

Taos Pueblo Water Quality Standards

(enacted August 13th, 2002)

[Revised 2018](#)

Taos Pueblo Water Quality Standards were prepared by:

Taos Pueblo Environmental Office

Table of Contents

PREAMBLE Page 1 of 25

SECTION I. INTRODUCTION, AUTHORITY AND APPLICABILITY . . Page 1 of 25

 A. Purposes Page 1 of 25

 B. Applicability Page 1 of 25

 C. Authorities and Responsibilities Page 1 of 25

 D. Public Hearings. Page 2 of 25

 E. Severability Page 2 of 25

 F. Compliance Schedules Page 2 of 25

 G. Variances Page 2 of 25

 H. Short-term Exceedances Page 3 of 25

 I. Water Rights Page 3 of 25

 J. Dispute Resolution Mechanism Page 3 of 25

SECTION II. ANTIDEGREDATION POLICY AND IMPLEMENTATION

 PLAN Page 3 of 25

 A. Antidegradation Policy. Page 3 of 25

 B. Implementation. Page 4 of 25

SECTION III. NARRATIVE WATER QUALITY STANDARDS Page 5 of 25

 A. General Standards. Page 5 of 25

 B. Temperature Page 5 of 25

 C. Minerals Page 6 of 25

 D. Determining Compliance with Narrative Standards Page 6 of 25

 E. Biological Criteria Page 6 of 25

 F. Mixing Zones Page 6 of 25

 G. Wetlands Page 7 of 25

SECTION IV. DESIGNATED USES	Page 7 of 25
A. List of Designated Use Categories	Page 7 of 25
B. Designated Use Modifications	Page 8 of 25
C. Designated Use Table	Page 9 of 25
SECTION V. NUMERIC WATER QUALITY STANDARDS	Page 10 of 25
A. General Requirements	Page 10 of 25
B. Development of Numeric Water Quality Standards	Page 10 of 25
SECTION VI. SAMPLING AND ANALYSES	Page 10 of 25
A. Who Performs	Page 10 of 25
B. Methods	Page 11 of 25
C. Sampling Procedures	Page 11 of 25
D. Biological Surveys	Page 11 of 25
E. Bacteriological Surveys	Page 11 of 25
SECTION VII. DEFINITIONS	Page 11 of 25
APPENDICES - NUMERIC CRITERIA FOR DESIGNATED USES .	Page 15 of 25
A. Drinking Water	Page 15 of 25
B. <i>Domestic Water Supply</i> (including Recharge)	Page 16 of 25
C. <i>Wildlife Habitat</i>	Page 16 of 25
D. <i>Fisheries (Cold Water & High Quality Cold Water)</i>	Page 17 of 25
E. <i>Agriculture & Wildlife Watering</i>	Page 17 of 25
F. Aquatic Life	
(1) <i>Acute Criteria</i> (formulas)	Page 18 of 25
(2) <i>Hardness-Dependent Acute Criteria</i> (table of values)	Page 19 of 25
(3) <i>Chronic Criteria</i> (formulas)	Page 20 of 25
(4) <i>Hardness-Dependent Chronic Criteria</i> (table of values)	Page 21 of 25

25 (5) Ammonia — pH and temperature-Dependent Values for *Acute Criteria* Page 22 of 25

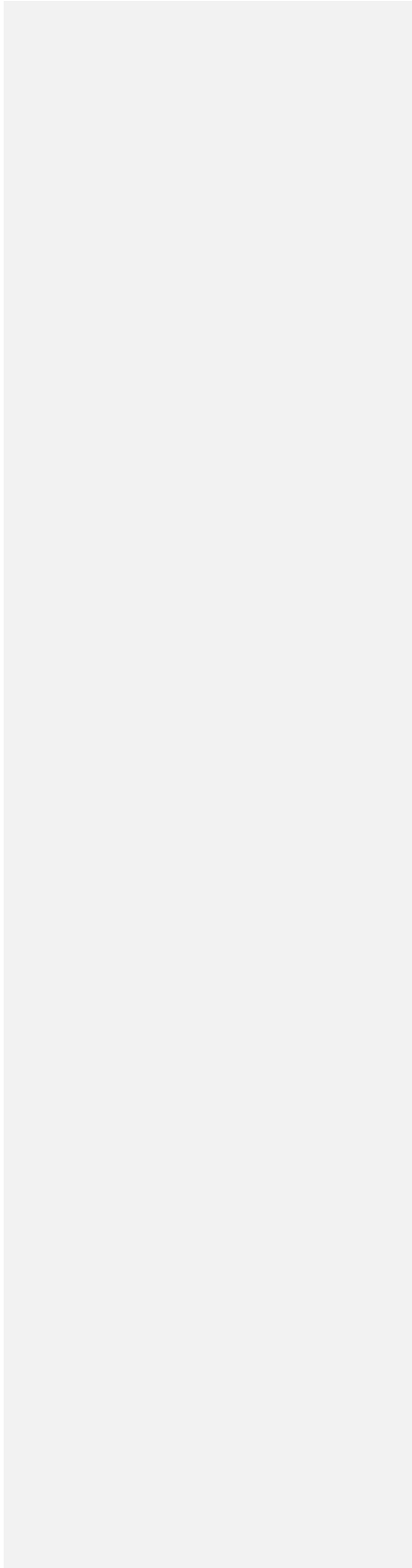
(6) Ammonia - pH- and Temperature-Dependent Values for
Chronic Criteria (fish early life stages present) Page 23 of 25

~~(7) Ammonia — pH — and Temperature-Dependent Values for
Chronic Criteria (fish early life stages absent) Page 24 of 25~~

G. *Ceremonial Use - Primary Human Contact* Page 25 of 25

H. *Outstanding Tribal Resource Waters* Page 25 of 25

*Note: Italicized terms found throughout the text of Taos Pueblo
Water Quality Standards are defined beginning on page 11.*



PREAMBLE: For longer than human memory and before recorded history, Taos Pueblo has made its home along the Rio Pueblo. The Pueblo's people have always drawn sustenance from the Rio Pueblo and other waters around the traditional village. Traditional ways and practices have maintained the waters in a clean and healthy condition throughout time to the present day. It is the Pueblo's intent to protect the quality of the Tribe's waters for generations to come. These Water Quality Standards are enacted to ensure that activities undertaken for the benefit of the community or by outside entities are conducted in such a way that the Pueblo's traditionally excellent water quality will not be compromised.

SECTION I. INTRODUCTION, AUTHORITY, AND APPLICABILITY

A. Purposes. Pursuant to its sovereign authority, the Tribal Council of Taos Pueblo, a federally recognized Indian tribe, hereby enacts these Water Quality Standards ("Standards") for the Pueblo. The Tribal Council recognizes that the Pueblo's clean waters are an extraordinary resource and wishes to ensure their protection so that traditional and cultural uses of those waters may continue. The Tribal Council wishes to protect the health, safety, welfare, and environment of the Pueblo, its people, and residents. The Tribal Council therefore enacts these Standards in order to prevent, reduce, and eliminate *pollution of Pueblo waters* and to plan the development and use (including restoration and enhancement) of land and water resources within the Pueblo's jurisdiction by:

1. Designating the existing and *attainable uses* for which the *Pueblo waters* shall be protected;
2. Prescribing water quality standards to sustain these designated uses and to provide for the protection and propagation of fish and wildlife and recreation in and on the water.
3. Protecting other uses of *Pueblo waters*, such as irrigation, *ceremonial, drinking water*, and recharge of *domestic water supply*, provided that *pollution* that may result from such uses shall not lower the quality of the water below that required for recreation and protection and propagation of fish and wildlife.
4. Assuring that degradation of *Pueblo waters* shall be minimized and that economic growth shall occur in a manner consistent with the preservation of the Pueblo's existing clean water resources.

B. Applicability. These Standards apply to all *Pueblo waters* and to all *persons* and all property within the Pueblo's *reservation*.

C. Authorities and Responsibilities. The Tribal Council hereby assigns to the Governor the authority and duty to administer the Water Quality Standards. Day-to-day operations regarding the Water Quality Standards are delegated to the Environmental Office, including monitoring water quality and preparing the triennial review of the standards. The Environmental Office is also authorized to develop related water quality protection programs, such as a *nonpoint source* program, a Clean Water Act § 401 certification program, wetlands delineation, or a clean lakes program, through consultation with and approval by Tribal Government.

D. Public Hearings. Consistent with Section 303(c) (1) of the Clean Water Act, 33 U.S.C. Section 1313 (c), the Pueblo shall hold public hearings at least once every three years for the purpose of reviewing and, as appropriate, modifying the Water Quality Standards. Revisions shall incorporate relevant scientific and engineering advances with respect to water quality and waste treatment. Public hearings shall be conducted prior to Tribal Council adoption of modifications or amendments to these Standards or incorporation by reference of any regulations into the Standards. Public hearings will be held in accordance with Pueblo law and 40 C.F.R. Part 25 (EPA's Public Participation Regulation). In the event that monitoring of water quality identifies reaches where attainable quality is less than existing water quality standards, the said standards may be modified to reflect attainability. Modifications thereof shall be carried out in accordance with applicable use-attainability analysis procedures, development of site-specific criteria, or other appropriate methods (see 40 C.F.R. §131.10 (j),(k)). Administrative or technical errors resulting from erroneous data, human error, or clerical oversight will be corrected through the standards revision process, as described above. For minor corrections that

are not part of a triennial revision, the public notice will allow the opportunity to submit comments and/or request that a public hearing be held. The discovery of such errors does not render the remaining and unaffected standards invalid.

