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.

Pueblo of Sandia Water Quality Standards
Effective March 9, 2010

EPA is not taking action the following items in Section III and Section VI as they are implementation provisions, rather than elements of §303(c) of the CWA relating to water quality standards.

Section III. General Standards
Part G. Turbidity. An implementing statement was added to the turbidity provision that requires that background turbidity be measured at point directly above the activity causing turbidity. EPA does not consider this statement to be a water quality standard under CWA §303(c).

Part Q. Sediment Quality. Sediment quality guidelines for ten parameters were added in the revised standards. These guidelines may be used in the Pueblo of Sandia's water quality monitoring program, but are not intended as numeric criteria in regulatory programs.

Section VI. Sampling and Analysis
Part A. A reference to the Pueblo of Sandia's Quality Assurance Project Plan for surface water quality monitoring was added to Section VI. EPA is not taking action on the following items in Section IV as it does not have documentation to support that these values are protective of wildlife. Section IV. Water Body Uses and Standards Specific to the Uses

Part K. Wildlife Habitat Use. Criteria to protect this use include total mercury, total DDT and metabolites, and total PCBs.

PUEBLO of SANDIA
WATER QUALITY STANDARDS

November 2009

(Revised January 31, 2008, approved and adopted by Tribal Council Resolution 2009-118 on November 13, 2009)

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*Words and terms defined in SECTION VII are designated in **bold** wherever used in the text of the "PUEBLO OF SANDIA Water Quality Standards."

SECTION I. INTRODUCTION, AUTHORITY, and APPLICABILITY

Pursuant to Section 518[1] of the Clean Water Act[2], the Tribal Council of the PUEBLO OF SANDIA, a federally-recognized Indian Tribe, hereby adopts and enacts the PUEBLO OF SANDIA Water Quality Standards.

A. The purposes of the PUEBLO OF SANDIA Water Quality Standards are as follows:

1. to designate the **existing and attainable uses** for which the **surface waters of the PUEBLO OF SANDIA** shall be protected;

2. to prescribe water quality standards (narrative and numeric) to protect and sustain the designated uses;

3. to assure that degradation of existing water quality does not occur; and

4. to promote and protect the environment, social welfare and economic well-being of the PUEBLO OF SANDIA.

These purposes shall be accomplished by incorporating and applying the standards set forth in the PUEBLO OF SANDIA Water Quality Standards into the permitting and management process for **point source** dischargers and **non-point source** generators, by using those standards to determine when a designated use is threatened, by using current treatment technologies to control **point sources** and **best management practices** for **non-point sources** of pollution, and by monitoring point source and non-point source sources of pollution.

B. The PUEBLO OF SANDIA Water Quality Standards apply to all **surface waters of the PUEBLO OF SANDIA**, within the exterior boundaries of the PUEBLO OF SANDIA Indian Reservation, including water situated wholly or partly within, or bordering upon, the Reservation, whether public or private, except for private waters that do not combine with other surface waters. The PUEBLO OF SANDIA Water Quality Standards apply to substances attributable to discharges, nonpoint sources or instream activities. The PUEBLO OF SANDIA Water Quality Standards shall not apply to acts of God or natural phenomena not brought about by human activity.

C. The PUEBLO OF SANDIA Water Quality Standards are consistent with Section 101(a)(2) of the Clean Water Act (33 U.S.C. Section 1251 (a)(2)) which declares that "it is the

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[1] 33 U.S.C. Section 1377 (enacted February 4, 1987).

[2] 33 U.S.C. Section 1251 et seq. (1948, as amended).

national goal that, wherever attainable, an interim goal of water quality which provides for the protection and propagation of fish, shellfish, and wildlife and provides for recreation in and on the water be achieved by July 1, 1983 ...."**Coolwater Aquatic Life/Fishery Use, Coldwater Aquatic Life/Fishery Use, Warmwater Aquatic Life/Fishery Use, Primary Contact Ceremonial Use, Primary Contact Recreational Use, Secondary Contact Recreational Use, Agricultural Water Supply Use, Fish Culture Use, Industrial Water Supply Use, Domestic Water Supply Use, and Wildlife Habitat Use** are **designated uses** of the **surface waters of the PUEBLO OF SANDIA** . The PUEBLO OF SANDIA Water Quality Standards provide that any contamination that may result from such uses shall not lower the quality of the water below what is required for recreation and protection and propagation of fish, shellfish, and wildlife.

D. There is hereby created the position of Tribal Water Quality Officer. The Tribal Water Quality Officer shall serve under the direction of the PUEBLO OF SANDIA Environment Department Director, who serves under the Governor of the PUEBLO. The Tribal Water Quality Officer shall work in cooperation with the U.S. Environmental Protection Agency (EPA) and other federal, tribal, or state agencies.

E. The **antidegradation** policy for **surface waters of the PUEBLO OF SANDIA** and the procedures for implementing it are set forth in Section II herein and in the Implementation Plan referred to therein.

F. Pursuant to Section 303(c)(1) of the Clean Water Act (33 U.S.C. Section 1313(c)), the PUEBLO OF SANDIA shall hold public hearings at least once every three years for the purpose of reviewing and, as appropriate, amending the PUEBLO OF SANDIA Water Quality Standards. The Water Quality Standards shall be reviewed once every three years following enactment. Revisions shall incorporate new information and relevant scientific and engineering advances.

G. The PUEBLO OF SANDIA shall approve and issue surface water designations for tribal waters and shall determine the suitability of bodies of water for recreational purposes.

H. Designated uses shall be protected at all times including periods of low flow. The critical low flow of streams on the Pueblo at a particular site shall be the minimum average four consecutive day flow which occurs with a frequency of once in three years (4Q3). All discharges shall meet standards for the designated uses at the 4Q3 low flow. For standing bodies of water, standards particular to a use shall be maintained whenever the water body is suitable for the use. The General Standards (SECTION III, below) shall be maintained at all times and shall apply to all **surface waters of the PUEBLO OF SANDIA,** whether **perennial, ephemeral,** or **intermittent** in nature. The standards assigned to a body of water shall be the most stringent standards required to protect all uses designated for that body of water. Reservoirs used for water treatment are exempt from these standards, provided, however, that the water released from any such reservoir meets the standards that apply to the receiving body of water. For use in implementation of human health criteria the harmonic mean flow will be used. The harmonic mean flow is the number of daily flow measurements divided by the sum of the reciprocals of the flows (i.e., the reciprocal of the mean of reciprocals). In ephemeral waters, the calculation, can be based upon the nonzero

flow intervals and modified by including a factor to adjust for the proportion of intervals with zero flow. The following formula is used to calculate harmonic mean flow:

$$\text{Harmonic Mean} = \frac{n}{\Sigma\, 1/Q}$$

where n = number of flow values
and Q = flow value

I. Water quality standards shall be the basis for managing discharges attributable to **point** and **non-point sources** of pollution. Water quality standards are not used to control, and are not invalidated by, **natural background** phenomena or acts of God.

J. In the event that monitoring of water quality identifies reaches where attainable water quality is less than what is required by the PUEBLO OF SANDIA Water Quality Standards, then the PUEBLO OF SANDIA may modify the Water Quality Standards to reflect attainability. Modification thereof shall be within the sole discretion of the PUEBLO OF SANDIA, but shall be subject to the provisions of the Clean Water Act, and shall be carried out in accordance with **use-attainability analysis** procedures, development of a site specific standard, or other appropriate methods.

K. The TRIBAL COUNCIL has exclusive authority to adopt and modify the water quality standards. The TRIBAL COUNCIL also may revise the standards from time to time if deemed necessary by use-attainability analysis and as the need arises, or as a result of updated scientific information.

L. The PUEBLO OF SANDIA will correct any errors resulting from inadequate and erroneous data. The discovery of such errors will not affect the validity of remaining and unaffected standards. If any provision of the PUEBLO OF SANDIA Water Quality Standards, or the application of any provision of these Water Quality Standards to any person or circumstance, is held to be invalid, the application of such provision to other persons and circumstances and the remainder of the Water Quality Standards shall not be affected thereby.

M. When requested, the PUEBLO OF SANDIA shall consider on a case-by-case basis, whether an existing facility can incorporate a compliance schedule in its National Pollutant Discharge Elimination System ("NPDES") permit. Such a schedule of compliance will be for the purpose of providing a permittee with adequate time to make treatment facility modifications necessary to comply with the PUEBLO OF SANDIA water quality standards. Compliance schedules may be included in NPDES permits at the time of permit renewal issuance or modification and shall require compliance at the earliest practicable time, not to exceed three years. Compliance schedules also shall specify milestone dates so as to measure progress towards final project completion.

N. The PUEBLO OF SANDIA TRIBAL COUNCIL may authorize Short-term Exceedances by allowing activities that may cause temporary violations of the water quality standards if the PUEBLO determines these activities are necessary to accommodate legitimate uses or

emergencies, or to protect the public health and welfare. A short term exceedance will only be allowed for activities that are not likely to cause permanent, or long term impairment of a designated use. Such activities include, but are not limited to bank stabilization, wetlands restoration, algae and weed control, hydrological studies that use tracers, or activities that result in overall enhancement of or maintenance of a designated uses. The PUEBLO shall specify the degree of exceedance, the time limit, and where applicable, restoration procedures. Such authorization shall not be granted for activities which could result in the adverse impact on any federally endangered or threatened species or on the critical habitat of such species or which could result in the irreversible degradation of the water quality. Nothing herein shall be intended to supercede existing PUEBLO and federal permitting processes or requirements.

O. The PUEBLO OF SANDIA supports the goals of the Clean Water Act and will strive to preserve, protect, and restore the water resources of the PUEBLO in their most "**natural condition**." Tribal management efforts will be consistent with preserving, protecting, and restoring the most natural aquatic and wildlife communities for **surface waters of the PUEBLO OF SANDIA**. In all cases, established and existing uses and/or biological conditions will be protected pursuant to the PUEBLO OF SANDIA's "**Antidegradation Policy**."

