460-SA-A-1

Draft: November 29, 1991 5:00 p.m.

PUEBLO OF SANDIA

WATER QUALITY STANDARDS

(enacted _____, 1991)

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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 Tribe of Indians, hereby 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 uses** for which the surface waters of the PUEBLO OF SANDIA shall be protected;

2. to prescribe water quality standards (narrative and numeric) imposed in order to sustain the **designated uses;**

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

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

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

B. The PUEBLO OF SANDIA Water Quality Standards apply to all tribal surface waters, that is, all waters 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.

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 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 . . . ." **Primary contact ceremonial use, agricultural water supply use, fish culture** use, and **industrial water supply use** are other beneficial uses of the PUEBLO OF SANDIA Tribal waters.

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

2 33 U.S.C. Sections 1251 et seq. (1948, as amended).

The PUEBLO OF SANDIA Water Quality Standards provide that 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 Control Officer. The Tribal Water Quality Control Officer shall serve under the direction of the Governor of the Pueblo and shall be appointed by the Governor, which appointment shall be confirmed by the Tribal Council of the PUEBLO OF SANDIA. The Tribal Water Quality Control Officer shall work in cooperation with the U.S. Environmental Protection Agency and other agencies of the federal government or of the State of New Mexico.

E. The **antidegradation** policy for Tribal waters 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(1) of the Clean Water Act (33 U.S.C. Section 1313(c)), the PUEBLO OF SANDIA shall hold public hearings at least once each three-year period 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 relevant scientific and engineering advances.

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

H. Standards particular to a use shall be protected at all times and at low flow rates. Where this low flow value is zero, all discharges shall meet standards for the designated uses. For standing water bodies, standards particular to a use shall be maintained whenever the water body is present. The General Standards (Section III, below) shall be maintained at all times and shall apply to streams, lakes, reservoirs, canals, drains, ponds, and wetlands, 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.

I. Water quality standards shall be the basis for managing discharges attributable to **point** and **nonpoint 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.

K. The PUEBLO OF SANDIA Water Quality Standards may be revised, from time to time, or as the need arises, or as the result of updated scientific information.

L. Errors resulting from inadequate and erroneous data or human or clerical oversight will be subject to correction by the PUEBLO OF SANDIA. The discovery of such errors does not render the remaining and unaffected standards invalid. 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, should be 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.

SECTION II. Antidegradation Policy and Implementation Plan

A. Antidegradation Policy:

1. **Existing uses** shall be protected. The level of water quality necessary to protect **existing uses** shall be maintained.

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 **nonpoint sources.**

3. Where high quality waters constitute an outstanding national or tribal resource, or waters 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 Control 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 Control Officer shall do the following:

1. monitor water quality to assess the effectiveness of pollution controls and to determine whether water quality standards are being attained;

2. obtain information as to 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. assess the probable impact of **effluents** on receiving waters in light of **designated uses** and numeric and **narrative standards;**

6. require the highest and best degree of wastewater treatment practicable and commensurate with protecting and maintaining **designated uses** and existing water quality;

7. 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);

8. 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);

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

10. develop and pursue inspection and enforcement programs in order to ensure that dischargers comply with requirements of the PUEBLO OF SANDIA Water Quality Standards and any requirements promulgated thereunder, and in order to support the enforcement of federal permits by the U.S. Environmental Protection Agency;

11. provide continuing technical training for wastewater treatment facility operators through training and certification programs;

12. provide funds to assist in the construction of publicly owned wastewater treatment facilities through the construction grants and revolving funds programs authorized by the Clean Water Act (33 U.S.C. Section 1281), and other federal funds available for the purpose; and

13. encourage, in conjunction with other agencies, voluntary implementation of **best management practices** to control **nonpoint sources** of pollutants to achieve compliance with the PUEBLO OF SANDIA Water Quality Standards.

SECTION III. General Standards

The following General Standards apply to all surface waters of the PUEBLO OF SANDIA, including **intermittent streams**, provided, however, that where Sections IV and V, below, set stricter standards for designated water bodies, the stricter standards supersede the General Standards.