E. Severability. If any provision of these Standards or the application of any provision of these Standards to any *person* or circumstance is held to be invalid, the remainder of the Standards and the application of such provision to other *persons* and circumstances shall not be affected thereby.

F. Compliance Schedules. It shall be the policy of Taos Pueblo to allow, on a case-by-case basis, inclusion of a compliance schedule in a National Pollutant Discharge Elimination System (“NPDES”) permit issued to an existing facility. A compliance schedule may be necessary when new criteria are introduced pursuant to advances in scientific knowledge or new regulatory requirements. Such a schedule of compliance will be for the purpose of providing a permittee adequate time to make treatment facility modifications necessary to comply with water quality based permit limitations determined to be necessary to achieve stream standards. Compliance schedules shall also specify milestone dates so as to measure progress towards final project completion.

G. Variances. The Tribal Council may allow variances from this Code and the standards herein on a case-by-case basis. A variance may be allowed where the appropriateness of a specific water quality criterion is questionable. The variance provides a period of time during which issues concerning the appropriateness of the criterion may be resolved. Variances are not renewable, but may be reissued again upon adequate justification. A variance shall be granted only after the appropriate public participation and review and requires approval by the Environmental Protection Agency. A variance shall be valid for no more than three years.

Variations from criteria shall be for specific pollutants, time limited, and shall not forego the current designated use. Variations are to be issued instead of removing a designated use for a water body where such use is not now attainable but can be expected with reasonable progress towards water quality.

H. Short-term Exceedances. The Tribal Council may authorize short term activities that may cause temporary violations of the water quality standards if it is determined that said activities are necessary to accommodate legitimate emergencies, basic community needs, or to protect the community health and welfare. Examples of activities which might be authorized include, but need not be limited to: road and bridge construction, maintenance or construction for irrigation systems, stream bank stabilization measures, control of exotic and nuisance species, tracers and dyes used in hydrological studies, or other activities which result in overall maintenance or enhancement of beneficial uses. Such authorization shall not be granted for activities which could result in adverse impact on any species federally listed as threatened or endangered. The Tribal Council delegates to the Environmental Office the responsibility for technical review regarding the degree of exceedance, the time limit, and restoration procedures, where applicable. Nothing herein shall be intended to supersede existing Pueblo and federal permitting processes or requirements.

I. Water Rights. The right of the Pueblo to certain quantities of water and the authority of the Pueblo to allocate quantities of water within its jurisdiction shall not be superseded, abrogated, or otherwise impaired by these Standards. The Pueblo will cooperate with federal and state agencies to prevent, reduce, and eliminate water *pollution* in coordination with programs for managing water resources.

J. Dispute Resolution Mechanism. Should a dispute due to differing water quality standards

arise between the Pueblo and a State or an Indian tribe approved by EPA to administer a Water Quality Standards program, the Pueblo shall follow the Dispute Resolution Mechanism promulgated by the EPA in 40 C.F.R. Section 131.7 .

SECTION II. ANTIDegradation Policy and Implementation

PLAN

A. Antidegradation Policy. The antidegradation policy of the Pueblo is as follows:

1. Existing water uses and the level of water quality necessary to protect existing uses shall be maintained and protected.
2. Where water quality exceeds levels necessary to support *existing uses*, including but not limited to the protection and propagation of aquatic life, wildlife, drinking water, and irrigation, that existing water quality shall be maintained and protected unless the Pueblo finds, after full interagency coordination and public participation, that a lower level of water quality is required in order to accommodate important economic or social development in the area in which the water in question is located. In allowing such degradation of water quality, the Pueblo shall assure water quality adequate to protect *existing uses* fully.
3. The Pueblo shall require the highest statutory and regulatory requirements for all new and existing *point sources* and all cost-effective and reasonable *management practices* for *nonpoint source* control.
4. Where high quality water constitutes an exceptional recreational, cultural, or ecological resource, those waters may be designated as *Outstanding Tribal Resource Waters*. No permanent degradation of *Outstanding Tribal Resource Waters* shall be permitted from their current condition for any reason.
5. In those cases where potential water quality impairments associated with thermal

discharge are involved, the antidegradation policy and the implementing methods shall be consistent with Section 316 of the Clean Water Act, as amended, 33 U.S.C. §1326 (1987).

B. Implementation. Implementation procedures are as follows:

1. The Pueblo Environment Office shall implement the Standards, including the antidegradation policy, by establishing and maintaining controls on the introduction of pollutants into *Pueblo waters* and by undertaking the following in coordination with federal and state agencies, as appropriate.

- a. review the adequacy of the existing database identifying *Pueblo waters*, their quality and designated uses, and any activities that may detrimentally impact those waters and uses and obtain additional data where required;
- b. monitor water quality to assess the effectiveness of *pollution* controls and to determine whether designated uses are being supported and water quality standards are being attained;
- c. obtain and assess information pertinent to the environmental impact of any *effluent* on receiving waters;
- d. coordinate with the permitting agency to advise prospective dischargers of requirements for obtaining a permit to discharge; conduct certification for federal permits under §401 of the Clean Water Act; develop and implement pollution prevention plans that minimize the amount of pollutants discharged through source reduction and in-process recycling, as well as conserve water usage and encourage the re-use of treated wastewater; ensure that the highest and best degree of wastewater treatment practicable is required, commensurate with protecting and maintaining the designated uses and existing water quality of the receiving waters and with long-term environmental protection objectives;

- e. coordinate water *pollution* control activities with other tribal, local, state, and federal agencies, as appropriate;
- f. encourage implementation of *management practices* to control *non-point sources of pollution* to support designated uses and meet the narrative and numeric water quality criteria in these Standards;
- g. ensure that the provisions for public participation required by these Standards and the Clean Water Act are followed;
- h. determine if instream flows are adequate to support designated uses and meet narrative and numeric water quality standards, and if surface and groundwater withdrawals cause degradation of unique surface or ground waters, in coordination with the Water Rights Coordinator;
- i. provide such other technical support as is required to accomplish the objectives of the Standards, including recommendations to the Tribal Government of any permitting or management regulations which would be consistent with the purposes of the Standards;
- j. implement policies and procedures to protect designated *Outstanding Tribal Resource Waters* according to an implementation plan adopted by the Tribal Council.

2. The Taos Pueblo Utility Service shall pursue funds, if needed and subject to prior approval and authorization by the Tribal Government, to assist in the construction of publicly owned wastewater treatment facilities through the construction grants and revolving funds program authorized by the Clean Water Act, 33 U.S.C. §1281, and other state, federal, or private funds available for this purpose.

SECTION III. NARRATIVE WATER QUALITY STANDARDS

A. General Standards. The general standards apply to all *Pueblo waters*. General standards

include *industrial, recreation, and secondary contact* uses. *Pueblo waters* shall be free from *pollution*, in such quantity and of such duration as may, with reasonable probability:

1. Injure or otherwise adversely affect human health, public safety, or public welfare;
2. Injure or otherwise adversely affect the habitation, growth, or propagation of indigenous aquatic plant and animal communities or any member of these communities; of any desirable non-indigenous member of these communities; of waterfowl accessing the water body; or adversely affect the physical, chemical, or biological conditions on which these communities and their members depend;
3. Settle to form bottom deposits that cause deleterious effects to the habitation, growth, or propagation of indigenous aquatic biota; of any desirable non-indigenous aquatic biota; of waterfowl accessing the water body; or otherwise adversely affect the physical, chemical, or biological properties of the bottom on which these biota depend;
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, oils, scum, foam, grease, or other objectionable floating materials and suspended substances of a persistent nature on the surface of the water body, including a film or iridescence, or cause a deposit on a shoreline, bank, or on aquatic vegetation;
6. Cause objectionable taste, odor, color, or *turbidity* in the water body;
7. Cause objectionable taste in edible plant and animal life, including waterfowl, that reside in, on, or adjacent to the water body.

B. Temperature. Normal seasonal variations of temperature in surface waters shall be maintained. Maximum temperatures for each stream reach have been specified in the Appendices. However, the introduction of heat by other than natural causes shall not increase

the temperature, as measured upstream from the point of introduction, by more than 5oF (2.7°C) in a stream or more than 3°F (1.7°C) in a reservoir or lake. High water temperatures caused by unusually high ambient air temperatures are not violations of these standards.

C. Minerals. Existing mineral content of the Pueblo’s waters shall not be altered by municipal, industrial, or in-stream activities or other waste discharges so as to interfere with the designated uses. In all cases, increases exceeding 1/3 over naturally occurring levels will not be allowed. Numeric values for chlorides at 230 mg/L, for sulfates at 250 mg/L, and for total dissolved solids at 500 mg/L shall not be exceeded.

D. Determining Compliance with Narrative Standards. Biomonitoring testing following current EPA test methods shall be used to determine compliance with the narrative criteria. These protocols can be found in EPA’s “Short Term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms, EPA/600/4-91/002, July 1994821/R-02/013, October 2002, or the most current revision thereof. Additionally, the Pueblo will rely on the following references:

- ~~“Short Term Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater Organisms”, EPA/600/4-91/002, July 1994821/R-02/013, October 2002.~~
- Methods for Measuring the Acute Toxicity of Effluents to Freshwater and Marine Organisms, EPA /600/4/90/027F, August 1993-821/R-02/012, October 2002
- Post Third Round NPDES Permit Implementation Strategy, adopted October 1 1992.
- Technical Support Document For Water Quality-based Toxics Control, EPA 505/2-90-001 March 1991, or the most current revision thereof.