SECTION II. ANTIDEGRADATION POLICY AND IMPLEMENTATION PLAN

A. Antidegradation Policy:

The antidegradation policy of the Pueblo is as follows:

1. Existing water uses and water quality levels necessary to protect existing uses shall be maintained and protected.

2. Where existing water quality exceeds levels necessary to support propagation of fish and wildlife and recreation in and on the water, that level of water quality shall nonetheless be maintained and protected unless it is found, after full satisfaction of governmental and public participation requirements, that a lower level of water quality is required in order to accommodate important economic or social development in the area in which the waters are located. In allowing such degradation of water quality, the PUEBLO OF SANDIA shall impose the highest statutory and regulatory requirements for **point sources** and shall impose **best management practices** for **non-point sources**.

3. Where high quality waters constitute an outstanding national or tribal resource, or are of exceptional recreational or ecological significance, the water quality and uses of those water bodies shall be maintained and protected.

4. In those cases where potential water quality impairments associated with thermal discharge are involved, the **antidegradation** policy and implementation method shall be consistent with Section 316 of the Clean Water Act, as amended, (33 U.S.C. Section 1326 (1987)).

B. Implementation Plan

Acting under authority delegated by the PUEBLO OF SANDIA TRIBAL COUNCIL, the Tribal Water Quality Officer shall implement the PUEBLO OF SANDIA Water Quality Standards, including the antidegradation policy, by establishing and maintaining controls on the introduction of pollutants into surface waters. More particularly, the Tribal Water Quality Officer shall do the following:

1. monitor water quality (chemical, physical, and biological) to assess the effectiveness of pollution controls and to determine whether water quality standards are being attained;

2. evaluate the impact of effluents on receiving waters;

3. advise prospective dischargers of discharge requirements;

4. review the adequacy of the existing data base and obtain additional data when required;

5. require the **Best Available Technology (BAT)** of wastewater treatment practical to protect and maintain **designated uses** and existing water quality consistent with long-term environmental protection objectives;

6. develop water quality based **effluent** limitations and comments on technology based **effluent** limitations, as appropriate, for inclusion in any federal permit issued to a discharger pursuant to Section 402 of the Clean Water Act (33 U.S.C. Section 1342),and review of Section 404 permits of the Clean Water Act (33 U.S.C. Section 1344);

7. require that these **effluent** limitations be included in any such permit as a condition for Tribal certification pursuant to Section 401 of the Clean Water Act, (33 U.S.C. Section 1341), provided that a reasonable time, not to exceed three years, for compliance may be considered as part of the certification process.

8. coordinate water pollution control activities with other tribal, local, state, and federal agencies, as appropriate;

9. develop and pursue an inspection program and enforcement strategy in order to ensure that **National Pollutant Discharge Elimination Systems (NPDES)** dischargers comply with requirements of the Clean Water Act (CWA) and the PUEBLO OF SANDIA Water Quality Standards and any requirements promulgated thereunder, and in order to support the compliance and enforcement of Federal NPDES permits by the U.S. Environmental Protection Agency;

10. encourage voluntary implementation of **best management practices** to control **non-point sources** of pollutants to achieve compliance with the PUEBLO OF SANDIA Water Quality Standards;

11. if necessary, subject to the approval of PUEBLO OF SANDIA TRIBAL COUNCIL, may designate streams as perennial, intermittent or ephemeral and determine numeric low flow values; and

12. provide technical oversight and planning support to other departments within the Sandia Pueblo administration in order to accomplish the objectives of the Water Quality Standards. These departments may include Economic Development, Lands, Wellness, Health Center, Education, and Maintenance.

SECTION III. GENERAL STANDARDS

All surface water bodies shall be free of any water contaminant in such quantity and of such duration as may with reasonable probability injure human health, animal or plant life, or property, or unreasonably interfere with the public welfare or the use of the property. The following narrative standards apply to all **surface waters of the PUEBLO OF SANDIA**, unless stricter or additional standards are imposed in SECTIONs IV and V below.

A. Stream Bottom Deposits

Surface waters shall be free from **water contaminants** from other than natural causes that may settle and have a deleterious effect on the **aquatic biota** or that will significantly alter the physical or chemical properties of the water or the bottom sediments.

B. Floating Solids, Oil, and Grease

Surface waters shall be free from objectionable oils, scum, foam, grease, and other floating materials and suspended substances resulting from other than natural causes (including visible films of oil, globules of oil, grease, or solids in or on the water, stream bottom or coatings on stream banks or that would damage or impair the normal growth, function or reproduction of wildlife, plant or aquatic life). As a guideline, oil and grease discharged into surface waters shall not exceed 10 mg/liter average or 15 mg/liter maximum.

C. Color

Surface waters shall be free from true **color**-producing materials from other than natural causes that create an aesthetically undesirable condition. **Color** shall not impair the **designated** and other **attainable uses** of a water body. **Color**-producing substances from other than natural sources are limited to concentrations equivalent to 70 **color** units (CU).

D. Odor and Taste

Contaminants from other than natural causes may not impart unpalatable flavor to fish, and may not result in offensive water odor or taste (**organoleptic** effects), or otherwise interfere with the **designated** and other **attainable uses** of a water body. Taste and odor-producing substances from other than natural origins shall not interfere with the production of a potable water supply by modern treatment methods.

E. Nuisance Conditions

Plant **nutrients** or other substances stimulating algal growth from other than natural causes shall not be present in concentrations that produce objectionable algal densities or nuisance aquatic vegetation, or that result in a dominance of nuisance species in stream, or that cause **nuisance conditions** in any other fashion. Phosphorus and nitrogen concentrations shall not be permitted to reach levels which result in man-induced **eutrophication** problems. As a guideline, total phosphorus shall not exceed 100 ug/liter in stream or 50 ug/liter in lakes

and reservoirs, except in waters highly laden with natural silts or **color** which reduces the penetration of sunlight needed for plant photosynthesis, or in other waters where it can be demonstrated that algal production will not interfere with or adversely affect **designated** and other **attainable uses**. Alternative or additional **nutrient** limitations for surface waters may be established by the PUEBLO OF SANDIA and incorporated into water quality management plans.

F. Pathogens

Surface waters shall be virtually free from pathogens. Waters used for irrigation of table crops (e.g., lettuce) shall be virtually free of *Salmonella* and *Shigella* species.

G. Turbidity

Turbidity attributable to other than natural causes shall not reduce light transmission to a point where **aquatic biota** are inhibited or alter **color** or visibility 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 percent increase when background **turbidity** is more than 50 **NTU**. Background turbidity shall be measured at a point immediately upstream of the turbidity-causing activity.

H. Mixing Zones

Where **effluent** is discharged into surface waters, a continuous zone shall be maintained in which the water is of adequate quality to allow the migration of aquatic life with no significant effect on their population. The cross-sectional area of **effluent mixing zones** shall be ¼ or less than the cross-sectional area or flow volume of the receiving stream. Mixing zones are not allowed in lakes. Mixing zones containing permitted **effluent** shall not be at locations of recreational or ceremonial activities. Water quality standards shall be maintained throughout **zones of passage. Zones of passage** in **intermittent streams** may be designated on a site specific basis. The water quality in a **zone of passage** shall not be permitted to fall below the standards for the designated water body within which the zone is contained. With regard to **toxicity** in **mixing zones**, see Subsection III (O), below.

I. Radioactive Materials

Concentrations of gross alpha particle activity shall not exceed the concentration caused by naturally-occurring materials. The combined dissolved concentration of Radium-226 and Radium-228, and the concentration of Strontium-90 shall not exceed 5 **picocuries** per liter, and 8 **picocuries** per liter, respectively. Gross alpha particle concentrations, including Radium-226 but excluding radon and uranium, shall not exceed 15 **picocuries** per liter. Tritium concentration shall not exceed 20,000 **picocuries** per liter. The gross beta radiation concentration shall not exceed 50 **picocuries** per liter. The average annual concentration of beta particles and of photon radioactivity from man-made radionuclides in **drinking water** shall not produce an annual dose equivalent to the total body or any internal organ greater than 4 millirem/year. Sources, special nuclear, and by-product

materials as defined by the Atomic Energy Act of 1954 are excluded from this provision.

J. Temperature

The introduction of heat by other than natural causes shall not increase the temperature in a stream, outside a **mixing zone**, by more than 2.7°C (5°F), based upon the monthly average of the maximum daily temperatures measured at mid-depth or three feet (whichever is less) outside the **mixing zone**. 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 upon the average of temperatures taken from the surface to the bottom or surface to the bottom of the **epilimnion** (if stratified). The normal daily and seasonal variations that were present before the addition of heat from other than natural sources shall be maintained. In no case shall man-introduced heat be permitted when the maximum temperature specified for the reach (20°C/68°F for **coldwater aquatic life/fisheries** and 32.2°C/ 90°F for **warmwater aquatic life/fisheries**) would thereby be exceeded. Privately-owned lakes and reservoirs used in the process of cooling water for industrial purposes may be classified using a less stringent special-use standard for thermal components, provided, however, that the water released from any such lake or reservoir into a stream system meets the water quality standards of the receiving stream. High water temperatures caused by unusually high ambient air temperatures are not violations of these standards.

K. Salinity/Mineral Quality (Total Dissolved Solids, Chlorides, and Sulfates)

Existing mineral quality shall not be altered by municipal, industrial, and in stream activities, or other waste discharges so as to interfere with the **designated** or **attainable uses** for a water body. In no case shall an increase of more than 1/3 over **naturally-occurring** salinity/mineral levels be permitted, nor shall dischargers cause concentrations on streams with a **domestic water supply use** to exceed 250 mg/L for chlorides; 250 mg/L for sulfates; and 500 mg/L for total dissolved solids.

L. pH

The **pH** of a stream or lake shall not be permitted to fluctuate in excess of 1.0 unit over a period of 24 hours for other than natural causes.

M. Dissolved Oxygen

If a surface body of water is capable of supporting aquatic life, the dissolved oxygen standard will be a minimum of 5 mg/l. Dissolved oxygen values can be lower if caused by natural conditions and are not an impairment to the native aquatic life.

N. Nitrogen and Other Dissolved Gases

Surface water shall be free of nitrogen and other dissolved gases at levels above 110% saturation when this supersaturation is attributable to municipal, industrial, or other discharges.

