

**Proposed Amendments to the
Standards for Interstate and Intrastate
Surface Waters
20.6.4 NMAC**

**TRIENNIAL REVIEW
DISCUSSION DRAFT**



New Mexico Environment Department
Surface Water Quality Bureau
Harold Runnels Building
1190 South St. Francis Drive
PO Box 26110
Santa Fe, New Mexico 87502

August 11, 2008

TABLE OF CONTENTS

Section	Page
General	
20.6.4.1	Issuing Agency 1
20.6.4.2	Scope..... 1
20.6.4.3	Statutory Authority 1
20.6.4.4	Duration 1
20.6.4.5	Effective Date 1
20.6.4.6	Objective..... 1
20.6.4.7	Definitions 1
20.6.4.8	Antidegradation Policy and Implementation Plan 10
20.6.4.9	Outstanding National Resource Waters 12
20.6.4.10	Review of Standards; Need for Additional Studies 13
20.6.4.11	Applicability of Water Quality Standards..... 13
20.6.4.12	Compliance with Water Quality Standards..... 17
20.6.4.13	General Criteria..... 18
20.6.4.14	Sampling and Analysis 21
20.6.4.15	Use Attainability Analysis 22
20.6.4.16	Planned Use of a Piscicide..... 23
Use Designation and Criteria	
20.6.4.50	Basinwide Provisions..... 25
20.6.4.97	Ephemeral Waters..... 26
20.6.4.98	Intermittent Waters 27
20.6.4.99	Perennial Waters 29
20.6.4.101	Rio Grande Basin..... 29
20.6.4.201	Pecos River Basin 44
20.6.4.301	Canadian River Basin 51
20.6.4.401	San Juan River Basin 55
20.6.4.451	Zuni River Basin..... 58
20.6.4.501	Gila River Basin..... 59
20.6.4.601	San Francisco River Basin 61
20.6.4.701	Dry Cimarron River..... 62
20.6.4.801	Closed Basins..... 63
20.6.4.900	Criteria Applicable to Attainable or Designated Uses Unless Otherwise Specified in 20.6.4.97 through 20.6.4.899 65
20.6.4.901	Publication References..... 81
Attachments	
1.	Memo from Stephanie Stringer regarding proposal to add cool water aquatic life use
2.	Proposed Public Water Supply Segments
3.	Use Attainability Analysis for Lower Sulphur Creek, segment 108
4.	Photos of water depth in the Rio Puerco, proposed segment 131
5.	Memo from Tim Michael supporting a segment-specific criterion for boron, segment 201
6.	Draft Use Attainability Analysis for Pecos Arroyo, segment 221
7.	Memo from Tim Michael regarding dioxin as toxicity equivalents
8.	Memo from Pam Homer regarding domestic water supply criteria
9.	Memo from Tim Michael regarding cyanide criteria
10.	Memo from Tim Michael regarding nitrate + nitrite criteria for livestock watering
11.	Memo from Stephanie Stringer regarding diazinon and nonylphenol

**TRIENNIAL REVIEW DISCUSSION DRAFT
AUGUST 11, 2008**

**TITLE 20 ENVIRONMENTAL PROTECTION
CHAPTER 6 WATER QUALITY
PART 4 STANDARDS FOR INTERSTATE AND INTRASTATE SURFACE WATERS**

20.6.4.1 ISSUING AGENCY: Water Quality Control commission.
[20.6.4.1 NMAC - Rp 20 NMAC 6.1.1001, 10-12-00]

20.6.4.2 SCOPE: Except as otherwise provided by statute or regulation of the water quality control commission, this part governs all surface waters of the state of New Mexico, which are subject to the New Mexico Water Quality Act, Sections 74-6-1 through 74-6-17 NMSA 1978.
[20.6.4.2 NMAC - Rp 20 NMAC 6.1.1002, 10-12-00; A, 05-23-05]

20.6.4.3 STATUTORY AUTHORITY: This part is adopted by the water quality control commission pursuant to Subsection C of Section 74-6-4 NMSA 1978.
[20.6.4.3 NMAC - Rp 20 NMAC 6.1.1003, 10-12-00]

20.6.4.4 DURATION: Permanent.
[20.6.4.4 NMAC - Rp 20 NMAC 6.1.1004, 10-12-00]

20.6.4.5 EFFECTIVE DATE: October 12, 2000, unless a later date is indicated in the history note at the end of a section.
[20.6.4.5 NMAC - Rp 20 NMAC 6.1.1005, 10-12-00]

20.6.4.6 OBJECTIVE:

A. The purpose of this part is to establish water quality standards that consist of the designated use or uses of surface waters of the state, the water quality criteria necessary to protect the use or uses and an antidegradation policy.

B. The state of New Mexico is required under the New Mexico Water Quality Act (Subsection C of Section 74-6-4 NMSA 1978) and the federal Clean Water Act, as amended (33 U.S.C. Section 1251 *et seq.*) to adopt water quality standards that protect the public health or welfare, enhance the quality of water and are consistent with and serve the purposes of the New Mexico Water Quality Act and the federal Clean Water Act. It is the objective of the federal Clean Water Act to restore and maintain the chemical, physical and biological integrity of the nation's waters, including those in New Mexico. This part is consistent with Section 101(a)(2) of the federal Clean Water Act, which declares that it is the national goal that wherever attainable, an interim goal of water quality that 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. Agricultural, municipal, domestic and industrial water supply are other essential uses of New Mexico's surface water; however, water contaminants resulting from these activities will not be permitted to lower the quality of surface waters of the state below that required for protection and propagation of fish, shellfish and wildlife and recreation in and on the water, where practicable.

C. Pursuant to Subsection A of Section 74-6-12 NMSA 1978, this part does not grant to the water quality control commission or to any other entity the power to take away or modify property rights in water.
[20.6.4.6 NMAC - Rp 20 NMAC 6.1.1006, 10-12-00; A, 05-23-05]

20.6.4.7 DEFINITIONS: Terms defined in the New Mexico Water Quality Act, but not defined in this part will have the meaning given in the Water Quality Act.

A. Terms beginning with the letter "A" and abbreviations for units.

BASIS FOR CHANGE: The Department proposes to:

- Alphabetize the definitions by subsection. The reason for the change is to make it easier to add or delete definitions without renumbering and to cite the location of a definition consistently over time.
- Add a list of unit abbreviations as an aid to the reader. Abbreviations for units are currently alphabetized throughout the definitions, but the reader may not know this. Abbreviations with Greek letters, e.g., μg , are particularly difficult to find because they are alphabetized by the unit name (microgram) instead of by the

abbreviation. In addition to placing the abbreviations together, the proposed changes explain the abbreviation but refrain from defining the units, except to note what characteristic they measure, such as length, flow, concentration, etc. It is not necessary to define the units themselves, e.g., kilogram, because usage of these terms in the Water Quality Standards (Standards) is the same as in general scientific usage.

(1) Abbreviations used to indicate units are defined as follows:

(a) “cfu/100 mL” means colony-forming units per 100 milliliters;

BASIS FOR CHANGE: The Department proposes to add this definition and to delete the definition of “cfu” because it is only used as “cfu/100 mL.”

(b) “cfs” means cubic feet per second, a measure of flow;

BASIS FOR CHANGE: The Department proposes to move the definition to this location and to add the phrase “a measure of flow” for the reason given in the introduction to this section.

(c) “µg/L” means micrograms per liter, a measure of the concentration of a substance in a liquid, equivalent to parts per billion when the specific gravity of the solution equals 1.0;

BASIS FOR CHANGE: The Department proposes to replace “micrograms per liter (µg/L)” with this term and slightly modified definition.

(d) “µS/cm” means microSiemens per centimeter, a measure of electrical conductivity; it is equal to µmhos/cm;

BASIS FOR CHANGE: The Department proposes to add this definition, which is the measure of conductivity in the International System of units, and to substitute it for µmhos/cm throughout the Standards.

(e) “mg/kg” means milligram per kilogram, a measure of concentration by weight, equivalent to parts per million;

BASIS FOR CHANGE: The Department proposes to add this abbreviation because it is used in the human health-organism only criterion for methylmercury.

(f) “mg/L” means milligrams per liter, a measure of the concentration of a substance in a liquid, equivalent to parts per million when the specific gravity of the solution equals 1.0;

BASIS FOR CHANGE: The Department proposes to replace “milligrams per liter (mg/L)” with this term and to slightly modify the definition.

(g) “NTU” means nephelometric turbidity unit;

BASIS FOR CHANGE: The Department proposes to move the definition to this location and to remove unnecessary descriptive material from the existing definition.

(h) “pCi/L” means picocuries per liter, a measure of the concentration of a radioactive substance in a liquid;

BASIS FOR CHANGE: The Department proposes to add this definition. Because “pCi” is only used as “pCi/L,” the Department proposes to delete the definition of “pCi.”

(i) “pH” means the negative logarithm of the hydrogen ion concentration, a measure of the acidity or alkalinity of a solution;

BASIS FOR CHANGE: The Department proposes to add this definition.

(2) “**Acute toxicity**” means toxicity involving a stimulus severe enough to induce a response in 96 hours of exposure or less. Acute toxicity is not always measured in terms of lethality, but may include other toxic effects that occur within a short time period.

[B.](3) “**Adjusted gross alpha**” means the total radioactivity due to alpha particle emission as inferred from measurements on a dry sample, including radium-226, but excluding radon-222 and uranium. Also excluded are source, special nuclear and by-product material as defined by the Atomic Energy Act of 1954.

[C.](4) “**Aquatic life**” means any plant or animal life that uses surface water as primary habitat for at least a portion of its life cycle, but does not include avian or mammalian species.

[D.](5) “**Attainable**” means achievable by the imposition of effluent limits required under sections 301(b) and 306 of the Clean Water Act and implementation of cost-effective and reasonable best management practices for nonpoint source control.

B. Terms beginning with the letter “B”.

[E.](1) “**Best management practices**” or “**BMPs**”:

(1)(a) for national pollutant discharge elimination system (NPDES) permitting purposes means schedules of activities, prohibitions of practices, maintenance procedures and other management practices to prevent or reduce the pollution of “waters of the United States;” BMPs also include treatment requirements, operating procedures and practices to control plant site runoff, spillage or leaks, sludge or waste disposal or drainage from raw material storage; or

(2)(b) for nonpoint source pollution control purposes means methods, measures or practices selected by an agency to meet its nonpoint source control needs; BMPs include but are not limited to structural and nonstructural controls and operation and maintenance procedures; BMPs can be applied before, during and after pollution-producing activities to reduce or eliminate the introduction of pollutants into receiving waters; BMPs for nonpoint source pollution control purposes shall not be mandatory except as required by state or federal law.

[F.](2) “**Bioaccumulation**” refers to the uptake and retention of a substance by an organism from its surrounding medium and food.

[G.](3) “**Bioaccumulation factor**” is the ratio of a substance’s concentration in tissue versus its concentration in ambient water, in situations where the organism and the food chain are exposed.

[H.](4) “**Biomonitoring**” means the use of living organisms to test the suitability of effluents for discharge into receiving waters or to test the quality of surface waters of the state.

C. Terms beginning with the letter “C”.

[I.](1) “**CAS number**” means an assigned number by chemical abstract service (CAS) to identify a substance. CAS numbers index information published in chemical abstracts by the American chemical society.

[J.——“cfs” means cubic feet per second.]

BASIS FOR CHANGE: The Department proposes to delete this definition for the reasons given in section 7.A. (For ease of reference, citations henceforth in the Bases for Change will omit title, chapter and part; e.g. “section 7.A” instead of “20.6.4.7 NMAC.” The full citation, however, must be used in the rule language per New Mexico Administrative Code requirements.)

[K.——“cfu” means colony forming units.]

BASIS FOR CHANGE: The Department proposes to delete this definition for the reasons given in section 7.A.

[L.](2) “**Chronic toxicity**” means toxicity involving a stimulus that lingers or continues for a relatively long period relative to the life span of an organism. Chronic effects include, but are not limited to, lethality, growth impairment, behavioral modifications, disease and reduced reproduction.

[M.](3) “**Classified water of the state**” means a surface water of the state, or reach of a surface water of the state, for which the commission has adopted a segment description and has designated a use or uses and applicable water quality criteria in 20.6.4.101 through 20.6.4.899 NMAC.

[N.](4) “**Coldwater**” in reference to an aquatic life use means a surface water of the state where the water temperature and other characteristics are suitable for the support or propagation or both of coldwater aquatic

(5) “**Coolwater**” in reference to an aquatic life use means the water temperature and other characteristics are suitable for the support or propagation of aquatic life whose physiological tolerances are intermediate between those of warm and coldwater aquatic life; conditions may also be suitable to support a combination of warm, cool and coldwater aquatic life in areas of transition from one aquatic life use to another.

BASIS FOR CHANGE: The Department proposes to add a coolwater aquatic life use to address waters that are dominated by aquatic life populations with physiological requirements different from those of either warm or coldwater aquatic life and to adequately protect transitional water bodies that support a combination of warm, cool and coldwater aquatic life populations at various times throughout the year. Historically, the Standards have applied both warm and coldwater designations or the marginal classifications of each of these uses in these waters. Neither strategy adequately addresses the unique characteristics of this group of waters. This proposal is based on the recommendation of an interagency workgroup. Further justification is provided in Attachment 1. At this time, the Department proposes only to introduce the use and to assign it to one segment, the new segment 451 for previously unclassified waters in the Zuni Basin. The Department anticipates proposing additional coolwater designations in the future as part of its ongoing effort to tailor the Standards to provide appropriate protection to the aquatic communities found in New Mexico.

~~[(6)]~~ **“(6) ‘‘Commission’’** means the New Mexico water quality control commission.

~~[(7)]~~ **“(7) ‘‘Criteria’’** are elements of state water quality standards, expressed as constituent concentrations, levels or narrative statements, representing a quality of water that supports a use. When criteria are met, water quality will protect the designated use.

D. Terms beginning with the letter ‘‘D’’.

~~[(1)]~~ **“(1) ‘‘DDT and derivatives’’** means 4,4’-DDT (CAS number 50293), 4,4’-DDE (CAS number 72559) and 4,4’-DDD (CAS number 72548).

~~[(2)]~~ **“(2) ‘‘Department’’** means the New Mexico environment department.

~~[(3)]~~ **“(3) ‘‘Designated management agency’’** means an agency as defined by 40 CFR Section 130.9(d).

BASIS FOR CHANGE: The Department proposes to delete this definition because of proposed changes to section 8.A regarding temporary and short-term degradation in Outstanding National Resource Waters.

~~[(3)]~~ **“(3) ‘‘Designated use’’** means a use specified in ~~[Sections 20.6.4.101]~~ 20.6.4.97 through 20.6.4.899 NMAC for a surface water of the state whether or not it is being attained.

BASIS FOR CHANGE: Designated uses are also specified in sections 97-99. Therefore, the reference to section 101 is incorrect. This change was missed in the last rulemaking. Also, the word ‘‘Sections’’ is unnecessary and proposed for deletion in accordance with NMAC style recommendations.

~~[(4)]~~ **“(4) ‘‘Dissolved’’** means the fraction of a constituent of a water sample that will pass through a 0.45-micrometer pore-size [membrane] filter [under a pressure differential not exceeding one atmosphere. The ‘‘dissolved’’ fraction is also termed ‘‘filterable residue.’’].

BASIS FOR CHANGE: The Department proposes to strike the word ‘‘membrane’’ and the phrase specifying the pressure differential because these relate to sampling procedures, references for which are provided in section 14. The last sentence is no longer needed because the term ‘‘filterable residue’’ is proposed for deletion throughout the Standards. See the definition of ‘‘TDS’’ in this section and the general criterion for TDS in Section 13.

(5) ‘‘Dissolved solids’’ means the solids in a water sample that will pass through a 0.45-micrometer pore-size filter.

BASIS FOR CHANGE: The Department proposes to replace the term ‘‘total dissolved solids’’ with the term ‘‘dissolved solids’’ to avoid use of the word ‘‘total’’ and to be more consistent with EPA and USGS terminology. The term ‘‘total’’ is often used to refer to the amount of a substance in an unfiltered, or whole-water, sample. In this case, the intended meaning is ‘‘all’’ dissolved solids in a filtered sample. The use of the two words ‘‘total’’ and ‘‘dissolved’’ side-by-side can create confusion for sampling protocols, analytical methods and proper recording of results. The word ‘‘total’’ is unnecessary, so the potential confusion can be eliminated by striking the word. ‘‘Dissolved solids’’ is the term used by the USGS and EPA’s Modernized STORET and WQX data management systems, where the Department uploads much of its water quality data.

~~[(6)]~~ **“(6) ‘‘Domestic water supply’’** means a surface water of the state that could be used for drinking or culinary purposes after disinfection.

E. Terms beginning with the letter “E”.

~~[W.](1) [“Escherichia coli” or “E. coli” means the bacteria *Escherichia coli*. [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.]~~

BASIS FOR CHANGE: The Department proposes to simplify the definition to identify the meaning of the abbreviation “E. coli.” The genus and species names are adequate to identify the bacteria.

~~[X.](2) “Ephemeral” when used to describe a surface water of the state means a water body that flows only in [direct] response to precipitation or snowmelt [in the immediate locality]; its bed is always above the water table of the adjacent region.~~

BASIS FOR CHANGE: The Department proposes to strike “direct” and “in the immediate locality” so that the definition more accurately describes ephemeral waters in New Mexico. Some arroyos flow due to precipitation or snowmelt events upstream rather than in the immediate vicinity.

~~[Y.](3) “Existing use” means a use actually attained in a surface water of the state on or after November 28, 1975, whether or not it is a designated use.~~

F. Terms beginning with the letter “F”.

~~[Z. “Fecal coliform bacteria” means the portion of the coliform group of bacteria present in the gut or the feces of warm-blooded animals. It generally includes organisms capable of producing gas from lactose broth in a suitable culture medium within 24 hours at 44.5 ± 0.2°C.]~~

BASIS FOR CHANGE: The Department proposes to strike this definition because the term “fecal coliform bacteria” is no longer used in the Standards.

~~[AA.](1) “Fish culture” means production of coldwater or warmwater fishes in a hatchery or rearing station.~~

~~[BB.](2) “Fish early life stages” means the egg and larval stages of development of fish ending when the fish has its full complement of fin rays and loses larval characteristics.~~

G. Terms beginning with the letter “G”. [RESERVED]

~~[CC. “High quality coldwater” in reference to an aquatic life use means a perennial surface water of the state in a minimally disturbed condition with considerable aesthetic value and superior coldwater aquatic life habitat. A surface water of the state to be so categorized must have water quality, stream bed characteristics and other attributes of habitat sufficient to protect and maintain a propagating coldwater aquatic life population.~~

I. Terms beginning with the letter “I”.

~~(1) “Industrial water supply” means the use or storage of water by a facility for process operations unless the water is supplied by a public water system. Industrial water supply does not include irrigation or other agricultural uses.~~

BASIS FOR CHANGE: The Department proposes to define this designated use. The definition excludes industrial water uses supplied by a public water system because those uses are covered by the proposed “public water supply” use. The definition includes the storage of water so “industrial water supply storage” will no longer be a separate designated use. Regardless of whether water is diverted or stored for this use, the required water quality is the same.