E. Biological Criteria. Biological integrity, the protection of aquatic communities in their most

Comment [JO1]: EPA has published updated versions of this document (no change to title).

Comment [JO2]: Duplicate reference eliminated.

natural condition, shall be protected and maintained through this narrative statement.

Biocriteria, including sampling of aquatic communities and the use of multi-metric indices, will be applied to protect all categories of waters with an aquatic life use. The application of biological criteria will be based on the requirement that the biological integrity of waters impacted by *point source pollution*, *nonpoint source pollution*, and other anthropogenic factors will not be significantly impaired when compared to least impacted watersheds that are otherwise similar in their characteristics. The biological community structure, function, and habitat of waters shall be restored to and/or protected and maintained at the highest potential use. Reference locations will be selected representing natural conditions in which indigenous aquatic communities are healthy and can reproduce fertile offspring. The conditions at reference and other locations will be assessed by consistent sampling and reliable measures of selected indicative aquatic communities (e.g., benthic macroinvertebrate, fish, algal) established by the Environment Office; chemical, physical, toxicological, and microbial water quality measurements may also be taken.

F. Mixing Zones. In any perennial waters receiving waste discharge, a continuous zone must be maintained where the water is of adequate quality to allow the migration of wildlife and which meets all water quality standards. Point source discharges are not allowed under any circumstances for waters designated under the Wild and Scenic Rivers Act or within lands designated as Wilderness, pursuant to applicable statutory authority. Water at the point of discharge must meet all water quality standards with no mixing zone allowed for:

1. Intermittent and ephemeral streams
2. Any water with the designated use of drinking water
3. Tribally owned lakes or reservoirs

Only one stream reach, the Rio Pueblo below Los Cordovas, is not subject to the above prohibition. In that reach, a mixing zone may be permitted on a case-by-case basis at the discharge point. The following conditions apply:

1. The mixing zone may not exceed 1/3 of the cross-sectional area or critical stream flow of the receiving stream.
2. Water at the point of discharge must never exceed the acute standards for aquatic life (see Appendix F).
3. There must be no chronic toxicity at or beyond the edge of the mixing zone.
4. Tribal Council approval is required and must include consideration of review performed by the Taos Pueblo Environmental Office.

G. Wetlands. All wetlands on the reservation which are not constructed wetlands are considered “*Pueblo waters*”. Wetlands shall be subject to narrative criteria and applicable antidegradation provisions unless site-specific numerical criteria have been assigned. Constructed wetlands shall only be subject to narrative criteria. Wetlands are generally assumed to provide habitat capable of supporting aquatic biota (e.g., fish, macroinvertebrates, amphibians, or hydrophytic vegetation) on a regular or periodic basis. It shall be a goal of the Pueblo to maintain the water quality of wetlands at *natural background* levels, within the natural range of variation for the particular wetland. For substances that are not naturally occurring, water quality requirements shall be based upon protecting *existing uses* of the wetland consistent with anti-degradation requirements, the Pueblo’s narrative water quality criteria, or appropriate criteria guidance issued by the U.S. Environmental Protection Agency. Natural wetlands shall not be considered as repositories or treatment systems for wastes from human sources.

SECTION IV. DESIGNATED USES

A. List of Designated Use Categories.

1. *Drinking Water*
2. *Domestic Water Supply & Recharge of Groundwater Used for Domestic Water Supply*

3. *Wildlife Habitat*
4. *High Quality Coldwater Fishery*
5. *Coldwater Fishery*
6. *Irrigation*
7. *Livestock and Wildlife Watering*
8. *Aquatic Life*
9. *Primary Human Contact/Ceremonial Use*
10. *Outstanding Tribal Resource Waters*

B. Designated Use Modifications. Modifications to designated uses, including removal of a designated use or establishing a use subcategory, may be made pursuant to the provisions of Section I.D. and subject to the requirements of 40 C.F.R. § 131.10.

C. Designated Use Table. The following table lists the designated uses for Pueblo waters.

Designated Use→	Drinking Water	Domestic Supply (incl. Groundwater Recharge)	Wildlife Habitat	High Quality Coldwater Fishery	Coldwater Fishery	Irrigation	Livestock and Wildlife Watering	Aquatic Life (Acute and Chronic Criteria)	Primary Human Contact / Ceremonial Use	Outstanding Tribal Resource Waters
Mountain Lakes	X	X	X	X		X	X	X	X	X
Mountain Streams and Springs	X	X	X	X		X	X	X	X	X
Rio Pueblo, traditional village area	X	X	X	X		X	X	X	X	
Rio Pueblo, above Los Cordovas		X	X	X		X	X	X	X	
Rio Lucero	X	X	X	X		X	X	X	X	
<u>Hail Creek</u>	<u>X</u>	<u>X</u>	<u>X</u>	<u>X</u>		<u>X</u>	<u>X</u>	<u>X</u>	<u>X</u>	
El Salto Creek	X	X	X	X		X	X	X	X	
Irrigation Ditches	X	X	X		X	X	X	X	X	
Wetlands	X	X	X			X	X	X	X	
Rio Pueblo, below Los Cordovas		X	X		X	X	X	X	X	
Rio Grande			X		X	X	X	X	X	
<u>Intermittent & Ephemeral Streams</u>		X	X			X	X	<u>X</u>	X	

Comment [J03]: Hail Creek added to Water Quality Standards, 2015 revision.

Comment [J04]: Proposed addition of aquatic life designation for intermittent and ephemeral streams. Provides protection for aquatic life which may be present when water is present.

Standards applicable to each of the above designated uses can be found in Appendices A-H.

SECTION V. NUMERIC WATER QUALITY STANDARDS

A. General Requirements. The criteria assigned to a water body are the ones required to sustain all designated uses of the water body. When a Pueblo water has more than a single existing, attainable, or designated use, the applicable numeric standards for each parameter shall be those necessary to maintain all the designated uses. The numerical criteria applicable to any *perennial stream* shall be maintained any time the flow equals or exceeds the four-day three-year low flow value (4Q3). Human health criteria shall be implemented through the *harmonic mean flow* for carcinogens, and 30Q5 low flow for non-carcinogens. 30Q5 low flow is the lowest average 30 consecutive day low flow, with an average recurrence frequency of once in 5 years determined hydrologically. When *ephemeral* and *intermittent streams* have a low flow value of zero, all flows shall meet standards for the designated uses.

B. Development of Numeric Water Quality Standards. Should the Pueblo need to derive numeric criteria without actually conducting toxicity tests, it shall use the AQUIRE (Aquatic Toxicity Information Retrieval) database and EPA's guidance document "Guidelines for Deriving Numerical National Water Quality Criteria for the Protection of Aquatic Organisms and their Uses" to calculate any criteria. In the event that sufficient data are not available to derive a numeric criterion following the above guidance, the Pueblo may use the results of toxicological studies to calculate a criterion based on the following methods:

1. Concentrations of non-persistent toxic substances shall not exceed levels *chronically toxic* (as determined from appropriate *chronic toxicity* data or calculated as 10% of LC50 values) to representative sensitive aquatic organisms;
2. Concentrations of persistent toxic materials that do not bioaccumulate shall not exceed levels *chronically toxic* (as determined from appropriate chronic toxicity data or calculated as 5% of LC50 values) to representative sensitive aquatic organisms;

Comment [J05]: EPA no longer recommends 30Q5 low flow.

Comment [J06]: 30Q5 being retained for this tri-ennial revue as Taos Pueblo has not adopted Human Health Criteria. EPA is revising Human Health Criteria recommendations. Both the 30Q5 method and human health criteria will be evaluated in the next tri-ennial revue.

3. Concentrations of toxic materials that bioaccumulate shall not exceed levels chronically toxic (as determined from appropriate *chronic toxicity* data or calculated as 1% of LC₅₀ values) to representative, sensitive aquatic organisms;
4. Toxicants in the receiving water known to be persistent, bioaccumulative, carcinogenic, and/or synergistic with other waste stream components will be addressed on a case by case basis; and
5. Tables listing numeric water quality standards can be found in **Appendix A** through **Appendix G** of these Water Quality Standards (pages 14-24).

Comment [J07]: Page numbers to be edited later, once all changes are incorporated.

SECTION VI. SAMPLING AND ANALYSIS

A. Who Performs. Sampling may be performed by: (1) tribal staff; (2) cooperation with other agencies (e.g., BIA, NMED, USGS, IHS); or (3) a contractor retained for that purpose.

B. Methods. All methods of sample collection, preservation, and analysis used in determining water quality and maintenance of these standards shall be in accordance with procedures prescribed by the latest editions of :

1. “Standard Methods for the Examination of Water and Wastewater”, American Public Health Association; or
2. “Methods for Chemical Analysis of Water and Wastes”; or
3. EPA Guidelines Establishing Test Procedures for the Analysis of Pollutants, 40 CFR Part 136; or
4. “Rapid Bioassessment Protocols for Use in Streams and Rivers: Benthic Macroinvertebrates and Fish”, U.S. EPA; or
5. Other methods which may not be EPA approved may be used as determined to be appropriate by Taos Pueblo Environmental Office, (i.e. Hach adaptation of EPA or

Standard Methods).

C. Sampling Procedures.

1. Streams. Stream monitoring stations below waste discharges shall be located outside *the mixing zone*.

2. Lakes. Sampling in lakes, including artificial lakes, shall be located where the attainment of a water quality standard is to be assessed. Water quality measurements shall be taken at intervals in the water column at a sampling station. For toxic substances and nutrients, the entire water column shall be monitored. For dissolved oxygen in stratified lakes, measurements shall be made in the *epilimnion*. In nonstratified lakes, measurements will be made at intervals throughout the entire water column.