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 of a **persistent** nature resulting from other than natural causes (including visible films of oil, globules of oil, grease, or solids in or on the water, or coatings on stream banks). 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 are limited to concentrations that do not impart unpalatable flavor to fish, and that do not result in offensive odor or taste arising from the water, and that do not 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 instream, 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 instream or 50 ug/liter in lakes and reservoirs, except in waters highly laden with natural silts or **color** which reduce 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.**

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 wastewater **mixing zones** shall generally be less than 1/4 of the cross-sectional area or flow volume of the receiving stream. Mixing zones in lakes may be assessed and limited on a case-by-case basis. Unmixed zones containing permitted **effluent** shall not be at locations of recreational or ceremonial use. (See Section IV, below.) Water quality standards shall be maintained throughout **zones of passage. Zones of passage** in lakes and **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(ies) within which the zone is contained. With regard to **toxicity** in **mixing zones,** see Subsection III(N), below.

I. **Radioactive Materials:** Concentrations of gross alpha partical 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.

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 fisheries and 32.2° C/ 90° F for warmwater 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 instream activities, or other waste discharges so as to interfere with the **designated or attainable uses** for a water body. An increase of more than 1/3 over naturally-occurring levels shall not be permitted. In no case shall dischargers cause concentrations on streams with a domestic water supply use to exceed 250, 250, and 500 mg/l of chlorides, sulfates, and total dissolved solids, respectively.

L. 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. If a stream or lake is capable of supporting aquatic life, the **dissolved oxygen** standard will be a minimum of 5 mg/l.

N. **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.** 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 to Aquatic Organisms, EPA-600/4-90-027; Short Term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Marine and Esturarine Organisms, EPA-600/4-91/003; U.S. Environmental Protection Agency, "Technical Support Document for Water Quality-Based Toxics Control"; U.S. Environmental Protection Agency, Region VI, "Third Round Permitting Strategy"; and U.S. Environmental Protection Agency, "Quality Criteria for Water, 1986." The handling of 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.

2. For the toxic substances listed below, the following numeric criteria shall apply:

Substance	FRESH WATER AQUATIC LIFE CRITERIA: Chronic Toxicity (ug/l)[c]	FRESH WATER AQUATIC LIFE CRITERIA: Acute Toxicity (ug/l)[c]	HUMAN HEALTH CRITERIA* (based on fish consumption only) (units/liter not to exceed)
Acenapthene	520+	1700+	--
Acrolein	21+	68+	780 ug
Acrylonitrile	2600+	7550+	0.65 ug
Aldrin	--	3.0	0.079 ng
Antimony	1600+	9000+	45000 ug
Arsenic	--	--	17.5 ng
Arsenic (pent)	48+	850+	--
Arsenic (tri)[a]	190	360	--
Benzene	--	5300+	40 ug
Benzidine	--	2500+	0.53 ng
Beryllium	5.3+	130+	117 ng
Benzene Hexachloride	--	100+	--
Cadmium[a]	$e(0.7852[\ln(hd)]-3.490)$	$e(1.128[\ln(hd)]-3.828)$	--
Carbon Tetrachloride	--	35200+	6.94 ug
Chlordane	0.0043	2.4	0.48 ng
Chlorinated Benzenes	50+	250+	--
Chlorinated Naphthalenes	--	1600+	--
Chlorine	11	19	--
Chloroalkyl Ethers	--	238000+	--
Chloroethyl Ether (BIS-2)	--	--	1.36 ug
Chloroform	1240+	28900+	15.7 ug
Chloroisopropyl Ether (BIS-2)	--	--	4.36 mg
Chloromethyl Ether (BIS)	--	--	.00184ug
Chlorophenol 2	2000+	4380+	--
Chloro-4 Methyl-3 Phenol	--	30+	--
Chlorpyrifos	0.041	0.083	--
Chromium (tri)[a]	$e(0.8190[\ln(hd)]+1.561)$	$e(0.8190[\ln(hd)]+3.688)$	3.433 mg
Chromium (hex)[a]	11	16	--
Copper[a]	$e(0.8545[\ln(hd)]-1.465)$	$e(0.9422[\ln(hd)]-1.464$	--
Cyanide	5.2	22	--

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* 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 of 10^{-6} is assumed for carcinogens.