~~[DD.](2) “Intermittent” when used to describe a surface water of the state means [a] the water body [that] contains water only at certain times of the year, such as when it receives flow from springs, melting snow or precipitation; its bed alternates above and below the water table of the adjacent region for different portions of the year.~~

BASIS FOR CHANGE: The Department proposes to add the phrase “its bed alternates above and below the water table of the adjacent region for different portions of the year” to further distinguish intermittent from ephemeral and perennial. The definitions of ephemeral and perennial also refer to the water table.

~~[EE.](3)~~ **“Interstate waters”** means all surface waters of the state that cross or form a part of the border between states.

~~[FF.](4)~~ **“Intrastate waters”** means all surface waters of the state that are not interstate waters.

~~[GG.](5)~~ **“Irrigation”** means application of water to land areas to supply the water needs of beneficial plants.

J. Terms beginning with the letter “J”. [RESERVED]

K. Terms beginning with the letter “K”. [RESERVED]

L. Terms beginning with the letter “L”.

~~[HH.](1)~~ **“LC-50”** means the concentration of a substance that is lethal to 50 percent of the test organisms within a defined time period. The length of the time period, which may vary from 24 hours to one week or more, depends on the test method selected to yield the information desired.

~~[H.](2)~~ **“Limited aquatic life”** as a designated use, means the surface water is capable of supporting only a limited community of aquatic life. This subcategory includes surface waters that support aquatic species selectively adapted to take advantage of naturally occurring rapid environmental changes, ephemeral or intermittent water, high turbidity, fluctuating temperature, low dissolved oxygen content or unique chemical characteristics.

~~[JJ.](3)~~ **“Livestock watering”** means the use of a surface water of the state as a supply of water for consumption by livestock.

M. Terms beginning with the letter “M”.

~~[KK.](1)~~ **“Marginal coldwater”** in reference to an aquatic life use means that natural intermittent or low flows, or other natural habitat conditions severely limit maintenance of a coldwater aquatic life population or historical data indicate that the maximum temperature in the surface water of the state may exceed 25°C (77°F).

~~[LL.](2)~~ **“Marginal warmwater”** in reference to an aquatic life use means natural intermittent or low flow or other natural habitat conditions severely limit the ability of the surface water of the state to sustain a natural aquatic life population on a continuous annual basis; or historical data indicate that natural water temperature routinely exceeds 32.2°C (90°F).

~~[MM. —“Micrograms per liter (µg/L)”~~ means micrograms of solute per liter of solution; equivalent to parts per billion when the specific gravity of the solution = 1.000.]

BASIS FOR CHANGE: The Department proposes to delete this definition and instead define the abbreviation “µg/L” in section 7.A.

~~[NN. —“Milligrams per liter (mg/L)”~~ means milligrams of solute per liter of solution; equivalent to parts per million when the specific gravity of the solution = 1.000.]

BASIS FOR CHANGE: The Department proposes to delete this definition and instead define the abbreviation “mg/L” in section 7.A.

~~[OO.](3)~~ **“Minimum quantification level”** means the minimum quantification level for a constituent determined by official published documents of the United States environmental protection agency.

N. Terms beginning with the letter “N”.

~~[PP.](1)~~ **“Natural causes”** means those causal agents that would affect water quality and the effect is not caused by human activity but is due to naturally occurring conditions.

~~[QQ.](2)~~ **“Nonpoint source”** means any source of pollutants not regulated as a point source that degrades the quality or adversely affects the biological, chemical or physical integrity of surface waters of the state.

~~[RR. —“NTU”~~ means nephelometric turbidity units based on a standard method using formazin polymer or its equivalent as the standard reference suspension. Nephelometric turbidity measurements expressed in units of NTU are numerically identical to the same measurements expressed in units of FTU (formazin turbidity units).]

BASIS FOR CHANGE: The Department proposes to simplify this definition and move it to section 7.A.

O. Terms beginning with the letter “O”. ~~[SS.]~~ **“Organoleptic”** means the capability to produce a detectable sensory stimulus such as odor or taste.

P. Terms beginning with the letter “P”.

~~[TT.](1)~~ “Playa” means a shallow closed basin lake typically found in the high plains and deserts.

~~[UU.](2)~~ “Perennial” when used to describe a surface water of the state means the water body typically contains water ~~[continuously]~~ throughout the year ~~[in all years]~~; its ~~[upper surface]~~ bed, generally, is lower than the water table of the ~~adjacent~~ region ~~[adjoining the stream]~~.

BASIS FOR CHANGE: The Department proposes to modify this definition to reflect the reality of perennial waters in arid New Mexico. A stream may be interrupted by dry reaches at times but still constitute a perennial system. Some normally perennial waters dry up during drought conditions. These waters should retain perennial protection. The phrase “upper surface” was replaced with “bed” and the phrase “adjoining the stream” was replaced with “adjacent” to be consistent with the terminology used in the definitions of ephemeral and intermittent.

~~[VV. — “Picocurie (pCi)” means a measure of radioactivity equal to the quantity of a radioactive substance in which the rate of disintegrations is 2.22 per minute.]~~

BASIS FOR CHANGE: The Department proposes to delete this definition and to instead define the abbreviation “pCi/L” in section 7.A.

~~[WW.](3)~~ “Point source” means any discernible, confined and discrete conveyance from which pollutants are or may be discharged into a surface water of the state, but does not include return flows from irrigated agriculture.

~~[XX.](4)~~ “Practicable” means that which may be done, practiced or accomplished; that which is performable, feasible, possible.

~~[YY.](5)~~ “Primary contact” means any recreational or other water use in which there is prolonged and intimate human contact with the water, such as swimming and water skiing, involving considerable risk of ingesting water in quantities sufficient to pose a significant health hazard. Primary contact also means any use of surface waters of the state for cultural, religious or ceremonial purposes in which there is intimate human contact with the water, including but not limited to ingestion or immersion, that could pose a significant health hazard.

(6) “Public water supply” means the use or storage of water to supply a public water system as defined by New Mexico’s Drinking Water Regulations, 20.7.10 NMAC. Water provided by a public water system may need to undergo treatment to achieve drinking water quality.

BASIS FOR CHANGE: The Department proposes to replace the terms “municipal supply” and “municipal supply storage” with the term “public water supply” and to add a definition for this designated use. The proposed definition ties the use to all regulated public water systems, rather than just to municipalities. The New Mexico Drinking Water Regulations define “public water system” as “a system for the provision to the public of water for human consumption through pipes or other constructed conveyances, if the system has at least fifteen service connections or regularly serves an average of twenty-five individuals daily at least sixty days out of the year.” Many public water systems are not operated by municipalities, but all must provide finished water that meets the maximum contaminant levels specified under the Drinking Water Regulations. With this new definition in place, the Standards will cover all drinking water sources; the new “public water supply” designated use covers public systems which are subject to treatment requirements, while the “domestic water supply” designated use covers non-public water supplies which may not provide treatment except for disinfection.

The Department proposes to delete “municipal storage” as a separate designated use. Regardless of whether water is diverted or stored to supply a public water system, the required water quality is the same.

To accompany this term change and new definition, the Department proposes to identify public water supply as the designated use for source waters of public water systems if not already identified in the Standards. In some cases, the Department proposes to identify the specific waters within a segment rather than designating the whole segment. Attachment 2 lists the active public water systems that rely on surface water and the associated proposed public water supply segments. Some of these systems are classified by the Drinking Water Bureau as “ground water under the influence of surface water.”

No numeric criteria currently apply to the municipal supply use, and the Department does not propose criteria at this time for the public water supply use. The reason is that public water systems are required to provide treatment to comply with the Drinking Water Regulations. As a result, the water provided by public water systems must be safe to drink regardless of the quality of the source water. Nonetheless, it may be prudent to establish ambient water quality criteria as a preventative approach that could reduce treatment costs. The Department intends to commence a stakeholder discussion after the triennial review to discuss the issue further.

Q. Terms beginning with the letter “Q”. [RESERVED]

R. Terms beginning with the letter “R”. [RESERVED]

S. Terms beginning with the letter “S”.

~~[ZZ.](1)~~ “**Secondary contact**” means any recreational or other water use in which human contact with the water may occur and in which the probability of ingesting appreciable quantities of water is minimal, such as fishing, wading, commercial and recreational boating and any limited seasonal contact.

~~[AAA.](2)~~ “**Segment**” means a classified ~~[surface]~~ water of the state described in 20.6.4.101 through 20.6.4.899 NMAC. The water within a segment should have the same uses, similar hydrologic characteristics or flow regimes, and natural physical, chemical and biological characteristics and exhibit similar reactions to external stresses, such as the discharge of pollutants.

BASIS FOR CHANGE: The Department proposes to modify the definition to use a defined term, "classified water of the state," instead of the undefined term, "classified surface water of the state."

~~[BBB.](3)~~ “**Specific conductance**” means the conductivity of a solution as measured between two electrodes of a specific geometry and standardized ~~[adjusted]~~ to 25°C.

BASIS FOR CHANGE: The Department proposes to clarify the definition.

~~[CCC.](4)~~ “**State**” means the state of New Mexico.

~~[DDD.](5)~~ “**Surface water(s) of the state**” means all surface waters situated wholly or partly within or bordering upon the state, including lakes, rivers, streams (including intermittent streams), mudflats, sandflats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes, reservoirs or natural ponds. Surface waters of the state also means all tributaries of such waters, including adjacent wetlands, any manmade bodies of water that were originally created in surface waters of the state or resulted in the impoundment of surface waters of the state, and any “waters of the United States” as defined under the Clean Water Act that are not included in the preceding description. Surface waters of the state does not include private waters that do not combine with other surface or subsurface water or any water under tribal regulatory jurisdiction pursuant to Section 518 of the Clean Water Act. Waste treatment systems, including treatment ponds or lagoons designed and actively used to meet requirements of the Clean Water Act (other than cooling ponds as defined in 40 CFR Part 423.11(m) that also meet the criteria of this definition), are not surface waters of the state, unless they were originally created in surface waters of the state or resulted in the impoundment of surface waters of the state.

T. Terms beginning with the letter “T”.

~~[EEE.](1)~~ “**TDS**” means ~~[total]~~ dissolved solids, ~~[, also termed “total filterable residue.”]~~

BASIS FOR CHANGE: The Department proposes to revise this definition to refer to the definition for “dissolved solids.” Even though the Department proposes to use the more accurate term “dissolved solids,” the Department recommends retaining the acronym “TDS” because it is so widely used.

~~[FFF. “Technology-based limitations” means the application of technology-based effluent limitations as required under Section 301(b) of the federal Clean Water Act.]~~

BASIS FOR CHANGE: The Department proposes to delete this definition because the term is not used in the Standards.

~~[GGG. “Total” means a constituent of a water sample that is analytically determined without filtration.]~~

BASIS FOR CHANGE: The Department proposes to delete term “total” from the definitions and to avoid using the term in reference to samples or analysis throughout the Standards. The term is inexact and creates confusion.

Compare the table header in section 900.J, which refers to an unfiltered sample, and the PCB reference in the table, which means all PCBs rather than specific congeners. The Department proposes to replace "total" with "whole-water" when referring to unfiltered samples.

~~[HHH.] "Total PCBs" means the sum of all homolog, all isomer, all congener or all areoclor analyses.]~~

BASIS FOR CHANGE: The Department proposes to delete this definition because it is not intended to define total PCBs but rather to indicate the type of analyses to which the criteria apply. The only use of the term is in the criteria table in section 900.J. The Department proposes to amend that subsection by adding a paragraph of notes applicable to the criteria table. That is the appropriate location for information on interpreting the criteria.

~~[HH.](2) "Toxic pollutant" means those pollutants, or combination of pollutants, including disease-causing agents, that after discharge and upon exposure, ingestion, inhalation or assimilation into any organism, either directly from the environment or indirectly by ingestion through food chains, will cause death, shortened life spans, disease, adverse behavioral changes, reproductive or physiological impairment or physical deformations in such organisms or their offspring.~~

~~[JJJ.](3) "Tributary" means a perennial, intermittent or ephemeral waterbody that flows into a larger waterbody, and includes a tributary of a tributary.~~

~~[KKK.](4) "Turbidity" is an expression of the optical property in water that causes incident light to be scattered or absorbed rather than transmitted in straight lines~~

~~U. Terms beginning with the letter "U". [RESERVED]~~

~~V. Terms beginning with the letter "V". [RESERVED]~~

~~W. Terms beginning with the letter "W".~~

~~[LLL.](1) "Warmwater" with reference to an aquatic life use means that water temperature and other characteristics are suitable for the support or propagation or both of warmwater aquatic life.~~

~~[MMM.](2) "Water contaminant" means any substance that could alter if discharged or spilled the physical, chemical, biological or radiological qualities of water. "Water contaminant" does not mean source, special nuclear or by-product material as defined by the Atomic Energy Act of 1954, but may include all other radioactive materials, including but not limited to radium and accelerator-produced isotopes.~~

~~[NNN.](3) "Water pollutant" means a water contaminant in such quantity and of such duration as may with reasonable probability injure human health, animal or plant life or property, or to unreasonably interfere with the public welfare or the use of property.~~

~~[OOO.] "Water quality based controls" means effluent limitations, as provided under Section 301(b)(1)(C) of the federal Clean Water Act, that are developed and imposed on point source dischargers in order to protect and maintain applicable water quality standards. These controls are more stringent than the technology-based effluent limitations required under other paragraphs of Section 301(b).]~~

BASIS FOR CHANGE: The Department proposes to delete this definition because the term is not used in the Standards.

~~[PPP.](4) "Wetlands" means those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions in New Mexico. Wetlands that are constructed outside of a surface water of the state for the purpose of providing wastewater treatment and that do not impound a surface water of the state are not included in this definition.~~

~~(5) "Whole-water" in reference to a water sample means the unfiltered sample.~~

BASIS FOR CHANGE: The Department proposes to add this definition to replace the use of the word "total" when referring to unfiltered samples.

~~[QQQ.](6) "Wildlife habitat" means a surface water of the state used by plants and animals not considered as pathogens, vectors for pathogens or intermediate hosts for pathogens for humans or domesticated livestock and plants.~~

~~X. Terms starting with the letters "X" through "Z". [RESERVED]~~

~~[20.6.4.7 NMAC - Rp 20 NMAC 6.1.1007, 10-12-00; A, 7-19-01; A, 05-23-05; A, 07-17-05; A, 08-01-07; XX-XX-XX]~~

20.6.4.8 ANTIDEGRADATION POLICY AND IMPLEMENTATION PLAN:

A. Antidegradation Policy: This antidegradation policy applies to all surface waters of the state.

(1) Existing instream water uses and the level of water quality necessary to protect the existing uses shall be maintained and protected in all surface waters of the state.

(2) Where the quality of a surface water of the state exceeds levels necessary to support the propagation of fish, shellfish, and wildlife, and recreation in and on the water, that quality shall be maintained and protected unless the commission finds, after full satisfaction of the intergovernmental coordination and public participation provisions of the state's continuing planning process, that allowing lower water quality is necessary to accommodate important economic and social development in the area in which the water is located. In allowing such degradation or lower water quality, the state shall assure water quality adequate to protect existing uses fully. Further, the state shall assure that there shall be achieved the highest statutory and regulatory requirements for all new and existing point sources and all cost-effective and reasonable BMPs for nonpoint source control. Additionally, the state shall encourage the use of watershed planning as a further means to protect surface waters of the state.

(3) No degradation shall be allowed in waters designated by the commission as outstanding national resource waters (ONRWs), except as provided in Subparagraphs (a) through (e) of this paragraph.

(a) Temporary and short-term degradation of water quality shall be allowed only when such degradation can be shown to result in restoration or maintenance of the chemical, physical or biological integrity of the ONRW and is consistent with the objectives in 20.6.4.6 NMAC and with the purposes for which the commission designated the ONRW.

(b) Temporary and short-term degradation of water quality that complies with Subparagraph (a) of this paragraph shall be limited to the shortest possible time and last no longer than 12 months, unless approved by the commission.

(c) Temporary and short-term degradation shall only be approved on a case-by-case basis by the commission, the department or a ~~[designated management]~~ cooperating agency with responsibility for land management decisions where the ONRW is located, as appropriate. Temporary and short-term degradation resulting from applications under 20.6.4.16 NMAC shall be considered and may be approved by the commission. All other temporary and short-term degradation shall be considered and may be approved by the department or ~~[by a designated management]~~ cooperating agency pursuant to a commission-approved memorandum of agreement between the department and the ~~[designated management]~~ cooperating agency. In approving temporary and short-term degradation, the commission, the department or the ~~[designated management]~~ cooperating agency shall consider and minimize the frequency and cumulative effects of such degradation. The approval of temporary and short-term degradation shall not result in permanent degradation of water quality in the ONRW or in water quality lower than necessary to protect existing uses in the ONRW and shall not alter the essential character or special use that makes the water an ONRW.

BASIS FOR CHANGE: The current language of this paragraph was adopted by the Commission in 2007. Before 2007, the language did not include the exception now articulated in subparagraphs (a) through (e). Allowing an exception for temporary and short-term degradation that would result in long-term water quality improvement was widely supported by the public and the Commission. The Department proposed that partner agencies, such as the U.S. Forest Service on whose lands all current ONRWs are located, be allowed to assist with some types of approvals on their lands as a strategy for handling the added workload and for assuring such agencies that ONRW designations will not delay necessary watershed management activities. The Department looked to the federal "designated management agency" (DMA) concept as a model for such sharing of responsibility. Under the Clean Water Act and the federal Water Quality Planning and Management regulation (40 CFR 130), DMAs are designated by states to carry out specific pollution control strategies identified in the Water Quality Management Plan. New Mexico has designated management agencies to operate wastewater treatment plants and others to implement portions of its non-point source management plan. The U.S. Forest Service is one of the state's DMAs for non-point source programs.

In reviewing the 2007 amendments, EPA determined that the state incorrectly referenced the federal regulation defining "designated management agency" (see section 7.D). As a result, the state's options are: 1) abandon the concept of allowing land management agencies to approve temporary degradation; 2) reference a more appropriate federal definition such as 40 CFR 130.2(n); or 3) describe the characteristics of the partner agency without reference to federal regulation or the DMA concept.

The Department proposes the third option because the revised provision adequately characterizes the type of agency eligible for designation and allows the Commission, in approving the required memorandum of agreement, to make sure the designation and terms of shared responsibility are appropriate. The Department prefers this option because it retains the designation concept, which is important given competing workload priorities, without linking the Standards to a federal regulation that could change.

The Department has maintained a memorandum of agreement with the Forest Service regarding non-point source management for several years. Revisions are being negotiated. In addition, the Department is drafting revisions to relevant portions of the state's *Antidegradation Policy Implementation Procedure*, contained in Appendix A of the Continuing Planning Process. Implementation procedures are required by EPA pursuant to 40 CFR 131.12(a).

(d) In implementing activities that may result in temporary and short-term degradation of water quality, all practical means of minimizing such temporary and short-term degradation shall be utilized.

(e) Preexisting land-use activities allowed by federal or state law prior to designation as an ONRW, and controlled by best management practices (BMPs), shall be allowed to continue so long as there are no new or increased discharges resulting from the activity after designation of the ONRW.

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

(5) In implementing this section, the commission through the appropriate regional offices of the United States environmental protection agency will keep the administrator advised and provided with such information concerning the surface waters of the state as he or she will need to discharge his or her responsibilities under the federal Clean Water Act.

