

Ute Mountain Ute Tribe
Water Quality Standards
For ~~Surface~~ Waters
of the
Ute Mountain Ute Indian Reservation



Adopted by
Ute Mountain Ute Tribal Council

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Water Quality Standards

For ~~Surface~~-Waters of the Ute Mountain Ute Indian Reservation Colorado, New Mexico, Utah

1. Purpose and Authority

The Ute Mountain Ute Tribe (the Tribe), as a sovereign nation and a Federally recognized Indian Tribe, is establishing water quality standards for the protection of its ~~surface~~-water resources. Ute Mountain Ute Tribal Council Resolution No. 99-123, approved August 12, 1999, documents the decision of the Ute Mountain Ute Tribal Council to use their authority, when approved by the U.S. Environmental Protection Agency as described in Section 518 of the Federal Water Pollution Control Act (hereafter referred to as the "Clean Water Act"), to administer a water quality standards program.

Purpose. The purposes for these standards are threefold: assessment, regulatory controls, and protection of all uses including habitat for aquatic and wildlife species.

Assessment. One purpose of these standards is to provide references for the assessment of ~~surface~~-water quality. These standards represent the water quality goals of the Tribe for surface waters, and will be used in assessing potential impacts to that quality.

Regulatory Controls. Both point and nonpoint source regulatory pollution controls to be established by the Tribe or the Federal Government will be developed to ensure a level of water quality that will satisfy these water quality standards. Regulatory pollution controls established for point source discharges shall also be consistent with applicable sections of the federal Clean Water Act. Tribal programs to control nonpoint sources, whether regulatory or voluntary, shall be designed to meet these water quality standards.

Protection of aquatic and wildlife species. It is the intention of the Tribe that the designated uses and criteria assigned to Tribal waters will provide a level of water quality fully protective of aquatic and wildlife species dependent on it, including federally listed threatened or endangered species. Consultation with the U.S. Fish and Wildlife Service during the public review of these standards will ensure, to the extent practicable, adequate protection for listed species.

Authority. Specific waters over which the Ute Mountain Ute Tribe has jurisdiction to administer water quality standards within the exterior boundaries of the Ute Mountain Ute Reservation, are the following:

In Colorado:
San Juan River and all tributaries, Mancos River and all tributaries, McElmo Creek and all tributaries, Navajo Wash and all tributaries, including all ephemeral

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and intermittent tributaries and all lakes, reservoirs, aquifers and wetlands;

In New Mexico:

All tributaries to the San Juan River, including all ephemeral and intermittent tributaries and all lakes, reservoirs, aquifers and wetlands;

In Utah:

Recapture Creek and all tributaries, Cottonwood Wash and all tributaries, Allen Canyon Creek and all tributaries, including all ephemeral and intermittent tributaries and all lakes, reservoirs, aquifers and wetlands.

Also see the related document, "Descriptive Statement of the Ute Mountain Tribe's Authority to Regulate Water Quality." (Maynes, Bradford, Shipps and Sheftel, as revised by William Johnson, Associate General Counsel, Ute Mountain Ute Tribe, 2005.)

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2. Triennial Review

Water Quality Sstandards shall be reviewed on a triennial basis for the purpose of determining what revisions are necessary to comply with applicable federal regulations and to meet Tribal water quality goals. – This process shall meet the requirements of Clean Water Act (CWA) Section 303(c). – For example, any water-body segment with water quality standards that do not include the goal uses specified in CWA Section 101(a)(2) shall be reexamined every three years to determine if any new information has become available. – If such new information indicates the CWA goal uses are attainable, the Tribe shall revise the standards accordingly. – Proposed revisions to the Tribe's water quality standards and the supporting information and analyses will be made available to the public prior to a public hearing. – Public hearings will be held in accordance with Tribal laws and EPA requirements. – The triennial review process will be ongoing, and public hearings will be held at least every three years following Ute Mountain Ute Tribal Council adoption of these standards.

3. Definitions

- Acute toxicity** The ability of a substance to cause poisonous effects resulting in severe biological harm or death soon after a single exposure or dose. – Also, any severe poisonous health effects resulting from a single short-term exposure to a toxic substance.
- Anti-degradation (clause)** A provision of the Tribe's water quality standards that protects existing uses and waters where the existing quality is better than necessary to support Clean Water Act Section 101 (a)(2) goal uses, as required by federal regulations at 40 CFR 131.12.
- Assemblage** An association of aquatic organisms of similar taxonomic classification living in the same area. – Examples of assemblages include, but are not limited to, fish, macroinvertebrates, algae, and vascular plants.

Aquatic Organism Any plant or animal which lives at least part of its life cycle in water.

Attainment To meet the goal or standard. Attainment means that the water body is of sufficient quality chemically, biologically, and physically, to support the uses for which it is designated and to otherwise achieve the applicable water quality standards.

Bioaccumulative Substances that increase in concentration in living organisms (that are very slowly metabolized or excreted) as they breathe contaminated air, drink contaminated water, or eat contaminated food.

Best Management Practices (BMP) Methods that have been determined to be the most effective, practical means of preventing or reducing pollution from non-point sources.

Best Available Treatment Economically Achievable (BATEA) As identified by EPA, the most effective treatment technology that is available to effluent discharge permittees that does not cause widespread and substantial economic harm.

Biological condition The taxonomic composition, richness, and functional organization of an assemblage of aquatic organisms at a site or within a water body.

Chronic toxicity The capacity of a substance to cause long-term poisonous health effects. Chronic effects include, but are not limited to growth impairment, behavioral modifications, disease and reduced reproduction.

Criterion Continuous Concentration (CCC): the highest concentration of a chemical in water that aquatic organisms can be exposed to indefinitely without resulting in an adverse effect

Criterion Maximum Concentration (CMC): the highest concentration of a chemical in water that aquatic organisms can be exposed to acutely without causing an adverse effect.

Conveyance A route of transfer, for example, a pipe.

Criteria Elements of State or Tribal water quality standards, expressed as constituent concentrations, levels, or narrative statements, representing a quality of water that supports a particular use. When criteria are met, water quality will generally protect the designated use.

CWA Clean Water Act, the common name for the Federal Water Pollution Control Act.

Designated Uses Those water uses identified in the Tribe's water quality standards for each water body, whether or not they are being attained.

Ecology The relationship of living things to one another and their environment, or the study of such relationships

Effluent Wastewater, treated or untreated, that flows out of a treatment plant, sewer, or industrial outfall. Generally refers to wastes discharged into surface waters.

Environment The sum of all external conditions affecting the life, development, and survival of an organism.

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| Ephemeral Water(s) | A stream or wetland that flows or contains water only in direct response to precipitation in the immediate watershed or in response to the melting of a cover of snow or ice.—The stream channel of such a water body is always above the adjacent water table. |
| Existing Use | A water use attained for a given water body that exists under present conditions, or which existed on or after November 28, 1975.—Some existing uses may not be included in these standards at this time. |
| Food Chain | A sequence of organisms, each of which uses the next, lower member of the sequence as a food source. |
| Functional Organization | The number of species or abundance of organisms within an assemblage which perform the same or similar ecological functions. |
| Impaired | A physical, biological or chemical condition, in which a water body is not attaining the applicable water quality standards, including <u>either the criteria or uses</u> for which it is designated. |
| Implementation | The act of giving practical effect to and ensuring of actual fulfillment by concrete measures. |
| Intermittent Water(s) | A stream or wetland that flows or contains water in response to both surface runoff and groundwater discharge with at least part of its channel or wetland bottom below the adjacent water table for some part of the year, which does not have a perennial flow or contain water perennially. |
| Lentic | A still or slow moving aquatic environment, such as a lake,—a reservoir or a wetland. |
| Lotic | An aquatic environment consisting of moving water, such as a river or stream. |
| Metric | An expression of biological community composition, richness, or function that displays a predictable, measurable change in value along a gradient of pollution or other anthropogenic disturbance. |
| Mixing Zone | A designated area or location of a receiving water where waste waters and receiving waters mix and certain ambient water quality criteria do not need to be met. |
| NPDES | National Pollutant Discharge Elimination System |
| NPS | Nonpoint source (pollution) |
| Nonpoint source pollution | Pollution caused by a source or sources <u>that are not regulated as point sources and degrade the quality or adversely affects the biological, chemical or physical integrity of waters of the Tribe, that is not carried by a direct conveyance.</u> |
| Non-attainment | To not meet the goal or standard assigned to a water body or segment. Non-attainment means that the water body is not of sufficient quality either chemically, biologically, or physically, to support the uses for which it is designated or to otherwise fail to achieve the applicable water quality standards. |
| Nuisance (species) | Non-indigenous or undesired species that negatively affect an ecosystem. Some introduced species may be non-indigenous, but may be desirable and therefore protected by these standards.. |

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| Objectionable | Undesirable, offensive. |
| Organoleptic | Pertaining to taste and odor, as opposed to health effects. |
| Outstanding Tribal Resource Water | A tribal water body designated for protection under Tier 3 of the Tribe's antidegradation policy--See Section 4, Antidegradation. |
| PAH | Polynuclear Aromatic Hydrocarbon |
| Priority Pollutant | Those toxic pollutants listed by the Administrator of the U.S. Environmental Protection Agency as required in section 307(a) of the Clean Water Act. |
| Reference site | A site or water body which is determined by the Tribe to be representative of sites or water bodies of similar type, and are least impaired with respect to habitat, water quality, watershed land use, and riparian and biological condition. |
| Reference condition | A physical, biological and chemical condition that is determined by the Tribe to be characteristic of minimally im pacted paired-conditions with respect to habitat, water quality, watershed land use, and riparian and biological condition in lieu of a minimally impacted n-unimpaired -reference site. |
| Richness | The absolute number of taxa in an assemblage at a site or within a water body. |
| Stream Descriptor | A descriptive identifier for a water body used to distinguish conditions in addition to its designated use.--For example-- an ephemeral water body. |
| Stream Segment | Any part, portion or subsection of a lotic surface water body.--Stream segments include the entire width of a stream from one specified point at its upstream end to one specific point at its downstream end, unless specifically defined otherwise . |
| Surface Water Body | Any river, stream, lake, reservoir, spring, wetland--or <u>any Tribal Water that is not groundwater, other natural conveyance that holds a quantity of water at some time.</u> |
| Taxonomic Composition | The identity and abundance of species or taxonomic groupings within an assemblage of aquatic organisms at a site or within a water body. |
| Toxic | Harmful to living organisms. |
| Toxic Pollutant | Those pollutants, 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, or on the basis of information available to the Administrator of the U.S. Environmental Protection Agency, cause death, disease, behavioral abnormalities, cancer, genetic mutations, physiological malfunctions (including malfunctions in reproduction) or physical deformations, in such organisms or their offspring.--(See also, "priority pollutant(s)," a subset of "toxic pollutant(s)") |
| Tribal Waters (or Water Bodies) | <u>Jurisdictional waters of the tribe are waters which have any demonstrable physical, chemical or biological connection to an interstate water, a navigable water, or an impoundment of a jurisdictional water. Ephemeral and intermittent waters and groundwater along with isolated wetlands, ponds and springs are</u> |

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Tribal Waters. In light of the unique trust relationship between the federal government and tribes, waters of the tribe also include waters with which members of the Ute Mountain Ute Tribe have a cultural connection established through traditional or subsistence practices even if those waters do not have a demonstrable physical, chemical or biological connection to an interstate water, a navigable water or an impoundment of a jurisdictional water. "Tribal waters" means all surface waters including, but not limited to, portions of rivers, streams (including perennial, intermittent and ephemeral streams and their tributaries), lakes, ponds, dry washes, marshes, waterways, wetlands, mudflats, sandflats, sloughs, wet meadows, playa lakes, impoundments, riparian areas, springs and all other bodies or accumulations of water, surface, natural or artificial, public or private, including those dry during parts of the year, which are within or border the Ute Mountain Ute Reservation. This definition shall be interpreted as broadly as possible. Waters of the U.S. All waters over which the Tribe has jurisdiction and that satisfy the federal definition of "waters of the U.S." found at 40 C.F.R. § 122.2 are a subset of Tribal Waters. See Section 1, Purpose and Authority.

