Presented below are water quality standards that are in effect for Clean Water Act purposes.

EPA is posting these standards as a convenience to users and has made a reasonable effort to assure their accuracy. Additionally, EPA has made a reasonable effort to identify parts of the standards that are not approved, disapproved, or are otherwise not in effect for Clean Water Act purposes.

August 23, 2017

Pueblo of Laguna Water Quality Standards
Effective July 19, 2017

Except as noted below, the *Pueblo of Laguna Water Quality* Standards have been approved by EPA.

Revisions for which EPA took no action under CWA section 303(c):

Subchapter I. General Provisions

Section 11-2-3. Definitions
EPA takes no action on the definitions for "Groundwater" and "Pueblo Waters," as they are applied to waters beyond the scope covered under the CW A.

Section 11-2-5. Revisions to Laguna Water Quality Standards
EPA takes no action on the provisions in Part B. Public Comment and Hearing and Part C. Judicial Review. These provisions are not (1) legally binding provisions adopted or established pursuant to Tribal law that (2) address designated uses, criteria, or antidegradation, and (3) describe the desired condition or level of protection of the water body.

Section 11-2-7. Water Rights
EPA takes no action on the provision in Section 11-2-7, as this is implementation provision under Tribal authority.

Section 11-2-9. Dispute Resolution Mechanism
EPA takes no action on the provision in Section 11-2-9, as the Dispute Resolution Mechanism is not (1) legally binding provisions adopted or established pursuant to Tribal law that (2) address designated uses, criteria, or antidegradation, and (3) describe the desired condition or level of protection of the water body.

Subchapter IV. Designated Uses and Associated Numeric Water Quality Standards

Section 11-2-41. List of Designated Uses and Associated Standards
Under Part F. Wildlife Habitat use, EPA also takes no action on the numeric criteria for DDT and PCBs. These criteria are based on EPA's recommendations to protect aquatic life. However, these criteria were not derived to protect wildlife, which are at higher trophic levels on the food chain and may accumulate increased amounts of these compounds. EPA is unable to approve the criteria for DDT and PCBs, as the agency did not have information to document how these values would be protective of wildlife.

Section 11-2-43. Designated Use Table
EPA takes no action on the table on page 28 which includes designated uses for the Pueblo of Laguna's groundwater resources. EPA does not have the authority under CWA section 303(c) to approve or disapprove groundwater provisions that are unrelated to surface water.

Subchapter V. Sampling and Analysis, Variances, and Exceedances

Section 11-2-51. Sampling and Analysis

EPA does not consider Section 11-2-51, which identifies documents that will be used as guidance by the Pueblo of Laguna to assess the attainment of water quality standards, to be water quality standards under

CWA section 303(c). EPA takes no action on these provisions because they are not (1) legally binding provisions adopted or established pursuant to Tribal law that (2) address designated uses, criteria, or antidegradation, and (3) describe the desired condition or level of protection of the water body.

Appendix IV. EPA MCLs for Drinking Water

The Pueblo of Laguna adopted the SDWA maximum contaminant levels (MCLs) for microorganisms, disinfectants, disinfection byproducts, inorganic chemicals, organic chemicals and radionuclides. Appendix *N* also includes information on potential health effects and the maximum contaminant level goal (MCLG) for each contaminant. EPA takes no action on Appendix *N* as this information was included in the *Pueblo of Laguna Water Quality Standards* for reference.

Appendix V. Tables: Standards for Various Designated Uses

In Table 2, the Pueblo of Laguna adopted criteria for the following parameters to protect groundwater Resources

Aluminum
Antimony
Arsenic
Barium
Bicarbonate
Beryllium
Boron
Bromate
Bromide
Cadmium
Calcium
Chloride
Chromium
Copper
Cyanide
Fluoride
Gross alpha particles (includes Radium 226 but not Radon or Uranium)
Iron
Lead
Magnesium
Manganese
Mercury, total
Molybdenum
Nickel
Nitrate (measured as Nitrogen)
pH
Potassium
Radium-226 & 228
Selenium
Silica
Sodium
Sodium + potassium
Strontium
Sulfate
TDS
Temperature
Thallium
Tritium
Uranium
Vanadium
Fecal Coliform and E. coli

Criteria for the aquifers and the groundwater formations are based on SDW A values or on data for specific aquifers. EPA is not taking action on the standards for aquifers and groundwater formations. EPA does not have the authority under CW A section 303(c) to approve or disapprove groundwater provisions that are unrelated to surface water.

EPA approves the numeric criteria in the column in Table 2 titled "EPA Safe Drinking Water Standards (mg/L).” These criteria are applicable to the Domestic Water Supply and Groundwater Recharge uses, which are designated for surface waters.

PUEBLO OF LAGUNA CODE

Title XI – ENVIRONMENTAL

Chapter 2. Water Quality Standards

March 18, 2014

(as approved by Council April 4, 2014)

PUEBLO OF LAGUNA CODE
TITLE XI – ENVIRONMENTAL
CHAPTER 2. WATER QUALITY STANDARDS

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SUBCHAPTER I. GENERAL PROVISIONS

Section 11-2-1. Authority and Purpose.

A. Pursuant to its sovereign authority to protect the health and welfare of Pueblo members and other residents, as provided in the 1984 Constitution of the Pueblo of Laguna, Art. IV, Sec. 2(k), and to protect the political integrity and economic security of the Pueblo, *see* Const. Art. IV, Sec. 2(v), the Laguna Pueblo Council hereby enacts these Laguna Water Quality Standards ("LWQS" or "Standards"). The purpose of these Standards is to protect, maintain, and improve the quality of Laguna waters for public and private drinking water supplies; to promote the habitation, growth, and propagation of native and other desirable aquatic plant and animal life; to protect existing and future domestic, cultural, agricultural, recreational, and industrial uses; and to protect any other existing and future beneficial uses of Laguna waters, including economic uses. The Laguna Pueblo Council also recognizes that the Pueblo's clean waters are an extraordinary resource and wishes to ensure their protection so that the traditional and cultural uses of those waters may continue. To carry out these purposes, these standards:

(1) Designate the existing and attainable uses for which the Pueblo Waters shall be protected;

(2) Prescribe water quality standards to sustain these designated uses; and

(3) Assure that degradation of Pueblo Waters shall be minimized and that economic growth shall occur consistent with preserving the Pueblo's existing clean water resources.

Section 11-2-2. Applicability.

These Standards apply to all Pueblo Waters and to all persons and all activities within the Pueblo of Laguna.

Section 11-2-3. Definitions.

A. For purposes of these LWQS:

(1) *Acute Criteria* means 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.

(2) *Acute Toxicity* means toxicity that exerts short-term lethal impacts on representative sensitive organisms with a duration of exposure generally less than, or equal to, 96 hours. Acute toxicity may include other effects such as, but not limited to, behavioral changes or immobilization.

(3) *Attainable Use* means a use of water that has the water quality and all other characteristics necessary to support and maintain such use, or that would support and maintain such use after the implementation of these Standards.

(4) *Aquatic and Wildlife Habitat* means water used by plants and animals that are not considered pathogens, vectors for pathogens, or intermediate hosts for the pathogens of humans or domesticated livestock and plants. The water is used for direct consumption, foraging, habitat, cover, or propagation.

(5) *Best Management Practices* mean methods, measures, or practices undertaken to prevent or reduce the pollution of Pueblo Waters, including to control, restrict, or diminish nonpoint sources of pollution, and that are consistent with these Standards.

(6) *Bioaccumulation* means the process of a chemical accumulating in a biological food chain by being passed from one organism to another as the contaminated organism is consumed by another organism.

(7) *Ceremonial Use* means a use of water for the practice of religious and traditional purposes by members of Laguna Pueblo. Such use involves the intentional and incidental ingestion of water, immersion into water, or use of sediments.

(8) *Chronic Criteria* means the four-day average concentration of a pollutant in ambient water which should not be exceeded more than once every three years on average. Generally, chronic criteria thresholds are lower than those for acute criteria.

(9) *Chronic Toxicity* means toxicity that exerts sub-lethal negative effects such as growth or reproductive impairment, or which becomes lethal after long-term exposure, generally measured by a 28-day test on representative sensitive organisms.

(10) *Clean Water Act ("CWA")* means the federal Clean Water Act codified at 33 U.S.C. §§ 1251-1387, as amended.

(11) *Coldwater Fishery* means a water body where the water temperature and other characteristics are suitable for the support of coldwater fish such as cutthroat trout, rainbow trout, or their hybrids.

(12) *Criteria* mean elements of water quality standards that are expressed as pollutant concentrations, levels, or narrative statements representing a water quality that supports a particular designated use. When criteria are met, water quality should protect the designated use.

(13) *Designated Use* means a use of water described in § 11-2-41 that is to be protected under these water quality standards.

(14) *Director* means the Director of the Laguna Environmental and Natural Resources Department ("ENRD") or his or her designee.

(15) *Domestic Water Supply* means water that only requires disinfection and/or filtration to be usable for drinking or cooking.

(16) *Drinking Water* means water that is used as a primary or secondary source of drinking water without any disinfection or other processing.

(17) *Effluent* means discharge into Pueblo waters from other-than natural sources.

(18) *Ephemeral Water* means a water body that flows temporarily in direct response to precipitation or snowmelt and with a channel that is always above the water table.

(19) *Existing Uses* means those uses actually attained in a water body on or after November 28, 1975, whether or not they are referred to in these Standards.

(20) *Fish Culture* means the use of a water body for production of coldwater or warmwater fish in a hatchery or rearing station.

(21) *Geometric Mean* means a mean calculated by converting all values to logarithms, averaging the logarithms, and determining the antilogarithm of that average. A minimum of four samples shall be used to calculate the geometric mean.

(22) *Groundwater* is water that collects or flows beneath the Earth's surface, filling the porous spaces in soil, sediment, and rocks. Groundwater originates from rain and from melting snow and ice and is the source of water for aquifers, springs, and wells. The upper surface of groundwater is the water table.

(23) *Groundwater Recharge* means the use of a surface water as a source of recharge to groundwater.

(24) *High Quality Coldwater Fishery* means a water body that contains adequate water flow, water chemistry (DO, pH, etc.), temperature, and biological characteristics for the support and propagation of coldwater fish such as cutthroat trout, rainbow trout or their hybrids.

(25) *Industrial Water Supply* means water that is used in conjunction with the production of goods or services for profit.

(26) *Intermittent Stream* means a stream or reach that flows only at certain times of the year when receiving flow from springs, melting snow, or localized precipitation. It also means a stream or reach that does not flow continuously when water losses from evaporation or seepage exceed available stream flow.

(27) *Irrigation* means the intentional application of water to agricultural crops and other plants by means of ditches, pipes, sprinkler systems, water-spreading berms, or other means, whether traditional, historical, or contemporary.

(28) *Livestock and Wildlife Watering* means water consumed by livestock, non-domestic animals (including migratory birds), or both for water supply, habitation, growth, or propagation.

(29) *Marginal Coldwater Fishery* means a water body where the water temperature and other characteristics are suitable for the support of coldwater fish such as cutthroat trout, rainbow trout, or their hybrids, but are not always suitable for the propagation of coldwater fish.

(30) *Mixing Zone* means a three-dimensional zone in which discharged effluent mixes with the receiving water and within which there is a gradation of water quality.

(31) *Nonpoint Source* means a source of pollution that is not a discernible, confined, and discrete conveyance (for example, surface runoff).

(32) *NTU* means nephelometric turbidity unit, which is a unit of turbidity based on a standard method using formazin polymer or its equivalent as the standard reference suspension. NTUs are numerically identical to formazin turbidity units.

(33) *Oil* means oil in any form, including but not limited to petroleum, crude oil, gasoline, diesel oil, lubricating oil, oil refuse, sludge, vegetable oil, animal oil, and oil mixed with waste.

(34) *Outstanding Tribal Resource Waters* is a designation similar to the designation "Outstanding National Resource Waters" under the Clean Water Act. These waters represent a unique sacred and cultural resource of Laguna Pueblo and are therefore given this most protective status to ensure their preservation. Other waters whose high quality make them an exceptional recreational, cultural, or ecological resource of the Pueblo may also be designated Outstanding Tribal Resource Waters pursuant to § 11-2-21(D).

(35) *Perennial Water* means a flowing or non-flowing surface water that is present continuously throughout the year.

(36) *Person* means any individual, partnership, company, corporation, firm, association, or society, any federal, state, or local government or any of its programs, agencies, or other subdivisions, or any Indian tribe, including the Pueblo of Laguna, or any tribal agencies, divisions, departments, programs, enterprises, companies, or other entities.

(37) *Point Source* means any discernible, confined, and discrete conveyance, including but not limited to any pipe, ditch, channel, tunnel, conduit, well, discrete fissure, landfill leachate collection system, container, 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.

(38) *Pollutant* means any type of contaminant, including but not limited to toxic substances, hazardous substances, dredge spoil, solid waste, sewage, chemicals, pesticides, herbicides, fungicides, rodenticides, fertilizers, incinerator residue, discarded equipment, rock, sand, dirt, sewage, and oil, regardless of whether in liquid, solid, or gaseous form.