Substance	FRESH WATER AQUATIC LIFE CRITERIA Chronic Toxicity (ug/l)[C]	Acute Toxicity (ug/l)[C]	HUMAN HEALTH CRITERIA (based on fish consumption only) (units/liter not to exceed)
(continued)			
DDT	0.001	1.1	0.024 ng
DDT Metabolite (DDE)	--	1050+	--
DDE Metabolite (TDE)	--	0.06+	--
Demeton	0.1	--	--
Dibutylphthalate	--	--	154 mg
Dichlorobenzenes	763+	1120+	2.6 mg
Dichlorobenzidine	--	--	0.020 ug
Dichloroethane 1,2	20000+	118000+	243 ug
Dichloroethylenes	--	11600+	1.85 ug
Dichlorophenol 2,4	365+	2020+	--
Dichloropropane	5700+	23000+	--
Dichloropropene	244+	6060+	14.1 mg
Dieldrin	0.0019	2.5	0.076 ng
Diethylphthalate	--	--	1.8 g
Dimethyl Phenol 2,4	--	2120+	--
Dimethylphthalate	--	--	2.9 g
Dinitrotoluene 2,4	--	--	9.1 ug
Dinitrotoluene	230+	330+	--
Dinitro Phenols	--	--	14.3 g
Dinitro-O-Cresol 2,4	--	--	765 ug
Dioxin (2,3,7,8-TCDD)	0.00001+	0.01+	.000014ng
Diphenylhydrazine	--	--	0.56 ug
Diphenylhydrazine 1,2	--	270+	--
Di-2-Ethylhexylphthalate	--	--	50 mg
Endosulfan	0.056	0.22	159 ug
Endrin	0.0023	0.18	--
Ethylbenzene	--	32000+	3.28 mg
Fluoranthene	--	3980+	54 ug
Guthion	0.01	--	--
Haloethers	122+	360+	--
Halomethanes	--	11000+	15.7 ug
Heptachlor	0.0038	0.52	0.29 ng
Hexachloroethane	540+	980+	8.74 ug
Hexachlorobenzene	--	--	0.74 ng
Hexachlorobutadiene	9.3+	90+	50 ug
Hexachlorocyclohexane (Lindane)	0.080	2.0	--
Hexachlorocyclohexane-Alpha	--	--	31 ng
Hexachlorocyclohexane-Beta	--	--	54.7 ng
Hexachlorocyclohexane-Gama	--	--	62.5 ng

Substance	FRESH WATER AQUATIC LIFE CRITERIA: Chronic Toxicity (ug/l)[c]	FRESH WATER AQUATIC LIFE CRITERIA: Acute Toxicity (ug/l)[c]	HUMAN HEALTH CRITERIA (based on fish consumption only) (units/liter not to exceed)
(continued)			
Hexachlorocyclohexane-Technical	--	--	41.4 ng
Hexachlorocyclopentadiene	5.2+	7+	--
Iron	1000	--	--
Isophorone	--	117000+	520 mg
Lead[a]	e(1.273⌊ln(hd)⌋-4.705)	e(1.273⌊ln(hd)⌋-1.460)	50 ug
Malathion	0.1	--	--
Manganese	--	--	100 ug
Mercury	0.012	2.4	146 ng
Methoxychlor	0.03	--	--
Mirex	0.001	--	--
Naphthalene	620+	2300+	--
Nickel[a]	e(0.8460⌊ln(hd)⌋+1.1645)	e(0.8460⌊ln(hd)⌋+3.3612)	100 ug
Nitrobenzene	--	27000+	--
Nitrophenols	150+	230+	--
Nitrosamines	--	5850+	1240 ng
Nitrosodibutylamine N	--	--	587 ng
Nitrosodiethylamine N	--	--	1240 ng
Nitrosodimethylamine N	--	--	16000 ng
Nitrosodiphenylamine N	--	--	16100 ng
Nitrosopyrrolidine N	--	--	91900 ng
Parathion	0.013	0.065	--
Polychlorinated Biphenyls	0.014	2.0	0.079 ng
Pentachlorinated Ethanes	1100+	7240+	--
Pentachlorobenzene	--	--	85 ug
Pentachlorophenol	e(1.005(**pH**)-5.290)	e(1.005(**pH**)-4.830)	--
Phenol	2560+	10200+	--
Phosphorus Elemental	--	--	--
Phthalate Esters	3+	940+	--
Polynuclear Aromatic Hydrocarbons	--	--	31.1 ng
Selenium[b]	35	260	--
Silver[b]	0.12	e(1.72⌊ln(hd)⌋-6.52)	--
Sulfide-Hydrogen Sulfide	2	--	--
Tetrachlorinated Ethanes	--	9320+	--
Tetrachlorobenzene 1,2,4,5	--	--	48 ug
Tetrachloroethane 1,1,2,2	2400+	--	10.7 ug
Tetrachloroethanes	--	9320+	--
Tetrachloroethylene	840+	5280+	8.85 ug