O. Toxic Substances

1. **Toxic substances** shall not be present in receiving waters in quantities that are toxic to human, animal, plant, or aquatic life, or in quantities that interfere with the normal propagation, growth, and survival of the sensitive **indigenous aquatic biota**. Within the **mixing zone**, there shall be no **acute toxicity**. There shall be no **chronic toxicity** at the edge of the **mixing zone**.

2. For toxic substances lacking EPA published criteria, biomonitoring data may be used to determine compliance with this **narrative standard** in accordance with EPA standard acute and chronic biological test protocols. These protocols can be found in:

   Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms, EPA-821-R-02-012; October 2002, or the most current revision thereof;

   Short Term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms; EPA-821-R02-013; October 2002 or the most current revision thereof;

   Technical Support Document for Water Quality-Based Toxics Control, EPA/505/2-90-001; March 1991, or the most current revision thereof;

   Post Third Round NPDES Permit Implementation Strategy; adopted October 1, 1992, or the most current revision thereof; and

   U.S. Environmental Protection Agency, "*Quality Criteria for Water, 1986*", or the most current revision thereof.

   Should numeric criteria need to be derived without actually conducting toxicity tests, the AQUIRE (AQUatic toxicity Information REtrieval) database and EPA's *Guidelines for Deriving Numerical National Water Quality Criteria for the Protection of Aquatic Organisms and their Uses*, will be applied to calculate any criteria. In the event that sufficient data is not available to derive a numeric criterion following the above protocol, toxicological study results may be used to calculate a criterion based on the following methods:

   a. Concentrations of non-persistent toxic materials shall not exceed concentrations which are chronically toxic (as determined from appropriate chronic toxicity data, or calculated as ten percent of the LC_{50} values) to representative, sensitive, aquatic organisms;

   b. Concentrations of persistent toxic materials that do not **bioaccumulate, bioconcentate,** or **biomagnify,** shall not exceed concentrations which are chronically toxic (as determined from appropriate chronic toxicity data or calculated as five percent of the LC_{50} values) to representative, sensitive,

aquatic organisms;

c. Concentrations of toxic materials that **bioaccumulate, bioconcentate,** or **biomagnify** shall not exceed concentrations which are chronically toxic (as determined from appropriate chronic toxicity data or calculated as one percent of the LC_{50} values) to representative, sensitive, aquatic organisms;

Toxicants in receiving waters that are known to be **persistent**, bioaccumulative, **carcinogenic**, and/or synergistic with other waste stream components shall be addressed on a case-by-case basis. Sources of information include final or draft MCLs and current Health Advisories[3] (HA) for organic and inorganic chemicals, radionuclides and microorganisms.

3. Toxic substance criteria for surface waters with ceremonial ,designated aquatic life uses, or from which fish are caught for human consumption, are found in Appendix B.

P. Biocriteria

All **surface waters of the PUEBLO OF SANDIA** with an existing or attainable aquatic life/fishery use shall be assessed by comparison to the biological integrity of a "least impacted" or minimally impacted reference water to best represent the most natural condition for that surface waterbody within the Middle Rio Grande Basin and with similar hydrologic conditions. The biological integrity of the surface waters, as measured by multi-metric indices of benthic macroinvertebrates, fish, periphyton, or other appropriate indicators, shall not significantly differ from reference waters, taking into account variability. A significant adverse alteration of the biological integrity of the aquatic life/fishery constitutes a violation of these surface water quality standards. All wetlands within the reservation, which are not constructed wetlands (used for the repository or treatment system for wastes from human sources) are considered **surface waters of the PUEBLO OF SANDIA.** It is the policy of the PUEBLO OF SANDIA to protect wetlands because wetlands provide a variety of environmental benefits including wildlife habitat and recharge of groundwater. The Pueblo of Sandia will, through the use of multi-metric indices of benthic macroinvertebrates, fish, periphyton, or other appropriate wetland indicators ensure that the biological integrity of wetlands is maintained. Wetland integrity shall not significantly differ from reference wetlands, taking account variability. A significant adverse alteration of the biological integrity of wetlands at naturally occurring levels, within the natural range of variation for the individual wetlands and values of wetlands shall not occur.

Q. Sediment Quality

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3 *Drinking Water Regulations and Health Advisories*, EPA-822-R-06-013; August 2006, or the most current revision thereof.

Man-made or man induced activities shall not result in sediment with contaminants at concentrations which are toxic if absorbed by aquatic biota, livestock, wildlife or man or in quantities that interfere with normal propagation, growth, and survival of the existing aquatic biota. The following chemicals listed in Table 1. serve as a guideline in order to identify a concentration that if discovered might cause unacceptable ecological risks for aquatic biota and would warrant further investigation into the source and assist in clean-up of existing sediment contamination. These numeric values will be incorporated as part of the Pueblo of Sandia's water quality monitoring program and are not intended to be used in the calculation of effluent limitations in NPDES permits at this time.

Table 1. Sediment Quality Guidelines Above Which Harmful Effects Are Likely to Be Observed in Aquatic Life.*

Metals (milligrams per kilogram dry weight)	
Arsenic	33.0
Cadmium	4.98
Chromium	111.0
Copper	149.0
Lead	128.0
Mercury	1.06
Nickel	48.6
Zinc	459.0
Organic Chemicals (milligrams per kilogram dry weight)	
Total Polycyclic Aromatic Hydrocarbons	22.8
Total Polychlorinated Biphenyls	0.68

*MacDonald, D.D., C.G. Ingersoll, and T. Berger.2000. Development and evaluation of consensus-based sediment quality guidelines for freshwater ecosystems. *Archives of Environmental Contamination and Toxicology 39:20-31.*

SECTION IV. WATER BODY USES AND STANDARDS SPECIFIC TO THE USES

A. **Coolwater Aquatic Life/Fishery** Use.

A **coolwater aquatic life/fishery** is a river or stream reach, lake, or impoundment where water temperature and other characteristics are suitable for support and propagation of both coldwater and warmwater - adapted aquatic life on a transitional basis including but not limited to, individual species of green plants, algae, fungi, macroinvertebrates, fish (such as longnose dace, Rio Grande chub, Rio Grande sucker, brown trout, cutthroat trout, brook trout, rainbow trout, and walleye), shellfish, snails, frogs, turtles, salamanders, or other aquatic plants and animals but where temperature and other characteristics may not always be suitable for propagation of coldwater fish.

Standards specific to the use are as follows:

1. **Dissolved oxygen** minimum: 6 mg/l
2. Temperature maximum: 25° C (77° F)
3. **pH** range: 6.6-9.0 SU
4. The total ammonia standards shall be based in accordance with Appendix A.
5. Total residual chlorine maximum: 11 ug/l
6. The "GENERAL STANDARDS (SECTION III)" apply to this use.

B. **Coldwater Aquatic Life/Fishery** Use

A **coldwater aquatic life/fishery** is a river or stream reach, lake, or impoundment where water temperature and other characteristics are suitable for support and propagation of coldwater-adapted aquatic life, including but not limited to, individuals or species of green plants, algae, fungi, aquatic macroinvertebrates, fish (e.g., brown trout, cutthroat trout, brook trout, rainbow trout, chubs, dace, suckers, and walleye, shellfish, snails, frogs, turtles, salamanders, or other aquatic plants and animals.

Standards specific to the 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 SU
4. The total ammonia standard shall be based in accordance with Appendix A.
5. Total residual chlorine maximum: 11 ug/l

6. The "GENERAL STANDARDS (SECTION III)" apply to this use.

C. **Warmwater Aquatic Life/Fishery** Use

A warmwater aquatic life/fishery is a river or stream reach, lake, or impoundment where water temperature and other characteristics are suitable for support and propagation of warmwater adapted aquatic life including but not limited to, individuals or species of green plants, algae, fungi, macroinvertebrates, fish (such as cyprinids, minnows, carpsuckers, large-mouth black bass, small-mouth black bass, crappie, white bass, bluegill, channel catfish, bullhead catfish or live-bearers), shellfish, snails, frogs, turtles, salamanders, or other aquatic plants and animals.

Standards specific to the 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 SU

4. The total ammonia standard shall be based in accordance with Appendix A.

5. Total residual chlorine maximum: 11 ug/l

6. The "GENERAL STANDARDS (SECTION III)" apply to this use.

D. **Primary Contact Ceremonial Use**

Primary contact ceremonial use means the use of a stream, reach, lake, or impoundment for religious or traditional purposes by members of the PUEBLO OF SANDIA; such use involves immersion, and intentional or incidental ingestion of water, and it requires protection of sensitive and valuable aquatic life and riparian habitat.

Standards specific to the use are as follows:

1. **Fecal coliform**[4]

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4 **Fecal coliform** and **turbidity** both can vary suddenly and unpredictably. Accordingly, **fecal coliform** and **turbidity effluent** limits that apply to dischargers in order for the standards set forth herein to be met shall apply regardless of instantaneous natural background levels.

a. **geometric mean maximum**: 100 colonies/100 ml (**geometric mean** calculation based on a minimum of five samples taken over a maximum of 30 days)

b. single sample maximum: 200 colonies/100 ml.

2. *Escherichia coli*

a. **geometric mean maximum**: 47 colonies/100 ml

b. single sample maximum of 88 colonies/100 ml, in accordance with an illness rate of 4 per 1,000 exposures.

3. **Turbidity** [4] 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**.

4. The open water shall be free from **algae** in concentrations causing a **nuisance condition** or causing gastrointestinal or skin disorders.

5. The "GENERAL STANDARDS (SECTION III)" apply to this use.

6. **pH** range: 6.6-9.0 SU

E. Primary Contact Recreational Use

Primary contact recreational use means the recreational use of a stream, reach, lake, or impoundment involving prolonged contact and a substantial risk of ingesting water; examples are swimming and water skiing.

Standards specific to the use are:

1. **Fecal coliform**[4]

a. April 1 to September 30:

1. **geometric mean** maximum: 100 colonies/100 ml (**geometric mean** calculation based on a minimum of five samples taken over a maximum of 30 days)

2. single sample maximum: 200 colonies/100 ml

b. October 1 to March 31:

Fecal coliform standards for **Secondary Contact Recreational Use** apply.