(39) *Pollution* means any manmade or man-induced alteration of the chemical, physical, biological, or radiological integrity of Pueblo waters.

(40) *Primary Human Contact* means a 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 or contact with membrane material of the body. Examples include swimming and ceremonial use.

(41) *Program Manager* means the Manager of the Laguna Environmental Program ("Environmental Program") or his or her designee.

(42) *Pueblo of Laguna, Pueblo,* or *Laguna* means, with regard to territory, all land within the exterior boundaries of the formal Laguna Indian Reservation, notwithstanding the issuance of any patent and including rights-of-way running through the reservation, and all tribal trust land outside the formal Laguna Indian Reservation boundaries.

(43) *Pueblo Waters* means all groundwater and all surface waters, including but not limited to all or portions of rivers, streams (including perennial, intermittent, and ephemeral streams and their tributaries), lakes, ponds, dry washes, marshes, waterways, wetlands, mudflats, sandflats, sloughs, prairie potholes, wet meadows, playa lakes, impoundments, riparian areas, springs, and all other bodies or accumulations of surface water, natural or artificial, public or private, including those dry for part of the year, that are within or bordering upon the Pueblo. Consistent with federal requirements the Pueblo may exclude from Pueblo waters certain waste treatment systems.

(44) *Secondary Human Contact* means a use of water that may cause the water to come into direct contact with human skin but normally not to the point of submergence, ingestion, or contact with human membrane material; such contact would occur only incidentally and infrequently. Examples include fishing and boating.

(45) *Turbidity* means a measure of the cloudiness or muddiness of water that causes incident light to be scattered or absorbed rather than transmitted in straight lines.

(46) *Warmwater Fishery* means a water body where the water temperature and other characteristics are suitable for the support and propagation of warmwater fish such as Yellow Bullhead Catfish, White Sucker, Green Sunfish, Rio Grande Chub, Channel Catfish, and Mosquitofish.

(47) *Water Body* means any Pueblo water, including any portion thereof.

(48) *Wetlands* mean areas that are inundated or saturated by surface or groundwater frequently and long enough to support, and that under normal circumstances do

support, a prevalence of vegetation typically adapted for life in saturated soil conditions. The term generally includes swamps, marshes, bogs, and similar areas.

Section 11-2-4. Authorities and Responsibilities.

The Laguna Pueblo Council hereby delegates to the Director of the Laguna Environmental and Natural Resources Department the authority and duty to administer these Standards. The day-to-day operations necessitated by these Standards are delegated to the Laguna Environmental Program, which operations include but are not limited to sampling and monitoring water quality and preparing for the mandatory triennial review process, including any interim review that may be needed. The Environmental Program is also authorized to develop related water quality protection programs, such as a nonpoint source program or CWA § 401 certification program, in consultation with the Director and as approved by the Laguna Pueblo Council.

Section 11-2-5. Revisions to Laguna Water Quality Standards.

A. *Triennial Review*. Consistent with CWA § 303(c)(1), 33 U.S.C. § 1313(c), as amended, the Pueblo, through its Environmental Program, shall hold public hearings at least once every three years to review and, as appropriate, revise these Laguna Water Quality Standards. Revisions shall incorporate relevant scientific and engineering advances with respect to water quality and waste treatment and shall be made pursuant to the public comment and hearing procedures described in subsection B. Whenever the Pueblo revises or adopts a new standard, the revised or new standard shall be submitted to U.S. EPA for review pursuant to CWA § 303(c)(2), 33 U.S.C. § 1313(c)(2), as amended.

B. *Public Comment and Hearing*. Any revisions to these Laguna Water Quality Standards shall be made pursuant to the following procedures:

(1) Public notice

The Program Manager shall provide the public with notice of any proposed revisions to these LWQS by:

(a) mailing or emailing notice to other Laguna departments and programs, federal agencies, and agencies of affected tribes and states that are likely to have an interest in the rulemaking, such as environmental agencies and agencies and departments with jurisdiction over fish and wildlife and other natural resources;

(b) mailing or emailing notice to persons on a list maintained by the Laguna Environmental Program of persons who may be interested or affected by the proposed revisions to the LWQS;

(c) publishing notice in a daily or weekly newspaper of general circulation at the Pueblo of Laguna, and

(d) using any other method that the Program Manager finds to be appropriate for eliciting public participation, such as issuing a press release, posting notice on a web page, or providing notice at a public or traditional village forum.

The notice shall provide at least 30 days for the public to comment in writing on the proposed revisions.

(2) Public hearing

The Program Manager also shall provide a public hearing on proposed revisions to these Standards so that comments may be made orally. Notice of a public hearing shall be made at least 20 days prior to the hearing. Public notice of the hearing may be made at the same time as public notice of the proposed revisions to the LWQS, and the two notices may be combined.

(3) Contents of notice

Public notices issued under this subsection shall contain the following information:

(a) Name and address of the office proposing the revisions;

(b) A brief description of the proposed revisions;

(c) Name, address, email address, and telephone number of a person from whom interested persons may obtain further information, including copies of the proposed revisions (the proposed revisions also may be posted on a website and the website address provided);

(d) A brief description of the comment procedures and the time and place of the public hearing;

(e) The location of the administrative record, the times at which the record will be open for public inspection, and a statement that all comments submitted will be available as part of the administrative record; and

(f) Any additional information that the Program Manager considers appropriate to provide.

If the public notice for a hearing is issued separately from the public notice of the proposed revisions, in addition to providing the information listed in subparagraphs (a)-(f) it shall reference the date of any previous public notices

relating to the proposed revisions and include a brief description of the nature and purpose of the hearing, including applicable procedures.

(4) Procedures for Public Hearing

(a) The Program Manager shall designate a Hearing Moderator for the public hearing. The Program Manager or a member of the staff of the Environmental Program or of other programs within the ENRD may serve as the Hearing Moderator, so long as the Hearing Moderator does not have a financial interest in the outcome of the proposed revisions. The public hearing is not an adjudicative hearing and is conducted solely for the purpose of providing an opportunity to the public to orally present their views on the proposed revisions to the Standards. The Hearing Moderator shall be responsible for the orderly conduct of the public hearing but is not empowered to make any findings of fact, conclusions of law, or recommendations on the proposed revisions to the Standards.

(b) Hearings shall be held at a time and place that facilitates attendance by the public.

(c) The Program Manager, a member of the Environmental Program staff, or the Hearing Moderator shall inform the audience of the issues involved in the proposed revisions, the considerations the Environmental Program and the Director will take into account, the Director's tentative determinations (if any) to be recommended to the Council, and any information that is particularly solicited from the public.

(d) Any person may submit oral or written statements and information concerning the proposed revisions to the Standards. The Hearing Moderator may set reasonable limits on the time allowed for oral statements. The Hearing Moderator shall allow the submission of written statements at the hearing but shall not require a written statement instead of or as a condition of making an oral statement.

(e) A tape recording or written transcript shall be made of the hearing. At the conclusion of the hearing the Hearing Moderator shall forward to the Director the record of the hearing, which shall consist of the tape recording or written transcript and any materials submitted at the hearing. The hearing record shall be made available to the public for review.

(f) If the Program Manager determines it is necessary, after consultation with the Director, the Program Manager shall extend the public comment period provided under paragraph (1) to allow the record to remain open for

at least 20 days after the public hearing to provide an opportunity for submission of rebuttal and supplementary information.

(5) Obligation to Raise Issues During the Public Comment Period

(a) All persons who believe that a proposed revision to the Standards should be issued, modified, or withdrawn must raise all reasonably ascertainable issues and submit all reasonably available arguments and facts supporting their position, including all supporting material, by the close of the public comment period.

(b) The Program Manager, in consultation with the Director, may extend the public comment period on his or her own initiative or on request if the Program Manager determines that such extension is necessary to obtain full public participation and may grant additional time to comment to any person who demonstrates a need for such time.

(6) Reopening the Public Comment Period

(a) Whenever any data, information, or arguments submitted during the public comment period appear to raise substantial new questions concerning a proposed revision to the Standards or the Environmental Program becomes aware of significant new information, the Director may take one of the following actions:

(i) Withdraw the proposed revision to the Standards;

(ii) Prepare a new proposed revision and direct the Program Manager to reopen the public comment period; or

(iii) Direct the Program Manager to reopen or extend the comment period to give interested persons an opportunity to comment on the information or arguments submitted.

(b) The Program Manager shall issue public notice under paragraph (1) of any action taken pursuant to this paragraph (6). In addition to the requirements of paragraph (1), the notice for any action taken to reopen the public comment period shall state the scope of the reopening. Such scope shall be limited to the substantial new questions or significant new information that caused the reopening.

(c) If the comment period is reopened pursuant to subparagraphs (6)(a)(ii) or (iii), all reasonably available legal and factual grounds concerning the substantial new questions or significant new information, including any

supporting material, shall be submitted in writing by a date not less than 45 days after the date of the public notice issued pursuant to subparagraph (6)(b). Thereafter, any person may file a written response to any such submission by a date not less than 20 days after the date set for filing the submission. Persons desiring to comment may request longer comment periods, which the Program Manager, in consultation with the Director, may grant to the extent that the Program Manager finds is necessary to effect the purpose of the reopening.

(7) Response to Comments and Administrative Record

(a) Response to comments

The final revisions to the Standards shall be accompanied by a response to the comments received. The response shall fully consider all comments received during the public comment period, including any public hearing. The response shall: specify which of the proposed revisions have been changed, if any, and the reasons for the change; briefly describe and respond to all significant comments raised during the public comment period, including the public hearing; and be made available to the public.

(b) Administrative record

(i) The administrative record shall consist of:

(A) The proposed revisions;

(B) The public notice(s);

(C) All comments received during the public comment period, including any extension or reopening of the public comment period;

(D) The tape or transcript of the public hearing and any written materials submitted at the hearing;

(E) The response to comments and any new material that is referenced in response to comments;

(F) Any other documents contained in the supporting file for the revisions to the Standards; and

(G) The final revised Standards.

The documents required under this subparagraph (7)(b)(i) shall be added to the record as soon as possible after their receipt or issuance. The administrative record shall be complete upon issuance of the revised Standards. The administrative record shall be available for public inspection beginning no later than the date of the public notice, despite not yet being complete.

(ii) Material readily available at the ENRD office or published material that is generally available need not be physically included with the rest of the administrative record.

(8) Issuance and Effective Date of Revised Standards

(a) The Director shall issue the final revised Standards based on the administrative record.

(b) The revised Standards shall become effective upon approval by the Laguna Pueblo Council.

(c) The Program Manager shall give public notice of the adoption of the revised Standards as soon as possible pursuant to subparagraph B(1)(c) and shall mail or email a notice to the same persons as were mailed or emailed notice of the proposed revisions, as well as to all persons who commented on the proposed revisions and to anyone else who requests to receive notice.

(9) Reconsideration after Issuance

(a) Whenever a person demonstrates to the Director that it was impracticable to raise an objection within the public comment period, or if the grounds for the objection arose after the close of the comment period but within the time allowed for judicial review, and if the objection is of central relevance to the outcome of the revisions to the Standards, the Director shall direct the Program Manager to convene a proceeding for reconsideration of the revised Standards and provide the same procedural rights as would have been afforded if the information had been available at the time the revisions were proposed. The Director may stay the effectiveness of the revised Standards if necessary for the time required to allow reconsideration to occur. The proceeding for reconsideration shall include a new public comment period, which shall be limited in scope to the objection(s) that prompted the reconsideration.

(b) All persons, including the person making the objection(s) that prompted the reconsideration, who believe that the revised Standards are inappropriate for any of the grounds raised by the objection(s) at issue must submit all reasonably available legal and factual grounds supporting their position, including all supporting material, by a date no sooner than 30 days after public notice of the reconsideration is issued under subparagraph (c). Thereafter any person may file a written response by a date no sooner than 20 days after the date set by the Director for filing the material. Persons desiring to comment may request longer comment periods, which the Director may grant to the extent that the Director finds is necessary to effect the purpose of the reconsideration.

(c) Public notice of reconsideration shall be issued by the Program Manager pursuant to paragraph B(1). In addition to the contents required in paragraph B(3), the public notice shall describe the objection that prompted the reconsideration proceeding, shall state the scope of the reconsideration, and shall state whether the effectiveness of the revised Standards has been stayed.

(d) The Program Manager shall hold a public hearing pursuant to paragraphs B(2) and (4).

(e) The Program Manager shall maintain the administrative record of the reconsideration proceeding pursuant to subparagraph B(7)(b).

(f) Within a reasonable time after the close of the public comment period the Director shall issue a final decision on reconsideration pursuant to paragraph B(8). The Program Manager shall provide public notice of the decision pursuant to subparagraph B(8)(c) and shall make available a response to comments pursuant to subparagraph B(7)(a).

C. *Judicial Review.*

(1) Exhaustion

Any person challenging revised Standards or the refusal of the Director to reconsider revisions to the Standards must have followed the procedures set forth in subsection B of this section as a prerequisite to seeking judicial review of the revised Standards or the Director's decision to deny reconsideration.