Use Attainability Analysis (UAA)

A structured scientific assessment of the factors affecting the attainment of the use, which may include physical, chemical, biological, or economic factors as described in 40 CFR Part 131.10(g).

Violation (of water quality standards)

An action, or negligent lack thereof, by an individual, business or government that causes water pollution of Tribal Waters in excess of the criteria set forth in these standards, including damaging effects on the biological criteria of these standards.

Waterfowl

A swimming bird or a bird that frequents water.

Watershed

The land area that drains into a stream, lake or wetland.

Water Quality Standards (WQS)

Provisions of State, Tribal, or Federal law that primarily consist of a designated use or uses for specific Tribal waters or waters of the United States, and water quality criteria for those waters based upon such uses. Water quality standards also provide policies for the prevention of degradation of quality, mixing zone policies, and site-specific requirements. Ultimately, water quality standards are to protect public health or welfare, enhance the quality of the water and serve the purposes of the Clean Water Act.

Wetland(s)

An area that is inundated or saturated by surface or ground water at a frequency and duration to support, and that under normal conditions does support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands are considered Tribal Waters and generally include swamps, bogs, marshes, and similar areas.

Wildlife

Living things and especially mammals, birds, and fishes that are neither human nor domesticated.

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4. Antidegradation Policy

The Ute Mountain Ute antidegradation policy set forth below is based on the three-tiered Federal policy in 40 C.F.R. § 131.12. It applies to all ~~Reservation-Tribal~~ surface waters.

Tier 1. Existing in-stream water uses and the level of water quality necessary to protect the existing uses shall be maintained and protected in all Tribal waters.

Tier 2. Where the quality of waters exceed the level necessary to support the propagation of fish, shellfish, and wildlife and recreation in and on the water, that quality shall be maintained and protected unless the Tribe finds, after appropriate intergovernmental coordination and public participation, that allowing lower water quality is necessary to accommodate important economic or social development in the area in which the waters are located. In allowing such degradation or lower water quality, the Tribe shall assure water quality adequate to protect existing uses fully. Further, the Tribe 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 control.

Tier 3. Where high quality waters constitute such a designation, an Outstanding Tribal Resource Water (OTRW) designation may be adopted. The level of water quality of these waters shall be maintained and protected. These may include, but not be limited to, waters that have outstanding water quality, unique aquatic ecology, or recreational, ceremonial, or aesthetic characteristics that qualify them for such a designation by the Tribe. See definition of *Outstanding Tribal Resource Water* above. See Section 11 and Appendix C for more information regarding OTRW designation.

In those cases where a potential impairment of water quality associated with a thermal discharge is involved, the antidegradation policy and implementing method shall be consistent with Section 316 of the Clean Water Act.

See Appendix C, *Anti-degradation Implementation Procedures*, for specific procedures to determine the course of action in the event of a potential for degradation or necessary enforcement action.

5. Narrative Water Quality Criteria

a. a. All Reservation ground waters and surface waters shall be free from substances, from any pollution source, in any amount that:

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- (1) Settle to form objectionable deposits;
 - (2) Float as debris, scum, oil, or other matter forming nuisances;
 - (3) Produce objectionable color, odor, taste, or turbidity;
 - (4) Cause injury to, or are toxic to, or produce adverse physiological responses in humans, animals, or plants; or
 - (5) Produce undesirable or nuisance aquatic life.
- ~~(5)~~(6) Cause or contribute to degradation of water quality that is inconsistent with applicable water quality standards in a surface water or an aquifer..

b. b. For substances that lack numeric water quality criteria or for which numeric criteria are not protective or representative of clean water goals, these narrative water quality criteria shall be implemented. Implementation of these narrative criteria shall take into consideration appropriate EPA technical guidance concerning the development of water quality-based controls. For example, narrative water quality criteria shall be implemented considering any criteria guidance issued by EPA under CWA Section 304(a), and other relevant, technically defensible criteria for pollutants of concern may also be considered. Any Safe Drinking Water Act provisions and health advisories will be considered for implementation of these criteria for substances that lack numeric criteria for public water supply use. For purposes of point source discharges 5.a.(4) shall be implemented by including appropriate Whole Effluent Toxicity (WET) limitations in the NPDES permit, as specified in the latest edition of the document "Region 8 NPDES Whole Effluent Toxicity Program Document".

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6. Narrative Biological Criterion and Sediments

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Narrative Sediment Criterion

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Pollutants or human induced changes to Tribal waters, the sediment of Tribal waters, or area hydrology that results or may result in adverse changes to the natural biological communities and wildlife habitat shall be prohibited. Water quantity and quality changes that may limit the growth and propagation of, or otherwise cause or contribute to an adverse effect to wildlife and other flora and fauna of cultural importance to the Tribe shall be prohibited.

Sediments that accumulate on the bottom of a water body shall be free from toxic or hazardous materials that may adversely affect aquatic life, human health or the environment. Sediments are soils, sand, organic matter or minerals. The Tribe will determine protective values will from published scientific documents such as:

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- U.S. EPA Regional Screening Levels (RSLs);
http://www.epa.gov/region6/6pd/rcra_c/pd-n/screen.htm
- 2019 NMED Risk Assessment Guidance for Site Investigations and Remediation (February 2019)
- Washington Department of Ecology Sediment Cleanup Users Manual:
<https://fortress.wa.gov/ecy/publications/documents/1209057.pdf>
- Assessing Ecological Risks Posed by Radionuclides: Screening-Level Radioecological Risk Assessment (2-2000)

A responsible party may use a different, scientifically defensible value based on site conditions upon providing sufficient justification and gaining approval from the tribal environmental department.

Narrative Biological Criterion

The overall goal of the biological criterion of the Tribe is to maintain and support sufficient flow quantities and the structure and function of aquatic communities and flora and fauna that depend on aquatic habitats at current conditions or in conditions similar to reference sites or reference conditions that are determined by the Tribe.

Assessment of biological conditions will include monitoring of flow conditions (volume, magnitude, frequency, duration, etc.), the benthic macroinvertebrates, fish, and/or plant communities, as appropriate. Community metrics will be determined by the Tribe, relative to reference sites. – A reference condition may be assigned as a goal for the biological community if there is an insufficient number of reference sites or if those sites become impaired. – Data for a reference condition will be treated in the same manner as if it were a reference site.

Implementation of narrative biological criterion:

The intent of the Tribe in adopting and implementing a narrative biological criterion is to provide a basis for protecting the structure and function of biological communities; a foundation for consideration of flow alteration in the CWA Section 401 water quality certification process (see CWA Section 401(a)(1)); and primarily to provide an additional assessment and evaluation method for the identification and prevention of impaired waters. – The Tribe recognizes an inherent difference between biological criteria and numeric chemical-specific criteria. – A major difference is the manner in which the two types of criteria can be applied effectively in determining water quality-based effluent limits for point source discharges. – Chemical-specific criteria typically are expressed as a concentration of a given parameter, with provisions that describe an averaging period and an allowable frequency of exceedence. – Biological criteria describe a desired biological condition, and are expressed and interpreted using information about aquatic organisms. – Biological criteria, therefore, are not ideally suited for directly calculating effluent limits for point source discharges. – The Tribe does believe

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that biological criteria are useful because there can be physical and biological changes in aquatic ecosystems that may impair a water's health that are unrelated to chemical constituents in the water column.

Although the Tribe does not envision that it will always be necessary to establish effluent limits for point source discharges based on biological criteria, the Tribe intends that the biological criteria are to be used as required by Section 301(b)(1)(C) of the Clean Water Act and 40 CFR Section 122.44(d) in determining appropriate effluent limits for point source discharges. For example, where the biological criteria are not satisfied, that information can be used by the permitting authority to reevaluate any NPDES permit(s) for upstream discharges to determine if all appropriate chemical-specific and whole effluent toxicity limits are included in the permits. If any of the biological criteria were exceeded in any water, then the permit(s) for any upstream discharger(s) would need to be revised as needed to include appropriate effluent limits on whatever pollutant or pollutant parameters are or may be discharged that will cause, have the reasonable potential to cause, or contribute to any excursion above the biological criterion. This may involve examining whether the relevant permit(s) contain limits for all substances present in the discharge.

7. Mixing Zones and Dilution Policy

This policy establishes how mixing and dilution of point source discharges with receiving waters will be addressed in developing chemical-specific and whole effluent toxicity discharge limitations. Depending on site-specific mixing patterns and environmental concerns, some pollutants may be allowed a mixing zone for dilution and others may not. In all cases, mixing zone and dilution allowances shall be limited as necessary to protect designated uses and the integrity of the receiving water ecosystem as a whole. This policy shall be implemented consistent with the procedures in the *EPA Region VIII Mixing Zones and Dilution Policy*. Mixing zone applications are required to be submitted to the Ute Mountain Ute Tribal Environmental Programs Department for review and initial approval, final approval decisions will be made by Tribal Council.

Where dilution is available at critical conditions and the discharge does not completely mix at a near instantaneous rate, an appropriate mixing zone may be designated if:

- a. meeting water quality standards at the end-of-pipe is not practicable;
- b. allowing a mixing zone will not pose unacceptable risks to designated or existing uses in the water body as a whole, considering factors such as:
 - (1) bioaccumulation in fish tissues or wildlife,
 - (2) biologically important areas such as fish spawning or nursery areas,

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- (3) presence of federally-listed or proposed threatened or endangered species,
 - (4) low acute to chronic ratio,
 - (5) potential human exposure to pollutants via drinking water or recreational activities,
 - (6) attraction of aquatic species to effluent plume,
 - (7) toxicity or persistence of the substance discharged,
 - (8) zone of passage for migrating fish or other species (including access to tributaries), and
 - (9) cumulative effects of multiple discharges and mixing zones; and
- c. narrative criteria will be achieved within the mixing zone, provided that the “free from toxicity” narrative shall be deemed satisfied where there is an absence of acutely-toxic conditions for swimming, drifting, and sessile organisms.