D. Biological Surveys. Any biological assessment program which is undertaken shall be established in accordance with document (4), listed in Section VI(B) above. As needed, artificial collection sites may be installed in lowland stream beds to determine potential species diversity under improved stream conditions. Other methods may be adopted as the need arises.

E. Bacteriological Surveys. The monthly *geometric mean* shall be used in assessing attainment of standards when a minimum of five samples are collected in a 30-day period. No single sample shall exceed the upper limit for bacterial density as set forth in Appendix A and Appendix G when fewer than 5 samples are collected in a 30-day period.

SECTION VII. DEFINITIONS

Note: Terms which are listed below are italicized where they appear in the text.

“Acute Criteria”: A one-hour average concentration in ambient waters which should not be exceeded more than once every three years on average. In general, acute criteria thresholds are

higher than those for *chronic criteria*.

“Acute Toxicity”: Toxicity which exerts short-term lethal impacts on representative sensitive organisms with a duration of exposure generally less than or equal to 48 hours. Acute toxicity may include other effects such as, but not limited to, behavioral changes or immobilization.

“Attainable use”: A use of surface water which has water quality and all other characteristics necessary to support and maintain the use or which would support and maintain the use after the implementation of these Water Quality Standards. “Attainable ‘uses’ are, at a minimum, the uses (based on the Tribes system of water use classification) that can be achieved 1) when effluent limits under sections 301 (b)(1)(A) and (B) and section 306 of the Act are imposed on point source dischargers and 2) when cost-effective and reasonable best management practices are imposed on nonpoint source dischargers.”

Comment [J08]: Additional language included per EPA recommendation.

“Ceremonial use”: The use of water for the practice of Indian religion and Indian traditional purposes by tribal members of the Pueblo of Taos~~Taos Pueblo~~. Such use involves the intentional and incidental ingestion of water and immersion and the use of sediments as body smears.

“Chronic criteria”: The four-day average concentration of a pollutant in ambient water which should not occur more than once every three years on average. In general, chronic criteria thresholds are lower than those for *acute criteria*.

“Chronic toxicity”: Toxicity which exerts sublethal negative effects such as impairment of growth or reproduction or which becomes lethal after long-term exposure, generally measured by a 7-day or 28-day test on representative sensitive organisms.

“Coldwater Fishery”: A stream reach, lake, or impoundment where the water temperature and other characteristics are suitable for the support of coldwater fish such as longnose dace, Rio

Grande chub, Rio Grande sucker, or trout (brown, Rio Grande cutthroat, brook, or rainbow).

“Domestic water supply”: Water that only requires disinfection in order to be usable for drinking or cooking.

“Drinking water”: Water which is used as a primary or secondary source of drinking water without any disinfection or other processing.

“E. Coli bacteria”: A specific variety of bacteria which lives primarily in mammalian digestive tracts. Its presence in waters is a strong indicator for contamination by fecal material and therefore the risk of associated disease.

“Effluent”: Discharge into surface waters from other than natural sources.

“Ephemeral stream”: A reach of a stream that flows temporarily in direct response to precipitation or snowmelt, the channel bed of which is above the water table.

“Epilimnion”: The layer of water that overlies the thermocline of a lake and is subject to the action of wind.

“Existing uses”: Those uses actually attained in a surface water body on or after November 28, 1975, whether or not they are referred to in the [Pueblo of Taos Taos Pueblo](#) Water Quality Standards.

“Fishery”: A balanced, diverse community of fishes controlled by the water quality, quantity, and habitat of a waterbody.

“Geometric Mean”: A mean calculated by converting all values to logarithms, averaging the logarithms, and determining the antilogarithm of that average.

“Harmonic Mean Flow”: A long-term mean flow value calculated by dividing the number of daily flows analyzed by the sum of the reciprocals of those daily flows. This is a statistical method recommended by EPA for ~~cancer causing pollutants~~ implementation of human health criteria.

Comment [J09]: Incorporate changes to be current with EPA guidance for all human health criteria.

“Intermittent stream”: A stream or reach of a stream that flows only at certain times of the year when receiving flow from springs, melting snow, or localized precipitation.

“LC-50”: The concentration of a substance that is lethal to 50 % of the test organisms within a defined time period.

“Livestock and Wildlife Watering”: Water used for consumption by livestock and/or by nondomestic animals (including migratory birds) for water supply, habitation, growth, and /or propagation.

“Management practices”: Methods, measures, or practices undertaken to control, restrict, and diminish *nonpoint sources of pollution* that are consistent with the purposes of the ~~Pueblo of Taos~~ Taos Pueblo Water Quality Standards and are determined to be the most effective practical means of preventing or reducing *pollution* of water bodies from *nonpoint sources*.

“Mixing zone”: A three-dimensional zone in which discharged *effluent* mixes with the receiving water and within which there is a gradation of water quality.

“Natural background”: Characteristics that are not human-induced and are related to water

quality; the levels of pollutants present in ambient water that are from natural, as opposed to manmade, sources.

“Nonpoint source”: A source of *pollution* that is not a discernible, confined, and discrete conveyance (e.g., run-off from land).

“Outstanding Tribal Resource Waters”: This is equivalent to the designation “Outstanding National Resource Waters” under the Clean Water Act. These waters represent a unique sacred and cultural resource of Taos Pueblo and are given this most protective status to assure their preservation.

“Perennial stream”: A stream or reach of a stream that flows continuously throughout the year, the upper surface of which is generally lower than the water table of the region adjoining the stream.

“Person”: Any individual, partnership, association, corporation, federal agency, state, or tribe or any agency, entity, subdivision, or institution thereof.

“Point source”: 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, or concentrated animal feeding operation (CAFO), from which pollutants are or may be discharged into a water body. The term does not include agricultural storm water discharges (except from CAFOs) or return flows from irrigated agriculture.

“Pollution”: Any man-made or man-induced alteration of the chemical, physical, biological or radiological integrity of *Pueblo waters*.

“Primary Human Contact”: The use of water that causes the human body to come into direct contact with the water, typically to the point of submergence, including probable ingestion and/or contact with membrane material of the body.

“Pueblo Waters”: All waters situated wholly within, partly within, or bordering upon the *Reservation*, excluding those that do not combine with other surface or sub-surface waters, such as stock tanks, treatment lagoons, or reservoirs. However, receiving waters impacted by the *effluent* from such reservoirs and treatment lagoons are included. Other examples of Pueblo Waters include, but are not limited to, portions of rivers, streams (*perennial, intermittent and ephemeral streams* and their tributaries), lakes, ponds, dry washes, marshes, waterways, wetlands, mudflats, sandflats, sloughs, impoundments, riparian areas, springs, and all other bodies or accumulations of surface water, natural or artificial, public or private, including those dry part of the year.

“Reservation”: All lands within the ~~Pueblo of Taos~~[Taos Pueblo](#) Indian Reservation and all lands held in trust for the Pueblo, whether within or outside the exterior boundaries of the formal reservation.

“Secondary contact recreational use”: Any recreational use of water in which contact with the water need not occur and in which the probability of ingesting water is minimal; examples are fishing and boating.

“Segment”: A surface water body which has common hydrologic characteristics or flow regulation regimes, possesses common natural, physical, chemical, and biological characteristics, and exhibits common reactions to external stresses, such as the discharge of pollutants.

“Turbidity”: A measure of the cloudiness or muddiness of water.

“Wildlife Habitat”: A surface water of the Tribe used by plants and animals not considered pathogens, vectors for pathogens, or intermediate hosts for pathogens of humans or domesticated livestock and plants.

APPENDICES: Numeric Criteria for Designated Uses

A. DRINKING WATER

Parameter Criterion

Standards are expressed in $\mu\text{g/L}$ unless otherwise indicated

Aluminum 200

Antimony 6

Arsenic 10

Barium 2,000

Beryllium 4

Bromate 10

Cadmium 5

Chloride 250,000

Chlorine 4,000

Chromium (total) 100

Copper 1,300

Cyanide 200

Fluoride 4,000

Iron 300

Lead <15

Manganese 50

Mercury 2

Molybdenum 200

Nickel 700

Parameter Criterion

Standards are expressed in $\mu\text{g/L}$ unless otherwise indicated

Nitrite (as N) 1,000

Comment [JO10]: All values published under the Safe Drinking Water Act are still current. No changes necessary at this time.

Nitrate+Nitrite (as N) 10,000
Selenium 50
Silver 100
Sulfate 250,000
Thallium 2
Uranium 20
Zinc 5,000
Total dissolved solids 500,000 (500 mg/L)
Turbidity 5 NTU
Gross alpha particle
activity
15 pCi/L
Radium-226 and -228 5 pCi/L
Radon 300 pCi/L
Strontium-90 8 pCi/L
Tritium 20,000 pCi/L
Total Coliform bacteria <5% Positive
Samples/Month
Fecal Coliform bacteria None
Heterotrophic plate count <500 colonies/mL
MTBE 13

Page 16 of 25

B. DOMESTIC WATER SUPPLY (including Recharge)

Parameter Criterion

Unless otherwise indicated, Standards are expressed in µg/L and parameters are for dissolved state only.

Comment [JO11]: Arsenic and Lead values changed per EPA recommendations.

Antimony 6 µg/L

Arsenic ~~50~~10

Barium 2,000

Beryllium 4

Cadmium 5

Chromium 100

Lead ~~50~~15

Mercury, total 2

Nickel 100

Nitrate (as N) 10,000

Selenium 50

Thallium 2

Uranium 20

Radium-226 and -228 5 pCi/L

Strontium-90 8 pCi/L

Tritium 20,000 pCi/L

Gross alpha particles

(includes Radium-226 but not Radon or Uranium)

15 pCi/L

The guiding principle for domestic water supply standards is to remain below the threshold of lifetime cancer risk of 1 per 100,000 exposed persons.