Substance	FRESH WATER AQUATIC LIFE CRITERIA Chronic Toxicity (ug/l)[c]	Acute Toxicity (ug/l)[c]	HUMAN HEALTH CRITERIA (based on fish consumption only) (units/liter not to exceed)
(continued)			
Thallium	40+	1400+	48 ug
Toluene	--	17500+	424 mg
Toxaphene	0.0002	0.73	--
Trichlorinated Ethanes	--	18000+	--
Trichloroethane 1,1,1	--	--	1.03 g
Trichloroethane 1,1,2	9400+	--	41.8 ug
Trichloroethylene	21900+	45000+	80.7 ug
Trichlorophenol 2,4,6	970+	--	3.6 ug
Vinyl Chloride	--	--	525 ug
Zinc[a]	$e(0.8473[\ln(hd)]+0.7614)$	$e(0.8473[\ln(hd)]+0.8604)$	--

\+ = Insufficient data to develop criteria. Value presented is the lowest observed effect level ("L.O.E.L"). Site-specific information may be used to modify these L.O.E.L.'s.
-- = no criterion exists
hd = hardness
[a] value based on using a dissolved method
[b] total recoverable
[c] chronic and acute toxicity averaging periods and exceedences are as specified by the U.S. Environmental Protection Agency in "Ouality Criteria for Water, 1986"

g = grams
mg = milligrams
ug = micrograms
ng = nanograms
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 N, 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 analyses shall routinely be used to complement water analyses. Fish tissue levels in excess of **FDA Action Limits** shall require investigation.

SECTION IV. Water Body Uses and Standards Specific to the Uses

A. **Marginal Coldwater Fishery** Use. A **marginal coldwater fishery** is a stream reach, lake, or impoundment where water temperature and other characteristics are suitable for support of coldwater fish (such as brown trout, cutthroat trout, brook trout, or rainbow trout), 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: 20° C (68° F)
3. **pH** range: 6.6-9.0
4. Un-ionized ammonia (as N) maximum: 0.03 mg/l
5. Total residual chlorine maximum: 0.011 mg/l

B. **Coldwater Fishery** Use. A **coldwater fishery** is a stream reach, lake, or impoundment where water temperature and other characteristics are suitable for support and propagation of coldwater fish such as brown trout, cutthroat trout, brook trout, or rainbow trout. (See Section VII, "Definitions," below.)

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
4. Un-ionized ammonia (as N) maximum: 0.03 mg/l
5. Total residual chlorine maximum: 0.011 mg/l

C. **Warmwater Fishery** Use. A **warmwater fishery** is a stream reach, lake, or impoundment where water temperature and other characteristics are suitable for support and propagation of warmwater fish such as large-mouth black bass, small-mouth black bass, crappie, white bass, bluegill, flathead catfish, or channel catfish.

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
4. Un-ionized ammonia (as N) maximum: 0.04 mg/l
5. Total residual chlorine maximum: 0.011 mg/l

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**[3]
   geometric mean maximum: 100 colonies/100 ml
   (**geometric mean** calculation based on a minimum of five samples taken over a maximum of 30 days)
   single sample maximum: 200 colonies/100 ml
2. **Turbidity**[3] shall not exceed 25 **NTU's.**
3. The open water shall be free from **algae** in concentrations causing a **nuisance condition** or causing gastrointestinal or skin disorders.
4. Concentrations of the following substances shall not exceed the following Maximum Contaminant Levels (MCL's):

Substance	MCL
Methoxychlor	0.1 mg/l
2,4-Dichlorophenoxy-acetic acid	0.1 mg/l
2-(2,4,5-Trichlorophenoxy-propionic acid (Silvex)	0.01 mg/l
Total Trihalomethanes	0.10 mg/l
Trichloroethylene	0.005 mg/l
Carbon tetrachloride	0.005 mg/l
1, 2-dichloroethane	0.005 mg/l
vinyl chloride	0.002 mg/l
benzene	0.005 mg/l
1, 1, 1-trichloroethane	0.20 mg/l
1, 4-dichlorobenzene	0.075 mg/l
Barium	1.0 mg/l
Fluoride	4.0 mg/l
Nitrate	10.0 mg/l
Selenium	0.01 mg/l

E. **Primary Contact Recreational Use. Primary contact recreational use** means the recreational use of a stream, reach, lake, or impoundment involving prolonged contact and the risk of ingesting water in quantities sufficient to pose a health hazard; examples are swimming and water skiing.