(2) Notice of Appeal

A person may seek judicial review in the Pueblo of Laguna Court of Appeals no later than 30 days after the Director issues notice, pursuant to subparagraph

B(8)(c), of either the revised Standards at issue or the decision on reconsideration. The person shall file a notice of appeal pursuant to the Rules of Procedure for the Pueblo of Laguna Court of Appeals for civil cases, as modified by this section.

(3) Filing the Administrative Record

Within 30 days following the date that a petition for review is filed pursuant to paragraph (2) of this subsection, the Director shall file in the Pueblo of Laguna Court of Appeals a certified index of the administrative record on which the revised Standards or denial of reconsideration were based.

(4) Standard for Review

The Court's review shall be based on the administrative record. The Court may affirm, reverse, modify in whole or in part, or remand to ENRD for further consideration any revised Standard or denial of reconsideration, provided that the Court may reverse, modify, or remand only if the action at issue is arbitrary and capricious, an abuse of discretion, or otherwise not in accordance with the law; in excess of jurisdiction or statutory authority; without observance of procedure required by law; or unsupported by substantial evidence. In no event shall the Court award damages against the Pueblo.

Section 11-2-6. 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 these Standards and the application of such provision to other persons or circumstances shall remain unaffected.

Section 11-2-7. Water Rights.

The water rights of the Pueblo and the authority of the Pueblo to allocate quantities of water and administer water rights within its jurisdiction shall not be superseded, abrogated, or otherwise impaired by these Standards.

Section 11-2-8. Collaboration with Federal and State Agencies.

The Pueblo will collaborate with federal and state agencies to prevent, reduce, and eliminate water pollution in coordination with programs for managing water resources.

Section 11-2-9. Dispute Resolution.

If a dispute arises between the Pueblo and a state or another Indian tribe approved by EPA to administer a water quality standards program due to differing water quality standards between the two jurisdictions, the Pueblo will follow the Dispute Resolution Mechanism promulgated by EPA and found at 40 C.F.R. §131.7, as may be revised from time to time.

SUBCHAPTER II. ANTIDEGRADATION POLICY AND IMPLEMENTATION PLAN

Section 11-2-21. Antidegradation Policy.

A. Existing water uses and the level of water quality necessary to protect existing water uses shall be maintained and protected.

B. Where existing water quality exceeds levels necessary to support existing uses, including but not limited to the protection and propagation of fish, shellfish, and wildlife and recreation in and on the water, that 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 of the water in question. In allowing such degradation of water quality, the Pueblo shall nevertheless ensure water quality adequate to protect existing uses fully.

C. The Pueblo shall mandate the highest statutory and regulatory requirements for all new and existing point sources and the most cost-effective and reasonable best management practices for control of nonpoint source pollution.

D. Where high quality waters constitute an exceptional recreational, cultural, or ecological resource of the Pueblo, those waters may be designated as Outstanding Tribal Resource Waters. The existing water quality of Outstanding Tribal Resource Waters shall be fully maintained and protected and no permanent degradation of such water quality shall be permitted for any reason.

E. This antidegradation policy includes protection against water quality impairment associated with thermal discharges and it shall be implemented consistent with CWA § 316, 33 U.S.C. § 1326, as amended.

Section 11-2-22. Implementation.

A. The Environmental Program shall implement these Standards, including the antidegradation policy, by establishing and maintaining controls on the introduction of pollutants into Pueblo waters and by taking the actions listed below in coordination with federal, tribal, and state agencies, as appropriate:

(1) Review the adequacy of existing data on Pueblo waters, including their quality and designated uses, as well as on any activities that may detrimentally impact those waters and uses, and obtain additional data where required;

(2) 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;

(3) Obtain and assess information on the impact of effluents on receiving waters, including the capability of receiving waters to support designated uses and achieve these LWQS;

(4) Advise prospective dischargers of discharge requirements, and coordinate with the appropriate permitting agencies as to the same;

(5) Require the highest and best degree of wastewater treatment practicable, commensurate with protecting and maintaining designated uses and existing water quality;

(6) Develop water-quality-based effluent limitations and provide comment on technology-based effluent limitations, as appropriate, for inclusion in any permit issued to a discharger pursuant to CWA § 402, 33 U.S.C. § 1342, as amended;

(7) Require that effluent limitations or other appropriate limitations applicable to activities with the potential to discharge into Pueblo waters be included in any permit as a condition for certification by the Pueblo pursuant to CWA § 401, 33 U.S.C. § 1341, as amended;

(8) Coordinate water pollution control activities with other local, tribal, state, and federal agencies, as appropriate;

(9) Develop and pursue inspection programs to ensure that dischargers comply with the requirements of these Standards and to support the enforcement of federal permits issued by the U.S. Environmental Protection Agency or the U.S. Army Corps of Engineers;

(10) Provide technical assistance to wastewater treatment facility operators;

(11) Publish results of water quality investigations and interpretation of those results;

(11) Encourage, in conjunction with other agencies, implementation of best management practices to control nonpoint sources of pollution and so to support designated uses and meet these LWQS;

(12) Examine existing and future Laguna policies pertaining to septic systems, solid waste disposal, range management practices, and other relevant activities to ensure that these policies are consistent with meeting these LWQS;

(13) Determine whether in-stream flows and water levels are adequate to support designated uses and to meet these LWQS;

(14) Conduct an antidegradation analysis for regulated actions that may impair water quality; and

(15) Implement specific policies and procedures to protect designated Outstanding Tribal Resource Waters.

B. In the event that water quality monitoring identifies water bodies where attainable quality is less than designated uses, these Standards may be revised to reflect actual attainability for those water bodies subject to the provisions of the Clean Water Act and consistent with the use-attainability analysis described in 40 C.F.R. § 131.10(g), as may be revised from time to time.

SUBCHAPTER III. NARRATIVE WATER QUALITY STANDARDS

Section 11-2-31. General Standards.

A. All Pueblo waters shall be free from pollution in amounts or combinations that, for any duration, may with reasonable probability:

(1) Injure or otherwise adversely affect human health, public safety, or the public welfare;

(2) Injure or otherwise adversely affect the habitation, growth, or propagation of indigenous aquatic plant and animal communities or any individual member of these communities, of any desirable non-indigenous member of these communities, or of waterfowl accessing the water body; or otherwise adversely affect the physical, chemical, or biological conditions upon which these communities and their indigenous or desirable non-indigenous members depend;

(3) Settle to form bottom deposits that injure or 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, or of waterfowl accessing the water body; or otherwise adversely affect the physical, chemical, or biological conditions on which these communities and their members 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, grease, foam, scum, or other objectionable floating materials and suspended substances of a persistent nature to collect on the surface of the water body, including in the form of a film or iridescence, or cause a deposit on a shoreline, bank, or on aquatic vegetation. As a guideline, oil and grease discharged onto surface waters shall not exceed 10 mg/liter on a weekly average or 15 mg/liter instantaneous maximum;

(6) Cause objectionable or aesthetically undesirable color in the water body. Color-producing substances from other than natural sources are limited to concentrations equivalent to 70 color units;

(7) Cause objectionable odor in or in the area of the water body;

(8) Cause objectionable taste in the water body or in edible plant and animal life, including waterfowl, that reside in, on, or adjacent to the water body;

(9) Cause objectionable turbidity. Turbidity shall not reduce light transmission to a point where aquatic biota are inhibited or to a point that causes an unaesthetic and substantial visible contrast with the natural appearance of the water. Specifically, turbidity shall not exceed 5 NTU over background when background turbidity is 50 NTU or less, with no more than a 10% increase when background turbidity is more than 50 NTU;

(10) Cause the growth of algae or aquatic plants that inhibit or prohibit the habitation, growth, or propagation of other aquatic life or that impair recreational uses.

B. Pueblo waters shall be virtually free from pathogens. Water used for irrigation of table crops (for example, lettuce, peppers, or onions) shall be virtually free of Salmonella and Shigella species.

C. Toxic substances from other than natural sources shall not be present in Pueblo waters in quantities, concentrations, or combinations that are toxic to human, animal, plant, or aquatic life; that interfere with the normal propagation, growth, and survival of sensitive indigenous aquatic biota; or that will or are reasonably expected to bioaccumulate in tissues of fish, shellfish, or other aquatic organisms to levels that will impair the health of aquatic organisms or wildlife or result in unacceptable tastes, odors, or health risks to humans. There shall be no acute toxicity and no significant chronic toxicity in any Pueblo water. For toxic substances lacking EPA published criteria, biomonitoring data may be used to determine compliance with this standard in accordance with EPA standard acute and chronic biological test protocols, as listed in § 11-2-35.

D. No person shall place refuse, rubbish, demolition or construction debris, trash, garbage, motor vehicles, motor vehicle parts, batteries, appliances, tires, or other non-ceremonial waste into Pueblo waters or onto their banks.

Section 11-2-32. Temperature.

A. Normal, seasonal variations of temperature in surface waters shall be maintained. However, high water temperatures caused by unusually high ambient air temperatures are not violations of these standards.

B. In a stream, 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 2.7° C (5° F), based on the weekly average of the maximum daily temperatures measured at mid-depth or three feet, whichever is less.

C. In lakes, the temperature of the water column or epilimnion (if thermal stratification exists) shall not be raised more than 1.7° C (3° F) above that which existed before the addition of heat of artificial origin, based on the average of temperatures taken from the surface to the bottom or surface to the bottom of the epilimnion, if stratified.

D. In no case shall man-introduced heat be permitted when the maximum temperature specified for the reach would thereby be exceeded.

Section 11-2-33. Minerals.

The existing mineral content of Pueblo waters shall not be altered by municipal, industrial, or in-stream activities or other waste discharges so as to interfere with their designated uses. Generally, increases exceeding one-third over naturally occurring levels will not be allowed.

Section 11-2-34. Radioactive Materials.

Concentrations of radioactive constituents shall not exceed USEPA Safe Drinking Water Act (SDWA) standards except when concentrations caused by naturally occurring materials exceed those standards, in which case the latter concentrations shall apply. Notwithstanding the foregoing sentence, if a standard more stringent than the SDWA standard is indicated for a designated use, the more stringent standard will apply for that designated use.

Section 11-2-35. Determining Compliance with Narrative Standards.

Biomonitoring testing following current EPA test methods shall be used to determine compliance with the narrative criteria in §§ 11-2-31 through 11-2-33, provided that adequate funding is available. These protocols can be found in the publication, Short Term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms (October 2002), EPA No. 821-R-02-013, or the most current edition. Additionally, the Pueblo will rely on the following references:

- EPA, Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms, 5th Ed. (October 2002), EPA No. 821-R-02-013, or the most current edition.

- EPA Region 6, Post Third Round NPDES Permit Implementation Strategy (October 1992).

- EPA, Technical Support Document For Water Quality-based Toxics Control (March 1991), EPA 505/2-90-001, or the most current edition.

• EPA, Quality Criteria for Water (The Gold Book) (May 1986), EPA 440/5-86-001, or the most current edition.

Section 11-2-36. Biological Criteria.

All Pueblo waters with an existing or attainable fisheries use must demonstrate aquatic life communities that are similar in variety and abundance to least-disturbed waters within the Middle Rio Grande Basin that have similar hydrologic conditions. Measurements of biological integrity should include fish community structure and other associated aquatic life components. A significant adverse alteration of the abundance or variety of the aquatic life community constitutes a violation of these Standards.

Section 11-2-37. Mixing Zones.

A. A mixing zone is a defined and limited part of a water body adjacent to a point source of pollution in which initial dilution of wastewater occurs and in which certain numeric water quality standards may be exceeded provided that all the following requirements are met:

(1) Mixing zones shall be limited to perennial streams, lakes, and reservoirs;

(2) All mixing zones shall have defined boundaries, beyond which applicable water quality standards shall be met;

(3) In no instance shall the narrative water quality standards in § 11-2-31 be violated;

(4) In no instance shall the concentration of any toxic pollutant exceed the aquatic habitat acute numeric standard for that pollutant. The aquatic habitat acute numeric standard for all toxic pollutants shall be met at the point of discharge;

(5) In perennial streams, a continuous zone of passage around a mixing zone shall be maintained in which all applicable water quality standards are met and which provides for migration of aquatic life without exposure to pollutant concentrations that exceed chronic toxicity for aquatic habitat numeric standards. The mixing zone shall be no larger than 25% of the cross-sectional area or volume of flow and no wider than 50% of the stream width;

(6) In no instance shall mixing zones constitute more than 10% of the surface area of a lake or reservoir; boundaries of adjacent mixing zones in a lake or reservoir shall be no closer than the largest horizontal dimension of either mixing zone;

(7) Mixing zones are prohibited for the following persistent bioaccumulative pollutants:

(a) Chlordane,
(b) DDT and its metabolites (DDD and DDE),

(c) Dieldrin,
(d) Dioxin,
(e) Endrin,
(f) Endrin aldelhyde,
(g) Heptachlor,
(h) Heptachlor epoxide,
(i) Lindane,
(j) Mercury,
(k) PCBs, and
(l) Toxaphene.