C. WILDLIFE HABITAT

The following chronic criteria shall not be exceeded.

~~Mercury, total 0.77 µg/L~~

Selenium, total recoverable 2.0 µg/L

Cyanide, weak acid dissociable 5.2 µg/L

Comment [JO12]: More stringent mercury standard exists in table F-3.

Chlorine, total residual 11 µg/L

~~DDT, total incl. metabolites 0.001 µg/L~~

~~Total PCBs 0.014 µg/L~~

Comment [JO13]: Criteria proposed within tables F-1, Aquatic Life Acute Criteria and F-3, Aquatic Life Chronic criteria

Comment [JO14]: Criteria proposed within table F-3; Aquatic Life Chronic criteria

Page 17 of 25

D. FISHERIES

Parameter Cold Water Fishery High Quality

Cold Water Fishery

Dissolved O₂ > 6.0 mg/L > 6.0 mg/L

Temperature < 20°C (68° F) < 20°C (68° F)

pH between 6.6 and 8.8 between 6.6 and 8.8

Turbidity -- 10 NTU

Conductivity

(at 25° C) --

300 µmhos/cm (unless

natural background is

higher)

Chlorine 3 µg/L 2 µg/L

~~Methylmercury 0.3 mg/kg in fish tissue based on a total fish consumption rate of 0.0175 kg/day~~

Comment [JO15]: New Methylmercury standard recommended by EPA.

Acute and chronic criteria for aquatic life apply for coldwater fisheries and for high quality cold water fisheries. See Appendices F-1, F-2, F-3 and F-4.

E. AGRICULTURE & WILDLIFE WATERING

Parameter Irrigation Criterion Wildlife & Livestock

Watering Criterion

Unless otherwise indicated, Standards are expressed in µg/L and parameters are for dissolved state only.

Aluminum 5,000 5,000

Arsenic 100 200
Boron 750 5,000
Cadmium 10 50
Chromium 100 1,000
Cobalt 50 1,000
Copper 200 500
Lead 5,000 100
Mercury, total -- 10
Molybdenum 1,000 --
Selenium 130 50
Selenium (with sulfate > 500
mg/L)
250 --
Vanadium 100 100
Zinc 2,000 25,000
Radium-226 and -228 -- 30 pCi/L
Tritium -- 20,000 pCi/L
Gross alpha -- 15 pCi/L
Monthly geometric mean of fecal coliform bacteria < 1,000 colonies/100 mL.
No individual sample with > 2,000 colonies/100 mL.

Page 18 of 25

F-1. AQUATIC LIFE - Acute Criteria (formulas)

Parameter, dissolved unless otherwise noted Concentration, µg/l

[Acrolien 3](#)

Aluminum 748

Comment [JO16]: New Criterion recommended by EPA.

Arsenic 340

Beryllium 130

Cadmium ‡ ~~$e^{(1.0166 [\ln(\text{hardness})]-3.924)} * cf$~~ ~~$e^{(-1.128 [\ln(\text{hardness})]-3.6867)} * cf$~~

Chlordane, total 2.4

Chlorine, total residual 19

Chromium † $e^{(0.819 [\ln(\text{hardness})]+2.5736)}$

Copper $e^{(0.9422 [\ln(\text{hardness})]-1.7408)}$

Cyanide, weak acid dissociable 22.0

Diazinon 0.17

DDT, total incl. metabolites 1.1 mg/L

Lead ‡ $e^{(1.273 [\ln(\text{hardness})]-1.46)} * cf$

Mercury, total 2.4

Nickel $e^{(0.8460 [\ln(\text{hardness})]+2.253)}$

Nonylphenol 28

Selenium, total recoverable ~~$e^{(1.72[\ln(\text{hardness})]-6.6825)}$~~ ~~20.0~~

Silver ~~$e^{(1.72[\ln(\text{hardness})]-6.7525)}$~~ ~~$e^{(-1.72 [\ln(\text{hardness})]-6.6825)}$~~

Tributyltin 0.46

Zinc $e^{(0.8473 [\ln(\text{hardness})]+0.8618)}$

† The criteria for Chromium shall be applied to an analysis which measures both trivalent and hexavalent ions.

‡ Cadmium and Lead standards must be adjusted by a correction factor (cf) which adjusts for the difference between dissolved and total concentration. These correction factors are:

Cadmium $1.136672 - \ln(\text{hardness}) * 0.041838$

Lead $1.46203 - \ln(\text{hardness}) * 0.145712$

Comment [JO17]: EPA updated formula for acute criteria. Changes are reflected in Table F-2, below.

Comment [JO18]: New Criterion recommended by EPA.

Comment [JO19]: Criteria moved from Wildlife Habitat to aquatic life designation.

Comment [JO20]: New Criterion recommended by EPA.

Comment [JO21]: Updated Selenium Criteria based on EPA recommendations.

Comment [JO22]: EPA updated formula for acute criteria. Changes are reflected in Table F-2, below.

Comment [JO23]: New Criterion recommended by EPA.

Comment [JO24]: Table reflects changes to Cadmium and Silver Criteria based on EPA-updated equations for calculating hardness-dependent Acute criteria.

F-2. AQUATIC LIFE - Hardness Dependent Acute Criteria (table of values)

µg/L (rounded to three significant figures)

Comment [J025]: NEW table F-2, replaces old table (below)

Hardness (µg/L mg/L as CaCO ₃)	Cadmium	Cadmium	Chromium	Copper	Lead	Nickel	Silver	Silver	Zinc
25	0.4952	0.948	183.1	3.64	13.9	145	0.296	0.318	36.2
30	0.5862	1.16	213	4.32	17.0	169	0.406	0.435	42.3
40	0.7683	1.58	269	5.67	23.5	216	0.665	0.713	53.9
50	0.9403	2.01	323	6.99	30.1	260	0.98	1.05	65.1
60	1.1123	2.45	375	8.31	36.9	304	1.34	1.43	76.0
70	1.2942	2.90	425	9.60	43.7	346	1.74	1.87	86.6
80	1.4662	3.36	475	10.9	50.6	388	2.19	2.35	97.0
90	1.82	3.80	523	12.2	57.6	428	2.68	2.88	107
100	2.01	4.26	570	13.4	64.6	468	3.22	3.45	117
110	2.21	4.73	616	14.7	71.6	508	3.79	4.06	127
120	2.40	5.20	662	16.0	78.7	546	4.40	4.72	137
130	2.60	5.67	706	17.2	85.8	585	5.05	5.42	146
140	2.79	6.14	751	18.5	93.0	622	5.74	6.15	156
150	2.99	6.62	794	19.7	100	660	6.46	6.93	165
160	3.18	7.10	837	20.9	107	697	7.22	7.74	175
170	3.37	7.58	880	22.2	114	734	8.01	8.59	184
180	3.56	8.06	922	23.4	122	770	8.84	9.48	193
190	3.76	8.55	964	24.6	129	806	9.7	10.4	202
200	3.95	9.03	1005	25.8	136	842	10.6	11.4	211
210	4.14	9.52	1046	27.0	143	877	11.5	12.4	220
220	4.33	10.0	1087	28.2	151	912	12.5	13.4	229
230	4.52	10.5	1127	29.5	158	947	13.5	14.5	237
240	4.71	11.0	1167	30.7	165	982	14.5	15.6	246

250	4.90	11.5	1207	31.9	172	1017	15.6	16.7	255
260	5.09	12.0	1246	33.1	180	1051	16.6	17.8	263
270	5.28	12.5	1285	34.3	187	1085	17.8	19.0	272
280	5.47	13.0	1324	35.5	194	1119	18.9	20.3	280
290	5.66	13.5	1363	36.6	201	1153	20.1	21.5	289
300	5.85	14.0	1401	37.8	209	1186	21.3	22.8	297
310	6.04	14.5	1439	39.0	216	1219	22.5	24.2	306
320	6.23	15.0	1477	40.2	223	1253	23.8	25.5	314
330	6.42	15.5	1515	41.4	230	1286	25.1	26.9	322
340	6.61	16.0	1552	42.6	238	1319	26.4	28.3	331
350	6.80	16.5	1590	43.8	245	1351	27.7	29.8	339
360	6.98	17.1	1627	44.9	252	1384	29.1	31.2	347
370	7.17	17.6	1664	46.1	259	1416	30.5	32.7	355
380	7.36	18.1	1700	47.3	266	1449	32.0	34.3	363
390	7.55	18.6	1737	48.4	274	1481	33.4	35.8	371
400	7.74	19.1	1773	49.6	281	1513	34.9	37.4	379

Note: For hardness values over 400, use the standards for 400.

~~F-2. AQUATIC LIFE—Hardness-Dependent Acute Criteria (table of values)~~

~~Acute Hardness-Dependent Criteria (µg/L)~~

~~(rounded to three significant figures)~~

~~Hardness~~

~~(µg/L as~~

~~CaCO₃) Cadmium Chromium Copper Lead Nickel Silver Zinc~~

~~25 0.948 183 3.64 13.9 145 0.318 36.2~~

~~30 1.15 212 4.32 17.0 169 0.435 42.3~~

~~40 1.58 269 5.67 23.5 216 0.714 53.9~~

~~50 2.01 323 7.00 30.1 261 1.05 65.2~~

Comment [JO26]: Former Table F-2 replaced by new table incorporating updated formulas for cadmium and silver acute criteria.