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

As an alternative to **fecal coliform,** the PUEBLO OF SANDIA may adopt and apply standards for **E. coli** at a **geometric mean** maximum of 47 colonies/100 ml and a single sample maximum of 88 colonies/100 ml., in accordance with an illness rate of 4 per 1,000 exposures.

Standards specific to the use are:

1. **Fecal coliform**[4]
   a. April 1--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--March 31: **Fecal coliform** standards for **Secondary Contact Recreational Use** apply.
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. **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:**[5]
   geometric mean maximum: 200 colonies/100 ml
   (**geometric mean** calculation based on a minimum of five samples taken over a maximum of 30 days)
   single sample maximum: 400 colonies/100 ml
2. The open water shall be free from **algae** in concentrations causing a **nuisance condition** or causing gastrointestinal or skin disorders.

G. **Agricultural Water Supply Use. Agricultural water supply use** means the use of water for irrigation and livestock watering.

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

As an alternative to **fecal coliform,** the PUEBLO OF SANDIA may adopt and apply standards for E. coli at a **geometric mean** maximum of 47 colonies/100 ml and a single sample maximum of 88 colonies/100 ml., in accordance with an illness rate of 4 per 1,000 exposures.

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

Standards specific to the use are:

1. **Fecal coliform:**[6]
   geometric mean maximum: 1000 colonies/100 ml
   (**geometric mean** calculation based on a minimum of five samples taken over a maximum of 30 days)
   single sample maximum: 2000 colonies/ 100 ml

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

Substance	Livestock	Irrigation
Aluminum	5 mg/l	5 mg/l
Boron	5 mg/l	0.75 mg/l
Cobalt	1 mg/l	0.05 mg/l
Fluoride	2 mg/l	1 mg/l
Lithium	--	2.5 mg/l
Molybdenum	--	0.01 mg/l
Vanadium	0.1 mg/l	0.1 mg/l

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.

There are no standards specific to the use. The "General Standards" (Section III, above) apply.

I. **Industrial Water Supply Use. Industrial water supply use** means use with reference to the production of goods or services for profit.

There are no standards specific to the use. The "General Standards" (Section III, above) apply.

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

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, including all tributaries and branches thereof, except for water bodies, such as Drains, that are separately designated in this Section (Section V); Albuquerque Main Canal; Corrales Main Canal; Sandia Acequia and Wasteway; Alameda Lateral; Bosque Lateral No. 2; Sandia Lateral No. 2 (Station 426+00 at Albuquerque Main Canal):

1. Uses:

   a. **Warmwater fishery** use
   b. **Primary contact ceremonial use**
   c. **Primary contact recreational use**
   d. **Secondary contact recreational use**
   e. **Agricultural water supply use**
   f. **Industrial water supply use**

2. Standards:

   a. **Dissolved oxygen** minimum: 5 mg/l
   b. **Fecal coliform**[7]
      geometric mean maximum: 100 colonies/100 ml
      (**geometric mean** calculation based on a minimum of five samples taken over a maximum of 30 days)
      Single sample maximum: 200 colonies/100 ml
   c. Temperature maximum: 32.2° C (90° F)
   d. **pH** range: 6.0 - 9.0
   e. Un-ionized ammonia (as N) maximum: 0.03 mg/l
   f. Total residual chlorine maximum: 0.011 mg/l
   g. Maximum Contaminant Levels (MCL's) not to exceed levels set forth in Section IV(D), above
   h. **Turbidity** not to exceed 25 **NTU's**

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

Bernalillo Interior Drain (Atrisco Feeder)
Albuquerque Riverside Drain and Extension
Bernalillo Riverside Drain

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7 As an alternative to **fecal coliform,** the PUEBLO OF SANDIA may adopt and apply standards for **E. coli** at a **geometric mean** maximum of 47 colonies/100 ml and a single sample maximum of 88 colonies/100 ml., in accordance with an illness rate of 4 per 1,000 exposures.