B. The requirements in paragraphs A(1) – (6) shall be considered in determining whether to grant a mixing zone.

C. The water quality criteria in these LWQS shall apply within a mixing zone unless specific alternative criteria have been determined by the Director, pursuant to the provisions of § 11-2-5(B), and approved by the Laguna Pueblo Council and U.S. EPA Region 6. Mixing zones shall not be granted in lieu of reasonable control measures to reduce point source pollutant discharges but will be granted to complement such control measures. A limited mixing zone, serving as a zone of initial dilution in the immediate area of a point source of pollution, may be allowed if the conditions set out in this section are met.

Section 11-2-38. Wetlands.

All wetlands within the Pueblo of Laguna are Pueblo waters and are subject to narrative criteria and applicable antidegradation provisions unless site-specific numerical criteria have been assigned. 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 antidegradation requirements, the Pueblo's narrative water quality criteria, or appropriate criteria guidance issued by the U.S. EPA. Wetlands shall not be considered as repositories or treatment systems for wastes from human sources.

SUBCHAPTER IV. DESIGNATED USES AND ASSOCIATED NUMERIC WATER QUALITY STANDARDS

Section 11-2-41. List of Designated Uses and Associated Standards.

The following are the designated uses for Pueblo waters:

A. *Drinking Water*. The water body is used as a primary or secondary source of drinking water without any disinfection or other processing. Standards specific to this use, expressed in µg/L unless otherwise indicated, are specified in Appendix V, Table 1. In addition, the Organoleptic Effect Criteria in Appendix I shall apply.

B. *Domestic Water Supply*. The water body is used as a potable water supply for drinking or cooking. Disinfection or other processing may be required. Standards specific to this use, expressed in mg/L unless otherwise indicated and for dissolved state only, are listed in Appendix V, Table 2.

C. *Groundwater Recharge.* The surface water serves to recharge groundwater. Standards specific to this use are the same as the standards for Domestic Water Supply. In addition, surface waters designated as groundwater recharge must meet the standards for the aquifer being recharged as well as the applicable surface water standards.

D. *Primary Human Contact/Ceremonial*. The water body is used for religious, traditional and cultural purposes by members of Laguna Pueblo. Such use may involve the intentional and incidental ingestion of water, immersion into water, or use of sediments. Standards specific to this use are in Appendix V, Table 1 (Drinking Water Standards). In addition, the following standards shall apply:

(1) Bacteria

Geometric mean maximum Escherichia coli (E. coli): 47 per 100 ml (geometric mean calculation based on a minimum of five samples taken over a maximum of 30 days); single sample maximum: 88 colonies/100ml. Geometric mean maximum Enterococci: 30 per 100 ml (geometric mean calculation based on a minimum of four samples taken over a maximum of 30 days).

(2) The open water shall be free from algae in concentrations causing a nuisance condition or causing gastrointestinal or skin disorders.

(3) Concentrations of the following substances shall not exceed the following (where "Substance" means total unless otherwise indicated):

Substance	**Criterion**	**Substance**	**Criterion**
Diazinon	2.0 µg/L	Barium(dissolved)	2.0 mg/L
Ethylbenzene	0.7 mg/L	Beryllium (dissolved)	4.0 µg/L
Methoxychlor	40.0 µg/L	Cadmium (dissolved)	5.0µg/L
2,4-Dicholorphen-oxyacetic acid	70.0 µg/L	Chromium (dissolved)	0.1mg/L
Toluene	1.0 mg/L	Cyanide (amenable to chlorination)	0.2 mg/L
Trihalomethanes	80.0 µg/L	Fluoride	4.0 mg/L

(total)			
Trichloroethylene	5.0 µg/L	Total inorganic Nitrogen[1]	10.0 mg/L
1,1,1-Trichloro-ethane	0.20 mg/L	Mercury	2.0 µg/L
Xylenes (total)	10.0 mg/L	Selenium (total recoverable)	50.0 µg/L
Antimony (dissolved)	6.0 µg/L	Thallium (dissolved)	2.0 µg/L

[1] Total Inorganic Nitrogen shall be calculated as Ammonia (NH3) + Ammonium (NH4) + Nitrate (N03) + Nitrite (N02).

E. *Secondary Human Contact*. The water body is used for activities, such as recreation, that may cause the water to come into direct contact with human skin but normally not to the point of submergence, ingestion, or contact with human membrane material; such contact would occur only incidentally and infrequently. Examples include fishing and boating. Standards specific to this use are as follows:

(1) Bacteria

Geometric mean maximum Escherichia coli (E. coli): 126 per 100 ml (geometric mean calculation based on a minimum of four samples taken over a maximum of 30 days); single sample maximum: 235 colonies/100ml. Geometric mean maximum Enterococci: 33 per 100 ml (geometric mean calculation based on a minimum of four samples taken over a maximum of 30 days).

(2) pH range: 6.6-9.0

(3) The open water shall be free from algae in concentrations causing a nuisance condition or causing gastrointestinal or skin disorders.

F. *Wildlife Habitat*. The water body is used by nondomesticated plants and animals that are not considered pathogens, vectors for pathogens, or intermediate hosts for the pathogens of humans or domesticated livestock and plants. The water is used for direct consumption, foraging, habitat, cover, or propagation. Waters designated for this use shall not contain any substance at concentrations that would be deleterious to any nondomesticated plant or animal that could bioaccumulate or biomagnify to deleterious levels. The following criteria shall not be exceeded:

Substance	**Criterion**	**Substance**	**Criterion**
DDT and metabolites	11 ng/L	Mercury	1.1 ng/L
PCBs (total of all forms)	74 ng/L	Selenium (total recoverable)	2 µg/L

Note: Substances are totals unless otherwise indicated.

G. *High-Quality Coldwater Fishery*. The water body contains adequate water flow, water chemistry (DO, pH, etc.), temperature, and biological characteristics that are suitable for the support and propagation of coldwater fish such as cutthroat trout, rainbow trout or their hybrids. Standards specific to this use are as follows:

(1) Dissolved oxygen minimum: 6 mg/l

(2) Temperature maximum: 20° C (68° F)

(3) pH range: 6.6-8.8

(4) Turbidity: 10 NTU

(5) Conductivity (at 25° C): 300 µmhos/cm (unless natural background is higher)

(6) Chlorine: 2 µg/L

In addition, the acute and chronic criteria for aquatic life listed in Appendices II and III apply.

H. *Coldwater Fishery*. The water body has a water temperature and other characteristics that are suitable for the support of coldwater fish such as cutthroat trout, rainbow trout, or their hybrids. Standards specific to this use are as follows:

(1) Dissolved oxygen minimum: 6 mg/l

(2) Temperature maximum: 20° C (68° F)

(3) pH range: 6.6-8.8

(4) Total ammonia (as N) shall not exceed at any time U.S. EPA's national recommended Acute Criteria or exceed more than once in any three-year period the Chronic Criteria contained in Appendix III.

(4) Total residual chlorine maximum: 11µg/L

I. *Warmwater Fishery*. The water body has a temperature and other characteristics that are suitable for support and propagation of warmwater fish such as Yellow Bullhead catfish, White Sucker, Green Sunfish, Rio Grande Chub, Channel Catfish, and Mosquitofish. Standards specific to this use are as follows:

(1) Dissolved oxygen minimum: 5 mg/L

(2) Temperature maximum: 32.2° C (90° F)

(3) pH range: 6.0-9.0

(4) Total ammonia (as N) shall not exceed at any time EPA's national recommended Acute Criteria or exceed more than once in any three-year period the Chronic Criteria as contained in Appendix III.

(5) Total residual chlorine maximum: 11µg/L

J. *Fish Culture*. The water body is used for production of coldwater or warmwater fish in a hatchery or rearing station. There are no numeric water quality standards specific to this use. The General Standards in § 11-2-31 apply.

K. *Aquatic Life*. The acute and chronic criteria for aquatic life contained in Appendices II and III apply to all the fishery designated uses, except for "Fish Culture," to the extent indicated above.

L. *Irrigation*. The water body is used for watering agricultural crops and other plants by means of ditches, pipes, sprinkler systems, or other artificial means. Concentrations of the following substances shall not exceed the following criteria:

Substance	**Criterion**	**Substance**	**Criterion**
Aluminum (dissolved)	5.0 mg/L	Lithium (dissolved)	2.5 mg/L
Boron (dissolved)	0.75 mg/L	Molybdenum (dissolved)	0.01 mg/L
Cobalt (dissolved)	0.05 mg/L	Vanadium (dissolved)	0.1 mg/L
Fluoride (dissolved)	1.0 mg/L	Uranium	See § 11-2-34

M. *Livestock and Wildlife Watering*. The water body is consumed by livestock, non-domestic animals (including migratory birds), or both for water supply, habitation, growth, or propagation. Concentrations of the following substances shall not exceed the following criteria:

Substance	**Criterion**	**Substance**	**Criterion**
Aluminum (dissolved)	5.0 mg/L	Copper (dissolved)	0.5 mg/L
Arsenic (dissolved)	0.2 mg/L	Fluoride (dissolved)	2.0 mg/L
Boron (dissolved)	5.0 mg/L	Total Mercury	0.01 mg/L
Cadmium (dissolved)	0.05 mg/L	Selenium (total recoverable)	0.05 mg/L
Chromium (dissolved)	1.0 mg/L		
Cobalt (dissolved)	1.0 mg/L	Vanadium (dissolved)	0.1 mg/L

N. *Industrial Water Supply*. The water body is used in conjunction with the production of goods or services for profit. There are no numeric water quality standards specific to this use. The General Standards in § 11-2-31 apply.

O. *Outstanding Tribal Resource Waters*. These waters represent a unique sacred and cultural resource of Laguna Pueblo and are therefore given this most protective status to ensure their preservation. Other waters whose high quality makes them an exceptional recreational, cultural, or ecological resource of the Pueblo may also be designated Outstanding Tribal Resource Waters pursuant to the procedures in § 11-2-5. The standards in Appendix V, Table 1 shall apply to this use.

Section 11-2-42. Designated Use Modifications.

Modifications to designated uses, including the addition or removal of a designated use or establishment of a use subcategory, may be made pursuant to the provisions of § 11-2-5(B) and consistent with the requirements of 40 C.F.R. § 131.10, as may be revised from time to time.

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Section 11-2-43. Designated Use Table.

Table 1 identifies the designated uses for Pueblo waters.

Table 1

Designated Uses →	Drinking Water	Domestic Water Supply	Primary Human Contact/Ceremonial	Secondary Human Contact	Wildlife Habitat	High-Quality Coldwater Fishery	Coldwater Fishery	Warmwater Fishery	Fish Culture	Aquatic Life	Irrigation	Livestock and Wildlife Watering	Industrial Water Supply	Outstanding Tribal Resources Waters
Surface Water ↓														
Mountain Ponds	X	X	X	X	X	X			X	X		X		
Mountain Streams & Springs	X	X	X	X	X	X			X	X		X		X
Rio San Jose, Valley Village Jurisdiction		X	X	X	X					X	X	X		
Rio Paguate Above the Jack Pile Mine	X	X	X	X	X	X			X	X	X	X		X
Rio Paguate Below the Jack Pile Mine			X	X	X			X		X	X	X		
Water Canyon Creek	X	X	X	X	X	X				X	X	X		X
Encinal Creek	X	X	X	X	X		X			X	X	X		X
Rio Puerco			X	X	X			X		X		X		
Irrigation Ditches		X	X	X	X					X	X	X		
Wetlands		X	X		X					X		X		

Designated Uses →	Drinking Water	Domestic Water Supply	Primary Human Contact/Ceremonial	Secondary Human Contact	Wildlife Habitat	High-Quality Coldwater Fishery	Coldwater Fishery	Warmwater Fishery	Fish Culture	Aquatic Life	Irrigation	Livestock and Wildlife Watering	Industrial Water Supply	Outstanding Tribal Resources Waters
Groundwater ↓														
Alluvial Aquifer		X									X	X	X	
Gallup Sandstone Aquifer		X									X	X	X	
San Andres-Glorieta Aquifer		X									X	X	X	
Dakota Sandstone Aquifer														
Morrison Formation														
Entrada Sandstone														
Chinle Formation														
Basalt Aquifer[1]	X	X									X	X	X	
Santa Fe Group Aquifer		X									X	X	X	

[1] Basalt Aquifer consists of Mt. Taylor Basalt, Laguna Basalt, and Suwanee Basalt.

Section 11-2-44. Application and Construction.

A. The criteria assigned to a water body are those required to sustain all designated uses of the water body. When a Pueblo water has more than one designated use, as listed in Table 1, the applicable numeric standards for each parameter shall be those necessary to maintain all the designated uses of that water body, that is, the most stringent of those established for that body of water.

B. The criteria specific to a designated use shall be maintained at all times for total mercury, total DDT and metabolites, and total PCBs, and at all times for all other pollutants except at or below critical low flow.

(1) For human health criteria, the critical low flow is the harmonic mean flow, defined as the number of daily flow measurements divided by the sum of the reciprocals of the flows; that is, it is the reciprocal of the mean of reciprocals. For ephemeral waters the calculation shall be based upon the nonzero flow intervals and modified by including a factor to adjust for the proportion of intervals with zero flow. The equations are as follows:

Harmonic Mean = $\frac{n}{\sum 1/Q}$

where n = number of flow values

and Q = flow value

Modified Harmonic Mean = $\left[\frac{\sum_{i=1}^{Nt-N_0} \frac{1}{Qi}}{Nt - N_0}\right]^{-1} x \left[\frac{Nt - N_0}{Nt}\right]$

where Qi = nonzero flow

Nt = total number of flow values

and N_0 = number of zero flow values.