2. *Escherichia coli*

a. April 1 to September 30:

1. **geometric mean maximum**: 47 colonies/100 ml

2. single sample maximum of 88 colonies/100 ml, in accordance with an illness rate of 4 per 1,000 exposures.

b. October 1 to March 31:

Escherichia coli standards for **Secondary Contact Recreational Use** apply.

3. **Turbidity** [4] 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**.

4. The open water shall be free from **algae** in concentrations causing a **nuisance condition** or causing gastrointestinal or skin disorders.

5. The "GENERAL STANDARDS (SECTION III)" apply to this use.

6. **pH** range: 6.6 - 9.0

F. Secondary Contact Recreational Use

Secondary contact recreational use means the recreational use of a stream, reach, lake, or impoundment in which contact with the water may, but need not, occur and in which the probability of ingesting water is minimal; examples are fishing and boating.

Standards specific to the use are:

1. **Fecal coliform**[4] :

a. **geometric mean** maximum: 200 colonies/100 ml (**geometric mean** calculation based on a minimum of five samples taken over a maximum of 30 days)

b. single sample maximum: 400 colonies/100 ml

2. ***Escherichia coli***

a. **geometric mean maximum**: 126 colonies/100 ml

b. single sample maximum of 235 colonies/100 ml, in accordance with an illness rate of 8 per 1,000 exposures.

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

4. **Turbidity** [4] 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**.

5. The "GENERAL STANDARDS (SECTION III)" apply to this use.

G. Agricultural Water Supply Use

Agricultural water supply use means the use of water for irrigation and livestock watering.

Standards specific to the use are:

1. **Fecal coliform**[4] :

   a. **geometric mean** maximum: 1000 colonies/100 ml (**geometric mean** calculation based on a minimum of five samples taken over a maximum of 30 days),

   b. single sample maximum: 2000 colonies/ 100 ml.

2. Concentration of the following substances shall not exceed the following criteria:

Substance	Livestock	Irrigation
Dissolved Boron	5.0 mg/l	0.75 mg/l
Dissolved Cobalt	1.0 mg/l	0.05 mg/l
Dissolved Lithium	--	2.5 mg/l
Dissolved Molybdenum	--	1.0 mg/l
Dissolved Vanadium	0.1 mg/l	0.1 mg/l

3. **Turbidity** [4] 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**.

4. The "GENERAL STANDARDS (SECTION III)" apply to this use.

H. Fish Culture Use.

Fish culture use means the use of a stream, reach, lake, or impoundment for production of coldwater or warmwater fish in a hatchery or rearing station.

Standards specific to the use are:

1. **Dissolved oxygen** minimum: 5 mg/l

2. Temperature maximum: 32.2°C (90°F)

3. **pH** range: 6.0 - 9.0 SU

4. Total ammonia standards shall in accordance with Appendix A.

5. Total residual chlorine maximum: 11 ug/L

6. **Turbidity** [4] 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**.

7. The "GENERAL STANDARDS (SECTION III)" apply to this use.

I. Industrial Water Supply Use

Industrial water supply use means use with reference to the production of goods or services for profit.

Standards specific to the use are:

1. **pH** range: 6.0 - 9.0 SU

2. **Turbidity** [4] 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**.

3. The "GENERAL STANDARDS (SECTION III)" apply to this use.

J. Domestic Water Supply Use

Domestic water supply use means surface waters of the PUEBLO of SANDIA that may be used as a potable supply after disinfection.

Standards specific to the use are:

1. **pH** range: 6.0 - 9.0 SU

2. **Turbidity** [4] 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**.

3. The "GENERAL STANDARDS (SECTION III)" apply to this use.

K. Wildlife Habitat Use

Wildlife habitat use means surface waters including **wetlands** that are suitable to support and propagate animal and plant species. Wildlife habitat will be free from any substances at concentrations that are toxic to or will adversely affect animal and plant species that use the environments for feeding, drinking, habitat or propagation, or can **bioaccumulate** and impair the community of animals in a watershed or the ecological integrity of **surface waters of the PUEBLO OF SANDIA**.

Standards specific to use are:

1. The "GENERAL STANDARDS (SECTION III)" apply to this use.

2. The following chronic numeric standards shall not be exceeded:

a.	Total Mercury	0.77 ug/L
b.	Total Recoverable Selenium	2.0 ug/L
c.	Cyanide, Weak Acid Dissociable	5.2 ug/L
d.	Total Chlorine Residual	11.0 ug/L
e.	Total DDT and Metabolites	0.001 ug/L
f.	Total PCB's	0.014 ug/L

g. The discharge of substances which **bioaccumulate**, in addition to the above compounds, in excess of levels specified in current research is not allowed.

SECTION V. USES AND STANDARDS FOR DESIGNATED WATER BODIES

A. The uses and standards are as follows for the **segment** of the Rio Grande that passes through the PUEBLO OF SANDIA Reservation, from a northernmost point located in Township 13 North, Range 4 East, Section 31, Southeast Quarter of the Northwest Quarter of the Southeast Quarter, to a southernmost point located in Township 11 North, Range 3 East, Section 3, Northeast Quarter of the Northwest Quarter of the Southwest Quarter, and the following waterways: Albuquerque Main Canal, Bernalillo Acequia, Corrales Main Canal, Sandia Acequia and Wasteway, Alameda Lateral, Bosque Lateral No. 2, and Sandia Lateral No. 2 (Station 426+00 at Albuquerque Main Canal).

1. Uses:

   a. **Warmwater aquatic life/fishery use**

   b. **Coolwater aquatic life/fishery use**

   c. **Primary contact ceremonial use**

   d. **Primary contact recreational use**

   e. **Secondary contact recreational use**

   f. **Agricultural water supply use**

   g. **Industrial water supply use**

   h. **Domestic water supply use**

   i. **Wildlife habitat use**

2. Standards:

   a. **Dissolved oxygen** minimum: 5 mg/l

   b. **Fecal coliform**[4] :

      1. **geometric mean** maximum: 100 colonies/100 ml (**geometric mean** calculation based on a minimum of five samples taken over a maximum of 30 days)

      2. Single sample maximum: 200 colonies/100 ml

   c. ***Escherichia coli***

1. **geometric mean maximum**: 47 colonies/100 ml

2. single sample maximum of 88 colonies/100 ml, in accordance with an illness rate of 4 per 1,000 exposures

d. Temperature maximum: 25° C (77° F) **Coolwater aquatic life/fishery use**
32.2°C (90°F) **Warmwater aquatic life/fishery use**

e. **pH** range: 6.0 - 9.0

f. Total ammonia maximum shall be based in accordance with Appendix A.

g. Total residual chlorine maximum: 11 ug/l

h. **Turbidity** not to exceed 25 **NTU**'s.

B. The uses and standards are as follows for the following water bodies:

Albuquerque Riverside Drain and Extension

Bernalillo Interior Drain (Atrisco Feeder)

No Name Drain

Charlie Teas Lateral

Alameda Lateral

Sandia Lakes

1. Uses:

a. **Coolwater Aquatic Life/Fishery use**

b. **Warmwater Aquatic Life/Fishery use**

c. **Primary contact ceremonial use**

d. **Primary contact recreational use**

e. **Secondary contact recreational use**

f. **Agricultural water supply use**

g. **Industrial water supply use**

h. **Wildlife habitat** use

2. Standards:

a. **Dissolved oxygen** minimum: 6 mg/l

b. **Fecal coliform**[4] :

1. **geometric mean** maximum: 100 colonies/100 ml **geometric mean** calculation based on a minimum of five samples taken over a maximum of 30 days)

2. Single sample maximum: 200 colonies/100 ml.

c. ***Escherichia coli***

1. **geometric mean maximum**: 47 colonies/100 ml

2. single sample maximum of 88 colonies/100 ml, in accordance with an illness rate of 4 per 1,000 exposures.

d. Temperature maximum: 20° C (68° F) **Coolwater aquatic life/fishery use**
32.2°C (90°F) **Warmwater aquatic life/fishery use**

e. **pH** range: 6.5 - 8.5

f. Total residual chlorine maximum: 11 ug/L

g. Total ammonia standards shall be in accordance with Appendix A.

h. **Turbidity** not to exceed 25 **NTU**'s

C. The uses and standards are as follows for the springs and run-off ponds at the base of Sandia Mountain:

1. Uses:

a. **Primary contact ceremonial use**

b. **Primary contact recreational use**

c. **Secondary contact recreational use**

d. **Agricultural water supply use**

e. **Industrial water supply use**

f. **Wildlife habitat use**

2. Standards:

a. **Fecal coliform**[4] :

1. **geometric mean** maximum: 100 colonies/100 ml (**geometric mean** calculation based on a minimum of five samples taken over a maximum of 30 days)

2. Single sample maximum: 200 colonies/100 ml

b. ***Escherichia coli***

1. **geometric mean maximum**: 47 colonies/100 ml

2. single sample maximum of 88 colonies/100 ml, in accordance with an illness rate of 4 per 1,000 exposures.

c. **pH** range: 6.5 - 8.5

d. **Turbidity** not to exceed 25 **NTU**'s

D. The uses and standards are as follows for the Surface Water Ponds/Wetlands in the Pueblo of Sandia Bosque. All wetlands on the PUEBLO OF SANDIA which are not constructed wetlands are considered "waters within the jurisdiction of the PUEBLO OF SANDIA". Wetlands shall be subject to the narrative criteria and applicable antidegradation provisions, as well as site-specific numerical criteria below. Wetlands are generally assumed to provide habitat capable of supporting aquatic biota on an ongoing or periodic basis. It shall be the goal of the PUEBLO OF SANDIA to maintain the water quality of wetlands at naturally occurring levels, within the natural range of variation for the individual wetland. For substances that are not naturally occurring, water quality requirements shall be based on protecting existing uses of the wetland consistent with antidegradation requirements, the Pueblo of Sandia's narrative water quality criteria, criteria assigned to hydrologically-connected surface waters, or appropriate criteria guidance issued by the U.S. Environmental Protection Agency. Natural wetlands shall not be considered as repositories or treatment systems for wastes from human sources.