Teas Lateral
Sandia Lakes

1. Uses:

   a. **Marginal Coldwater fishery** use
   b. **Warmwater 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**

2. Standards:

   a. **Dissolved oxygen** minimum: 6 mg/l
   b. **Fecal coliform**[8]
      geometric mean maximum: 100 colonies/100 ml
      (**geometric mean** calculation based on a minimum of five samples taken over a maximum of 30 days)
      Single sample maximum: 200 colonies/100 ml
   c. Temperature maximum: 20^{o} C (68^{o} F)
   d. **pH** range: 6.5 - 8.5
   e. Un-ionized ammonia (as N) maximum: 0.03 mg/l
   f. Total residual chlorine maximum: 0.011 mg/l
   g. Maximum Contaminant Levels (MCL's) not to exceed levels set forth in Section IV(D), above
   h. **Turbidity** not to exceed 25 **NTU's**

C. The uses and standards are as follows for the 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**

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8 As an alternative to **fecal coliform,** the PUEBLO OF SANDIA may adopt and apply standards for **E. coli** at a **geometric mean** maximum of 47 colonies/100 ml and a single sample maximum of 88 colonies/100 ml., in accordance with an illness rate of 4 per 1,000 exposures.

2. Standards:

a. **Fecal coliform**[9]
geometric mean maximum: 100 colonies/100 ml
(**geometric mean** calculation based on a minimum of five samples taken over a maximum of 30 days)
Single sample maximum: 200 colonies/100 ml

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

c. Maximum Contaminant Levels (MCL's) not to exceed levels set forth in Section IV(D), above

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

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9 As an alternative to **fecal coliform,** the PUEBLO OF SANDIA may adopt and apply standards for **E. coli** at a **geometric mean** maximum of 47 colonies/100 ml and a single sample maximum of 88 colonies/100 ml., in accordance with an illness rate of 4 per 1,000 exposures.

SECTION VI. Sampling and Analyses

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"; or (3) "EPA Guidelines Establishing Test Procedures for the Analysis of Pollutants."

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 nonstratified lakes measurements will be made at intervals throughout the entire water column.

SECTION VII. Definitions[10]

"**Acute Toxicity**": **Toxicity** which exerts short term unacceptable impacts on representative sensitive organisms with a duration of exposure generally less than or equal to 96 hours;

"**Agricultural water supply use**": The use of water for irrigation and livestock watering;

"**Algae**": Simple plants without roots, stems, or leaves which contain chlorophyll and are capable of photosynthesis;

"**Antidegradation**": The policy set forth in U.S. Environmental Protection Agency Water Quality Standards Regulations under the Clean Water Act 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 management practices**": Practices undertaken to control, restrict, and diminish **nonpoint 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 **nonpoint sources;**

"**Carcinogenic**": Cancer producing;

"**Chronic toxicity**": **Toxicity** which exerts sublethal negative effects such as impairment of growth or reproduction, or which becomes lethal after long term exposure, generally measured in a 28-day test on representative sensitive organisms;

"**Coldwater fishery**": A stream reach, lake, or impoundment where water temperature and other characteristics are suitable for support and propagation of coldwater fish such as brown trout, cutthroat trout, brook trout, or rainbow trout;

"**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;

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

"**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.

"**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;

"**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 warmblooded 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^{o} 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 waterbody;

"**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;

"**Marginal coldwater fishery**": A stream reach, lake, or impoundment where water temperature and other characteristics are suitable for support of coldwater fish (such as brown trout, cutthroat trout, brook trout, or rainbow trout), but where temperature and other characteristics may not always be suitable for propagation of coldwater fish;

"**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;

"**Natural background**": Characteristics that are not man-induced that are related to water quality; the levels of pollutants present in ambient water that are from natural, as opposed to man-induced, sources;

"**Nonpoint 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;

"**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**": Resistant to degradation or change;

"**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 in quantities sufficient to pose a health hazard; 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;

"**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: Waterbody Surveys and Assessments for Conducting Use-Attainability Analyses (Volume 1--Streams; Volume 2--Estuarine Systems; Volume 3--Lake Systems);

"**Warmwater fishery**": A stream reach, lake, or impoundment where water temperature and other characteristics are suitable for support and propagation of warmwater fish such as large-mouth black bass, small-mouth black bass, crappie, white bass, bluegill, flathead catfish, or channel catfish;

"**Water Contaminant**": Any substance which alters the physical, chemical, or biological qualities of water;

"**Zone of passage**": The portion of the receiving water outside the **mixing zone** (where water quality is, throughout, the same as that of the receiving water).