(2) For all other narrative and numeric criteria, the critical low flow is the minimum average four consecutive day flow that occurs with a frequency of once in three years (4Q3). The critical low flow may be determined on an annual, seasonal or monthly basis, as appropriate, after due consideration of site-specific conditions.

C. Water quality standards established for the attainment and maintenance of upstream designated uses shall be sufficient to protect the attainment and maintenance of downstream designated uses.

D. These LWQS provide the basis for managing discharges attributable to point and nonpoint sources of pollution, including in-stream activities. These LWQS are not used to control natural background phenomena.

Section 11-2-45. Additional Numeric Water Quality Criteria.

Tables listing additional numeric water quality criteria may be found in Appendices I through III of these Standards.

SUBCHAPTER V. SAMPLING AND ANALYSIS, VARIANCES AND EXCEEDANCES

Section 11-2-51. Sampling and Analysis.

Sample collection, preservation, and analysis used to determine water quality and to maintain these Standards shall be performed in accordance with the Pueblo of Laguna's Quality Assurance Plan and procedures prescribed by the latest U.S. EPA analytical references, including but not limited to the latest editions of any of the following authorities:

(1) American Public Health Association, Standard Methods for the Examination of Water and Wastewater, 21st Ed. (2006), or the most current edition;

(2) EPA, Methods for Chemical Analysis of Water and Wastes, 3rd Ed. (March 1983), EPA No. 600479020, or the most current edition; or

(3) Guidelines Establishing Test Procedures for the Analysis of Pollutants, 40 CFR Part 136.

Section 11-2-52. Variances.

A. The Director, with the approval of the Laguna Pueblo Council and of U.S. EPA, pursuant to subsection H, may grant a variance from a water quality standard for a point source discharge provided that the discharger demonstrates that treatment more advanced than that required to comply with technology-based effluent limitations is necessary to comply with the water quality standard and:

(1) It is not technically feasible to achieve compliance within the next three years, or

(2) The cost of treatment would result in substantial and widespread economic and social impact.

B. A variance may be granted on a pollutant-specific basis only. A point source discharge is required to comply with all other applicable LWQS for which a variance is not granted. No variances may be granted for point source discharges to Outstanding Tribal Resource Waters.

C. A variance applies only to a specific point source discharge. The granting of a variance does not modify a water quality standard. Other point source dischargers to the water body shall

comply with all applicable Standards, including any Standard for which a variance has been granted for a specific point source discharge.

D. A variance is for a fixed term not to exceed three years. Variances are not renewable but, upon adequate justification, may be reissued by the Director, with the approval of the Laguna Pueblo Council and of U.S. EPA, pursuant to subsection H. In addition, the Director shall reevaluate a variance upon the issuance, reissuance, or modification of the discharge permit for the point source discharge.

E. A person who seeks a variance from a water quality standard shall submit a letter to the Director requesting a variance. The request shall include the following information:

(1) Identification of the specific pollutant and water quality standard for which the variance is sought;

(2) Identification of the receiving water;

(3) For an existing point source discharge, a detailed description of the existing discharge control technologies that are used to achieve compliance with applicable water quality standards. For a new point source discharge, a detailed description of the proposed discharge control technologies that will be used to achieve compliance with applicable water quality standards.

(4) Documentation that the existing or proposed discharge control technologies will comply with applicable technology-based effluent limitations and that more advanced treatment technology is necessary to achieve compliance with the water quality standard for which a variance is sought.

(5) A detailed discussion of why compliance with the water quality standard cannot be achieved.

(6) A detailed discussion of the discharge control technologies that are available for achieving compliance with the water quality standard for which a variance is sought;

(7) Documentation of one or both of the following:

(a) That it is not technically feasible to install and operate any of the available discharge control technologies to achieve compliance with the water quality standard for which a variance is sought, or

(b) That installation and operation of each of the available discharge technologies to achieve compliance with the water quality standard would result in substantial and widespread economic and social impact;

(8) Documentation that the point source discharger has reduced, to the maximum extent practicable, the discharge of the pollutant for which a variance is sought through implementation of pretreatment, source reduction, or a waste minimization program;

(9) A detailed description of proposed interim discharge limitations that represent the highest level of treatment achievable by the point source discharge during the term of the variance. Interim discharge limitations shall not be less stringent than technology-based effluent limitations.

F. In determining whether to recommend to the Laguna Pueblo Council to grant or deny the request for a variance, the Director shall consider the following factors: bioaccumulation, bioconcentration, predicted exposure on biota and the likelihood that resident biota will be adversely affected, the known or predicted safe exposure levels for the pollutant of concern, and the likelihood of adverse human health effects.

G. The Director shall issue public notice and shall provide an opportunity for a public hearing on whether the request for a variance should be granted or denied, pursuant to the procedures in § 11-2-5(B).

H. A variance is subject to review and approval by the Laguna Pueblo Council and the U.S. EPA.

I. The final decision on a request for a variance is subject to judicial review pursuant to § 11-2-5(C).

Section 11-2-53. Compliance Schedules.

The Pueblo of Laguna may allow, on a case-by-case basis, inclusion of a compliance schedule in a National Pollutant Discharge Elimination System ("NPDES") permit that is issued to an existing facility if it is determined by the permitting authority that more time is required to meet permit requirements based on new or revised water quality standards. The compliance schedule shall require compliance at the earliest practicable time and shall specify milestones and their anticipated dates in order to track a permittee's progress towards compliance. Notwithstanding the forgoing, a compliance schedule shall not be issued for permit requirements designed to meet water quality standards for Outstanding Tribal Resource Waters.

APPENDICES

APPENDIX I: ORGANOLEPTIC EFFECT CRITERIA

(Organoleptic Effect Criteria are contaminants whose presence causes adverse taste or odors in water or fish.)

Pollutant	**Organoleptic Effect Criteria (µg/L)**
Acenaphthene	20
Monochlorobenzene	20
3-Chlorophenol	0.1
4-Chlorophenol	0.1
2,3-Dichlorophenol	0.04
2,5-Dichlorophenol	0.5
2,6-Dichlorophenol	0.2
3,4-Dichlorophenol	0.3
2,4,5-Trichlorophenol	1
2,4,6-Trichlorophenol	2
2,3,4,6-Tetrachlorophenol	1
2-Methyl-4-Chlorophenol	1800
3-Methyl-4-Chlorophenol	3000
3-Methyl-6-Chlorophenol	20
2-Chlorophenol	0.1
Copper	1000

APPENDIX I: ORGANOLEPTIC EFFECT CRITERIA (continued)

Pollutant	**Organoleptic Effect Criteria (µg/L)**
2,4-Dichlorophenol	0.3
2,4-Dimethylphenol	400
Hexachlorocyclopentadiene	1
Nitrobenzene	30
Pentachlorophenol	30
Phenol	300
Zinc	5000

APPENDIX II: AQUATIC LIFE CRITERIA TABLE

	Freshwater	
Pollutant	**CMC 1**	**CCC 1**
	(acute)	**(chronic)**
	(µg/L)	**(µg/L)**
Acrolein	3ug/L	3ug/L
Aesthetic Qualities	NARRATIVE STATEMENT—SEE DOCUMENT	
Aldrin	3.0	
Alkalinity		20000
alpha-Endosulfan	0.22 A	0.056 A
Aluminum pH 6.5 – 9.0	750 B	
Ammonia	FRESHWATER CRITERIA ARE pH, Temperature and Life-stage DEPENDENT	
Arsenic	340 C,D	150 C,D
Bacteria	FOR PRIMARY RECREATION AND SHELLFISH USES—SEE DOCUMENT	
beta-Endosulfan	0.22 A	0.056 A
Boron	NARRATIVE STATEMENT—SEE DOCUMENT	
Carbaryl	2.1	2.1
Cadmium	2.0 D,E	0.25 D,E
Chlordane	2.4	0.0043
Chloride	860000	230000
Chlorine	19	11
Chloropyrifos	0.083	0.041
Chromium (III)	570 D,E	74 D,E
Chromium (VI)	16 D	11 D
Color	NARRATIVE STATEMENT—SEE DOCUMENT	
Copper	Freshwater criteria calculated using the BLM mm - See Document	
Cyanide	22 F	5.2 F
Demeton		0.1
Diazinon	0.17ug/L	0.17ug/L
Dieldrin	0.24	0.056
Endrin	0.086	0.036
gamma-BHC (Lindane)	0.95	
Gases, Total Dissolved	NARRATIVE STATEMENT— SEE DOCUMENT	
Guthion		0.01

APPENDIX II: AQUATIC LIFE CRITERIA TABLE (continued)

	Freshwater	
Pollutant	**CMC 1 (acute) (µg/L)**	**CCC 1 (chronic) (µg/L)**
Hardness	NARRATIVE STATEMENT— SEE DOCUMENT	
Heptachlor	0.52	0.0038
Heptachlor Epoxide	0.52	0.0038
Iron		1000
Lead	65 D,E	2.5 D,E
Malathion		0.1
Mercury	1.4 D	0.77 D
Methylmercury		
Methoxychlor		0.03
Mirex		0.001
Nickel	470 D,E	52 D,E
Nonylphenol	28ug/L	6.6ug/L
Nutrients	See EPA's Ecoregional criteria for Total Phosphorus, Total Nitrogen, and Water Clarity (Secchi depth for lakes; turbidity for streams and rivers) (& Level III Ecoregional criteria)	
Oil and Grease	See Subchapter III, Section 11-2-31 on General Standards	
Oxygen, Dissolved Freshwater	See Subchapter IV, Section 11-2-41 on Designated Uses and Associated Standards	
Oxygen, Dissolved Saltwater	See Subchapter III, Section 11-2-31 on General Standards	
Parathion	0.065 B	0.013 B
Pentachlorophenol	19 G	15 G
pH		6.5 – 9
Phosphorus Elemental		
Polychlorinated Biphenyls (PCBs)		0.014 H
Selenium	I	5
Silver	3.2 D,E	
Solids Suspended and Turbidity	See Subchapter III, Section 11-2-31 on General Standards	
Sulfide-Hydrogen Sulfide		2.0
Tainting Substances	See Subchapter III, Section 11-2-31 on General Standards	
Temperature	See Subchapter IV, Section 11-2-41 on Designated Uses and Associated Standards	
Toxaphene	0.73	0.0002
Tributyltin (TBT)	0.46	0.072
Zinc	120 D,E	120 D,E
4,4'-DDT	1.1 J	0.001 J

APPENDIX II: AQUATIC LIFE CRITERIA TABLE (continued)

A This value applies to the sum of alpha-endosulfan and beta-endosulfan.

B This value for aluminum is expressed in terms of total recoverable metal in the water column.

C This water quality criterion applies to total arsenic.

D Freshwater and saltwater criteria for metals are expressed in terms of the dissolved metal in the water column.

E The freshwater criterion for this metal is expressed as a function of hardness (mg/L) in the water column. The value given here corresponds to a hardness of 100 mg/L. Criteria values for other hardness may be calculated per the equation presented in the criteria document.

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

G Freshwater aquatic life values for pentachlorophenol are expressed as a function of pH. Values displayed in table correspond to a pH of 7.8.

H This criterion applies to total PCBs (e.g., the sum of all congener or all isomer or homolog or Aroclor analyses.)

I The CMC = 1/[(f1/CMC1) + (f2/CMC2)] where f1 and f2 are the fractions of total selenium that are treated as selenite and selenate, respectively, and CMC1 and CMC2 are 185.9 ug/l and 12.82 ug/l, respectively.

J This criterion applies to DDT and its metabolites (i.e., the total concentration of DDT and its metabolites should not exceed this value).

1 Criteria Maximum Concentration (CMC) is an estimate of the highest concentration of a material in surface water to which an aquatic community can be exposed briefly without resulting in an unacceptable effect.

2 The Criterion Continuous Concentration (CCC) is an estimate of the highest concentration of a material in surface water to which an aquatic community can be exposed indefinitely without resulting in an unacceptable effect.