60 2.45 375 8.30 36.9 304 1.43 76.0
70 2.90 425 9.60 43.7 346 1.87 86.6
80 3.35 475 10.9 50.6 388 2.35 97.0
90 3.80 523 12.2 57.6 428 2.88 107
100 4.26 569 13.4 64.6 468 3.45 117
110 4.73 616 14.7 71.6 507 4.06 127
120 5.19 662 15.9 78.7 546 4.72 137
130 5.67 707 17.2 85.9 585 5.42 146
140 6.14 750 18.4 93.0 623 6.16 156
150 6.62 794 19.7 100 660 6.93 165
160 7.10 837 20.9 107 696 7.74 175
170 7.58 880 22.2 115 734 8.60 184
180 8.06 922 23.4 122 770 9.48 193
190 8.55 964 24.6 129 806 10.4 202
200 9.03 1,000 25.8 136 841 11.4 211
210 9.52 1,050 27.0 143 877 12.4 220
220 10.0 1,090 28.2 151 912 13.4 229
230 10.5 1,130 29.5 158 948 14.4 237
240 11.0 1,170 30.7 165 982 15.6 246
250 11.5 1,210 31.9 172 1,020 16.7 255
260 12.0 1,250 33.1 180 1,050 17.9 263
270 12.5 1,280 34.2 187 1,080 19.0 272
280 13.0 1,320 35.4 194 1,120 20.3 281
290 13.5 1,360 36.6 201 1,150 21.5 289
300 14.0 1,400 37.8 209 1,190 22.8 297
310 14.5 1,440 39.0 216 1,220 24.2 306

~~320 15.0 1,480 40.2 223 1,250 25.5 314~~
~~330 15.5 1,510 41.4 230 1,290 26.9 322~~
~~340 16.0 1,550 42.6 237 1,320 28.3 331~~
~~350 16.6 1,590 43.7 245 1,350 29.8 339~~
~~360 17.1 1,630 44.9 252 1,380 31.2 347~~
~~370 17.6 1,660 46.1 259 1,420 32.8 355~~
~~380 18.1 1,700 47.3 266 1,450 34.3 363~~
~~390 18.6 1,740 48.4 274 1,480 35.9 371~~
~~400 19.1 1,770 49.6 281 1,510 37.4 379~~

~~Note: For hardness values over 400, use the standards for 400.~~

Page 20 of 25

F-3. AQUATIC LIFE - Chronic Criteria (formulas)

Parameter, dissolved unless otherwise noted Concentration, µg/L

Acrolein 3

Arsenic 150

Beryllium 5.3

Cadmium † ~~$e - (0.7852 [\ln(\text{hardness})] - 2.715) * e - (0.7409 [\ln(\text{hardness})] - 4.719) * c$~~

Chlordane, total 0.0043

Chlorine, total residual 11

Chromium † $e (0.819 [\ln(\text{hardness})] + 0.534)$

Copper $e (0.8545 [\ln(\text{hardness})] - 1.7428)$

Cyanide, weak acid dissociable 5.2

DDT, total incl. metabolites .001

Diazinon 0.17

Iron 1.0 mg/l

Comment [JO27]: EPA recommendation.

Comment [JO28]: Change in cadmium chronic criteria formula based on EPA recommendations.

Comment [JO29]: Criteria moved from Wildlife Habitat to aquatic life designation.

Comment [JO30]: EPA recommendation

Lead ‡ e (1.273 [ln(hardness)]-4.705)*cf

Mercury, total 0.012

Nickel e (0.846 [ln(hardness)]+0.0554)

Nonylphenol 6.6 ug/l

Total PCB's 0.014

Tributyltin 0.072

Selenium, total recoverable 5.0

Zinc e (0.8473 [ln(hardness)]+0.8699)

† The criteria for Chromium shall be applied to an analysis which measures both trivalent and hexavalent ions.

‡ Cadmium and Lead standards must be adjusted by a correction factor (cf) which adjusts for the difference between dissolved and total concentration. These correction factors are:

Cadmium 1.101672 - ln (hardness)*0.041838

Lead 1.46203 - ln (hardness)*0.145712

Page 21 of 25

F-4. AQUATIC LIFE - Hardness Dependent Chronic Criteria (table of values)

µg/L (rounded to three significant figures)							
Hardness (µg/L mg/L as CaCO ₃)	Cadmium	Cadmium	Chromium	Copper	Lead	Nickel	Zinc
25	0.09	0.802	23.8	2.74	0.541	16.1	36.5
30	0.11	0.918	27.6	3.20	0.664	18.8	42.6
40	0.13	1.14	35.0	4.09	0.916	24.0	54.4
50	0.15	1.34	42.0	4.95	1.17	28.9	65.7
60	0.17	1.53	48.8	5.79	1.44	33.8	76.6
70	0.19	1.72	55.3	6.60	1.70	38.5	87.3
80	0.21	1.90	61.7	7.40	1.97	43.1	97.8
90	0.23	2.07	68.0	8.18	2.24	47.6	108
100	0.25	2.24	74.1	8.96	2.52	52.0	118
110	0.26	2.40	80.1	9.72	2.79	56.4	128

Comment [JO31]: Criteria moved from Wildlife Habitat to aquatic life designation.

Comment [JO32]: EPA recommendation

Comment [JO33]: No change to correction factors for Lead and Cadmium.

Comment [JO34]: Updated table highlights changes to chronic cadmium criteria calculated using new formula promulgated by EPA.

<u>120</u>	<u>0.28</u>	<u>2.56</u>	<u>86.1</u>	<u>10.5</u>	<u>3.07</u>	<u>60.7</u>	<u>138</u>
<u>130</u>	<u>0.30</u>	<u>2.72</u>	<u>91.9</u>	<u>11.2</u>	<u>3.34</u>	<u>64.9</u>	<u>148</u>
<u>140</u>	<u>0.31</u>	<u>2.87</u>	<u>97.6</u>	<u>11.9</u>	<u>3.62</u>	<u>69.1</u>	<u>157</u>
<u>150</u>	<u>0.33</u>	<u>3.02</u>	<u>103</u>	<u>12.7</u>	<u>3.90</u>	<u>73.3</u>	<u>167</u>
<u>160</u>	<u>0.34</u>	<u>3.17</u>	<u>109</u>	<u>13.4</u>	<u>4.18</u>	<u>77.4</u>	<u>176</u>
<u>170</u>	<u>0.36</u>	<u>3.31</u>	<u>114</u>	<u>14.1</u>	<u>4.46</u>	<u>81.5</u>	<u>185</u>
<u>180</u>	<u>0.37</u>	<u>3.45</u>	<u>120</u>	<u>14.8</u>	<u>4.74</u>	<u>85.5</u>	<u>194</u>
<u>190</u>	<u>0.38</u>	<u>3.60</u>	<u>125</u>	<u>15.5</u>	<u>5.02</u>	<u>89.5</u>	<u>204</u>
<u>200</u>	<u>0.40</u>	<u>3.73</u>	<u>131</u>	<u>16.2</u>	<u>5.31</u>	<u>93.5</u>	<u>213</u>
<u>210</u>	<u>0.41</u>	<u>3.87</u>	<u>136</u>	<u>16.9</u>	<u>5.59</u>	<u>97.4</u>	<u>222</u>
<u>220</u>	<u>0.43</u>	<u>4.01</u>	<u>141</u>	<u>17.6</u>	<u>5.87</u>	<u>101</u>	<u>230</u>
<u>230</u>	<u>0.44</u>	<u>4.14</u>	<u>147</u>	<u>18.2</u>	<u>6.15</u>	<u>105</u>	<u>239</u>
<u>240</u>	<u>0.45</u>	<u>4.27</u>	<u>152</u>	<u>18.9</u>	<u>6.43</u>	<u>109</u>	<u>248</u>
<u>250</u>	<u>0.46</u>	<u>4.40</u>	<u>157</u>	<u>19.6</u>	<u>6.72</u>	<u>113</u>	<u>257</u>
<u>260</u>	<u>0.48</u>	<u>4.53</u>	<u>162</u>	<u>20.3</u>	<u>7.00</u>	<u>117</u>	<u>265</u>
<u>270</u>	<u>0.49</u>	<u>4.66</u>	<u>167</u>	<u>20.9</u>	<u>7.28</u>	<u>121</u>	<u>274</u>
<u>280</u>	<u>0.50</u>	<u>4.78</u>	<u>172</u>	<u>21.6</u>	<u>7.56</u>	<u>124</u>	<u>283</u>
<u>290</u>	<u>0.51</u>	<u>4.91</u>	<u>177</u>	<u>22.2</u>	<u>7.85</u>	<u>128</u>	<u>291</u>
<u>300</u>	<u>0.53</u>	<u>5.03</u>	<u>182</u>	<u>22.9</u>	<u>8.13</u>	<u>132</u>	<u>300</u>
<u>310</u>	<u>0.54</u>	<u>5.16</u>	<u>187</u>	<u>23.5</u>	<u>8.41</u>	<u>135</u>	<u>308</u>
<u>320</u>	<u>0.55</u>	<u>5.28</u>	<u>192</u>	<u>24.2</u>	<u>8.69</u>	<u>139</u>	<u>317</u>
<u>330</u>	<u>0.56</u>	<u>5.40</u>	<u>197</u>	<u>24.8</u>	<u>8.97</u>	<u>143</u>	<u>325</u>
<u>340</u>	<u>0.57</u>	<u>5.52</u>	<u>202</u>	<u>25.5</u>	<u>9.26</u>	<u>146</u>	<u>333</u>
<u>350</u>	<u>0.59</u>	<u>5.64</u>	<u>207</u>	<u>26.1</u>	<u>9.54</u>	<u>150</u>	<u>341</u>
<u>360</u>	<u>0.60</u>	<u>5.76</u>	<u>212</u>	<u>26.8</u>	<u>9.82</u>	<u>154</u>	<u>350</u>
<u>370</u>	<u>0.61</u>	<u>5.88</u>	<u>216</u>	<u>27.4</u>	<u>10.1</u>	<u>157</u>	<u>358</u>
<u>380</u>	<u>0.62</u>	<u>5.99</u>	<u>221</u>	<u>28.0</u>	<u>10.4</u>	<u>161</u>	<u>366</u>
<u>390</u>	<u>0.63</u>	<u>6.11</u>	<u>226</u>	<u>28.7</u>	<u>10.7</u>	<u>164</u>	<u>374</u>
<u>400</u>	<u>0.64</u>	<u>6.22</u>	<u>231</u>	<u>29.3</u>	<u>10.9</u>	<u>168</u>	<u>382</u>

Note: For hardness values over 400, use the standards for 400.