Mixing zone size shall generally be limited as follows, provided that individual chronic mixing zones may be further limited or denied as needed to protect designated and existing uses based on the factors listed in the preceding paragraph:

- a. No exceedence of an acute criterion within a mixing zone shall be allowed;
- b. The size of chronic mixing zones for streams and rivers shall not exceed one-half the cross-sectional area or a length 10 times the stream width at critical low flow, whichever is more limiting; and
- c. The size of chronic mixing zones for lakes shall not exceed 5% of lake surface area or 200 feet in radius, whichever is more limiting.

Where the discharge is to a river or stream, dilution is available at critical conditions, and available information is sufficient to reasonably conclude that the discharge exhibits near instantaneous and complete mixing, an appropriate dilution allowance may be provided for the purposes of establishing discharge limitations. The following critical flows may be assumed to dilute the effluent:

a. Stream Flows

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| Chronic Aquatic Life | 4-day, 3-year flow (biologically based) |
| Acute Aquatic Life | 1-day, 3-year flow (biologically based) |
| Human Health (carcinogens) | harmonic mean flow |
| Human Health (non- carcinogens) | 4-day, 3-year flow (biologically based), Or 1-day, 3-year flow (biologically based) |

b. Effluent Flows

| | |
|----------------------|--------------------|
| Chronic Aquatic Life | Mean daily flow |
| Acute Aquatic Life | Maximum daily flow |
| Human Health (all) | Mean daily flow |

Where dilution flow is not available at critical conditions, the discharge limits will be based on achieving water quality criteria at the end-of-pipe. In addition,

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discharge limits for all point source discharges to a wetland will be based on achieving water quality criteria at the end-of-pipe.

All mixing zone-dilution assumptions are subject to review and revision as information on the nature and impacts of the discharge becomes available. At a minimum, mixing zone and dilution decisions are subject to review and revision along with all other aspects of the discharge permit upon expiration of the permit.

1. **Compliance Schedule Authorization Provision**

The Tribe authorizes the use of compliance schedules on a case-by-case basis for water quality-based effluent limits in National Pollutant Discharge Elimination System (NPDES) permits. Such schedule of compliance will be for the purpose of providing a permittee with adequate time to make treatment necessary to implement new or revised water quality standards. Compliance schedules may be authorized by Tribal Council when appropriate and consistent with 40 CFR 122.47, for new, recommencing, or existing dischargers to require compliance as soon as possible with water quality based effluent limitations calculated to meet water quality standards.

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8. **Water Quality Standards for Wetlands**

The Tribe recognizes that the natural water quality of wetlands may differ from that of associated streams. Existing water quality, uses and functions of wetlands will be protected.

- a. For wetlands specifically listed in **Section 11. Use Designations**, designated uses cited in that section and numeric criteria assigned to those uses will apply. Those wetlands will also be subject to narrative criteria, antidegradation provisions, and the narrative biological criteria of the Tribe.
- b. Wetlands not specifically listed in **Section 11.** are considered to be "Tribal waters," and will be subject to narrative criteria, applicable antidegradation provisions, and the narrative biological criteria of the Tribe. It shall also be a goal of the Tribe to maintain the water quality of wetlands at naturally occurring levels, within the natural range of variability for the individual wetland.
- c. Wetlands that are seasonally dry shall be considered to be "ephemeral waters" or "intermittent waters," or both.
- d. Wetlands shall not be considered as repositories or treatment systems for wastes from human sources.
- e. Constructed wetlands are those that are specifically designed for the purpose of wastewater or storm water treatment, and those are not considered "Tribal waters."

9. **Ephemeral Waters and Intermittent Waters**

- a. *Ephemeral and intermittent* waters shall be required to meet the numeric criteria established to support existing and designated uses when there is an existing surface stream flow from any source, however minimal and narrative criteria at all times. ~~All stream segments of intermittent waters shall meet the criteria established for segments of that water body that have a stream flow, however minimal.~~
- b. Ephemeral waters that receive a continuous discharge that enhances habitat by causing a perennial flow shall be protected in the same manner as other perennial waters. ~~In these cases, designated uses and criteria shall be evaluated for revision to a more stringent standard, unless a Use Attainability Analysis has been performed and approved by the Tribe and the U.S. Environmental Protection Agency, Region VIII.~~

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40. 10. Variances from Water Quality Criteria

Tribal waters where it is not feasible to achieve these water quality standards may be granted a temporary variance from specific criteria in these standards. ~~Such a variance temporarily modifies the water quality standard for a stream or stream segment and includes an expiration date, a water quality goal, and an interim standard that is effective for the duration of the variance. All other standards, including designated uses, other criteria applicable to those designations, and other requirements not modified by the variance shall remain in effect.~~ Variance applications are required to be submitted to the Ute Mountain Ute Tribal Environmental Programs Department for review and initial approval, final approval decisions will be made by Tribal Council. Any approved ~~variances are noted in~~ the tables in

Section 12. Designated Uses, Criteria, and Variances for Stream Segments, and are described in detail in **Table 12.1**.

a. Types of Variances

- (1) *Discharger-specific variances* may be adopted where the conditions precluding the attainment of designated uses are shown to be applicable to specific discharges.
- ~~(2) Temporary Standards, applicable to all pollution sources located on a stream, stream segment, or a portion thereof, may be adopted where the conditions precluding attainment of designated uses are characteristic of the entire stream or stream segment.~~

- b. All variances must be supported by a use attainment demonstration (showing attainment of the use is not feasible); an Alternatives Analysis documenting all feasible treatment alternatives; must provide for protection of the highest attainable use that can be met and criteria necessary to protect that use; must meet the requirements of 40 C.F.R. § 131.14; and must be approved by the

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Tribe and EPA. A variance may be authorized where existing uses are protected and one or more of the following causes for non-attainment of a designated use are justified:

- (1) naturally-occurring pollutant concentrations prevent the attainment of the use;
 - (2) ephemeral, intermittent, or low-flow conditions or water levels prevent attainment of the use unless these conditions may be compensated for by the discharge of sufficient volume of effluent discharges to enable uses to be met;
 - (3) human-caused conditions or sources of pollutants prevent attainment of a designated use and cannot be corrected or correction would cause more environmental damage than to leave uncorrected;
 - (4) dams, diversions or other structures prevent the attainment of a use, and it is not feasible to restore the water body to its original condition or to operate the structure in a way that would result in attainment of that use;
 - (5) natural physical conditions such as substrate, cover, flow, etc. unrelated to water quality, prevent the attainment of an aquatic life use;
 - (6) more stringent controls than those required by sections 301(b) and 306 of the Clean Water Act would result in substantial and wide spread economic and social impact.
- c.** The written justification for a variance, in addition to explaining why one or a combination of the factors in paragraph (b) preclude the attainment of designated uses, must include documentation that controls have been evaluated and there is no reasonable control available that can be employed to attain the designated uses in the short term. ~~Also, the justification must include a plan to gather additional information and/or conduct projects to remedy the conditions that preclude the attainment of designated uses, including a TMDL analysis where one is required.~~ For temporary standards, the justification must also show that the conditions precluding the attainment of designated uses are representative of the water body segment, rather than one or more individual discharges.
- d.** All variances shall have a specific expiration date. ~~The date shall be based upon the amount of time it is reasonably expected will be needed to remedy the water quality problem precluding the attainment of designated uses. Variances shall be reviewed every 3 years, and a variance may be extended only if the conditions for granting the variance still apply.~~ Upon expiration, the ~~general underlying~~ numeric water quality standards apply.
- e.** All variances shall identify interim water quality standards. ~~Variances that are pollutant-specific shall have pollutant-specific interim standards.~~ In no case shall interim standards be set at levels that would impair or otherwise have a negative impact on existing water quality.
- f.** For variances applicable to facilities with NPDES permits, such permits must include two sets of permit limits. ~~One set shall be at a level sufficient to~~

achieve the interim standards, and one set shall be at a level to achieve the underlying standards upon expiration of the variance. ~~Permit limits for facilities for which a variance has been obtained must also be set to achieve all applicable technology-based controls.~~

~~44.~~ **11. Use Designations**

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a. Use Designation Codes:

| | |
|------|---|
| AG | Agriculture, irrigation and/or livestock watering |
| CWAL | Cold Water Aquatic Life |
| DW | Drinking Water Source |
| FSH | Fish Consumption |
| IND | Industrial Use |
| REC1 | Recreation, primary contact |
| REC2 | Recreation, secondary contact |
| T | Tribal Cultural Use |
| WWAL | Warm Water Aquatic Life |

Definitions of designated use codes:

AG Waters that are used for agricultural purposes such as irrigation and livestock watering.

CWAL Waters that support salmonid fish species or other cold water species of aquatic life, including associated benthic macroinvertebrate communities. ~~Waters supporting such an aquatic ecosystem have a natural temperature regime that does not routinely exceed 20 degrees C.~~

DW Waters that are used, or have the potential to be used, as a public or private human drinking water source.

FSH Waters from which fish are, or may be, extracted and consumed by humans.

IND Waters that are used for industrial purposes, including construction activities.

T Waters that are used for Tribal ceremonial purposes and traditional activities. ~~Examples of water contact that may be associated with Tribal use include ingestion and body contact. The preservation of the quality of these waters is important in the preservation of Ute Culture.~~

REC1 Waters that are, or may be, used for recreation such as swimming and boating, during which it is expected that small quantities of water may be ingested or full-body immersion may occur.

REC2 Waters that are, or may be, used for recreation such as wading and fishing, during which it is unreasonable to expect the ingestion of small quantities of water nor full-body immersion. but during which it is expected that skin contact with water may occur.

WWAL Waters that support warm water species of aquatic life, including associated benthic macroinvertebrate communities, that can survive temperatures greater than 20 degrees C for extended periods of time.

Designated uses for Tribal waters are determined by the Tribe, in accordance with Sections 101(a)(2) and 303 of the Clean Water Act and the implementing federal regulation at 40 CFR Part 131.10. Existing uses are uses that were in existence on a specific stream, lake, or wetland on November 28, 1975, or that have been attained thereafter. Some uses may be designated that are not currently attained, but for which there is a reasonable expectation that those uses can be attained using point and nonpoint source controls of limiting pollutants. Section 101(a)(2) of the Clean Water Act requires that waters be designated as “fishable and swimmable” (supporting protection and propagation of fish, shellfish, and wildlife, and providing for recreation in and on the water) unless a use attainability analysis has been approved supporting a less stringent use designation. Those waters that do not support a REC1 use designation have been identified in **Section 14. Tribal Waters with Use Attainability Analyses**, and are identified in **Section 12**; in the center column of Tables 12.1 and 12.2.

b. Outstanding Tribal Resource Water Designation

Any Tribal Water or segment thereof can be designated an “Outstanding Tribal Resource Water” (OTRW), following an informal recommendation by a member of the public at large, appropriate consideration and documentation of the reasons for the recommendation by Tribal staff and Tribal Council, and official designation as part of a triennial revision of these standards.