B. Implementation Plan: The department, acting under authority delegated by the commission, implements the water quality standards, including the antidegradation policy, by describing specific methods and procedures in the continuing planning process and by establishing and maintaining controls on the discharge of pollutants to surface waters of the state. The steps summarized in the following paragraphs, which may not all be applicable in every water pollution control action, list the implementation activities of the department. These implementation activities are supplemented by detailed antidegradation review procedures developed under the state's continuing planning process. The department:

(1) obtains information pertinent to the impact of the effluent on the receiving water and advises the prospective discharger of requirements for obtaining a permit to discharge;

(2) reviews the adequacy of existing data and conducts a water quality survey of the receiving water in accordance with an annually reviewed, ranked priority list of surface waters of the state requiring total maximum daily loads pursuant to Section 303(d) of the federal Clean Water Act;

(3) assesses the probable impact of the effluent on the receiving water relative to its attainable or designated uses and numeric and narrative criteria;

(4) requires the highest and best degree of wastewater treatment practicable and commensurate with protecting and maintaining the designated uses and existing water quality of surface waters of the state;

(5) develops 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 federal Clean Water Act;

(6) requires that these effluent limitations be included in any such permit as a condition for state certification pursuant to Section 401 of the federal Clean Water Act;

(7) coordinates its water pollution control activities with other constituent agencies of the commission, and with local, state and federal agencies, as appropriate;

(8) develops and pursues inspection and enforcement programs to ensure that dischargers comply with state regulations and standards, and complements EPA's enforcement of federal permits;

(9) ensures that the provisions for public participation required by the New Mexico Water Quality Act and the federal Clean Water Act are followed;

(10) provides continuing technical training for wastewater treatment facility operators through the utility operators training and certification programs;

(11) provides funds to assist the construction of publicly owned wastewater treatment facilities through the wastewater construction program authorized by Section 601 of the federal Clean Water Act, and through funds appropriated by the New Mexico legislature;

(12) conducts water quality surveillance of the surface waters of the state to assess the effectiveness of water pollution controls, determines whether water quality standards are being attained, and proposes amendments to improve water quality standards;

(13) encourages, in conjunction with other state agencies, implementation of the best management practices set forth in the New Mexico statewide water quality management plan and the nonpoint source management program, such implementation shall not be mandatory except as provided by federal or state law;

(14) evaluates the effectiveness of BMPs selected to prevent, reduce or abate sources of water pollutants;

(15) develops procedures for assessing use attainment as required by 20.6.4.15 NMAC and establishing site-specific standards; and

(16) develops list of surface waters of the state not attaining designated uses, pursuant to Sections 305(b) and 303(d) of the federal Clean Water Act.

[20.6.4.8 NMAC - Rp 20 NMAC 6.1.1101, 10-12-00; A, 05-23-05; A, 08-01-07]

20.6.4.9 OUTSTANDING NATIONAL RESOURCE WATERS:

A. Procedures for nominating an ONRW: Any person may nominate a surface water of the state for designation as an ONRW by filing a petition with the commission pursuant to the *guidelines for water quality control commission regulation hearings*. A petition to classify a surface water of the state as an ONRW shall include:

(1) a map of the surface water of the state, including the location and proposed upstream and downstream boundaries;

(2) a written statement and evidence based on scientific principles in support of the nomination, including specific reference to one or more of the applicable ONRW criteria listed in Subsection B of this section;

BASIS FOR CHANGE: The Department proposes a minor editorial correction.

(3) water quality data including chemical, physical or biological parameters, if available, to establish a baseline condition for the proposed ONRW;

(4) a discussion of activities that might contribute to the reduction of water quality in the proposed ONRW;

(5) any additional evidence to substantiate such a designation, including a discussion of the economic impact of the designation on the local and regional economy within the state of New Mexico and the benefit to the state; and

(6) affidavit of publication of notice of the petition in a newspaper of general circulation in the affected counties and in a newspaper of general statewide circulation.

B. Criteria for ONRWs: A surface water of the state, or a portion of a surface water of the state, may be designated as an ONRW where the commission determines that the designation is beneficial to the state of New Mexico, and:

(1) the water is a significant attribute of a state [~~gold medal~~] special trout [~~fishery~~] water, national or state park, national or state monument, national or state wildlife refuge or designated wilderness area, or is part of a designated wild river under the federal Wild and Scenic Rivers Act; or

BASIS FOR CHANGE: The Commission adopted the term “gold-medal trout fishery” during the last triennial review based on a proposal from the San Juan Water Commission. The term is used in Colorado’s Water Quality Standards. However, the Department learned during the Valle Vidal ONRW hearing in 2005 that the NM Department of Game and Fish instead uses the term “special trout water.” The Department proposes to change the term to reflect terminology used in New Mexico.

(2) the water has exceptional recreational or ecological significance; or

(3) the existing water quality is equal to or better than the [~~numeric~~] criteria for protection of aquatic life [~~uses, recreational~~] or contact uses [~~and~~] or the human health-organism only criteria [~~uses~~], and the water has not been significantly modified by human activities in a manner that substantially detracts from its value as a natural resource.

BASIS FOR CHANGE: The Department proposes to:

- Remove the word “numeric” from the first sentence of paragraph (3) so that water quality may be compared to either general or numeric criteria. In particular, several of the general criteria are intended to protect aquatic life uses.
- Replace the word “recreational” with “contact” because primary and secondary contact uses are defined while recreational use is not.
- Replace “human health uses” with “human health-organism only criteria” to more clearly indicate which criteria are intended. “Human health” is not a designated use. (The Department proposes in these amendments to change the term “human health” to “human health-organism only” when referring to the criteria intended to protect human health when aquatic organisms are consumed from waters containing pollutants. See discussion under Section 900.)
- Replace “and” with “or” to clarify that water quality does not have to be compared to all of the indicated criteria but rather the comparison may focus on aquatic life, contact uses or human health.

C. Pursuant to a petition filed under Subsection A of this section, the commission may classify a surface water of the state or a portion of a surface water of the state as an ONRW if the criteria set out in Subsection B of this section are met.

D. Waters classified as ONRWs: The following waters are classified as ONRWs:

(1) Rio Santa Barbara, including the west, middle and east forks from their headwaters downstream to the boundary of the Pecos Wilderness; and

(2) the waters within the United States forest service Valle Vidal special management unit including:

(a) Rio Costilla, including Comanche, La Cueva, Fernandez, Chuckwagon, Little Costilla, Powderhouse, Holman, Gold, Grassy, LaBelle and Vidal creeks, from their headwaters downstream to the boundary of the United States forest service Valle Vidal special management unit;

BASIS FOR CHANGE: The Department proposes to add Powderhouse Creek to this list of waters within the Valle Vidal ONRW designation. Powderhouse Creek was mentioned in the petition for the ONRW nomination but was inadvertently omitted from this paragraph in the Standards. The Department proposes adding it for consistency, but the creek is part of the ONRW designation whether or not it is listed.

(b) Middle Ponil creek, including the waters of Greenwood Canyon, from their headwaters downstream to the boundary of the Elliott S. Barker wildlife management area;

(c) Shuree lakes;

(d) North Ponil creek, including McCrystal and Seally Canyon creeks, from their headwaters downstream to the boundary of the United States forest service Valle Vidal special management unit; and

(e) Leandro creek from its headwaters downstream to the boundary of the United States forest service Valle Vidal special management unit.

[20.6.4.9 NMAC - Rn, Subsections B, C and D of 20.6.4.8 NMAC, 05-23-05; A, 05-23-05; A, 07-17-05; A, 02-16-06]

20.6.4.10 REVIEW OF STANDARDS; NEED FOR ADDITIONAL STUDIES:

A. Section 303(c)(1) of the federal Clean Water Act requires that the state hold public hearings at least once every three years for the purpose of reviewing water quality standards and proposing, as appropriate, necessary revisions to water quality standards.

B. It is recognized that, in some cases, numeric criteria have been adopted that reflect use designations rather than existing conditions of surface waters of the state. Narrative criteria are required for many constituents because accurate data on background levels are lacking. More intensive water quality monitoring may identify surface waters of the state where existing quality is considerably better than the established criteria. When justified by sufficient data and information, the water quality criteria will be modified to protect the attainable uses.

C. It is also recognized that contributions of water contaminants by diffuse nonpoint sources of water pollution may make attainment of certain criteria difficult. Revision of these criteria may be necessary as new information is obtained on nonpoint sources and other problems unique to semi-arid regions.

[20.6.4.10 NMAC - Rp 20 NMAC 6.1.1102, 10-12-00; Rn, 20.6.4.9 NMAC, 05-23-05; A, 05-23-05]

20.6.4.11 APPLICABILITY OF WATER QUALITY STANDARDS:

A. Waters Created by Discharge: When a discharge to an otherwise ephemeral or intermittent, ~~[non-classified]~~ unclassified surface water of the state causes a water to enter a surface water of the state with criteria that are more restrictive than the criteria listed in 20.6.4.97 or 20.6.4.98 NMAC, the more restrictive criteria shall apply at the point such a water enters the surface water of the state with the more restrictive criteria. If discharge to such otherwise ephemeral or intermittent, ~~[non-classified]~~ unclassified waters of the state ceases or is diverted elsewhere the criteria listed in 20.6.4.97 or 20.6.4.98 NMAC shall apply.

BASIS FOR CHANGE: The Department proposes to use the term “unclassified” instead of “non-classified” for consistency with sections 11.H and 97-99.

B. Critical Low Flow: The numeric ~~[standards]~~ criteria set under Subsection F of 20.6.4.13 NMAC, ~~[20.6.4.101]~~ 20.6.4.97 through 20.6.4.899 NMAC and 20.6.4.900 NMAC may not be attainable when streamflow is less than the critical low flow, but narrative criteria in 20.6.4.13 NMAC will continue to apply. The critical low flow of a stream at a particular site shall be:

(1) for human health-organism only criteria, the harmonic mean flow; “harmonic mean flow” is the number of daily flow measurements divided by the sum of the reciprocals of the flows; that is, it is the reciprocal of the mean of reciprocals; for ephemeral waters the calculation shall be based upon the nonzero flow intervals and modified by including a factor to adjust for the proportion of intervals with zero flow;

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

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

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

where, Q_i = nonzero flow
 Nt = total number of flow values
and N_0 = number of zero flow values

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

BASIS FOR CHANGE: The Department proposes to:

- Replace the word “standards” with “criteria.” This correction is proposed here and in several subsequent sections which were missed in previous rulemakings. The term “standards” has often been incorrectly used when the intent was “criteria.” The term “standards” encompasses designated uses, criteria to protect the uses and an antidegradation policy as mentioned in section 6.A. The term “criteria,” as defined in section 7, are “elements of state water quality standards, expressed as constituent concentrations, levels or narrative statements, representing a quality of water that supports a use.”
- Replace the reference to “20.6.4.101” with “20.6.4.97.” This correction is proposed here and in subsequent sections which were missed during the last triennial review. Sections 97, 98 and 99 were adopted in 2005. These new sections are not considered classified segments like sections 101-899; however, they do include designated uses and numeric criteria. Most of the references to sections 101-899 should be extended to include 20.6.4.97-99 in order to protect the designated uses in those waters.
- Replace “human health” with “human health-organism only” as explained in section 900.J.

C. Guaranteed Minimum Flow: The commission may allow the use of a contractually guaranteed minimum streamflow in lieu of a critical low flow determined under Subsection B of this section on a case-by-case basis and upon consultation with the interstate stream commission. Should drought, litigation or any other reason interrupt or interfere with minimum flows under a guaranteed minimum flow contract for a period of at least thirty consecutive days, such permission, at the sole discretion of the commission, may then be revoked. Any minimum flow specified under such revoked permission shall be superseded by a critical low flow determined under Subsection B of this section. A public notice of the request for a guaranteed minimum flow shall be published in a newspaper of general circulation by the department at least 30 days prior to scheduled action by the commission. These water quality standards do not grant to the commission or any other entity the power to create, take away or modify property rights in water.

D. Mixing Zones: A limited mixing zone, contiguous to a point source wastewater discharge, may be allowed in any stream receiving such a discharge. Mixing zones serve as regions of initial dilution that allow the application of a dilution factor in calculations of effluent limitations. Effluent limitations shall be developed that will protect the most sensitive existing, designated or attainable use of the receiving water.

E. Mixing Zone Limitations: Wastewater mixing zones, in which the numeric criteria set under Subsection F of 20.6.4.13 NMAC, [~~20.6.4.101~~] 20.6.4.97 through 20.6.4.899 NMAC or 20.6.4.900 NMAC may be exceeded, shall be subject to the following limitations:

(1) Mixing zones are not allowed for discharges to [~~publicly owned~~] lakes, reservoirs, or playas; these effluents shall meet all applicable criteria set under Subsection F of 20.6.4.13 NMAC, [~~20.6.4.101~~] 20.6.4.97 through 20.6.4.899 NMAC and 20.6.4.900 NMAC at the point of discharge.

(2) The acute numeric criteria, as set out in Paragraph (1) of Subsection I, Subsection J, and Subsection K of 20.6.4.900 NMAC, shall be attained at the point of discharge for any discharge to a surface water of the state with a designated aquatic life use.

(3) The general criteria set out in Subsections A, B, C, D, E, G, H and J of 20.6.4.13 NMAC, and the provision set out in Subsection D of 20.6.4.14 NMAC are applicable within mixing zones.

(4) The areal extent and concentration isopleths of a particular mixing zone will depend on site-specific conditions including, but not limited to, wastewater flow, receiving water critical low flow, outfall design, channel characteristics and climatic conditions and, if needed, shall be determined on a case-by-case basis. When the physical boundaries or other characteristics of a particular mixing zone must be known, the methods presented in Section 4.4.5, "Ambient-induced mixing," in "Technical support document for water quality-based toxics control" (March 1991, EPA/505/2-90-001) shall be used.

(5) All applicable water quality criteria set under Subsection F of 20.6.4.13 NMAC, [~~20.6.4.101~~] 20.6.4.97 through 20.6.4.899 NMAC and 20.6.4.900 NMAC[~~7~~] shall be attained at the boundaries of mixing zones. A continuous zone of passage through or around the mixing zone shall be maintained in which the water quality meets all applicable criteria and allows the migration of aquatic life presently common in surface waters of the state with no effect on their populations.

BASIS FOR CHANGE: The Department proposes to:

- Include sections 97, 98 and 99 in the enumerated sections for the reasons given in section 11.B.
- Remove "publicly owned" in paragraph (1) because the Standards apply to all surface waters of the state, as set forth in section 2. Ownership of the water body is not a factor in protecting water quality in surface waters of the state or in waters of the U.S. The New Mexico Water Quality Act (WQA) provides a limitation when "water pollution and its effects are confined entirely within the boundaries of property within which the water pollution occurs when the water does not combine with other waters." (WQA 74-6-12(D)). This limitation may or may not apply to privately owned water bodies and should stand on its own merits.
- Delete an unnecessary comma in paragraph (5).

F. Multiple Uses: When a [~~classified~~] surface water of the state has more than a single designated use, the applicable numeric criteria shall be the most stringent of those established for such [~~classified~~] water.

BASIS FOR CHANGE: By definition, "classified waters of the state" are waters identified in sections 101-899. Livestock watering and wildlife habitat were first explicitly acknowledged as designated uses for unclassified non-perennial waters in the 1995 amendments. Sections 97-99 were added in the 2005 amendments and assigned additional designated uses and numeric criteria in order to protect all unclassified waters. The changes rendered many references to classified waters incorrect. Replacing the defined term "classified water of the state" with the defined term "surface water of the state" addresses the problem.

G. Human health-organism only criteria in Subsection J of [Section] 20.6.4.900 NMAC [shall] apply to those waters with a designated, existing or attainable aquatic life use. When limited aquatic life is a designated use, the human health-organism only criteria [shall] apply only if adopted on a segment-specific basis. The human health-organism only criteria for persistent toxic pollutants, as identified in Subsection J of [Section] 20.6.4.900 NMAC, [shall] also apply to all tributaries of waters with a designated, existing or attainable aquatic life use.

BASIS FOR CHANGE: The Department proposes to replace “human health” with “human health-organism only” for the reasons given in section 900.J. The deletion of “Section” and “shall” is proposed to conform to the recommended NMAC style.

~~**H.** **Aquatic Life:** Aquatic life criteria shall apply to all surface waters of the state containing an aquatic life community. Except when a limited aquatic life use and specific criteria have been designated on a segment specific basis, or when otherwise provided in this part, chronic aquatic life criteria listed in Subsection J of 20.6.4.900 NMAC are applicable to all perennial surface waters of the state, and acute aquatic life criteria listed in Subsection J of 20.6.4.900 NMAC are applicable to all surface waters of the state.~~

BASIS FOR CHANGE: The Department proposes to delete the content of this subsection because it is unnecessary. The applicability of aquatic life criteria is clearly set forth under section 900.H NMAC.

H. **Unclassified Waters of the State** – An unclassified surface water of the state is presumed to support the uses specified in Section 101(a)(2) of the federal Clean Water Act and is subject to 20.6.4.98 NMAC if it is non-perennial or 20.6.4.99 NMAC if it is perennial. An unclassified surface water of the state shall be subject to 20.6.4.97 NMAC only after the completion of a use attainability analysis.

BASIS FOR CHANGE: During the last triennial review, the Commission adopted sections 97, 98 and 99 for unclassified ephemeral, intermittent and perennial waters to enhance protection for waters protected only by wildlife habitat and livestock watering criteria. The Commission believed the new designated uses and applicable criteria satisfied EPA regulations regarding the Clean Water Act (CWA) section 101(a)(2) uses and that use attainability analyses (UAAs) were therefore not required.

EPA did not approve the new sections on the ground that UAAs were required. EPA also emphasized its presumption regarding section 101(a)(2) uses as follows:

These statutes [CWA sections 101(a)(2) and 303(c)] require water quality standards to provide, wherever attainable, water quality for the protection and propagation of fish, shellfish, and wildlife, and recreation in and on the water - functions commonly referred to as “fishable/swimmable” uses. EPA’s current water quality regulation effectively establishes a rebuttable presumption that “fishable/swimmable” uses are attainable and therefore should apply to a water body unless it can be demonstrated that such uses are not attainable.

A “fishable/swimmable” presumption represents a significant departure from New Mexico’s historical practice of assigning only wildlife habitat and livestock watering criteria to unclassified waters. Consequently, the Department proposes to make this presumption explicit by amending sections 98 and 99 so that the designated uses and applicable criteria meet section 101(a)(2) goals. The Department does not propose to change the designated uses or applicable criteria under section 97, however, because “fishable/swimmable” uses are not appropriate for ephemeral waters. Therefore, a UAA will be required to place a water under section 97. Until a UAA is completed, an ephemeral water is presumed to fall under section 98 and to meet the section 101(a)(2) goal.

I. **Exceptions:** Numeric criteria for temperature, dissolved solids, dissolved oxygen, sediment or turbidity adopted under the Water Quality Act do not apply when changes in temperature, dissolved solids, dissolved oxygen, sediment or turbidity in a surface water of the state are attributable to:

- (1) natural causes (discharges from municipal separate storm sewers are not covered by this exception.); or
- (2) the reasonable operation of irrigation and flood control facilities that are not subject to federal or state water pollution control permitting; major reconstruction of storage dams or [division] diversion dams except for emergency actions necessary to protect health and safety of the public are not covered by this exception.

[20.6.4.11 NMAC - Rp 20 NMAC 6.1.1103, 10-12-00; A, 10-11-02; Rn, 20.6.4.10 NMAC, 05-23-05; A, 05-23-05; A, XX-XX-XX]

BASIS FOR CHANGE: The Department proposes to correct a typographical error.

