHC | AgWS | FC | A&W | LW |
| Tsaile Creek, ephemeral reaches | San Juan | Chinle | | | ScHC | AgWS | | A&W | LW |
| Tsaile Creek, perennial and intermittent reaches | San Juan | Chinle | | PrHC | ScHC | AgWS | FC | A&W | LW |

Table 206.1 Designated Uses for Navajo Nation Surface Waters (continued)

| Surface Water Body (Within the jurisdiction of the Navajo Nation) | Basin | Cataloging Unit | Domestic Water Supply (Dom) | Primary Human Contact (PrHC) | Secondary Human Contact (ScHC) | Agricultural Water Supply (AgWS) | Fish Consumption (FC) | Aquatic & Wildlife (A&W) | Livestock Watering (LW) |
|---|--------------|------------------------|------------------------------------|-------------------------------------|---------------------------------------|---|------------------------------|---|--------------------------------|
| Crystal Creek, ephemeral reaches | San Juan | Chinle | | | ScHC | AgWS | | A&W | LW |
| Crystal Creek, perennial and intermittent reaches | San Juan | Chinle | | PrHC | ScHC | AgWS | FC | A&W | LW |
| Little Whiskey Creek, ephemeral reaches | San Juan | Chinle | | | ScHC | AgWS | | A&W | LW |
| Little Whiskey Creek, perennial and intermittent reaches | San Juan | Chinle | | PrHC | ScHC | AgWS | FC | A&W | LW |
| Palisade Creek, ephemeral reaches | San Juan | Chinle | | | ScHC | AgWS | | A&W | LW |
| Palisade Creek, perennial and intermittent reaches | San Juan | Chinle | | PrHC | ScHC | AgWS | FC | A&W | LW |
| Tohtso Creek, ephemeral reaches | San Juan | Chinle | | | ScHC | AgWS | | A&W | LW |
| Tohtso Creek, perennial and intermittent reaches | San Juan | Chinle | | PrHC | ScHC | AgWS | FC | A&W | LW |
| Wheatfields Creek, ephemeral reaches | San Juan | Chinle | | | ScHC | AgWS | | A&W | LW |
| Wheatfields Creek, perennial and intermittent reaches | San Juan | Chinle | | PrHC | ScHC | AgWS | FC | A&W | LW |
| Aspen Lake (cold water) | San Juan | Chinle | | PrHC | ScHC | AgWS | FC | A&W | LW |
| Round Rock Lake | San Juan | Chinle | | PrHC | ScHC | AgWS | FC | A&W | LW |
| McElmo Creek, ephemeral reaches | San Juan | Chinle | | | ScHC | AgWS | | A&W | LW |
| McElmo Creek, perennial and intermittent reaches | San Juan | Chinle | | PrHC | ScHC | AgWS | FC | A&W | LW |
| Montezuma Creek, ephemeral reaches | San Juan | Chinle | | | ScHC | AgWS | | A&W | LW |
| Montezuma Creek, perennial and intermittent reaches | San Juan | Chinle | | PrHC | ScHC | AgWS | FC | A&W | LW |
| Mancos River, ephemeral reaches | San Juan | Mancos River | | | ScHC | AgWS | | A&W | LW |
| Mancos River, perennial and intermittent reaches | San Juan | Mancos River | | PrHC | ScHC | AgWS | FC | A&W | LW |

Table 207.1. Numeric Surface Water Quality Standards

(All units are in µg/L unless otherwise indicated)

(All numeric standards are in total concentration unless otherwise indicated)

| Parameter (Total concentration unless otherwise indicated) | CAS Number | Designated Uses | | | | | | | |
|--|------------|-----------------------------|---------------------|-----------------------------|-------------------------------|--------------------------------|----------------------------------|---------------------------------|-----------------------|
| | | Domestic Water Supply | Fish Consumption | Primary Human Contact | Secondary Human Contact | Aquatic & Wildlife Acute | Aquatic & Wildlife Chronic | Agricultural Water Supply | Livestock Watering |
| 1,1,1-Trichloroethane | 71556 | 200 | 200000 | 200 | 200 | 2600 | 1600 | 1000 | NCNS |
| 1,1,2,2-Tetrachloroethane | 79345 | 0.17 | 3 | 7 | 46670 | 4700 | 3200 | NCNS | NCNS |
| 1,1,2-Trichloroethane | 79005 | 0.55 | 8.9 | 25 | 3730 | 18000 | 12000 | NCNS | NCNS |
| 1,1-Dichloroethene | 75354 | 7 | 7100 | 230 | 12600 | 15000 | 950 | NCNS | NCNS |
| 1,2,4-Trichlorobenzene | 120821 | 0.071 | 0.076 | 9300 | 9300 | 750 | 130 | NCNS | NCNS |
| 1,2,4,5-Tetrachlorobenzene | 95943 | 0.03 | 0.03 | NCNS | NCNS | NCNS | NCNS | NCNS | NCNS |
| 1,2-Dichlorobenzene | 95501 | 600 | 205 | 84000 | 84000 | 790 | 300 | NCNS | NCNS |
| 1,2-Dichloroethane | 107062 | 0.38 | 35 | 15 | 186670 | 59000 | 41000 | NCNS | NCNS |
| 1,2-Dichloropropane | 78875 | 0.50 | 15 | 126000 | 126000 | 26000 | 9200 | NCNS | NCNS |
| 1,2-Diphenylhydrazine | 122667 | 0.036 | 0.2 | 1.8 | 1.8 | 130 | 11 | NCNS | NCNS |
| 1,2-trans-Dichloroethene | 156605 | 100 | 4000 | 18670 | 18670 | 68000 | 3900 | NCNS | NCNS |
| 1,3-Dichlorobenzene | 541731 | 7 | 10 | NCNS | NCNS | 2500 | 970 | NCNS | NCNS |
| 1,3-Dichloropropene | 542756 | 0.27 | 12 | 90 | 420 | 3000 | 1100 | NCNS | NCNS |
| 1,4-Dichlorobenzene | 106467 | 63 | 190 | 65330 | 65330 | 560 | 210 | NCNS | NCNS |
| 2-(2,4,5-Trichlorophenoxy) propanoic acid (2,4,5-TP) | 93721 | 50 | 400 | 7470 | 7470 | NCNS | NCNS | NCNS | NCNS |
| 2,3,7,8-Tetrachlorodibenzo-p-dioxin (2,3,7,8-TCDD) | 1746016 | 0.000000005 | 0.0000000051 | 0.00003 | 0.001 | 0.01 | 0.005 | NCNS | NCNS |
| 2,4,5-Trichlorophenol | 95954 | 300 | 600 | NCNS | NCNS | NCNS | NCNS | NCNS | NCNS |
| 2,4,6-Trichlorophenol | 88062 | 1.4 | 2.4 | 130 | 130 | 160 | 25 | NCNS | NCNS |
| 2,4-Dichlorophenol | 120832 | 10 | 60 | 2800 | 2800 | 1000 | 88 | NCNS | NCNS |
| 2,4-Dichlorophenoxyacetic acid (2,4-D) | 94757 | 70 | 12000 | 9330 | 9330 | NCNS | NCNS | NCNS | NCNS |
| 2,4-Dimethyl phenol | 105679 | 100 | 171 | 18670 | 18670 | 1000 | 310 | NCNS | NCNS |
| 2,4-Dinitrophenol | 51285 | 10 | 300 | 1870 | 1870 | 110 | 9.2 | NCNS | NCNS |
| 2,4-Dinitrotoluene | 121142 | 0.049 | 1.7 | 1870 | 1870 | 14000 | 860 | NCNS | NCNS |
| 2,6-Dinitrotoluene | 606202 | 0.05 | NCNS | 2 | 3733 | NCNS | NCNS | NCNS | NCNS |
| Di-n-octyl phthalate | 117840 | 2800 | NCNS | 373333 | 373333 | NCNS | NCNS | NCNS | NCNS |
| 2-Chloroethyl vinyl ether | 110758 | NCNS | NCNS | NCNS | NCNS | 180000 | 9800 | NCNS | NCNS |
| 2-Chloronaphthalene | 91587 | 800 | 1000 | 74670 | 74670 | NCNS | NCNS | NCNS | NCNS |
| 2-Chlorophenol | 95578 | 30 | 30 | 4670 | 4670 | 2200 | 150 | NCNS | NCNS |
| 2-methyl-4,6-Dinitrophenol | 534521 | 2 | 30 | 3733 | 3733 | 310 | 24 | NCNS | NCNS |

Table 207.1. Numeric Surface Water Quality Standards (continued)
(All units are in µg/L unless otherwise indicated)
(All numeric standards are in total concentration unless otherwise indicated)

| Parameter (Total concentration unless otherwise indicated) | CAS Number | Designated Uses | | | | | | | |
|--|------------|-----------------------------|---------------------|-----------------------------|-------------------------------|---|----------------------------------|---------------------------------|-----------------------|
| | | Domestic Water Supply | Fish Consumption | Primary Human Contact | Secondary Human Contact | Aquatic & Wildlife Acute | Aquatic & Wildlife Chronic | Agricultural Water Supply | Livestock Watering |
| 3,3'-Dichlorobenzidine | 91941 | 0.021 | 0.028 | 3.1 | 3.1 | NCNS | NCNS | NCNS | NCNS |
| 3-methyl 4-Chlorophenol | 59507 | 500 | 2000 | NCNS | NCNS | 15 | 4.7 | NCNS | NCNS |
| 4-Bromophenyl phenyl ether | 101553 | NCNS | NCNS | NCNS | NCNS | 180 | 14 | NCNS | NCNS |
| 4-Nitrophenol | 100027 | NCNS | NCNS | NCNS | NCNS | 4100 | 3000 | NCNS | NCNS |
| Acenaphthene | 83329 | 70 | 90 | 56000 | 56000 | 850 | 550 | NCNS | NCNS |
| Acrolein | 107028 | 3 | 2 | 470 | 470 | 34 | 30 | NCNS | NCNS |
| Acrylonitrile | 107131 | 0.051 | 0.25 | 3 | 9300 | 3800 | 250 | NCNS | NCNS |
| Aldrin | 309002 | 0.0000077 | 0.0000077 | 0.08 | 30 | 3 | NCNS | 0.003 | 0.003 |
| Alachlor | 15972608 | 2 | | 9333 | 9333 | 2500 | 170 | | |
| alpha-Hexachlorocyclohexane (HCH) | 319846 | 0.00036 | 0.00039 | 0.22 | 7470 | 1600 | 130 | NCNS | NCNS |
| alpha-Endosulfan | 959988 | 20 | 20 | 5600 | 5600 | 0.22 | 0.056 | NCNS | NCNS |
| Aluminum (Al) (pH 6.5-9.0 for A&W) | 7429905 | NCNS | NCNS | NCNS | NCNS | 750 - See (a) | 87 - See (a) | 20000 | NCNS |
| Ammonia-N | 7664417 | NCNS | NCNS | NCNS | NCNS | See (c) and Tables 207.19 and 207.20 | See (c) and Table 207.21 | NCNS | NCNS |
| Anthracene | 120127 | 300 | 75 | 280000 | 280000 | NCNS | NCNS | NCNS | NCNS |
| Antimony (Sb) | 7440360 | 5.6 | 640 | 747 | 747 | 88 D | 30 D | NCNS | NCNS |
| Arsenic (As) | 7440382 | 10 | 80 | 30 | 280 | 340 D | 150 D | 2000 | 200 |
| Asbestos (fibers/L > 10 µm) | 1332214 | 7000000 | NCNS | NCNS | NCNS | NCNS | NCNS | NCNS | NCNS |
| Atrazine | 1912249 | 3 | NCNS | 32667 | 32667 | NCNS | NCNS | NCNS | NCNS |
| Barium (Ba) | 7440393 | 2000 | NCNS | 98000 | 98000 | NCNS | NCNS | NCNS | NCNS |
| Benzene | 71432 | 0.5-2.1 | 16-58 | 93 | 3733 | 2700 | 180 | NCNS | NCNS |
| Benzidine | 92875 | 0.000086 | 0.00020 | 0.01 | 2800 | 1300 | 89 | 0.01 | 0.01 |
| Benzo(a)anthracene | 56553 | 0.0012 | 0.0013 | 0.2 | 0.2 | NCNS | NCNS | NCNS | NCNS |
| Benzo(a)pyrene | 50328 | 0.00012 | 0.00013 | 0.2 | 0.2 | NCNS | NCNS | NCNS | NCNS |
| Benzo(b)fluoranthene | 205992 | 0.0012 | 0.0013 | 1.9 | 1.9 | NCNS | NCNS | NCNS | NCNS |
| Benzo(k)fluoranthene | 207089 | 0.0038 | 0.018 | 1.9 | 1.9 | NCNS | NCNS | NCNS | NCNS |
| Beryllium (Be) | 7440417 | 4 | 85 | 1870 | 1870 | NCNS | NCNS | 500 | NCNS |
| beta-Hexachlorocyclohexane (HCH) | 319857 | 0.008 | 0.014 | 3 | 560 | 1600 | 130 | NCNS | NCNS |
| beta-Endosulfan | 33213659 | 20 | 20 | 5600 | 5600 | 0.22 | 0.056 | NCNS | NCNS |
| Beta particles and photon emitters | | 4 millirems/year | NCNS | NCNS | NCNS | NCNS | NCNS | NCNS | 4 millirems/year |
| Bis(2-chloroethyl)ether | 111444 | 0.030 | 0.53 | 1.3 | 1.3 | 120000 | 6700 | NCNS | NCNS |
| Bis(2-chloroisopropyl)ether | 108601 | 200 | 3441 | 37333 | 37333 | NCNS | NCNS | NCNS | NCNS |

Table 207.1. Numeric Surface Water Quality Standards (continued)
 (All units are in µg/L unless otherwise indicated)
 (All numeric standards are in total concentration unless otherwise indicated)

| Parameter (Total concentration unless otherwise indicated) | CAS Number | Designated Uses | | | | | | | |
|--|------------|-----------------------------|---------------------|-----------------------------|-------------------------------|---|---|---------------------------------|-----------------------|
| | | Domestic Water Supply | Fish Consumption | Primary Human Contact | Secondary Human Contact | Aquatic & Wildlife Acute | Aquatic & Wildlife Chronic | Agricultural Water Supply | Livestock Watering |
| Bis(2-ethylhexyl) adipate | 103231 | 400 | NCNS | 560000 | 560000 | NCNS | NCNS | NCNS | NCNS |
| Bis(2-ethylhexyl)phthalate | 117817 | 0.32 | 0.37 | 1200 | 18670 | 400 | 360 | NCNS | NCNS |
| Bis(Chloromethyl) ether | 542881 | 0.00015 | 0.017 | NCNS | NCNS | NCNS | NCNS | NCNS | NCNS |
| Boron | 7440428 | 630 | NCNS | 126000 | 126000 | NCNS | NCNS | 2000 | 5000 |
| Bromoform | 75252 | 4.3 | 120 | 180 | 28000 | 15000 | 10000 | NCNS | NCNS |
| Butyl benzyl phthalate | 85687 | 0.1 | 0.1 | 186670 | 186670 | 1700 | 130 | NCNS | NCNS |
| Cadmium (Cd) | 7440439 | 5 | 8 | 470 | 470 | See (b) and Tables 207.2 and 207.4 D | See (b) and Tables 207.3 and 207.5 D | 50 | 50 |
| Carbon tetrachloride | 56235 | 0.23 | 1.6 | 40 | 650 | 18000 | 1100 | NCNS | NCNS |
| Chlordane | 57749 | 0.00031 | 0.00032 | 13 | 470 | 2.4 | 0.0043 | NCNS | NCNS |
| Chlorine (total residual) | 7782505 | 4000 | NCNS | 4000 | 4000 | 19 | 11 | NCNS | 11 |
| Chlorobenzene | 108907 | 100 | 800 | 18670 | 18670 | 3800 | 260 | NCNS | NCNS |
| Chlorodibromomethane | 124481 | 0.40 | 13 | 18670 | 18670 | NCNS | NCNS | NCNS | NCNS |
| Chloroform | 67663 | 5.7 | 470 | 9330 | 9330 | 14000 | 900 | NCNS | NCNS |
| Chromium (Cr III + Cr VI) | 7440473 | 100 | NCNS | NCNS | NCNS | NCNS | NCNS | 1000 | 1000 |
| Chromium III (Cr III) | 16065831 | NCNS | 75000 | 1400000 | 1400000 | See (b) and Table 207.6 D | See (a) and Table 207.7 D | NCNS | NCNS |
| Chromium VI (Cr VI) | 18540299 | 20 | 150 | 2800 | 2800 | 16 D | 11 D | NCNS | NCNS |
| Chrysene | 218019 | 0.0038 | 0.018 | 1 | NCNS | NCNS | NCNS | NCNS | NCNS |
| Cobalt (Co) | 7440484 | NCNS | NCNS | NCNS | NCNS | NCNS | NCNS | 5000 | 1000 |
| Copper (Cu) | 7440508 | 1300 | NCNS | 9330 | 9330 | See (b) and Table 207.8 D | See (b) and Table 207.9 D | 5000 | 500 |
| Cyanide (as free Cyanide) | 57125 | 4 | 140 | 18670 | 18670 | 22 | 5.2 | NCNS | 500 |
| delta-BHC | 319868 | 0.0123 | 0.0414 | NCNS | NCNS | 1600 | 130 | NCNS | NCNS |
| Dibenzo(a,h)anthracene | 53703 | 0.00012 | 0.00013 | 1 | NCNS | NCNS | NCNS | NCNS | NCNS |
| Dibutyl phthalate | 84742 | 20 | 30 | 93330 | 93330 | 470 | 35 | NCNS | NCNS |
| Dichlorobromomethane | 75274 | 0.55 | 17 | NCNS | NCNS | NCNS | NCNS | NCNS | NCNS |
| Dieldrin | 60571 | 0.0000012 | 0.0000012 | 0.3 | 50 | 0.24 | 0.056 | 0.03 | 0.03 |
| Diethyl phthalate | 84662 | 600 | 600 | 74670 | 74670 | 26000 | 1600 | NCNS | NCNS |
| Dimethyl phthalate | 131113 | 2000 | 2000 | NCNS | NCNS | 17000 | 1000 | NCNS | NCNS |

Table 207.1. Numeric Surface Water Quality Standards (continued)
(All units are in µg/L unless otherwise indicated)
(All numeric standards are in total concentration unless otherwise indicated)

| Parameter (Total concentration unless otherwise indicated) | CAS Number | Designated Uses | | | | | | | |
|--|------------|-----------------------------|---------------------|-----------------------------|-------------------------------|--------------------------------|----------------------------------|---------------------------------|-----------------------|
| | | Domestic Water Supply | Fish Consumption | Primary Human Contact | Secondary Human Contact | Aquatic & Wildlife Acute | Aquatic & Wildlife Chronic | Agricultural Water Supply | Livestock Watering |
| Dinoseb | 88857 | 7 | NCNS | 933 | 933 | NCNS | NCNS | NCNS | NCNS |
| Dinitrophenols | 25550587 | 10 | 1000 | NCNS | NCNS | NCNS | NCNS | NCNS | NCNS |
| Diquat | 85007 | 20 | NCNS | 2053 | 2053 | NCNS | NCNS | NCNS | NCNS |
| Endosulfan sulfate | 1031078 | 20 | 20 | 5600 | 5600 | 0.2 | 0.06 | NCNS | NCNS |
| Endosulfan (Total) | 115297 | 40 | 20 | 5600 | 5600 | 0.2 | 0.06 | NCNS | NCNS |
| Endothall | 145733 | 100 | NCNS | 18667 | 18667 | NCNS | NCNS | NCNS | NCNS |
| Endrin | 72208 | 0.03 | 0.03 | 280 | 280 | 0.086 | 0.036 | 0.004 | 0.004 |
| Endrin aldehyde | 7421934 | 0.29 | 0.3 | NCNS | NCNS | 0.086 | 0.036 | NCNS | NCNS |
| Ethylbenzene | 100414 | 68 | 130 | 93330 | 93330 | 23000 | 1400 | NCNS | NCNS |
| Fluoranthene | 206440 | 20 | 20 | 37330 | 37330 | 2000 | 1600 | NCNS | NCNS |
| Fluorene | 86737 | 50 | 70 | 37330 | 37330 | NCNS | NCNS | NCNS | NCNS |
| Fluoride | 16984488 | 4000 | NCNS | 140000 | 140000 | NCNS | NCNS | 15000 | 2000 |
| gamma-Hexachlorocyclohexane (HCH) | 58899 | 4.2 | 4.4 | NCNS | NCNS | NCNS | NCNS | NCNS | NCNS |
| Glyphosate | 1071836 | 700 | 266667 | 93333 | 93333 | NCNS | NCNS | NCNS | NCNS |
| Guthion | 86500 | NCNS | NCNS | NCNS | NCNS | NCNS | 0.01 | NCNS | NCNS |
| Gross Alpha (pCi/L) (See (d)) | | 15 | NCNS | NCNS | NCNS | NCNS | NCNS | NCNS | 15 |
| Heptachlor | 76448 | 0.000059 | 0.000059 | 1 | 470 | 0.52 | 0.0036 | NCNS | NCNS |
| Heptachlor epoxide | 1024573 | 0.000032 | 0.000032 | 1 | 12 | 0.52 | 0.0036 | NCNS | NCNS |
| Hexachlorobenzene | 118741 | 0.000079 | 0.000079 | 1 | 750 | 6.0 | 3.7 | NCNS | NCNS |
| Hexachlorobutadiene | 87683 | 0.01 | 0.01 | 18 | 190 | 45 | 8 | NCNS | NCNS |
| Hexachlorocyclohexane (Lindane) | 58899 | 0.2 | 1.8 | 280 | 280 | 0.95 | NCNS | NCNS | NCNS |
| Hexachlorocyclohexane (HCH)-Technical | 608731 | 0.0066 | 0.01 | NCNS | NCNS | NCNS | NCNS | NCNS | NCNS |
| Hexachlorocyclopentadiene | 77474 | 4 | 4 | 5600 | 5600 | 3.5 | 0.3 | NCNS | NCNS |
| Hexachloroethane | 67721 | 0.1 | 0.1 | 330 | 930 | 490 | 350 | NCNS | NCNS |
| Indeno(1,2,3-cd)pyrene | 193395 | 0.0012 | 0.0013 | NCNS | NCNS | NCNS | NCNS | NCNS | NCNS |
| Isophorone | 78591 | 34 | 960 | 4910 | 186670 | 59000 | 43000 | NCNS | NCNS |
| Lead (Pb) | 7439921 | 15 | NCNS | 15 | 15 | See (b) and Table 207.10 D | See (b) and Table 207.11 D | 10000 | 100 |
| Manganese | 7439965 | 980 | NCNS | 18667 | 18667 | NCNS | NCNS | 10000 | NCNS |
| Mercury (Hg) | 7439976 | 2 | 0.15 | 280 | 280 | 2.4 (D) | 0.012 (D) | NCNS | 10 |
| Methylmercury (mg/kg fish) | | NCNS | 0.3 | NCNS | NCNS | NCNS | NCNS | NCNS | NCNS |
| Methoxychlor | 72435 | 0.02 | 0.02 | 4670 | 4670 | NCNS | NCNS | NCNS | NCNS |
| Methyl bromide | 74839 | 10 | 300 | NCNS | NCNS | 5500 | 360 | NCNS | NCNS |
| Methyl chloride | 74873 | NCNS | NCNS | NCNS | NCNS | 270000 | 15000 | NCNS | NCNS |
| Methylene chloride | 75092 | 4.6 | 590 | 620 | 56000 | 97000 | 5500 | NCNS | NCNS |
| Molybdenum (Mo) | 7439987 | NCNS | NCNS | NCNS | NCNS | NCNS | NCNS | 50 | NCNS |
| Naphthalene | 91203 | 140 | 1520 | 18670 | 18670 | 1100 | 210 | NCNS | NCNS |
| Nickel (Ni) | 7440020 | 610 | 4600 | 18670 | 18670 | See (b) and Table 207.12 D | See (b) and Table 207.13 D | 2000 | NCNS |

Table 207.1. Numeric Surface Water Quality Standards (continued)
 (All units are in µg/L unless otherwise indicated)
 (All numeric standards are in total concentration unless otherwise indicated)

| Parameter (Total concentration unless otherwise indicated) | CAS Number | Designated Uses | | | | | | | |
|---|------------|-----------------------|------------------|-----------------------|-------------------------|----------------------------|----------------------------|---------------------------|--------------------|
| | | Domestic Water Supply | Fish Consumption | Primary Human Contact | Secondary Human Contact | Aquatic & Wildlife Acute | Aquatic & Wildlife Chronic | Agricultural Water Supply | Livestock Watering |
| Nitrate-N | 14797558 | 10000 | NCNS | 1493330 | 1493330 | NCNS | NCNS | NCNS | NCNS |
| Nitrite-N | 14797650 | 1000 | NCNS | 93330 | 93330 | NCNS | NCNS | NCNS | NCNS |
| Nitrite+Nitrate-N (mg/L) | | NCNS | NCNS | NCNS | NCNS | NCNS | NCNS | NCNS | 100 |
| Nitrobenzene | 98953 | 10 | 600 | 470 | 470 | 13000 | 850 | NCNS | NCNS |
| n-Nitrosodimethylamine | 62759 | 0.00069 | 3 | 0.1 | 0.1 | NCNS | NCNS | NCNS | NCNS |
| n-Nitrosodi-n-propylamine | 621647 | 0.005 | 0.51 | 1 | 88670 | NCNS | NCNS | NCNS | NCNS |
| n-Nitrosodiphenylamine | 86306 | 3.3 | 6 | 950 | 950 | 2900 | 200 | NCNS | NCNS |
| p,p'-DDD (p,p-Dichlorodiphenyldichloroethane) | 72548 | 0.00012 | 0.00012 | 5.8 | 5.8 | 1.1 | 0.001 | 0.001 | 0.001 |
| p,p'-DDE (p,p-Dichlorodiphenyldichloroethene) | 72559 | 0.000018 | 0.000018 | 4.1 | 4.1 | 1.1 | 0.001 | 0.001 | 0.001 |
| p,p'-DDT (p,p-Dichlorodiphenyltrichloroethane) | 50293 | 0.00003 | 0.00003 | 4.1 | 700 | 1.1 | 0.001 | 0.001 | 0.001 |
| Pentachlorobenzene | 608935 | 0.1 | 0.1 | NCNS | NCNS | NCNS | NCNS | NCNS | NCNS |
| Pentachlorophenol | 87865 | 0.03 | 0.0 | 40 | 28000 | See (c) and Table 207.16 | See (c) and Table 207.17 | NCNS | NCNS |
| Phenanthrene | 85018 | NCNS | NCNS | NCNS | NCNS | 30 | 6.3 | NCNS | NCNS |
| Phenol | 108952 | 2100 | 35 | 280000 | 280000 | 5100 | 730 | NCNS | NCNS |
| Polychlorinated biphenyls (PCBs) | 1336363 | 0.5 | 0.000064 | 19 | 19 | 2.0 | 0.014 | 0.001 | 0.001 |
| Pyrene | 129000 | 20 | 30 | 28000 | 28000 | NCNS | NCNS | NCNS | NCNS |
| Radium 226 + 228 (pCi/L) | | 5 | NCNS | NCNS | NCNS | NCNS | NCNS | 5 | 5 |
| Selenium (Se) | 7782492 | 50 | 670 | 4670 | 4670 | 33 | 2 | 20 | 50 |
| Silver (Ag) | 7440224 | 35 | 8000 | 4670 | 4670 | See (b) and Table 207.16 D | NCNS | NCNS | NCNS |
| Strontium 90 (pCi/L) | | 8 | NCNS | NCNS | NCNS | NCNS | NCNS | 8 | 8 |
| Tetrachloroethene | 127184 | 5 | 3.3 | 9330 | 9330 | 2600 | 280 | NCNS | NCNS |
| Thallium (Tl) | 7440280 | 2 | 1 | 75 | 75 | 700 D | 150 D | NCNS | NCNS |
| Toluene | 108883 | 57 | 520 | 74670 | 74670 | 8700 | 180 | NCNS | NCNS |
| Toxaphene | 8001352 | 0.00028 | 0.00028 | 4 | 930 | 0.73 | 0.0002 | 0.005 | 0.005 |
| Trichloroethene | 79016 | 0.6 | 7 | 360 | 2800 | 20000 | 1300 | NCNS | NCNS |
| Tritium (pCi/L) | 10028178 | 20000 | NCNS | NCNS | NCNS | NCNS | NCNS | NCNS | 20000 |

Table 207.1. Numeric Surface Water Quality Standards (continued)
 (All units are in µg/L unless otherwise indicated)
 (All numeric standards are in total concentration unless otherwise indicated)

| Parameter (Total concentration unless otherwise indicated) | CAS Number | Designated Uses | | | | | | | |
|---|------------|-----------------------|------------------|-----------------------|-------------------------|----------------------------|----------------------------|---------------------------|--------------------|
| | | Domestic Water Supply | Fish Consumption | Primary Human Contact | Secondary Human Contact | Aquatic & Wildlife Acute | Aquatic & Wildlife Chronic | Agricultural Water Supply | Livestock Watering |
| Uranium (U) | 7440611 | 30 | NCNS | 2800 | 2800 | NCNS | NCNS | NCNS | NCNS |
| Vanadium (V) | 7440622 | NCNS | NCNS | NCNS | NCNS | NCNS | NCNS | 1000 | 100 |
| Vinyl Chloride | 75014 | 0.002 | 1.6 | 6 | 2800 | NCNS | NCNS | NCNS | NCNS |
| Xylenes (Total) | 1330207 | 10000 | NCNS | 186670 | 186670 | NCNS | NCNS | NCNS | NCNS |
| Zinc (Zn) | 7440666 | 2100 | 5100 | 280000 | 280000 | See (b) and Table 207.17 D | See (b) and Table 207.18 D | 10000 | 25000 |

Footnotes:

a. The A&W aluminum standard is for acid-soluble aluminum.