APPENDIX II: AQUATIC LIFE CRITERIA TABLE (continued)

Appendix A—Parameters for Calculating Freshwater Dissolved Metals Criteria That Are Hardness-Dependent						
Chemical	**mA**	**bA**	**mC**	**bC**	**Freshwater Conversion Factors (CF)**	
					CMC	**CCC**
Cadmium	1.0166	-3.924	0.7409	-4.719	1.136672-[(*ln*hardness)(0.041838)]	1.101672-[(*ln*hardness)(0.041838)]
Chromium III	0.819	3.7256	0.819	0.6848	0.316	0.86
Copper	0.9422	-1.7	0.8545	-1.702	0.96	0.96
Lead	1.273	-1.46	1.273	-4.705	1.46203-[(*ln*hardness)(0.145712)]	1.46203-[(*ln*hardness)(0.145712)]
Nickel	0.846	2.255	0.846	0.0584	0.998	0.997
Silver	1.72	-6.59	—	—	0.85	—
Zinc	0.8473	0.884	0.8473	0.884	0.978	0.986

Hardness-dependent metals' criteria may be calculated from the following:

CMC (dissolved) = exp{mA [*ln*(hardness)]+ bA} (CF)
CCC (dissolved) = exp{mC [*ln*(hardness)]+ bC} (CF)

APPENDIX III. A: CHRONIC CRITERIA FOR TOTAL AMMONIA IN mg NITROGEN /L WHEN EARLY FISH LIFE STAGES ARE **PRESENT**

TEMPERATURE, °C

pH	**0**	**14**	**15**	**16**	**17**	**18**	**19**	**20**	**21**	**22**	**23**	**24**	**25**	**26**	**27**	**28**	**29**	**30**
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	5.86	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	3.0	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	2.09
7.1	5.67	5.67	5.49	5.15	4.8.	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	3.48	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	4.7.	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	4.49	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	2.15	2.02	1.90	1.78	1.67	1.56	1.47
7.7	3.58	2.58	3.47	3.25	3.05	2.86	3.68	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	0.852	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

APPENDIX III. B: CHRONIC CRITERIA FOR TOTAL AMMONIA IN mg NITROGEN /L WHEN EARLY FISH LIFE STAGES ARE **ABSENT**

TEMPERATURE, °C

pH	0-7	8	9	10	11	12	13	14	15[1]
6.5	10.8	10.1	9.51	8.92	8.36	7.84	7.35	6.89	6.46
6.6	10.7	9.99	9.37	8.79	8.24	7.72	7.24	6.79	6.36
6.7	10.5	9.81	9.20	8.62	8.08	7.58	7.11	6.66	6.25
6.8	10.2	9.58	8.98	8.42	7.90	7.40	6.94	6.51	6.10
6.9	9.93	9.31	8.73	8.19	7.68	7.20	6.75	6.33	5.93
7.0	9.60	9.00	8.43	7.91	7.41	6.95	6.52	6.11	5.73
7.1	9.20	8.63	8.09	7.58	7.11	6.67	6.25	5.86	5.49
7.2	8.75	8.20	7.69	7.21	6.76	6.34	5.94	5.57	5.22
7.3	8.24	7.73	7.25	6.79	6.37	5.97	5.22	4.89	4.59
7.4	7.69	7.21	6.76	6.33	8.94	5.57	5.22	4.89	4.59
7.5	7.09	6.64	6.23	5.84	5.48	5.13	4.81	4.51	4.23
7.6	6.46	6.05	5.67	5.32	4.99	4.68	4.38	4.11	3.85
7.7	5.81	5.45	5.11	4.79	4.49	4.21	3.95	3.70	3.47
7.8	5.17	4.84	4.54	4.26	3.99	3.74	3.51	3.29	3.09
7.9	4.54	4.26	3.99	3.74	3.51	3.29	3.09	2.89	2.71
8.0	3.95	3.70	3.47	3.26	3.05	2.86	2.68	2.52	2.36
8.1	3.41	3.19	2.99	2.81	2.63	2.47	2.31	2.17	2.03
8.2	2.91	2.73	2.56	2.40	2.25	2.11	1.98	1.85	1.74
8.3	2.47	2.32	2.18	2.04	1.91	1.79	1.68	1.58	1.48
8.4	2.09	1.96	1.84	1.73	1.62	1.52	1.42	1.33	1.25
8.5	1.77	1.66	1.55	1.46	1.37	1.28	1.20	1.13	1.06
8.6	1.49	1.40	1.31	1.23	1.15	1.08	1.01	0.951	0.892
8.7	1.26	1.18	1.11	1.04	0.976	0.915	0.858	0.805	0.754
8.8	1.07	1.01	0.944	0.885	0.829	0.778	0.729	0.684	0.641
8.9	0.917	0.860	0.806	0.756	0.709	0.664	0.623	0.584	0.548
9.0	0.790	0.740	0.694	0.651	0.610	0.572	0.536	0.503	0.471

[1] At or above 15°C the chronic criterion is the same as that in Appendix III. A.

APPENDIX III. C: TOTAL AMMONIA, ACUTE CRITERIA, (mg Nitrogen/L)

TOTAL AMMONIA, ACUTE CRITERIA, (mg Nitrogen/L)		
pH	**COLDWATER DESIGNATION WATER BODY**	**WARMWATER DESIGNATION WATER BODY**
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
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

APPENDIX IV: EPA MCLs FOR DRINKING WATER

Contaminant	MCL or TT[1] (mg/L)[2]	Potential health effects from long-term[3] exposure above the MCL	Common sources of contaminant in drinking water	Public Health Goal (mg/L)[2]
Acrylamide	TT[4]	Nervous system or blood problems; increased risk of cancer	Added to water during sewage/ wastewater treatment	zero
Alachlor	0.002	Eye, liver, kidney or spleen problems; anemia; increased risk of cancer	Runoff from herbicide	zero
Alpha/photon emitters	15 picocuries Per Liter (pCi/L)	Increased risk of cancer	Erosion of natural deposits of certain minerals that are radioactive and may emit a form of radiation known as alpha radiation	zero
Antimony	0.006	Increase in blood cholesterol; decrease in blood sugar	Discharge from petroleum refineries; fire retardants; ceramics; electronics; solder	0.006
Arsenic	0.010	Skin damage or problems with circulatory systems, and may have increased risk of getting cancer	Erosion of natural deposits; runoff from orchards; runoff from glass & electronics production wastes	0
Asbestos (fibers >10 micrometers)	7 million	Increased risk of developing benign intestinal polyps	Decay of asbestos cement in water mains; erosion of natural deposits	7 MFL
Atrazine	0.003	Cardiovascular system or reproductive problems	Runoff from herbicide used on row crops	0.003
Barium	2	Increase in blood pressure	Discharge of drilling wastes; discharge from metal refineries; erosion of natural deposits	2
Benzene	0.005	Anemia; decrease in blood platelets; increased risk of cancer	Discharge from factories; leaching from gas storage tanks and landfills	zero
Benzo(a)pyrene (PAHs)	0.0002	Reproductive difficulties; increased risk of cancer	Leaching from linings of water storage tanks and distribution lines	zero
Beryllium	0.004	Intestinal lesions	Discharge from metal refineries and coal-burning factories, discharge from electrical, aerospace, and defense industries.	0.004
Beta photon emitters	4 millirems per year	Increased risk of cancer	Decay of natural and man-made deposits of certain minerals that are radioactive and may emit forms of radiation known as photons and beta radiation	zero

APPENDIX IV: EPA MCLs FOR DRINKING WATER (continued)

Contaminant	MCL or TT[1] (mg/L)[2]	Potential health effects from long-term[3] exposure above the MCL	Common sources of contaminant in drinking water	Public Health Goal (mg/L)[2]
Bromate	0.010	Increased risk of cancer	Byproduct of drinking water disinfection	zero
Cadmium	0.005	Kidney damage	Corrosion of galvanized pipes; erosion of natural deposits; discharge from metal refineries; runoff from waste batteries and paints	0.005
Carbofuran	0.04	Problems with blood, nervous system, or reproductive system	Leaching of soil fumigant used on rice and alfalfa	0.04
Carbon tetrachloride	0.005	Liver problems; increased risk of cancer	Discharge from chemical plants and other industrial activities	zero
Chloramines (as Cl_2)	MRDL=4.0[1]	Eye/nose irritation; stomach discomfort; anemia	Water additive used to control microbes	MRDLG=4[1]
Chlordane	0.002	Liver or nervous system problems; increased risk of cancer	Residue of banned termiticide	zero
Chlorine (as Cl_2)	MRDL=4.0[1]	Eye/nose irritation; stomach discomfort	Water additive used to control microbes	MRDLG=4[1]
Chlorine dioxide (as ClO_2)	MRDL=0.8[1]	Anemia; infants, young children, and fetuses of pregnant women: nervous system effects	Water additive used to control microbes	MRDLG=0.8[1]
Chlorite	1.0	Anemia; infants, young children, and fetuses of pregnant women: nervous system effects	Byproduct of drinking water disinfection	0.8
Chlorobenzene	0.1	Liver or kidney problems	Discharge from chemical and agricultural chemical factories	0.1
Chromium (total)	0.1	Allergic dermatitis	Discharge from steel and pulp mills; erosion of natural deposits	0.1
Copper	TT[5]; Action Level = 1.3	Short-term exposure: Gastrointestinal distress. Long-term exposure: Liver or kidney damage. People with Wilson's Disease should consult their personal doctor if the amount of copper in their water exceeds the action level	Corrosion of household plumbing systems; erosion of natural deposits	1.3
Cryptosporidium	TT[7]	Short-term exposure: Gastrointestinal illness (e.g., diarrhea, vomiting, cramps)	Human and animal fecal waste	zero

APPENDIX IV: EPA MCLs FOR DRINKING WATER (continued)

Contaminant	MCL or TT[1] (mg/L)[2]	Potential health effects from long-term[3] exposure above the MCL	Common sources of contaminant in drinking water	Public Health Goal (mg/L)[2]
Cyanide (as free cyanide)	0.2	Nerve damage or thyroid problems	Discharge from steel/metal factories; discharge from plastic and fertilizer factories	0.2
2,4-D	0.07	Kidney, liver, or adrenal gland problems	Runoff from herbicide used on row of way	0.07
Dalapon	0.2	Minor Kidney changes	Runoff from herbicide used on rights of way	0.2
1,2-Dibromo-3-chloropropane (DBCP)	0.0002	Reproductive difficulties; increased risk of cancer	Runoff/leaching from soil fumigant used on soybeans, cotton, pineapples, and orchards	Zero
o-Dichlorobenzene	0.6	Liver, kidney, or circulatory system problems	Discharge from industrial chemical factories	0.6
p-Dichlorobenzene	0.075	Anemia; liver, kidney or spleen damage; changes in blood	Discharge from industrial chemical factories	0.075
1,2-Dichloroethane	0.005	Increased risk of cancer	Discharge from industrial chemical factories	Zero
1,1-Dichloroethylene	0.007	Liver problems	Discharge from industrial chemical factories	0.007
cis-1,2-Dichloroethylene	0.07	Liver problems	Discharge from industrial chemical factories	0.07
trans-1,2-Dichloroethylene	0.1	Liver problems	Discharge from industrial chemical factories	0.1
Dichloromethane	0.005	Liver problems; increased risk of cancer	Discharge from industrial chemical factories	Zero
1,2-Dichloropropane	0.005	Increased risk of cancer	Discharge from industrial chemical factories	Zero
Di(2-ethylhexyl) adipate	0.4	Weight loss; liver problems, or possible reproduction difficulties	Discharge from chemical factories	0.4
Di(2-ethylhexyl) phthalate	0.006	Reproductive difficulties; liver problems; increased risk of cancer	Discharge from rubber and chemical factories	zero
Dinoseb	0.007	Weight loss; liver problems, or possible reproduction risk of cancer	Discharge from rubber and chemical factories	0.007
Dioxin (2,3,7,8-TCDD)	0.00000003	Reproductive difficulties; increased risk of cancer	Emissions from waste incineration and other combustion; discharge from chemical factories	zero

APPENDIX IV: EPA MCLs FOR DRINKING WATER (continued)

Contaminant	MCL or TT[1] (mg/L)[2]	Potential health effects from long-term[3] exposure above the MCL	Common sources of contaminant in drinking water	Public Health Goal (mg/L)[2]
Diquat	0.02	Cataracts	Runoff from herbicide use	0.02
Endothall	0.1	Stomach and intestinal problems	Runoff from herbicide use	0.1
Endrin	0.002	Liver problems	Residue of banned insecticide	0.002
Epichlorohydrin	TT[4]	Increased cancer risk; stomach problems	Discharge from industrial chemical factories; an impurity of some water treatment chemicals	zero
Ethylbenzene	0.7	Liver or kidney problems	Discharge from petroleum refineries	0.7
Ethylene dibromide	0.00005	Problems with liver, stomach, reproductive	Discharge from petroleum refineries	zero
Fecal coliform and *E. coli*	MCL[6]	Fecal coliforms and *E. coli* are bacteria whose presence indicates that the water may be contaminated with human or aminal wastes. Microbes in these waters may cause short term effects, such as diarrhea, cramps, nausea, headaches, or other symphoms. They mau pose a special health risk for infants, young children, and people with severely compromised immune systems.	Human and animal fecal waste	zero[6]
Fluoride	4.0	Bone disease (pain and tenderness of the bones); children may get mottled teeth	Water additive which promotes strong teeth; erosion of natural deposits; discharge from fertilizer and aluminum factories	4.0
Giardia lamblia	TT[7]	Short-term exposure: Gastrointestinal illness (e.g., diarrhea, vomiting, cramps)	Human and animal fecal waste	zero
Glyphosate	0.7	Kidney problems; reproductive difficulties	Runoff from herbicide use	0.7
Haloacetic acids (HAA5)	0.060	Increased risk of cancer	Byproduct of drinking water disinfection	n/a[9]
Heptachlor	0.0004	Liver damage; increased risk of cancer	Residue of banned termiticide	zero
Heptachlor epoxide	0.0002	Liver damage; increased risk of cancer	Breakdown of heptachlor	zero