20.6.4.12 COMPLIANCE WITH WATER QUALITY STANDARDS: The following provisions apply to determining compliance for enforcement purposes; they do not apply for purposes of determining attainment of uses. The department has developed assessment protocols for the purpose of determining attainment of uses that are available for review from the department's surface water quality bureau.

A. Compliance with acute water quality criteria shall be determined from the analytical results of a single grab sample. Acute criteria shall not be exceeded.

B. Compliance with chronic water quality criteria shall be determined from the arithmetic mean of the analytical results of samples collected using applicable protocols. Chronic criteria shall not be exceeded more than once every three years.

C. Compliance with water quality standards for ~~total~~ ammonia shall be determined by performing the biomonitoring procedures set out in Subsections D and E of 20.6.4.14 NMAC, or by attainment of applicable ammonia criteria set out in Subsections ~~K~~ and ~~L~~ ~~and M~~ of 20.6.4.900 NMAC.

BASIS FOR CHANGE: The Department proposes changes to be consistent with proposed changes to the ammonia criteria in sections 900.K and L.

D. Compliance with ~~water quality criteria for the protection of human health~~ the human health-organism only criteria shall be determined from the analytical results of representative grab samples, as defined in the water quality management plan. Human health-organism only criteria shall not be exceeded.

BASIS FOR CHANGE: The Department proposes to more specifically state what criteria are intended. The proposed terminology change to "human health-organism only" is discussed in section 900.J. The change is intended to be non-substantive.

E. The commission may establish a numeric water quality standard at a concentration that is below the minimum quantification level. In such cases, the water quality standard is enforceable at the minimum quantification level.

~~[F. In determining compliance with criteria for chromium an analysis that measures both the trivalent and hexavalent ions shall be used.]~~

BASIS FOR CHANGE: The Department proposes to delete this subsection because the chromium criteria in section 900.I are based on EPA's recommendations for the trivalent ion only. It is not valid to compare an analysis that measures both the trivalent (chromium III) and hexavalent ions (chromium VI) to these criteria. The Department also proposes to specify that the chromium criteria in section 900.I apply only to chromium III and to add criteria for chromium VI to section 900.J.

~~[G]~~**E.** For compliance with hardness-dependent numeric criteria, hardness (as mg CaCO₃/L) shall be determined from a dissolved sample taken at the same time that the sample for the water contaminant is taken.

BASIS FOR CHANGE: The hardness-dependent criteria in section 900.I apply to dissolved metals. The dissolved metal criteria depend on the hardness of the water because dissolved calcium and magnesium reduce the toxicity of dissolved metals to fish. Dissolved calcium and magnesium compete for sites on fish gills that might otherwise be occupied by dissolved metals. The proposed addition of the word "dissolved" clarifies that hardness is determined from a dissolved sample, not a whole-water sample.

~~[H]~~**G.** The hardness-dependent formulae for metals shall be valid only for hardness values of 0-400 mg/L. For values above 400 mg/L, the value for 400 mg/L shall apply.

~~[I]~~**H.** The ~~total~~ ammonia equations and tables shall be valid only for temperatures of 0 to 30°C and for pH values of 6.5 to 9.0. For temperatures below 0°C, the total ammonia criteria for 0°C shall apply; for temperatures above 30°C, the total ammonia criteria for 30°C shall apply. For pH values below 6.5, the total ammonia criteria for 6.5 shall apply; for pH values above 9.0, the total ammonia criteria for 9.0 shall apply.

BASIS FOR CHANGE: The Department's proposal is consistent with proposed changes to the ammonia criteria in sections 900.K and L.

[F]I. Compliance Schedules: It shall be the policy of the commission to allow on a case-by-case basis the inclusion of a schedule of compliance in a NPDES permit issued to an existing facility. Such schedule of compliance will be for the purpose of providing a permittee with adequate time to make treatment facility modifications necessary to comply with water quality based permit limitations determined to be necessary to implement new or revised water quality standards or wasteload allocations. Compliance schedules may be included in NPDES permits at the time of permit renewal or modification and shall be written to require compliance at the earliest practicable time. Compliance schedules shall also specify milestone dates so as to measure progress towards final project completion (e.g., design completion, construction start, construction completion, date of compliance). [20.6.4.12 NMAC - Rp 20 NMAC 6.1.1104, 10-12-00; A, 10-11-02; Rn, 20.6.4.11 NMAC, 05-23-05; A, 05-23-05]

BASIS FOR CHANGE: The Department proposes to add "or wasteload allocations" because a wasteload allocation from a Total Maximum Daily Load (TMDL) report may also lead to a new permit limitation.

20.6.4.13 GENERAL CRITERIA: General criteria are established to sustain and protect existing or attainable uses of surface waters of the state. These general criteria apply to all surface waters of the state at all times, unless a specified criterion is provided elsewhere in this part. Surface waters of the state 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 property.

A. Bottom Deposits and Suspended or Settleable Solids:

(1) Surface waters of the state shall be free of water contaminants including fine sediment particles (less than two millimeters in diameter), precipitates or organic or inorganic solids from other than natural causes that have settled to form layers on or fill the interstices of the natural or dominant substrate in quantities that damage or impair the normal growth, function or reproduction of aquatic life or significantly alter the physical or chemical properties of the bottom.

(2) Suspended or settleable solids from other than natural causes shall not be present in surface waters of the state in quantities that damage or impair the normal growth, function or reproduction of aquatic life or adversely affect other designated uses.

B. Floating Solids, Oil and Grease: Surface waters of the state shall be free of oils, scum, grease and other floating materials resulting from other than natural causes that would cause the formation of a visible sheen or visible deposits on the bottom or shoreline, or would damage or impair the normal growth, function or reproduction of human, animal, plant or aquatic life.

C. Color: Color-producing materials resulting from other than natural causes shall not create an aesthetically undesirable condition nor shall color impair the use of the water by desirable aquatic life presently common in surface waters of the state.

D. Organoleptic Quality:

(1) **Flavor of Fish:** Water contaminants from other than natural causes shall be limited to concentrations that will not impart unpalatable flavor to fish.

(2) **Odor and Taste of Water:** Water contaminants from other than natural causes shall be limited to concentrations that will not result in offensive odor or taste arising in a surface water of the state or otherwise interfere with the reasonable use of the water.

E. Plant Nutrients: Plant nutrients from other than natural causes shall not be present in concentrations that will produce undesirable aquatic life or result in a dominance of nuisance species in surface waters of the state.

F. Toxic Pollutants:

(1) Except as provided in 20.6.4.16 NMAC, surface waters of the state shall be free of toxic pollutants from other than natural causes in amounts, concentrations or combinations that affect the propagation of fish or that are toxic to humans, livestock or other animals, fish or other aquatic organisms, wildlife using aquatic environments for habitation or aquatic organisms for food, or that will or can reasonably be expected to bioaccumulate in tissues of fish, shellfish and other aquatic organisms to levels that will impair the health of aquatic organisms or wildlife or result in unacceptable tastes, odors or health risks to human consumers of aquatic organisms.

(2) Pursuant to this section, the human health-organism only criteria shall be as set out in 20.6.4.900 NMAC. ~~[For a toxic pollutant for]~~ When a human health-organism only criterion is not listed in 20.6.4.900 NMAC, the following provisions shall be applied in accordance with 20.6.4.11, 20.6.4.12 and 20.6.4.14 NMAC.

(a) The human health-organism only criterion shall be the recommended human health criterion for “consumption of organisms only” published by the U.S. environmental protection agency pursuant to Section 304(a) of the federal Clean Water Act. In determining such criterion for a cancer-causing toxic pollutant, a cancer risk of 10^{-5} (one cancer per 100,000 exposed persons) shall be used.

(b) When a numeric criterion for the protection of human health for the consumption of organism only has not been published by the U.S. environmental protection agency, a quantifiable criterion may be derived from data available in the U.S. environmental protection agency's Integrated Risk Information System (IRIS) using the appropriate formula specified in *methodology for deriving ambient water quality criteria for the protection of human health (2000)*, EPA-822-B-00-004.

(3) Pursuant to this section, the chronic aquatic life ~~[standard]~~ criteria shall be as set out in 20.6.4.900 NMAC. ~~[For a toxic pollutant for aquatic life with no chronic standard]~~ When a chronic aquatic life criterion is not listed in 20.6.4.900 NMAC, the following provisions shall be applied in sequential order in accordance with 20.6.4.11, 20.6.4.12 and 20.6.4.14 NMAC.

(a) The chronic aquatic life criterion shall be the “freshwater criterion continuous concentration” published by the U.S. environmental protection agency pursuant to Section 304(a) of the federal Clean Water Act;

(b) If the U.S. environmental protection agency has not published a chronic aquatic life criterion, a geometric mean LC-50 value shall be calculated for the particular species, genus or group that is representative of the form of life to be preserved, using the results of toxicological studies published in scientific journals.

(i) The chronic aquatic life criterion for a toxic pollutant that does not bioaccumulate shall be 10 percent of the calculated geometric mean LC-50 value; and

(ii) The chronic aquatic life criterion for a toxic pollutant that does bioaccumulate shall be: the calculated geometric mean LC-50 adjusted by a bioaccumulation factor for the particular species, genus or group representative of the form of life to be preserved, but when such bioaccumulation factor has not been published, the criterion shall be one percent of the calculated geometric mean LC-50 value.

(4) Pursuant to this section, the acute aquatic life criteria shall be as set out in 20.6.4.900 NMAC. ~~[For a toxic pollutant for aquatic life with no acute criterion]~~ When an acute aquatic life criterion is not listed in 20.6.4.900 NMAC, the acute aquatic life criterion shall be the “freshwater criterion maximum concentration” published by the U.S. environmental protection agency pursuant to Section 304(a) of the federal Clean Water Act.

(5) Within 90 days of the issuance of a final NPDES permit containing a numeric criterion selected or calculated pursuant to Paragraph 2, Paragraph 3 or Paragraph 4 of Subsection F of this section, the department shall petition the commission to adopt such criterion into these standards.

BASIS FOR CHANGE: The Department proposes:

- To replace “human health” with “human health-organism only” for the reasons given in section 900.J.
- To replace “standard” with “criterion” for the reasons given in section 11.B. Some phrases with that replacement are also restructured for clarity.

G. Radioactivity: The radioactivity of surface waters of the state shall be maintained at the lowest practical level and shall in no case exceed the criteria set forth in the New Mexico Radiation Protection Regulations, 20.3.1 and 20.3.4 NMAC.

H. Pathogens: Surface waters of the state shall be free of pathogens from other than natural sources in sufficient quantity to impair public health or the designated, existing or attainable uses of a surface water of the state.

I. Temperature: Maximum temperatures for ~~[each classified water]~~ surface waters of the state have been specified in ~~[20.6.4.101]~~ 20.6.4.97 through ~~[20.6.4.899]~~ 20.6.4.900 NMAC. However, the introduction of heat by other than natural causes shall not increase the temperature, as measured from above the point of introduction, by more than 2.7°C (5°F) in a stream, or more than 1.7°C (3°F) in a lake or reservoir. In no case will the introduction of heat be permitted when the maximum temperature specified for the reach would thereby be exceeded. These temperature criteria shall not apply to impoundments constructed offstream for the purpose of heat disposal. High water temperatures caused by unusually high ambient air temperatures are not violations of these ~~[standards]~~ criteria.

BASIS FOR CHANGE: The Department proposes to:

- Replace “classified water of the state” with “surface waters of the state” for the reasons explained in section 11.F.
- Include sections 97 – 99 and replace “standards” with “criteria” for the reasons given in section 11.B.

J. Turbidity: Turbidity attributable to other than natural causes shall not reduce ~~[light transmission to the point that]~~ the normal growth, function or reproduction of aquatic life ~~[is impaired]~~ or that will cause substantial visible contrast with the natural appearance of the water. Activities or discharges shall not cause turbidity to increase more than ~~[Turbidity shall not exceed]~~ 10 NTU ~~[over background turbidity]~~ when the background turbidity, measured at a point immediately upstream of the activity, is 50 NTU or less, ~~[or]~~ nor to increase more than 20 percent when the background turbidity is more than 50 NTU. ~~[Background turbidity shall be measured at a point immediately upstream of the turbidity-causing activity.]~~ However, limited-duration turbidity increases caused by ~~[necessary to accommodate]~~ dredging, construction or other similar activities ~~[and that cause the criterion to be exceeded]~~ may be ~~[authorized]~~ allowed provided all practicable turbidity control techniques have been applied and all appropriate permits, certifications and approvals have been obtained.

BASIS FOR CHANGE: The Department proposes to:

- Delete “light transmission to the point that” in the first sentence because the primary concern for aquatic life is suspended sediment whereas light transmission can be affected by other factors.
- Clarify how this criterion is applied when waters are assessed for impairments versus when a turbidity-causing activity is at issue. When conducting a survey to assess impairment, the Department samples at particular stations which may not be near a turbidity-causing activity. It is not practical to compare ambient turbidity at such stations with “background” as measured upstream. Instead, the Department must rely on the first sentence in the subsection. However, when a turbidity-causing activity is at issue, it is evaluated according to the increased turbidity it will cause, as described in the second sentence. Limited-duration activities, such as activities requiring dredge-fill permits, are called out in the last sentence. They are evaluated not by measured turbidity levels but by application of appropriate control techniques.

K. ~~[Total] Dissolved Solids [(TDS)]:~~ [TDS] Dissolved solids (TDS) attributable to other than natural causes shall not damage or impair the normal growth, function or reproduction of animal, plant or aquatic life. ~~[TDS shall be measured by either the “calculation method” (sum of constituents) or the filterable residue method. Approved test procedures for these determinations are set forth in 20.6.4.14 NMAC.]~~

BASIS FOR CHANGE: The Department proposes to delete the term “total” and the reference to analytical methods for the reasons given in section 7.

L. Dissolved Gases: Surface waters of the state shall be free of nitrogen and other dissolved gases at levels above 110 percent saturation when this supersaturation is attributable to municipal, industrial or other discharges.

M. Biological Integrity: Surface waters of the state shall support and maintain a balanced and integrated community of organisms with species composition, diversity and functional organization comparable to those of natural or minimally impacted water bodies of a similar type and region.
[20.6.4.13 NMAC - Rp 20 NMAC 6.1.1105, 10-12-00; A, 10-11-02; Rn, 20.6.4.12 NMAC, 05-23-05; A, 05-23-05; A, XX-XX-XX]

BASIS FOR CHANGE: The Department proposes to add a narrative biological criterion in order to address the biological integrity objective of CWA section 101(a) and to provide information on the effects of pollution on the biological community as required under CWA section 304(a)(1)(C).

In 1991 EPA issued a statement of policy that “biological surveys shall be fully integrated with toxicity and chemical-specific assessment methods in State water quality management programs” and “that States should develop and implement biological criteria in their water quality standards.” This policy was identified as a top priority in EPA’s 1998 *Water Quality and Standards Plan – Priorities for the Future*, and again in the 2003 *Strategy for Water Quality Standards and Criteria – Setting Priorities to Strengthen the Foundation for Protecting and*

Restoring the Nation's Waters. EPA further directed the states and tribes to implement a phased, iterative approach to adopting biological criteria into water quality standards. This approach integrally links development of a bioassessment and criteria program with refinement of the classification system for designated aquatic life uses. The four phases of this approach are: 1) establish the water quality management framework; 2) develop stratified designated aquatic life use classifications; 3) adopt narrative biocriteria; and, 4) adopt numeric biocriteria.

The Department initiated a biological monitoring and bioassessment program in 1979 and has since developed standardized biological monitoring and assessment methods and regional reference conditions for select regions and stream types, and continues to develop an ecological database to support a stratified designated aquatic life use system. The Department primarily uses macroinvertebrate assemblages; however, fish and algae are also monitored in an increasing number of streams for development of biological criteria based upon these assemblages. Biological data are currently used by the Department for assessing attainment status for designated uses in conjunction with other types of data (chemical/physical, toxicological, and fish consumption advisories), establishing and refining designated aquatic life uses and developing biocriteria. These activities fulfill the requirements for the first two phases of EPA's suggested approach. New Mexico is prepared to implement the third phase by adopting a narrative biocriterion.

Biocriteria are needed to protect the integrity of the biological community because there is not always a clear link between the health of an aquatic community and specific water quality parameters (e.g., temperature, dissolved aluminum concentrations, sludge, foam etc.) or physical factors (e.g., habitat). Biocriteria are implemented by using biological data to directly measure the condition of the resource under investigation, detect problems that may not be detected or are underestimated using other assessment methods, and provide a process for measuring progress resulting from restoration efforts. Biological measurements are known to reflect current conditions as well as to integrate temporal changes in water quality, including cumulative effects of successive disturbances and multiple stressors. Chemical-specific criteria, whole-effluent toxicity evaluations, habitat evaluations, and biological criteria, when used together, complement the relative strengths and weaknesses of each approach and enable resource managers to determine the ecological condition, or health, of a water body.

20.6.4.14 SAMPLING AND ANALYSIS:

A. Sampling and analytical techniques shall conform with methods described in the following references unless otherwise specified by the commission pursuant to a petition to amend these standards:

(1) *"guidelines establishing test procedures for the analysis of pollutants under the Clean Water Act,"* 40 CFR Part 136 or any test procedure approved or accepted by EPA using procedures provided in 40 CFR Parts 136.3(d), 136.4, and 136.5;

(2) *standard methods for the examination of water and wastewater*, latest edition, American public health association;

(3) *methods for chemical analysis of water and waste*, and other methods published by EPA office of research and development or office of water;

(4) *techniques of water resource investigations of the U.S. geological survey*;

(5) *annual book of ASTM standards*: volumes 11.01 and 11.02, water (I) and (II), latest edition, ASTM international;

(6) *federal register*, latest methods published for monitoring pursuant to Resource Conservation and Recovery Act regulations;

(7) *national handbook of recommended methods for water-data acquisition*, latest edition, prepared cooperatively by agencies of the United States government under the sponsorship of the U.S. geological survey; or

(8) *federal register*, latest methods published for monitoring pursuant to the Safe Drinking Water Act regulations.

B. Bacteriological Surveys: The monthly geometric mean shall be used in assessing attainment of criteria when a minimum of five samples is collected in a 30-day period.

C. Sampling Procedures:

(1) Streams: Stream monitoring stations below discharges shall be located a sufficient distance downstream to ensure adequate vertical and lateral mixing.

(2) Lakes: Sampling stations in lakes shall be located at least 250 feet from a discharge.

(3) Lakes: Except for the restriction specified in Paragraph (2) of this subsection, lake sampling stations shall be located at any site where the attainment of a water quality standard is to be assessed. Water quality measurements taken at intervals in the entire water column at a sampling station shall be averaged for the

epilimnion, or in the absence of an epilimnion, for the upper one-third of the water column of the lake to determine attainment of criteria, except that attainment of criteria for toxic pollutants shall be assessed during periods of complete vertical mixing, e.g., during spring or fall turnover, or by taking depth-integrated composite samples of the water column.

D. Acute toxicity of effluent to aquatic life shall be determined using the procedures specified in U.S. environmental protection agency “methods for measuring the acute toxicity of effluents to freshwater and marine organisms” (5th Ed., 2002, EPA 821-R-02-012), or latest edition thereof if adopted by EPA at 40 CFR Part 136, which is incorporated herein by reference. Acute toxicities of substances shall be determined using at least two species tested in whole effluent and a series of effluent dilutions. Acute toxicity due to discharges shall not occur within the wastewater mixing zone in any surface water of the state with an existing or designated aquatic life use.