Acid soluble aluminum is defined as the aluminum that passes through a 0.45 µm membrane filter after the sample has been acidified to a pH between 1.5 and 2.0 with nitric acid.

b. Hardness, expressed as mg/L calcium carbonate, is inserted into the equation where it says "hardness". The hardness-dependent formulae for metals shall be valid only for hardness values from 0 to 400 mg/L calcium carbonate. For values above 400 mg/L, the value for 400 mg/L. Hardness analysis is done from a dissolved water sample.

c. The pH is inserted into the equation where it says "pH". pH is determined according to the following criteria:

If the water body has an Aquatic and Wildlife Habitat designated use, then the pH is based on the pH of either the effluent (for a point source discharge) or the water body from a sample taken at the same time that the sample for pentachlorophenol is taken.

c. Abbreviations: NCNS = No Current Numeric Standard D = Dissolved mg = milligram(s) µg = microgram(s) µm = micrometer(s)

L = Liter N = Nitrogen pCi - picocurie(s)

CAS Number - Chemical Abstracts Service (CAS) Registry Numbers are unique numerical identifiers assigned to chemical substances recorded in the CAS Chemical Registry System.

d. Compliance with the gross alpha numeric standard of 15 pCi/L is determined according to the following criteria:

For values above 15 pCi/L subtract the radon and uranium activity (in pCi/L) from the gross alpha value to determine the reported gross alpha value.

If radon gas is removed during the gross alpha analytical method, only subtract the uranium activity value.

Uranium activity in pCi/L is determined from the uranium concentration in (ug/L) according to the following formula:

$$\text{Uranium (pCi/L)} = (\text{uranium (ug/L)}) \times 0.67$$

Table 207.2 Acute Water Quality Standards for Dissolved Cadmium - Aquatic and Wildlife Cold Water
Acute Standard = [e (1.0166 [ln (hardness)] - 3.924)][1.136672-[ln (hardness)](0.041838)]

| Hard. | Std. | Hard. | Std. | Hard. | Std. | Hard. | Std. | Hard. | Std. | Hard. | Std. | Hard. | Std. | Hard. | Std. | Hard. | Std. | Hard. | Std. |
|-------|------|-------|------|-------|------|-------|------|-------|------|-------|------|-------|------|-------|------|-------|------|-------|------|
| mg/L | ug/L | mg/L | ug/L | mg/L | ug/L | mg/L | ug/L | mg/L | ug/L | mg/L | ug/L | mg/L | ug/L | mg/L | ug/L | mg/L | ug/L | mg/L | ug/L |
| 1 | 0.02 | 41 | 0.85 | 81 | 1.64 | 121 | 2.42 | 161 | 3.20 | 201 | 3.97 | 241 | 4.73 | 281 | 5.49 | 321 | 6.25 | 361 | 7.00 |
| 2 | 0.04 | 42 | 0.87 | 82 | 1.66 | 122 | 2.44 | 162 | 3.22 | 202 | 3.99 | 242 | 4.75 | 282 | 5.51 | 322 | 6.27 | 362 | 7.02 |
| 3 | 0.07 | 43 | 0.89 | 83 | 1.68 | 123 | 2.46 | 163 | 3.24 | 203 | 4.01 | 243 | 4.77 | 283 | 5.53 | 323 | 6.29 | 363 | 7.04 |
| 4 | 0.09 | 44 | 0.91 | 84 | 1.70 | 124 | 2.48 | 164 | 3.26 | 204 | 4.03 | 244 | 4.79 | 284 | 5.55 | 324 | 6.31 | 364 | 7.06 |
| 5 | 0.11 | 45 | 0.93 | 85 | 1.72 | 125 | 2.50 | 165 | 3.28 | 205 | 4.04 | 245 | 4.81 | 285 | 5.57 | 325 | 6.33 | 365 | 7.08 |
| 6 | 0.13 | 46 | 0.95 | 86 | 1.74 | 126 | 2.52 | 166 | 3.30 | 206 | 4.06 | 246 | 4.83 | 286 | 5.59 | 326 | 6.34 | 366 | 7.10 |
| 7 | 0.15 | 47 | 0.97 | 87 | 1.76 | 127 | 2.54 | 167 | 3.31 | 207 | 4.08 | 247 | 4.85 | 287 | 5.61 | 327 | 6.36 | 367 | 7.12 |
| 8 | 0.17 | 48 | 0.99 | 88 | 1.78 | 128 | 2.56 | 168 | 3.33 | 208 | 4.10 | 248 | 4.87 | 288 | 5.63 | 328 | 6.38 | 368 | 7.14 |
| 9 | 0.19 | 49 | 1.01 | 89 | 1.80 | 129 | 2.58 | 169 | 3.35 | 209 | 4.12 | 249 | 4.88 | 289 | 5.64 | 329 | 6.40 | 369 | 7.15 |
| 10 | 0.21 | 50 | 1.03 | 90 | 1.82 | 130 | 2.60 | 170 | 3.37 | 210 | 4.14 | 250 | 4.90 | 290 | 5.66 | 330 | 6.42 | 370 | 7.17 |
| 11 | 0.23 | 51 | 1.05 | 91 | 1.84 | 131 | 2.62 | 171 | 3.39 | 211 | 4.16 | 251 | 4.92 | 291 | 5.68 | 331 | 6.44 | 371 | 7.19 |
| 12 | 0.26 | 52 | 1.07 | 92 | 1.86 | 132 | 2.64 | 172 | 3.41 | 212 | 4.18 | 252 | 4.94 | 292 | 5.70 | 332 | 6.46 | 372 | 7.21 |
| 13 | 0.28 | 53 | 1.09 | 93 | 1.88 | 133 | 2.66 | 173 | 3.43 | 213 | 4.20 | 253 | 4.96 | 293 | 5.72 | 333 | 6.48 | 373 | 7.23 |
| 14 | 0.30 | 54 | 1.11 | 94 | 1.90 | 134 | 2.68 | 174 | 3.45 | 214 | 4.22 | 254 | 4.98 | 294 | 5.74 | 334 | 6.50 | 374 | 7.25 |
| 15 | 0.32 | 55 | 1.13 | 95 | 1.92 | 135 | 2.70 | 175 | 3.47 | 215 | 4.24 | 255 | 5.00 | 295 | 5.76 | 335 | 6.51 | 375 | 7.27 |
| 16 | 0.34 | 56 | 1.15 | 96 | 1.94 | 136 | 2.72 | 176 | 3.49 | 216 | 4.26 | 256 | 5.02 | 296 | 5.78 | 336 | 6.53 | 376 | 7.29 |
| 17 | 0.36 | 57 | 1.17 | 97 | 1.95 | 137 | 2.73 | 177 | 3.51 | 217 | 4.27 | 257 | 5.04 | 297 | 5.80 | 337 | 6.55 | 377 | 7.30 |
| 18 | 0.38 | 58 | 1.19 | 98 | 1.97 | 138 | 2.75 | 178 | 3.53 | 218 | 4.29 | 258 | 5.06 | 298 | 5.81 | 338 | 6.57 | 378 | 7.32 |
| 19 | 0.40 | 59 | 1.21 | 99 | 1.99 | 139 | 2.77 | 179 | 3.55 | 219 | 4.31 | 259 | 5.08 | 299 | 5.83 | 339 | 6.59 | 379 | 7.34 |
| 20 | 0.42 | 60 | 1.23 | 100 | 2.01 | 140 | 2.79 | 180 | 3.56 | 220 | 4.33 | 260 | 5.09 | 300 | 5.85 | 340 | 6.61 | 380 | 7.36 |
| 21 | 0.44 | 61 | 1.25 | 101 | 2.03 | 141 | 2.81 | 181 | 3.58 | 221 | 4.35 | 261 | 5.11 | 301 | 5.87 | 341 | 6.63 | 381 | 7.38 |
| 22 | 0.46 | 62 | 1.26 | 102 | 2.05 | 142 | 2.83 | 182 | 3.60 | 222 | 4.37 | 262 | 5.13 | 302 | 5.89 | 342 | 6.65 | 382 | 7.40 |
| 23 | 0.48 | 63 | 1.28 | 103 | 2.07 | 143 | 2.85 | 183 | 3.62 | 223 | 4.39 | 263 | 5.15 | 303 | 5.91 | 343 | 6.66 | 383 | 7.42 |
| 24 | 0.50 | 64 | 1.30 | 104 | 2.09 | 144 | 2.87 | 184 | 3.64 | 224 | 4.41 | 264 | 5.17 | 304 | 5.93 | 344 | 6.68 | 384 | 7.44 |
| 25 | 0.52 | 65 | 1.32 | 105 | 2.11 | 145 | 2.89 | 185 | 3.66 | 225 | 4.43 | 265 | 5.19 | 305 | 5.95 | 345 | 6.70 | 385 | 7.45 |
| 26 | 0.54 | 66 | 1.34 | 106 | 2.13 | 146 | 2.91 | 186 | 3.68 | 226 | 4.45 | 266 | 5.21 | 306 | 5.97 | 346 | 6.72 | 386 | 7.47 |
| 27 | 0.56 | 67 | 1.36 | 107 | 2.15 | 147 | 2.93 | 187 | 3.70 | 227 | 4.47 | 267 | 5.23 | 307 | 5.99 | 347 | 6.74 | 387 | 7.49 |
| 28 | 0.58 | 68 | 1.38 | 108 | 2.17 | 148 | 2.95 | 188 | 3.72 | 228 | 4.48 | 268 | 5.25 | 308 | 6.00 | 348 | 6.76 | 388 | 7.51 |
| 29 | 0.60 | 69 | 1.40 | 109 | 2.19 | 149 | 2.97 | 189 | 3.74 | 229 | 4.50 | 269 | 5.27 | 309 | 6.02 | 349 | 6.78 | 389 | 7.53 |
| 30 | 0.62 | 70 | 1.42 | 110 | 2.21 | 150 | 2.99 | 190 | 3.76 | 230 | 4.52 | 270 | 5.28 | 310 | 6.04 | 350 | 6.80 | 390 | 7.55 |
| 31 | 0.64 | 71 | 1.44 | 111 | 2.23 | 151 | 3.01 | 191 | 3.78 | 231 | 4.54 | 271 | 5.30 | 311 | 6.06 | 351 | 6.82 | 391 | 7.57 |
| 32 | 0.66 | 72 | 1.46 | 112 | 2.25 | 152 | 3.03 | 192 | 3.80 | 232 | 4.56 | 272 | 5.32 | 312 | 6.08 | 352 | 6.83 | 392 | 7.59 |
| 33 | 0.68 | 73 | 1.48 | 113 | 2.27 | 153 | 3.04 | 193 | 3.81 | 233 | 4.58 | 273 | 5.34 | 313 | 6.10 | 353 | 6.85 | 393 | 7.60 |
| 34 | 0.70 | 74 | 1.50 | 114 | 2.29 | 154 | 3.06 | 194 | 3.83 | 234 | 4.60 | 274 | 5.36 | 314 | 6.12 | 354 | 6.87 | 394 | 7.62 |
| 35 | 0.72 | 75 | 1.52 | 115 | 2.31 | 155 | 3.08 | 195 | 3.85 | 235 | 4.62 | 275 | 5.38 | 315 | 6.14 | 355 | 6.89 | 395 | 7.64 |
| 36 | 0.75 | 76 | 1.54 | 116 | 2.33 | 156 | 3.10 | 196 | 3.87 | 236 | 4.64 | 276 | 5.40 | 316 | 6.16 | 356 | 6.91 | 396 | 7.66 |
| 37 | 0.77 | 77 | 1.56 | 117 | 2.35 | 157 | 3.12 | 197 | 3.89 | 237 | 4.66 | 277 | 5.42 | 317 | 6.17 | 357 | 6.93 | 397 | 7.68 |
| 38 | 0.79 | 78 | 1.58 | 118 | 2.37 | 158 | 3.14 | 198 | 3.91 | 238 | 4.68 | 278 | 5.44 | 318 | 6.19 | 358 | 6.95 | 398 | 7.70 |
| 39 | 0.81 | 79 | 1.60 | 119 | 2.38 | 159 | 3.16 | 199 | 3.93 | 239 | 4.69 | 279 | 5.45 | 319 | 6.21 | 359 | 6.97 | 399 | 7.72 |
| 40 | 0.83 | 80 | 1.62 | 120 | 2.40 | 160 | 3.18 | 200 | 3.95 | 240 | 4.71 | 280 | 5.47 | 320 | 6.23 | 360 | 6.98 | 400 | 7.74 |

Table 207.3 Chronic Water Quality Standards for Dissolved Cadmium - Aquatic and Wildlife Cold Water
Chronic Standard = [e (0.7409 [ln (hardness)] – 4.719)][1.101672-[ln (hardness)](0.041838)]

| Hard. | Std. | Hard. | Std. | Hard. | Std. | Hard. | Std. | Hard. | Std. | Hard. | Std. | Hard. | Std. | Hard. | Std. | Hard. | Std. | Hard. | Std. |
|-------|------|-------|------|-------|------|-------|------|-------|------|-------|------|-------|------|-------|------|-------|------|-------|------|
| mg/L | ug/L | mg/L | ug/L | mg/L | ug/L | mg/L | ug/L | mg/L | ug/L | mg/L | ug/L | mg/L | ug/L | mg/L | ug/L | mg/L | ug/L | mg/L | ug/L |
| 1 | 0.01 | 41 | 0.13 | 81 | 0.21 | 121 | 0.28 | 161 | 0.34 | 201 | 0.40 | 241 | 0.45 | 281 | 0.50 | 321 | 0.55 | 361 | 0.60 |
| 2 | 0.02 | 42 | 0.13 | 82 | 0.21 | 122 | 0.28 | 162 | 0.34 | 202 | 0.40 | 242 | 0.45 | 282 | 0.50 | 322 | 0.55 | 362 | 0.60 |
| 3 | 0.02 | 43 | 0.14 | 83 | 0.22 | 123 | 0.28 | 163 | 0.35 | 203 | 0.40 | 243 | 0.46 | 283 | 0.51 | 323 | 0.55 | 363 | 0.60 |
| 4 | 0.03 | 44 | 0.14 | 84 | 0.22 | 124 | 0.29 | 164 | 0.35 | 204 | 0.40 | 244 | 0.46 | 284 | 0.51 | 324 | 0.56 | 364 | 0.60 |
| 5 | 0.03 | 45 | 0.14 | 85 | 0.22 | 125 | 0.29 | 165 | 0.35 | 205 | 0.40 | 245 | 0.46 | 285 | 0.51 | 325 | 0.56 | 365 | 0.60 |
| 6 | 0.03 | 46 | 0.14 | 86 | 0.22 | 126 | 0.29 | 166 | 0.35 | 206 | 0.41 | 246 | 0.46 | 286 | 0.51 | 326 | 0.56 | 366 | 0.60 |
| 7 | 0.04 | 47 | 0.15 | 87 | 0.22 | 127 | 0.29 | 167 | 0.35 | 207 | 0.41 | 247 | 0.46 | 287 | 0.51 | 327 | 0.56 | 367 | 0.61 |
| 8 | 0.04 | 48 | 0.15 | 88 | 0.23 | 128 | 0.29 | 168 | 0.35 | 208 | 0.41 | 248 | 0.46 | 288 | 0.51 | 328 | 0.56 | 368 | 0.61 |
| 9 | 0.05 | 49 | 0.15 | 89 | 0.23 | 129 | 0.29 | 169 | 0.35 | 209 | 0.41 | 249 | 0.46 | 289 | 0.51 | 329 | 0.56 | 369 | 0.61 |
| 10 | 0.05 | 50 | 0.15 | 90 | 0.23 | 130 | 0.30 | 170 | 0.36 | 210 | 0.41 | 250 | 0.46 | 290 | 0.51 | 330 | 0.56 | 370 | 0.61 |
| 11 | 0.05 | 51 | 0.15 | 91 | 0.23 | 131 | 0.30 | 171 | 0.36 | 211 | 0.41 | 251 | 0.47 | 291 | 0.52 | 331 | 0.56 | 371 | 0.61 |
| 12 | 0.06 | 52 | 0.16 | 92 | 0.23 | 132 | 0.30 | 172 | 0.36 | 212 | 0.41 | 252 | 0.47 | 292 | 0.52 | 332 | 0.57 | 372 | 0.61 |
| 13 | 0.06 | 53 | 0.16 | 93 | 0.23 | 133 | 0.30 | 173 | 0.36 | 213 | 0.42 | 253 | 0.47 | 293 | 0.52 | 333 | 0.57 | 373 | 0.61 |
| 14 | 0.06 | 54 | 0.16 | 94 | 0.24 | 134 | 0.30 | 174 | 0.36 | 214 | 0.42 | 254 | 0.47 | 294 | 0.52 | 334 | 0.57 | 374 | 0.61 |
| 15 | 0.07 | 55 | 0.16 | 95 | 0.24 | 135 | 0.30 | 175 | 0.36 | 215 | 0.42 | 255 | 0.47 | 295 | 0.52 | 335 | 0.57 | 375 | 0.62 |
| 16 | 0.07 | 56 | 0.16 | 96 | 0.24 | 136 | 0.30 | 176 | 0.36 | 216 | 0.42 | 256 | 0.47 | 296 | 0.52 | 336 | 0.57 | 376 | 0.62 |
| 17 | 0.07 | 57 | 0.17 | 97 | 0.24 | 137 | 0.31 | 177 | 0.37 | 217 | 0.42 | 257 | 0.47 | 297 | 0.52 | 337 | 0.57 | 377 | 0.62 |
| 18 | 0.07 | 58 | 0.17 | 98 | 0.24 | 138 | 0.31 | 178 | 0.37 | 218 | 0.42 | 258 | 0.47 | 298 | 0.52 | 338 | 0.57 | 378 | 0.62 |
| 19 | 0.08 | 59 | 0.17 | 99 | 0.24 | 139 | 0.31 | 179 | 0.37 | 219 | 0.42 | 259 | 0.48 | 299 | 0.53 | 339 | 0.57 | 379 | 0.62 |
| 20 | 0.08 | 60 | 0.17 | 100 | 0.25 | 140 | 0.31 | 180 | 0.37 | 220 | 0.43 | 260 | 0.48 | 300 | 0.53 | 340 | 0.57 | 380 | 0.62 |
| 21 | 0.08 | 61 | 0.17 | 101 | 0.25 | 141 | 0.31 | 181 | 0.37 | 221 | 0.43 | 261 | 0.48 | 301 | 0.53 | 341 | 0.58 | 381 | 0.62 |
| 22 | 0.09 | 62 | 0.18 | 102 | 0.25 | 142 | 0.31 | 182 | 0.37 | 222 | 0.43 | 262 | 0.48 | 302 | 0.53 | 342 | 0.58 | 382 | 0.62 |
| 23 | 0.09 | 63 | 0.18 | 103 | 0.25 | 143 | 0.32 | 183 | 0.37 | 223 | 0.43 | 263 | 0.48 | 303 | 0.53 | 343 | 0.58 | 383 | 0.62 |
| 24 | 0.09 | 64 | 0.18 | 104 | 0.25 | 144 | 0.32 | 184 | 0.38 | 224 | 0.43 | 264 | 0.48 | 304 | 0.53 | 344 | 0.58 | 384 | 0.63 |
| 25 | 0.09 | 65 | 0.18 | 105 | 0.25 | 145 | 0.32 | 185 | 0.38 | 225 | 0.43 | 265 | 0.48 | 305 | 0.53 | 345 | 0.58 | 385 | 0.63 |
| 26 | 0.10 | 66 | 0.18 | 106 | 0.26 | 146 | 0.32 | 186 | 0.38 | 226 | 0.43 | 266 | 0.48 | 306 | 0.53 | 346 | 0.58 | 386 | 0.63 |
| 27 | 0.10 | 67 | 0.19 | 107 | 0.26 | 147 | 0.32 | 187 | 0.38 | 227 | 0.43 | 267 | 0.49 | 307 | 0.54 | 347 | 0.58 | 387 | 0.63 |
| 28 | 0.10 | 68 | 0.19 | 108 | 0.26 | 148 | 0.32 | 188 | 0.38 | 228 | 0.44 | 268 | 0.49 | 308 | 0.54 | 348 | 0.58 | 388 | 0.63 |
| 29 | 0.10 | 69 | 0.19 | 109 | 0.26 | 149 | 0.32 | 189 | 0.38 | 229 | 0.44 | 269 | 0.49 | 309 | 0.54 | 349 | 0.59 | 389 | 0.63 |
| 30 | 0.11 | 70 | 0.19 | 110 | 0.26 | 150 | 0.33 | 190 | 0.38 | 230 | 0.44 | 270 | 0.49 | 310 | 0.54 | 350 | 0.59 | 390 | 0.63 |
| 31 | 0.11 | 71 | 0.19 | 111 | 0.26 | 151 | 0.33 | 191 | 0.39 | 231 | 0.44 | 271 | 0.49 | 311 | 0.54 | 351 | 0.59 | 391 | 0.63 |
| 32 | 0.11 | 72 | 0.20 | 112 | 0.27 | 152 | 0.33 | 192 | 0.39 | 232 | 0.44 | 272 | 0.49 | 312 | 0.54 | 352 | 0.59 | 392 | 0.63 |
| 33 | 0.11 | 73 | 0.20 | 113 | 0.27 | 153 | 0.33 | 193 | 0.39 | 233 | 0.44 | 273 | 0.49 | 313 | 0.54 | 353 | 0.59 | 393 | 0.64 |
| 34 | 0.12 | 74 | 0.20 | 114 | 0.27 | 154 | 0.33 | 194 | 0.39 | 234 | 0.44 | 274 | 0.50 | 314 | 0.54 | 354 | 0.59 | 394 | 0.64 |
| 35 | 0.12 | 75 | 0.20 | 115 | 0.27 | 155 | 0.33 | 195 | 0.39 | 235 | 0.45 | 275 | 0.50 | 315 | 0.55 | 355 | 0.59 | 395 | 0.64 |
| 36 | 0.12 | 76 | 0.20 | 116 | 0.27 | 156 | 0.33 | 196 | 0.39 | 236 | 0.45 | 276 | 0.50 | 316 | 0.55 | 356 | 0.59 | 396 | 0.64 |
| 37 | 0.12 | 77 | 0.21 | 117 | 0.27 | 157 | 0.34 | 197 | 0.39 | 237 | 0.45 | 277 | 0.50 | 317 | 0.55 | 357 | 0.59 | 397 | 0.64 |
| 38 | 0.13 | 78 | 0.21 | 118 | 0.28 | 158 | 0.34 | 198 | 0.40 | 238 | 0.45 | 278 | 0.50 | 318 | 0.55 | 358 | 0.60 | 398 | 0.64 |
| 39 | 0.13 | 79 | 0.21 | 119 | 0.28 | 159 | 0.34 | 199 | 0.40 | 239 | 0.45 | 279 | 0.50 | 319 | 0.55 | 359 | 0.60 | 399 | 0.64 |
| 40 | 0.13 | 80 | 0.21 | 120 | 0.28 | 160 | 0.34 | 200 | 0.40 | 240 | 0.45 | 280 | 0.50 | 320 | 0.55 | 360 | 0.60 | 400 | 0.64 |