~~(2010 Proposed) Designated Outstanding Tribal Resource Watersions:
Two OTRW designations are being recommended in these standards, nominated by the Tribe’s Water Quality Specialist:~~

1. Ute Spring and unnamed creek from Ute Spring downstream within Section 12, TWP35N R18W (Colorado).
2. Allen Canyon Creek, Sections 17, 20, 29, 30, 31, TWP 35S, R21E (Utah)
3. “Lopez” Spring and unnamed creek tributary to and downstream from the spring, within Section 35, TWP 34N, R18W

12. Designated Uses, Criteria, and Variances for Stream Segments

The following tables summarize designated uses, types of narrative and numeric water quality criteria, and any temporary variances for water bodies determined to be “Tribal waters” in **Section 1**. of this document:

Table 12.1 Designated Uses for Tribal Waters, Colorado and New Mexico

| Stream Segment | Type of Criteria, Variances, applicable UAA | Designated Use |
|---|---|----------------|
| Mancos River, segments and tributaries: (USGS HUC 14080107) | | |

| | | |
|--|---|--------------------------------|
| Mancos above Weber Creek | Narrative and Numeric | WWAL, AG, REC1 |
| Weber Creek | Narrative and Numeric | WWAL, AG, REC1 |
| Mancos below Weber Cr. to Farm's diversion dam: | Narrative and Numeric | WWAL, AG, REC1 |
| Tributaries to Mancos on segment above: Soda, Grass, Johnson, Ute and Moqui Canyons, and all other tributaries | Narrative and Numeric, UAA, Ute Canyon: site-specific, E. Coli = 126 cfu/ 100ml | WWAL, AG, REC2 |
| Mancos below diversion dam to Navajo Wash confluence | Narrative and Numeric | WWAL, AG, REC1 |
| Navajo Wash (primary tributary to the Mancos River on Reservation) | Narrative and Numeric, | WWAL, AG, REC1, IND |
| Cottonwood Wash, CO (tributary to Navajo Wash) | Narrative and Numeric | WWAL, AG, REC1, FSH |
| Unnamed tributaries to Cottonwood Wash, --Lopez Spring, unnamed springs | Narrative and Numeric | WWAL, AG, T |
| Aztec Wash | Narrative and Numeric, UAA | WWAL, AG, REC2 |
| Mancos River downstream of Navajo Wash to the CO/NM, Ute/Navajo Border | Narrative and Numeric | WWAL, AG, REC1 |
| Lower San Juan River, segments and tributaries: | | |
| McElmo Creek | Narrative and Numeric | WWAL, AG, REC1 |
| Tributaries to McElmo Creek on Ute Mountain Indian Reservation (Mud Creek, Ute Creek, Pine Creek, Berry Creek, Finley Creek, Echo Canyon Creek, Hamilton Canyon Creek, Littlewater Creek, and unnamed tributaries) | Narrative and Numeric, UAA | WWAL, AG, REC2 |
| Ute Spring, Hanna Spring, unnamed springs | Narrative and Numeric | AG, T, WWAL |
| Cowboy Wash, Marble Wash, Mariano Wash, Coyote Wash, East McElmo Creek and other, and unnamed tributaries to lower San Juan River | Narrative and Numeric, UAA | WWAL, AG, REC2 |
| Lower San Juan River (USGS HUC 14080201) | Narrative and Numeric | DW, WWAL, AG, REC1, FSH |
| Tributaries to Middle San Juan River including Eagles Nest Arroyo, Westwater Arroyo, Shumway Arroyo and all unnamed ephemeral and intermittent tributaries (USGS HUC 14080105): (surface waters of Ute Canyon, Pickett Canyon, Navajo Canyon, Cholla Canyon, Purgatory Canyon, Barker Canyon, Thomas Canyon, Jones Canyon, Buzan Canyon, Oak Springs Canyon, Trail Canyon, Pump Canyon, Craig Canyon, and all other tributaries to the La Plata River and middle San Juan River) in New Mexico | Narrative and Numeric, UAA | WWAL, REC2, AG |
| East Lake, Jones Lake, Blue Lake, and all other lakes, reservoirs and wetlands in Middle San Juan watershed | Narrative and Numeric | WWAL, AG, REC1 |
| Lakes, Reservoirs, and Wetlands in Mancos and McElmo watersheds: | Narrative and Numeric | WWAL, AG, REC1 |

| | | |
|---|-----------------------------------|--------------------------------|
| 1 st Lake (Cottonwood Wash watershed) | <u>Narrative and</u> Numeric | CWAL, <u>T</u> , REC1, AG, FSH |
| 2 nd Lake (Pine Creek watershed) | <u>Narrative and</u> Numeric | CWAL, <u>T</u> , REC1, AG, FSH |
| Horseshoe Reservoir, "Last Lake" (McElmo watershed) | <u>Narrative and</u> Numeric | CWAL, <u>T</u> , REC1, AG, FSH |
| Hayfield Reservoir (Navajo Wash watershed) | <u>Narrative and</u> Numeric | CWAL, REC1, AG, FSH |
| Ute Canal | <u>Narrative and</u> Numeric, UAA | AG |

Table 12.2. Designated Uses for Tribal Waters, Utah

| Stream Segment | Type of Criteria, Variances | Designated Use |
|--|------------------------------|--------------------------|
| Right Hand Fork and tributaries (tributary to Cottonwood Wash) | Narrative and Numeric | WWAL, AG, REC1, T |
| Westwater Creek and all tributaries, | <u>Narrative and</u> Numeric | WWAL, AG, REC1 |
| Cottonwood Wash and all tributaries | <u>Narrative and</u> Numeric | WWAL, AG, REC1, T |
| Allen Canyon Creek and all tributaries | <u>Narrative and</u> Numeric | WWAL, AG, REC1, T |
| Whiskers Spring, Hammond Spring, unnamed springs | <u>Narrative and</u> Numeric | AG, T, WWAL, <u>REC1</u> |
| Recapture Creek and Tributaries | <u>Narrative and</u> Numeric | WWAL, AG, REC1, T |

Criteria:

The following numeric criteria shall not be exceeded for any Tribal water, beyond the limits of averaging periods and allowable frequencies of exceedance.— Two types of criteria are presented here, general numeric criteria and site specific numeric criteria.

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Numeric criteria are levels of pollutants beyond which impairment of a water body, resulting in non-attainment of a designated use, may be expected. These are also referred to as use-protected standards. Therefore, these criteria are specific to the designated uses that are to be protected. These numeric criteria are summarized in Tables 12.3 to 12.7, below. **For a water body with multiple use designations, the most stringent criteria will be the goal of its water quality standard.**

Site specific criteria are set for individual waters or segments thereof for which the numeric criteria are not appropriate due to natural background conditions, historical pollution impairment, or conditions that may otherwise prevent the attainment of specific designated uses.

Note: Capital letters refer to references in Section 15. Numbers refer to footnotes in this section.

Table 12.3. Physical Parameters

| Parameter: | pH (1) (K) | Temperature (2) (K) | Salinity (3), (4) (W,JJ) |
|------------------------|---------------------------------|--|---|
| Uses Protected: | | | |
| WWAL, CWAL | 6.5-9.0 s.u. (range) | WWAL: <30C with maximum 3 degree C increase, CWAL: <20C with maximum 3 degree C increase | |
| REC1, REC2 | 6.5-9.0 s.u. (range) | <50 C | |
| AG | 6.5-9.0 s.u. (range) | <50 C | Livestock consumption: TDS<or= 5,000 mg/L; Irrigation: <2250 mg/L when SAR is <or= 4.00, <1500 when SAR is 4.01-10.00; 750 mg/L if SAR> 10.00 |
| DW & T | 6.6-8.5 s.u. (range) | | TDS <or= 500 mg/L |
| IND (5) | Boilers: 8.0-8.5 at 150-250 psi | | Construction Watering: TDS<8,510 mg/L Boilers: TDS < 2500 at 150-250 psi pressure |

Footnotes for Table 12.3:

(1) pH criteria are instantaneous measurements for the purpose of regulating effluent limits.

(2) Temperature shall maintain a natural pattern of seasonal fluctuation with no abrupt changes, and shall have no increase of a magnitude, rate or duration that negatively impacts aquatic life. Generally a maximum increase of less than 3 degrees C over a minimum of 4 hours, and lasting for no more than 12 hours is deemed acceptable for discharges that fluctuate in volume and/or temperature. Where temperature increases cannot be maintained within this limit by Best Management Practices and Best Available Treatment Economically Achievable, the Tribe will determine whether temperature increases impact the attainment of an aquatic life use.

(3) Waters in the 7,000-10,000 mg/L range of total soluble salts are unfit for poultry and swine, and present a significant risk for pregnant and lactating cows, horses, sheep, and the young of these species. Consumption of waters at this level of salinity also presents a risk for livestock subjected to heavy heat stress or water loss. 5,000 mg/L is therefore a threshold value to prevent adverse effects on livestock.

(4) SAR, or Sodium Adsorption Ratio: $Na/(1/2(Ca+Mg))^{1/2}$ The combination of sodium adsorption ratio (SAR) and total dissolved solids is used to assess the risk of sodium hazard in the application of water to crops of different sensitivities to sodium. These standards are not to be exceeded by more than 3 consecutive samples in a 30-day period or 20% of the samples in a growing season, for protection of long-term soil productivity.

(5) Use of untreated surface waters from local geology in boilers is most likely limited by hardness, which is not a specifically regulated water quality parameter, and industrial use of this type should be considered carefully with correspondence with Water Pollution Prevention Program staff and site-specific sampling for a suite of water quality parameters.

Table 12.3.a Dissolved Oxygen Criteria (mg/L) ^{(1) (A)}

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| | CWAL, Early Life Stages ^{(2) (3)} | CWAL, Other Life Stages | WWAL, Early Life Stages ⁽³⁾ | WWAL, Other Life Stages |
|--|--|-------------------------|--|-------------------------|
| 30 Day mean | NA ⁽⁴⁾ | 6.5 | NA | 5.5 |
| 7 Day mean | 9.5 (6.5) | NA | 6 | NA |
| 7 Day mean minimum ⁽⁷⁾ | NA | 5.0 | NA | 4.0 |
| 1 Day mean minimum ^{(5), (6)} | 8.0 (5.0) | 4.0 | 5.0 | 3.0 |

Footnotes for Table 12.3.a:

(1) The dissolved oxygen criteria apply to all non-thermally stratified lentic waters, and to all lotic waters. Dissolved oxygen levels may be lowered by natural causes in the hypolimnion (bottom layer) of a thermally-stratified lentic water body. Dissolved oxygen criteria apply to the epilimnion (upper layer) and metalimnion (middle layer or thermocline) of any thermally-stratified lentic water. This hypolimnion exclusion of the dissolved oxygen criteria may occur only where the Tribe determines that: 1) the lentic water body is thermally stratified and 2) dissolved oxygen levels are responding to natural cycles and are not significantly influenced by anthropogenic activities. Alternatively, the Tribe may set site-specific dissolved oxygen criteria in accordance with Section 12. Designated Uses, Criteria and Variances for Stream Segments.