E. Chronic toxicity of effluent or ambient surface waters of the state to aquatic life shall be determined using the procedures specified in U.S. environmental protection agency “Short-term methods for estimating the chronic toxicity of effluents and receiving waters to freshwater organisms” (4th Ed., 2002, EPA 821-R-02-013), or latest edition thereof if adopted by EPA at 40 CFR Part 136, which is incorporated herein by reference. Chronic toxicities of substances shall be determined using at least two species tested in ambient surface water or whole effluent and a series of effluent dilutions. Chronic toxicity due to discharges shall not occur at the critical low flow, or any flow greater than the critical low flow, in any surface water of the state with an existing or designated aquatic life use more than once every three years.

[20.6.4.14 NMAC - Rp 20 NMAC 6.1.1106, 10-12-00; Rn, 20.6.4.13 NMAC, 05-23-05, A, 05-23-05]

20.6.4.15 USE ATTAINABILITY ANALYSIS:

A. A use attainability analysis is a scientific study that ~~[shall be]~~ is conducted ~~[only]~~ for the purpose of assessing the factors affecting the attainment of a use. Whenever a use attainability analysis is conducted, it shall be subject to the requirements and limitations set forth in 40 CFR Part 131, Water Quality Standards; specifically, Subsections 131.3(g), 131.10(g), 131.10(h) and 131.10(j) shall be applicable.

(1) Any person who proposes to ~~[classify, or reclassify to a designated use with less stringent criteria, a surface water of the state with designated uses that do not include]~~ exclude the uses specified in section 101(a)(2) of the federal Clean Water Act from the designations for a surface water of the state, to remove a designated use that is a section 101(a)(2) use or to adopt less stringent criteria for a section 101(a)(2) use must conduct a use attainability analysis. Section 101(a)(2) uses, which refer to the protection and propagation of fish, shellfish and wildlife and recreation in and on the water, are also specified in Subsection B of 20.6.4.6 NMAC.

(2) A designated use cannot be removed if it is an existing use unless a use requiring the same or more stringent criteria is designated.

~~[(3) A use attainability analysis or an equivalent study approved by the department and the regional administrator must be conducted to remove any non-existing designated use from any classified waters of the state.]~~

BASIS FOR CHANGE:

- The Department proposes minor changes to the first sentence of subsection A so that it describes a use attainability analysis (UAA) rather than restricts when a UAA may be conducted.
- The changes proposed to paragraph (1) parallel the requirements in the federal regulation at 40 CFR 131.10(j). A UAA is only required when excluding 101(a)(2) uses (commonly referred to as “fishable/swimmable” uses) from the designations for a water body, when removing 101(a)(2) uses or when making the criteria associated with 101(a)(2) uses less stringent (commonly referred to as “downgrading” the criteria). The proposed changes also avoid use of the undefined term “classify.” “Classified water of the state” is a defined term in section 7 and refers to waters in sections 101 through 899. Designated uses and criteria now also apply to unclassified waters in sections 97, 98 and 99. The UAA requirements apply to all surface waters of the state, classified or not, so use of the word “classify” could create a source of confusion.
- The Department proposes to add the phrase “unless a use requiring the same or more stringent criteria is designated” because the federal regulation at 40 CFR 131.10(h) allows this exception. The removal of “fish culture” as a designated use when a hatchery is no longer operating provides an example. No criteria are specifically applied to the fish culture use in the Standards. The use can be removed as long as an aquatic life use is designated. The criteria that apply to aquatic life uses are more stringent than the criteria that apply to the fish culture use.
- The Department proposes to delete paragraph (3) because it is neither necessary nor accurate. It is not necessary because paragraph (1) already specifies when a UAA is needed, paragraph (2) prohibits the removal of existing uses, and subsection F requires Department approval for a UAA done by another party. It is not accurate because

the requirement to conduct a UAA applies only to section 101(a)(2) uses, not all uses. While it is important to justify the removal or downgrading of a designated use not specified in section 101(a)(2), such as an irrigation or domestic water supply use, it is not necessary to conduct a UAA or to show that the use is not attainable.

B. Physical, chemical and biological evaluations of surface waters of the state other than lakes and reservoirs for purposes of use attainability analyses or equivalent studies shall be conducted according to the procedures outlined in the “*technical support manual: waterbody surveys and assessments for conducting use attainability analyses*,” United States environmental protection agency, office of water, regulations and standards, Washington, D.C., November 1983, or latest edition thereof, which is incorporated herein by reference, or an alternative equivalent study methodology approved by the department.

C. Physical, chemical and biological evaluations of lakes and reservoirs for purposes of use attainability analyses or equivalent studies shall be conducted according to the procedures outlined in the “*technical support manual: waterbody surveys and assessments for conducting use attainability analyses, volume III: lake systems*,” United States environmental protection agency, office of water, regulations and standards, Washington, D.C., November 1984, or latest edition thereof, which is incorporated herein by reference, or an alternative equivalent study methodology approved by the department.

D. A determination by the department that a surface water of the state is ephemeral serves as a use attainability analysis to demonstrate that the aquatic life and primary contact uses specified in section 101(a)(2) of the federal Clean Water Act are not attainable. Such determination shall be based on the latest version of the department’s hydrology protocol. The department may rely on the findings of another entity using the protocol to make the determination.

BASIS FOR CHANGE: EPA concurs that ephemeral surface waters in New Mexico do not contain sufficient water to support a fish population or primary contact activities. However, a site-specific UAA is needed to demonstrate that the water is truly ephemeral (see discussion under section 97). The Department is developing a hydrology protocol that can be used for such UAAs. The purpose of the protocol is to distinguish ephemeral from non-ephemeral streams, and intermittent from perennial streams, using a combination of hydrological, physical (geomorphic), and biological characteristics of the stream or river. Modeled in part after the system developed by the North Carolina Division of Water Quality (*Identification methods for the origins of intermittent and perennial streams*, Version 3.1, found at http://h2o.enr.state.nc.us/ncwetlands/documents/NC_Stream_ID_Manual.pdf), the protocol will include a numerical rating system to produce an objective, practical scoring mechanism for determining the hydrology of a stream. If field characteristics and scoring are not sufficient to make a determination, then NMED intends to incorporate available supporting information such as long term flow data or observations from local stakeholders and professionals.

The Department plans to solicit comments on the draft protocol in late 2008 or early 2009 and to finalize it as soon as possible after considering the comments. Under the language proposed here, use of this protocol to confirm the ephemeral characteristics of a water body will be sufficient to show that CWA section 101(a)(2) uses cannot be attained; a more detailed UAA examining other factors will not be necessary. At its discretion, the Department may accept an ephemeral determination made by another entity capable of competently using the protocol. The process set forth here applies to placing waters in section 97 but could also be applicable to classifying ephemeral waters.

[D]E. A use attainability analysis or equivalent study should include:

- (1) identification of existing uses of the surface water of the state [~~to be reviewed that have existed since 1975~~];
- (2) an evaluation of the best water quality attained in the surface water of the state [~~to be reviewed that has existed since 1975~~];
- (3) an analysis of appropriate factors demonstrating that attaining the designated use is not feasible because of the condition listed in 40 CFR Part 131.10(g);
- (4) a physical evaluation of the surface water of the state [~~to be reviewed~~] to identify factors that impair attainment of designated uses and to determine which designated uses are feasible to attain in such surface water of the state;
- (5) an evaluation of the water chemistry of the surface water of the state [~~to be reviewed~~] to identify chemical constituents that impair the designated uses that are feasible to attain in such water; and

(6) an evaluation of the aquatic and terrestrial biota utilizing the surface water of the state to determine resident species and which species could potentially exist in such water if physical and chemical factors impairing a designated use are corrected.

BASIS FOR CHANGE:

- The Department proposes to delete the phrase “to be reviewed” because it is not necessary.
- In paragraph (1) the Department proposes to strike the phrase “that have existed since 1975” because the date reference is already included in the definition of “existing use” in section 7.
- The Department proposes to strike the phrase “that have existed since 1975” in paragraph (2) because the 1975 date is only relevant to existing uses. Federal regulations do not provide any special dispensation for pre-1975 conditions when considering the attainability of a use.

[E]E. Any person may submit notice to the department stating that they intend to conduct a use attainability analysis or equivalent study. The proponent shall develop a work plan to conduct the use attainability analysis or equivalent study and shall submit the work plan to the department and the regional EPA staff for review and comment. The work plan should identify the scope of data currently available and proposed to be gathered, the factors affecting use attainment that will be analyzed and must contain provisions for public notice and consultation with appropriate state and federal agencies. A copy of the notice and the work plan must be submitted concurrently to the commission. Upon approval of the work plan by the department, the proponent shall conduct the use attainability analysis or equivalent study in accordance with the approved work plan. The cost of such analysis or equivalent study shall be the responsibility of the proponent. Upon completion of the use attainability analysis or equivalent study, the proponent shall submit the data, findings and conclusions to the department and the commission.

[F]G. If the department determines that the analysis or equivalent study was conducted in accordance with the approved work plan and the findings and conclusions are based upon sound scientific rationale, and demonstrates that it is not feasible to attain the designated use, the department or the proponent may request the commission to initiate rulemaking proceedings to modify the designated use for the surface water of the state that was reviewed.

[20.6.4.15 NMAC - Rp 20 NMAC 6.1.1107, 10-12-00; Rn, 20.6.4.14 NMAC, 05-23-05; A, 05-23-05; A, 07-17-05; A, XX-XX-XX]

20.6.4.16 PLANNED USE OF A PISCICIDE: The use of a piscicide registered under the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA), 7 U.S.C. Section 136 *et seq.*, and under the New Mexico Pesticide Control Act (NMPCA), Section 76-4-1 *et seq.* NMSA 1978 (1973) in a surface water of the state, shall not be a violation of Subsection F of 20.6.4.13 NMAC when such use has been approved by the commission under procedures provided in this section. The commission may approve the reasonable use of a piscicide under this section to further a Clean Water Act objective to restore and maintain the physical or biological integrity of surface waters of the state, including restoration of native species.

A. Any person seeking commission approval of the use of a piscicide shall file a written petition concurrently with the commission and the surface water bureau of the department. The petition shall contain, at a minimum, the following information:

- (1) petitioner’s name and address;
- (2) identity of the piscicide and the period of time (not to exceed five years) or number of applications for which approval is requested;
- (3) documentation of registration under FIFRA and NMPCA and certification that the petitioner intends to use the piscicide according to the label directions, for its intended function;
- (4) target and potential non-target species in the treated waters and adjacent riparian area, including threatened or endangered species;
- (5) potential environmental consequences to the treated waters and the adjacent riparian area, and protocols for limiting such impacts;
- (6) surface water of the state proposed for treatment;
- (7) results of pre-treatment survey;
- (8) evaluation of available alternatives and justification for selecting piscicide use;
- (9) post-treatment assessment monitoring protocol; and

(10) any other information required by the commission.

B. Within thirty days of receipt of the petition, the department shall review the petition and file a recommendation with the commission to grant, grant with conditions or deny the petition. The recommendation shall include reasons, and a copy shall be sent to the petitioner by certified mail.

C. The commission shall review the petition and the department's recommendation and shall within 90 days of receipt of the department's recommendation hold a public hearing in the locality affected by the proposed use in accordance with Adjudicatory Procedures, 20.1.3 NMAC. In addition to the public notice requirements in Adjudicatory Procedures, 20.1.3 NMAC, the petitioner shall provide written notice to:

- (1) local political subdivisions;
- (2) local water planning entities;
- (3) local conservancy and irrigation districts; and
- (4) local media outlets, except that the petitioner shall only be required to publish notice in a newspaper of circulation in the locality affected by the proposed use.

D. In a hearing provided for in this Section, registration of a piscicide under FIFRA and NMPCA shall provide a rebuttable presumption that the determinations of the EPA Administrator in registering the piscicide, as outlined in 7 U.S.C. Section 136a(c)(5), are valid. For purposes of this Section the rebuttable presumptions regarding the piscicide include:

- (1) Its composition is such as to warrant the proposed claims for it;
- (2) Its labeling and other material submitted for registration comply with the requirements of FIFRA and NMPCA;
- (3) It will perform its intended function without unreasonable adverse effects on the environment; and
- (4) When used in accordance with all FIFRA label requirements it will not generally cause unreasonable adverse effects on the environment.

(5) "Unreasonable adverse effects on the environment" has the meaning provided in FIFRA, 7 U.S.C. Section 136(bb): "any unreasonable risk to man or the environment, taking into account the economic, social, and environmental costs and benefits of the use of any pesticide."

E. After a public hearing, the commission may grant the petition in whole or in part, may grant the petition subject to conditions, or may deny the petition. In granting any petition in whole or part or subject to conditions, the commission shall require the petitioner to implement post-treatment assessment monitoring and provide notice to the public in the immediate and near downstream vicinity of the application prior to and during the application.

[20.6.4.16 NMAC - Rn, Paragraph (6) of Subsection F of 20.6.4.12 NMAC, 05-23-05; A, 05-23-05]

20.6.4.17 - 20.6.4.49: [RESERVED]

20.6.4.50 BASINWIDE PROVISIONS - Special provisions arising from interstate compacts, international treaties or court decrees or that otherwise apply to a basin are contained in 20.6.4.51 through 20.6.4.59 NMAC.

[20.6.4.50 NMAC - N, 05-23-05]

20.6.4.51 [~~20.6.4.53~~]: [RESERVED]

20.6.4.52 PECOS RIVER BASIN – In order to protect existing and designated uses, it is the policy of the state of New Mexico to prevent increases in dissolved solids in the Pecos River above the following values, expressed as flow-weighted, annual average concentrations: at Santa Rosa 500 mg/L; below Artesia 2,600 mg/L; and near Malaga 2,800 mg/L.

[20.6.4.52 NMAC – N, XX-XX-XX]

BASIS FOR CHANGE: The Department recognizes that high salinity on the lower Pecos River negatively impact designated uses such as irrigation and public water supply. The dissolved solids criteria that apply to the lower Pecos may not be effective in protecting water quality because they allow for concentrations as high as 20,000 mg/L and do not apply at flows below 50 cfs. However, it would be difficult to set more protective criteria at this time because the relationship between natural and human-induced sources of salinity in the basin is not well understood. Therefore, the Department proposes a policy statement in support of actions to prevent degradation. The proposed values represent current conditions, based on the period of record at three USGS gaging stations:

USGS Station	USGS Gaging Station Name	Period of Record	Flow-weighted Annual Average ¹ TDS (mg/L)
08383000	Pecos River at Santa Rosa, NM	1959-1998	500
08396500	Pecos River near Artesia, NM	1959-2007	2,600
08406500	Pecos River near Malaga, NM	1960-2003	2,800

¹ Values are rounded to the next 100 mg/L.

The use of flow-weighted annual average concentrations allows for the variability in dissolved solids concentrations that occurs over the course of a year. The approach of setting benchmarks based on current conditions recognizes that users of Pecos River water have adapted to the existing salinity concentrations. Water quality may not be ideal, but it may be acceptable as long as it does not worsen. Setting a policy with benchmarks will serve to focus attention and resources on the salinity concerns in the basin. The approach is similar to the strategy used successfully by the Colorado River Salinity Control Forum.

20.6.4.53: [RESERVED]

20.6.4.54 COLORADO RIVER BASIN - For the tributaries of the Colorado river system, the state of New Mexico will cooperate with the Colorado river basin states and the federal government to support and implement the salinity policy and program outlined in the most current “review, water quality standards for salinity, Colorado river system” or equivalent report by the Colorado river salinity control forum.

A. Numeric criteria expressed as the flow-weighted annual average concentration for salinity are established at three points in the Colorado river basin as follows: below Hoover dam, 723 mg/L; below Parker dam, 747 mg/L; and at Imperial dam, 879 mg/L.

B. As a part of the program, objectives for New Mexico shall include the elimination of discharges of water containing solids in solution as a result of the use of water to control or convey fly ash from coal-fired electric generators, wherever practicable.

[20.6.4.54 NMAC - Rn, Paragraphs (1) through (3) of Subsection K of 20.6.4.12 NMAC, 05-23-05; A, 05-23-05]

20.6.4.55 - 20.6.4.96: [RESERVED]

20.6.4.97 EPHEMERAL WATERS - All ~~ephemeral surface~~ **unclassified** waters of the state that ~~are not included in a classified water of the state in 20.6.4.101 through 20.6.4.899 NMAC~~ **the department has determined to be ephemeral.** The ephemeral determination shall be based on the latest version of the department’s *hydrology protocol* and shall serve as a use attainability analysis as described in subsection D of 20.6.4.15 NMAC for the non-attainability of Section 101(a)(2) uses. The list of waters included under this section is available on the Department’s water quality standards website.

A. Designated Uses: livestock watering, wildlife habitat, limited aquatic life and secondary contact.

B. Criteria:

[~~_____ (1) _____~~]The use-specific criteria in 20.6.4.900 NMAC [~~, with the exception of the chronic criteria for aquatic life,~~] are applicable [~~for~~] to the designated uses [~~listed in Subsection A of this section~~].

[~~_____ (2) _____~~]The monthly geometric mean of E. coli bacteria shall not exceed 548 cfu/100 mL, no single sample shall exceed 2507 cfu/100 mL (see Subsection B of 20.6.4.14 NMAC).]

[20.6.4.97 NMAC - N, 05-23-05, XX-XX-XX]

BASIS FOR CHANGE:

- The Department proposes to replace the cumbersome phrase “surface waters of the state that are not included in a classified water of the state in 20.6.4.101 through 20.6.4.899 NMAC” with “unclassified waters of the state.” Because “classified water of the state” is a defined term whose definition refers to the appropriate segments, the meaning of “unclassified water of the state” is clear, and use of the simpler phrase avoids redundancy.
- **Ephemeral determinations.** EPA did not approve this section as adopted by the Commission during the last triennial review. The Commission believed the limited aquatic life use to be appropriate for ephemeral waters and to satisfy CWA section 101(a)(2) goals. EPA disagreed:

Although ephemeral waters may only be capable of supporting a limited aquatic community selectively adapted to the conditions typical of these waters, this limited use does not “serve the purposes of the Act” as defined in CWA sections 101(a)(2) and 303(c). These statutes require water quality standards to provide, wherever attainable, water quality for the protection and propagation of fish, shellfish, and wildlife, and recreation in and on the water - functions commonly referred to as “fishable/swimmable” uses. EPA’s current water quality regulation effectively establishes a rebuttable presumption that “fishable/swimmable” uses are attainable and therefore should apply to a water body unless it can be demonstrated that such uses are not attainable. EPA does not expect the State to adopt uses for ephemeral waters that cannot be attained, but in those instances, the State must submit a UAA to support an aquatic life designation that does not meet the CWA §101(a)(2) objective as required by 40 CFR 131.10(j)(1). [Record of Decision, December 29, 2006.]

The Commission stated the designated contact use as secondary contact. Consistent with long-standing practice, however, the criteria assigned were intended to protect primary contact, so the Commission believed it was meeting section 101(a)(2) goals. EPA disagreed for two reasons: 1) the criteria were consistent with the secondary contact criteria in section 900.E rather than the primary contact criteria in section 900.D; and 2) the criteria were based upon an illness rate and risk level no longer considered protective of primary contact recreation, as articulated in a EPA’s 2004 BEACH Act rule (69 FR 67218). Accordingly, EPA stated that if the state wished to retain the secondary contact criteria, it must prepare a UAA.