Table 207.4 Acute Water Quality Standards for Dissolved Cadmium - Aquatic and Wildlife Warm Water
Acute Standard = $[e^{(1.0166 \ln(\text{hardness}))} - 2.561] [1.136672 - \ln(\text{hardness})] (0.041838)$

| Hard. mg/L | Std. ug/L | Hard. mg/L | Std. ug/L | Hard. mg/L | Std. ug/L | Hard. mg/L | Std. ug/L | Hard. mg/L | Std. ug/L | Hard. mg/L | Std. ug/L | Hard. mg/L | Std. ug/L | Hard. mg/L | Std. ug/L | Hard. mg/L | Std. ug/L | Hard. mg/L | Std. ug/L |
|---------------|--------------|---------------|--------------|---------------|--------------|---------------|--------------|---------------|--------------|---------------|--------------|---------------|--------------|---------------|--------------|---------------|--------------|---------------|--------------|
| 1 | 0.09 | 41 | 3.30 | 81 | 6.41 | 121 | 9.47 | 161 | 12.50 | 201 | 15.51 | 241 | 18.49 | 281 | 21.47 | 321 | 24.42 | 361 | 27.37 |
| 2 | 0.17 | 42 | 3.38 | 82 | 6.49 | 122 | 9.55 | 162 | 12.58 | 202 | 15.58 | 242 | 18.57 | 282 | 21.54 | 322 | 24.50 | 362 | 27.44 |
| 3 | 0.26 | 43 | 3.46 | 83 | 6.57 | 123 | 9.62 | 163 | 12.65 | 203 | 15.66 | 243 | 18.64 | 283 | 21.61 | 323 | 24.57 | 363 | 27.52 |
| 4 | 0.34 | 44 | 3.54 | 84 | 6.64 | 124 | 9.70 | 164 | 12.73 | 204 | 15.73 | 244 | 18.72 | 284 | 21.69 | 324 | 24.64 | 364 | 27.59 |
| 5 | 0.42 | 45 | 3.62 | 85 | 6.72 | 125 | 9.78 | 165 | 12.80 | 205 | 15.81 | 245 | 18.79 | 285 | 21.76 | 325 | 24.72 | 365 | 27.66 |
| 6 | 0.51 | 46 | 3.70 | 86 | 6.80 | 126 | 9.85 | 166 | 12.88 | 206 | 15.88 | 246 | 18.87 | 286 | 21.84 | 326 | 24.79 | 366 | 27.74 |
| 7 | 0.59 | 47 | 3.77 | 87 | 6.87 | 127 | 9.93 | 167 | 12.95 | 207 | 15.96 | 247 | 18.94 | 287 | 21.91 | 327 | 24.87 | 367 | 27.81 |
| 8 | 0.67 | 48 | 3.85 | 88 | 6.95 | 128 | 10.00 | 168 | 13.03 | 208 | 16.03 | 248 | 19.02 | 288 | 21.98 | 328 | 24.94 | 368 | 27.88 |
| 9 | 0.75 | 49 | 3.93 | 89 | 7.03 | 129 | 10.08 | 169 | 13.10 | 209 | 16.11 | 249 | 19.09 | 289 | 22.06 | 329 | 25.01 | 369 | 27.96 |
| 10 | 0.83 | 50 | 4.01 | 90 | 7.10 | 130 | 10.16 | 170 | 13.18 | 210 | 16.18 | 250 | 19.16 | 290 | 22.13 | 330 | 25.09 | 370 | 28.03 |
| 11 | 0.92 | 51 | 4.09 | 91 | 7.18 | 131 | 10.23 | 171 | 13.25 | 211 | 16.26 | 251 | 19.24 | 291 | 22.21 | 331 | 25.16 | 371 | 28.10 |
| 12 | 1.00 | 52 | 4.17 | 92 | 7.26 | 132 | 10.31 | 172 | 13.33 | 212 | 16.33 | 252 | 19.31 | 292 | 22.28 | 332 | 25.23 | 372 | 28.18 |
| 13 | 1.08 | 53 | 4.24 | 93 | 7.33 | 133 | 10.38 | 173 | 13.40 | 213 | 16.40 | 253 | 19.39 | 293 | 22.35 | 333 | 25.31 | 373 | 28.25 |
| 14 | 1.16 | 54 | 4.32 | 94 | 7.41 | 134 | 10.46 | 174 | 13.48 | 214 | 16.48 | 254 | 19.46 | 294 | 22.43 | 334 | 25.38 | 374 | 28.32 |
| 15 | 1.24 | 55 | 4.40 | 95 | 7.49 | 135 | 10.53 | 175 | 13.56 | 215 | 16.55 | 255 | 19.54 | 295 | 22.50 | 335 | 25.46 | 375 | 28.40 |
| 16 | 1.32 | 56 | 4.48 | 96 | 7.56 | 136 | 10.61 | 176 | 13.63 | 216 | 16.63 | 256 | 19.61 | 296 | 22.58 | 336 | 25.53 | 376 | 28.47 |
| 17 | 1.40 | 57 | 4.55 | 97 | 7.64 | 137 | 10.69 | 177 | 13.71 | 217 | 16.70 | 257 | 19.68 | 297 | 22.65 | 337 | 25.60 | 377 | 28.54 |
| 18 | 1.48 | 58 | 4.63 | 98 | 7.72 | 138 | 10.76 | 178 | 13.78 | 218 | 16.78 | 258 | 19.76 | 298 | 22.72 | 338 | 25.68 | 378 | 28.62 |
| 19 | 1.56 | 59 | 4.71 | 99 | 7.79 | 139 | 10.84 | 179 | 13.86 | 219 | 16.85 | 259 | 19.83 | 299 | 22.80 | 339 | 25.75 | 379 | 28.69 |
| 20 | 1.64 | 60 | 4.79 | 100 | 7.87 | 140 | 10.91 | 180 | 13.93 | 220 | 16.93 | 260 | 19.91 | 300 | 22.87 | 340 | 25.82 | 380 | 28.77 |
| 21 | 1.72 | 61 | 4.87 | 101 | 7.95 | 141 | 10.99 | 181 | 14.01 | 221 | 17.00 | 261 | 19.98 | 301 | 22.95 | 341 | 25.90 | 381 | 28.84 |
| 22 | 1.80 | 62 | 4.94 | 102 | 8.02 | 142 | 11.07 | 182 | 14.08 | 222 | 17.08 | 262 | 20.06 | 302 | 23.02 | 342 | 25.97 | 382 | 28.91 |
| 23 | 1.88 | 63 | 5.02 | 103 | 8.10 | 143 | 11.14 | 183 | 14.16 | 223 | 17.15 | 263 | 20.13 | 303 | 23.09 | 343 | 26.05 | 383 | 28.99 |
| 24 | 1.96 | 64 | 5.10 | 104 | 8.18 | 144 | 11.22 | 184 | 14.23 | 224 | 17.23 | 264 | 20.20 | 304 | 23.17 | 344 | 26.12 | 384 | 29.06 |
| 25 | 2.04 | 65 | 5.18 | 105 | 8.25 | 145 | 11.29 | 185 | 14.31 | 225 | 17.30 | 265 | 20.28 | 305 | 23.24 | 345 | 26.19 | 385 | 29.13 |
| 26 | 2.12 | 66 | 5.25 | 106 | 8.33 | 146 | 11.37 | 186 | 14.38 | 226 | 17.38 | 266 | 20.35 | 306 | 23.32 | 346 | 26.27 | 386 | 29.21 |
| 27 | 2.20 | 67 | 5.33 | 107 | 8.40 | 147 | 11.44 | 187 | 14.46 | 227 | 17.45 | 267 | 20.43 | 307 | 23.39 | 347 | 26.34 | 387 | 29.28 |
| 28 | 2.28 | 68 | 5.41 | 108 | 8.48 | 148 | 11.52 | 188 | 14.53 | 228 | 17.53 | 268 | 20.50 | 308 | 23.46 | 348 | 26.41 | 388 | 29.35 |
| 29 | 2.36 | 69 | 5.49 | 109 | 8.56 | 149 | 11.59 | 189 | 14.61 | 229 | 17.60 | 269 | 20.58 | 309 | 23.54 | 349 | 26.49 | 389 | 29.43 |
| 30 | 2.44 | 70 | 5.56 | 110 | 8.63 | 150 | 11.67 | 190 | 14.68 | 230 | 17.67 | 270 | 20.65 | 310 | 23.61 | 350 | 26.56 | 390 | 29.50 |
| 31 | 2.52 | 71 | 5.64 | 111 | 8.71 | 151 | 11.75 | 191 | 14.76 | 231 | 17.75 | 271 | 20.72 | 311 | 23.69 | 351 | 26.63 | 391 | 29.57 |
| 32 | 2.60 | 72 | 5.72 | 112 | 8.79 | 152 | 11.82 | 192 | 14.83 | 232 | 17.82 | 272 | 20.80 | 312 | 23.76 | 352 | 26.71 | 392 | 29.65 |
| 33 | 2.67 | 73 | 5.79 | 113 | 8.86 | 153 | 11.90 | 193 | 14.91 | 233 | 17.90 | 273 | 20.87 | 313 | 23.83 | 353 | 26.78 | 393 | 29.72 |
| 34 | 2.75 | 74 | 5.87 | 114 | 8.94 | 154 | 11.97 | 194 | 14.98 | 234 | 17.97 | 274 | 20.95 | 314 | 23.91 | 354 | 26.85 | 394 | 29.79 |
| 35 | 2.83 | 75 | 5.95 | 115 | 9.01 | 155 | 12.05 | 195 | 15.06 | 235 | 18.05 | 275 | 21.02 | 315 | 23.98 | 355 | 26.93 | 395 | 29.87 |
| 36 | 2.91 | 76 | 6.03 | 116 | 9.09 | 156 | 12.12 | 196 | 15.13 | 236 | 18.12 | 276 | 21.09 | 316 | 24.05 | 356 | 27.00 | 396 | 29.94 |
| 37 | 2.99 | 77 | 6.10 | 117 | 9.17 | 157 | 12.20 | 197 | 15.21 | 237 | 18.20 | 277 | 21.17 | 317 | 24.13 | 357 | 27.08 | 397 | 30.01 |
| 38 | 3.07 | 78 | 6.18 | 118 | 9.24 | 158 | 12.27 | 198 | 15.28 | 238 | 18.27 | 278 | 21.24 | 318 | 24.20 | 358 | 27.15 | 398 | 30.08 |
| 39 | 3.15 | 79 | 6.26 | 119 | 9.32 | 159 | 12.35 | 199 | 15.36 | 239 | 18.35 | 279 | 21.32 | 319 | 24.28 | 359 | 27.22 | 399 | 30.16 |
| 40 | 0.8 | 80 | 6.33 | 120 | 9.40 | 160 | 12.43 | 200 | 15.43 | 240 | 18.42 | 280 | 21.39 | 320 | 24.35 | 360 | 27.30 | 400 | 30.23 |

Table 207.5 Chronic Water Quality Standards for Dissolved Cadmium - Aquatic and Wildlife Warm Water
Chronic Standard = [e (0.7409 [ln (hardness)] – 3.894)][1.101672-[ln (hardness)](0.041838)]

| Hard. | Std. | Hard. | Std. | Hard. | Std. | Hard. | Std. | Hard. | Std. | Hard. | Std. | Hard. | Std. | Hard. | Std. | Hard. | Std. | Hard. | Std. |
|-------|------|-------|------|-------|------|-------|------|-------|------|-------|------|-------|------|-------|------|-------|------|-------|------|
| mg/L | ug/L | mg/L | ug/L | mg/L | ug/L | mg/L | ug/L | mg/L | ug/L | mg/L | ug/L | mg/L | ug/L | mg/L | ug/L | mg/L | ug/L | mg/L | ug/L |
| 1 | 0.02 | 41 | 0.30 | 81 | 0.48 | 121 | 0.64 | 161 | 0.78 | 201 | 0.91 | 241 | 1.03 | 281 | 1.15 | 321 | 1.26 | 361 | 1.37 |
| 2 | 0.04 | 42 | 0.31 | 82 | 0.49 | 122 | 0.64 | 162 | 0.78 | 202 | 0.91 | 242 | 1.04 | 282 | 1.15 | 322 | 1.26 | 362 | 1.37 |
| 3 | 0.05 | 43 | 0.31 | 83 | 0.49 | 123 | 0.65 | 163 | 0.79 | 203 | 0.92 | 243 | 1.04 | 283 | 1.16 | 323 | 1.27 | 363 | 1.37 |
| 4 | 0.06 | 44 | 0.32 | 84 | 0.50 | 124 | 0.65 | 164 | 0.79 | 204 | 0.92 | 244 | 1.04 | 284 | 1.16 | 324 | 1.27 | 364 | 1.38 |
| 5 | 0.07 | 45 | 0.32 | 85 | 0.50 | 125 | 0.66 | 165 | 0.79 | 205 | 0.92 | 245 | 1.05 | 285 | 1.16 | 325 | 1.27 | 365 | 1.38 |
| 6 | 0.08 | 46 | 0.33 | 86 | 0.51 | 126 | 0.66 | 166 | 0.80 | 206 | 0.93 | 246 | 1.05 | 286 | 1.16 | 326 | 1.27 | 366 | 1.38 |
| 7 | 0.09 | 47 | 0.33 | 87 | 0.51 | 127 | 0.66 | 167 | 0.80 | 207 | 0.93 | 247 | 1.05 | 287 | 1.17 | 327 | 1.28 | 367 | 1.38 |
| 8 | 0.10 | 48 | 0.34 | 88 | 0.51 | 128 | 0.67 | 168 | 0.80 | 208 | 0.93 | 248 | 1.05 | 288 | 1.17 | 328 | 1.28 | 368 | 1.39 |
| 9 | 0.10 | 49 | 0.34 | 89 | 0.52 | 129 | 0.67 | 169 | 0.81 | 209 | 0.94 | 249 | 1.06 | 289 | 1.17 | 329 | 1.28 | 369 | 1.39 |
| 10 | 0.11 | 50 | 0.35 | 90 | 0.52 | 130 | 0.67 | 170 | 0.81 | 210 | 0.94 | 250 | 1.06 | 290 | 1.17 | 330 | 1.28 | 370 | 1.39 |
| 11 | 0.12 | 51 | 0.35 | 91 | 0.53 | 131 | 0.68 | 171 | 0.81 | 211 | 0.94 | 251 | 1.06 | 291 | 1.18 | 331 | 1.29 | 371 | 1.39 |
| 12 | 0.13 | 52 | 0.36 | 92 | 0.53 | 132 | 0.68 | 172 | 0.82 | 212 | 0.95 | 252 | 1.07 | 292 | 1.18 | 332 | 1.29 | 372 | 1.40 |
| 13 | 0.14 | 53 | 0.36 | 93 | 0.53 | 133 | 0.68 | 173 | 0.82 | 213 | 0.95 | 253 | 1.07 | 293 | 1.18 | 333 | 1.29 | 373 | 1.40 |
| 14 | 0.14 | 54 | 0.37 | 94 | 0.54 | 134 | 0.69 | 174 | 0.82 | 214 | 0.95 | 254 | 1.07 | 294 | 1.19 | 334 | 1.30 | 374 | 1.40 |
| 15 | 0.15 | 55 | 0.37 | 95 | 0.54 | 135 | 0.69 | 175 | 0.83 | 215 | 0.95 | 255 | 1.07 | 295 | 1.19 | 335 | 1.30 | 375 | 1.40 |
| 16 | 0.16 | 56 | 0.38 | 96 | 0.55 | 136 | 0.69 | 176 | 0.83 | 216 | 0.96 | 256 | 1.08 | 296 | 1.19 | 336 | 1.30 | 376 | 1.41 |
| 17 | 0.16 | 57 | 0.38 | 97 | 0.55 | 137 | 0.70 | 177 | 0.83 | 217 | 0.96 | 257 | 1.08 | 297 | 1.19 | 337 | 1.30 | 377 | 1.41 |
| 18 | 0.17 | 58 | 0.38 | 98 | 0.55 | 138 | 0.70 | 178 | 0.84 | 218 | 0.96 | 258 | 1.08 | 298 | 1.20 | 338 | 1.31 | 378 | 1.41 |
| 19 | 0.18 | 59 | 0.39 | 99 | 0.56 | 139 | 0.71 | 179 | 0.84 | 219 | 0.97 | 259 | 1.09 | 299 | 1.20 | 339 | 1.31 | 379 | 1.41 |
| 20 | 0.18 | 60 | 0.39 | 100 | 0.56 | 140 | 0.71 | 180 | 0.84 | 220 | 0.97 | 260 | 1.09 | 300 | 1.20 | 340 | 1.31 | 380 | 1.42 |
| 21 | 0.19 | 61 | 0.40 | 101 | 0.57 | 141 | 0.71 | 181 | 0.85 | 221 | 0.97 | 261 | 1.09 | 301 | 1.21 | 341 | 1.31 | 381 | 1.42 |
| 22 | 0.20 | 62 | 0.40 | 102 | 0.57 | 142 | 0.72 | 182 | 0.85 | 222 | 0.98 | 262 | 1.10 | 302 | 1.21 | 342 | 1.32 | 382 | 1.42 |
| 23 | 0.20 | 63 | 0.41 | 103 | 0.57 | 143 | 0.72 | 183 | 0.85 | 223 | 0.98 | 263 | 1.10 | 303 | 1.21 | 343 | 1.32 | 383 | 1.42 |
| 24 | 0.21 | 64 | 0.41 | 104 | 0.58 | 144 | 0.72 | 184 | 0.86 | 224 | 0.98 | 264 | 1.10 | 304 | 1.21 | 344 | 1.32 | 384 | 1.43 |
| 25 | 0.21 | 65 | 0.42 | 105 | 0.58 | 145 | 0.73 | 185 | 0.86 | 225 | 0.99 | 265 | 1.10 | 305 | 1.22 | 345 | 1.32 | 385 | 1.43 |
| 26 | 0.22 | 66 | 0.42 | 106 | 0.58 | 146 | 0.73 | 186 | 0.86 | 226 | 0.99 | 266 | 1.11 | 306 | 1.22 | 346 | 1.33 | 386 | 1.43 |
| 27 | 0.23 | 67 | 0.42 | 107 | 0.59 | 147 | 0.73 | 187 | 0.87 | 227 | 0.99 | 267 | 1.11 | 307 | 1.22 | 347 | 1.33 | 387 | 1.43 |
| 28 | 0.23 | 68 | 0.43 | 108 | 0.59 | 148 | 0.74 | 188 | 0.87 | 228 | 0.99 | 268 | 1.11 | 308 | 1.22 | 348 | 1.33 | 388 | 1.44 |
| 29 | 0.24 | 69 | 0.43 | 109 | 0.60 | 149 | 0.74 | 189 | 0.87 | 229 | 1.00 | 269 | 1.12 | 309 | 1.23 | 349 | 1.34 | 389 | 1.44 |
| 30 | 0.24 | 70 | 0.44 | 110 | 0.60 | 150 | 0.74 | 190 | 0.88 | 230 | 1.00 | 270 | 1.12 | 310 | 1.23 | 350 | 1.34 | 390 | 1.44 |
| 31 | 0.25 | 71 | 0.44 | 111 | 0.60 | 151 | 0.75 | 191 | 0.88 | 231 | 1.00 | 271 | 1.12 | 311 | 1.23 | 351 | 1.34 | 391 | 1.44 |
| 32 | 0.25 | 72 | 0.45 | 112 | 0.61 | 152 | 0.75 | 192 | 0.88 | 232 | 1.01 | 272 | 1.12 | 312 | 1.24 | 352 | 1.34 | 392 | 1.45 |
| 33 | 0.26 | 73 | 0.45 | 113 | 0.61 | 153 | 0.75 | 193 | 0.89 | 233 | 1.01 | 273 | 1.13 | 313 | 1.24 | 353 | 1.35 | 393 | 1.45 |
| 34 | 0.26 | 74 | 0.46 | 114 | 0.61 | 154 | 0.76 | 194 | 0.89 | 234 | 1.01 | 274 | 1.13 | 314 | 1.24 | 354 | 1.35 | 394 | 1.45 |
| 35 | 0.27 | 75 | 0.46 | 115 | 0.62 | 155 | 0.76 | 195 | 0.89 | 235 | 1.02 | 275 | 1.13 | 315 | 1.24 | 355 | 1.35 | 395 | 1.46 |
| 36 | 0.28 | 76 | 0.46 | 116 | 0.62 | 156 | 0.76 | 196 | 0.90 | 236 | 1.02 | 276 | 1.14 | 316 | 1.25 | 356 | 1.35 | 396 | 1.46 |
| 37 | 0.28 | 77 | 0.47 | 117 | 0.63 | 157 | 0.77 | 197 | 0.90 | 237 | 1.02 | 277 | 1.14 | 317 | 1.25 | 357 | 1.36 | 397 | 1.46 |
| 38 | 0.29 | 78 | 0.47 | 118 | 0.63 | 158 | 0.77 | 198 | 0.90 | 238 | 1.02 | 278 | 1.14 | 318 | 1.25 | 358 | 1.36 | 398 | 1.46 |
| 39 | 0.29 | 79 | 0.48 | 119 | 0.63 | 159 | 0.77 | 199 | 0.91 | 239 | 1.03 | 279 | 1.14 | 319 | 1.26 | 359 | 1.36 | 399 | 1.47 |
| 40 | 0.30 | 80 | 0.48 | 120 | 0.64 | 160 | 0.78 | 200 | 0.91 | 240 | 1.03 | 280 | 1.15 | 320 | 1.26 | 360 | 1.36 | 400 | 1.47 |

Table 207.6 Acute Water Quality Standards for Dissolved Chromium III - Aquatic and Wildlife
Acute Standard = [e (0.8190 [ln (hardness)] + 3.7256)] 0.316

| Hard. | Std. | Hard. | Std. | Hard. | Std. | Hard. | Std. | Hard. | Std. | Hard. | Std. | Hard. | Std. | Hard. | Std. | Hard. | Std. | Hard. | Std. | Hard. | Std. |
|-------|------|-------|------|-------|------|-------|------|-------|------|-------|------|-------|------|-------|------|-------|------|-------|------|-------|------|
| mg/L | ug/L | mg/L | ug/L | mg/L | ug/L | mg/L | ug/L | mg/L | ug/L | mg/L | ug/L | mg/L | ug/L | mg/L | ug/L | mg/L | ug/L | mg/L | ug/L | mg/L | ug/L |
| 1 | 13.1 | 41 | 275 | 81 | 479 | 121 | 666 | 161 | 842 | 201 | 1009 | 241 | 1171 | 281 | 1328 | 321 | 1481 | 361 | 1630 | | |
| 2 | 23.1 | 42 | 280 | 82 | 484 | 122 | 671 | 162 | 846 | 202 | 1013 | 242 | 1175 | 282 | 1332 | 322 | 1485 | 362 | 1634 | | |
| 3 | 32.2 | 43 | 285 | 83 | 489 | 123 | 675 | 163 | 850 | 203 | 1017 | 243 | 1179 | 283 | 1336 | 323 | 1488 | 363 | 1638 | | |
| 4 | 40.8 | 44 | 291 | 84 | 494 | 124 | 680 | 164 | 854 | 204 | 1022 | 244 | 1183 | 284 | 1340 | 324 | 1492 | 364 | 1641 | | |
| 5 | 49.0 | 45 | 296 | 85 | 499 | 125 | 684 | 165 | 859 | 205 | 1026 | 245 | 1187 | 285 | 1343 | 325 | 1496 | 365 | 1645 | | |
| 6 | 56.9 | 46 | 302 | 86 | 504 | 126 | 688 | 166 | 863 | 206 | 1030 | 246 | 1191 | 286 | 1347 | 326 | 1500 | 366 | 1649 | | |
| 7 | 64.5 | 47 | 307 | 87 | 508 | 127 | 693 | 167 | 867 | 207 | 1034 | 247 | 1195 | 287 | 1351 | 327 | 1504 | 367 | 1653 | | |
| 8 | 72.0 | 48 | 312 | 88 | 513 | 128 | 697 | 168 | 871 | 208 | 1038 | 248 | 1199 | 288 | 1355 | 328 | 1507 | 368 | 1656 | | |
| 9 | 79.3 | 49 | 318 | 89 | 518 | 129 | 702 | 169 | 876 | 209 | 1042 | 249 | 1203 | 289 | 1359 | 329 | 1511 | 369 | 1660 | | |
| 10 | 86.4 | 50 | 323 | 90 | 523 | 130 | 706 | 170 | 880 | 210 | 1046 | 250 | 1207 | 290 | 1363 | 330 | 1515 | 370 | 1664 | | |
| 11 | 93.5 | 51 | 328 | 91 | 527 | 131 | 711 | 171 | 884 | 211 | 1050 | 251 | 1211 | 291 | 1367 | 331 | 1519 | 371 | 1667 | | |
| 12 | 100 | 52 | 334 | 92 | 532 | 132 | 715 | 172 | 888 | 212 | 1054 | 252 | 1215 | 292 | 1370 | 332 | 1522 | 372 | 1671 | | |
| 13 | 107 | 53 | 339 | 93 | 537 | 133 | 720 | 173 | 893 | 213 | 1058 | 253 | 1219 | 293 | 1374 | 333 | 1526 | 373 | 1675 | | |
| 14 | 114 | 54 | 344 | 94 | 542 | 134 | 724 | 174 | 897 | 214 | 1062 | 254 | 1223 | 294 | 1378 | 334 | 1530 | 374 | 1678 | | |
| 15 | 120 | 55 | 349 | 95 | 546 | 135 | 729 | 175 | 901 | 215 | 1067 | 255 | 1226 | 295 | 1382 | 335 | 1534 | 375 | 1682 | | |
| 16 | 127 | 56 | 354 | 96 | 551 | 136 | 733 | 176 | 905 | 216 | 1071 | 256 | 1230 | 296 | 1386 | 336 | 1537 | 376 | 1686 | | |
| 17 | 133 | 57 | 360 | 97 | 556 | 137 | 737 | 177 | 909 | 217 | 1075 | 257 | 1234 | 297 | 1390 | 337 | 1541 | 377 | 1689 | | |
| 18 | 140 | 58 | 365 | 98 | 560 | 138 | 742 | 178 | 914 | 218 | 1079 | 258 | 1238 | 298 | 1393 | 338 | 1545 | 378 | 1693 | | |
| 19 | 146 | 59 | 370 | 99 | 565 | 139 | 746 | 179 | 918 | 219 | 1083 | 259 | 1242 | 299 | 1397 | 339 | 1549 | 379 | 1697 | | |
| 20 | 152 | 60 | 375 | 100 | 570 | 140 | 751 | 180 | 922 | 220 | 1087 | 260 | 1246 | 300 | 1401 | 340 | 1552 | 380 | 1700 | | |
| 21 | 159 | 61 | 380 | 101 | 574 | 141 | 755 | 181 | 926 | 221 | 1091 | 261 | 1250 | 301 | 1405 | 341 | 1556 | 381 | 1704 | | |
| 22 | 165 | 62 | 385 | 102 | 579 | 142 | 759 | 182 | 930 | 222 | 1095 | 262 | 1254 | 302 | 1409 | 342 | 1560 | 382 | 1708 | | |
| 23 | 171 | 63 | 390 | 103 | 584 | 143 | 764 | 183 | 935 | 223 | 1099 | 263 | 1258 | 303 | 1413 | 343 | 1564 | 383 | 1711 | | |
| 24 | 177 | 64 | 395 | 104 | 588 | 144 | 768 | 184 | 939 | 224 | 1103 | 264 | 1262 | 304 | 1416 | 344 | 1567 | 384 | 1715 | | |
| 25 | 183 | 65 | 400 | 105 | 593 | 145 | 772 | 185 | 943 | 225 | 1107 | 265 | 1266 | 305 | 1420 | 345 | 1571 | 385 | 1719 | | |
| 26 | 189 | 66 | 405 | 106 | 598 | 146 | 777 | 186 | 947 | 226 | 1111 | 266 | 1270 | 306 | 1424 | 346 | 1575 | 386 | 1722 | | |
| 27 | 195 | 67 | 410 | 107 | 602 | 147 | 781 | 187 | 951 | 227 | 1115 | 267 | 1274 | 307 | 1428 | 347 | 1578 | 387 | 1726 | | |
| 28 | 201 | 68 | 415 | 108 | 607 | 148 | 785 | 188 | 955 | 228 | 1119 | 268 | 1277 | 308 | 1432 | 348 | 1582 | 388 | 1730 | | |
| 29 | 207 | 69 | 420 | 109 | 611 | 149 | 790 | 189 | 960 | 229 | 1123 | 269 | 1281 | 309 | 1435 | 349 | 1586 | 389 | 1733 | | |
| 30 | 213 | 70 | 425 | 110 | 616 | 150 | 794 | 190 | 964 | 230 | 1127 | 270 | 1285 | 310 | 1439 | 350 | 1590 | 390 | 1737 | | |
| 31 | 218 | 71 | 430 | 111 | 621 | 151 | 799 | 191 | 968 | 231 | 1131 | 271 | 1289 | 311 | 1443 | 351 | 1593 | 391 | 1741 | | |
| 32 | 224 | 72 | 435 | 112 | 625 | 152 | 803 | 192 | 972 | 232 | 1135 | 272 | 1293 | 312 | 1447 | 352 | 1597 | 392 | 1744 | | |
| 33 | 230 | 73 | 440 | 113 | 630 | 153 | 807 | 193 | 976 | 233 | 1139 | 273 | 1297 | 313 | 1451 | 353 | 1601 | 393 | 1748 | | |
| 34 | 235 | 74 | 445 | 114 | 634 | 154 | 811 | 194 | 980 | 234 | 1143 | 274 | 1301 | 314 | 1454 | 354 | 1604 | 394 | 1751 | | |
| 35 | 241 | 75 | 450 | 115 | 639 | 155 | 816 | 195 | 985 | 235 | 1147 | 275 | 1305 | 315 | 1458 | 355 | 1608 | 395 | 1755 | | |
| 36 | 247 | 76 | 455 | 116 | 643 | 156 | 820 | 196 | 989 | 236 | 1151 | 276 | 1309 | 316 | 1462 | 356 | 1612 | 396 | 1759 | | |
| 37 | 252 | 77 | 460 | 117 | 648 | 157 | 824 | 197 | 993 | 237 | 1155 | 277 | 1312 | 317 | 1466 | 357 | 1616 | 397 | 1762 | | |
| 38 | 258 | 78 | 465 | 118 | 652 | 158 | 829 | 198 | 997 | 238 | 1159 | 278 | 1316 | 318 | 1470 | 358 | 1619 | 398 | 1766 | | |
| 39 | 263 | 79 | 470 | 119 | 657 | 159 | 833 | 199 | 1001 | 239 | 1163 | 279 | 1320 | 319 | 1473 | 359 | 1623 | 399 | 1770 | | |
| 40 | 269 | 80 | 475 | 120 | 662 | 160 | 837 | 200 | 1005 | 240 | 1167 | 280 | 1324 | 320 | 1477 | 360 | 1627 | 400 | 1773 | | |