APPENDIX IV: EPA MCLs FOR DRINKING WATER (continued)

Contaminant	MCL or TT[1] (mg/L)[2]	Potential health effects from long-term[3] exposure above the MCL	Common sources of contaminant in drinking water	Public Health Goal (mg/L)[2]
Heterotrophic plate count (HPC)	TT[7]	HPC has no health effects; it is an analytic method used to measure the variety of bacteria that are common in water. The lower the concentration of bacteria in drinking water, the better maintained the water system is.	HPC measures a range of bacteria that are naturally present in the environment	n/a
Hexachlorobenzene	0.001	Liver or kidney problems; reproductive difficulties; increased risk of cancer	Discharge from metal refineries and agricultural chemical factories	zero
Hexachlorocyclopen -tadiene	0.05	Kidney or stomach problems	Discharge from chemical factories	0.05
Lead	TT5; Action Level=0.015	Infants and children: Delays in physical or mental development; children could show slight deficits in attention span and learning abilities; Adults: Kidney problems; high blood pressure	Corrosion of household plumbing systems; erosion of natural deposits	zero
Legionella	TT7	Legionnaire's Disease, a type of pneumonia	Found naturally in water; multiplies in heating systems	zero
Lindane	0.0002	Liver or kidney problems	Runoff/leaching from insecticide used on cattle, lumber, gardens	0.0002
Mercury (inorganic)	0.002	Kidney damage	Erosion of natural deposits; discharge from refineries and factories; runoff from landfills and cropland	0.002
Methoxychlor	0.04	Reproductive difficulties	Runoff/leaching from insecticide used on fruits, vegetables, alfalfa, livestock	0.04
Nitrate (measured as Nitrogen)	10	Infants below the age of six months who drink water containing nitrate in excess of the MCL could become seriously ill and, if untreated, may die. Symptoms include shortness of breath and blue-baby syndrome.	Runoff from fertilizer use; leaching from septic tanks, sewage; erosion of natural deposits	10

APPENDIX IV: EPA MCLs FOR DRINKING WATER (continued)

Contaminant	MCL or TT[1] (mg/L)[2]	Potential health effects from long-term[3] exposure above the MCL	Common sources of contaminant in drinking water	Public Health Goal (mg/L)[2]
Nitrite (measured as Nitrogen)	1	Infants below the age of six months who drink water containing nitrate in excess of the MCL could become seriously ill and, if untreated, may die. Symptoms include shortness of breath and blue-baby syndrome.	Runoff from fertilizer use; leaching from septic tanks, sewage; erosion of natural deposits	1
Oxamyl (Vydate)	0.2	Slight nervous system effects	Runoff/leaching from insecticide used on apples, potatoes, and tomatoes	0.2
Pentachlorophenol	0.001	Liver or kidney problems; increased cancer risk	Discharge from wood-preserving factories	zero
Picloram	0.5	Liver problems	Herbicide runoff	0.5
Polychlorinated biphenyls (PCBs)	0.0005	Skin changes; thymus gland problems; immune deficiencies; reproductive or nervous system difficulties; increased risk of cancer	Runoff from landfills; discharge of waste chemicals	zero
Radium 226 and Radium 228 (combined)	5 pCi/L	Increased risk of cancer	Erosion of natural deposits	zero
Selenium	0.05	Hair or fingernail loss; numbness in fingers or toes; circulatory problems	Discharge from petroleum and metal refineries; erosion of natural deposits; discharge from mines	0.05
Simazine	0.004	Problems with blood	Herbicide runoff	0.004
Styrene	0.1	Liver, kidney, or circulatory system problems	Discharge from rubber and plastic factories; leachind from landfills	0.1
Tetrachloroethylene	0.005	Liver problems; increased risk of cancer	Discharge from factories and dry cleaners	zero
Thallium	0.002	Hair loss; changes in blood; kidney, intestine, or liver problems	Leaching from ore-processing sites; discharge from electronics, glass, and drug factories	0.0005
Toluene	1	Nervous system, kidney, or liver problems	Discharge from petroleum factories	1
Total Coliforms	5.0 Percent[3]	Coliforms are bacteria that indicate that other, potentially harmful bacteria may be present. See fecal coliforms and *E. coli*	Naturally present in the environment	zero

APPENDIX IV: EPA MCLs FOR DRINKING WATER (continued)

Contaminant	MCL or TT[1] (mg/L)[2]	Potential health effects from long-term[3] exposure above the MCL	Common sources of contaminant in drinking water	Public Health Goal (mg/L)[2]
Total Trihalomethanes (TTHMs)	0.080	Liver, kidney or central nervous system problems; increased risk of cancer	Byproduct of drinking water disinfection	n/a[9]
Toxaphene	0.003	Kidney, liver, or thyroid problems; increased risk of cancer	Runoff/leaching from insecticide used on cotton and cattle	zero
2,4,5-TP (Silvex)	0.05	Liver problems	Residue of banned herbicide	0.05
1,2,4-Trichlorobenzene	0.07	Changes in adrenal glands	Discharge from textile finishing factories	0.07
1,1,1-Trichloroethane	0.2	Liver, nervous system, or circulatory problems	Discharge from metal degreasing sites and other factories	0.2
1,1,2-Trichloroethane	0.005	Liver, kidney, or immune system problems	Discharge from industrial chemical factories	0.003
Trichloroethylene	0.005	Liver problems; increased risk of cancer	Discharge from metal degreasing sites and other factories	zero
Turbidity	TT[7]	Turbidity is a measure of the cloudiness of water. It is used to indicate water quality and filtration effectiveness (e.g., whether disease-causing organisms are present). Higher turbidity levels are often associated with higher levels of disease-causing microorganisms such as viruses, parasites and some bacteria. These organisms can cause short term symptoms such as nausea, cramps, diarrhea, and associated headaches.	Soil runoff	n/a
Uranium	30µg/L	Increased risk of cancer, kidney toxicity	Erosion of natural deposits	zero
Vinyl chloride	0.002	Increased risk of cancer	Leaching from PVC pipes; discharge from plastic factories	zero
Viruses (enteric)	TT[7]	Short-term exposure: Gastrointestinal illness (e.g., diarrhea, vomiting, cramps)	Human and animal fecal waste	zero
Xylenes (total)	10	Nervous system damage	Discharge from petroleum factories; discharge from chemical factories	10

APPENDIX IV: EPA MCLs FOR DRINKING WATER (continued)

NOTES

1 Definitions

• Maximum Contaminant Level Goal (MCLG)—The level of a contaminant in drinking water below which there is no known or expected risk to health. MCLGs allow for a margin of safety and are non-enforceable public health goals.

• Maximum Contaminant Level (MCL)—The highest level of a contaminant that is allowed in drinking water. MCLs are set as close to MCLGs as feasible using the best available treatment technology and taking cost into consideration. MCLs are enforceable standards.

• Maximum Residual Disinfectant Level Goal (MRDLG)—The level of a drinking water disinfectant below which there is no known or expected risk to health. MRDLGs do not reflect the benefits of the use of disinfectants to control microbial contaminants.

• Maximum Residual Disinfectant Level (MRDL)—The highest level of a disinfectant allowed in drinking water. There is convincing evidence that addition of a disinfectant is necessary for control of microbial contaminants.

• Treatment Technique (TT)—A required process intended to reduce the level of a contaminant in drinking water.

2 Units are in milligrams per liter (mg/L) unless otherwise noted. Milligrams per liter are equivalent to parts per million (ppm).

3 Health effects are from long-term exposure unless specified as short-term exposure.

4 Each water system must certify annually, in writing, to the state (using third-party or manufacturers certification) that when it uses acrylamide and/or epichlorohydrin to treat water, the combination (or product) of dose and monomer level does not exceed the levels specified, as follows: Acrylamide = 0.05 percent dosed at 1 mg/L (or equivalent); Epichlorohydrin = 0.01 percent dosed at 20 mg/L (or equivalent).

5 Lead and copper are regulated by a Treatment Technique that requires systems to control the corrosiveness of their water. If more than 10 percent of tap water samples exceed the action level, water systems must take additional steps. For copper, the action level is 1.3 mg/L, and for lead is 0.015 mg/L.

6 A routine sample that is fecal coliform-positive or E. coli-positive triggers repeat samples--if any repeat sample is total coliform-positive, the system has an acute MCL violation. A routine sample that is total coliform-positive and fecal coliform-negative or E. coli-negative triggers repeat samples--if any repeat sample is fecal coliform-positive or E. coli-positive, the system has an acute MCL violation. See also Total Coliforms.

7 EPA's surface water treatment rules require systems using surface water or ground water under the direct influence of surface water to (1) disinfect their water, and (2) filter their water or meet criteria for avoiding filtration so that the following contaminants are controlled at the following levels:

• Cryptosporidium: 99 percent removal for systems that filter. Unfiltered systems are required to include Cryptosporidium in their existing watershed control provisions.

• Giardia lamblia: 99.9 percent removal/inactivation

• Viruses: 99.99 percent removal/inactivation

• Legionella: No limit, but EPA believes that if Giardia and viruses are removed/inactivated according to the treatment techniques in the surface water treatment rule, Legionella will also be controlled.

• Turbidity: For systems that use conventional or direct filtration, at no time can turbidity (cloudiness of water) go higher than 1 nephelolometric turbidity unit (NTU), and samples for turbidity must be less than or equal to 0.3 NTU in at least 95 percent of the samples in any month. Systems that use filtration other than conventional or direct filtration must follow state limits, which must include turbidity at no time exceeding 5 NTU.

• HPC: No more than 500 bacterial colonies per milliliter

• Long Term 1 Enhanced Surface Water Treatment; Surface water systems or ground water systems under the direct influence of surface water serving fewer than 10,000 people must comply with the applicable Long Term 1 Enhanced Surface Water Treatment Rule provisions (e.g. turbidity standards, individual filter monitoring, Cryptosporidium removal requirements, updated watershed control requirements for unfiltered systems).

• Long Term 2 Enhanced Surface Water Treatment; This rule applies to all surface water systems or ground water systems under the direct influence of surface water. The rule targets additional *Cryptosporidium* treatment requirements for higher risk systems and includes provisions to reduce risks from uncovered finished water storages facilities and to ensure that the systems maintain microbial protection as they take steps to reduce the formation of disinfection byproducts. (Monitoring start dates are staggered by system size. The largest systems (serving at least 100,000 people) will begin monitoring in October 2006 and the smallest systems (serving fewer than 10,000 people) will not begin monitoring until October 2008. After completing monitoring and determining their treatment bin, systems generally have three years to comply with any additional treatment requirements.)

APPENDIX IV: EPA MCLs FOR DRINKING WATER (continued)

• Filter Backwash Recycling: The Filter Backwash Recycling Rule requires systems that recycle to return specific recycle flows through all processes of the system's existing conventional or direct filtration system or at an alternate location approved by the state.
8 No more than 5.0 percent samples total coliform-positive in a month. (For water systems that collect fewer than 40 routine samples per month, no more than one sample can be total coliform-positive per month.) Every sample that has total coliform must be analyzed for either fecal coliforms or E. coli. If two consecutive TC-positive samples, and one is also positive for *E. coli* or fecal coliforms, system has an acute MCL violation.
9 Although there is no collective MCLG for this contaminant group, there are individual MCLGs for some of the individual contaminants: • Haloacetic acids: dichloroacetic acid (zero); trichloroacetic acid (0.3 mg/L) • Trihalomethanes: bromodichloromethane (zero); bromoform (zero); dibromochloromethane (0.06 mg/L)

Contaminant	**Secondary Maximum Contaminant Level**
Aluminum	0.05 to 0.2 mg/L
Chloride	250 mg/L
Color	15 (color units)
Copper	1.0 mg/L
Corrosivity	noncorrosive
Fluoride	2.0 mg/L
Foaming Agents	0.5 mg/L
Iron	0.3 mg/L
Manganese	0.05 mg/L
Odor	3 threshold odor number
pH	6.5-8.5
Silver	0.10 mg/L
Sulfate	250 mg/L
Total Dissolved Solids	500 mg/L
Zinc	5 mg/L

APPENDIX V: TABLES FOR VARIOUS DESIGNATED USES

Table 1. Human Health Criteria

	Human Health for the consumption of	
Pollutant	**Water + Organism**	**Organism Only**
	(µg/L)	**(µg/L)**
Acenaphthene	670	990
Acrolein	6	9
Acrylonitrile	0.051 A	0.25 A
Aldrin	0.000049 A	0.000050 A
Alpha-BHC	0.0026 A	0.0049 A
alpha-Endosulfan	62	89
Anthracene	8,300	40,000
Antimony	5.6	640
Arsenic	0.018 A,B	0.14 A,B
Asbestos	7 million fibers/L	
Barium	1,000	
Benzene	2.2 A	51 A
Benzidine	0.000086 A	0.00020 A
Benzo(a) Anthracene	0.0038 A	0.018 A
Benzo(a) Pyrene	0.0038 A	0.018 A
Benzo(b) Fluoranthene	0.0038 A	0.018 A
Benzo(k) Fluoranthene	0.0038 A	0.018 A
Beryllium	C	
beta-BHC	0.0091 A	0.017 A
beta-Endosulfan	62	89