1. Uses:

a. **Warmwater Aquatic Life/Fishery** use

b. **Primary Contact Recreational** use

c. **Secondary Contact Recreation** use

d. **Fish Culture** use

e. **Wildlife habitat** use

2. Standards:

a. **Fecal coliform**[4] :

1. April l to September 30:

a. **geometric mean** maximum: 100 colonies/100 ml (**geometric mean** calculation based on a minimum of five samples taken over a maximum of 30 days)

b. single sample maximum: 200 colonies/100 ml

2. October l to March 31:

a. **Fecal coliform** standards for **Secondary Contact Recreational Use** apply.

b. ***Escherichia coli***

1. April l to September 30:

a. **geometric mean maximum**: 47 colonies/100 ml

b. single sample maximum of 88 colonies/100 ml, in accordance with an illness rate of 4 per 1,000 exposures.

2. October 1 to March 31:

a. **Escherichia coli** standards for **Secondary Contact Recreational Use** apply.

c. **Dissolved oxygen** minimum: 3 mg/l

d. Temperature maximum: 32.2°C (90°F)

e. **pH** range: 6.0 - 9.0

f. Total ammonia standards shall in accordance with Appendix A.

g. **Turbidity** not to exceed 25 **NTU**'s

E. The uses and standards are as follows for those surface waters existing or created as a result of the Albuquerque Metropolitan Arroyo Flood Control Authority (AMAFCA) North Diversion Channel (the outlet or waters west of the equipment crossing, officially called the pilot channel) within the exterior boundaries of the PUEBLO of SANDIA.

1. Uses:

a. **Warmwater aquatic life/fishery** use

b. **Coolwater aquatic life/fishery use**

c. **Primary contact recreational** use

d. **Secondary contact recreational** use

e. **Wildlife habitat** use

2. Standards:

a. **Fecal coliform**[4] :

1. April l to September 30:

a. **geometric mean** maximum: 100 colonies/100 ml (**geometric mean** calculation based on a minimum of five samples taken over a maximum of 30 days)

b. single sample maximum: 200 colonies/100 ml

2. October l to March 31:

a. **Fecal coliform** standards for **Secondary Contact Recreational Use** apply.

b. ***Escherichia coli***

1. April l to September 30:

a. **geometric mean** maximum: 47 colonies/100 ml

b. single sample maximum of 88 colonies/100 ml, in accordance with an illness rate of 4 per 1,000 exposures.

2. October 1 to March 31:

b. **Escherichia coli** standards for **Secondary Contact Recreational Use** apply.

c. **Dissolved oxygen** minimum: 5 mg/l

d. Temperature maximum: 25° C (77° F) **Coolwater aquatic life/fishery use**
32.2°C (90°F) **Warmwater aquatic life/fishery use**

e. **pH** range: 6.0 - 9.0

f. Total ammonia standards shall be in accordance with Appendix A.

g. Total residual chlorine maximum: 11 ug/l

SECTION VI. SAMPLING AND ANALYSIS

A. Sample collection, preservation, and analysis used to determine water quality and to maintain the standards set forth in the Water Quality Standards shall be performed in accordance with procedures prescribed by the latest editions of any of the following authorities: (1) American Public Health Association, *Standard Methods for the Examination of Water and Wastewater;* (2) "Methods for Chemical Analysis of Water and Wastes"; (3) "EPA Guidelines Establishing Test Procedures for the Analysis of Pollutants." or (4) EPA approved "*Pueblo of Sandia Quality Assurance Project Plan for Surface Water Quality Monitoring Program*".

B. Bacteriological Surveys: The monthly **geometric mean** is used in assessing attainment of standards when a minimum of five samples is collected in a 30-day period. When less than 5 samples are collected in a 30-day period, no single sample shall exceed the applicable upper limit for bacterial density set forth in SECTION IV.

C. Sampling Procedures:

1. Streams:

   Stream monitoring stations below waste discharges shall be located a sufficient distance downstream to ensure adequate vertical and lateral mixing.

2. Reservoirs:

   Sampling stations in reservoirs shall be located at least 250 feet from a waste discharge, and, otherwise, where the attainment of a water quality standard is to be assessed. Water quality measurements shall be taken at intervals in the water column at a sampling station. For toxic substances and **nutrients**, the entire water column shall be monitored. For **dissolved oxygen** in stratified lakes, measurements shall be made in the **epilimnion**. In non-stratified lakes measurements will be made at intervals throughout the entire water column.

SECTION VII. DEFINITIONS [5]

Acute toxicity

Toxicity which exerts short term lethal impacts on representative organisms with a duration of exposure generally less than or equal to 48 hours. Acute toxicity shall be determined in accordance with procedures specified in EPA 821-R-02-012, "*Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms.*" Other methods may be used as appropriate to determine acute effects other than lethality, such as, but not limited to behavioral changes or immobilization.

Agricultural water supply use

The use of water for irrigation and livestock.

Algae

Simple plants without roots, stems, or leaves which contain chlorophyll and are capable of photosynthesis.

Antidegradation

The policy set forth in the PUEBLO OF SANDIA Water Quality Standards whereby **existing uses** and the level of water quality necessary to maintain those uses is maintained and protected (See 40 C.F.R. Section 131.12 (1987)).

Aquatic biota

Animal and plant life in the water.

Attainable use

A use of a surface water body which has the level of water quality and other characteristics that are needed to support the use, or which would have the level of water quality and other characteristics needed to support the use upon implementation of and compliance with the pertinent narrative and numeric standards in the PUEBLO OF SANDIA Water Quality Standards.

Best Available Technology (BAT)

Best Available Technology Economically Achievable (BAT) is defined at Section 304(b)(2) of the CWA. In general, Best Available Technology Economically Achievable (BAT) represents the best available economically achievable performance of plants in the industrial subcategory or category. The factors considered in assessing BAT include the cost of achieving BAT effluent reductions, the age of equipment and facilities involved, the process employed, potential process changes, non-water quality environmental impacts, including energy requirements and other such factors as the EPA Administrator deems appropriate.

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[5] Words and terms defined in this Section are designated in **bold** wherever used in the text of the "PUEBLO OF SANDIA Water Quality Standards."

Best management practices

Practices undertaken to control, restrict, and diminish **non-point sources** of pollution, that are consistent with the purposes of the PUEBLO OF SANDIA Water Quality Standards and with the narrative and numeric standards contained therein; measures, sometimes structural, that are determined to be the most effective practical means of preventing or reducing pollution of water bodies from **non-point sources**.

Bioaccumulate

The process by which a compound is taken up by an aquatic organism, both from water and through food.

Bioconcentrate

The process by which a compound is absorbed from water through gills or epithelial tissues and is concentrated in the body.

Biomagnify

The process by which the concentration of a compound increases in species occupying successive trophic levels.

CASRN

Acronym for "Chemical Abstracts Service Registry Number". Chemical Abstracts Service Registry Numbers are unique identifiers for chemical substances used to bridge the many differences in systematic, generic, proprietary, and trivial names of chemical substances, linking them with their correct molecular structure.

Carcinogenic

Cancer producing.

Chronic toxicity

Toxicity which exerts sub-lethal negative effects such as impairment of growth or reproduction, or which becomes lethal after long- term exposure, generally measured in a seven (7) day test on representative sensitive organisms. Chronic toxicity shall be determined in accordance with procedures specified in EPA-821-R02-013, "*Short-term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Water to Freshwater Organisms*." Other methods may be used as appropriate.

Coldwater aquatic life/fishery

A river or stream reach, lake, or impoundment where water temperature and other characteristics are suitable for support and propagation of coldwater-adapted aquatic life, including but not limited to, individuals or species of green plants, algae, fungi, aquatic macroinvertebrates, fish (e.g., brown trout, cutthroat trout, brook trout, rainbow trout, chubs, dace, suckers, and walleye), shellfish, snails, frogs, turtles, salamanders, or other aquatic plants and animals.

Color

True **color** as well as apparent **color**. True **color** is the **color** of the water from which **turbidity** has been removed. Apparent **color** includes not only the **color** due to substances in solution (true **color**), but also that **color** due to suspended matter.

Coolwater aquatic life/fishery

A river or stream reach, lake, or impoundment where water temperature and other characteristics are suitable for support and propagation of both coldwater and warmwater-adapted aquatic life on a transitional basis including, but not limited to, individuals or species of green plants, algae, fungi, macroinvertebrates, fish (e.g., chubs, dace, trout, suckers, and walleye), shellfish, snails, frogs, turtles, salamanders, or other aquatic plants and animals.

Cumulative

Increasing by successive additions.

Designated uses

Those uses set forth in the water quality standards herein.

Dissolved oxygen (DO)

The amount of oxygen dissolved in water or the amount of oxygen available for biochemical activity in water, commonly expressed as a concentration in milligrams per liter.

Domestic water supply

A surface water of the PUEBLO of SANDIA that may be used as potable supply after disinfection.

Drinking water

Water that meets the General Standards set forth in SECTION III above and that only requires disinfection in order to be usable for drinking or cooking.

Effluent

Discharge into surface waters from other than natural sources.

Ephemeral stream

A stream or reach that flows briefly only in direct response to precipitation or snowmelt in the immediate locality, the channel bed of which is always above the water table in the surrounding area.

Epilimnion

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

Escherichia coli

"*Escherichia coli*" or "*E. coli*" means a bacterial species that inhabits the intestinal tract of humans and other warm-blooded animals, the presence of which indicates the potential presence of pathogenic microorganisms capable of producing disease.

Eutrophication
The maturation of a body of water, involving increasing concentration of dissolved nutrients and seasonal oxygen deficiency.

Existing uses
Those uses actually attained in a surface water body on or after November 28, 1975, whether or not they are referred to in the PUEBLO OF SANDIA Water Quality Standards.

FDA action limits
Levels promulgated by the U.S. Food and Drug Administration concerning concentrations of substances in food.

Fecal coliform
Gram negative, non spore-forming rod-shaped bacteria which are present in the gut or the feces of warm-blooded animals. Fecal coliform bacteria generally includes organisms which are capable of producing gas from lactose broth in a suitable culture medium within 24 hours at 44.5+/-0.2 C.

Fish culture
The production of coldwater or warmwater fish in a hatchery or rearing station.

Fishery
A balanced, diverse community of fishes controlled by the water quality, quantity, and habitat of a water body.