Table 207.7 Chronic Water Quality Standards for Dissolved Chromium III - Aquatic and Wildlife
Chronic Standard = [e (0.8190 [ln (hardness)] + 0.6848)]0.860

| Hard. mg/L | Std. ug/L | Hard. mg/L | Std. ug/L | Hard. mg/L | Std. ug/L | Hard. mg/L | Std. ug/L | Hard. mg/L | Std. ug/L | Hard. mg/L | Std. ug/L | Hard. mg/L | Std. ug/L | Hard. mg/L | Std. ug/L | Hard. mg/L | Std. ug/L | Hard. mg/L | Std. ug/L |
|---------------|--------------|---------------|--------------|---------------|--------------|---------------|--------------|---------------|--------------|---------------|--------------|---------------|--------------|---------------|--------------|---------------|--------------|---------------|--------------|
| 1 | 1.7 | 41 | 35.71 | 81 | 62.37 | 121 | 86.64 | 161 | 109.47 | 201 | 131.29 | 241 | 152.33 | 281 | 172.74 | 321 | 192.63 | 361 | 212.08 |
| 2 | 3.01 | 42 | 36.42 | 82 | 63.00 | 122 | 87.22 | 162 | 110.03 | 202 | 131.82 | 242 | 152.84 | 282 | 173.24 | 322 | 193.12 | 362 | 212.56 |
| 3 | 4.19 | 43 | 37.13 | 83 | 63.63 | 123 | 87.81 | 163 | 110.58 | 203 | 132.36 | 243 | 153.36 | 283 | 173.75 | 323 | 193.62 | 363 | 213.04 |
| 4 | 5.31 | 44 | 37.83 | 84 | 64.25 | 124 | 88.39 | 164 | 111.14 | 204 | 132.89 | 244 | 153.88 | 284 | 174.25 | 324 | 194.11 | 364 | 213.52 |
| 5 | 6.37 | 45 | 38.54 | 85 | 64.88 | 125 | 88.98 | 165 | 111.69 | 205 | 133.42 | 245 | 154.39 | 285 | 174.75 | 325 | 194.60 | 365 | 214.00 |
| 6 | 7.40 | 46 | 39.24 | 86 | 65.50 | 126 | 89.56 | 166 | 112.25 | 206 | 133.96 | 246 | 154.91 | 286 | 175.25 | 326 | 195.09 | 366 | 214.48 |
| 7 | 8.40 | 47 | 39.93 | 87 | 66.13 | 127 | 90.14 | 167 | 112.80 | 207 | 134.49 | 247 | 155.43 | 287 | 175.76 | 327 | 195.58 | 367 | 214.96 |
| 8 | 9.37 | 48 | 40.63 | 88 | 66.75 | 128 | 90.72 | 168 | 113.35 | 208 | 135.02 | 248 | 155.94 | 288 | 176.26 | 328 | 196.07 | 368 | 215.44 |
| 9 | 10.31 | 49 | 41.32 | 89 | 67.37 | 129 | 91.30 | 169 | 113.90 | 209 | 135.55 | 249 | 156.46 | 289 | 176.76 | 329 | 196.56 | 369 | 215.92 |
| 10 | 11.24 | 50 | 42.01 | 90 | 67.99 | 130 | 91.88 | 170 | 114.46 | 210 | 136.08 | 250 | 156.97 | 290 | 177.26 | 330 | 197.05 | 370 | 216.40 |
| 11 | 12.16 | 51 | 42.70 | 91 | 68.61 | 131 | 92.46 | 171 | 115.01 | 211 | 136.61 | 251 | 157.48 | 291 | 177.76 | 331 | 197.53 | 371 | 216.88 |
| 12 | 13.05 | 52 | 43.38 | 92 | 69.22 | 132 | 93.04 | 172 | 115.56 | 212 | 137.14 | 252 | 158.00 | 292 | 178.26 | 332 | 198.02 | 372 | 217.36 |
| 13 | 13.94 | 53 | 44.06 | 93 | 69.84 | 133 | 93.61 | 173 | 116.11 | 213 | 137.67 | 253 | 158.51 | 293 | 178.76 | 333 | 198.51 | 373 | 217.84 |
| 14 | 14.81 | 54 | 44.74 | 94 | 70.45 | 134 | 94.19 | 174 | 116.66 | 214 | 138.20 | 254 | 159.02 | 294 | 179.26 | 334 | 199.00 | 374 | 218.32 |
| 15 | 15.67 | 55 | 45.42 | 95 | 71.07 | 135 | 94.76 | 175 | 117.21 | 215 | 138.73 | 255 | 159.54 | 295 | 179.76 | 335 | 199.49 | 375 | 218.79 |
| 16 | 16.52 | 56 | 46.10 | 96 | 71.68 | 136 | 95.34 | 176 | 117.75 | 216 | 139.26 | 256 | 160.05 | 296 | 180.26 | 336 | 199.97 | 376 | 219.27 |
| 17 | 17.36 | 57 | 46.77 | 97 | 72.29 | 137 | 95.91 | 177 | 118.30 | 217 | 139.79 | 257 | 160.56 | 297 | 180.76 | 337 | 200.46 | 377 | 219.75 |
| 18 | 18.20 | 58 | 47.44 | 98 | 72.90 | 138 | 96.49 | 178 | 118.85 | 218 | 140.31 | 258 | 161.07 | 298 | 181.25 | 338 | 200.95 | 378 | 220.23 |
| 19 | 19.02 | 59 | 48.11 | 99 | 73.51 | 139 | 97.06 | 179 | 119.40 | 219 | 140.84 | 259 | 161.58 | 299 | 181.75 | 339 | 201.44 | 379 | 220.70 |
| 20 | 19.84 | 60 | 48.78 | 100 | 74.11 | 140 | 97.63 | 180 | 119.94 | 220 | 141.37 | 260 | 162.09 | 300 | 182.25 | 340 | 201.92 | 380 | 221.18 |
| 21 | 20.64 | 61 | 49.44 | 101 | 74.72 | 141 | 98.20 | 181 | 120.49 | 221 | 141.89 | 261 | 162.60 | 301 | 182.75 | 341 | 202.41 | 381 | 221.66 |
| 22 | 21.45 | 62 | 50.10 | 102 | 75.33 | 142 | 98.77 | 182 | 121.03 | 222 | 142.42 | 262 | 163.11 | 302 | 183.24 | 342 | 202.89 | 382 | 222.13 |
| 23 | 22.24 | 63 | 50.76 | 103 | 75.93 | 143 | 99.34 | 183 | 121.58 | 223 | 142.94 | 263 | 163.62 | 303 | 183.74 | 343 | 203.38 | 383 | 222.61 |
| 24 | 23.03 | 64 | 51.42 | 104 | 76.53 | 144 | 99.91 | 184 | 122.12 | 224 | 143.47 | 264 | 164.13 | 304 | 184.24 | 344 | 203.87 | 384 | 223.09 |
| 25 | 23.81 | 65 | 52.08 | 105 | 77.14 | 145 | 100.48 | 185 | 122.66 | 225 | 143.99 | 265 | 164.64 | 305 | 184.73 | 345 | 204.35 | 385 | 223.56 |
| 26 | 24.59 | 66 | 52.74 | 106 | 77.74 | 146 | 101.04 | 186 | 123.21 | 226 | 144.52 | 266 | 165.15 | 306 | 185.23 | 346 | 204.84 | 386 | 224.04 |
| 27 | 25.36 | 67 | 53.39 | 107 | 78.34 | 147 | 101.61 | 187 | 123.75 | 227 | 145.04 | 267 | 165.66 | 307 | 185.72 | 347 | 205.32 | 387 | 224.51 |
| 28 | 26.13 | 68 | 54.04 | 108 | 78.94 | 148 | 102.18 | 188 | 124.29 | 228 | 145.56 | 268 | 166.17 | 308 | 186.22 | 348 | 205.81 | 388 | 224.99 |
| 29 | 26.89 | 69 | 54.69 | 109 | 79.53 | 149 | 102.74 | 189 | 124.83 | 229 | 146.09 | 269 | 166.67 | 309 | 186.72 | 349 | 206.29 | 389 | 225.46 |
| 30 | 27.65 | 70 | 55.34 | 110 | 80.13 | 150 | 103.31 | 190 | 125.37 | 230 | 146.61 | 270 | 167.18 | 310 | 187.21 | 350 | 206.77 | 390 | 225.94 |
| 31 | 28.40 | 71 | 55.99 | 111 | 80.73 | 151 | 103.87 | 191 | 125.91 | 231 | 147.13 | 271 | 167.69 | 311 | 187.70 | 351 | 207.26 | 391 | 226.41 |
| 32 | 29.15 | 72 | 56.63 | 112 | 81.32 | 152 | 104.43 | 192 | 126.45 | 232 | 147.65 | 272 | 168.20 | 312 | 188.20 | 352 | 207.74 | 392 | 226.88 |
| 33 | 29.89 | 73 | 57.27 | 113 | 81.92 | 153 | 104.99 | 193 | 126.99 | 233 | 148.17 | 273 | 168.70 | 313 | 188.69 | 353 | 208.22 | 393 | 227.36 |
| 34 | 30.63 | 74 | 57.92 | 114 | 82.51 | 154 | 105.56 | 194 | 127.53 | 234 | 148.69 | 274 | 169.21 | 314 | 189.19 | 354 | 208.71 | 394 | 227.83 |
| 35 | 31.37 | 75 | 58.56 | 115 | 83.10 | 155 | 106.12 | 195 | 128.07 | 235 | 149.21 | 275 | 169.71 | 315 | 189.68 | 355 | 209.19 | 395 | 228.31 |
| 36 | 32.10 | 76 | 59.20 | 116 | 83.69 | 156 | 106.68 | 196 | 128.61 | 236 | 149.73 | 276 | 170.22 | 316 | 190.17 | 356 | 209.67 | 396 | 228.78 |
| 37 | 32.83 | 77 | 59.83 | 117 | 84.28 | 157 | 107.24 | 197 | 129.14 | 237 | 150.25 | 277 | 170.72 | 317 | 190.66 | 357 | 210.15 | 397 | 229.25 |
| 38 | 33.55 | 78 | 60.47 | 118 | 84.87 | 158 | 107.80 | 198 | 129.68 | 238 | 150.77 | 278 | 171.23 | 318 | 191.16 | 358 | 210.64 | 398 | 229.72 |
| 39 | 34.28 | 79 | 61.10 | 119 | 85.46 | 159 | 108.35 | 199 | 130.22 | 239 | 151.29 | 279 | 171.73 | 319 | 191.65 | 359 | 211.12 | 399 | 230.20 |
| 40 | 34.99 | 80 | 61.74 | 120 | 86.05 | 160 | 108.91 | 200 | 130.75 | 240 | 151.81 | 280 | 172.24 | 320 | 192.14 | 360 | 211.60 | 400 | 230.67 |

Table 207.8 Acute Water Quality Standards for Dissolved Copper - Aquatic and Wildlife
Acute Standard = [e (0.9422 [ln (hardness)] - 1.700)]0.960

| Hard. | Std. | Hard. | Std. | Hard. | Std. | Hard. | Std. | Hard. | Std. | Hard. | Std. | Hard. | Std. | Hard. | Std. | Hard. | Std. | Hard. | Std. | Hard. | Std. |
|-------|------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|------|
| mg/L | ug/L | mg/L | ug/L | mg/L | ug/L | mg/L | ug/L | mg/L | ug/L | mg/L | ug/L | mg/L | ug/L | mg/L | ug/L | mg/L | ug/L | mg/L | ug/L | mg/L | ug/L |
| 1 | 0.18 | 41 | 5.80 | 81 | 11.02 | 121 | 16.08 | 161 | 21.05 | 201 | 25.94 | 241 | 30.78 | 281 | 35.57 | 321 | 40.33 | 361 | 45.05 | | |
| 2 | 0.34 | 42 | 5.93 | 82 | 11.15 | 122 | 16.21 | 162 | 21.17 | 202 | 26.07 | 242 | 30.90 | 282 | 35.69 | 322 | 40.45 | 362 | 45.16 | | |
| 3 | 0.49 | 43 | 6.07 | 83 | 11.28 | 123 | 16.33 | 163 | 21.30 | 203 | 26.19 | 243 | 31.02 | 283 | 35.81 | 323 | 40.56 | 363 | 45.28 | | |
| 4 | 0.65 | 44 | 6.20 | 84 | 11.40 | 124 | 16.46 | 164 | 21.42 | 204 | 26.31 | 244 | 31.14 | 284 | 35.93 | 324 | 40.68 | 364 | 45.40 | | |
| 5 | 0.80 | 45 | 6.33 | 85 | 11.53 | 125 | 16.58 | 165 | 21.54 | 205 | 26.43 | 245 | 31.26 | 285 | 36.05 | 325 | 40.80 | 365 | 45.52 | | |
| 6 | 0.95 | 46 | 6.47 | 86 | 11.66 | 126 | 16.71 | 166 | 21.66 | 206 | 26.55 | 246 | 31.38 | 286 | 36.17 | 326 | 40.92 | 366 | 45.63 | | |
| 7 | 1.10 | 47 | 6.60 | 87 | 11.79 | 127 | 16.83 | 167 | 21.79 | 207 | 26.67 | 247 | 31.50 | 287 | 36.29 | 327 | 41.04 | 367 | 45.75 | | |
| 8 | 1.24 | 48 | 6.73 | 88 | 11.91 | 128 | 16.96 | 168 | 21.91 | 208 | 26.79 | 248 | 31.62 | 288 | 36.41 | 328 | 41.16 | 368 | 45.87 | | |
| 9 | 1.39 | 49 | 6.86 | 89 | 12.04 | 129 | 17.08 | 169 | 22.03 | 209 | 26.92 | 249 | 31.74 | 289 | 36.53 | 329 | 41.27 | 369 | 45.99 | | |
| 10 | 1.54 | 50 | 6.99 | 90 | 12.17 | 130 | 17.21 | 170 | 22.16 | 210 | 27.04 | 250 | 31.86 | 290 | 36.65 | 330 | 41.39 | 370 | 46.10 | | |
| 11 | 1.68 | 51 | 7.13 | 91 | 12.30 | 131 | 17.33 | 171 | 22.28 | 211 | 27.16 | 251 | 31.98 | 291 | 36.77 | 331 | 41.51 | 371 | 46.22 | | |
| 12 | 1.82 | 52 | 7.26 | 92 | 12.42 | 132 | 17.46 | 172 | 22.40 | 212 | 27.28 | 252 | 32.10 | 292 | 36.89 | 332 | 41.63 | 372 | 46.34 | | |
| 13 | 1.97 | 53 | 7.39 | 93 | 12.55 | 133 | 17.58 | 173 | 22.52 | 213 | 27.40 | 253 | 32.22 | 293 | 37.00 | 333 | 41.75 | 373 | 46.46 | | |
| 14 | 2.11 | 54 | 7.52 | 94 | 12.68 | 134 | 17.71 | 174 | 22.65 | 214 | 27.52 | 254 | 32.34 | 294 | 37.12 | 334 | 41.86 | 374 | 46.57 | | |
| 15 | 2.25 | 55 | 7.65 | 95 | 12.81 | 135 | 17.83 | 175 | 22.77 | 215 | 27.64 | 255 | 32.46 | 295 | 37.24 | 335 | 41.98 | 375 | 46.69 | | |
| 16 | 2.39 | 56 | 7.78 | 96 | 12.93 | 136 | 17.96 | 176 | 22.89 | 216 | 27.76 | 256 | 32.58 | 296 | 37.36 | 336 | 42.10 | 376 | 46.81 | | |
| 17 | 2.53 | 57 | 7.91 | 97 | 13.06 | 137 | 18.08 | 177 | 23.02 | 217 | 27.89 | 257 | 32.70 | 297 | 37.48 | 337 | 42.22 | 377 | 46.92 | | |
| 18 | 2.67 | 58 | 8.04 | 98 | 13.19 | 138 | 18.20 | 178 | 23.14 | 218 | 28.01 | 258 | 32.82 | 298 | 37.60 | 338 | 42.34 | 378 | 47.04 | | |
| 19 | 2.81 | 59 | 8.17 | 99 | 13.31 | 139 | 18.33 | 179 | 23.26 | 219 | 28.13 | 259 | 32.94 | 299 | 37.72 | 339 | 42.45 | 379 | 47.16 | | |
| 20 | 2.95 | 60 | 8.31 | 100 | 13.44 | 140 | 18.45 | 180 | 23.38 | 220 | 28.25 | 260 | 33.06 | 300 | 37.84 | 340 | 42.57 | 380 | 47.28 | | |
| 21 | 3.09 | 61 | 8.44 | 101 | 13.57 | 141 | 18.58 | 181 | 23.50 | 221 | 28.37 | 261 | 33.18 | 301 | 37.96 | 341 | 42.69 | 381 | 47.39 | | |
| 22 | 3.23 | 62 | 8.57 | 102 | 13.69 | 142 | 18.70 | 182 | 23.63 | 222 | 28.49 | 262 | 33.30 | 302 | 38.07 | 342 | 42.81 | 382 | 47.51 | | |
| 23 | 3.37 | 63 | 8.70 | 103 | 13.82 | 143 | 18.82 | 183 | 23.75 | 223 | 28.61 | 263 | 33.42 | 303 | 38.19 | 343 | 42.93 | 383 | 47.63 | | |
| 24 | 3.50 | 64 | 8.83 | 104 | 13.95 | 144 | 18.95 | 184 | 23.87 | 224 | 28.73 | 264 | 33.54 | 304 | 38.31 | 344 | 43.04 | 384 | 47.74 | | |
| 25 | 3.64 | 65 | 8.96 | 105 | 14.07 | 145 | 19.07 | 185 | 23.99 | 225 | 28.85 | 265 | 33.66 | 305 | 38.43 | 345 | 43.16 | 385 | 47.86 | | |
| 26 | 3.78 | 66 | 9.09 | 106 | 14.20 | 146 | 19.20 | 186 | 24.12 | 226 | 28.97 | 266 | 33.78 | 306 | 38.55 | 346 | 43.28 | 386 | 47.98 | | |
| 27 | 3.91 | 67 | 9.22 | 107 | 14.32 | 147 | 19.32 | 187 | 24.24 | 227 | 29.09 | 267 | 33.90 | 307 | 38.67 | 347 | 43.40 | 387 | 48.10 | | |
| 28 | 4.05 | 68 | 9.34 | 108 | 14.45 | 148 | 19.44 | 188 | 24.36 | 228 | 29.22 | 268 | 34.02 | 308 | 38.79 | 348 | 43.52 | 388 | 48.21 | | |
| 29 | 4.19 | 69 | 9.47 | 109 | 14.58 | 149 | 19.57 | 189 | 24.48 | 229 | 29.34 | 269 | 34.14 | 309 | 38.91 | 349 | 43.63 | 389 | 48.33 | | |
| 30 | 4.32 | 70 | 9.60 | 110 | 14.70 | 150 | 19.69 | 190 | 24.60 | 230 | 29.46 | 270 | 34.26 | 310 | 39.02 | 350 | 43.75 | 390 | 48.45 | | |
| 31 | 4.46 | 71 | 9.73 | 111 | 14.83 | 151 | 19.82 | 191 | 24.73 | 231 | 29.58 | 271 | 34.38 | 311 | 39.14 | 351 | 43.87 | 391 | 48.56 | | |
| 32 | 4.59 | 72 | 9.86 | 112 | 14.95 | 152 | 19.94 | 192 | 24.85 | 232 | 29.70 | 272 | 34.50 | 312 | 39.26 | 352 | 43.99 | 392 | 48.68 | | |
| 33 | 4.73 | 73 | 9.99 | 113 | 15.08 | 153 | 20.06 | 193 | 24.97 | 233 | 29.82 | 273 | 34.62 | 313 | 39.38 | 353 | 44.10 | 393 | 48.80 | | |
| 34 | 4.86 | 74 | 10.12 | 114 | 15.20 | 154 | 20.19 | 194 | 25.09 | 234 | 29.94 | 274 | 34.74 | 314 | 39.50 | 354 | 44.22 | 394 | 48.92 | | |
| 35 | 5.00 | 75 | 10.25 | 115 | 15.33 | 155 | 20.31 | 195 | 25.21 | 235 | 30.06 | 275 | 34.86 | 315 | 39.62 | 355 | 44.34 | 395 | 49.03 | | |
| 36 | 5.13 | 76 | 10.38 | 116 | 15.46 | 156 | 20.43 | 196 | 25.34 | 236 | 30.18 | 276 | 34.98 | 316 | 39.74 | 356 | 44.46 | 396 | 49.15 | | |
| 37 | 5.27 | 77 | 10.51 | 117 | 15.58 | 157 | 20.56 | 197 | 25.46 | 237 | 30.30 | 277 | 35.10 | 317 | 39.85 | 357 | 44.58 | 397 | 49.27 | | |
| 38 | 5.40 | 78 | 10.63 | 118 | 15.71 | 158 | 20.68 | 198 | 25.58 | 238 | 30.42 | 278 | 35.22 | 318 | 39.97 | 358 | 44.69 | 398 | 49.38 | | |
| 39 | 5.53 | 79 | 10.76 | 119 | 15.83 | 159 | 20.80 | 199 | 25.70 | 239 | 30.54 | 279 | 35.34 | 319 | 40.09 | 359 | 44.81 | 399 | 49.50 | | |
| 40 | 5.67 | 80 | 10.89 | 120 | 15.96 | 160 | 20.93 | 200 | 25.82 | 240 | 30.66 | 280 | 35.46 | 320 | 40.21 | 360 | 44.93 | 400 | 49.62 | | |

Table 207.9 Chronic Water Quality Standards for Dissolved Copper - Aquatic and Wildlife
Chronic Standard = $[e (0.8545 [\ln (\text{hardness})] - 1.702)]0.960$