In attempting to prepare a UAA, the Department encountered numerous obstacles. The primary obstacle was that EPA guidance expects that a water body survey will be conducted as part of a UAA. While a categorical UAA that groups similar ephemeral waters was theoretically acceptable, in reality EPA would require too much field data on representative waters. The Department concluded that an intensive data collection effort focused on ephemeral waters was not a good use of its limited resources.

To resolve the problems with section 97, the Department proposes that the section be considered a “bin” into which specific waters are placed upon completion of a UAA. Such a UAA need not be complicated. Because EPA agrees that the flow characteristics of ephemeral waters do not support fish populations or primary contact, the UAA may rely on field verification that a particular water body is ephemeral. The Department proposes to use its *hydrology protocol*, discussed in section 15.D, to make such ephemeral determinations. Until the hydrology UAA is completed, an ephemeral water will be presumed subject to section 98 along with other non-perennial unclassified waters as described in section 11.H.

There is no implied mandate in this proposal nor is there any need to identify every ephemeral water in the state. The determinations will be made only as needed, such as when an NPDES discharge is to an ephemeral receiving water, to avoid the application of overly protective criteria.

- **Restructuring subsection B.** The Department proposes to restructure subsection B for the reasons given under section 101. In this case, the phrase “with the exception of the chronic criteria for aquatic life” can be deleted because section 900.H(7) states, “Chronic aquatic life criteria do not apply unless adopted on a segment-specific basis.”

20.6.4.98 INTERMITTENT WATERS - All ~~[intermittent surface]~~ non-perennial unclassified waters of the state ~~[that are not included in a classified water of the state in 20.6.4.101 through 20.6.4.899 NMAC], except those ephemeral waters included under 20.6.4.97 NMAC.~~

A. Designated Uses: livestock watering, wildlife habitat, marginal warmwater aquatic life and ~~[secondary]~~ primary contact.

B. Criteria:
[~~—————(1)—————~~]The use-specific criteria in 20.6.4.900 NMAC[~~-~~] are applicable to the designated uses, except that the following section-specific criteria apply:
[~~—————(2)—————~~The] the monthly geometric mean of E. coli bacteria ~~[shall not exceed 548]~~ 206 cfu/100 mL, ~~[no]~~ single sample ~~[shall exceed 2507]~~ 940 cfu/100 mL ~~[(see Subsection B of 20.6.4.14 NMAC)].~~
[20.6.4.98 NMAC - N, 05-23-05, XX-XX-XX]

BASIS FOR CHANGE:

- The Department proposes to replace the phrase “surface waters of the state that are not included in a classified water of the state in 20.6.4.101 through 20.6.4.899 NMAC” with “unclassified waters of the state” for the reasons given in section 97.
- **Intermittent vs. non-perennial waters.** The designated uses and criteria listed are appropriate for intermittent waters. However, all non-perennial unclassified waters are included here because of EPA’s “fishable/swimmable” presumption. Ephemeral waters may be moved to section 97 only after completion of a UAA. See discussion in sections 11.D and 97.
- **CWA Section 101(a)(2) uses.** EPA did not approve this section as adopted by the Commission during the last triennial review. The Commission’s intent in crafting a general “aquatic life use” was to allow the Department the flexibility to apply the appropriate level of protection depending on the existing aquatic life use in particular water bodies. However, EPA interpreted the general “aquatic life use” as a subcategory that did not provide adequate protection, stating:

EPA does not believe this term in and of itself defines a subcategory of use. Unlike other use subcategory definitions the State holds, this definition does not describe characteristics such as flow, temperature, habitat or other factors that would be necessary for the support and/or propagation of an aquatic community. [Record of Decision, December 29, 2006.]

In response, the Department proposes to change the designated the aquatic life use to “marginal warmwater” which meets the CWA 101(a)(2) aquatic life goal. The definition of “marginal warmwater” refers to intermittent conditions and is therefore appropriate for these waters.

As explained in section 97, EPA disagreed that the criteria previously assigned to these waters were protective of the CWA Section 101(a)(2) primary contact use and asserted that a UAA would be required to justify secondary contact. However, the Commission intended to provide primary contact protection to these waters. In its May 13, 2005 Statement of Reasons, the Commission stated:

In the case of nonperennial waters, both the likelihood of exposure by ingestion and the frequency of use for recreation are low. ... These criteria are adopted because they satisfy EPA’s goal of protecting primary contact while taking into consideration the less frequent use of these waters.

Preparing a categorical UAA to justify less than primary contact would be inconsistent both with Commission intent and with the actual conditions in some intermittent waters. Therefore, the Department proposes to assign numeric criteria that EPA considers protective of primary contact in waters receiving infrequent use. EPA recommends risk levels at or below 1% (*Implementation Guidance for Ambient Water quality Criteria for Bacteria*, November 2003 Draft). The proposed criteria represent a 1% risk level, equivalent to an illness rate of 10 per 1000.

- **Restructuring subsection B.** The Department proposes restructuring subsection B for the reasons given section 101. In this case, section-specific criteria must be listed as they are different than the primary contact criteria specified in section 900. The term “section-specific” must be used here since this section does not fall under the definition of “segment;” however, the meaning is the same.
- **Primary contact as designated use.** The Department proposes that the contact use designation be changed to “primary contact” to be consistent with the assigned criteria. The same change is proposed throughout the Standards wherever a secondary contact designated use is coupled with primary contact criteria. The Standards contain 41 such segments. The designations are a result of the Commission’s desire to balance its mandate to protect water quality for recreation “in and on the water,” as required by the Clean Water Act, with its concern that some waters are not suitable for primary contact activities due to unsafe conditions, lack of access, etc.

However, the Department recommends discontinuing this practice because it is confusing to the public. Stakeholders and even staff are often confused as to what uses are actually protected. The contact level is particularly difficult to decipher in the Integrated CWA 303(d)/305(b) Report Appendix A (List). The Department uses an EPA Assessment Database to track assessment information and to generate the List. Water quality is characterized by reference to the designated uses; that is, the List states whether water quality fully supports,

partially supports or does not support a designated use. When the designated use is secondary contact with primary contact criteria, it is difficult to determine whether the primary or secondary contact criteria are being attained. Two examples from the 2006-2008 List illustrate this point:

Assessment Unit	Designated Use	Use Attainment	WQS reference
Rio Grande, Isleta Pueblo Boundary to Alameda Street bridge	Secondary contact	Not supporting	20.6.4.105
Rio Chama, Okay Owingeh Pueblo to Abiquiu dam	Secondary Contact	Fully supporting	20.6.4.116

For the Rio Grande, the listing indicates that water quality does not support the secondary contact use. In fact, primary contact criteria apply to this segment, and it is the primary contact criteria that are not attained. The listing does not indicate whether the bacteria concentrations met the criteria for secondary contact, which occurs on this reach of the river through Albuquerque. For the Rio Chama, secondary contact criteria apply and are being attained. The type of use actually being attained for these two assessment units cannot be discerned without examining the applicable water quality standards. Even then, a person must know to examine both the segment and section 900.

The purpose of designating uses in the Standards is to identify the desirable level of water quality and to target water quality programs to achieve it, not to reflect the desired use of the water. If primary contact use is occurring or might occur, the CWA requires the Commission to assign criteria to protect that use. By naming that use, the Commission is not making a determination that the water safe or appropriate for that use. Ultimately, people make those determinations themselves and rarely, if ever, consult the Standards.

20.6.4.99 PERENNIAL WATERS - All perennial [surface] unclassified waters of the state [that are not included in a classified water of the state in 20.6.4.101 through 20.6.4.899 NMAC].

A. Designated Uses: warmwater aquatic life, livestock watering, wildlife habitat and [~~secondary~~] primary contact.

B. Criteria:

[~~_____ (1) Temperature shall not exceed 34°C (93.2°F).~~] The use-specific criteria in 20.6.4.900 NMAC are applicable to the designated uses [~~listed in Subsection A of this section.~~], except that the following section-specific criteria apply:

[~~_____ (2) The~~] the monthly geometric mean of E. coli bacteria [~~shall not exceed 548~~] 206 cfu/100 mL, [~~no~~] single sample [~~shall exceed 2507~~] 940 cfu/100 mL [~~(see Subsection B of 20.6.4.14 NMAC).~~].

[20.6.4.99 NMAC - N, 05-23-05, A, XX-XX-XX]

BASIS FOR CHANGE:

- The Department proposes to replace the phrase “surface waters of the state that are not included in a classified water of the state in 20.6.4.101 through 20.6.4.899 NMAC” with “unclassified waters of the state” for the reasons given in section 97.
- **Section 101(a)(2) uses.** EPA did not approve this section for the same reasons as those given in section 98. In response, the Department proposes to change the designated the aquatic life use to “warmwater,” which meets the CWA 101(a)(2) aquatic life goal, and to assign primary contact criteria at a risk level of 1%. Both changes are proposed for the same reasons given in 98.
- **Restructuring subsection B.** The Department proposes restructuring subsection B for the reasons given in section 101. The term “section-specific” must be used here since this section does not fall under the definition of “segment;” however, the meaning is the same.
- **Primary contact as designated use.** The Department proposes that the contact use designation be changed to “primary contact” to be consistent with the assigned criteria for the reasons explained in section 98.

20.6.4.100: [RESERVED]

20.6.4.101 RIO GRANDE BASIN - The main stem of the Rio Grande from the international boundary with Mexico upstream to one mile below Percha dam.

A. Designated Uses: irrigation, marginal warmwater aquatic life, livestock watering, wildlife habitat and ~~[secondary]~~ primary contact.

B. Criteria:

~~(1) [In any single sample: pH: within the range of 6.6 to 9.0 and temperature 34°C (93.2°F) or less.]~~
The use-specific numeric criteria set forth in 20.6.4.900 NMAC are applicable to the designated uses ~~[listed above in Subsection A of this section]~~, except that the following segment-specific criterion applies: temperature 34°C (93.2°F) or less.

~~(2) [The monthly geometric mean of E. coli bacteria 126 cfu/100 mL or less; single sample 410 cfu/100 mL (see Subsection B of 20.6.4.14 NMAC).~~

~~(3) At mean monthly flows above 350 cfs, the monthly average concentration for: TDS 2,000 mg/L or less, sulfate 500 mg/L or less and [chlorides] chloride 400 mg/L or less.~~

C. Remarks: Sustained flow in the Rio Grande below Caballo reservoir is dependent on release from Caballo reservoir during the irrigation season; at other times of the year, there may be little or no flow. [20.6.4.101 NMAC - Rp 20 NMAC 6.1.2101, 10-12-00; A, 12-15-01; A, 05-23-05; A, XX-XX-XX]

BASIS FOR CHANGE:

- **Primary contact as designated use.** The Department proposes to change the contact use designation to “primary contact” to be consistent with the assigned criteria for the reasons explained in section 98.
- **Restructuring subsection B.** It has been the historical practice to list temperature, dissolved oxygen, pH and bacterial criteria in sections 97-899 even when they are the same criteria identified in section 900. The Department proposes to discontinue this practice and instead list only segment-specific criteria that differ from section 900, thus eliminating confusion and duplication. The change results in the deletion of the phrase “in any single sample” for streams and “at any sampling site” for lakes. These phrases refer to sampling procedure; in particular, they indicate that a sample collected at a lake monitoring station as described in section 14.C is a composite of samples collected at different depths while a grab sample is sufficient at a stream monitoring station. This type of information is better suited for section 14 or assessment protocols; it is not informative as part of the statement of criteria. The reference to section 14.B (related to E. coli criteria) is proposed for deletion because it is unnecessary to make this reference just as other requirements found in section 14 are not cross-referenced throughout the Standards. The Department proposes these changes throughout sections 97-899.
- The Department proposes an editorial change in replacing “chlorides” with “chloride.”

20.6.4.102 RIO GRANDE BASIN - The main stem of the Rio Grande from one mile below Percha dam upstream to Caballo dam.

A. Designated Uses: irrigation, livestock watering, wildlife habitat, primary contact and warmwater aquatic life.

B. Criteria:

~~(1) At any sampling site: pH within the range of 6.6 to 9.0 and temperature 32.2°C (90°F) or less.]~~
The use-specific numeric criteria set forth in 20.6.4.900 NMAC are applicable to the designated uses ~~[listed above in Subsection A of this section]~~, except that the following segment-specific criteria apply:

~~(2) The monthly geometric mean of E. coli bacteria 126 cfu/100 mL or less; single sample 235 cfu/100 mL or less [see Subsection B of 20.6.4.14 NMAC].~~

C. Remarks: Sustained flow in the Rio Grande below Caballo reservoir is dependent on release from Caballo reservoir during the irrigation season; at other times of the year, there may be little or no flow. [20.6.4.102 NMAC - Rp 20 NMAC 6.1.2102, 10-12-00; A, 05-23-05; A, XX-XX-XX]

BASIS FOR CHANGE: The Department proposes to restructure subsection B for the reasons given in section 101.

20.6.4.103 RIO GRANDE BASIN - The main stem of the Rio Grande from the headwaters of Caballo reservoir upstream to Elephant Butte dam and perennial reaches of tributaries to the Rio Grande in Sierra and Socorro counties, except waters on tribal lands.

A. Designated Uses: ~~[fish culture,]~~ irrigation, livestock watering, wildlife habitat, marginal coldwater aquatic life, secondary contact and warmwater aquatic life.

B. Criteria:

~~(1) In any single sample: pH within the range of 6.6 to 9.0 and temperature 25°C (77°F) or less.]~~ The use-specific numeric criteria set forth in 20.6.4.900 NMAC are applicable to the designated uses ~~[listed above in Subsection A of this section]~~.

~~_____ (2) The monthly geometric mean of E. coli bacteria 548 cfu/100 mL or less, single sample 2507 cfu/100 mL or less (see Subsection B of 20.6.4.14 NMAC).~~

C. Remarks: Flow in this reach of the Rio Grande main stem is dependent upon release from Elephant Butte dam.

[20.6.4.103 NMAC - Rp 20 NMAC 6.1.2103, 10-12-00; A, 05-23-05; A, XX-XX-XX]

BASIS FOR CHANGE:

- The Department proposes to exclude the Rio Salado on the Alamo Navajo and other tribal waters. The Department proposes to refine segment descriptions throughout sections 100-899 wherever tribal waters occur. The state does not have jurisdiction over tribal waters. Waters that mark the boundary between tribal and non-tribal lands remain included in the segment descriptions. Such waters may be subject to both state and tribal jurisdiction.
- Remove the fish culture use because the fish hatchery previously located in the area has closed. According to Jennifer Fowler-Propst of the U.S. Fish and Wildlife Service in Albuquerque, the Hot Springs Fish Hatchery was operated by the USFWS from 1937 until 1965. The property was taken over and closed by the Bureau of Reclamation in September 1965. Therefore, there is no longer a “fish culture” use for this segment and the use can be removed for the reasons given in section 15.A.
- The Department proposes to restructure subsection B for the reasons given in section 101.

20.6.4.104 RIO GRANDE BASIN - Caballo and Elephant Butte reservoir.

A. Designated Uses: irrigation storage, livestock watering, wildlife habitat, primary contact and warmwater aquatic life.

B. Criteria:

~~_____ (1) At any sampling site: pH within the range of 6.6 to 9.0 and temperature 32.2°C (90°F) or less.]~~
The use-specific numeric criteria set forth in 20.6.4.900 NMAC are applicable to the designated uses [~~listed above in Subsection A of this section.~~], except that the following segment-specific criteria apply:

~~_____ (2) The] the monthly geometric mean of E. coli bacteria 126 cfu/100 mL or less[;], single sample 235 cfu/100 mL or less [(see Subsection B of 20.6.4.14 NMAC)].~~

[20.6.4.104 NMAC - Rp 20 NMAC 6.1.2104, 10-12-00; A, 05-23-05, A, XX-XX-XX]

BASIS FOR CHANGE: The Department proposes to restructure subsection B for the reasons given in section 101.

20.6.4.105 RIO GRANDE BASIN - The main stem of the Rio Grande from the headwaters of Elephant Butte reservoir upstream to Alameda bridge (Corrales bridge), excluding waters on Isleta pueblo [and intermittent water below the perennial reaches of the Rio Puereco that enters the main stem of the Rio Grande].

A. Designated Uses: irrigation, warmwater aquatic life, livestock watering, public water supply, wildlife habitat and [~~secondary~~] primary contact.

B. Criteria:

(1) [~~In any single sample: pH within the range of 6.6 to 9.0 and temperature 32.2°C (90°F) or less.]~~
The use-specific numeric criteria set forth in 20.6.4.900 NMAC are applicable to the designated uses [~~listed above in Subsection A of this section.~~]. In addition, the following criteria are applicable to the public water supply use: americium 1.9 pCi/L, plutonium 1.5 pCi/L and tritium 4,000 pCi/L.

(2) [~~The monthly geometric mean of E. coli bacteria 126 cfu/100 mL or less; single sample 410 cfu/100 mL or less (see Subsection B of 20.6.4.14 NMAC).~~

~~_____ (3)] At mean monthly flows above 100 cfs, the monthly average concentration for: TDS 1,500 mg/L or less, sulfate 500 mg/L or less and chloride 250 mg/L or less.~~

[20.6.4.105 NMAC - Rp 20 NMAC 6.1.2105, 10-12-00; A, 05-23-05; A, XX-XX-XX]

BASIS FOR CHANGE: The Department proposes to:

- Split this section into two different sections to address variations in hydrology. In this section the Department proposes to address the main stem of the Rio Grande from the headwaters of Elephant Butte reservoir upstream to Alameda bridge (Corrales bridge). The waters described in the deleted phrase are covered in proposed section 130.
- Exclude the waters on Isleta Pueblo south of Albuquerque as these waters are not under state jurisdiction. See section 103.

- Change the contact use designation to “primary contact” to be consistent with the assigned criteria for the reasons explained in section 98.
- Add “public water supply” as a designated use because the Albuquerque Bernalillo County Water Utility Authority will use this reach in the San Juan-Chama Drinking Water Project. The diversion dam is located near the uppermost extent of this segment. Belen and Los Lunas have longer-term plans to use of San Juan-Chama water.
- Restructure subsection B for the reasons given in section 101.
- Add criteria for americium, plutonium and tritium in response to concerns that discharges from Los Alamos National Laboratory (LANL) could threaten public water supplies on the Rio Grande. Citizen groups and the Albuquerque Bernalillo Water Utility Authority have recommended that criteria of 0.15 pCi/L be considered for transuranic radionuclides. Colorado incorporated this value into its water quality standards in 1997 for plutonium 239 and 240 and for americium 241. Citizen groups also advised that a tritium criterion of 400 pCi/L be adopted based on recent health risk information.

The Department agrees with concerns about the potential discharges of these materials. The Department proposes criteria for two of the transuranic elements: plutonium and americium. Both of these have been released from LANL. The Scientific Laboratory Division of the Department of Health is currently capable of analyzing for these elements.

Americium and plutonium are transuranic, alpha-emitting elements. Transuranic elements have atomic numbers greater than 92, which is the atomic number of uranium. Although some transuranic elements occur in nature in minute amounts, they are for all practical purposes man-made. The National Primary Drinking Water Regulations do not establish specific MCLs for these radionuclides.

The Department also agrees with concerns about potential discharges of tritium. Tritium is a radioactive isotope of hydrogen that decays by beta emission. It readily combines with oxygen to form tritiated water. LANL conducts tritium research and development, and tritium releases have occurred. Unlike many radionuclides that attach to varying degrees to soil particles, tritium cannot be filtered out of water because tritiated water is chemically identical to normal water. For this reason the Department agrees that it is of particular concern to downstream drinking water supplies.