(2) These are water column concentrations required to achieve the intergravel concentrations shown in parentheses. For species that have early life stages directly exposed to the water column, the concentrations in parentheses apply.

(3) "Early life stages" includes all embryonic and larval stages and all juvenile forms to 30-days following hatching.

(4) "NA" means not applicable

(5) Discharges that are easily manipulated may have further restrictions requiring higher one-day mean minimum concentrations, to be determined on a site-specific basis.

(6) All minima should be considered to be instantaneous concentrations to be achieved at all times.

(7) The 7-day mean minimum is the mean value of the daily minimums.

Table 12.4 Bacteriological Criteria (# of colonies/100ml) ^{(1), (2)} (D, N, PP)

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| | |
|------------------------|--|
| Parameter | E. Coli geometric mean (g.m.); single sample maximum (s.m.) ⁽²⁾ |
| Uses Protected: | |
| REC 1 | 126/100mL (g.m.); 235/100mL (s.m.) |
| REC 2 | 1152/100mL (s.m.) |
| T (human health) | 0 (absent) |

Footnotes for Table 12.4

(1) Fecal Coliform has been removed from the standards as an indicator of potential human pathogen pollution. With EPA's approval of modern E.Coli analytical procedures and only a limited amount of historical Tribal fecal coliform data, it is now more practical to use E.Coli as an indicator exclusively, unless a pathogen-specific procedure is required to determine illness rates as part of a more in-depth epidemiological study.

(2) The Tribal Ceremonial Use criterion of total absence of E.Coli bacteria is meant to be protective of those small stream segments directly downstream of springs and seeps of traditional Tribal use. It is a goal that has been documented to be achievable on such stream segments where protective best management practices have been implemented. Where flowing surface waters have a Tribal Ceremonial Use ("T") designation, this criterion should be perceived as an interim value where a site-specific value will be calculated in the future, and also a goal for the minimization of fecal pollution.

12.5. Inorganic Chemical Parameters, Cyanide and Asbestos (mg/L, unless noted otherwise) ^{(6), (7)}

Ammonia Aquatic Life Criteria for Fresh Waters

| mg TAN/L | |
|---|--|
| Acute (CMC) equation (1 hour average) | $CMC = MIN \left(\left(\frac{0.275}{1 + 10^{7.204 - pH}} + \frac{39.0}{1 + 10^{pH - 7.204}} \right), \right. \\ \left. \left(0.7249 \times \left(\frac{0.0114}{1 + 10^{7.204 - pH}} + \frac{1.6181}{1 + 10^{pH - 7.204}} \right) \times (23.12 \times 10^{0.036 \times (20 - T)}) \right) \right)$ |
| Chronic (CCC) equation (30-day rolling average)* | $CCC = 0.8876 \times \left(\frac{0.0278}{1 + 10^{7.688 - pH}} + \frac{1.1994}{1 + 10^{pH - 7.688}} \right) \times (2.126 \times 10^{0.028 \times (20 - MAX(T, 7))})$ |
| <p>Note: Ammonia criteria are a function of pH and temperature. At the standard normalized pH of 7.0 and temperature of 20 °C, the acute criterion would be 17 mg TAN/L and the chronic criterion would be 1.9 mg TAN/L. Criteria duration: the acute criterion is a one-hour average and the chronic criterion is a thirty-day rolling average. Criteria frequency: Not to be exceeded more than once in 3 years.</p> <p>* Not to exceed 2.5 times the CCC as a 4-day average within the 30-days, i.e. 4.8 mg TAN/L at pH 7 and 20 °C more than once in 3 years on average.</p> | |

Note to Table 12.5, Ammonia: Acute (CMC) and chronic (CCC) freshwater ammonia criteria were developed using EPA's 2013 *Aquatic Life Ambient Water Quality Criteria for Ammonia - Freshwater* (EPA-822-R-13-001), which is hereby incorporated by reference (SS). Illustrations, tables, and formulae used in the development of these equations can be found on pages 40-52 of the criteria document. Alternative equations for the presence or absence of *Oncorhynchus sp.* (rainbow trout) can be found on pages 41-42 of the document.

| Parameter | Ammonia, NH ₃ ^{(1), (2) (v, ii, iii)} | |
|--|---|--|
| Acute/Chronic Descriptor | acute (1-hour) | chronic (30-day) |
| Uses Protected: | - | |
| WWAL/CWAL | $\left[\frac{0.411}{(1 + 10^{7.204 - pH})} + \frac{58.4}{(1 + 10^{pH - 7.204})} \right]$ | $\left[\frac{0.0577}{(1 + 10^{7.688 - pH})} + \frac{2.487}{(1 + 10^{pH - 7.688})} \right] \times (1.45 \times 10^{0.028 \times MAX(25 - T, 7)})$ |
| - | - | - |
| WWAL/CWAL with salmonid fish for acute criteria, with early life stages for chronic criteria | $\left[\frac{0.275}{(1 + 10^{7.204 - pH})} + \frac{39.0}{(1 + 10^{pH - 7.204})} \right]$ | $\left[\frac{0.0577}{(1 + 10^{7.688 - pH})} + \frac{2.487}{(1 + 10^{pH - 7.688})} \right] \times MIN(2.85, 1.45 \times 10^{0.028 \times (25 - MAX(T, 7))})$ |
| T&DW (human health) | | 0.5 (30-day) |
| Acute/Chronic Descriptor | acute (1-day) | chronic (30-day) |
| Parameter | Chlorine, Cl ₂ ^(v) | |
| WWAL | 19 ug/L | 11 ug/L |
| CWAL | same as WWAL | ----- same as WWAL |
| T&DW (human health) | 4,000 (1-Day) ⁽²⁴⁾ | |
| Parameter | Nitrite/Nitrate - Nitrogen NO ₂ / NO ₃ -N ^(v, w, cc) | |
| WWAL (CC) | 0.20(2.00[Cl ⁻]+0.73) mg/L NO ₂ -N | 0.10(2.00[Cl ⁻]+0.73) mg/L NO ₂ -N |
| | [Cl ⁻] = chloride ion concentration, upper Cl ⁻ limit = 22 mg/L | |
| CWAL (8) (CC) | 0.10(0.59[Cl ⁻]+3.90) mg/L NO ₂ -N | 0.10(0.29[Cl ⁻]+0.53) mg/L NO ₂ -N |
| | [Cl ⁻] = chloride ion concentration, upper Cl ⁻ limit = 22 mg/L | |
| AG | 10 mg/L (1-Day) - (as NO ₂ -N only) | 100 mg/L (30-Day) - (as NO ₃ -N + NO ₂ -N) |
| T&DW (human health) | 1.0 mg/L (1-Day) - (as NO ₂ -N only) | 10 mg/L (1-Day) - (as NO ₃ -N + NO ₂ -N) |

| Parameter | Cyanide, CN ⁽¹³⁾ (l, M, T, W) | |
|---------------------|--|--|
| WWAL | 22 ug/L | 5.2 ug/L |
| CWAL | Same as WWAL | Same as WWAL |
| AG | 200 ug/L (1-Day) | |
| T&DW (human health) | 4200 ug/L (1-Day) | |
| Parameter | Boron, B ^(EE, JJ) | Sulfide, as undissociated H ₂ S ⁽²⁴⁾ (U) |
| WWAL | NA | 2 ug/L (30-Day) |
| CWAL | NA | 2 ug/L (30-Day) |
| AG | 750 ug/L (sensitive crops, long-term) (30-Day) | NA |
| T&DW (human health) | NA | 50 ug/L (30-Day) |
| Parameter | Asbestos ⁽³⁵⁾ (T) | |
| WWAL | | NA |
| CWAL | | NA |
| AG | | NA |
| T&DW (human health) | | 7,000,000 fiber/L |

Footnotes for Table 12.5:

⁽¹⁾ These criteria apply to unionized ammonia. The applicable criteria shall not be exceeded more than one time every three years.

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⁽²⁾ The highest four-day average within the 30-day chronic criteria averaging period should not exceed 2.5 times the chronic criterion.

⁽¹³⁾ This water quality criterion is expressed as ug free cyanide (as mg CN)/L.

⁽²⁴⁾ Organoleptic criterion for taste and odor.

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⁽³⁵⁾ Asbestos criterion applies to fibers equal to or longer than 10 micrometers. There is no averaging period for this criterion. Any detection of asbestos at this level will warrant immediate remedial action.

⁽⁴⁶⁾ "NA" means "not applicable".

⁽⁵⁷⁾ Averaging periods are in parentheses following descriptors or criteria. No concentration shall exceed criteria more than once every three years.

12.6 Standards for Metallic Inorganics and Selenium (ug/L) ^{(2), (3), (11)}

| | |
|---|---|
| Parameter | Ag, Silver ^{(4), (7)} |
| WWAL acute criteria | $e^{(1.72[\ln(\text{hardness})]-6.52)(0.85)}$ |
| WWAL chronic criteria | $e^{(1.72[\ln(\text{hardness})]-9.06)(0.85)}$ |
| Parameter CWAL acute criteria | Ag, Silver ^{(1), (7)} same as WWAL acute |
| WWAL acute criteria CWAL chronic criteria | $e^{(1.72[\ln(\text{hardness})]-6.52)(0.85)} e^{(1.72[\ln(\text{hardness})]-10.51)(0.8)}$ |
| WWAL chronic criteria Agriculture (total recoverable) | $e^{(1.72[\ln(\text{hardness})]-9.06)(0.85)}$ na |
| CWAL acute criteria T & DW, Water Organisms (ug/L) ⁽³⁾ | same as WWAL acute 400 (1-Day) |
| CWAL chronic criteria FSH, Organisms Only (ug/L) | $e^{(1.72[\ln(\text{hardness})]-10.51)(0.8)}$ 140,000 |