Geometric mean
Antilog of the mean of the logs of a set of numbers.

Indigenous
Produced, growing, or living naturally in a particular region or environment.

Industrial water supply use
The use of water with reference to the production of goods or services for profit.

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

MCL
Acronym for "Maximum Contaminant Level." The maximum permissible level of a contaminant in water delivered to any user of a public system. MCLs are enforceable standards.

Milligrams per liter (mg/l)
The concentration at which one milligram is contained in a volume of one liter; one milligram per liter is equivalent to one part per million (ppm) at unit density.

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

Narrative standard
A standard or criterion expressed in words rather than numerically.

National Pollutant Discharge Elimination Systems (NPDES)
Section 402 of the Clean Water Act. It is the Clean Water Act's primary point source control program through which point source discharges of pollution are permitted. Some activities which require NPDES permits are: municipal sewage treatment plants, industrial treatment plants, mines, concentrated animal feeding operations and storm water construction sites.

Natural background/natural condition
Characteristics that are not man-induced that are related to water quality or the environmental setting; the levels of pollutants present are from natural, as opposed to man-induced, sources.

Non-point source
A source of pollution that is not a discernible, confined, and discrete conveyance; a diffuse source which flows across natural or manmade surfaces, such as run-off from agricultural, construction, mining, or silvicultural activities, or from urban areas.

NTU
Nephelometric **Turbidity** Units; a measure of **turbidity** in water.

Nuisance condition
A condition involving uncontrolled growth of aquatic plants, usually caused by excessive **nutrients** in the water.

Nutrient
A chemical element or inorganic compound taken in by green plants and used in organic synthesis.

Organoleptic
Affecting or involving a sense organ (smell, taste) responsive to sensory stimuli.

Pathogens
Microorganisms that can cause disease in other organisms or in humans, animals, and plants. They may be bacteria, viruses, or parasites and are found in sewage, in runoff from animal farms or rural areas populated with domestic and/or wild animals, and in water used for swimming. Fish and shellfish contaminated by pathogens, or the contaminated water itself, can cause serious illnesses.

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

Persistent
To continue in existence.

pH
The negative logarithm of the effective hydrogen-ion concentration in gram equivalents per liter; a measure of the acidity or alkalinity of a solution, increasing with increasing alkalinity and decreasing with increasing acidity.

Picocurie (pCi)
That quantity of radioactive material producing 2.22 nuclear transformations per minute.

Point source
Any discernible, confined, and discrete conveyance from which pollutants are or may be discharged into a water body; does not include return flows from irrigated agriculture.

Primary contact ceremonial use
The use of a stream, reach, lake, or impoundment for religious or traditional purposes by members of the PUEBLO OF SANDIA; such use involves immersion, and intentional or incidental ingestion of water, and it requires protection of sensitive and valuable aquatic life and riparian habitat.

Primary contact recreational use
Recreational use of a stream, reach, lake, or impoundment involving prolonged contact and the risk of ingesting water; examples are swimming and water skiing.

Secondary contact recreational use
Recreational use of a stream, reach, lake, or impoundment in which contact with the water may, but need not, occur and in which the probability of ingesting water is minimal; examples are fishing and boating.

Segment
A water quality standards segment, the surface waters of which have common hydrologic characteristics or flow regulation regimes, possess common natural physical, chemical, and biological characteristics, and exhibit common reactions to external stresses, such as the discharge of pollutants.

Surface waters of the PUEBLO OF SANDIA
A surface water of the PUEBLO OF SANDIA, or reach of a surface water of the PUEBLO OF SANDIA, for which the Tribal Council has adopted a designated a use or uses and applicable water quality criteria. This includes all surface waters situated wholly or partly

within or bordering upon the PUEBLO OF SANDIA, including lakes (both manmade and natural), rivers, streams (including intermittent streams), mudflats, sandflats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes, reservoirs, or natural ponds. Surface waters of the PUEBLO OF SANDIA also include all tributaries of such waters, including adjacent wetlands, any manmade bodies of water that were originally created in surface waters of the PUEBLO OF SANDIA or resulted in the impoundment of surface waters of the PUEBLO OF SANDIA, and any "waters of the United States" as defined under the Clean Water Act. These "waters of the United States" will be protected by the PUEBLO OF SANDIA in a manner consistent with the PUEBLO OF SANDIA Water Quality Standards and Tribal authority.

Thermal stratification

Horizontal layers of different densities produced in a lake caused by temperature.

Toxicity

State or degree of being toxic or poisonous; lethal or sublethal adverse effects on representative sensitive organisms, due to exposure to toxic materials.

Turbidity

A measure of the amount of suspended material, particles, or sediment, which has the potential for adverse impacts on aquatic biota.

Use-attainability analysis

A structured scientific assessment of the factors affecting attainment of a use for a body of water, which assessment may include physical, chemical, biological, and economic factors, such as those referred to in 40 C.F.R. Section 131.10(g), and guidance for which may be found in U.S. Environmental Protection Agency, *Technical Support Manual: Water body Surveys and Assessments for Conducting Use-Attainability Analysis (Volume I--Streams; Volume 2--Estuarine Systems; Volume 3--Lake Systems).*

Warmwater aquatic life/fishery

A river or stream reach, lake, or impoundment where water temperature and other characteristics are suitable for support and propagation of warmwater-adapted aquatic life including, but not limited to, individuals or species of green plants, algae, fungi, macroinvetebrates, fish (e.g., cyprinids, minnows, carpsuckers, large-mouth bass, spotted bass, small-mouth bass, white bass, crappie, bluegill, channel catfish, bullhead catfish, live-bearers), shellfish, snails, frogs, turtles, salamanders, or other aquatic plants and animals.

Water contaminant

Any substance which alters the physical, chemical, or biological qualities of water.

Wetlands

Those areas inundated or saturated by surface water and/or ground water at a frequency and duration sufficient to support, and under normal circumstances do support, vegetation typically adapted for life in saturated soil conditions. Constructed wetlands used for waste

water treatment purposes are not included in this definition.

Wildlife habitat

A surface water of the PUEBLO of SANDIA including **wetlands** that are suitable to support and propagate animal and plant species. Wildlife habitat surface waters are used for drinking water supply, food supply, habitation, and propagation by plants and animals and is not pathogenic to humans, domesticated livestock, and plants.

Zone of passage

The portion of the receiving water outside the **mixing zone** where water quality is the same as that of the receiving water.

Table 1. Temperature and pH-Dependent Values of the CCC (Chronic Criterion) for Fish Early Life Stages Present, Total Ammonia (mg/L as N).

pH	Temperature, °C									
	0-14	15	16	17	18	19	20	21	22	23
6.5	6.67	6.46	6.06	5.68	5.33	4.99	4.68	4.39	4.12	3.86
6.6	6.57	6.36	5.97	5.59	5.25	4.92	4.61	4.32	4.05	3.80
6.7	6.44	6.25	5.86	5.49	5.15	4.83	4.52	4.24	3.98	3.73
6.8	6.29	6.10	5.72	5.36	5.03	4.72	4.42	4.14	3.89	3.64
6.9	6.12	5.93	5.56	5.21	4.89	4.58	4.30	4.03	3.78	3.54
7.0	5.91	5.73	5.37	5.04	4.72	4.43	4.15	3.89	3.65	3.42
7.1	5.67	5.49	5.15	4.83	4.53	4.25	3.98	3.73	3.50	3.28
7.2	5.39	5.22	4.90	4.59	4.31	4.04	3.78	3.55	3.33	3.12
7.3	5.08	4.92	4.61	4.33	4.06	3.80	3.57	3.34	3.13	2.94
7.4	4.73	4.59	4.30	4.03	3.78	3.55	3.32	3.12	2.92	2.74
7.5	4.36	4.23	3.97	3.72	3.49	3.27	3.06	2.87	2.69	2.53
7.6	3.98	3.85	3.61	3.39	3.18	2.98	2.79	2.62	2.45	2.30
7.7	3.58	3.47	3.25	3.05	2.86	2.68	2.51	2.36	2.21	2.07
7.8	3.18	3.09	2.89	2.71	2.54	2.38	2.23	2.10	1.96	1.84
7.9	2.80	2.71	2.54	2.38	2.24	2.10	1.96	1.84	1.73	1.62
8.0	2.43	2.36	2.21	2.07	1.94	1.82	1.71	1.60	1.50	1.41
8.1	2.10	2.03	1.91	1.79	1.68	1.57	1.47	1.38	1.29	1.21
8.2	1.79	1.74	1.63	1.53	1.43	1.34	1.26	1.18	1.11	1.04
8.3	1.52	1.48	1.39	1.30	1.22	1.14	1.07	1.00	0.941	0.882
8.4	1.29	1.25	1.17	1.10	1.03	0.97	0.906	0.849	0.796	0.747
8.5	1.09	1.06	0.990	0.928	0.870	0.816	0.765	0.717	0.672	0.630
8.6	0.920	0.892	0.836	0.784	0.735	0.689	0.646	0.606	0.568	0.532
8.7	0.778	0.754	0.707	0.663	0.622	0.583	0.547	0.512	0.480	0.450
8.8	0.661	0.641	0.601	0.563	0.528	0.495	0.464	0.435	0.408	0.383
8.9	0.565	0.548	0.513	0.481	0.451	0.423	0.397	0.372	0.349	0.327
9.0	0.486	0.471	0.442	0.414	0.389	0.364	0.342	0.320	0.300	0.281

Table 1. Temperature and pH-Dependent Values of the CCC (Chronic Criterion) for Fish Early Life Stages Present, Total Ammonia (mg/L as N), Continued.