The Department’s proposed criteria values were derived using the risk coefficients and methodology in EPA’s 1999 *Cancer Risk Coefficients for Environmental Exposure to Radionuclides – Federal Guidance Report 13*. This document represents the most current EPA guidance and has superceded the guidance that the State of Colorado relied upon in setting its plutonium and americium criteria. The proposed values reflect a cancer risk level of 10^{-5} in accordance with Commission practice in setting water quality criteria.

In proposing these new criteria, the Department is aware that under the Atomic Energy Act of 1954, as amended, the authority to regulate discharges of these materials from LANL may lie with DOE rather than with the Commission or EPA. However, even if there are limits on the ability of the State or EPA to implement the criteria, the Department recommends the Commission act on its authority under the federal Clean Water Act and the NM Water Quality Act to adopt water quality criteria to protect designated uses. The criteria will provide information to the public and an accountability tool for measuring progress towards reducing the health risks from legacy contamination and ongoing activities at LANL.

20.6.4.106 RIO GRANDE BASIN - The main stem of the Rio Grande from Alameda bridge (Corrales bridge) upstream to the Angostura diversion works [~~and intermittent water in the Jemez river below the Jemez pueblo boundary that enters the main stem of the Rio Grande~~].

A. Designated Uses: irrigation, marginal warmwater aquatic life, livestock watering, public water supply, wildlife habitat and [~~secondary~~] primary contact.

B. Criteria:

(1) [~~In any single sample: dissolved oxygen greater than 5.0 mg/L, pH within the range of 6.6 to 9.0 and temperature less than 32.2°C (90°F).~~] The use-specific numeric criteria set forth in 20.6.4.900 NMAC are applicable to the designated uses [~~listed above in Subsection A of this section~~]. In addition, the following criteria are applicable to the public water supply use: americium 1.9 pCi/L, plutonium 1.5 pCi/L and tritium 4,000 pCi/L.

(2) [~~The monthly geometric mean of E. coli bacteria 126 cfu/100 mL or less; single sample 410 cfu/100 mL or less (see Subsection B of 20.6.4.14 NMAC).~~

~~_____ (3)] At mean monthly flows above 100 cfs, the monthly average concentration for: TDS 1,500 mg/L or less, sulfate 500 mg/L or less and chloride 250 mg/L or less.~~

[20.6.4.106 NMAC - Rp 20 NMAC 6.1.2105.1, 10-12-00; A, 05-23-05; A, XX-XX-XX]

BASIS FOR CHANGE: The Department proposes to:

- Move waters described by the deleted phrase to section 130 for the reasons given there.
- Add “public water supply” as a designated use because the Albuquerque Bernalillo County Water Utility Authority’s diversion dam for the San Juan-Chama Drinking Water Project is located just downstream of this segment.
- Restructure subsection B for the reasons given in section 101.
- Change the contact use designation to “primary contact” to be consistent with the assigned criteria for the reasons explained in section 98.
- Add criteria for americium, plutonium and tritium for the reasons given in section 105.

20.6.4.107 RIO GRANDE BASIN - The Jemez river from the Jemez pueblo boundary upstream to Soda dam near the town of Jemez Springs and perennial reaches of Vallecito creek.

A. Designated Uses: coldwater aquatic life, primary contact, irrigation, livestock watering and wildlife habitat; and public water supply on Vallecito creek.

B. Criteria:

[~~_____ (1) In any single sample: temperature 25°C (77°F) and pH within the range of 6.6 to 8.8.~~] The use-specific numeric criteria set forth in 20.6.4.900 NMAC are applicable to the designated uses [~~listed above in Subsection A of this section~~], except that the following segment-specific criterion applies: temperature 25°C (77°F).

[~~_____ (2) The monthly geometric mean of E. coli bacteria 126 cfu/100 mL or less; single sample 410 cfu/100 mL or less (see Subsection B of 20.6.4.14 NMAC).~~

[20.6.4.107 NMAC - Rp 20 NMAC 6.1.2105.5, 10-12-00; A, 05-23-05; A, XX-XX-XX]

BASIS FOR CHANGE: The Department proposes to:

- Add public water supply as a designated use on Vallecito Creek because the infiltration gallery of the Ponderosa Mutual Domestic Water Consumers Association (MDWCA) is located near the creek. This public water system is considered ground water under the influence of surface water.
- Restructure subsection B for the reasons given in section 101.

20.6.4.108 RIO GRANDE BASIN - Perennial reaches of the Jemez river and all its tributaries above Soda dam near the town of Jemez Springs, except Sulphur creek above its confluence with Redondo creek, and perennial reaches of the Guadalupe river and all its tributaries.

A. Designated Uses: domestic water supply, fish culture, high quality coldwater aquatic life, irrigation, livestock watering, wildlife habitat and [~~secondary~~] primary contact.

B. Criteria:

[~~_____ (1) In any single sample: specific conductance 400 µmhos/cm or less, pH within the range of 6.6 to 8.8 and temperature 20°C (68°F) or less.~~] The use-specific numeric criteria set forth in 20.6.4.900 NMAC are applicable to the designated uses [~~listed above in Subsection A of this section.~~], except that the following segment-specific criteria apply: the monthly geometric mean of E. coli bacteria 126 cfu/100 mL or less, single sample 235 cfu/100 mL or less; and pH within the range of 2.0 to 8.8 on Sulphur creek below the confluence with Redondo creek.

[~~_____ (2) The monthly geometric mean of E. coli bacteria 126 cfu/100 mL or less; single sample 235 cfu/100 mL or less (see Subsection B of 20.6.4.14 NMAC).~~

[20.6.4.108 NMAC - Rp 20 NMAC 6.1.2106, 10-12-00; A, 05-23-05; A, XX-XX-XX]

[NOTE: The segment covered by this section was divided effective 05-23-05. The standards for the additional segment are under 20.6.4.124 NMAC.]

BASIS FOR CHANGE: The Department proposes to:

- Restructure subsection B for the reasons given in section 101.

- Change the contact use designation to “primary contact” to be consistent with the assigned criteria for the reasons explained in section 98.
- Reduce the lower pH criterion to 2.0 for Sulphur Creek below its confluence with Redondo Creek due to the influence of naturally acidic source waters at Sulphur Springs. See Attachment 3 for the UAA justifying the change.

20.6.4.109 RIO GRANDE BASIN - Perennial reaches of Bluewater creek excluding waters on tribal lands, Rio Moquino upstream of Laguna pueblo, Seboyeta creek, Rio Paguete upstream of Laguna pueblo, the Rio Puerco [~~above~~] upstream of the village of Cuba, and all other perennial reaches of tributaries to the Rio Puerco, including the Rio San Jose in Cibola county from the USGS gaging station at Correo upstream to Horace springs excluding waters on tribal lands.

A. Designated Uses: coldwater aquatic life, domestic water supply, fish culture, irrigation, livestock watering, wildlife habitat and primary contact; and public water supply on La Jara creek.

B. Criteria:

[~~————— (1) In any single sample: pH shall be within the range of 6.6 to 8.8, temperature 20°C (68°F) or less and total phosphorus (as P) 0.1 mg/L.~~] The use-specific numeric criteria set forth in 20.6.4.900 NMAC are applicable to the designated uses [~~listed above in Subsection A of this section.~~], except that the following segment-specific criteria apply: total phosphorus (as P) 0.1 mg/L or less; the monthly geometric mean of E. coli bacteria 126 cfu/100 mL or less, single sample 235 cfu/100 mL or less.

[~~————— (2) The monthly geometric mean of E. coli bacteria 126 cfu/100 mL or less; single sample 235 cfu/100 mL or less (see Subsection B of 20.6.4.14 NMAC).~~]

[20.6.4.109 NMAC - Rp 20 NMAC 6.1.2107, 10-12-00; A, 05-23-05; A, XX-XX-XX]

BASIS FOR CHANGE: The Department proposes to:

- Exclude waters on tribal lands because these waters are not under state jurisdiction. See section 103. See section 103.
- Replace “above” with “upstream of” for clarity.
- Add public water supply as a designated use on La Jara Creek because it supplies the La Jara Water Users Association, a public water system.
- Restructure subsection B for the reasons given in section 101.

20.6.4.110 RIO GRANDE BASIN - The main stem of the Rio Grande from Angostura diversion works upstream to Cochiti dam.

A. Designated Uses: irrigation, livestock watering, wildlife habitat, [~~secondary~~] primary contact, coldwater aquatic life and warmwater aquatic life.

B. Criteria:

[~~————— (1) In any single sample: pH within the range of 6.6 to 9.0 and temperature 25°C (77°F) or less.~~] The use-specific numeric criteria set forth in 20.6.4.900 NMAC are applicable to the designated uses [~~listed above in Subsection A of this section.~~], except that the following segment-specific criteria apply: pH within the range of 6.6 to 9.0 and temperature 25°C (77°F) or less.

[~~————— (2) The monthly geometric mean of E. coli bacteria 126 cfu/100 mL or less; single sample 410 cfu/100 mL or less (see Subsection B of 20.6.4.14 NMAC).~~]

[20.6.4.110 NMAC - Rp 20 NMAC 6.1.2108, 10-12-00; A, 05-23-05]

BASIS FOR CHANGE: The Department proposes to:

- Change the contact use designation to “primary contact” to be consistent with the assigned criteria for the reasons explained in section 98.
- Restructure subsection B for the reasons given in section 101.

20.6.4.111 RIO GRANDE BASIN - Perennial reaches of Las Huertas creek from the San Felipe pueblo boundary to the headwaters.

A. Designated Uses: high quality coldwater aquatic life, irrigation, livestock watering, wildlife habitat and [~~secondary~~] primary contact.

B. Criteria:

~~_____ (1) In any single sample: pH within the range of 6.6 to 8.8 and temperature 25°C (77°F) or less.]~~
The use-specific numeric criteria set forth in 20.6.4.900 NMAC are applicable to the designated uses [~~listed above in Subsection A of this section~~], except that the following segment-specific criteria apply: specific conductance 700 $\mu\text{S}/\text{cm}$ or less and temperature 25°C (77°F) or less.

~~_____ (2) The monthly geometric mean of E. coli bacteria 126 cfu/100 mL or less; single sample 410 cfu/100 mL or less (see Subsection B of 20.6.4.14 NMAC).]~~

[20.6.4.111 NMAC - Rp 20 NMAC 6.1.2108.5, 10-12-00; A, 7-25-01; A, 05-23-05; A-XX-XX-XX]

[NOTE: The segment covered by this section was divided effective 05-23-05. The standards for the additional segment are under 20.6.4.125 NMAC.]

BASIS FOR CHANGE: The Department proposes to:

- Exclude waters on tribal lands because these waters are not under state jurisdiction. See section 103. See section 103.
- Add a specific conductance criterion to Subsection B. This segment has a designated use of high quality coldwater aquatic life. As described in Paragraph (1) of Subsection H of 20.6.4.900 NMAC, this category of aquatic life should include a criterion for specific conductance (a value that falls within the range of 300 to 1500 $\mu\text{S}/\text{cm}$). The Department reviewed water quality data it collected for Las Huertas Creek. The Department obtained monthly measurements of specific conductance from March – October 2005 in Las Huertas Creek at Tres Amigos Rd and six times during that period at Las Huertas Creek below Caves. The range of measurements was 432 to 628 $\mu\text{S}/\text{cm}$. Based on those data, the Department proposes to add a criterion of 700 $\mu\text{S}/\text{cm}$ as the naturally occurring level of specific conductance.
- Change the contact use designation to “primary contact” to be consistent with the assigned criteria for the reasons explained in section 98.
- Restructure subsection B for the reasons given in section 101.

~~[20.6.4.112 **RIO GRANDE BASIN – Cochiti reservoir.**~~

~~_____ A. **Designated Uses:** livestock watering, wildlife habitat, warmwater aquatic life, coldwater aquatic life and primary contact.~~

~~_____ B. **Criteria:**~~

~~_____ (1) At any sampling site: pH within the range of 6.6 to 9.0 and temperature 25°C (77°F). The use-specific numeric criteria set forth in 20.6.4.900 NMAC are applicable to the designated uses listed above in Subsection A of this section.~~

~~_____ (2) The monthly geometric mean of E. coli bacteria 126 cfu/100 mL or less; single sample 235 cfu/100 mL or less (see Subsection B of 20.6.4.14 NMAC).] **RESERVED.**~~

[20.6.4.112 NMAC - Rp 20 NMAC 6.1.2109, 10-12-00; A, 05-23-05; Repealed, XX-XX-XX]

BASIS FOR CHANGE: Cochiti Reservoir is entirely within the Pueblo of Cochiti and therefore lies outside state jurisdiction.

20.6.4.113 RIO GRANDE BASIN - The Santa Fe river and perennial reaches of its tributaries from the Cochiti [~~reservoir~~] pueblo boundary upstream to the outfall of the Santa Fe wastewater treatment facility.

A. Designated Uses: irrigation, livestock watering, wildlife habitat, marginal coldwater aquatic life, secondary contact, and warmwater aquatic life.

B. Criteria:

~~_____ (1) The use-specific criteria in 20.6.4.900 NMAC are applicable to the designated uses, except that the following segment-specific criteria apply: [In any single sample: pH within the range of 6.6 to 9.0,] temperature 30°C (86°F) or less, [and] dissolved oxygen 4.0 mg/L or more [~~– Dissolved~~], and dissolved oxygen 5.0 mg/L or more as a 24-hour average. Values used in the calculation of the 24-hour average for dissolved oxygen shall not exceed the dissolved oxygen saturation value. For a measured value [~~above~~] greater than the dissolved oxygen saturation value, the dissolved oxygen saturation value [~~will~~] shall be used in calculating the 24-hour average. [~~The dissolved oxygen saturation value shall be determined from the table set out in Subsection N of 20.6.4.900 NMAC. The use-specific numeric criteria set forth in 20.6.4.900 NMAC are applicable to the designated uses listed above in Subsection A of this section.~~]~~

~~_____ (2) The monthly geometric mean of E. coli bacteria 548 cfu/100 mL or less, single sample 2507 cfu/100 mL or less (see Subsection B of 20.6.4.14 NMAC).]~~

[20.6.4.113 NMAC - Rp 20 NMAC 6.1.2110, 10-12-00; A, 10-11-02; A, 05-23-05; A, XX-XX-XX]

BASIS FOR CHANGE: The Department proposes to:

- Exclude waters on tribal lands because these waters are not under state jurisdiction. See section 103. See section 103.
- Restructure subsection B for the reasons given in section 101 .
- Delete both the table reference in section 900 and the table itself. Dissolved oxygen saturation values can be readily referenced elsewhere, such as on the USGS website: <http://water.usgs.gov/software/DOTABLES/>. Therefore, it is not necessary to include them in the Standards. Furthermore, the table includes only selected values. The actual values usually need to be interpolated, e.g., for an elevation between 6,500 and 7,000 feet. Lastly, were it necessary to publish such a table in the Standards, it would not belong in section 900 because it does not contain numeric criteria and because it is applicable only to this segment.
- Make minor editorial corrections.

20.6.4.114 RIO GRANDE BASIN - The main stem of the Rio Grande from the ~~[headwaters of]~~ Cochiti ~~[reservoir]~~ pueblo boundary upstream to Rio Pueblo de Taos, Embudo creek from its mouth on the Rio Grande upstream to the ~~[junction of the Rio Pueblo and the Rio Santa Barbara]~~ Picuris Pueblo boundary, the Santa Cruz river ~~[below]~~ from the Santa Clara pueblo boundary upstream to the Santa Cruz dam, the Rio Tesuque ~~[below the Santa Fe national forest]~~ except waters on the Tesuque and Pojoaque pueblos, and the Pojoaque river ~~[below Nambu dam]~~ from the San Ildefonso pueblo boundary upstream to the Pojoaque pueblo boundary.

A. Designated Uses: irrigation, livestock watering, wildlife habitat, marginal coldwater aquatic life, primary contact and warmwater aquatic life; and public water supply on the main stem Rio Grande.

B. Criteria:

(1) ~~[In any single sample: pH within the range of 6.6 to 9.0 and temperature 22°C (71.6°F) or less.]~~ The use-specific numeric criteria set forth in 20.6.4.900 NMAC are applicable to the designated uses ~~[listed above in Subsection A of this section]~~, except that the following segment-specific criterion applies: temperature 22°C (71.6°F) or less. In addition, the following criteria are applicable to the public water supply use: americium 1.9 pCi/L, plutonium 1.5 pCi/L and tritium 4,000 pCi/L.

(2) ~~[The monthly geometric mean of E. coli bacteria 126 cfu/100 mL or less; single sample 410 cfu/100 mL or less (see Subsection B of 20.6.4.14 NMAC).~~

~~_____ (3)]~~ At mean monthly flows above 100 cfs, the monthly average concentration for: TDS 500 mg/L or less, sulfate 150 mg/L or less and chloride 25 mg/L or less.
[20.6.4.114 NMAC - Rp 20 NMAC 6.1.2111, 10-12-00; A, 05-23-05; A, XX-XX-XX]

BASIS FOR CHANGE: The Department proposes to:

- Exclude waters on tribal lands because these waters are not under state jurisdiction. See section 103. See section 103.
- Add public water supply as a designated use on the Rio Grande because the City of Santa Fe plans to divert San Juan-Chama water at the Buckman diversion on this reach of the Rio Grande. Los Alamos County and Española also have long-term plans to use water from this reach.
- Restructure subsection B for the reasons given in section 101.
- Add criteria for americium, plutonium and tritium for the reasons given in section 105.

20.6.4.115 RIO GRANDE BASIN - The perennial reaches of Rio Vallecitos and its tributaries, and perennial reaches of Rio del Oso and perennial reaches of El Rito creek above the town of El Rito.

A. Designated Uses: domestic water supply, irrigation, high quality coldwater aquatic life, livestock watering, wildlife habitat and ~~[secondary]~~ primary contact; public water supply on the Rio Vallecitos and El Rito creek.

B. Criteria:

~~_____ (1)~~ ~~[In any single sample: specific conductance 300 µmhos/cm or less, pH within the range of 6.6 to 8.8 and temperature 20°C (68°F) or less.]~~ The use-specific numeric criteria set forth in 20.6.4.900 NMAC are applicable to the designated uses ~~[listed above in Subsection A of this section]~~, except that the following segment-specific criterion applies: specific conductance 300 µS/cm or less.

~~_____ (2)~~ ~~[The monthly geometric mean of E. coli 126 cfu/100 mL or less; single sample 235 cfu/100 mL or less (see Subsection B of 20.6.4.14 NMAC).]~~

[20.6.4.115 NMAC - Rp 20 NMAC 6.1.2112, 10-12-00; A, 05-23-05, A, XX-XX-XX]

BASIS FOR CHANGE: The Department proposes to:

- Add public water supply as a designated use on El Rito Creek because it supplies the public water system at Northern New Mexico Community College and on Rio Vallecitos because the Vallecitos MDWCA's infiltration gallery is located near this stream. The public water system operated by Vallecitos MDWCA is considered ground water under the influence of surface water.
- Change the contact use designation to "primary contact" to be consistent with the assigned criteria for the reasons explained in section 98.
- Restructure subsection B for the reasons given in section 101.
- Change $\mu\text{mhos/cm}$ to $\mu\text{S/cm}$ for the reasons given in section 7.A.