| Hard. | Std. | Hard. | Std. | Hard. | Std. | Hard. | Std. | Hard. | Std. | Hard. | Std. | Hard. | Std. | Hard. | Std. | Hard. | Std. | Hard. | Std. |
|-------|------|-------|------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| mg/L | ug/L | mg/L | ug/L | mg/L | ug/L | mg/L | ug/L | mg/L | ug/L | mg/L | ug/L | mg/L | ug/L | mg/L | ug/L | mg/L | ug/L | mg/L | ug/L |
| 1 | 0.18 | 41 | 4.18 | 81 | 7.48 | 121 | 10.54 | 161 | 13.45 | 201 | 16.26 | 241 | 18.99 | 281 | 21.65 | 321 | 24.26 | 361 | 26.82 |
| 2 | 0.32 | 42 | 4.27 | 82 | 7.56 | 122 | 10.61 | 162 | 13.52 | 202 | 16.33 | 242 | 19.06 | 282 | 21.72 | 322 | 24.33 | 362 | 26.89 |
| 3 | 0.45 | 43 | 4.35 | 83 | 7.64 | 123 | 10.69 | 163 | 13.60 | 203 | 16.40 | 243 | 19.13 | 283 | 21.78 | 323 | 24.39 | 363 | 26.95 |
| 4 | 0.57 | 44 | 4.44 | 84 | 7.72 | 124 | 10.76 | 164 | 13.67 | 204 | 16.47 | 244 | 19.19 | 284 | 21.85 | 324 | 24.45 | 364 | 27.01 |
| 5 | 0.69 | 45 | 4.53 | 85 | 7.79 | 125 | 10.84 | 165 | 13.74 | 205 | 16.54 | 245 | 19.26 | 285 | 21.92 | 325 | 24.52 | 365 | 27.08 |
| 6 | 0.81 | 46 | 4.61 | 86 | 7.87 | 126 | 10.91 | 166 | 13.81 | 206 | 16.61 | 246 | 19.33 | 286 | 21.98 | 326 | 24.58 | 366 | 27.14 |
| 7 | 0.92 | 47 | 4.70 | 87 | 7.95 | 127 | 10.99 | 167 | 13.88 | 207 | 16.68 | 247 | 19.39 | 287 | 22.05 | 327 | 24.65 | 367 | 27.20 |
| 8 | 1.03 | 48 | 4.78 | 88 | 8.03 | 128 | 11.06 | 168 | 13.95 | 208 | 16.75 | 248 | 19.46 | 288 | 22.11 | 328 | 24.71 | 368 | 27.27 |
| 9 | 1.14 | 49 | 4.87 | 89 | 8.11 | 129 | 11.13 | 169 | 14.02 | 209 | 16.81 | 249 | 19.53 | 289 | 22.18 | 329 | 24.78 | 369 | 27.33 |
| 10 | 1.25 | 50 | 4.95 | 90 | 8.18 | 130 | 11.21 | 170 | 14.09 | 210 | 16.88 | 250 | 19.59 | 290 | 22.24 | 330 | 24.84 | 370 | 27.39 |
| 11 | 1.36 | 51 | 5.04 | 91 | 8.26 | 131 | 11.28 | 171 | 14.16 | 211 | 16.95 | 251 | 19.66 | 291 | 22.31 | 331 | 24.91 | 371 | 27.46 |
| 12 | 1.46 | 52 | 5.12 | 92 | 8.34 | 132 | 11.35 | 172 | 14.24 | 212 | 17.02 | 252 | 19.73 | 292 | 22.38 | 332 | 24.97 | 372 | 27.52 |
| 13 | 1.57 | 53 | 5.21 | 93 | 8.42 | 133 | 11.43 | 173 | 14.31 | 213 | 17.09 | 253 | 19.80 | 293 | 22.44 | 333 | 25.03 | 373 | 27.58 |
| 14 | 1.67 | 54 | 5.29 | 94 | 8.49 | 134 | 11.50 | 174 | 14.38 | 214 | 17.16 | 254 | 19.86 | 294 | 22.51 | 334 | 25.10 | 374 | 27.65 |
| 15 | 1.77 | 55 | 5.37 | 95 | 8.57 | 135 | 11.57 | 175 | 14.45 | 215 | 17.23 | 255 | 19.93 | 295 | 22.57 | 335 | 25.16 | 375 | 27.71 |
| 16 | 1.87 | 56 | 5.46 | 96 | 8.65 | 136 | 11.65 | 176 | 14.52 | 216 | 17.29 | 256 | 20.00 | 296 | 22.64 | 336 | 25.23 | 376 | 27.77 |
| 17 | 1.97 | 57 | 5.54 | 97 | 8.73 | 137 | 11.72 | 177 | 14.59 | 217 | 17.36 | 257 | 20.06 | 297 | 22.70 | 337 | 25.29 | 377 | 27.83 |
| 18 | 2.07 | 58 | 5.62 | 98 | 8.80 | 138 | 11.79 | 178 | 14.66 | 218 | 17.43 | 258 | 20.13 | 298 | 22.77 | 338 | 25.35 | 378 | 27.90 |
| 19 | 2.17 | 59 | 5.71 | 99 | 8.88 | 139 | 11.87 | 179 | 14.73 | 219 | 17.50 | 259 | 20.20 | 299 | 22.83 | 339 | 25.42 | 379 | 27.96 |
| 20 | 2.26 | 60 | 5.79 | 100 | 8.96 | 140 | 11.94 | 180 | 14.80 | 220 | 17.57 | 260 | 20.26 | 300 | 22.90 | 340 | 25.48 | 380 | 28.02 |
| 21 | 2.36 | 61 | 5.87 | 101 | 9.03 | 141 | 12.01 | 181 | 14.87 | 221 | 17.64 | 261 | 20.33 | 301 | 22.96 | 341 | 25.55 | 381 | 28.09 |
| 22 | 2.46 | 62 | 5.95 | 102 | 9.11 | 142 | 12.08 | 182 | 14.94 | 222 | 17.70 | 262 | 20.40 | 302 | 23.03 | 342 | 25.61 | 382 | 28.15 |
| 23 | 2.55 | 63 | 6.03 | 103 | 9.18 | 143 | 12.16 | 183 | 15.01 | 223 | 17.77 | 263 | 20.46 | 303 | 23.09 | 343 | 25.68 | 383 | 28.21 |
| 24 | 2.65 | 64 | 6.12 | 104 | 9.26 | 144 | 12.23 | 184 | 15.08 | 224 | 17.84 | 264 | 20.53 | 304 | 23.16 | 344 | 25.74 | 384 | 28.28 |
| 25 | 2.74 | 65 | 6.20 | 105 | 9.34 | 145 | 12.30 | 185 | 15.15 | 225 | 17.91 | 265 | 20.60 | 305 | 23.22 | 345 | 25.80 | 385 | 28.34 |
| 26 | 2.83 | 66 | 6.28 | 106 | 9.41 | 146 | 12.37 | 186 | 15.22 | 226 | 17.98 | 266 | 20.66 | 306 | 23.29 | 346 | 25.87 | 386 | 28.40 |
| 27 | 2.93 | 67 | 6.36 | 107 | 9.49 | 147 | 12.45 | 187 | 15.29 | 227 | 18.04 | 267 | 20.73 | 307 | 23.35 | 347 | 25.93 | 387 | 28.46 |
| 28 | 3.02 | 68 | 6.44 | 108 | 9.56 | 148 | 12.52 | 188 | 15.36 | 228 | 18.11 | 268 | 20.79 | 308 | 23.42 | 348 | 25.99 | 388 | 28.53 |
| 29 | 3.11 | 69 | 6.52 | 109 | 9.64 | 149 | 12.59 | 189 | 15.43 | 229 | 18.18 | 269 | 20.86 | 309 | 23.48 | 349 | 26.06 | 389 | 28.59 |
| 30 | 3.20 | 70 | 6.60 | 110 | 9.72 | 150 | 12.66 | 190 | 15.50 | 230 | 18.25 | 270 | 20.93 | 310 | 23.55 | 350 | 26.12 | 390 | 28.65 |
| 31 | 3.29 | 71 | 6.68 | 111 | 9.79 | 151 | 12.74 | 191 | 15.57 | 231 | 18.32 | 271 | 20.99 | 311 | 23.61 | 351 | 26.19 | 391 | 28.72 |
| 32 | 3.38 | 72 | 6.76 | 112 | 9.87 | 152 | 12.81 | 192 | 15.64 | 232 | 18.38 | 272 | 21.06 | 312 | 23.68 | 352 | 26.25 | 392 | 28.78 |
| 33 | 3.47 | 73 | 6.84 | 113 | 9.94 | 153 | 12.88 | 193 | 15.71 | 233 | 18.45 | 273 | 21.13 | 313 | 23.74 | 353 | 26.31 | 393 | 28.84 |
| 34 | 3.56 | 74 | 6.92 | 114 | 10.02 | 154 | 12.95 | 194 | 15.78 | 234 | 18.52 | 274 | 21.19 | 314 | 23.81 | 354 | 26.38 | 394 | 28.90 |
| 35 | 3.65 | 75 | 7.00 | 115 | 10.09 | 155 | 13.02 | 195 | 15.85 | 235 | 18.59 | 275 | 21.26 | 315 | 23.87 | 355 | 26.44 | 395 | 28.97 |
| 36 | 3.74 | 76 | 7.08 | 116 | 10.17 | 156 | 13.10 | 196 | 15.92 | 236 | 18.65 | 276 | 21.32 | 316 | 23.94 | 356 | 26.50 | 396 | 29.03 |
| 37 | 3.83 | 77 | 7.16 | 117 | 10.24 | 157 | 13.17 | 197 | 15.99 | 237 | 18.72 | 277 | 21.39 | 317 | 24.00 | 357 | 26.57 | 397 | 29.09 |
| 38 | 3.92 | 78 | 7.24 | 118 | 10.32 | 158 | 13.24 | 198 | 16.05 | 238 | 18.79 | 278 | 21.46 | 318 | 24.07 | 358 | 26.63 | 398 | 29.15 |
| 39 | 4.01 | 79 | 7.32 | 119 | 10.39 | 159 | 13.31 | 199 | 16.12 | 239 | 18.86 | 279 | 21.52 | 319 | 24.13 | 359 | 26.70 | 399 | 29.22 |
| 40 | 4.09 | 80 | 7.40 | 120 | 10.47 | 160 | 13.38 | 200 | 16.19 | 240 | 18.92 | 280 | 21.59 | 320 | 24.20 | 360 | 26.76 | 400 | 29.28 |

Table 207.10 Acute Water Quality Standards for Dissolved Lead - Aquatic and Wildlife
Acute Standard = $[e^{(1.273 \ln(\text{hardness}))} - 1.460] [1.46203 - \ln(\text{hardness})] (0.145712)$

| Hard. | Std. | Hard. | Std. | Hard. | Std. | Hard. | Std. | Hard. | Std. | Hard. | Std. | Hard. | Std. | Hard. | Std. | Hard. | Std. | Hard. | Std. |
|-------|-------|-------|-------|-------|-------|-------|--------|-------|--------|-------|--------|-------|--------|-------|--------|-------|--------|-------|--------|
| mg/L | ug/L | mg/L | ug/L | mg/L | ug/L | mg/L | ug/L | mg/L | ug/L | mg/L | ug/L | mg/L | ug/L | mg/L | ug/L | mg/L | ug/L | mg/L | ug/L |
| 1 | 0.34 | 41 | 24.17 | 81 | 51.30 | 121 | 79.43 | 161 | 108.02 | 201 | 136.86 | 241 | 165.82 | 281 | 194.81 | 321 | 223.79 | 361 | 252.72 |
| 2 | 0.76 | 42 | 24.82 | 82 | 52.00 | 122 | 80.14 | 162 | 108.74 | 202 | 137.59 | 242 | 166.55 | 282 | 195.54 | 322 | 224.52 | 362 | 253.44 |
| 3 | 1.22 | 43 | 25.48 | 83 | 52.69 | 123 | 80.85 | 163 | 109.46 | 203 | 138.31 | 243 | 167.27 | 283 | 196.26 | 323 | 225.24 | 363 | 254.16 |
| 4 | 1.71 | 44 | 26.14 | 84 | 53.39 | 124 | 81.56 | 164 | 110.18 | 204 | 139.03 | 244 | 167.99 | 284 | 196.99 | 324 | 225.96 | 364 | 254.89 |
| 5 | 2.21 | 45 | 26.81 | 85 | 54.08 | 125 | 82.27 | 165 | 110.90 | 205 | 139.76 | 245 | 168.72 | 285 | 197.71 | 325 | 226.69 | 365 | 255.61 |
| 6 | 2.73 | 46 | 27.47 | 86 | 54.78 | 126 | 82.98 | 166 | 111.62 | 206 | 140.48 | 246 | 169.44 | 286 | 198.44 | 326 | 227.41 | 366 | 256.33 |
| 7 | 3.26 | 47 | 28.13 | 87 | 55.48 | 127 | 83.69 | 167 | 112.34 | 207 | 141.20 | 247 | 170.17 | 287 | 199.16 | 327 | 228.14 | 367 | 257.05 |
| 8 | 3.80 | 48 | 28.80 | 88 | 56.17 | 128 | 84.41 | 168 | 113.06 | 208 | 141.93 | 248 | 170.89 | 288 | 199.89 | 328 | 228.86 | 368 | 257.77 |
| 9 | 4.35 | 49 | 29.47 | 89 | 56.87 | 129 | 85.12 | 169 | 113.78 | 209 | 142.65 | 249 | 171.62 | 289 | 200.61 | 329 | 229.58 | 369 | 258.50 |
| 10 | 4.91 | 50 | 30.14 | 90 | 57.57 | 130 | 85.83 | 170 | 114.50 | 210 | 143.37 | 250 | 172.34 | 290 | 201.34 | 330 | 230.31 | 370 | 259.22 |
| 11 | 5.47 | 51 | 30.81 | 91 | 58.27 | 131 | 86.54 | 171 | 115.22 | 211 | 144.10 | 251 | 173.07 | 291 | 202.06 | 331 | 231.03 | 371 | 259.94 |
| 12 | 6.04 | 52 | 31.48 | 92 | 58.97 | 132 | 87.26 | 172 | 115.94 | 212 | 144.82 | 252 | 173.79 | 292 | 202.79 | 332 | 231.75 | 372 | 260.66 |
| 13 | 6.62 | 53 | 32.15 | 93 | 59.67 | 133 | 87.97 | 173 | 116.66 | 213 | 145.54 | 253 | 174.52 | 293 | 203.51 | 333 | 232.48 | 373 | 261.38 |
| 14 | 7.20 | 54 | 32.82 | 94 | 60.37 | 134 | 88.68 | 174 | 117.38 | 214 | 146.27 | 254 | 175.24 | 294 | 204.24 | 334 | 233.20 | 374 | 262.10 |
| 15 | 7.79 | 55 | 33.49 | 95 | 61.07 | 135 | 89.40 | 175 | 118.10 | 215 | 146.99 | 255 | 175.97 | 295 | 204.96 | 335 | 233.92 | 375 | 262.83 |
| 16 | 8.38 | 56 | 34.17 | 96 | 61.77 | 136 | 90.11 | 176 | 118.82 | 216 | 147.71 | 256 | 176.69 | 296 | 205.69 | 336 | 234.65 | 376 | 263.55 |
| 17 | 8.98 | 57 | 34.84 | 97 | 62.47 | 137 | 90.83 | 177 | 119.54 | 217 | 148.44 | 257 | 177.42 | 297 | 206.41 | 337 | 235.37 | 377 | 264.27 |
| 18 | 9.58 | 58 | 35.52 | 98 | 63.18 | 138 | 91.54 | 178 | 120.26 | 218 | 149.16 | 258 | 178.14 | 298 | 207.13 | 338 | 236.09 | 378 | 264.99 |
| 19 | 10.18 | 59 | 36.20 | 99 | 63.88 | 139 | 92.25 | 179 | 120.98 | 219 | 149.89 | 259 | 178.87 | 299 | 207.86 | 339 | 236.82 | 379 | 265.71 |
| 20 | 10.79 | 60 | 36.88 | 100 | 64.58 | 140 | 92.97 | 180 | 121.70 | 220 | 150.61 | 260 | 179.59 | 300 | 208.58 | 340 | 237.54 | 380 | 266.43 |
| 21 | 11.40 | 61 | 37.56 | 101 | 65.28 | 141 | 93.68 | 181 | 122.42 | 221 | 151.33 | 261 | 180.32 | 301 | 209.31 | 341 | 238.26 | 381 | 267.15 |
| 22 | 12.02 | 62 | 38.24 | 102 | 65.99 | 142 | 94.40 | 182 | 123.14 | 222 | 152.06 | 262 | 181.04 | 302 | 210.03 | 342 | 238.99 | 382 | 267.88 |
| 23 | 12.64 | 63 | 38.92 | 103 | 66.69 | 143 | 95.12 | 183 | 123.87 | 223 | 152.78 | 263 | 181.77 | 303 | 210.76 | 343 | 239.71 | 383 | 268.60 |
| 24 | 13.26 | 64 | 39.60 | 104 | 67.40 | 144 | 95.83 | 184 | 124.59 | 224 | 153.51 | 264 | 182.49 | 304 | 211.48 | 344 | 240.43 | 384 | 269.32 |
| 25 | 13.88 | 65 | 40.28 | 105 | 68.10 | 145 | 96.55 | 185 | 125.31 | 225 | 154.23 | 265 | 183.22 | 305 | 212.21 | 345 | 241.16 | 385 | 270.04 |
| 26 | 14.51 | 66 | 40.97 | 106 | 68.81 | 146 | 97.26 | 186 | 126.03 | 226 | 154.95 | 266 | 183.94 | 306 | 212.93 | 346 | 241.88 | 386 | 270.76 |
| 27 | 15.14 | 67 | 41.65 | 107 | 69.51 | 147 | 97.98 | 187 | 126.75 | 227 | 155.68 | 267 | 184.67 | 307 | 213.65 | 347 | 242.60 | 387 | 271.48 |
| 28 | 15.77 | 68 | 42.33 | 108 | 70.22 | 148 | 98.70 | 188 | 127.47 | 228 | 156.40 | 268 | 185.39 | 308 | 214.38 | 348 | 243.33 | 388 | 272.20 |
| 29 | 16.40 | 69 | 43.02 | 109 | 70.93 | 149 | 99.41 | 189 | 128.20 | 229 | 157.13 | 269 | 186.12 | 309 | 215.10 | 349 | 244.05 | 389 | 272.92 |
| 30 | 17.04 | 70 | 43.71 | 110 | 71.63 | 150 | 100.13 | 190 | 128.92 | 230 | 157.85 | 270 | 186.84 | 310 | 215.83 | 350 | 244.77 | 390 | 273.64 |
| 31 | 17.68 | 71 | 44.39 | 111 | 72.34 | 151 | 100.85 | 191 | 129.64 | 231 | 158.58 | 271 | 187.57 | 311 | 216.55 | 351 | 245.49 | 391 | 274.36 |
| 32 | 18.32 | 72 | 45.08 | 112 | 73.05 | 152 | 101.56 | 192 | 130.36 | 232 | 159.30 | 272 | 188.29 | 312 | 217.28 | 352 | 246.22 | 392 | 275.08 |
| 33 | 18.96 | 73 | 45.77 | 113 | 73.75 | 153 | 102.28 | 193 | 131.08 | 233 | 160.02 | 273 | 189.02 | 313 | 218.00 | 353 | 246.94 | 393 | 275.80 |
| 34 | 19.61 | 74 | 46.46 | 114 | 74.46 | 154 | 103.00 | 194 | 131.81 | 234 | 160.75 | 274 | 189.74 | 314 | 218.72 | 354 | 247.66 | 394 | 276.52 |
| 35 | 20.25 | 75 | 47.15 | 115 | 75.17 | 155 | 103.72 | 195 | 132.53 | 235 | 161.47 | 275 | 190.47 | 315 | 219.45 | 355 | 248.38 | 395 | 277.25 |
| 36 | 20.90 | 76 | 47.84 | 116 | 75.88 | 156 | 104.43 | 196 | 133.25 | 236 | 162.20 | 276 | 191.19 | 316 | 220.17 | 356 | 249.11 | 396 | 277.97 |
| 37 | 21.55 | 77 | 48.53 | 117 | 76.59 | 157 | 105.15 | 197 | 133.97 | 237 | 162.92 | 277 | 191.92 | 317 | 220.90 | 357 | 249.83 | 397 | 278.69 |
| 38 | 22.20 | 78 | 49.22 | 118 | 77.30 | 158 | 105.87 | 198 | 134.70 | 238 | 163.65 | 278 | 192.64 | 318 | 221.62 | 358 | 250.55 | 398 | 279.41 |
| 39 | 22.86 | 79 | 49.92 | 119 | 78.01 | 159 | 106.59 | 199 | 135.42 | 239 | 164.37 | 279 | 193.36 | 319 | 222.34 | 359 | 251.27 | 399 | 280.13 |
| 40 | 23.51 | 80 | 50.61 | 120 | 78.72 | 160 | 107.31 | 200 | 136.14 | 240 | 165.10 | 280 | 194.09 | 320 | 223.07 | 360 | 252.00 | 400 | 280.85 |

Table 207.11 Chronic Water Quality Standards for Dissolved Lead - Aquatic and Wildlife
Chronic Standard = $[e^{(1.273 [\ln (\text{hardness})] - 4.705)}][1.46203 - [\ln (\text{hardness})](0.145712)]$

| Hard. | Std. | Hard. | Std. | Hard. | Std. | Hard. | Std. | Hard. | Std. | Hard. | Std. | Hard. | Std. | Hard. | Std. | Hard. | Std. | Hard. | Std. |
|-------|------|-------|------|-------|------|-------|------|-------|------|-------|------|-------|------|-------|------|-------|------|-------|-------|
| mg/L | ug/L | mg/L | ug/L | mg/L | ug/L | mg/L | ug/L | mg/L | ug/L | mg/L | ug/L | mg/L | ug/L | mg/L | ug/L | mg/L | ug/L | mg/L | ug/L |
| 1 | 0.01 | 41 | 0.94 | 81 | 2.00 | 121 | 3.10 | 161 | 4.21 | 201 | 5.33 | 241 | 6.46 | 281 | 7.59 | 321 | 8.72 | 361 | 9.85 |
| 2 | 0.03 | 42 | 0.97 | 82 | 2.03 | 122 | 3.12 | 162 | 4.24 | 202 | 5.36 | 242 | 6.49 | 282 | 7.62 | 322 | 8.75 | 362 | 9.88 |
| 3 | 0.05 | 43 | 0.99 | 83 | 2.05 | 123 | 3.15 | 163 | 4.27 | 203 | 5.39 | 243 | 6.52 | 283 | 7.65 | 323 | 8.78 | 363 | 9.90 |
| 4 | 0.07 | 44 | 1.02 | 84 | 2.08 | 124 | 3.18 | 164 | 4.29 | 204 | 5.42 | 244 | 6.55 | 284 | 7.68 | 324 | 8.81 | 364 | 9.93 |
| 5 | 0.09 | 45 | 1.04 | 85 | 2.11 | 125 | 3.21 | 165 | 4.32 | 205 | 5.45 | 245 | 6.57 | 285 | 7.70 | 325 | 8.83 | 365 | 9.96 |
| 6 | 0.11 | 46 | 1.07 | 86 | 2.13 | 126 | 3.23 | 166 | 4.35 | 206 | 5.47 | 246 | 6.60 | 286 | 7.73 | 326 | 8.86 | 366 | 9.99 |
| 7 | 0.13 | 47 | 1.10 | 87 | 2.16 | 127 | 3.26 | 167 | 4.38 | 207 | 5.50 | 247 | 6.63 | 287 | 7.76 | 327 | 8.89 | 367 | 10.02 |
| 8 | 0.15 | 48 | 1.12 | 88 | 2.19 | 128 | 3.29 | 168 | 4.41 | 208 | 5.53 | 248 | 6.66 | 288 | 7.79 | 328 | 8.92 | 368 | 10.05 |
| 9 | 0.17 | 49 | 1.15 | 89 | 2.22 | 129 | 3.32 | 169 | 4.43 | 209 | 5.56 | 249 | 6.69 | 289 | 7.82 | 329 | 8.95 | 369 | 10.07 |
| 10 | 0.19 | 50 | 1.17 | 90 | 2.24 | 130 | 3.34 | 170 | 4.46 | 210 | 5.59 | 250 | 6.72 | 290 | 7.85 | 330 | 8.97 | 370 | 10.10 |
| 11 | 0.21 | 51 | 1.20 | 91 | 2.27 | 131 | 3.37 | 171 | 4.49 | 211 | 5.62 | 251 | 6.74 | 291 | 7.87 | 331 | 9.00 | 371 | 10.13 |
| 12 | 0.24 | 52 | 1.23 | 92 | 2.30 | 132 | 3.40 | 172 | 4.52 | 212 | 5.64 | 252 | 6.77 | 292 | 7.90 | 332 | 9.03 | 372 | 10.16 |
| 13 | 0.26 | 53 | 1.25 | 93 | 2.33 | 133 | 3.43 | 173 | 4.55 | 213 | 5.67 | 253 | 6.80 | 293 | 7.93 | 333 | 9.06 | 373 | 10.19 |
| 14 | 0.28 | 54 | 1.28 | 94 | 2.35 | 134 | 3.46 | 174 | 4.57 | 214 | 5.70 | 254 | 6.83 | 294 | 7.96 | 334 | 9.09 | 374 | 10.21 |
| 15 | 0.30 | 55 | 1.31 | 95 | 2.38 | 135 | 3.48 | 175 | 4.60 | 215 | 5.73 | 255 | 6.86 | 295 | 7.99 | 335 | 9.12 | 375 | 10.24 |
| 16 | 0.33 | 56 | 1.33 | 96 | 2.41 | 136 | 3.51 | 176 | 4.63 | 216 | 5.76 | 256 | 6.89 | 296 | 8.02 | 336 | 9.14 | 376 | 10.27 |
| 17 | 0.35 | 57 | 1.36 | 97 | 2.43 | 137 | 3.54 | 177 | 4.66 | 217 | 5.78 | 257 | 6.91 | 297 | 8.04 | 337 | 9.17 | 377 | 10.30 |
| 18 | 0.37 | 58 | 1.38 | 98 | 2.46 | 138 | 3.57 | 178 | 4.69 | 218 | 5.81 | 258 | 6.94 | 298 | 8.07 | 338 | 9.20 | 378 | 10.33 |
| 19 | 0.40 | 59 | 1.41 | 99 | 2.49 | 139 | 3.60 | 179 | 4.71 | 219 | 5.84 | 259 | 6.97 | 299 | 8.10 | 339 | 9.23 | 379 | 10.35 |
| 20 | 0.42 | 60 | 1.44 | 100 | 2.52 | 140 | 3.62 | 180 | 4.74 | 220 | 5.87 | 260 | 7.00 | 300 | 8.13 | 340 | 9.26 | 380 | 10.38 |
| 21 | 0.44 | 61 | 1.46 | 101 | 2.54 | 141 | 3.65 | 181 | 4.77 | 221 | 5.90 | 261 | 7.03 | 301 | 8.16 | 341 | 9.28 | 381 | 10.41 |
| 22 | 0.47 | 62 | 1.49 | 102 | 2.57 | 142 | 3.68 | 182 | 4.80 | 222 | 5.93 | 262 | 7.05 | 302 | 8.18 | 342 | 9.31 | 382 | 10.44 |
| 23 | 0.49 | 63 | 1.52 | 103 | 2.60 | 143 | 3.71 | 183 | 4.83 | 223 | 5.95 | 263 | 7.08 | 303 | 8.21 | 343 | 9.34 | 383 | 10.47 |
| 24 | 0.52 | 64 | 1.54 | 104 | 2.63 | 144 | 3.73 | 184 | 4.85 | 224 | 5.98 | 264 | 7.11 | 304 | 8.24 | 344 | 9.37 | 384 | 10.49 |
| 25 | 0.54 | 65 | 1.57 | 105 | 2.65 | 145 | 3.76 | 185 | 4.88 | 225 | 6.01 | 265 | 7.14 | 305 | 8.27 | 345 | 9.40 | 385 | 10.52 |
| 26 | 0.57 | 66 | 1.60 | 106 | 2.68 | 146 | 3.79 | 186 | 4.91 | 226 | 6.04 | 266 | 7.17 | 306 | 8.30 | 346 | 9.43 | 386 | 10.55 |
| 27 | 0.59 | 67 | 1.62 | 107 | 2.71 | 147 | 3.82 | 187 | 4.94 | 227 | 6.07 | 267 | 7.20 | 307 | 8.33 | 347 | 9.45 | 387 | 10.58 |
| 28 | 0.61 | 68 | 1.65 | 108 | 2.74 | 148 | 3.85 | 188 | 4.97 | 228 | 6.09 | 268 | 7.22 | 308 | 8.35 | 348 | 9.48 | 388 | 10.61 |
| 29 | 0.64 | 69 | 1.68 | 109 | 2.76 | 149 | 3.87 | 189 | 5.00 | 229 | 6.12 | 269 | 7.25 | 309 | 8.38 | 349 | 9.51 | 389 | 10.64 |
| 30 | 0.66 | 70 | 1.70 | 110 | 2.79 | 150 | 3.90 | 190 | 5.02 | 230 | 6.15 | 270 | 7.28 | 310 | 8.41 | 350 | 9.54 | 390 | 10.66 |
| 31 | 0.69 | 71 | 1.73 | 111 | 2.82 | 151 | 3.93 | 191 | 5.05 | 231 | 6.18 | 271 | 7.31 | 311 | 8.44 | 351 | 9.57 | 391 | 10.69 |
| 32 | 0.71 | 72 | 1.76 | 112 | 2.85 | 152 | 3.96 | 192 | 5.08 | 232 | 6.21 | 272 | 7.34 | 312 | 8.47 | 352 | 9.59 | 392 | 10.72 |
| 33 | 0.74 | 73 | 1.78 | 113 | 2.87 | 153 | 3.99 | 193 | 5.11 | 233 | 6.24 | 273 | 7.37 | 313 | 8.50 | 353 | 9.62 | 393 | 10.75 |
| 34 | 0.76 | 74 | 1.81 | 114 | 2.90 | 154 | 4.01 | 194 | 5.14 | 234 | 6.26 | 274 | 7.39 | 314 | 8.52 | 354 | 9.65 | 394 | 10.78 |
| 35 | 0.79 | 75 | 1.84 | 115 | 2.93 | 155 | 4.04 | 195 | 5.16 | 235 | 6.29 | 275 | 7.42 | 315 | 8.55 | 355 | 9.68 | 395 | 10.80 |
| 36 | 0.81 | 76 | 1.86 | 116 | 2.96 | 156 | 4.07 | 196 | 5.19 | 236 | 6.32 | 276 | 7.45 | 316 | 8.58 | 356 | 9.71 | 396 | 10.83 |
| 37 | 0.84 | 77 | 1.89 | 117 | 2.98 | 157 | 4.10 | 197 | 5.22 | 237 | 6.35 | 277 | 7.48 | 317 | 8.61 | 357 | 9.74 | 397 | 10.86 |
| 38 | 0.87 | 78 | 1.92 | 118 | 3.01 | 158 | 4.13 | 198 | 5.25 | 238 | 6.38 | 278 | 7.51 | 318 | 8.64 | 358 | 9.76 | 398 | 10.89 |
| 39 | 0.89 | 79 | 1.95 | 119 | 3.04 | 159 | 4.15 | 199 | 5.28 | 239 | 6.41 | 279 | 7.54 | 319 | 8.66 | 359 | 9.79 | 399 | 10.92 |
| 40 | 0.92 | 80 | 1.97 | 120 | 3.07 | 160 | 4.18 | 200 | 5.31 | 240 | 6.43 | 280 | 7.56 | 320 | 8.69 | 360 | 9.82 | 400 | 10.94 |