pH	Temperature, °C						
	24	25	26	27	28	29	30
6.5	3.62	3.39	3.18	2.98	2.80	2.62	2.46
6.6	3.56	3.34	3.13	2.94	2.75	2.58	2.42
6.7	3.50	3.28	3.07	2.88	2.70	2.53	2.37
6.8	3.42	3.20	3.00	2.82	2.64	2.47	2.32
6.9	3.32	3.11	2.92	2.74	2.57	2.41	2.25
7.0	3.21	3.01	2.82	2.64	2.48	2.32	2.18
7.1	3.08	2.88	2.70	2.53	2.38	2.23	2.09
7.2	2.92	2.74	2.57	2.41	2.26	2.12	1.99
7.3	2.76	2.58	2.42	2.27	2.13	2.00	1.87
7.4	2.57	2.41	2.26	2.12	1.98	1.86	1.74
7.5	2.37	2.22	2.08	1.95	1.83	1.72	1.61
7.6	2.16	2.02	1.90	1.78	1.67	1.56	1.47
7.7	1.94	1.82	1.71	1.60	1.50	1.41	1.32
7.8	1.73	1.62	1.52	1.42	1.33	1.25	1.17
7.9	1.52	1.42	1.33	1.25	1.17	1.10	1.03
8.0	1.32	1.24	1.16	1.09	1.02	0.96	0.897
8.1	1.14	1.07	1.00	0.94	0.879	0.824	0.773
8.2	0.973	0.912	0.855	0.802	0.752	0.705	0.661
8.3	0.827	0.775	0.727	0.682	0.639	0.599	0.562
8.4	0.700	0.656	0.615	0.577	0.541	0.507	0.475
8.5	0.591	0.554	0.520	0.487	0.457	0.428	0.401
8.6	0.499	0.468	0.439	0.411	0.386	0.362	0.339
8.7	0.422	0.396	0.371	0.348	0.326	0.306	0.287
8.8	0.359	0.336	0.315	0.296	0.277	0.260	0.244
8.9	0.306	0.287	0.269	0.253	0.237	0.222	0.208
9.0	0.264	0.247	0.232	0.217	0.204	0.191	0.179

Table 2. Temperature and pH-Dependent Values of the CCC (Chronic Criterion) for Fish Early Life Stages Absent, Total Ammonia (mg/L as N).

pH	Temperature, °C										
	0-7	8	9	10	11	12	13	14	15*	16*	17*
6.5	10.8	10.1	9.51	8.92	8.36	7.84	7.35	6.89	6.46	6.06	5.68
6.6	10.7	9.99	9.37	8.79	8.24	7.72	7.24	6.79	6.36	5.97	5.59
6.7	10.5	9.81	9.20	8.62	8.08	7.58	7.11	6.66	6.25	5.86	5.49
6.8	10.2	9.58	8.98	8.42	7.90	7.40	6.94	6.51	6.10	5.72	5.36
6.9	9.93	9.31	8.73	8.19	7.68	7.20	6.75	6.33	5.93	5.56	5.21
7.0	9.60	9.00	8.43	7.91	7.41	6.95	6.52	6.11	5.73	5.37	5.04
7.1	9.20	8.63	8.09	7.58	7.11	6.67	6.25	5.86	5.49	5.15	4.83
7.2	8.75	8.20	7.69	7.21	6.76	6.34	5.94	5.57	5.22	4.90	4.59
7.3	8.24	7.73	7.25	6.79	6.37	5.97	5.60	5.25	4.92	4.61	4.33
7.4	7.69	7.21	6.76	6.33	5.94	5.57	5.22	4.89	4.59	4.30	4.03
7.5	7.09	6.64	6.23	5.84	5.48	5.13	4.81	4.51	4.23	3.97	3.72
7.6	6.46	6.05	5.67	5.32	4.99	4.68	4.38	4.11	3.85	3.61	3.39
7.7	5.81	5.45	5.11	4.79	4.49	4.21	3.95	3.70	3.47	3.25	3.05
7.8	5.17	4.84	4.54	4.26	3.99	3.74	3.51	3.29	3.09	2.89	2.71
7.9	4.54	4.26	3.99	3.74	3.51	3.29	3.09	2.89	2.71	2.54	2.38
8.0	3.95	3.70	3.47	3.26	3.05	2.86	2.68	2.52	2.36	2.21	2.07
8.1	3.41	3.19	2.99	2.81	2.63	2.47	2.31	2.17	2.03	1.91	1.79
8.2	2.91	2.73	2.56	2.40	2.25	2.11	1.98	1.85	1.74	1.63	1.53
8.3	2.47	2.32	2.18	2.04	1.91	1.79	1.68	1.58	1.48	1.39	1.30
8.4	2.09	1.96	1.84	1.73	1.62	1.52	1.42	1.33	1.25	1.17	1.10
8.5	1.77	1.66	1.55	1.46	1.37	1.28	1.20	1.13	1.06	0.990	0.928
8.6	1.49	1.40	1.31	1.23	1.15	1.08	1.01	0.951	0.892	0.836	0.784
8.7	1.26	1.18	1.11	1.04	0.976	0.915	0.858	0.805	0.754	0.707	0.663
8.8	1.07	1.01	0.944	0.885	0.829	0.778	0.729	0.684	0.641	0.601	0.563
8.9	0.917	0.860	0.806	0.756	0.709	0.664	0.623	0.584	0.548	0.513	0.481
9.0	0.790	0.740	0.694	0.651	0.610	0.572	0.536	0.503	0.471	0.442	0.414

*At 15 C and above, the criterion for Fish Early Life Stages Absent is the same as the criterion for fish Early Life Stages Present.

Table 3. pH-Dependent Values of the CMC (Acute Criterion), Total Ammonia (mg/L as N).

CMC, mg/L as N		
pH	**Salmonids Present**	**Salmonids Absent**
6.5	32.6	48.8
6.6	31.3	46.8
6.7	29.8	44.6
6.8	28.1	42.0
6.9	26.2	39.1
7.0	24.1	36.1
7.1	22.0	32.8
7.2	19.7	29.5
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

	Fresh Water Aquatic Criteria		Human Health Criteria*	
Substance[b]	**CASRN**	**Chronic Toxicity[c] (ug/l)**	**Acute Toxicity[c] (ug/l)**	**Fish Consumption and Other (Not to Exceed) (ug/l)**	**Water Consumption (ug/l)**
Acenaphthene	83-32-9	--	--	20[j]	--
Acrolein	107-02-8	--	--	290	--
Acrylonitrile	107-13-1	--	--	0.25	--
Aldrin	309-00-2	--	3.0	0.00005	--
Aluminum[a]	7429-90-5	750	750	--	--
Antimony[a]	7440-36-0	--	--	--	6[f]
Arsenic[a]	7440-38-2	150	340	3.6[i]	--
Barium [a]	7440-39-3	--	--	--	2000[f]
Benzene	71-43-2	--	--	--	5[f]
Benzidine	92-87-5	--	--	0.0002	--
Beryllium	7440-41-7	5.3	130	--	4[f]
Cadmium[a]	7440-43-9	e(0.7409[ln(hd)] - 4.719)(CF)	e(1.0166[ln(hd)] - 3.924)(CF)	--	5[f]
Carbon Tetrachloride	56-23-5	--	--	1.6	--
Chlordane	57-74-9	0.0043	2.4	0.00081	--
Chlorobenzene	108-90-7	--	--	20[j]	--
2-Chloronapthalene	91-58-7	--	--	1600	--
Chlorine residual	7782-50-5	11	19	--	--
Bis(2-Chloroethyl) Ether	111-44-4	--	--	0.53	--
Bis(2-Chloroisopropyl) Ether	108-60-1	--	--	65000	--
Bis(Chloromethyl) Ether	542-88-1	--	--	0.00029	--
2-Chlorophenol	95-57-8	--	--	0.10[j]	--
3-Methyl-4-Chlorophenol	59-50-7	--	--	3000[j]	--

	Fresh Water Aquatic Criteria		Human Health Criteria*	
Substance[b]	**CASRN**	**Chronic Toxicity[c] (ug/l)**	**Acute Toxicity[c] (ug/l)**	**Fish Consumption and Other (Not to Exceed) (ug/l)**	**Water Consumption (ug/l)**
Chlorpyrifos	2921-88-2	0.041	0.083	--	--
Chromium (III)[a]	16065-83-1	e(0.8190[ln(hd)] + 0.534)	e(0.8190[ln(hd)] + 2.5736)	—	100[f]
Chromium (VI)[a]	18540-29-9	10.58	15.71	--	100[f]
Copper[a]	7440-50-8	e(0.8545[ln(hd)]-1.7428)	e(0.9422[ln(hd)]-1.7408)	1000[j]	--
Cyanide	57-12-5	5.2	22	140[d]	--
4,4'-DDT	50-29-3	0.001	1.1	0.00022	--
4,4'-DDE	72-55-9	--	--	0.00022	--
4,4'-DDD	72-54-8	--	--	0.00031	--
Demeton	8065-48-3	0.1	--	--	--
Diazinon	333-41-5	0.17	0.17	--	--
Di-n-Butyl Phthalate	84-74-2	--	--	4500	--
1,2-Dichlorobenzene	95-50-1	--	--	--	600[f]
1,3-Dichlorobenzene	541-73-1	--	--	960	--
1,4-Dichlorobenzene	106-46-7	--	--	--	75[f]
3,3'-Dichlorobenzedine	91-94-1	--	--	0.028	--
1,2'-Dichloroethane	107-06-2	--	--	--	5[f]
1,1-Dichloroethylene	75-35-4	--	--	--	7[f]
1,2-Trans-Dichloroethylene	156-60-5	--	--	--	100[f]
2,4-Dichlorophenol	120-83-2	--	--	0.3[j]	
2,4-Dichlorophenoxy-acetic acid (2,4-D)	94-75-7	--	--	--	70[f]
1,2-Dichloropropane	78-87-5	--	--	--	5[f]
1,3-Dichloropropene	542-75-6	--	--	21	--