| <u>Metal</u> | <u>CAS No.</u> | <u>Criterion Maximum Concentration (CMC)^a</u> <u>(ug/L)</u> | <u>Criterion Continuous Concentration (CCC)^b</u> <u>(ug/L)</u> |
|--|--------------------------------------|--|--|
| <u>Aluminum^(TT)</u> | <u>7429905</u> | <u>Acute (CMC) and chronic (CCC) freshwater aluminum criteria shall be developed using EPA's 2018 Aluminum Criteria Calculator V2.0.</u> <u>Where sufficiently representative ambient data for DOC, pH or hardness are not available, the tribe shall use estimates from similar sites.</u> | |
| <u>^aThe CMC is the highest allowable one-hour average instream concentration of aluminum. The CMC is not to be exceeded more than once every three years.</u> | | | |
| <u>^bThe CCC is the highest allowable four-day average instream concentration of aluminum. The CCC is not to be exceeded more than once every three years.</u> | | | |
| <u>Aluminium: T & DW, Water+Organisms Criterion Maximum: 200⁽¹⁰⁾</u> | | | |
| <u>Aluminium: Agriculture (total recoverable): na</u> | | | |
| <u>Aluminium: FSH, Organisms Only (ug/L): na</u> | | | |
| <u>Agriculture (total recoverable)</u> | <u>na</u> | | |
| <u>T & DW, Water+Organisms (ug/L)⁽³⁾</u> | <u>100 (1-Day)</u> | | |
| <u>FSH, Organisms Only (ug/L)</u> | <u>110,000</u> | | |
| <u>Parameter</u> | <u>Al, Aluminum⁽⁹⁻¹²⁾</u> | | |
| <u>WWAL acute criteria</u> | <u>750</u> | | |
| <u>WWAL chronic criteria</u> | <u>87</u> | | |
| <u>CWAL acute criteria</u> | <u>same as WWAL</u> | | |
| <u>CWAL chronic criteria</u> | <u>same as WWAL</u> | | |
| <u>Agriculture (total recoverable)</u> | <u>na</u> | | |
| <u>T & DW, Water+Organisms (ug/L)⁽³⁾</u> | <u>200⁽¹⁰⁾</u> | | |
| <u>FSH, Organisms Only (ug/L)</u> | <u>na</u> | | |
| <u>Parameter</u> | <u>As, Arsenic (C, T, W, JJ)</u> | | |
| <u>WWAL acute criteria</u> | <u>340</u> | | |
| <u>WWAL chronic criteria</u> | <u>150</u> | | |
| <u>CWAL acute criteria</u> | <u>same as WWAL</u> | | |
| <u>CWAL chronic criteria</u> | <u>same as WWAL</u> | | |
| <u>Agriculture (total recoverable)</u> | <u>100 (30-Day)</u> | | |
| <u>T & DW, Water+Organisms (ug/L)⁽³⁾</u> | <u>0.018 (1-Day)</u> | | |
| <u>FSH, Organisms Only (ug/L)</u> | <u>0.014</u> | | |
| <u>Parameter</u> | <u>Ba, Barium^(U)</u> | | |
| <u>WWAL acute criteria</u> | <u>na</u> | | |
| <u>WWAL chronic criteria</u> | <u>na</u> | | |

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Commented [PM2]: Let's talk about EPA's new aluminum aquatic life criteria.

I sent an email with some information and links. Let's discuss when you've had a chance to look at it.

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|---|---|
| CWAL acute criteria | na |
| CWAL chronic criteria | na |
| Agriculture (total recoverable) | na |
| T & DW, Water+Organisms (ug/L) ⁽³⁾ | 1,000 (1-Day) |
| FSH, Organisms Only (ug/L) | na |
| Parameter | Carbaryl ^(VV) |
| WWAL Acute criteria | 2.1 |
| WWAL Chronic criteria | 2.1 |
| Parameter | Cd, Cadmium ^(a) (E, T, W, JJ, UU) |
| WWAL acute criteria | $e^{(1.0166[\ln(\text{hardness})] - 3.924) * (1.136672([\ln(\text{hardness}) - 0.041838]) - 3.866) * (1.136672 - [(\ln \text{hardness}) * (0.041838)])}$ |
| WWAL chronic criteria | $e^{(0.7409[\ln(\text{hardness})] - 4.719) * (1.101672 - [(\ln \text{hardness}) - 0.041838]) - 3.909} * (1.101672 - [(\ln \text{hardness}) * (0.041838)])}$ |
| CWAL acute criteria | same as WWAL |
| CWAL chronic criteria | same as WWAL |
| Agriculture (total recoverable) | 10 (30-Day) |
| T & DW, Water+Organisms (ug/L) ⁽³⁾ | 5 (1-Day) (4) |
| FSH, Organisms Only (ug/L) | 84 |
| Parameter | Cr (III), Chromium ^{(1), (6)} (F, T, W, JJ) |
| WWAL acute criteria | $e^{(0.819 * \ln(\text{hardness}) + 3.7256)} (0.316)$ |
| WWAL chronic criteria | $e^{(0.819 * \ln(\text{hardness}) + 0.6848)} (0.860)$ |
| CWAL acute criteria | same as WWAL |
| CWAL chronic criteria | same as WWAL |
| Agriculture (total recoverable) | 100 (30-Day) |
| T & DW, Water+Organisms (ug/L) ⁽³⁾ | 100 (1-Day) |
| FSH, Organisms Only (ug/L) | 670,000 |
| Parameter | Cr (VI), Chromium ^(F, T, W, JJ) |
| WWAL acute criteria | 16 |
| WWAL chronic criteria | 11 |
| CWAL acute criteria | same as WWAL |
| CWAL chronic criteria | same as WWAL |
| Agriculture (total recoverable) | 100 (30-Day) |
| T & DW, Water+Organisms (ug/L) ⁽³⁾ | 50 (1-Day) |
| FSH, Organisms Only (ug/L) | 3,400 |
| Parameter | Cr Total, Chromium ⁽⁴⁾ |
| T & DW, Water+Organisms (ug/L) ⁽³⁾ | 100 (1 Day) |

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- Commented [CL3]: Looks like acute is 1.8 and chronic 0.72 and I can get rid of these relic equations?
- Commented [PM4R3]: 1.8 and 0.72 are the 2016 criteria equation values at 100 mg/L hardness. It looks like the full equations are presented in this table for the older equation-based criteria so it probably makes sense to keep the equations here unless you're thinking of re-formatting. You will need to get the 2016 equations. Here they are:

Acute:
CMC= $e^{(0.9789 * \ln(\text{hardness}) - 3.866) * (1.136672 - [(\ln \text{hardness}) * (0.041838)])}$

Chronic:
CCC = $e^{(0.7977 * \ln(\text{hardness}) - 3.909) * (1.101672 - [(\ln \text{hardness}) * (0.041838)])}$
- Commented [CL5R3]: Resolved, updated equations entered.
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| | |
|---|---|
| Parameter | 0.3 mg MeHg/kg fish |
| | Ni, Nickel ⁽¹⁾ (T, W, JJ) |
| WWAL acute criteria | $e^{(0.8460[\ln(\text{hardness})]+2.255)}(.998)$ |
| WWAL chronic criteria | $e^{(0.8460[\ln(\text{hardness})]+0.0584)}(.997)$ |
| CWAL acute criteria | same as WWAL |
| CWAL chronic criteria | |
| Agriculture (total recoverable) | 200 (30-Day) |
| T & DW, Water+Organisms (ug/L) ⁽³⁾ | 100 (30-Day) |
| FSH, Organisms Only (ug/L) | 4,600 |
| Parameter | Pb, Lead ⁽¹⁾ (P, T, W, JJ) |
| WWAL acute criteria | $e^{(1.273[\ln(\text{hardness})]-1.460)}*(1.46203-[\ln(\text{hardness})](0.145712)])$ |
| WWAL chronic criteria | $e^{(1.273[\ln(\text{hardness})]-4.705)}*(1.46203-[\ln(\text{hardness})](0.145712)])$ |
| CWAL acute criteria | same as WWAL |
| CWAL chronic criteria | |
| Agriculture (total recoverable) | 100 (30-Day) |
| T & DW, Water+Organisms (ug/L) ⁽³⁾ | 50 (1-Day) |
| FSH, Organisms Only (ug/L) | na |
| Parameter | Se, Selenium ⁽¹⁾ (T, W, DD, EE, GG, HH, JJ) |

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| Criterion Element | Magnitude | Duration | Frequency |
|--|--|---|--|
| Fish Tissue ^a (Egg-Ovary) ^b | 15.1 mg/kg dw | Instantaneous measurement ^c | Not to be exceeded |
| Fish Tissue ^a (Whole Body or Muscle) ^d | 8.5 mg/kg dw or 11.3 mg/kg dw muscle (skinless, boneless filet) | Instantaneous measurement ^c | Not to be exceeded |
| Water Column ^e (Monthly Average Exposure) | 1.5 ug/L in lentic aquatic systems 3.1 ug/L in lotic aquatic systems | 30 days | Not more than once in three years on average |
| Water Column ^e (Intermittent Exposure) ^f | $WQC_{int} = \frac{WQC_{30\text{-day}} - C_{bkgnd}(1 - f_{int})}{f_{int}}$ | Number of days/month with an elevated concentration | Not more than once in three years on average |

^a Fish tissue elements are expressed as steady-state.
^b Egg/ovary supersedes any whole-body, muscle, or water column element when fish egg/ovary concentrations are measured.
^c Fish tissue data provide point measurements that reflect integrative accumulation of selenium over time and space in fish population(s) at a given site.
^d Fish whole-body or muscle tissue supersedes water column element when both fish tissue and water concentrations are measured.

^eWater column values are based on dissolved selenium in water and are derived from fish tissue values via bioaccumulation modeling. Water column values are the applicable criterion element in the absence of steady-state condition fish tissue data.

^fWhere $WQC_{30\text{-day}}$ is the water column monthly element, for either a lentic or lotic waters; $C_{background}$ is the average background selenium concentration, and f_{int} is the fraction of any 30-day period during which elevated selenium concentrations occur, with f_{int} assigned a value ≥ 0.033 (corresponding to 1 day).

| | |
|---|---|
| WWAL acute criteria | 20 |
| WWAL chronic criteria | 5 |
| CWAL acute criteria | same as WWAL |
| CWAL chronic criteria | |
| Agriculture (total recoverable) | 20 (30-Day) |
| T & DW, Water+Organisms (ug/L) ⁽³⁾ | 50 (30-Day) ⁽⁹⁾ |
| FSH, Organisms Only (ug/L) | 4200 |
| Parameter | Sb, Antimony ⁽⁷⁾ |
| WWAL acute criteria | na |
| WWAL chronic criteria | na |
| CWAL acute criteria | na |
| CWAL chronic criteria | na |
| Agriculture (total recoverable) | na |
| T & DW, Water+Organisms (ug/L) ⁽³⁾ | 5.6 (30-Day) |
| FSH, Organisms Only (ug/L) | 640 |
| Parameter | Zn, Zinc ⁽¹⁾ (T, NN, DD, W, JJ) |
| WWAL acute criteria | $e^{(0.8473[\ln(\text{hardness})]+0.884)}(.978)$ |
| WWAL chronic criteria | $e^{(0.8473[\ln(\text{hardness})]+0.884)}(.986)$ |
| CWAL acute criteria | same as WWAL |
| CWAL chronic criteria | |
| Agriculture (total recoverable) | 2,000 (30-Day) |
| T & DW, Water+Organisms (ug/L) ⁽³⁾ | 5,000 (30-Day) ⁽¹⁰⁾ |
| FSH, Organisms Only (ug/L) | 26,000 |
| Parameter | U, Uranium (elemental) ⁽⁴²⁾ |
| WWAL acute criteria | na |
| WWAL chronic criteria | na |
| CWAL acute criteria | na |
| CWAL chronic criteria | na |
| Agriculture (total recoverable) | na |
| T & DW, Water+Organisms (ug/L) ⁽³⁾ | 30 ug/L ⁽⁷⁸⁾ |
| FSH, Organisms Only (ug/L) | na |

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Footnotes for Table 12.6

(1) Hardness dependent criteria are based on hardness expressed as mg/L CaCO₃. For waters with a hardness value greater than 400 mg/L as CaCO₃, the criterion should be calculated using a hardness value of 400 mg/L, unless a water effects ration calculation is to be used.