~~F-4. AQUATIC LIFE—Hardness Dependent Chronic Criteria (table of values)~~

~~µg/L (rounded to three significant figures)~~

~~Hardness~~

~~(µg/L as CaCO₃) Cadmium Chromium Copper Lead Nickel Zinc~~

~~25 0.802 23.8 2.74 0.541 16.1 36.5~~

Comment [JO35]: Old table F-4 replaced by new table, above. Changes to chronic cadmium criteria are reflective of new formula promulgated by EPA.

30 0.917 27.6 3.20 0.664 18.8 42.6
40 1.14 35.0 4.09 0.916 23.9 54.4
50 1.34 42.0 4.95 1.17 28.9 65.7
60 1.53 48.8 5.79 1.44 33.7 76.6
70 1.72 55.3 6.60 1.70 38.4 87.3
80 1.90 61.7 7.40 1.97 43.0 97.8
90 2.07 68.0 8.18 2.24 47.6 108
100 2.24 74.1 8.96 2.52 52.0 118
110 2.40 80.1 9.71 2.79 56.3 128
120 2.56 86.1 10.5 3.07 60.6 138
130 2.72 91.9 11.2 3.35 64.9 148
140 2.87 97.6 11.9 3.62 69.1 157
150 3.02 103 12.7 3.90 73.3 167
160 3.17 109 13.4 4.18 77.3 176
170 3.31 114 14.1 4.46 81.4 185
180 3.46 120 14.8 4.74 85.5 194
190 3.60 125 15.5 5.02 89.5 204
200 3.73 131 16.2 5.30 93.4 213
210 3.87 136 16.9 5.59 97.4 222
220 4.01 141 17.6 5.87 101 230
230 4.14 147 18.2 6.15 105 239
240 4.27 152 18.9 6.43 109 248
250 4.40 157 19.6 6.71 113 257
260 4.53 162 20.3 7.00 117 266
270 4.66 167 20.9 7.28 120 274
280 4.79 172 21.6 7.56 124 283

~~290 4.91 177 22.2 7.85 128 291~~
~~300 5.04 182 22.9 8.13 132 300~~
~~310 5.16 187 23.5 8.41 135 308~~
~~320 5.28 192 24.2 8.69 139 316~~
~~330 5.40 197 24.8 8.97 143 325~~
~~340 5.52 202 25.5 9.25 146 333~~
~~350 5.64 207 26.1 9.54 150 341~~
~~360 5.76 212 26.8 9.82 154 350~~
~~370 5.88 217 27.4 10.1 157 358~~
~~380 5.99 221 28.0 10.4 161 366~~
~~390 6.11 226 28.6 10.7 164 374~~
~~400 6.22 231 29.3 10.9 168 382~~

~~Note: For hardness values over 400, use the standards for 400.~~

Page 22 of 25

~~F 5. AQUATIC LIFE – Ammonia (pH Dependent Values for Acute Criteria)~~

~~Acute Criteria, mg Nitrogen/Liter~~

~~pH Salmonids present Salmonids absent~~

~~6.5 32.6 48.8~~
~~6.6 31.3 46.8~~
~~6.7 29.8 44.6~~
~~6.8 28.1 42.0~~
~~6.9 26.2 39.1~~
~~7.0 24.1 36.1~~
~~7.1 22.0 32.8~~
~~7.2 19.7 29.5~~

Comment [J036]: Table F-5 being replaced to reflect updated EPA recommendations. This table is being replaced by new table "F 5. Aquatic Life Ammonia Nitrogen (mg/L) – Temperature and pH-dependent Values of the CMC, Oncorhynchus spp. Present"

7.3 17.5 26.2
 7.4 15.4 23.0
 7.5 13.3 19.9
 7.6 11.4 17.0
 7.7 9.65 14.4
 7.8 8.11 12.1
 7.9 6.77 10.1
 8.0 5.62 8.40
 8.1 4.64 6.95
 8.2 3.83 5.72
 8.3 3.15 4.71
 8.4 2.59 3.88
 8.5 2.14 3.20
 8.6 1.77 2.65
 8.7 1.47 2.20
 8.8 1.23 1.84
 8.9 1.04 1.56
 9.0 0.885 1.32

F 5. Aquatic Life Ammonia Nitrogen (mg/L) – Temperature and pH-dependent Values of the CMC, Oncorhynchus spp. Present

Total Ammonia Nitrogen (mg/L) - Temperature and pH-Dependent Values of the CMC
(Acute Criterion Magnitude *)

Oncorhynchus spp. Present.

Temperature (°C)

<u>pH</u>	<u>0</u>	<u>15</u>	<u>16</u>	<u>17</u>	<u>18</u>	<u>19</u>	<u>20</u>	<u>21</u>	<u>22</u>	<u>23</u>	<u>24</u>	<u>25</u>	<u>26</u>	<u>27</u>	<u>28</u>	<u>29</u>	<u>30</u>
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

Comment [JO37]: NEW Table F-5 specific to waters with Trout Species PRESENT. As all Taos Pueblo Waters are believed to have trout species present this table is applicable to all Pueblo waters.

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	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	6	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	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	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	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	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	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	0.9
8.4	2	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	0.9	0.8	0.7
8.5	2	2.1	2.1	1.9	1.8	1.6	1.5	1.4	1.3	1.2	1.1	0.9	0.9	0.8	0.7	0.7	0.6
8.6	1	1.8	1.7	1.6	1.5	1.3	1.2	1.1	1.0	0.9	0.8	0.8	0.7	0.6	0.6	0.5	0.5
8.7	1	1.5	1.4	1.3	1.2	1.1	1.0	0.9	0.8	0.8	0.7	0.6	0.6	0.5	0.5	0.4	0.4
8.8	1	1.2	1.2	1.1	1.0	0.9	0.8	0.7	0.7	0.6	0.6	0.5	0.5	0.4	0.4	0.4	0.3
8.9	1	1.0	1.0	0.9	0.8	0.7	0.7	0.6	0.6	0.5	0.5	0.4	0.4	0.4	0.3	0.3	0.3
9.0	0	0.8	0.8	0.7	0.7	0.6	0.6	0.5	0.5	0.4	0.4	0.4	0.3	0.3	0.3	0.2	0.2
88	8	6	9	3	7	2	7	2	8	4	1	7	4	2	9	7	7

* The acute criterion duration represents a one-hour average

and should not be exceeded more than once in three years, on average.

F-6. AQUATIC LIFE—Ammonia (pH- and Temperature-Dependent Values for Chronic Criteria)

Fish Early Life Stages Present, mg N/L

pH

Temperature (Centigrade/Fahrenheit)

0 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30

Comment [J038]: Table F-6 being updated per new EPA recommended values.