Table 207.12 Acute Water Quality Standards for Dissolved Nickel - Aquatic and Wildlife
Acute Standard = $[e^{(0.8460 \ln(\text{hardness}))} + 2.255]0.998$

| Hard. | Std. | Hard. | Std. | Hard. | Std. | Hard. | Std. | Hard. | Std. | Hard. | Std. | Hard. | Std. | Hard. | Std. | Hard. | Std. | Hard. | Std. |
|-------|------|-------|------|-------|------|-------|------|-------|------|-------|------|-------|------|-------|------|-------|------|-------|------|
| mg/L | ug/L | mg/L | ug/L | mg/L | ug/L | mg/L | ug/L | mg/L | ug/L | mg/L | ug/L | mg/L | ug/L | mg/L | ug/L | mg/L | ug/L | mg/L | ug/L |
| 1 | 9.5 | 41 | 220 | 81 | 392 | 121 | 550 | 161 | 701 | 201 | 845 | 241 | 985 | 281 | 1122 | 321 | 1256 | 361 | 1387 |
| 2 | 17.1 | 42 | 225 | 82 | 396 | 122 | 554 | 162 | 704 | 202 | 849 | 242 | 989 | 282 | 1126 | 322 | 1259 | 362 | 1390 |
| 3 | 24.1 | 43 | 229 | 83 | 400 | 123 | 558 | 163 | 708 | 203 | 852 | 243 | 992 | 283 | 1129 | 323 | 1263 | 363 | 1394 |
| 4 | 30.7 | 44 | 234 | 84 | 404 | 124 | 562 | 164 | 712 | 204 | 856 | 244 | 996 | 284 | 1132 | 324 | 1266 | 364 | 1397 |
| 5 | 37.1 | 45 | 238 | 85 | 408 | 125 | 566 | 165 | 715 | 205 | 859 | 245 | 999 | 285 | 1136 | 325 | 1269 | 365 | 1400 |
| 6 | 43.3 | 46 | 243 | 86 | 412 | 126 | 569 | 166 | 719 | 206 | 863 | 246 | 1003 | 286 | 1139 | 326 | 1272 | 366 | 1403 |
| 7 | 49.4 | 47 | 247 | 87 | 416 | 127 | 573 | 167 | 723 | 207 | 867 | 247 | 1006 | 287 | 1142 | 327 | 1276 | 367 | 1407 |
| 8 | 55.3 | 48 | 252 | 88 | 420 | 128 | 577 | 168 | 726 | 208 | 870 | 248 | 1010 | 288 | 1146 | 328 | 1279 | 368 | 1410 |
| 9 | 61.1 | 49 | 256 | 89 | 424 | 129 | 581 | 169 | 730 | 209 | 874 | 249 | 1013 | 289 | 1149 | 329 | 1282 | 369 | 1413 |
| 10 | 66.8 | 50 | 260 | 90 | 428 | 130 | 585 | 170 | 734 | 210 | 877 | 250 | 1017 | 290 | 1153 | 330 | 1286 | 370 | 1416 |
| 11 | 72.4 | 51 | 265 | 91 | 432 | 131 | 588 | 171 | 737 | 211 | 881 | 251 | 1020 | 291 | 1156 | 331 | 1289 | 371 | 1420 |
| 12 | 77.9 | 52 | 269 | 92 | 436 | 132 | 592 | 172 | 741 | 212 | 884 | 252 | 1023 | 292 | 1159 | 332 | 1292 | 372 | 1423 |
| 13 | 83.3 | 53 | 274 | 93 | 440 | 133 | 596 | 173 | 744 | 213 | 888 | 253 | 1027 | 293 | 1163 | 333 | 1296 | 373 | 1426 |
| 14 | 88.7 | 54 | 278 | 94 | 444 | 134 | 600 | 174 | 748 | 214 | 891 | 254 | 1030 | 294 | 1166 | 334 | 1299 | 374 | 1429 |
| 15 | 94.1 | 55 | 282 | 95 | 448 | 135 | 604 | 175 | 752 | 215 | 895 | 255 | 1034 | 295 | 1169 | 335 | 1302 | 375 | 1433 |
| 16 | 99.3 | 56 | 287 | 96 | 452 | 136 | 607 | 176 | 755 | 216 | 898 | 256 | 1037 | 296 | 1173 | 336 | 1305 | 376 | 1436 |
| 17 | 105 | 57 | 291 | 97 | 456 | 137 | 611 | 177 | 759 | 217 | 902 | 257 | 1041 | 297 | 1176 | 337 | 1309 | 377 | 1439 |
| 18 | 110 | 58 | 295 | 98 | 460 | 138 | 615 | 178 | 763 | 218 | 905 | 258 | 1044 | 298 | 1179 | 338 | 1312 | 378 | 1442 |
| 19 | 115 | 59 | 300 | 99 | 464 | 139 | 619 | 179 | 766 | 219 | 909 | 259 | 1047 | 299 | 1183 | 339 | 1315 | 379 | 1445 |
| 20 | 120 | 60 | 304 | 100 | 468 | 140 | 622 | 180 | 770 | 220 | 912 | 260 | 1051 | 300 | 1186 | 340 | 1319 | 380 | 1449 |
| 21 | 125 | 61 | 308 | 101 | 472 | 141 | 626 | 181 | 774 | 221 | 916 | 261 | 1054 | 301 | 1189 | 341 | 1322 | 381 | 1452 |
| 22 | 130 | 62 | 312 | 102 | 476 | 142 | 630 | 182 | 777 | 222 | 919 | 262 | 1058 | 302 | 1193 | 342 | 1325 | 382 | 1455 |
| 23 | 135 | 63 | 317 | 103 | 480 | 143 | 634 | 183 | 781 | 223 | 923 | 263 | 1061 | 303 | 1196 | 343 | 1328 | 383 | 1458 |
| 24 | 140 | 64 | 321 | 104 | 484 | 144 | 637 | 184 | 784 | 224 | 926 | 264 | 1064 | 304 | 1199 | 344 | 1332 | 384 | 1462 |
| 25 | 145 | 65 | 325 | 105 | 488 | 145 | 641 | 185 | 788 | 225 | 930 | 265 | 1068 | 305 | 1203 | 345 | 1335 | 385 | 1465 |
| 26 | 150 | 66 | 329 | 106 | 492 | 146 | 645 | 186 | 792 | 226 | 933 | 266 | 1071 | 306 | 1206 | 346 | 1338 | 386 | 1468 |
| 27 | 155 | 67 | 334 | 107 | 496 | 147 | 649 | 187 | 795 | 227 | 937 | 267 | 1075 | 307 | 1209 | 347 | 1341 | 387 | 1471 |
| 28 | 159 | 68 | 338 | 108 | 500 | 148 | 652 | 188 | 799 | 228 | 940 | 268 | 1078 | 308 | 1213 | 348 | 1345 | 388 | 1474 |
| 29 | 164 | 69 | 342 | 109 | 504 | 149 | 656 | 189 | 802 | 229 | 944 | 269 | 1082 | 309 | 1216 | 349 | 1348 | 389 | 1478 |
| 30 | 169 | 70 | 346 | 110 | 508 | 150 | 660 | 190 | 806 | 230 | 947 | 270 | 1085 | 310 | 1219 | 350 | 1351 | 390 | 1481 |
| 31 | 174 | 71 | 350 | 111 | 511 | 151 | 664 | 191 | 810 | 231 | 951 | 271 | 1088 | 311 | 1223 | 351 | 1355 | 391 | 1484 |
| 32 | 179 | 72 | 355 | 112 | 515 | 152 | 667 | 192 | 813 | 232 | 954 | 272 | 1092 | 312 | 1226 | 352 | 1358 | 392 | 1487 |
| 33 | 183 | 73 | 359 | 113 | 519 | 153 | 671 | 193 | 817 | 233 | 958 | 273 | 1095 | 313 | 1229 | 353 | 1361 | 393 | 1490 |
| 34 | 188 | 74 | 363 | 114 | 523 | 154 | 675 | 194 | 820 | 234 | 961 | 274 | 1099 | 314 | 1233 | 354 | 1364 | 394 | 1494 |
| 35 | 193 | 75 | 367 | 115 | 527 | 155 | 678 | 195 | 824 | 235 | 965 | 275 | 1102 | 315 | 1236 | 355 | 1368 | 395 | 1497 |
| 36 | 197 | 76 | 371 | 116 | 531 | 156 | 682 | 196 | 827 | 236 | 968 | 276 | 1105 | 316 | 1239 | 356 | 1371 | 396 | 1500 |
| 37 | 202 | 77 | 375 | 117 | 535 | 157 | 686 | 197 | 831 | 237 | 972 | 277 | 1109 | 317 | 1243 | 357 | 1374 | 397 | 1503 |
| 38 | 207 | 78 | 379 | 118 | 539 | 158 | 689 | 198 | 835 | 238 | 975 | 278 | 1112 | 318 | 1246 | 358 | 1377 | 398 | 1506 |
| 39 | 211 | 79 | 384 | 119 | 542 | 159 | 693 | 199 | 838 | 239 | 979 | 279 | 1115 | 319 | 1249 | 359 | 1381 | 399 | 1510 |
| 40 | 216 | 80 | 388 | 120 | 546 | 160 | 697 | 200 | 842 | 240 | 982 | 280 | 1119 | 320 | 1253 | 360 | 1384 | 400 | 1513 |

Table 207.13 Chronic Water Quality Standards for Dissolved Nickel - Aquatic and Wildlife

Chronic Standard = $[e (0.8460 \ln (\text{hardness})) + 0.0584]0.997$

| Hard. | Std. | Hard. | Std. | Hard. | Std. | Hard. | Std. | Hard. | Std. | Hard. | Std. | Hard. | Std. | Hard. | Std. | Hard. | Std. | Hard. | Std. |
|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|--------|-------|--------|-------|--------|-------|--------|-------|--------|
| mg/L | ug/L | mg/L | ug/L | mg/L | ug/L | mg/L | ug/L | mg/L | ug/L | mg/L | ug/L | mg/L | ug/L | mg/L | ug/L | mg/L | ug/L | mg/L | ug/L |
| 1 | 1.06 | 41 | 24.46 | 81 | 43.51 | 121 | 61.11 | 161 | 77.81 | 201 | 93.88 | 241 | 109.46 | 281 | 124.64 | 321 | 139.50 | 361 | 154.07 |
| 2 | 1.90 | 42 | 24.96 | 82 | 43.97 | 122 | 61.53 | 162 | 78.22 | 202 | 94.27 | 242 | 109.84 | 282 | 125.02 | 322 | 139.86 | 362 | 154.43 |
| 3 | 2.68 | 43 | 25.47 | 83 | 44.42 | 123 | 61.96 | 163 | 78.63 | 203 | 94.67 | 243 | 110.23 | 283 | 125.39 | 323 | 140.23 | 363 | 154.79 |
| 4 | 3.42 | 44 | 25.97 | 84 | 44.87 | 124 | 62.39 | 164 | 79.03 | 204 | 95.06 | 244 | 110.61 | 284 | 125.77 | 324 | 140.60 | 364 | 155.15 |
| 5 | 4.12 | 45 | 26.47 | 85 | 45.33 | 125 | 62.81 | 165 | 79.44 | 205 | 95.46 | 245 | 110.99 | 285 | 126.14 | 325 | 140.96 | 365 | 155.51 |
| 6 | 4.81 | 46 | 26.96 | 86 | 45.78 | 126 | 63.24 | 166 | 79.85 | 206 | 95.85 | 246 | 111.38 | 286 | 126.52 | 326 | 141.33 | 366 | 155.87 |
| 7 | 5.48 | 47 | 27.46 | 87 | 46.23 | 127 | 63.66 | 167 | 80.26 | 207 | 96.24 | 247 | 111.76 | 287 | 126.89 | 327 | 141.70 | 367 | 156.23 |
| 8 | 6.14 | 48 | 27.95 | 88 | 46.68 | 128 | 64.09 | 168 | 80.66 | 208 | 96.64 | 248 | 112.14 | 288 | 127.26 | 328 | 142.07 | 368 | 156.59 |
| 9 | 6.78 | 49 | 28.44 | 89 | 47.12 | 129 | 64.51 | 169 | 81.07 | 209 | 97.03 | 249 | 112.52 | 289 | 127.64 | 329 | 142.43 | 369 | 156.95 |
| 10 | 7.41 | 50 | 28.93 | 90 | 47.57 | 130 | 64.93 | 170 | 81.47 | 210 | 97.42 | 250 | 112.91 | 290 | 128.01 | 330 | 142.80 | 370 | 157.31 |
| 11 | 8.04 | 51 | 29.42 | 91 | 48.02 | 131 | 65.35 | 171 | 81.88 | 211 | 97.81 | 251 | 113.29 | 291 | 128.38 | 331 | 143.16 | 371 | 157.67 |
| 12 | 8.65 | 52 | 29.91 | 92 | 48.46 | 132 | 65.78 | 172 | 82.28 | 212 | 98.21 | 252 | 113.67 | 292 | 128.76 | 332 | 143.53 | 372 | 158.03 |
| 13 | 9.26 | 53 | 30.39 | 93 | 48.91 | 133 | 66.20 | 173 | 82.69 | 213 | 98.60 | 253 | 114.05 | 293 | 129.13 | 333 | 143.90 | 373 | 158.39 |
| 14 | 9.86 | 54 | 30.88 | 94 | 49.35 | 134 | 66.62 | 174 | 83.09 | 214 | 98.99 | 254 | 114.43 | 294 | 129.50 | 334 | 144.26 | 374 | 158.75 |
| 15 | 10.45 | 55 | 31.36 | 95 | 49.80 | 135 | 67.04 | 175 | 83.50 | 215 | 99.38 | 255 | 114.81 | 295 | 129.88 | 335 | 144.63 | 375 | 159.11 |
| 16 | 11.03 | 56 | 31.84 | 96 | 50.24 | 136 | 67.46 | 176 | 83.90 | 216 | 99.77 | 256 | 115.19 | 296 | 130.25 | 336 | 144.99 | 376 | 159.47 |
| 17 | 11.61 | 57 | 32.32 | 97 | 50.68 | 137 | 67.88 | 177 | 84.30 | 217 | 100.16 | 257 | 115.57 | 297 | 130.62 | 337 | 145.36 | 377 | 159.82 |
| 18 | 12.19 | 58 | 32.80 | 98 | 51.13 | 138 | 68.30 | 178 | 84.71 | 218 | 100.55 | 258 | 115.95 | 298 | 130.99 | 338 | 145.72 | 378 | 160.18 |
| 19 | 12.76 | 59 | 33.28 | 99 | 51.57 | 139 | 68.71 | 179 | 85.11 | 219 | 100.94 | 259 | 116.33 | 299 | 131.36 | 339 | 146.09 | 379 | 160.54 |
| 20 | 13.33 | 60 | 33.76 | 100 | 52.01 | 140 | 69.13 | 180 | 85.51 | 220 | 101.33 | 260 | 116.71 | 300 | 131.74 | 340 | 146.45 | 380 | 160.90 |
| 21 | 13.89 | 61 | 34.23 | 101 | 52.45 | 141 | 69.55 | 181 | 85.91 | 221 | 101.72 | 261 | 117.09 | 301 | 132.11 | 341 | 146.81 | 381 | 161.26 |
| 22 | 14.45 | 62 | 34.71 | 102 | 52.89 | 142 | 69.97 | 182 | 86.31 | 222 | 102.11 | 262 | 117.47 | 302 | 132.48 | 342 | 147.18 | 382 | 161.62 |
| 23 | 15.00 | 63 | 35.18 | 103 | 53.32 | 143 | 70.38 | 183 | 86.71 | 223 | 102.50 | 263 | 117.85 | 303 | 132.85 | 343 | 147.54 | 383 | 161.97 |
| 24 | 15.55 | 64 | 35.65 | 104 | 53.76 | 144 | 70.80 | 184 | 87.12 | 224 | 102.89 | 264 | 118.23 | 304 | 133.22 | 344 | 147.91 | 384 | 162.33 |
| 25 | 16.10 | 65 | 36.12 | 105 | 54.20 | 145 | 71.22 | 185 | 87.52 | 225 | 103.28 | 265 | 118.61 | 305 | 133.59 | 345 | 148.27 | 385 | 162.69 |
| 26 | 16.64 | 66 | 36.59 | 106 | 54.63 | 146 | 71.63 | 186 | 87.92 | 226 | 103.67 | 266 | 118.99 | 306 | 133.96 | 346 | 148.63 | 386 | 163.05 |
| 27 | 17.18 | 67 | 37.06 | 107 | 55.07 | 147 | 72.05 | 187 | 88.32 | 227 | 104.05 | 267 | 119.37 | 307 | 134.33 | 347 | 149.00 | 387 | 163.40 |
| 28 | 17.72 | 68 | 37.53 | 108 | 55.51 | 148 | 72.46 | 188 | 88.71 | 228 | 104.44 | 268 | 119.75 | 308 | 134.70 | 348 | 149.36 | 388 | 163.76 |
| 29 | 18.25 | 69 | 37.99 | 109 | 55.94 | 149 | 72.87 | 189 | 89.11 | 229 | 104.83 | 269 | 120.12 | 309 | 135.07 | 349 | 149.72 | 389 | 164.12 |
| 30 | 18.78 | 70 | 38.46 | 110 | 56.37 | 150 | 73.29 | 190 | 89.51 | 230 | 105.22 | 270 | 120.50 | 310 | 135.44 | 350 | 150.09 | 390 | 164.47 |
| 31 | 19.31 | 71 | 38.92 | 111 | 56.81 | 151 | 73.70 | 191 | 89.91 | 231 | 105.60 | 271 | 120.88 | 311 | 135.81 | 351 | 150.45 | 391 | 164.83 |
| 32 | 19.83 | 72 | 39.39 | 112 | 57.24 | 152 | 74.11 | 192 | 90.31 | 232 | 105.99 | 272 | 121.26 | 312 | 136.18 | 352 | 150.81 | 392 | 165.19 |
| 33 | 20.36 | 73 | 39.85 | 113 | 57.67 | 153 | 74.53 | 193 | 90.71 | 233 | 106.38 | 273 | 121.63 | 313 | 136.55 | 353 | 151.17 | 393 | 165.54 |
| 34 | 20.88 | 74 | 40.31 | 114 | 58.10 | 154 | 74.94 | 194 | 91.10 | 234 | 106.76 | 274 | 122.01 | 314 | 136.92 | 354 | 151.54 | 394 | 165.90 |
| 35 | 21.40 | 75 | 40.77 | 115 | 58.53 | 155 | 75.35 | 195 | 91.50 | 235 | 107.15 | 275 | 122.39 | 315 | 137.29 | 355 | 151.90 | 395 | 166.26 |
| 36 | 21.91 | 76 | 41.23 | 116 | 58.96 | 156 | 75.76 | 196 | 91.90 | 236 | 107.53 | 276 | 122.76 | 316 | 137.66 | 356 | 152.26 | 396 | 166.61 |
| 37 | 22.43 | 77 | 41.69 | 117 | 59.39 | 157 | 76.17 | 197 | 92.29 | 237 | 107.92 | 277 | 123.14 | 317 | 138.02 | 357 | 152.62 | 397 | 166.97 |
| 38 | 22.94 | 78 | 42.15 | 118 | 59.82 | 158 | 76.58 | 198 | 92.69 | 238 | 108.30 | 278 | 123.52 | 318 | 138.39 | 358 | 152.98 | 398 | 167.32 |
| 39 | 23.45 | 79 | 42.60 | 119 | 60.25 | 159 | 76.99 | 199 | 93.09 | 239 | 108.69 | 279 | 123.89 | 319 | 138.76 | 359 | 153.34 | 399 | 167.68 |
| 40 | 23.96 | 80 | 43.06 | 120 | 60.68 | 160 | 77.40 | 200 | 93.48 | 240 | 109.07 | 280 | 124.27 | 320 | 139.13 | 360 | 153.71 | 400 | 168.04 |

Table 207.14 Acute Water Quality Standards for Pentachlorophenol - Aquatic and Wildlife

Acute Standard = e (1.005 [pH-4.869])

| pH | Std. ug/L | pH | Std. ug/L | pH | Std. ug/L |
|-----|--------------|------|--------------|------|--------------|
| 3 | 0.153 | 6.9 | 7.699 | 10.8 | 387.864 |
| 3.1 | 0.169 | 7 | 8.514 | 10.9 | 428.870 |
| 3.2 | 0.187 | 7.1 | 9.414 | 11 | 474.212 |
| 3.3 | 0.207 | 7.2 | 10.409 | | |
| 3.4 | 0.228 | 7.3 | 11.509 | | |
| 3.5 | 0.253 | 7.4 | 12.726 | | |
| 3.6 | 0.279 | 7.5 | 14.072 | | |
| 3.7 | 0.309 | 7.6 | 15.559 | | |
| 3.8 | 0.342 | 7.7 | 17.204 | | |
| 3.9 | 0.378 | 7.8 | 19.023 | | |
| 4 | 0.418 | 7.9 | 21.034 | | |
| 4.1 | 0.462 | 8 | 23.258 | | |
| 4.2 | 0.511 | 8.1 | 25.717 | | |
| 4.3 | 0.564 | 8.2 | 28.436 | | |
| 4.4 | 0.624 | 8.3 | 31.442 | | |
| 4.5 | 0.690 | 8.4 | 34.767 | | |
| 4.6 | 0.763 | 8.5 | 38.442 | | |
| 4.7 | 0.844 | 8.6 | 42.506 | | |
| 4.8 | 0.933 | 8.7 | 47.000 | | |
| 4.9 | 1.032 | 8.8 | 51.969 | | |
| 5 | 1.141 | 8.9 | 57.464 | | |
| 5.1 | 1.261 | 9 | 63.539 | | |
| 5.2 | 1.395 | 9.1 | 70.257 | | |
| 5.3 | 1.542 | 9.2 | 77.684 | | |
| 5.4 | 1.705 | 9.3 | 85.898 | | |
| 5.5 | 1.885 | 9.4 | 94.979 | | |
| 5.6 | 2.085 | 9.5 | 105.020 | | |
| 5.7 | 2.305 | 9.6 | 116.124 | | |
| 5.8 | 2.549 | 9.7 | 128.401 | | |
| 5.9 | 2.818 | 9.8 | 141.976 | | |
| 6 | 3.116 | 9.9 | 156.986 | | |
| 6.1 | 3.446 | 10 | 173.583 | | |
| 6.2 | 3.810 | 10.1 | 191.935 | | |
| 6.3 | 4.213 | 10.2 | 212.227 | | |
| 6.4 | 4.658 | 10.3 | 234.664 | | |
| 6.5 | 5.151 | 10.4 | 259.474 | | |
| 6.6 | 5.695 | 10.5 | 286.906 | | |
| 6.7 | 6.298 | 10.6 | 317.239 | | |
| 6.8 | 6.963 | 10.7 | 350.779 | | |

Table 207.15 Chronic Water Quality Standards for Pentachlorophenol - Aquatic and Wildlife

Chronic Standard = e (1.005 [pH-5.134])

| pH | Std. ug/L | pH | Std. ug/L | pH | Std. ug/L |
|-----|--------------|------|--------------|------|--------------|
| 3 | 0.117 | 6.9 | 5.899 | 10.8 | 297.178 |
| 3.1 | 0.129 | 7 | 6.523 | 10.9 | 328.596 |
| 3.2 | 0.143 | 7.1 | 7.213 | 11 | 363.337 |
| 3.3 | 0.158 | 7.2 | 7.975 | | |
| 3.4 | 0.175 | 7.3 | 8.818 | | |
| 3.5 | 0.194 | 7.4 | 9.751 | | |
| 3.6 | 0.214 | 7.5 | 10.781 | | |
| 3.7 | 0.237 | 7.6 | 11.921 | | |
| 3.8 | 0.262 | 7.7 | 13.182 | | |
| 3.9 | 0.289 | 7.8 | 14.575 | | |
| 4 | 0.320 | 7.9 | 16.116 | | |
| 4.1 | 0.354 | 8 | 17.820 | | |
| 4.2 | 0.391 | 8.1 | 19.704 | | |
| 4.3 | 0.433 | 8.2 | 21.787 | | |
| 4.4 | 0.478 | 8.3 | 24.091 | | |
| 4.5 | 0.529 | 8.4 | 26.638 | | |
| 4.6 | 0.585 | 8.5 | 29.454 | | |
| 4.7 | 0.647 | 8.6 | 32.568 | | |
| 4.8 | 0.715 | 8.7 | 36.011 | | |
| 4.9 | 0.790 | 8.8 | 39.818 | | |
| 5 | 0.874 | 8.9 | 44.028 | | |
| 5.1 | 0.966 | 9 | 48.683 | | |
| 5.2 | 1.069 | 9.1 | 53.830 | | |
| 5.3 | 1.182 | 9.2 | 59.521 | | |
| 5.4 | 1.306 | 9.3 | 65.814 | | |
| 5.5 | 1.445 | 9.4 | 72.772 | | |
| 5.6 | 1.597 | 9.5 | 80.466 | | |
| 5.7 | 1.766 | 9.6 | 88.973 | | |
| 5.8 | 1.953 | 9.7 | 98.379 | | |
| 5.9 | 2.159 | 9.8 | 108.780 | | |
| 6 | 2.388 | 9.9 | 120.281 | | |
| 6.1 | 2.640 | 10 | 132.997 | | |
| 6.2 | 2.919 | 10.1 | 147.058 | | |
| 6.3 | 3.228 | 10.2 | 162.606 | | |
| 6.4 | 3.569 | 10.3 | 179.797 | | |
| 6.5 | 3.947 | 10.4 | 198.806 | | |
| 6.6 | 4.364 | 10.5 | 219.825 | | |
| 6.7 | 4.825 | 10.6 | 243.065 | | |
| 6.8 | 5.335 | 10.7 | 268.763 | | |