(2) Both acute and chronic numeric aquatic life and fish consumption metals criteria are not be exceeded more than once every three years on the average. The acute criteria have a 1-hour averaging period, and the chronic criteria have an averaging period of 4 days. Agricultural and domestic water supply criteria differ in the length of an averaging period for allowable exceeding. These averaging periods are included in Table 12.6 in parentheses directly after criteria.

(3) Aquatic life criteria for metals are expressed as dissolved metals, except for aluminum, arsenic, selenium and mercury. Agriculture, Drinking Water, and Fish Consumption numeric criteria are expressed as total recoverable metals. Metals criteria in Table 12.6 can be converted to total recoverable metals for assessment purposes. Conversion factors for each parameter in Table 12.6 are included as Appendix A of this document.

(4) Drinking Water MCL

(5) Cr (III) criteria are applicable to the total of all valance states if specific valance state data are unavailable.

(6) Mercury criteria are ug/L of total mercury. EPA's current recommended CWA section 304(a) water quality criterion for methylmercury is expressed as a fish tissue concentration value (0.3 milligram methylmercury per kilogram of wet-weight fish tissue, or 0.3 mg/kg). With the publication of the fish tissue criterion, EPA withdrew the previous human health water quality criterion for mercury as the recommended section 304(a) water quality criterion for states and authorized tribes to use as guidance in adopting water quality standards (USEPA 2001). These water column criteria will be temporarily part of revised mercury criteria until the triennial review that follows the criterion adoption to help the transition in implementing the fish tissue criterion.

~~(7) Nationally recommended numeric aquatic life criteria for selenium are currently undergoing revision by EPA. Until further research indicates it is insufficient, the acute aquatic life criterion for selenium is 20 ug/L total recoverable selenium; chronic aquatic life criterion for selenium is 5 ug/L total recoverable selenium.~~

~~(78) EPA drinking water standard for Uranium designated for potential Tribal use.~~

~~(89) 50 ug/L Se is a drinking water MCL~~

~~(910) Organoleptic criteria for taste~~

~~(1014) "na" means that insufficient research has been performed to develop numeric criteria for this parameter and designated use. Narrative criteria of Section 5, page 7 of these standards apply.~~

~~(12) The aluminum criteria are expressed as total recoverable metal in the water column. The 87 ug/l chronic criterion for aluminum is based on information showing chronic effects on brook trout and striped bass. The studies underlying the 87 ug/l chronic value, however, were conducted at low pH (6.5 – 6.6) and low hardness (< 10 ppm CaCO₃), conditions uncommon in Reservation surface waters. A water effect ratio toxicity study in West Virginia indicated that aluminum is substantially less toxic at higher pH and hardness (although this relationship is not well quantified at this time). Further, EPA is aware of field data indicating that many high quality waters in the U.S. contain more than 87 ug/l aluminum when either the total recoverable or dissolved aluminum is measured. Based on this information and considering the available toxicological information in Tables 1 and 2 of EPA's Aluminum Criteria Document (EPA 440/5-86-008), the Tribe will implement the 87 ug/l chronic criteria for aluminum as follows: where the pH is equal to or greater than 7.0 and the hardness is equal to or greater than 50 ppm as CaCO₃ in the receiving water after mixing, the 87 ug/l chronic criterion will not apply, and aluminum will be regulated based on compliance with the 750 ug/l acute aluminum criterion. In situations where the 87 ug/l chronic criterion applies, a discharger may request development of a site specific chronic criterion based on a water effect ratio. Or, a discharger may request development of a permitting procedure (a translator) that would take into account less toxic forms of particulate aluminum. In either case, the Tribe may require that the discharger requesting the change provide the technical information and data needed to support such a change.~~

~~(1114) Methylmercury water quality criteria have been adopted in the form of a fish tissue methylmercury concentration. This is the preferred form for the following reasons:~~

- ~~• A criterion expressed as a fish tissue concentration is closely tied to the "fishable" designated use goal applied to nearly all waterbodies in the United States.~~
- ~~• A fish tissue concentration value is expressed in the same form (fish tissue) through which humans are exposed to methylmercury.~~
- ~~• A fish tissue concentration value is more consistent with how fish advisories are issued~~
- ~~• At environmentally relevant concentrations, methylmercury is currently easier to detect in fish tissue than in water samples.~~

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Table 12.7 Organic Compounds; ug/L unless stated otherwise (1),(2) (T)

Criteria labeled as "N" defer to narrative criteria only.

| Compound | Chemical Abstract Number (CAS) | Freshwater Criteria | Human Health for the Consumption of: | | |
|------------------------------|--------------------------------|-------------------------------|--------------------------------------|----------------|---|
| | | WWAL & CWAL Criteria | DW (3) Water + Organisms | Organisms Only | |
| Acenaphthene | 83-32-9 | N | 67070 | 990 | Formatted: Font color: Red |
| Acenaphthylene (PAH) | 208-96-8 | N | 1,200 | 2,700 | |
| Acrolein | 107-02-8 | Acute and chronic: 3 | 63 | 4009 | Formatted: Highlight |
| Acrylonitrile | 107-13-1 | N | 0.0651 | 7.0926 | Formatted: Font color: Red |
| Alachlor | 15972-60-8 | N | 2 | N | Formatted: Font color: Red |
| Aldrin | 309002 | Acute: 3 | 0.000000779-000049 | 0.00000077 | Formatted: Font: (Default) Arial, 8 pt, Font color: Red |
| Anthracene (PAH) | 120-12-7 | N | 2-300300 | 40-000400 | Formatted: Font color: Red |
| Atrazine | 1912-24-9 | N | 3 | N | Formatted: Font color: Red |
| Benzene | 71-43-2 | N | 2-20.58 | 5416 | Formatted: Font color: Red |
| Benzidine | 92-87-5 | N | 0.00014086 | 0.0119002 | Formatted: Font color: Red |
| Benzo(a)anthracene (PAH) | 56-55-3 | N | 0.99380012 | 0.948001 | Formatted: Font color: Red |
| Benzo(b)fluoranthene (PAH) | 205-99-2 | N | 0.001238 | 0.001348 | Formatted: Font color: Red |
| Benzo(k)fluoranthene (PAH) | 207-08-9 | N | 0.012038 | 0.013041 | Formatted: Font color: Red |
| Benzo(a)pyrene (PAH) | 50-32-8 | N | 0.0001238 | 0.000134 | Formatted: Font color: Red |
| Bis(2-chloroethyl) ether | 111-44-4 | N | 0.030 | 2.2953 | Formatted: Font color: Red |
| Bis(2-chloroethoxy) methane | 111-91-1 | N | N | N | Formatted: Font color: Red |
| Bis(2-chloroisopropyl) ether | 108-60-1 | N | 2004.400 | 4.00065.00 | |
| Bis(2-ethylhexyl) phthalate | 117-81-7 | N | 1-20.32 | 0.3722 | Formatted: Font color: Red |
| Bromoform (HM) | 75-25-2 | N | 7.043 | 120440 | Formatted Table |
| Bis(Chloromethyl) Ether | 542881 | N | 0.00015 | 0.017 | |
| 4-Bromophenyl phenyl ether | 101-55-3 | N | N | N | |
| Butyl benzyl phthalate | 85-68-7 | N | 0.104500 | 0.104900 | Formatted: Font color: Red |
| Carbon tetrachloride | 56-23-5 | N | 0.4023 | 546 | Formatted: Font color: Red |
| Chlordane | 57749 | Acute: 2.4 Chronic: 0.0043 | 0.000318 | 0.000328 | Formatted: Left |
| Chlorobenzene | 108-90-7 | N | 10030 | 8004600 | |
| Chlorodibromomethane (HM) | 124-48-1 | N | 0.840 | 2143 | |
| Chloroform (HM) | 67-66-3 | N | 60579 | 2000479 | |
| 4-Chlorophenyl phenyl ether | 7005-72-3 | N | N | N | |
| Chrysene (PAH) | 218-01-9 | N | 0.1200038 | 0.130018 | |
| Cyanazine | 21725-46-2 | N | 1.0 (4) | N | |
| 2-Chloroethyl vinyl ether | 110-75-8 | N | N | N | |
| 2-Chloronaphthalene | 91-58-7 | N | 8004000 | 1,0004600 | |
| 2-Chlorophenol | 95-57-8 | N | 3084 | 800450 | |
| DBCP (dibromo-chloropropane) | 96-12-8 | N | 0.2 | N | |