	Human Health for the consumption of	
Pollutant	**Water + Organism**	**Organism Only**
	(µg/L)	**(µg/L)**
Bis(2-Chloroethyl) Ether	0.030 A	0.53 A
Bis(2-Chloroisopropyl) Ether	1,400	65,000
Bis(2-Ethylhexyl) Phthalate[X]	1.2 A	2.2 A
Bromoform	4.3 A	140 A
Butylbenzyl Phthalate[W]	1,500	1,900
Cadmium	C	
Carbon Tetrachloride	0.23 A	1.6 A
Chlordane	0.00080 A	0.00081 A
Chlorobenzene	130 C	1,600
Chlorodibromomethane	0.40 A	13 A
Chloroform	5.7 A	470 A
Chlorophenoxy Herbicide (2,4-D)	100 C	
Chromium (III)	C Total	
Chromium (VI)	C Total	
Chrysene	0.0038 A	0.018 A
Copper	1,300	
Cyanide	140 D	140 D
Dibenzo(a,h)Anthracene	0.0038 A	0.018 A
Dichlorobromomethane	0.55 A	17 A
Dieldrin	0.000052 A	0.000054 A
Diethyl Phthalate[W]	17,000	44,000
Dimethyl Phthalate[W]	270,000	1,100,000

	Human Health for the consumption of	
Pollutant	**Water + Organism**	**Organism Only**
	(µg/L)	**(µg/L)**
Di-n-Butyl Phthalate[W]	2,000	4,500
Dinitrophenols	69	5300
Endosulfan Sulfate	62	89
Endrin	0.059	0.06
Endrin Aldehyde	0.29	0.30
Ether, Bis(Chloromethyl)	0.00010 A	0.00029 A
Ethylbenzene	530	2,100
Fluoranthene	130	140
Fluorene	1,100	5,300
gamma-BHC (Lindane)	0.98	1.8
Heptachlor	0.000079 A	0.000079 A
Heptachlor Epoxide	0.000039 A	0.000039 A
Hexachlorobenzene	0.00028 A	0.00029 A
Hexachlorobutadiene	0.44 A	18 A
Hexachlorocyclo-hexane-Technical	0.0123	0.0414
Hexachlorocyclopentadiene	40	1,100
Hexachloroethane	1.4 A	3.3 A
Ideno(1,2,3-cd)Pyrene	0.0038 A	0.018 A
Isophorone	35 A	960 A
Manganese	50	100
Methylmercury		0.3 mg/kg E
Methoxychlor	100 C	

	Human Health for the consumption of	
Pollutant	**Water + Organism**	**Organism Only**
	(µg/L)	**(µg/L)**
Methyl Bromide	47	1,500
Methylene Chloride	4.6 A	590 A
Nickel	610	4,600
Nitrates	10,000	
Nitrobenzene	17	690
Nitrosamines	0.0008	1.24
Nitrosodibutylamine, N	0.0063 A	0.22 A
Nitrosodiethylamine, N	0.0008 A	1.24 A
Nitrosopyrrolidine, N	0.016 A	34 A
N-Nitrosodimethylamine	0.00069 A	3.0 A
N-Nitrosodi-n-Propylamine	0.0050 A	0.51 A
N-Nitrosodiphenylamine	3.3 A	6.0 A
Nutrients		
Pentachlorobenzene	1.4	1.5
Pentachlorophenol	0.27 A	3.0 A
pH	5 – 9	
Phenol	10,000	860,000
Polychlorinated Biphenyls (PCBs)	0.000064 A,F	0.000064 A,F
Pyrene	830	4,000
Selenium	170 C	4200
Solids Dissolved and Salinity	250,000	
Tetrachlorobenzene,1,2,4,5-	0.97	1.1

	Human Health for the consumption of	
Pollutant	**Water + Organism**	**Organism Only**
	(µg/L)	**(µg/L)**
Tetrachloroethylene	0.69 A	3.3 A
Thallium	0.24	0.47
Toluene	1,300 C	15,000
Toxaphene	0.00028 A	0.00028 A
Trichloroethylene	2.5 A	30 A
Trichlorophenol,2,4,5-	1,800	3,600
Vinyl Chloride	0.025 A	2.4 A
Zinc	7,400	26,000
1,1,1-Trichloroethane	C	
1,1,2,2-Tetrachloroethane	0.17 A	4.0 A
1,1,2-Trichloroethane	0.59 A	16 A
1,1-Dichloroethylene	330	7,100
1,2,4-Trichlorobenzene	35	70
1,2-Dichlorobenzene	420	1,300
1,2-Dichloroethane	0.38 A	37 A
1,2-Dichloropropane	0.50 A	15 A
1,2-Diphenylhydrazine	0.036 A	0.20 A
1,2-Trans-Dichloroethylene	140 C	10,000
1,3-Dichlorobenzene	320	960
1,3-Dichloropropene	0.34 A	21 A
1,4-Dichlorobenzene	63	190
2,3,7,8-TCDD (Dioxin)	5.0E-9 A	5.1E-9 A

	Human Health for the consumption of	
Pollutant	**Water + Organism**	**Organism Only**
	(µg/L)	**(µg/L)**
2,4,6-Trichlorophenol	1.4 A	2.4 ,A
2,4-Dichlorophenol	77	290
2,4-Dimethylphenol	380	850
2,4-Dinitrophenol	69	5,300
2,4-Dinitrotoluene	0.11 A	3.4 A
2-Chloronaphthalene	1,000	1,600
2-Chlorophenol	81	150
2-Methyl-4,6-Dinitrophenol	13	280
3,3'-Dichlorobenzidine	0.021 A	0.028 A
3-Methyl-4-Chlorophenol		
4,4'-DDD	0.00031 A	0.00031 A
4,4'-DDE	0.00022 A	0.00022 A
4,4'-DDT	0.00022 A	0.00022 A

A This criterion is based on carcinogenicity of 10-6 risk. Alternate risk levels may be obtained by moving the decimal point (e.g., for a risk level of 10-5, move the decimal point in the recommended criterion one place to the right).

B This water quality criterion for arsenic refers to the inorganic form only.

C A more stringent Maximum Contaminant Level (MCL) has been issued by EPA under the Safe Drinking Water Act. See Appendix IV for a listing of the EPA MCLs.

D This water quality criterion is expressed as total cyanide.

E This fish tissue residue criterion for methylmercury is based on a total fish consumption rate of 0.0175 kg/day.

F This criterion applies to total pcbs (e.g., the sum of all congener or all isomer or homolog or Aroclor analyses).

Table 2. Standards for Domestic Water Supply

	EPA Safe Drinking Water Standards (mg/L)	Alluvial Aquifer	Gallup Sandstone	San Andres-Glorieta	Dakota Sandstone Aquifer	Morrison Formation	Entrada Sandstone	Chinle Formation	Basalt Aquifer (Mt Taylor Basalt, Laguna Basalt, Suwanee Basalt)	Santa Fe Aquifer Group)
Parameter (mg/L except otherwise)										
Aluminium	0.05-0.2	0.05-0.2 *	0.01	0.05-0.2*	<0.01	0.02	0.05-0.2*	0.05-0.2*	0.05-0.2*	0.05-0.2*
Antimony	0.006	0.006*	0.006*	0.006*	0.006*	0.006*	0.006*	0.006*	0.006*	0.006*
Arsenic	0.01	0.01*	0.002	0.01*	0.001	0.003	0.01*	0.01*	0.01*	0.01*
Barium	2	2*	0.034	2*	0.015	0.032	2*	2*	2*	2*
Bicarbonate		320	289	349**	241	179	355	360		
Beryllium	0.004	0.004*	0.004*	0.004*	0.004*	0.004*	0.004*	0.004*	0.004*	0.004*
Boron		165								
Bromate	0.01		0.01*	0.01*	0.01*	0.01*	0.01*	0.01*	0.01*	0.01*
Bromide			0.07	0.45	0.078	0.11	0	4		
Cadmium	0.005	0.005*	0.005*	0.005*	0.005*	0.005*	0.005*	0.005*	0.005*	0.005*
Calcium		87	10.54	148.4	16	8.11	38	51		
Chloride	250	45	19.3	166**	48.5	15.8	35	111		
Chromium	0.1	0.1*	0.1*	0.1*	0.1*	0.1*	0.1*	0.1*	0.1*	0.1*
Copper	1.3	1.3*	1.3*	1.3*	1.3*	1.3*	1.3*	1.3*	1.3*	1.3*
Cyanide	0.2	0.2*	0.2*	0.2*	0.2*	0.2*	0.2*	0.2*	0.2*	0.2*
Fluoride	4	1	0.8	0.7**	0.9	0.9	1	1	4*	4*

	EPA Safe Drinking Water Standards (mg/L)	Alluvial Aquifer	Gallup Sandstone	San Andres-Glorieta	Dakota Sandstone Aquifer	Morrison Formation	Entrada Sandstone	Chinle Formation	Basalt Aquifer (Mt Taylor Basalt, Laguna Basalt, Suwanee Basalt)	Santa Fe Aquifer Group)
Parameter (mg/L except otherwise)										
Gross alpha particles(includes Radium 226 but not Radon or Uranium)		15 pCi/L***	15 pCi/L***	15 pCi/L***	15 pCi/L***	15 pCi/L***	15 pCi/L***	15 pCi/L***	15 pCi/L***	15 pCi/L***
Iron	0.3	0.3*	0.082	0.3*	0.081	0.095	0.3*	0.3*	0.3*	0.3*
Lead	<0.015	<0.015*	<0.015*	<0.015*	<0.015*	<0.015*	<0.015*	<0.015*	<0.015*	<0.015*
Magnesium		37	2.63	40.5	3.39	1.21	11**	84**		
Manganese	0.05	0.05*	0.01	0.05*	0.023	0.015	0.05*	0.05*	0.05*	0.05*
Mercury, total	0.002	0.002*	0.002*	0.002*	0.002*	0.002*	0.002*	0.002*	0.002*	0.002*
Molybdenum	0.2	0.2*	0.003	0.2*	< 0.001	0.004	0.2*	0.2*	0.2*	0.2*
Nickel	0.7	0.7	0.7	0.7	0.7	0.7	0.7	1**	0.7	0.7
Nitrate (measured as Nitrogen)	10	2**	10*	2.7**	10*	10*	0	10*	10*	10*
pH	6.5-8.5	7.7	8.4	7.3	6.5*	6.5*	6.5*	6.5*	6.5-8.5*	6.5-8.5*
Potassium		3	1.9	5.5	3	1.8	8	5		
Radium-226 & 228	5 pCi/L	5 pCi/L*	5 pCi/L*	5 pCi/L*	5 pCi/L*	5 pCi/L*	5 pCi/L*	5 pCi/L*	5 pCi/L*	5 pCi/L*
Selenium	0.05	0.05*	0.01	0.05*	< 0.001	0.003	0.05*	0.05*	0.05*	0.05*
Silica		22	13.3	15.7	9.7	17	10	13		
Sodium		136	216	91	326	226	787	410		
Sodium+potassium		121		64			246	337		
Strontium		8 pCi/L***	0.119	8 pCi/L***	0.62	0.528	8 pCi/L***	8 pCi/L***	8 pCi/L***	8 pCi/L***
Sulfate	250	250*	250*	250*	250*	250*	250*	250*	250*	250*

	EPA Safe Drinking Water Standards (mg/L)	Alluvial Aquifer	Gallup Sandstone	San Andres-Glorieta	Dakota Sandstone Aquifer	Morrison Formation	Entrada Sandstone	Chinle Formation	Basalt Aquifer (Mt Taylor Basalt, Laguna Basalt, Suwanee Basalt)	Santa Fe Aquifer Group)
Parameter (mg/L except otherwise)										
TDS	500		500		500	725				
Temperature ^{o}C		15.3	21.9	17.4	17.7	24.1	17	17		
Thallium	0.002	0.002*	0.002*	0.002*	0.002*	0.002*	0.002*	0.002*	0.002*	0.002*
Tritium		20,000 pCi/L***	20,000 pCi/L***	20,000 pCi/L***	20,000 pCi/L***	20,000 pCi/L***	20,000 pCi/L***	20,000 pCi/L***	20,000 pCi/L***	20,000 pCi/L***
Uranium	0.03	0.02***	0.02***	0.02***	0.02***	0.02***	0.02***	0.02***	0.02***	0.02***
Vanadium			< 0.001		0.002	0.003				
Fecal Coliform and E. coli		0	0	0	0	0	0	0	0	0

Data not marked with a star reflect geometric means of actual groundwater data for different aquifers on the Pueblo of Laguna (Source: Report; Hydrogeology in the Pueblo of Laguna Region, April 2010).

* Data reflect EPA criteria under Safe Drinking Water Act (SDWA).

**Data reflect the average value of actual groundwater data for different aquifers on the Pueblo of Laguna (Source: Report; Hydrogeology in the Pueblo of Laguna Region, April 2010).

***Data from source other than EPA and hydrogeology report.

**** See Appendix IV for a listing of the EPA MCLs.