32.57.2.59.60.8.62.6.64.4.66.2.68.69.8.71.6.73.4.75.2.77.78.8.80.6.82.4.84.2.86
6.5.6.67.6.67.6.46.6.06.5.68.5.33.4.99.4.68.4.39.4.12.3.86.3.62.3.39.3.18.2.98.2.80.2.62.2.46
6.6.6.57.6.57.6.36.5.97.5.59.5.25.4.92.4.61.4.32.4.05.3.80.3.56.3.34.3.13.2.94.2.75.2.58.2.42
6.7.6.44.6.44.6.25.5.86.5.49.5.15.4.83.4.52.4.24.3.98.3.73.3.50.3.28.3.07.2.88.2.70.2.53.2.37
6.8.6.29.6.29.6.10.5.72.5.36.5.03.4.72.4.42.4.14.3.89.3.64.3.42.3.20.3.00.2.82.2.64.2.47.2.32
6.9.6.12.6.12.5.93.5.56.5.21.4.89.4.58.4.30.4.03.3.78.3.54.3.32.3.11.2.92.2.74.2.57.2.41.2.25
7.0.5.91.5.91.5.73.5.37.5.04.4.72.4.43.4.15.3.89.3.65.3.42.3.21.3.01.2.82.2.64.2.48.2.32.2.18
7.1.5.67.5.67.5.49.5.15.4.83.4.53.4.25.3.98.3.73.3.50.3.28.3.08.2.88.2.70.2.53.2.38.2.23.2.09
7.2.5.39.5.39.5.22.4.90.4.59.4.31.4.04.3.78.3.55.3.33.3.12.2.92.2.74.2.57.2.41.2.26.2.12.1.99
7.3.5.08.5.08.4.92.4.61.4.33.4.06.3.80.3.57.3.34.3.13.2.94.2.76.2.58.2.42.2.27.2.13.2.00.1.87
7.4.4.73.4.73.4.59.4.30.4.03.3.78.3.55.3.32.3.12.2.92.2.74.2.57.2.41.2.26.2.12.1.98.1.86.1.74
7.5.4.36.4.36.4.23.3.97.3.72.3.49.3.27.3.06.2.87.2.69.2.53.2.37.2.22.2.08.1.95.1.83.1.72.1.61
7.6.3.98.3.98.3.85.3.61.3.39.3.18.2.98.2.79.2.62.2.45.2.30.2.16.2.02.1.90.1.78.1.67.1.56.1.47
7.7.3.58.3.58.3.47.3.25.3.05.2.86.2.68.2.51.2.36.2.21.2.07.1.94.1.82.1.71.1.60.1.50.1.41.1.32
7.8.3.18.3.18.3.09.2.89.2.71.2.54.2.38.2.23.2.10.1.96.1.84.1.73.1.62.1.52.1.42.1.33.1.25.1.17
7.9.2.80.2.80.2.71.2.54.2.38.2.24.2.10.1.96.1.84.1.73.1.62.1.52.1.42.1.33.1.25.1.17.1.10.1.03
8.0.2.43.2.43.2.36.2.21.2.07.1.94.1.82.1.71.1.60.1.50.1.41.1.32.1.24.1.16.1.09.1.02.0.96.0.897
8.1.2.10.2.10.2.03.1.91.1.79.1.68.1.57.1.47.1.38.1.29.1.21.1.14.1.07.1.00.0.94.0.879.0.824.0.773
8.2.1.79.1.79.1.74.1.63.1.53.1.43.1.34.1.26.1.18.1.11.1.04.0.973.0.912.0.855.0.802.0.752.0.705.0.661
8.3.1.52.1.52.1.48.1.39.1.30.1.22.1.14.1.07.1.00.0.941.0.882.0.827.0.775.0.727.0.682.0.639.0.599.0.562
8.4.1.29.1.29.1.25.1.17.1.10.1.03.0.97.0.906.0.849.0.796.0.747.0.700.0.656.0.615.0.577.0.541.0.507
0.475
8.5.1.09.1.09.1.06.0.990.0.928.0.870.0.816.0.765.0.717.0.672.0.630.0.591.0.554.0.520.0.487.0.457.0.428
0.401
8.6.0.920.0.920.0.892.0.836.0.784.0.735.0.689.0.646.0.606.0.568.0.532.0.499.0.468.0.439.0.411.0.386
0.362.0.339
8.7.0.778.0.778.0.754.0.707.0.663.0.622.0.583.0.547.0.512.0.480.0.450.0.422.0.396.0.371.0.348.0.326
0.306.0.287

8.8 0.661 0.661 0.641 0.601 0.563 0.528 0.495 0.464 0.435 0.408 0.383 0.359 0.336 0.315 0.296 0.277
0.260 0.244

8.9 0.565 0.565 0.548 0.513 0.481 0.451 0.423 0.397 0.372 0.349 0.327 0.306 0.287 0.269 0.253 0.237
0.222 0.208

9.0 0.486 0.486 0.471 0.442 0.414 0.389 0.364 0.342 0.320 0.300 0.281 0.264 0.247 0.232 0.217 0.204
0.191 0.179

F.6. AQUATIC LIFE Total Ammonia Nitrogen (mg/L) – Temperature and pH-dependent Values of the
CCC (Chronic Criterion Magnitude*)

Comment [J039]: New table replaces former
F6. New table inclusive of EPA changes in
calculations.

Total Ammonia Nitrogen (mg/L) - Temperature and pH-Dependent Values of the CCC (Chronic Criterion Magnitude*)

	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	1.0					
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	1.0					
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	1.0					
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	1.0					
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	0.9					
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	1.0	0.9					
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	1.0	0.9					
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	0.9	0.8					
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	0.8	0.7					
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	0.7	0.6					
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	0.7	0.6					
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	0.6	0.5					
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	0.6	0.5					
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	0.5	0.4					
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	0.4	0.3					
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	0.4	0.3					
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	0.3	0.2					
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	0.3	0.2					
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	0.3	0.2					
8.4	##	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	0.3	0.2					
8.5	##	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	0.3	0.2					
8.6	##	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	0.3	0.2					
8.7	##	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	0.3	0.2					
8.8	##	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	0.3	0.2					
8.9	##	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	0.3	0.2					
9.0	##	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	0.3	0.2					

* The chronic criterion duration represents a 30-day rolling average, with the additional restriction that the highest 4-day average within the 30 days be no greater than 2.5 times the chronic criterion magnitude. The chronic criteria should not be exceeded more than once in three years, on average.

Page 23 of 25

Page 24 of 25

F-7. AQUATIC LIFE—Ammonia (pH- and Temperature Dependent Values for Chronic Criteria)

Fish Early Life Stages Absent, mg N/L

pH

Temperature (Centigrade/Fahrenheit)

0	7	8	9	10	11	12	13	14	15	16*
32	45	46.4	48.2	50	51.8	53.6	55.4	57.2	59	60.8
6.5	10.8	10.1	9.51	8.92	8.36	7.84	7.35	6.89	6.46	6.06
6.6	10.7	9.99	9.37	8.79	8.24	7.72	7.24	6.79	6.36	5.97
6.7	10.5	9.81	9.20	8.62	8.08	7.58	7.11	6.66	6.25	5.86
6.8	10.2	9.58	8.98	8.42	7.90	7.40	6.94	6.51	6.10	5.72
6.9	9.93	9.31	8.73	8.19	7.68	7.20	6.75	6.33	5.93	5.56
7.0	9.60	9.00	8.43	7.91	7.41	6.95	6.52	6.11	5.73	5.37
7.1	9.20	8.63	8.09	7.58	7.11	6.67	6.25	5.86	5.49	5.15
7.2	8.75	8.20	7.69	7.21	6.76	6.34	5.94	5.57	5.22	4.90
7.3	8.24	7.73	7.25	6.79	6.37	5.97	5.60	5.25	4.92	4.61
7.4	7.69	7.21	6.76	6.33	5.94	5.57	5.22	4.89	4.59	4.30
7.5	7.09	6.64	6.23	5.84	5.48	5.13	4.81	4.51	4.23	3.97
7.6	6.46	6.05	5.67	5.32	4.99	4.68	4.38	4.11	3.85	3.61
7.7	5.81	5.45	5.11	4.79	4.49	4.21	3.95	3.70	3.47	3.25
7.8	5.17	4.84	4.54	4.26	3.99	3.74	3.51	3.29	3.09	2.89

Comment [J040]: Table F-7, Aquatic life chronic criteria fish early life stages absent is being removed as it is believed to not be applicable to Taos Pueblo waters. All waters on Taos Pueblo are believed habitable by trout species of all life stages.

7.9 4.54 4.26 3.99 3.74 3.51 3.29 3.09 2.89 2.71 2.54
8.0 3.95 3.70 3.47 3.26 3.05 2.86 2.68 2.52 2.36 2.21
8.1 3.41 3.19 2.99 2.81 2.63 2.47 2.31 2.17 2.03 1.91
8.2 2.91 2.73 2.56 2.40 2.25 2.11 1.98 1.85 1.74 1.63
8.3 2.47 2.32 2.18 2.04 1.91 1.79 1.68 1.58 1.48 1.39
8.4 2.09 1.96 1.84 1.73 1.62 1.52 1.42 1.33 1.25 1.17
8.5 1.77 1.66 1.55 1.46 1.37 1.28 1.20 1.13 1.06 0.990
8.6 1.49 1.40 1.31 1.23 1.15 1.08 1.01 0.951 0.892 0.836
8.7 1.26 1.18 1.11 1.04 0.976 0.915 0.858 0.805 0.754 0.707
8.8 1.07 1.01 0.944 0.885 0.829 0.778 0.729 0.684 0.641 0.601
8.9 0.917 0.860 0.806 0.756 0.709 0.664 0.623 0.584 0.548 0.513
9.0 0.790 0.740 0.694 0.651 0.610 0.572 0.536 0.503 0.471 0.442

* Above 16oC, the standards are the same for early fish life stages present and absent.

Page 25 of 25

G. CEREMONIAL USE - PRIMARY HUMAN CONTACT

~~Monthly geometric mean of fecal coliform bacteria # 200 colonies/100 mL.~~

~~No individual sample may have more than 400 colonies/100 mL.~~

Monthly geometric mean for E. coli bacteria # 126 colonies/100 mL

No individual E. coli sample may have more than 235 colonies/100 mL

6.6 < pH < 9.0

H. OUTSTANDING TRIBAL RESOURCE WATERS

Waters in this category are considered pristine, or very nearly so. This designation is similar to wilderness status for land. Degradation of water quality of any kind is not permitted. The following narrative standards apply:

The waters must be maintained in as pristine a condition as possible, allowing for the healthy and

Comment [JO41]: As Taos Pueblo has criteria for e. coli bacteria, monitors for e. coli bacteria, and does not monitor for fecal coliform bacteria, there is no need to retain the fecal coliform bacteria criteria. This criteria is being removed.

Comment [JO42]: E. coli criteria are NOT being changed in this revision.

balanced growth of the ecosystems sustained by the waters. For these waters, the goal of the Pueblo and of the Water Quality Standards is to return pollution levels to the permanent natural background existing prior to the influence of man. If the need to apply numeric criteria arises, the most stringent numeric criteria necessary to maintain all the designated uses will apply.