Table 207.16 Acute Water Quality Standards for Dissolved Silver - Aquatic and Wildlife
Acute Standard = $[e (1.72 [\ln (\text{hardness})] - 6.59)]0.85$

| Hard. mg/L | Std. ug/L | Hard. mg/L | Std. ug/L | Hard. mg/L | Std. ug/L | Hard. mg/L | Std. ug/L | Hard. mg/L | Std. ug/L | Hard. mg/L | Std. ug/L | Hard. mg/L | Std. ug/L | Hard. mg/L | Std. ug/L | Hard. mg/L | Std. ug/L | Hard. mg/L | Std. ug/L |
|---------------|--------------|---------------|--------------|---------------|--------------|---------------|--------------|---------------|--------------|---------------|--------------|---------------|--------------|---------------|--------------|---------------|--------------|---------------|--------------|
| 1 | 0.001 | 41 | 0.69 | 81 | 2.24 | 121 | 4.46 | 161 | 7.30 | 201 | 10.69 | 241 | 14.60 | 281 | 19.02 | 321 | 23.91 | 361 | 29.26 |
| 2 | 0.004 | 42 | 0.72 | 82 | 2.29 | 122 | 4.53 | 162 | 7.38 | 202 | 10.78 | 242 | 14.71 | 282 | 19.14 | 322 | 24.04 | 362 | 29.40 |
| 3 | 0.01 | 43 | 0.75 | 83 | 2.33 | 123 | 4.59 | 163 | 7.45 | 203 | 10.87 | 243 | 14.81 | 283 | 19.25 | 323 | 24.17 | 363 | 29.54 |
| 4 | 0.01 | 44 | 0.78 | 84 | 2.38 | 124 | 4.66 | 164 | 7.53 | 204 | 10.96 | 244 | 14.92 | 284 | 19.37 | 324 | 24.30 | 364 | 29.68 |
| 5 | 0.02 | 45 | 0.81 | 85 | 2.43 | 125 | 4.72 | 165 | 7.61 | 205 | 11.06 | 245 | 15.02 | 285 | 19.49 | 325 | 24.43 | 365 | 29.82 |
| 6 | 0.03 | 46 | 0.85 | 86 | 2.48 | 126 | 4.79 | 166 | 7.69 | 206 | 11.15 | 246 | 15.13 | 286 | 19.61 | 326 | 24.56 | 366 | 29.96 |
| 7 | 0.03 | 47 | 0.88 | 87 | 2.53 | 127 | 4.85 | 167 | 7.77 | 207 | 11.24 | 247 | 15.24 | 287 | 19.72 | 327 | 24.69 | 367 | 30.11 |
| 8 | 0.04 | 48 | 0.91 | 88 | 2.58 | 128 | 4.92 | 168 | 7.85 | 208 | 11.34 | 248 | 15.34 | 288 | 19.84 | 328 | 24.82 | 368 | 30.25 |
| 9 | 0.05 | 49 | 0.94 | 89 | 2.63 | 129 | 4.98 | 169 | 7.93 | 209 | 11.43 | 249 | 15.45 | 289 | 19.96 | 329 | 24.95 | 369 | 30.39 |
| 10 | 0.06 | 50 | 0.98 | 90 | 2.68 | 130 | 5.05 | 170 | 8.01 | 210 | 11.52 | 250 | 15.56 | 290 | 20.08 | 330 | 25.08 | 370 | 30.53 |
| 11 | 0.07 | 51 | 1.01 | 91 | 2.74 | 131 | 5.12 | 171 | 8.09 | 211 | 11.62 | 251 | 15.66 | 291 | 20.20 | 331 | 25.21 | 371 | 30.67 |
| 12 | 0.08 | 52 | 1.04 | 92 | 2.79 | 132 | 5.19 | 172 | 8.18 | 212 | 11.71 | 252 | 15.77 | 292 | 20.32 | 332 | 25.34 | 372 | 30.81 |
| 13 | 0.10 | 53 | 1.08 | 93 | 2.84 | 133 | 5.25 | 173 | 8.26 | 213 | 11.81 | 253 | 15.88 | 293 | 20.44 | 333 | 25.47 | 373 | 30.96 |
| 14 | 0.11 | 54 | 1.11 | 94 | 2.89 | 134 | 5.32 | 174 | 8.34 | 214 | 11.91 | 254 | 15.99 | 294 | 20.56 | 334 | 25.60 | 374 | 31.10 |
| 15 | 0.12 | 55 | 1.15 | 95 | 2.95 | 135 | 5.39 | 175 | 8.42 | 215 | 12.00 | 255 | 16.09 | 295 | 20.68 | 335 | 25.73 | 375 | 31.24 |
| 16 | 0.14 | 56 | 1.19 | 96 | 3.00 | 136 | 5.46 | 176 | 8.51 | 216 | 12.10 | 256 | 16.20 | 296 | 20.80 | 336 | 25.87 | 376 | 31.39 |
| 17 | 0.15 | 57 | 1.22 | 97 | 3.05 | 137 | 5.53 | 177 | 8.59 | 217 | 12.19 | 257 | 16.31 | 297 | 20.92 | 337 | 26.00 | 377 | 31.53 |
| 18 | 0.17 | 58 | 1.26 | 98 | 3.11 | 138 | 5.60 | 178 | 8.67 | 218 | 12.29 | 258 | 16.42 | 298 | 21.04 | 338 | 26.13 | 378 | 31.67 |
| 19 | 0.18 | 59 | 1.30 | 99 | 3.16 | 139 | 5.67 | 179 | 8.76 | 219 | 12.39 | 259 | 16.53 | 299 | 21.16 | 339 | 26.26 | 379 | 31.82 |
| 20 | 0.20 | 60 | 1.34 | 100 | 3.22 | 140 | 5.74 | 180 | 8.84 | 220 | 12.48 | 260 | 16.64 | 300 | 21.28 | 340 | 26.40 | 380 | 31.96 |
| 21 | 0.22 | 61 | 1.37 | 101 | 3.27 | 141 | 5.81 | 181 | 8.93 | 221 | 12.58 | 261 | 16.75 | 301 | 21.41 | 341 | 26.53 | 381 | 32.11 |
| 22 | 0.24 | 62 | 1.41 | 102 | 3.33 | 142 | 5.88 | 182 | 9.01 | 222 | 12.68 | 262 | 16.86 | 302 | 21.53 | 342 | 26.67 | 382 | 32.25 |
| 23 | 0.26 | 63 | 1.45 | 103 | 3.38 | 143 | 5.95 | 183 | 9.10 | 223 | 12.78 | 263 | 16.97 | 303 | 21.65 | 343 | 26.80 | 383 | 32.40 |
| 24 | 0.28 | 64 | 1.49 | 104 | 3.44 | 144 | 6.02 | 184 | 9.18 | 224 | 12.88 | 264 | 17.08 | 304 | 21.78 | 344 | 26.93 | 384 | 32.54 |
| 25 | 0.30 | 65 | 1.53 | 105 | 3.50 | 145 | 6.09 | 185 | 9.27 | 225 | 12.98 | 265 | 17.19 | 305 | 21.90 | 345 | 27.07 | 385 | 32.69 |
| 26 | 0.32 | 66 | 1.57 | 106 | 3.56 | 146 | 6.17 | 186 | 9.35 | 226 | 13.08 | 266 | 17.31 | 306 | 22.02 | 346 | 27.20 | 386 | 32.84 |
| 27 | 0.34 | 67 | 1.62 | 107 | 3.61 | 147 | 6.24 | 187 | 9.44 | 227 | 13.18 | 267 | 17.42 | 307 | 22.15 | 347 | 27.34 | 387 | 32.98 |
| 28 | 0.36 | 68 | 1.66 | 108 | 3.67 | 148 | 6.31 | 188 | 9.53 | 228 | 13.28 | 268 | 17.53 | 308 | 22.27 | 348 | 27.47 | 388 | 33.13 |
| 29 | 0.38 | 69 | 1.70 | 109 | 3.73 | 149 | 6.39 | 189 | 9.61 | 229 | 13.38 | 269 | 17.64 | 309 | 22.39 | 349 | 27.61 | 389 | 33.28 |
| 30 | 0.41 | 70 | 1.74 | 110 | 3.79 | 150 | 6.46 | 190 | 9.70 | 230 | 13.48 | 270 | 17.76 | 310 | 22.52 | 350 | 27.75 | 390 | 33.42 |
| 31 | 0.43 | 71 | 1.78 | 111 | 3.85 | 151 | 6.54 | 191 | 9.79 | 231 | 13.58 | 271 | 17.87 | 311 | 22.64 | 351 | 27.88 | 391 | 33.57 |
| 32 | 0.45 | 72 | 1.83 | 112 | 3.91 | 152 | 6.61 | 192 | 9.88 | 232 | 13.68 | 272 | 17.98 | 312 | 22.77 | 352 | 28.02 | 392 | 33.72 |
| 33 | 0.48 | 73 | 1.87 | 113 | 3.97 | 153 | 6.68 | 193 | 9.97 | 233 | 13.78 | 273 | 18.10 | 313 | 22.90 | 353 | 28.16 | 393 | 33.87 |
| 34 | 0.50 | 74 | 1.92 | 114 | 4.03 | 154 | 6.76 | 194 | 10.06 | 234 | 13.88 | 274 | 18.21 | 314 | 23.02 | 354 | 28.29 | 394 | 34.02 |
| 35 | 0.53 | 75 | 1.96 | 115 | 4.09 | 155 | 6.84 | 195 | 10.15 | 235 | 13.98 | 275 | 18.33 | 315 | 23.15 | 355 | 28.43 | 395 | 34.16 |
| 36 | 0.55 | 76 | 2.01 | 116 | 4.15 | 156 | 6.91 | 196 | 10.24 | 236 | 14.09 | 276 | 18.44 | 316 | 23.27 | 356 | 28.57 | 396 | 34.31 |
| 37 | 0.58 | 77 | 2.05 | 117 | 4.21 | 157 | 6.99 | 197 | 10.33 | 237 | 14.19 | 277 | 18.56 | 317 | 23.40 | 357 | 28.71 | 397 | 34.46 |
| 38 | 0.61 | 78 | 2.10 | 118 | 4.28 | 158 | 7.06 | 198 | 10.42 | 238 | 14.29 | 278 | 18.67 | 318 | 23.53 | 358 | 28.85 | 398 | 34.61 |
| 39 | 0.64 | 79 | 2.14 | 119 | 4.34 | 159 | 7.14 | 199 | 10.51 | 239 | 14.40 | 279 | 18.79 | 319 | 23.66 | 359 | 28.99 | 399 | 34.76 |
| 40 | 0.67 | 80 | 2.19 | 120 | 4.40 | 160 | 7.22 | 200 | 10.60 | 240 | 14.50 | 280 | 18.90 | 320 | 23.78 | 360 | 29.12 | 400 | 34.91 |

Table 207.17 Acute Water Quality Standards for Dissolved Zinc - Aquatic and Wildlife

Acute Standard = [e (0.8473 [ln (hardness)] + 0.884)]0.978

| Hard. | Std. | Hard. | Std. | Hard. | Std. | Hard. | Std. | Hard. | Std. | Hard. | Std. | Hard. | Std. | Hard. | Std. | Hard. | Std. | Hard. | Std. |
|-------|------|-------|------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| mg/L | ug/L | mg/L | ug/L | mg/L | ug/L | mg/L | ug/L | mg/L | ug/L | mg/L | ug/L | mg/L | ug/L | mg/L | ug/L | mg/L | ug/L | mg/L | ug/L |
| 1 | 2.4 | 41 | 55.1 | 81 | 98.0 | 121 | 137.7 | 161 | 175.4 | 201 | 211.7 | 241 | 246.9 | 281 | 281.2 | 321 | 314.8 | 361 | 347.7 |
| 2 | 4.3 | 42 | 56.2 | 82 | 99.0 | 122 | 138.7 | 162 | 176.4 | 202 | 212.6 | 242 | 247.8 | 282 | 282.1 | 322 | 315.6 | 362 | 348.5 |
| 3 | 6.0 | 43 | 57.3 | 83 | 100.1 | 123 | 139.6 | 163 | 177.3 | 203 | 213.5 | 243 | 248.6 | 283 | 282.9 | 323 | 316.4 | 363 | 349.4 |
| 4 | 7.7 | 44 | 58.4 | 84 | 101.1 | 124 | 140.6 | 164 | 178.2 | 204 | 214.4 | 244 | 249.5 | 284 | 283.8 | 324 | 317.3 | 364 | 350.2 |
| 5 | 9.3 | 45 | 59.6 | 85 | 102.1 | 125 | 141.6 | 165 | 179.1 | 205 | 215.3 | 245 | 250.4 | 285 | 284.6 | 325 | 318.1 | 365 | 351.0 |
| 6 | 10.8 | 46 | 60.7 | 86 | 103.1 | 126 | 142.5 | 166 | 180.0 | 206 | 216.2 | 246 | 251.2 | 286 | 285.5 | 326 | 318.9 | 366 | 351.8 |
| 7 | 12.3 | 47 | 61.8 | 87 | 104.1 | 127 | 143.5 | 167 | 181.0 | 207 | 217.1 | 247 | 252.1 | 287 | 286.3 | 327 | 319.8 | 367 | 352.6 |
| 8 | 13.8 | 48 | 62.9 | 88 | 105.2 | 128 | 144.4 | 168 | 181.9 | 208 | 217.9 | 248 | 253.0 | 288 | 287.1 | 328 | 320.6 | 368 | 353.4 |
| 9 | 15.2 | 49 | 64.0 | 89 | 106.2 | 129 | 145.4 | 169 | 182.8 | 209 | 218.8 | 249 | 253.8 | 289 | 288.0 | 329 | 321.4 | 369 | 354.2 |
| 10 | 16.7 | 50 | 65.1 | 90 | 107.2 | 130 | 146.4 | 170 | 183.7 | 210 | 219.7 | 250 | 254.7 | 290 | 288.8 | 330 | 322.2 | 370 | 355.1 |
| 11 | 18.1 | 51 | 66.2 | 91 | 108.2 | 131 | 147.3 | 171 | 184.6 | 211 | 220.6 | 251 | 255.6 | 291 | 289.7 | 331 | 323.1 | 371 | 355.9 |
| 12 | 19.4 | 52 | 67.3 | 92 | 109.2 | 132 | 148.3 | 172 | 185.5 | 212 | 221.5 | 252 | 256.4 | 292 | 290.5 | 332 | 323.9 | 372 | 356.7 |
| 13 | 20.8 | 53 | 68.4 | 93 | 110.2 | 133 | 149.2 | 173 | 186.4 | 213 | 222.4 | 253 | 257.3 | 293 | 291.4 | 333 | 324.7 | 373 | 357.5 |
| 14 | 22.1 | 54 | 69.5 | 94 | 111.2 | 134 | 150.2 | 174 | 187.4 | 214 | 223.3 | 254 | 258.1 | 294 | 292.2 | 334 | 325.6 | 374 | 358.3 |
| 15 | 23.5 | 55 | 70.6 | 95 | 112.2 | 135 | 151.1 | 175 | 188.3 | 215 | 224.1 | 255 | 259.0 | 295 | 293.0 | 335 | 326.4 | 375 | 359.1 |
| 16 | 24.8 | 56 | 71.7 | 96 | 113.2 | 136 | 152.1 | 176 | 189.2 | 216 | 225.0 | 256 | 259.9 | 296 | 293.9 | 336 | 327.2 | 376 | 359.9 |
| 17 | 26.1 | 57 | 72.8 | 97 | 114.2 | 137 | 153.0 | 177 | 190.1 | 217 | 225.9 | 257 | 260.7 | 297 | 294.7 | 337 | 328.0 | 377 | 360.7 |
| 18 | 27.4 | 58 | 73.9 | 98 | 115.2 | 138 | 153.9 | 178 | 191.0 | 218 | 226.8 | 258 | 261.6 | 298 | 295.6 | 338 | 328.9 | 378 | 361.5 |
| 19 | 28.7 | 59 | 74.9 | 99 | 116.2 | 139 | 154.9 | 179 | 191.9 | 219 | 227.7 | 259 | 262.4 | 299 | 296.4 | 339 | 329.7 | 379 | 362.4 |
| 20 | 30.0 | 60 | 76.0 | 100 | 117.2 | 140 | 155.8 | 180 | 192.8 | 220 | 228.6 | 260 | 263.3 | 300 | 297.2 | 340 | 330.5 | 380 | 363.2 |
| 21 | 31.2 | 61 | 77.1 | 101 | 118.2 | 141 | 156.8 | 181 | 193.7 | 221 | 229.4 | 261 | 264.2 | 301 | 298.1 | 341 | 331.3 | 381 | 364.0 |
| 22 | 32.5 | 62 | 78.2 | 102 | 119.2 | 142 | 157.7 | 182 | 194.6 | 222 | 230.3 | 262 | 265.0 | 302 | 298.9 | 342 | 332.2 | 382 | 364.8 |
| 23 | 33.7 | 63 | 79.2 | 103 | 120.2 | 143 | 158.7 | 183 | 195.5 | 223 | 231.2 | 263 | 265.9 | 303 | 299.8 | 343 | 333.0 | 383 | 365.6 |
| 24 | 35.0 | 64 | 80.3 | 104 | 121.1 | 144 | 159.6 | 184 | 196.4 | 224 | 232.1 | 264 | 266.7 | 304 | 300.6 | 344 | 333.8 | 384 | 366.4 |
| 25 | 36.2 | 65 | 81.3 | 105 | 122.1 | 145 | 160.5 | 185 | 197.3 | 225 | 232.9 | 265 | 267.6 | 305 | 301.4 | 345 | 334.6 | 385 | 367.2 |
| 26 | 37.4 | 66 | 82.4 | 106 | 123.1 | 146 | 161.5 | 186 | 198.3 | 226 | 233.8 | 266 | 268.4 | 306 | 302.3 | 346 | 335.4 | 386 | 368.0 |
| 27 | 38.6 | 67 | 83.5 | 107 | 124.1 | 147 | 162.4 | 187 | 199.2 | 227 | 234.7 | 267 | 269.3 | 307 | 303.1 | 347 | 336.3 | 387 | 368.8 |
| 28 | 39.9 | 68 | 84.5 | 108 | 125.1 | 148 | 163.3 | 188 | 200.1 | 228 | 235.6 | 268 | 270.2 | 308 | 304.0 | 348 | 337.1 | 388 | 369.6 |
| 29 | 41.1 | 69 | 85.6 | 109 | 126.1 | 149 | 164.3 | 189 | 201.0 | 229 | 236.5 | 269 | 271.0 | 309 | 304.8 | 349 | 337.9 | 389 | 370.4 |
| 30 | 42.2 | 70 | 86.6 | 110 | 127.0 | 150 | 165.2 | 190 | 201.9 | 230 | 237.3 | 270 | 271.9 | 310 | 305.6 | 350 | 338.7 | 390 | 371.2 |
| 31 | 43.4 | 71 | 87.7 | 111 | 128.0 | 151 | 166.2 | 191 | 202.8 | 231 | 238.2 | 271 | 272.7 | 311 | 306.5 | 351 | 339.5 | 391 | 372.1 |
| 32 | 44.6 | 72 | 88.7 | 112 | 129.0 | 152 | 167.1 | 192 | 203.7 | 232 | 239.1 | 272 | 273.6 | 312 | 307.3 | 352 | 340.4 | 392 | 372.9 |
| 33 | 45.8 | 73 | 89.8 | 113 | 130.0 | 153 | 168.0 | 193 | 204.6 | 233 | 239.9 | 273 | 274.4 | 313 | 308.1 | 353 | 341.2 | 393 | 373.7 |
| 34 | 47.0 | 74 | 90.8 | 114 | 130.9 | 154 | 168.9 | 194 | 205.5 | 234 | 240.8 | 274 | 275.3 | 314 | 309.0 | 354 | 342.0 | 394 | 374.5 |
| 35 | 48.1 | 75 | 91.8 | 115 | 131.9 | 155 | 169.9 | 195 | 206.3 | 235 | 241.7 | 275 | 276.1 | 315 | 309.8 | 355 | 342.8 | 395 | 375.3 |
| 36 | 49.3 | 76 | 92.9 | 116 | 132.9 | 156 | 170.8 | 196 | 207.2 | 236 | 242.6 | 276 | 277.0 | 316 | 310.6 | 356 | 343.6 | 396 | 376.1 |
| 37 | 50.5 | 77 | 93.9 | 117 | 133.9 | 157 | 171.7 | 197 | 208.1 | 237 | 243.4 | 277 | 277.8 | 317 | 311.5 | 357 | 344.5 | 397 | 376.9 |
| 38 | 51.6 | 78 | 94.9 | 118 | 134.8 | 158 | 172.7 | 198 | 209.0 | 238 | 244.3 | 278 | 278.7 | 318 | 312.3 | 358 | 345.3 | 398 | 377.7 |
| 39 | 52.8 | 79 | 96.0 | 119 | 135.8 | 159 | 173.6 | 199 | 209.9 | 239 | 245.2 | 279 | 279.5 | 319 | 313.1 | 359 | 346.1 | 399 | 378.5 |
| 40 | 53.9 | 80 | 97.0 | 120 | 136.8 | 160 | 174.5 | 200 | 210.8 | 240 | 246.0 | 280 | 280.4 | 320 | 314.0 | 360 | 346.9 | 400 | 379.3 |

Table 207.18 Chronic Water Quality Standards for Dissolved Zinc - Aquatic and Wildlife
Chronic Standard = [e (0.8473 [ln (hardness)]) + 0.884] 0.986

| Hard. | Std. | Hard. | Std. | Hard. | Std. | Hard. | Std. | Hard. | Std. | Hard. | Std. | Hard. | Std. | Hard. | Std. | Hard. | Std. | Hard. | Std. |
|-------|------|-------|------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| mg/L | ug/L | mg/L | ug/L | mg/L | ug/L | mg/L | ug/L | mg/L | ug/L | mg/L | ug/L | mg/L | ug/L | mg/L | ug/L | mg/L | ug/L | mg/L | ug/L |
| 1 | 2.4 | 41 | 55.5 | 81 | 98.8 | 121 | 138.8 | 161 | 176.9 | 201 | 213.4 | 241 | 248.9 | 281 | 283.5 | 321 | 317.4 | 361 | 350.6 |
| 2 | 4.3 | 42 | 56.6 | 82 | 99.9 | 122 | 139.8 | 162 | 177.8 | 202 | 214.3 | 242 | 249.8 | 282 | 284.4 | 322 | 318.2 | 362 | 351.4 |
| 3 | 6.1 | 43 | 57.8 | 83 | 100.9 | 123 | 140.8 | 163 | 178.7 | 203 | 215.2 | 243 | 250.7 | 283 | 285.2 | 323 | 319.0 | 363 | 352.2 |
| 4 | 7.7 | 44 | 58.9 | 84 | 101.9 | 124 | 141.8 | 164 | 179.7 | 204 | 216.1 | 244 | 251.6 | 284 | 286.1 | 324 | 319.9 | 364 | 353.0 |
| 5 | 9.3 | 45 | 60.1 | 85 | 102.9 | 125 | 142.7 | 165 | 180.6 | 205 | 217.0 | 245 | 252.4 | 285 | 286.9 | 325 | 320.7 | 365 | 353.9 |
| 6 | 10.9 | 46 | 61.2 | 86 | 104.0 | 126 | 143.7 | 166 | 181.5 | 206 | 217.9 | 246 | 253.3 | 286 | 287.8 | 326 | 321.5 | 366 | 354.7 |
| 7 | 12.4 | 47 | 62.3 | 87 | 105.0 | 127 | 144.7 | 167 | 182.4 | 207 | 218.8 | 247 | 254.2 | 287 | 288.6 | 327 | 322.4 | 367 | 355.5 |
| 8 | 13.9 | 48 | 63.4 | 88 | 106.0 | 128 | 145.6 | 168 | 183.4 | 208 | 219.7 | 248 | 255.0 | 288 | 289.5 | 328 | 323.2 | 368 | 356.3 |
| 9 | 15.4 | 49 | 64.6 | 89 | 107.0 | 129 | 146.6 | 169 | 184.3 | 209 | 220.6 | 249 | 255.9 | 289 | 290.3 | 329 | 324.1 | 369 | 357.1 |
| 10 | 16.8 | 50 | 65.7 | 90 | 108.0 | 130 | 147.5 | 170 | 185.2 | 210 | 221.5 | 250 | 256.8 | 290 | 291.2 | 330 | 324.9 | 370 | 358.0 |
| 11 | 18.2 | 51 | 66.8 | 91 | 109.1 | 131 | 148.5 | 171 | 186.1 | 211 | 222.4 | 251 | 257.7 | 291 | 292.0 | 331 | 325.7 | 371 | 358.8 |
| 12 | 19.6 | 52 | 67.9 | 92 | 110.1 | 132 | 149.5 | 172 | 187.0 | 212 | 223.3 | 252 | 258.5 | 292 | 292.9 | 332 | 326.6 | 372 | 359.6 |
| 13 | 21.0 | 53 | 69.0 | 93 | 111.1 | 133 | 150.4 | 173 | 188.0 | 213 | 224.2 | 253 | 259.4 | 293 | 293.7 | 333 | 327.4 | 373 | 360.4 |
| 14 | 22.3 | 54 | 70.1 | 94 | 112.1 | 134 | 151.4 | 174 | 188.9 | 214 | 225.1 | 254 | 260.3 | 294 | 294.6 | 334 | 328.2 | 374 | 361.2 |
| 15 | 23.7 | 55 | 71.2 | 95 | 113.1 | 135 | 152.3 | 175 | 189.8 | 215 | 226.0 | 255 | 261.1 | 295 | 295.4 | 335 | 329.1 | 375 | 362.1 |
| 16 | 25.0 | 56 | 72.3 | 96 | 114.1 | 136 | 153.3 | 176 | 190.7 | 216 | 226.9 | 256 | 262.0 | 296 | 296.3 | 336 | 329.9 | 376 | 362.9 |
| 17 | 26.3 | 57 | 73.4 | 97 | 115.1 | 137 | 154.3 | 177 | 191.6 | 217 | 227.8 | 257 | 262.9 | 297 | 297.1 | 337 | 330.7 | 377 | 363.7 |
| 18 | 27.6 | 58 | 74.5 | 98 | 116.1 | 138 | 155.2 | 178 | 192.6 | 218 | 228.6 | 258 | 263.7 | 298 | 298.0 | 338 | 331.5 | 378 | 364.5 |
| 19 | 28.9 | 59 | 75.6 | 99 | 117.1 | 139 | 156.2 | 179 | 193.5 | 219 | 229.5 | 259 | 264.6 | 299 | 298.8 | 339 | 332.4 | 379 | 365.3 |
| 20 | 30.2 | 60 | 76.6 | 100 | 118.1 | 140 | 157.1 | 180 | 194.4 | 220 | 230.4 | 260 | 265.5 | 300 | 299.7 | 340 | 333.2 | 380 | 366.1 |
| 21 | 31.5 | 61 | 77.7 | 101 | 119.1 | 141 | 158.1 | 181 | 195.3 | 221 | 231.3 | 261 | 266.3 | 301 | 300.5 | 341 | 334.0 | 381 | 367.0 |
| 22 | 32.8 | 62 | 78.8 | 102 | 120.1 | 142 | 159.0 | 182 | 196.2 | 222 | 232.2 | 262 | 267.2 | 302 | 301.4 | 342 | 334.9 | 382 | 367.8 |
| 23 | 34.0 | 63 | 79.9 | 103 | 121.1 | 143 | 160.0 | 183 | 197.1 | 223 | 233.1 | 263 | 268.1 | 303 | 302.2 | 343 | 335.7 | 383 | 368.6 |
| 24 | 35.3 | 64 | 80.9 | 104 | 122.1 | 144 | 160.9 | 184 | 198.0 | 224 | 234.0 | 264 | 268.9 | 304 | 303.1 | 344 | 336.5 | 384 | 369.4 |
| 25 | 36.5 | 65 | 82.0 | 105 | 123.1 | 145 | 161.9 | 185 | 199.0 | 225 | 234.9 | 265 | 269.8 | 305 | 303.9 | 345 | 337.4 | 385 | 370.2 |
| 26 | 37.7 | 66 | 83.1 | 106 | 124.1 | 146 | 162.8 | 186 | 199.9 | 226 | 235.7 | 266 | 270.6 | 306 | 304.8 | 346 | 338.2 | 386 | 371.0 |
| 27 | 39.0 | 67 | 84.1 | 107 | 125.1 | 147 | 163.7 | 187 | 200.8 | 227 | 236.6 | 267 | 271.5 | 307 | 305.6 | 347 | 339.0 | 387 | 371.8 |
| 28 | 40.2 | 68 | 85.2 | 108 | 126.1 | 148 | 164.7 | 188 | 201.7 | 228 | 237.5 | 268 | 272.4 | 308 | 306.4 | 348 | 339.8 | 388 | 372.7 |
| 29 | 41.4 | 69 | 86.3 | 109 | 127.1 | 149 | 165.6 | 189 | 202.6 | 229 | 238.4 | 269 | 273.2 | 309 | 307.3 | 349 | 340.7 | 389 | 373.5 |
| 30 | 42.6 | 70 | 87.3 | 110 | 128.1 | 150 | 166.6 | 190 | 203.5 | 230 | 239.3 | 270 | 274.1 | 310 | 308.1 | 350 | 341.5 | 390 | 374.3 |
| 31 | 43.8 | 71 | 88.4 | 111 | 129.1 | 151 | 167.5 | 191 | 204.4 | 231 | 240.1 | 271 | 274.9 | 311 | 309.0 | 351 | 342.3 | 391 | 375.1 |
| 32 | 45.0 | 72 | 89.4 | 112 | 130.0 | 152 | 168.4 | 192 | 205.3 | 232 | 241.0 | 272 | 275.8 | 312 | 309.8 | 352 | 343.1 | 392 | 375.9 |
| 33 | 46.2 | 73 | 90.5 | 113 | 131.0 | 153 | 169.4 | 193 | 206.2 | 233 | 241.9 | 273 | 276.7 | 313 | 310.6 | 353 | 344.0 | 393 | 376.7 |
| 34 | 47.4 | 74 | 91.5 | 114 | 132.0 | 154 | 170.3 | 194 | 207.1 | 234 | 242.8 | 274 | 277.5 | 314 | 311.5 | 354 | 344.8 | 394 | 377.5 |
| 35 | 48.5 | 75 | 92.6 | 115 | 133.0 | 155 | 171.3 | 195 | 208.0 | 235 | 243.7 | 275 | 278.4 | 315 | 312.3 | 355 | 345.6 | 395 | 378.3 |
| 36 | 49.7 | 76 | 93.6 | 116 | 134.0 | 156 | 172.2 | 196 | 208.9 | 236 | 244.5 | 276 | 279.2 | 316 | 313.2 | 356 | 346.4 | 396 | 379.2 |
| 37 | 50.9 | 77 | 94.7 | 117 | 134.9 | 157 | 173.1 | 197 | 209.8 | 237 | 245.4 | 277 | 280.1 | 317 | 314.0 | 357 | 347.3 | 397 | 380.0 |
| 38 | 52.0 | 78 | 95.7 | 118 | 135.9 | 158 | 174.1 | 198 | 210.7 | 238 | 246.3 | 278 | 281.0 | 318 | 314.8 | 358 | 348.1 | 398 | 380.8 |
| 39 | 53.2 | 79 | 96.8 | 119 | 136.9 | 159 | 175.0 | 199 | 211.6 | 239 | 247.2 | 279 | 281.8 | 319 | 315.7 | 359 | 348.9 | 399 | 381.6 |
| 40 | 54.4 | 80 | 97.8 | 120 | 137.9 | 160 | 175.9 | 200 | 212.5 | 240 | 248.1 | 280 | 282.7 | 320 | 316.5 | 360 | 349.7 | 400 | 382.4 |