| | | | | |
|------------------------------|-------------------------|-------------------------------|------------|------------|
| DDT and metabolites | 4,4-DDT: 50293 | Acute: 1.1 Chronic: 0.004 | 0.00022 | 0.00034 |
| | 4,4-DDE: 72559 | | | |
| | 4,4-DDD: 72548 | | | |
| 4,4 DDT | 50-29-3 | Acute 1.1 : Chronic 0.001 | 0.000030 | 0.000030 |
| 4,4 DDE | 72-55-9 | N | 0.000018 | 0.000018 |
| 4,4 DDD | 72-54-8 | N | 0.00012 | 0.00012 |
| Demeton | 8065-48-3 | Chronic: 0.1 | N | N |
| Dibenzo(a,h)anthracene (PAH) | 53-70-3 | N | 0.0001238 | 0.0001348 |
| 1,2-Dichlorobenzene | 95-50-1 | N | 1000420 | 30004300 |
| 1,3-Dichlorobenzene | 541-73-1 | N | 7320 | 10960 |
| 1,4-Dichlorobenzene | 106-46-7 | N | 30063 | 900490 |
| 3,3-Dichlorobenzidine | 91-94-1 | N | 0.04924 | 0.150.028 |
| Dichlorobromomethane (HM) | 75-27-4 | N | 0.950.55 | 2747 |
| 1,1-Dichloroethane | 75-34-3 | N | 330 | 7,100 |
| 1,2-Dichloroethane | 107-06-2 | N | 9.90.38 | 65037 |
| 1,1-Dichloroethylene | 75-35-4 | N | 3000.067 | 200003.2 |
| 1,2-Dichloropropane | 78-87-5 | N | 0.34 | 15 |
| 1,2-Trans-dichloroethylene | 156-60-5 | N | 440100 | 440,000 |
| 1,3-Dichloropropene | 542-75-6 | N | 0.2734 | 1224 |
| 2,4-D | 94-75-7 | 100 | 130070 | 12,000N |
| Dinitrophenols | 25550-58-7 | N | 10 | 1,000 |
| 2,4-Dichlorophenol | 120-83-2 | N | 1077 | 60290 |
| 2,4-Dimethylphenol | 105-67-9 | N | 100380 | 3000850 |
| 2,4-Dinitrotoluene | 121-14-2 | N | 0.04944 | 1.73-4 |
| 2,6-Dinitrotoluene | 606-20-2 | N | N | N |
| 1,2-Diphenylhydrazine | 122-66-7 | N | 0.036 | 0.20 |
| Dieldrin | 60_57_1 | Acute: 0.24 | 0.00001252 | 0.00001254 |
| | | Chronic: 0.056 | | |
| Diethyl phthalate | 84662 | N | 60017,000 | 60044,000 |
| 2,4-Dinitrophenol | 51-28-5 | N | 1069 | 3005,300 |
| 2-Methyl-4,6-Dinitrophenol | 534-52-1 | N | 243 | 30280 |
| 3-Methyl-4-Chlorophenol | 59-50-7 | N | 500 | 2,000 |
| Di-n-butyl phthalate | 84-74-2 | N | 202,000 | 304,500 |
| Dimethyl Phthalate | 131-11-3 | N | 2,000 | 2,000 |
| Di-n-octyl phthalate | 117-84-0 | N | N | N |
| Dioxin (2,3,7,8-TCDD) | 1746-01-6 | Acute: 0.01 | 5.0E-9 | 5.1E-9 |
| | | Chronic: 0.00001 | | |
| Endosulfan (alpha)(8) | alpha:959988 | Acute: 0.22 Chronic: 0.056 | 8220 | 8930 |
| Endosulfan (beta)(8) | beta:33213659 | Acute: 0.22 Chronic: 0.056 | 8220 | 4089 |
| Endosulfan sulfate | sulfate form:1031078 | N | 2062 | 4089 |
| EDB (Ethylene Dibromide) | 106-93-4 | N | 0.05 | N |
| Endrin | 72_20_8 | Acute: 0.086 | 0.0359 | 0.0360 |
| | | Chronic: 0.036 | N | N |
| Endrin Aldehyde | 7421_93_4 | Acute: 0.086 | 10.069 | 10.060 |
| | | Chronic: 0.036 | 0.29 | 0.30 |
| Ethylbenzene | 100-41-4 | N | 68530 | 1302,400 |
| Fluorene | 86737 | N | 504,400 | 706,300 |

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|---------------------------------|-----------------------|--|--|-------------------------|
| Fluoranthene | 206-44-0 | N | 20430 | 20440 |
| Heptachlor | 76-44-8 | Acute: 0.52 | 0.0000579 | 0.0000579 |
| Heptachlor Epoxide | 1024-57-3 | Chronic: 0.0038 | Epoxide only: 0.0000329 | Epoxide only: 0.0000329 |
| Hexachlorobenzene | 118-74-1 | N | 0.0007928 | 0.000729 |
| Hexachlorobutadiene (c) | 87-68-3 | N | 0.0144 | 0.0148 |
| Hexachlorocyclopentadiene | 77-47-4 | N | 49 | 41,100 |
| Hexachloroethane | 67-72-1 | N | 0.14,4 | 0.13-3 |
| Hexachlorocyclohexane (HCH) | 608-73-1 | N | 0.0066 | 0.010 |
| Indeno(1,2,3,-cd)pyrene (PAH) | 193-39-5 | N | 0.001238 | 0.00138 |
| Isophorone | 78-59-1 | N | 345 | 1800960 |
| alpha-BHC | 319846 | N | 0.0003626 | 0.000394 |
| beta-BHC | 319857 | N | 0.008094 | 0.0147 |
| Lindane (gamma BHC) | 58-89-9 | 0.95 | 4.20-094 | 4.44-8 |
| Malathion | 121-75-5 | 0.1 | N | N |
| Methalochlor | 51218-45-2 | N | N | N |
| Methoxychlor | 72-43-5 | 0.03 | 0.02409 | N0.02 |
| Methyl bromide (Hm) | 74-83-9 | N | 10047 | 100004,500 |
| Methyl chloride (HM) | 74-87-3 | N | 204 | 1,0004 |
| Methylene Chloride (HM) | 75-09-2 | N | 204,6 | 1000590 |
| Mirex | 2385-85-5 | 0.001 | N | N |
| Napthalene | 91-20-3 | N | N | N |
| Nitrobenzene | 98-95-3 | N | 94710 | 6090 |
| 2-Nitrophenol | 88-75-5 | N | N | N |
| 4-Nitrophenol | 100-02-7 | N | N | N |
| N-Nitrosodimethylamine | 62-75-9 | N | 0.00069 | 3.0 |
| N-Nitrosodiphenylamine | 86-30-6 | N | 3.3 | 6.0 |
| p-Chloro-m-cresol | 59-50-7 | N | 5004 | 20004 |
| Pentachlorobenzene | 608935 | N | 0.1 | 0.1 |
| Pentachlorophenol (5) | 87-86-5 | Acute: =exp(1.005(pH)-4.869) Chronic: =exp(1.005(pH)-5.134) | 0.0327 | 0.043-0 |
| Phenol | 108-95-2 | Acute: 10.2 mg/L Chronic: 2.56 mg/L | 10 mg/L 4,000 (EPA organoleptic = 300 ug/L) | 0.86 g/L 300,000 |
| polychlorinated biphenyls (6,7) | 1336363 for all PCB's | (Chronic, 24-hr. average): 0.014 ug/L | 0.000064 | 0.000064 |
| Pyrene (PAH) | 129-00-0 | N | 20830 | 304,000 |
| Simazine | 122-34-9 | N | 4 | N |
| 1,1,2,2-Tetrachloroethane | 79-34-5 | N | 0.20,17 | 34.0 |
| Tetrachloroethylene | 127-18-4 | N | 109,69 | 293,3 |
| 1,2,4-Trichlorobenzene | 120-82-1 | N | 0.07135 | 0.07670 |
| 1,1,1-Trichloroethane | 71-55-6 | N | 200 | 200,0004 |
| 1,1,2-Trichloroethane | 79-00-5 | N | 0.559 | 468.9 |
| 2,4,6-Trichlorophenol | 88-06-2 | N | 1,54 | 2.84 |
| 2,4,5-Trichlorophenol | 95-95-4 | N | 300 | 600 |
| 1,2,4,5-Tetrachlorobenzene | 95-94-3 | N | 0.03 | 0.03 |
| Toluene | 108-88-3 | N | 571,300 | 52045,000 |
| Toxaphene | 8001352 | Acute: 0.73 Chronic: 0.0002 | 0.0007028 | 0.0007128 |
| Trichloroethylene | 79-01-6 | N | 0.62,5 | 730 |
| 2,4,5-TP | 93-72-1 | N | 10 | 4004 |

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| Vinyl Chloride | 75-01-4 | N | 0.0225 | 1.62-4 |
|----------------|---------|---|--------|--------|

Footnotes for Table 12.7:

- (1) Aquatic life organics criteria are applicable to all stream segments designated as WWAL or CWAL. Fish consumption human health criteria apply only to waters that have a FSH (fish consumption) designation.
- (2) Criteria listed in Table 12.7 as "N" are those for which insufficient research information has been collected to recommend criteria. For these circumstances, the narrative criteria of Section 5, of these standards apply.
- (3) DW + organisms Human Health criteria values are 30-day average or chronic values. These are based on EPA's nationally recommended criteria or lifetime health advisories using a 10⁻⁶ incremental risk factor. These criteria apply only to waters designated as DW (drinking water source).
- (4) Human Health criterion for cyanazine is based on EPA's lifetime Health Advisory.
- (5) Pentachlorophenol has pH-dependent numeric aquatic life criteria.
- (6) Specific PCB's CAS #'s: Arochlor 1242: 53469219; Arochlor 1254: 11097691; Arochlor 1221: 11104282; Arochlor 1232: 11141165; Arochlor 1248: 12672296; Arochlor 1260: 11096825; Arochlor 1016: 12674112
- (7) PCB's criteria is for the sum of all Arochlors.
- (8) Aquatic life criteria for alpha and beta forms of endosulfan apply to the sum of these forms at any one time.

12.8 Radiological ^(YY)

(Maximum pCi/L)

| Parameter | Use Protected: T (human health) |
|-------------------------|---------------------------------|
| Gross Alpha | 15 |
| Gross Beta | 4 mrem/yr |
| Combined Ra-226, Ra-228 | 5 |

FOOTNOTE: No radionuclides in amounts that would cause exceedances of 4 mrem/yr Gross Beta criteria

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13. Description of Variances and Site-Specific Criteria:

a. Site-Specific Criteria:

These waters are identified in the tables above, and the general numeric criteria that correspond to them also apply, except for the specific criteria described for each below, where a different standard is deemed necessary.

| Waters | Site-Specific Criteria |
|---|---|
| 1. Ute Canyon (in Mancos River Watershed) | Fecal coliform = 200 colonies/ 100 mL, E. Coli = 126 colonies / 100ml |
| | |
| | |
| | |

Explanation of Site Specific Criteria:

1. Ute Canyon has a spring that maintains flow for most of the year. Although it is not entirely perennial and would be identified as intermittent by the definition in Section 9 of these standards, there is a reasonable potential for REC1 activities due to its location.

14. Tribal Waters with Use Attainability Analyses

The following Tribal Waters do not meet the requirements of “fishable and swimmable,” described in Clean Water Act, Section 101(a)(2).

In Colorado:

Soda Canyon, Grass Canyon, Johnson Canyon, Moqui Canyon;
unnamed tributaries to the Mancos River, Aztec Wash and Ute Reservoir;

Mud Creek, Ute Creek, Pine Creek, Berry Creek, Finley Creek, Echo Canyon Creek,
Hamilton Canyon Creek, Littlewater Creek, and unnamed tributaries to McElmo Creek;

Ute Canal, Cowboy Wash, Marble Wash, Mariano Wash, Coyote Wash, East McElmo
Creek and other unnamed tributaries to lower San Juan River;

In New Mexico:

Ute Canyon, Pickett Canyon, Navajo Canyon, Cholla Canyon, Purgatory Canyon,
Barker Canyon, Thomas Canyon, Jones Canyon, Buzan Canyon, Oak Springs Canyon,
Trail Canyon, Pump Canyon, Craig Canyon, and all other tributaries to the La Plata
River and middle San Juan River;

Use Attainability Analyses are on file with the Ute Mountain Ute Water Pollution
Prevention Program, and are included as Appendix B of the *Ute Mountain Ute Water
Quality Standards Rationale Document*.

15. References

Note: For pollutant-specific criteria references, use footnote reference letters.

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