Fresh Water Aquatic Criteria			Human Health Criteria*		
Substance[b]	**CASRN**	**Chronic Toxicity[c] (ug/l)**	**Acute Toxicity[c] (ug/l)**	**Fish Consumption and Other (Not to Exceed) (ug/l)**	**Water Consumption (ug/l)**
Dieldrin	60-57-1	0.056	0.24	0.000054	--
Diethyl phthalate	84-66-2	--	--	44000	--
2,4 Dimethyl phenol	105-67-9			400[j]	
Dimethyl phthalate	131-11-3	--	--	1100000	--
2,4-Dinitrotoluene	121-14-2	--	--	3.4	--
2,4-Dinitrophenol	51-28-5	--	--	5300	--
2-Methyl-4,6-Dinitrophenol	534-52-1	--	--	280	--
Dioxin (2,3,7,8-TCDD)	1746-01-6	--	--	0.0000000051	--
1,2-Diphenylhydrazine	122-66-7	--	--	0.20	--
Bis 2-Ethylhexylphthalate	117-81-7	--	--	2.2	--
Endosulfan, alpha	959-98-8	0.056	0.22	89	--
Endosulfan, beta	33213-65-9	0.056	0.22	89	--
Endosulfan Sulfate	1031-07-8	--	--	89	--
Endrin	72-20-8	0.036	0.086	0.06[d]	--
Endrin Aldehyde	7421-93-4	--	--	0.30	--
Ethylbenzene	100-41-4	--	--	--	700[f]
Fluoranthene	206-44-0	--	--	140	--
Fluoride	16984-48-8	--	--	--	4000[f]
Guthion	86-50-0	0.01	--	--	--
Heptachlor	76-44-8	0.0038	0.52	0.000079	--
Heptachlor epoxide	1024-57-3	0.0038	0.52	0.000039	--
Hexachloroethane	67-72-1	--	--	3.3	--
Hexachlorobenzene	118-74-1	--	--	0.00029	--
Hexachlorobutadiene	87-68-3	--	--	18	--

	Fresh Water Aquatic Criteria			Human Health Criteria*	
Substance[b]	**CASRN**	**Chronic Toxicity[c] (ug/l)**	**Acute Toxicity[c] (ug/l)**	**Fish Consumption and Other (Not to Exceed) (ug/l)**	**Water Consumption (ug/l)**
alpha-BHC	319-84-6	--	--	0.0049	--
beta-BHC	319-85-7	--	--	0.017	--
gamma-BHC (Lindane)	58-89-9	--	0.95	1.8[d]	--
Hexachlorocyclopentadiene	77-47-4	--	--	1[j]	--
Iron [a]	7439-89-6	1000	--	--	--
Isophorone	78-59-1	--	--	960	--
Lead[a]	7439-92-1	e(1.273[ln(hd)]-4.705) (CF)	e(1.273[ln(hd)]-1.460) (CF)	e	--
Malathion	121-75-5	0.1	--	--	--
Manganese[a]	7439-96-5	--	--	100	--
Mercury	7439-97-6	0.012	2.4	0.051[g]	--
Methylmercury	22967-92-6	--	--	0.3 mg/kg in fish tissue[g]	
Methyl Bromide	74-83-9	--	--	1500	--
Methylene Chloride	75-09-2	--	--	590	--
Methoxychlor	72-43-5	0.03	--	--	40[f]
Mirex	2385-85-5	0.001	--	--	--
Napthalene	91-20-3	--	--	e	--
Nickel[a]	7440-02-0	e(0.8460[ln(hd)] + 0.0554)	e(0.8460[ln(hd)] + 2.253)	4600	--
Nitrate	14797-55-8	--	--	--	10000[f]
Nitrobenzene	98-95-3	--	--	30[j]	--
Nitrosamines		--	--	1.24	--
Nitrosodibutylamine N	924 -16-3	--	--	0.22	--
Nitrosodiethylamine N	55-18-5	--	--	1.24	--
N-Nitrosodimethylamine	62-75-9	--	--	3.0	--

	Fresh Water Aquatic Criteria		Human Health Criteria*	
Substance[b]	**CASRN**	**Chronic Toxicity[c] (ug/l)**	**Acute Toxicity[c] (ug/l)**	**Fish Consumption and Other (Not to Exceed) (ug/l)**	**Water Consumption (ug/l)**
N-Nitrosodi-n-Propylamine	621-64 -7	--	--	0.51	--
N-Nitrosodiphenylamine	86-30-6	--	--	6.0	--
N-Nitrosopyrrolidine	930-55-2	--	--	34	--
Nonylphenol	84852-15-3 25154-52-3	6.6	28	--	--
Parathion	56-38-2	0.013	0.065	--	--
Polychlorinated Biphenyls	xx-xx-x	0.014	--	0.000064	--
Pentachlorobenzene	608-93-5	--	--	1.5	--
Pentachlorophenol	87-86-5	e(1.005(pH)-5.134)	e(1.005 (pH)-4.869)	--	1[f]
Phenol	108-95-2	--	--	300[j]	--
Polynuclear Aromatic Hydrocarbons (PAH's)		--	--	--	--
Anthracene	120-12-7	--	--	40000	--
Benzo(a)Anthracene	56-55-3	--	--	0.018	--
Benzo(a)Pyrene	50-32-8	--	--	0.018	--
Benzo(b)Fluoranthene	205-99-2	--	--	0.018	--
Benzo(ghi)Perylene	191-24-2	--	--	e	--
Benzo(k)Fluoranthene	207-08-9	--	--	0.018	--
4-Bromophenyl Phenyl Ether	101-55-3	--	--	e	--
Chysene	218-01-9	--	--	--	--
Dibenzo(a,h)Anthracene	53-70-3	--	--	0.018	--
Flourene	86-73-7	--	--	0.018	--
Indeno 1,2,3-cdPyrene	193-39-5	--	--	5300	--
Phenanthrene	85-01-8	--	--	0.018	--
Pyrene	129-00-0	--	--	e	--
Selenium	7782-49-2	2	20	4000	--

	Fresh Water Aquatic Criteria		Human Health Criteria*	
Substance[b]	**CASRN**	**Chronic Toxicity[c] (ug/l)**	**Acute Toxicity[c] (ug/l)**	**Fish Consumption and Other (Not to Exceed) (ug/l)**	**Water Consumption (ug/l)**
Silver[a]	7440-22-4	--	e(1.72[ln(hd)]-6.7525)	--	--
Sulfide-Hydrogen Sulfide	7783-06-4	2	--	--	--
Tetrachlorobenzene 1,2,4,5	95-94-3	--	--	1.1	--
1,1,2,2-Tetrachloroethane	79-34-5	--	--	4.0	--
Tetrachloroethylene	127-18-4	--	--	3.3	--
Thallium [a]	7440-28-0	--	--	0.24[d]	--
Toluene	108-88-3	--	--	--	1000[f]
Toxaphene	8001-35-2	0.0002	0.73	0.00028	--
1,2,4 Trichlorobenzene	120-82-1	--	--	70[d]	--
1,1,1-Trichloroethane	71-55-6	--	--	--	200[f]
1,1,2-Trichloroethane	79-00-5	--	--	--	5[f]
Trichloroethylene	79-01-6	--	--	--	5[f]
2,4,6-Trichlorophenol	88-06-2	--	--	2.0[j]	--
2-(2,4,5-Trichlorophenoxy) Propionic acid (Silvex)	93-72-1	--	--	--	50[f]
TTHM (Sum of total Trihalomethanes)					80[f]
Dichlorobromomethane	75-27-4	--	--	17	--
Bromoform	75-25-2	--	--	140	--
Chloroform	67-66-3	--	--	470	--
Chlordibromethane	124-48-1	--	--	13	--
Vinyl Chloride	75-01-4	--	--	--	2[f]
Zinc[a]	7440-66-6	e(0.8473[ln(hd)] + 0.8699)	e(0.8473[ln(hd)] + 0.8618)	5000[j]	--

* The values stated as Human Health Criteria for these substances are based on the assumption that fish from the surface waters covered by the PUEBLO OF SANDIA Water Quality Standards are consumed, but water from these surface waters is not regularly ingested. A risk 10^{-6} is assumed for carcinogens. Where no criterion exists based on fish consumption, MCLs and background conditions are used as the basis of the water quality standard of protection.

-- = no criterion exists
hd = hardness
ln = natural log of number
CF = Conversion Factor (for hardness dependent metals)
For Cadmium: Acute CF is 1.136672-[ln(hd)(0.041838)]
Chronic CF is 1.101672-[ln(hd)(0.041838)]
For Lead: Acute CF is 1.46203-[ln(hd)(0.145712)]
Chronic CF is 1.46203-[ln(hd)(0.145712)]
a = Value based on using a dissolved method.
b = Total recoverable portion, unless indicated
c = Chronic and acute toxicity averaging periods and exceedances are as specified by the U.S. Environmental Protection Agency in Quality Criteria for Water, 1986.
d = value based on current national recommended water quality criteria with respect to human health for the consumption of water + organism. These values can be found on http://www.epa.gov/waterscience/criteria/wqctable/index.html.
e = EPA has not calculated human health criterion for this contaminant. However, permit authorities should address this contaminant in NPDES permit actions using SANDIA's narrative criteria for toxics.
f = Based on Safe Drinking Water Act Maximum Contaminant Levels (MCLs).

g = Concentrations of mercury from all sources shall not result in methylmercury concentrations in fish tissue that exceed 0.3 mg/kg. This criterion is based on a fish consumption rate of 17.5 g/day.

h = This value cannot be exceeded by itself, or as part of Total Trihalomethanes that include: Bromodichloromethane (CASN 75-27-4)
Dibromochloromethane(CASN 124-48-1)

Tribromomethane [Bromoform (CASN 75-25-2)]
Trichloromethane [Chloroform (CASN 67-66-3)]
i = Based on background conditions of the Rio Grande.
j = Value based on organoleptic effects criteria (e.g., taste and odor) in the current national recommended water quality criteria based on the "Gold Book" which is *Quality Criteria for Water*:1986.EPA 440/5-86-001(see http://www.epa.gov/waterscience/criteria/wqctable/index.html).

ug = micrograms

mg/l = milligrams/liter
ug/l = micrograms/liter

As new criteria documents for toxic substances are published by EPA, these will become incorporated into and made a part of this Subsection O, TOXIC SUBSTANCES, during triennial review, and the numeric criteria established by EPA shall equally apply. Numeric criteria for carcinogens will reflect a risk level of one in a million.

For specific **segments** where the above criteria may need to be recalculated using appropriate species or water quality factors, the PUEBLO OF SANDIA may, after public participation and EPA approval, adopt site-specific criterion modifications. Since pesticides and PCB's can accumulate in bottom sediments and tissues of aquatic organisms, sediment and tissue analysis shall routinely be used to complement water analysis. Fish tissue levels in excess of **FDA Action Limits** shall require investigation.