**Table 207.19 Maximum Total Ammonia Concentration Acute Standard for Aquatic and Wildlife (Salmonids Present)
(Total Ammonia mg-N/liter)**

| | | Temperature (°C) | | | | | | | | | | | | | | | |
|-----|------|------------------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| pH | 0-14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 |
| 6.5 | 33 | 33 | 32 | 29 | 27 | 25 | 23 | 21 | 19 | 18 | 16 | 15 | 14 | 13 | 12 | 11 | 9.9 |
| 6.6 | 31 | 31 | 30 | 28 | 26 | 24 | 22 | 20 | 18 | 17 | 16 | 14 | 13 | 12 | 11 | 10 | 9.5 |
| 6.7 | 30 | 30 | 29 | 27 | 24 | 22 | 21 | 19 | 18 | 16 | 15 | 14 | 13 | 12 | 11 | 9.8 | 9.0 |
| 6.8 | 28 | 28 | 27 | 25 | 23 | 21 | 20 | 18 | 17 | 15 | 14 | 13 | 12 | 11 | 10 | 9.2 | 8.5 |
| 6.9 | 26 | 26 | 25 | 23 | 21 | 20 | 18 | 17 | 15 | 14 | 13 | 12 | 11 | 10 | 9.4 | 8.6 | 7.9 |
| 7.0 | 24 | 24 | 23 | 21 | 20 | 18 | 17 | 15 | 14 | 13 | 12 | 11 | 10 | 9.4 | 8.6 | 8.0 | 7.3 |
| 7.1 | 22 | 22 | 21 | 20 | 18 | 17 | 15 | 14 | 13 | 12 | 11 | 10 | 9.3 | 8.5 | 7.9 | 7.2 | 6.7 |
| 7.2 | 20 | 20 | 19 | 18 | 16 | 15 | 14 | 13 | 12 | 11 | 9.8 | 9.1 | 8.3 | 7.7 | 7.1 | 6.5 | 6.0 |
| 7.3 | 18 | 18 | 17 | 16 | 14 | 13 | 12 | 11 | 10 | 9.5 | 8.7 | 8.0 | 7.4 | 6.8 | 6.3 | 5.8 | 5.3 |
| 7.4 | 15 | 15 | 15 | 14 | 13 | 12 | 11 | 9.8 | 9.0 | 8.3 | 7.7 | 7.0 | 6.5 | 6.0 | 5.5 | 5.1 | 4.7 |
| 7.5 | 13 | 13 | 13 | 12 | 11 | 10 | 9.2 | 8.5 | 7.8 | 7.2 | 6.6 | 6.1 | 5.6 | 5.2 | 4.8 | 4.4 | 4.0 |
| 7.6 | 11 | 11 | 11 | 10 | 9.3 | 8.6 | 7.9 | 7.3 | 6.7 | 6.2 | 5.7 | 5.2 | 4.8 | 4.4 | 4.1 | 3.8 | 3.5 |
| 7.7 | 9.6 | 9.6 | 9.3 | 8.6 | 7.9 | 7.3 | 6.7 | 6.2 | 5.7 | 5.2 | 4.8 | 4.4 | 4.1 | 3.8 | 3.5 | 3.2 | 3.0 |
| 7.8 | 8.1 | 8.1 | 7.9 | 7.2 | 6.7 | 6.1 | 5.6 | 5.2 | 4.8 | 4.4 | 4.0 | 3.7 | 3.4 | 3.2 | 2.9 | 2.7 | 2.5 |
| 7.9 | 6.8 | 6.8 | 6.6 | 6.0 | 5.6 | 5.1 | 4.7 | 4.3 | 4.0 | 3.7 | 3.4 | 3.1 | 2.9 | 2.6 | 2.4 | 2.2 | 2.1 |
| 8.0 | 5.6 | 5.6 | 5.4 | 5.0 | 4.6 | 4.2 | 3.9 | 3.6 | 3.3 | 3.0 | 2.8 | 2.6 | 2.4 | 2.2 | 2.0 | 1.9 | 1.7 |
| 8.1 | 4.6 | 4.6 | 4.5 | 4.1 | 3.8 | 3.5 | 3.2 | 3.0 | 2.7 | 2.5 | 2.3 | 2.1 | 2.0 | 1.8 | 1.7 | 1.5 | 1.4 |
| 8.2 | 3.8 | 3.8 | 3.7 | 3.5 | 3.1 | 2.9 | 2.7 | 2.4 | 2.3 | 2.1 | 1.9 | 1.8 | 1.6 | 1.5 | 1.4 | 1.3 | 1.2 |
| 8.3 | 3.1 | 3.1 | 3.1 | 2.8 | 2.6 | 2.4 | 2.2 | 2.0 | 1.9 | 1.7 | 1.6 | 1.4 | 1.3 | 1.2 | 1.1 | 1.0 | 0.96 |
| 8.4 | 2.6 | 2.6 | 2.5 | 2.3 | 2.1 | 2.0 | 1.8 | 1.7 | 1.5 | 1.4 | 1.3 | 1.2 | 1.1 | 1.0 | 0.93 | 0.86 | 0.79 |
| 8.5 | 2.1 | 2.1 | 2.1 | 1.9 | 1.8 | 1.6 | 1.5 | 1.4 | 1.3 | 1.2 | 1.1 | 0.98 | 0.90 | 0.83 | 0.77 | 0.71 | 0.65 |
| 8.6 | 1.8 | 1.8 | 1.7 | 1.6 | 1.5 | 1.3 | 1.2 | 1.1 | 1.0 | 0.96 | 0.88 | 0.81 | 0.75 | 0.69 | 0.63 | 0.59 | 0.54 |
| 8.7 | 1.5 | 1.5 | 1.4 | 1.3 | 1.2 | 1.1 | 1.0 | 0.94 | 0.87 | 0.80 | 0.74 | 0.68 | 0.62 | 0.57 | 0.53 | 0.49 | 0.45 |
| 8.8 | 1.2 | 1.2 | 1.2 | 1.1 | 1.0 | 0.93 | 0.86 | 0.79 | 0.73 | 0.67 | 0.62 | 0.57 | 0.52 | 0.48 | 0.44 | 0.41 | 0.37 |
| 8.9 | 1.0 | 1.0 | 1.0 | 0.93 | 0.85 | 0.79 | 0.72 | 0.67 | 0.61 | 0.56 | 0.52 | 0.48 | 0.44 | 0.40 | 0.37 | 0.34 | 0.32 |
| 9.0 | 0.88 | 0.88 | 0.86 | 0.79 | 0.73 | 0.67 | 0.62 | 0.57 | 0.52 | 0.48 | 0.44 | 0.41 | 0.37 | 0.34 | 0.32 | 0.29 | 0.27 |

Notes: pH and temperature are field measurements taken at the same time and location as the water samples destined for the laboratory analysis of ammonia.

**Table 207.20 Maximum Total Ammonia Concentration Acute Standard for Aquatic and Wildlife (Salmonids Absent)
(Total Ammonia mg-N/liter)**

| | | Temperature (°C) | | | | | | | | | | | | | | | | | | | |
|------------|-------------|-------------------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| pH | 0-10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 |
| 6.5 | 51 | 48 | 44 | 41 | 37 | 34 | 32 | 29 | 27 | 25 | 23 | 21 | 19 | 18 | 16 | 15 | 14 | 13 | 12 | 11 | 9.9 |
| 6.6 | 49 | 46 | 42 | 39 | 36 | 33 | 30 | 28 | 26 | 24 | 22 | 20 | 18 | 17 | 16 | 14 | 13 | 12 | 11 | 10 | 9.5 |
| 6.7 | 46 | 44 | 40 | 37 | 34 | 31 | 29 | 27 | 24 | 22 | 21 | 19 | 18 | 16 | 15 | 14 | 13 | 12 | 11 | 9.8 | 9.0 |
| 6.8 | 44 | 41 | 38 | 35 | 32 | 30 | 27 | 25 | 23 | 21 | 20 | 18 | 17 | 15 | 14 | 13 | 12 | 11 | 10 | 9.2 | 8.5 |
| 6.9 | 41 | 38 | 35 | 32 | 30 | 28 | 25 | 23 | 21 | 20 | 18 | 17 | 15 | 14 | 13 | 12 | 11 | 10 | 9.4 | 8.6 | 7.9 |
| 7.0 | 38 | 35 | 33 | 30 | 28 | 25 | 23 | 21 | 20 | 18 | 17 | 15 | 14 | 13 | 12 | 11 | 10 | 9.4 | 8.6 | 7.9 | 7.3 |
| 7.1 | 34 | 32 | 30 | 27 | 25 | 23 | 21 | 20 | 18 | 17 | 15 | 14 | 13 | 12 | 11 | 10 | 9.3 | 8.5 | 7.9 | 7.2 | 6.7 |
| 7.2 | 31 | 29 | 27 | 25 | 23 | 21 | 19 | 18 | 16 | 15 | 14 | 13 | 12 | 11 | 9.8 | 9.1 | 8.3 | 7.7 | 7.1 | 6.5 | 6.0 |
| 7.3 | 27 | 26 | 24 | 22 | 20 | 18 | 17 | 16 | 14 | 13 | 12 | 11 | 10 | 9.5 | 8.7 | 8.0 | 7.4 | 6.8 | 6.3 | 5.8 | 5.3 |
| 7.4 | 24 | 22 | 21 | 19 | 18 | 16 | 15 | 14 | 13 | 12 | 11 | 9.8 | 9.0 | 8.3 | 7.7 | 7.0 | 6.5 | 6.0 | 5.5 | 5.1 | 4.7 |
| 7.5 | 21 | 19 | 18 | 17 | 15 | 14 | 13 | 12 | 11 | 10 | 9.2 | 8.5 | 7.8 | 7.2 | 6.6 | 6.1 | 5.6 | 5.2 | 4.8 | 4.4 | 4.0 |
| 7.6 | 18 | 17 | 15 | 14 | 13 | 12 | 11 | 10 | 9.3 | 8.6 | 7.9 | 7.3 | 6.7 | 6.2 | 5.7 | 5.2 | 4.8 | 4.4 | 4.1 | 3.8 | 3.5 |
| 7.7 | 15 | 14 | 13 | 12 | 11 | 10 | 9.3 | 8.6 | 7.9 | 7.3 | 6.7 | 6.2 | 5.7 | 5.2 | 4.8 | 4.4 | 4.1 | 3.8 | 3.5 | 3.2 | 2.9 |
| 7.8 | 13 | 12 | 11 | 10 | 9.3 | 8.5 | 7.9 | 7.2 | 6.7 | 6.1 | 5.6 | 5.2 | 4.8 | 4.4 | 4.0 | 3.7 | 3.4 | 3.2 | 2.9 | 2.7 | 2.5 |
| 7.9 | 11 | 9.9 | 9.1 | 8.4 | 7.7 | 7.1 | 6.6 | 3.0 | 5.6 | 5.1 | 4.7 | 4.3 | 4.0 | 3.7 | 3.4 | 3.1 | 2.9 | 2.6 | 2.4 | 2.2 | 2.1 |
| 8.0 | 8.8 | 8.2 | 7.6 | 7.0 | 6.4 | 5.9 | 5.4 | 5.0 | 4.6 | 4.2 | 3.9 | 3.6 | 3.3 | 3.0 | 2.8 | 2.6 | 2.4 | 2.2 | 2.0 | 1.9 | 1.7 |
| 8.1 | 7.2 | 6.8 | 6.3 | 5.8 | 5.3 | 4.9 | 4.5 | 4.1 | 3.8 | 3.5 | 3.2 | 3.0 | 2.7 | 2.5 | 2.3 | 2.1 | 2.0 | 1.8 | 1.7 | 1.5 | 1.4 |
| 8.2 | 6.0 | 5.6 | 5.2 | 4.8 | 4.4 | 4.0 | 3.7 | 3.4 | 3.1 | 2.9 | 2.7 | 2.4 | 2.3 | 2.1 | 1.9 | 1.8 | 1.6 | 1.5 | 1.4 | 1.3 | 1.2 |
| 8.3 | 4.9 | 4.6 | 4.3 | 3.9 | 3.6 | 3.3 | 3.1 | 2.8 | 2.6 | 2.4 | 2.2 | 2.0 | 1.9 | 1.7 | 1.6 | 1.4 | 1.3 | 1.2 | 1.1 | 1.0 | 0.96 |
| 8.4 | 4.1 | 3.8 | 3.5 | 3.2 | 3.0 | 2.7 | 2.5 | 2.3 | 2.1 | 2.0 | 1.8 | 1.7 | 1.5 | 1.4 | 1.3 | 1.2 | 1.1 | 1.0 | 0.93 | 0.86 | 0.79 |
| 8.5 | 3.3 | 3.1 | 2.9 | 2.7 | 2.4 | 2.3 | 2.1 | 1.9 | 1.8 | 1.6 | 1.5 | 1.4 | 1.3 | 1.2 | 1.1 | 0.98 | 0.90 | 0.83 | 0.77 | 0.71 | 0.65 |
| 8.6 | 2.8 | 2.6 | 2.4 | 2.2 | 2.0 | 1.9 | 1.7 | 1.6 | 1.5 | 1.3 | 1.2 | 1.1 | 1.0 | 0.96 | 0.88 | 0.81 | 0.75 | 0.69 | 0.63 | 0.58 | 0.54 |
| 8.7 | 2.3 | 2.2 | 2.0 | 1.8 | 1.7 | 1.6 | 1.4 | 1.3 | 1.2 | 1.1 | 1.0 | 0.94 | 0.87 | 0.80 | 0.74 | 0.68 | 0.62 | 0.57 | 0.53 | 0.49 | 0.45 |
| 8.8 | 1.9 | 1.8 | 1.7 | 1.5 | 1.4 | 1.3 | 1.2 | 1.1 | 1.0 | 0.93 | 0.86 | 0.79 | 0.73 | 0.67 | 0.62 | 0.57 | 0.52 | 0.48 | 0.44 | 0.41 | 0.37 |
| 8.9 | 1.6 | 1.5 | 1.4 | 1.3 | 1.2 | 1.1 | 1.0 | 0.93 | 0.85 | 0.79 | 0.72 | 0.67 | 0.61 | 0.56 | 0.52 | 0.48 | 0.44 | 0.40 | 0.37 | 0.34 | 0.32 |
| 9.0 | 1.4 | 1.3 | 1.2 | 1.1 | 1.0 | 0.93 | 0.86 | 0.79 | 0.73 | 0.67 | 0.62 | 0.57 | 0.52 | 0.48 | 0.44 | 0.41 | 0.37 | 0.34 | 0.32 | 0.29 | 0.27 |

Notes: pH and temperature are field measurements taken at the same time and location as the water samples destined for the laboratory analysis of ammonia.

**Table 207.21 Maximum Total Ammonia Concentration Chronic Standard for Aquatic and Wildlife
(Total Ammonia mg-N/liter)**

| | | Temperature (°C) | | | | | | | | | | | | | | | | | | | | | | |
|-----|------|------------------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| pH | 0-7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 |
| 6.5 | 4.9 | 4.6 | 4.3 | 4.1 | 3.8 | 3.6 | 3.3 | 3.1 | 2.9 | 2.8 | 2.6 | 2.4 | 2.3 | 2.1 | 2.0 | 1.9 | 1.8 | 1.6 | 1.5 | 1.5 | 1.4 | 1.3 | 1.2 | 1.1 |
| 6.6 | 4.8 | 4.5 | 4.3 | 4.0 | 3.8 | 3.5 | 3.3 | 3.1 | 2.9 | 2.7 | 2.5 | 2.4 | 2.2 | 2.1 | 2.0 | 1.8 | 1.7 | 1.6 | 1.5 | 1.4 | 1.3 | 1.3 | 1.2 | 1.1 |
| 6.7 | 4.8 | 4.5 | 4.2 | 3.9 | 3.7 | 3.5 | 3.2 | 3.0 | 2.8 | 2.7 | 2.5 | 2.3 | 2.2 | 2.1 | 1.9 | 1.8 | 1.7 | 1.6 | 1.5 | 1.4 | 1.3 | 1.2 | 1.2 | 1.1 |
| 6.8 | 4.6 | 4.4 | 4.1 | 3.8 | 3.6 | 3.4 | 3.2 | 3.0 | 2.8 | 2.6 | 2.4 | 2.3 | 2.1 | 2.0 | 1.9 | 1.8 | 1.7 | 1.6 | 1.5 | 1.4 | 1.3 | 1.2 | 1.1 | 1.1 |
| 6.9 | 4.5 | 4.2 | 4.0 | 3.7 | 3.5 | 3.3 | 3.1 | 2.9 | 2.7 | 2.5 | 2.4 | 2.2 | 2.1 | 2.0 | 1.8 | 1.7 | 1.6 | 1.5 | 1.4 | 1.3 | 1.2 | 1.2 | 1.1 | 1.0 |
| 7.0 | 4.4 | 4.1 | 3.8 | 3.6 | 3.4 | 3.2 | 3.0 | 2.8 | 2.6 | 2.4 | 2.3 | 2.2 | 2.0 | 1.9 | 1.8 | 1.7 | 1.6 | 1.5 | 1.4 | 1.3 | 1.2 | 1.1 | 1.1 | 0.99 |
| 7.1 | 4.2 | 3.9 | 3.7 | 3.5 | 3.2 | 3.0 | 2.8 | 2.7 | 2.5 | 2.3 | 2.2 | 2.1 | 1.9 | 1.8 | 1.7 | 1.6 | 1.5 | 1.4 | 1.3 | 1.2 | 1.2 | 1.1 | 1.0 | 0.95 |
| 7.2 | 4.0 | 3.7 | 3.5 | 3.3 | 3.1 | 2.9 | 2.7 | 2.5 | 2.4 | 2.2 | 2.1 | 2.0 | 1.8 | 1.7 | 1.6 | 1.5 | 1.4 | 1.3 | 1.3 | 1.2 | 1.1 | 1.0 | 0.96 | 0.90 |
| 7.3 | 3.8 | 3.5 | 3.3 | 3.1 | 2.9 | 2.7 | 2.6 | 2.4 | 2.2 | 2.1 | 2.0 | 1.8 | 1.7 | 1.6 | 1.5 | 1.4 | 1.3 | 1.3 | 1.2 | 1.1 | 1.0 | 0.97 | 0.91 | 0.85 |
| 7.4 | 3.5 | 3.3 | 3.1 | 2.9 | 2.7 | 2.5 | 2.4 | 2.2 | 2.1 | 2.0 | 1.8 | 1.7 | 1.6 | 1.5 | 1.4 | 1.3 | 1.3 | 1.2 | 1.1 | 1.0 | 0.96 | 0.90 | 0.85 | 0.79 |
| 7.5 | 3.2 | 3.0 | 2.8 | 2.7 | 2.5 | 2.3 | 2.2 | 2.1 | 1.9 | 1.8 | 1.7 | 1.6 | 1.5 | 1.4 | 1.3 | 1.2 | 1.2 | 1.1 | 1.0 | 0.95 | 0.89 | 0.83 | 0.78 | 0.73 |
| 7.6 | 2.9 | 2.8 | 2.6 | 2.4 | 2.3 | 2.1 | 2.0 | 1.9 | 1.8 | 1.6 | 1.5 | 1.4 | 1.4 | 1.3 | 1.2 | 1.1 | 1.1 | 0.98 | 0.92 | 0.86 | 0.81 | 0.76 | 0.71 | 0.67 |
| 7.7 | 2.6 | 2.4 | 2.3 | 2.2 | 2.0 | 1.9 | 1.8 | 1.7 | 1.6 | 1.5 | 1.4 | 1.3 | 1.2 | 1.1 | 1.1 | 1.0 | 0.94 | 0.88 | 0.83 | 0.78 | 0.73 | 0.68 | 0.64 | 0.60 |
| 7.8 | 2.3 | 2.2 | 2.1 | 1.9 | 1.8 | 1.7 | 1.6 | 1.5 | 1.4 | 1.3 | 1.2 | 1.2 | 1.1 | 1.0 | 0.95 | 0.89 | 0.84 | 0.79 | 0.74 | 0.69 | 0.65 | 0.61 | 0.57 | 0.53 |
| 7.9 | 2.1 | 1.9 | 1.8 | 1.7 | 1.6 | 1.5 | 1.4 | 1.3 | 1.2 | 1.2 | 1.1 | 1.0 | 0.95 | 0.89 | 0.84 | 0.79 | 0.74 | 0.69 | 0.65 | 0.61 | 0.57 | 0.53 | 0.50 | 0.47 |
| 8.0 | 1.8 | 1.7 | 1.6 | 1.5 | 1.4 | 1.3 | 1.2 | 1.1 | 1.1 | 1.0 | 0.94 | 0.88 | 0.83 | 0.78 | 0.73 | 0.68 | 0.64 | 0.60 | 0.56 | 0.53 | 0.50 | 0.44 | 0.44 | 0.41 |
| 8.1 | 1.5 | 1.5 | 1.4 | 1.3 | 1.2 | 1.1 | 1.1 | 0.99 | 0.92 | 0.87 | 0.81 | 0.76 | 0.71 | 0.67 | 0.63 | 0.59 | 0.55 | 0.52 | 0.49 | 0.46 | 0.43 | 0.40 | 0.38 | 0.35 |
| 8.2 | 1.3 | 1.2 | 1.2 | 1.1 | 1.0 | 0.96 | 0.90 | 0.84 | 0.79 | 0.74 | 0.70 | 0.65 | 0.61 | 0.57 | 0.54 | 0.50 | 0.47 | 0.44 | 0.42 | 0.39 | 0.37 | 0.34 | 0.32 | 0.30 |
| 8.3 | 1.1 | 1.1 | 0.99 | 0.93 | 0.87 | 0.82 | 0.76 | 0.72 | 0.67 | 0.63 | 0.59 | 0.55 | 0.52 | 0.49 | 0.46 | 0.43 | 0.40 | 0.38 | 0.35 | 0.33 | 0.31 | 0.29 | 0.27 | 0.26 |
| 8.4 | 0.95 | 0.89 | 0.84 | 0.79 | 0.74 | 0.69 | 0.65 | 0.61 | 0.57 | 0.53 | 0.50 | 0.47 | 0.44 | 0.41 | 0.39 | 0.36 | 0.34 | 0.32 | 0.30 | 0.28 | 0.26 | 0.25 | 0.23 | 0.22 |
| 8.5 | 0.80 | 0.75 | 0.71 | 0.67 | 0.62 | 0.58 | 0.55 | 0.51 | 0.48 | 0.45 | 0.42 | 0.40 | 0.37 | 0.35 | 0.33 | 0.31 | 0.29 | 0.27 | 0.25 | 0.24 | 0.22 | 0.21 | 0.20 | 0.18 |
| 8.6 | 0.68 | 0.64 | 0.60 | 0.56 | 0.53 | 0.49 | 0.46 | 0.43 | 0.41 | 0.38 | 0.36 | 0.33 | 0.31 | 0.29 | 0.28 | 0.26 | 0.24 | 0.23 | 0.21 | 0.20 | 0.19 | 0.18 | 0.16 | 0.15 |
| 8.7 | 0.57 | 0.54 | 0.51 | 0.47 | 0.44 | 0.42 | 0.39 | 0.37 | 0.34 | 0.32 | 0.30 | 0.28 | 0.27 | 0.25 | 0.23 | 0.22 | 0.21 | 0.19 | 0.18 | 0.17 | 0.16 | 0.15 | 0.14 | 0.13 |
| 8.8 | 0.49 | 0.46 | 0.43 | 0.40 | 0.38 | 0.35 | 0.33 | 0.31 | 0.29 | 0.27 | 0.26 | 0.24 | 0.23 | 0.21 | 0.20 | 0.19 | 0.17 | 0.16 | 0.15 | 0.14 | 0.13 | 0.13 | 0.12 | 0.11 |
| 8.9 | 0.42 | 0.39 | 0.37 | 0.34 | 0.32 | 0.30 | 0.28 | 0.27 | 0.25 | 0.23 | 0.22 | 0.21 | 0.19 | 0.18 | 0.17 | 0.16 | 0.15 | 0.14 | 0.13 | 0.12 | 0.12 | 0.11 | 0.10 | 0.09 |
| 9.0 | 0.36 | 0.34 | 0.32 | 0.30 | 0.28 | 0.26 | 0.24 | 0.23 | 0.21 | 0.20 | 0.19 | 0.18 | 0.17 | 0.16 | 0.15 | 0.14 | 0.13 | 0.12 | 0.11 | 0.11 | 0.10 | 0.09 | 0.09 | 0.08 |

Notes: pH and temperature are field measurements taken at the same time and location as the water samples destined for the laboratory analysis of ammonia.