20.6.4.116 RIO GRANDE BASIN - The Rio Chama from its mouth on the Rio Grande upstream to Abiquiu reservoir, perennial reaches of the Rio Tusas, perennial reaches of the Rio Ojo Caliente, perennial reaches of Abiquiu creek and perennial reaches of El Rito creek below the town of El Rito.

A. Designated Uses: irrigation, livestock watering, wildlife habitat, coldwater aquatic life, warmwater aquatic life and secondary contact.

B. Criteria:

[~~————— (1) In any single sample: pH within the range of 6.6 to 8.8 and temperature 31°C (87.8°F) or less.~~]

The use-specific numeric criteria set forth in 20.6.4.900 NMAC are applicable to the designated uses [~~listed above in Subsection A of this section~~], except that the following segment-specific criterion applies: temperature 31°C (87.8°F) or less.

[~~————— (2) The monthly geometric mean of E. coli bacteria 548 cfu/100 mL or less; single sample 2507 cfu/100 mL or less (see Subsection B of 20.6.4.14 NMAC).]~~

[20.6.4.116 NMAC - Rp 20 NMAC 6.1.2113, 10-12-00; A, 05-23-05; A, XX-XX-XX]

BASIS FOR CHANGE: The Department proposes to restructure subsection B for the reasons given in section 101.

20.6.4.117 RIO GRANDE BASIN - Abiquiu reservoir.

A. Designated Uses: irrigation storage, livestock watering, wildlife habitat, primary contact, coldwater aquatic life and warmwater aquatic life.

B. Criteria:

[~~————— (1) At any sampling site: pH within the range of 6.6 to 8.8 and temperature 25°C (77°F) or less.~~]

The use-specific numeric criteria set forth in 20.6.4.900 NMAC are applicable to the designated uses [~~listed above in Subsection A of this section~~], except that the following segment-specific criterion applies: temperature 25°C (77°F) or less.

[~~————— (2) The monthly geometric mean of E. coli 126 cfu/100 mL or less; single sample 410 cfu/100 mL or less (see Subsection B of 20.6.4.14 NMAC).]~~

[20.6.4.117 NMAC - Rp 20 NMAC 6.1.2114, 10-12-00; A, 05-23-05; A, XX-XX-XX]

BASIS FOR CHANGE: The Department proposes to restructure subsection B for the reasons given in section 101.

20.6.4.118 RIO GRANDE BASIN - The Rio Chama from the headwaters of Abiquiu reservoir upstream to El Vado reservoir and perennial reaches of the Rio Gallina and Rio Puerco de Chama north of state highway 96.

A. Designated Uses: irrigation, livestock watering, wildlife habitat, coldwater aquatic life, warmwater aquatic life and [~~secondary~~] primary contact.

B. Criteria:

[~~————— (1) In any single sample: pH within the range of 6.6 to 8.8 and temperature 26°C (78.8°F) or less.~~]

The use-specific numeric criteria set forth in 20.6.4.900 NMAC are applicable to the designated uses [~~listed above in Subsection A of this section~~], except that the following segment-specific criterion applies: temperature 26°C (78.8°F) or less.

[~~————— (2) The monthly geometric mean of E. coli bacteria 126 cfu/100 mL or less; single sample 410 cfu/100 mL or less (see Subsection B of 20.6.4.14 NMAC).]~~

[20.6.4.118 NMAC - Rp 20 NMAC 6.1.2115, 10-12-00; A, 05-23-05; A, XX-XX-XX]

BASIS FOR CHANGE: The Department proposes to:

- Change the contact use designation to “primary contact” to be consistent with the assigned criteria for the reasons explained in section 98.
- Restructure subsection B for the reasons given in section 101.

20.6.4.119 RIO GRANDE BASIN - All perennial reaches of tributaries to the Rio Chama above Abiquiu dam, except the Rio Gallina and Rio Puerco de Chama north of state highway 96, and the main stem of the Rio Chama from the headwaters of El Vado reservoir upstream to the New Mexico-Colorado line.

A. Designated Uses: domestic water supply, fish culture, high quality coldwater aquatic life, irrigation, livestock watering, wildlife habitat and ~~[secondary]~~ primary contact; and public water supply for the Rio Brazos and Rio Chama.

B. Criteria:

~~[————— (1) In any single sample: specific conductance 500 μ mhos/cm or less (1,000 μ mhos or less for Coyote creek), pH within the range of 6.6 to 8.8 and temperature 20°C (68°F) or less.]~~ The use-specific numeric criteria set forth in 20.6.4.900 NMAC are applicable to the designated uses ~~[listed above in Subsection A of this section]~~, except that the following segment-specific criteria apply: specific conductance 500 μ S/cm or less (1,000 μ S or less for Coyote creek); the monthly geometric mean of E. coli bacteria 126 cfu/100 mL or less, single sample 235 cfu/100 mL or less.

~~[————— (2) The monthly geometric mean of E. coli bacteria 126 cfu/100 mL or less; single sample 235 cfu/100 mL or less (see Subsection B of 20.6.4.14 NMAC).]~~

[20.6.4.119 NMAC - Rp 20 NMAC 6.1.2116, 10-12-00; A, 05-23-05; A, XX-XX-XX]

BASIS FOR CHANGE: The Department proposes to:

- Add two commas to the segment description for clarity.
- Add public water supply as a designated use on the Rio Chama, which supplies the Chama Water System and the Rutheron Mutual Water Association, and on the Rio Brazos which serves La Asociación De Agua De Los Brazos, a water system considered ground water under the influence of surface water.
- Change the contact use designation to “primary contact” to be consistent with the assigned criteria for the reasons explained in section 98.
- Restructure subsection B for the reasons given in section 101.
- Change μ mhos/cm to μ S/cm for the reasons given in section 7.A.

20.6.4.120 RIO GRANDE BASIN - El Vado and Heron reservoirs.

A. Designated Uses: irrigation storage, livestock watering, wildlife habitat, public water supply, primary contact and coldwater aquatic life.

B. Criteria:

~~[————— (1) At any sampling site: pH within the range of 6.6 to 8.8 and temperature 20°C (68°F) or less.]~~ The use-specific numeric criteria set forth in 20.6.4.900 NMAC are applicable to the designated uses ~~[listed above in Subsection A of this section]~~, except that the following segment-specific criteria apply: the monthly geometric mean of E. coli bacteria 126 cfu/100 mL or less, single sample 235 cfu/100 mL or less.

~~[————— (2) The monthly geometric mean of E. coli bacteria 126 cfu/100 mL or less; single sample 235 cfu/100 mL or less (see Subsection B of 20.6.4.14 NMAC).]~~

[20.6.4.120 NMAC - Rp 20 NMAC 6.1.2117, 10-12-00; A, 05-23-05; A, XX-XX-XX]

BASIS FOR CHANGE: The Department proposes to:

- Add public water supply as a designated use because El Vado Lake supplies the public water system at El Vado Lake State Park and Heron Reservoir supplies the public water system at Heron Lake State Park.
- Restructure subsection B for the reasons given in section 101.

20.6.4.121 RIO GRANDE BASIN - Perennial tributaries to the Rio Grande in Bandelier national monument and their headwaters in Sandoval county and all perennial reaches of tributaries to the Rio Grande in Santa Fe county unless included in other segments and excluding waters on tribal lands.

A. Designated Uses: domestic water supply, high quality coldwater aquatic life, irrigation, livestock watering, wildlife habitat~~[, municipal and industrial water supply, secondary contact]~~ and primary contact; and public water supply on Little Tesuque creek, the Rio en Medio, the Santa Fe River and Cerrillos reservoir.

B. Criteria:

~~[(1) In any single sample: specific conductance 300 µmhos/cm or less, pH within the range of 6.6 to 8.8 and temperature 20°C (68°F) or less.]~~ The use-specific numeric criteria set forth in 20.6.4.900 NMAC are applicable to the designated uses ~~[listed above in Subsection A of this section]~~, except that the following segment-specific criteria apply: specific conductance 300 µS/cm or less; the monthly geometric mean of E. coli bacteria 126 cfu/100 mL or less, single sample 235 cfu/100 mL or less.

~~[(2) The monthly geometric mean of E. coli bacteria 126 cfu/100 mL or less; single sample 235 cfu/100 mL or less (see Subsection B of 20.6.4.14 NMAC).]~~

[20.6.4.121 NMAC - Rp 20 NMAC 6.1.2118, 10-12-00; A. 05-23-05, A, XX-XX-XX]

[NOTE: The segment covered by this section was divided effective 05-23-05. The standards for the additional segments are under 20.6.4.126, 20.6.4.127 and 20.6.4.128 NMAC.]

BASIS FOR CHANGE: The Department proposes to:

- Exclude waters on tribal lands because these waters are not under state jurisdiction. See section 103. See section 103.
- Change the designated use “municipal water supply” to “public water supply” for the reasons given in section 7, and indicate the specific waters to which the designation applies. Little Tesuque Creek serves Hyde Memorial State Park, whose public water system is considered ground water under the influence of surface water. The Rio en Medio serves the Santa Fe Ski Basin, whose public water system is considered ground water under the influence of surface water. The City of Santa Fe’s municipal reservoirs are located on the portion of the Santa Fe River that is included in this segment. Cerrillos reservoir is a spring-fed reservoir on San Marcos Arroyo, a tributary of Galisteo Creek. This reservoir serves El Vadito de los Cerrillos Water Association. According to the Drinking Water Bureau’s database, these are the only public water systems in this segment that rely on surface waters, so the “public water supply” designation is restricted to the specified waters. In addition, industrial water supply is proposed for deletion because no industrial water uses are known to exist that are not supplied by a public water system. Because neither municipal nor industrial water supply is a CWA Section 101(a)(2) use, UAAs are not necessary to remove these uses from the indicated waters.
- Restructure subsection B for the reasons given in section 101.
- Remove “secondary contact” as a designated use because “primary contact” is designated and associated with more stringent criteria.
- Change µmhos/cm to µS/cm for the reasons given in section 7.A.

20.6.4.122 RIO GRANDE BASIN - The main stem of the Rio Grande from Rio Pueblo de Taos upstream to the New Mexico-Colorado line, the Red river from its mouth on the Rio Grande upstream to the mouth of Placer creek, and the Rio Pueblo de Taos from its mouth on the Rio Grande upstream to the mouth of the Rio Grande del Rancho.

A. Designated Uses: coldwater aquatic life, fish culture, irrigation, livestock watering, wildlife habitat and primary contact.

B. Criteria:

~~[(1) In any single sample: pH within the range of 6.6 to 8.8 and temperature 20°C (68°F) or less.]~~ The use-specific numeric criteria set forth in 20.6.4.900 NMAC are applicable to the designated uses ~~[listed above in Subsection A of this section]~~, except that the following segment-specific criteria apply: the monthly geometric mean of E. coli bacteria 126 cfu/100 mL or less, single sample 235 cfu/100 mL or less.

~~[(2) The monthly geometric mean of E. coli bacteria 126 cfu/100 mL or less; single sample 235 cfu/100 mL or less (see Subsection B of 20.6.4.14 NMAC).]~~

[20.6.4.122 NMAC - Rp 20 NMAC 6.1.2119, 10-12-00; A, 05-23-05; A, XX-XX-XX]

BASIS FOR CHANGE: The Department proposes to restructure subsection B for the reasons given in section 101.

20.6.4.123 RIO GRANDE BASIN - Perennial reaches of the Red river upstream of the mouth of Placer creek, all perennial reaches of tributaries to the Red river, and all other perennial reaches of tributaries to the Rio Grande in Taos and Rio Arriba counties unless included in other segments and excluding waters on Santa Clara, Ohkay Owingeh, Picuris and Taos pueblos.

A. Designated Uses: domestic water supply, ~~[fish culture,]~~ high quality coldwater aquatic life, irrigation, livestock watering, wildlife habitat and ~~[secondary]~~ primary contact; and public water supply on the Rio Pueblo and Rio Fernando de Taos.

B. Criteria:

~~[(1) In any single sample: specific conductance 400 µmhos/cm or less (500 µmhos or less for the Rio Fernando de Taos) and pH within the range of 6.6 to 8.8, temperature 20°C (68°F) or less. For the Red river in this segment, total phosphorus (as P) less than 0.1 mg/L.]~~ The use-specific numeric criteria set forth in 20.6.4.900 NMAC are applicable to the designated uses [~~listed above in Subsection A of this section~~], except that the following segment-specific criteria apply: specific conductance 400 µS/cm or less (500 µS/cm or less for the Rio Fernando de Taos); the monthly geometric mean of E. coli bacteria 126 cfu/100 mL or less, single sample 235 cfu/100 mL or less; and total phosphorus (as P) less than 0.1 mg/L for the Red river.

~~[(2) The monthly geometric mean of E. coli bacteria 126 cfu/100 mL or less; single sample 235 cfu/100 mL or less (see Subsection B of 20.6.4.14 NMAC).]~~

[20.6.4.123 NMAC - Rp 20 NMAC 6.1.2120, 10-12-00; A, 05-23-05, A, XX-XX-XX]

[NOTE: The segment covered by this section was divided effective 05-23-05. The standards for the additional segment are under 20.6.4.129 NMAC.]

BASIS FOR CHANGE: The Department proposes to:

- Exclude waters on tribal lands because these waters are not under state jurisdiction. See section 103. See section 103.
- Remove the fish culture use because there is no hatchery on this segment. The Red River fish hatchery is on segment 122.
- Change the contact use designation to “primary contact” to be consistent with the assigned criteria for the reasons explained in section 98.
- Add “public water supply” as a designated use for the Rio Pueblo and the Rio Fernando de Taos which serve Sipapu Lodge and Cafe and Cañon MDWCA, respectively. These two public water systems are considered ground water under the influence of surface water.
- Restructure subsection B for the reasons given in section 101
- Change µmhos/cm to µS/cm for the reasons given in section 7.A.

20.6.4.124 RIO GRANDE BASIN - Perennial reaches of Sulphur creek from its headwaters to its confluence with Redondo creek.

A. Designated Uses: limited aquatic life, wildlife habitat, livestock watering and secondary contact.

B. Criteria:

~~[(1) In any single sample: pH within the range of 2.0 to 9.0 and temperature 30°C (86°F) or less.]~~ The use-specific criteria set forth in 20.6.4.900 NMAC are applicable to the designated uses, except that the following segment-specific criteria apply: pH within the range of 2.0 to 9.0, temperature 30°C (86°F) or less, and the chronic aquatic life criteria of Subsections I and J of 20.6.4.900 NMAC. [~~listed above in Subsection A of this section.~~]

~~[(2) The monthly geometric mean of E. coli bacteria 548 cfu/100 mL or less, single sample 2507 cfu/100 mL or less (see Subsection B of 20.6.4.14 NMAC).~~

~~[(3) The chronic aquatic life criteria of Subsections I and J of 20.6.4.900 NMAC shall also apply.]~~
[20.6.4.124 NMAC - N, 05-23-05, A, XX-XX-XX]

BASIS FOR CHANGE: The Department proposes to restructure subsection B for the reasons given in section 101.

20.6.4.125 RIO GRANDE BASIN - Perennial reaches of San Pedro creek from the San Felipe pueblo boundary to the headwaters.

A. Designated Uses: coldwater aquatic life, irrigation, livestock watering, wildlife habitat and [~~secondary~~] primary contact.

B. Criteria:

~~[(1) In any single sample: pH within the range of 6.6 to 8.8 and temperature 25°C (77°F) or less.]~~ The use-specific numeric criteria set forth in 20.6.4.900 NMAC are applicable to the designated uses [~~listed above in Subsection A of this section~~], except that the following segment-specific criterion applies: temperature 25°C (77°F) or less.

~~[(2) The monthly geometric mean of E. coli bacteria 126 cfu/100 mL or less; single sample 410 cfu/100 mL or less (see Subsection B of 20.6.4.14 NMAC).]~~

[20.6.4.125 NMAC - N, 05-23-05, A, XX-XX-XX]

BASIS FOR CHANGE: The Department proposes to:

- Exclude waters on tribal lands because these waters are not under state jurisdiction. See section 103. See section 103.
- Change the contact use designation to “primary contact” to be consistent with the assigned criteria for the reasons explained in section 98.
- Restructure subsection B for the reasons given in section 101.

20.6.4.126 RIO GRANDE BASIN - Perennial portions of Cañon de Valle from Los Alamos national laboratory (LANL) stream gage E256 upstream to Burning Ground spring, Sandia canyon from Sigma canyon upstream to LANL NPDES outfall 001, Pajarito canyon from Arroyo de La Delfe upstream into Starmers gulch and Starmers spring and Water canyon from Area-A canyon upstream to State Route 501.

A. Designated Uses: coldwater aquatic life, livestock watering, wildlife habitat and secondary contact.

B. Criteria:

~~_____ (1) In any single sample: pH within the range of 6.6 to 8.8 and temperature 24°C (75.2°F) or less.~~
The use-specific numeric criteria set forth in 20.6.4.900 NMAC are applicable to the designated uses [~~listed above in Subsection A of this section~~], except that the following segment-specific criterion applies: temperature 24°C (77°F) or less.

~~_____ (2) The monthly geometric mean of E. coli bacteria 548 cfu/100 mL or less; single sample 2507 cfu/100 mL or less (see Subsection B of 20.6.4.14 NMAC):~~
[20.6.4.126 NMAC - N, 05-23-05; A, XX-XX-XX]

BASIS FOR CHANGE: The Department proposes to restructure subsection B for the reasons given in section 101.

20.6.4.127 RIO GRANDE BASIN - Perennial portions of Los Alamos canyon upstream from Los Alamos reservoir and Los Alamos reservoir.

A. Designated Uses: coldwater aquatic life, livestock watering, wildlife habitat, irrigation and primary contact.

B. Criteria:

~~_____ (1) In any single sample: pH within the range of 6.6 to 8.8 and temperature 20°C (68°F) or less.~~ The use-specific numeric criteria set forth in 20.6.4.900 NMAC are applicable to the designated uses [~~listed above in Subsection A of this section~~].

~~_____ (2) The monthly geometric mean of E. coli bacteria 126 cfu/100 mL or less; single sample 410 cfu/100 mL or less (see Subsection B of 20.6.4.14 NMAC):~~
[20.6.4.127 NMAC - N, 05-23-05, A, XX-XX-XX]

BASIS FOR CHANGE: The Department proposes to restructure subsection B for the reasons given in section 101.

20.6.4.128 RIO GRANDE BASIN - Ephemeral and intermittent portions of watercourses within lands managed by U.S. department of energy (DOE) within LANL, including but not limited to: Mortandad canyon, Cañada del Buey, Ancho canyon, Chaquehui canyon, Indio canyon, Fence canyon, Potrillo canyon and portions of Cañon de Valle, Los Alamos canyon, Sandia canyon, Pajarito canyon and Water canyon not specifically identified in 20.6.4.126 NMAC. (Surface waters within lands scheduled for transfer from DOE to tribal, state or local authorities are specifically excluded.)

A. Designated Uses: livestock watering, wildlife habitat, limited aquatic life and secondary contact.

B. Criteria:

~~_____ (1)~~ The use-specific criteria in 20.6.4.900 NMAC [~~except the chronic criteria for aquatic life~~] are applicable [~~for~~] to the designated uses [~~listed above in Subsection A of this section~~], except that the following segment-specific criteria apply: the acute ammonia criteria set forth in Subsection K of 20.6.4.900 NMAC (salmonids absent).

~~_____ (2) The monthly geometric mean of E. coli bacteria 548 cfu/100 mL or less; single sample 2507 cfu/100 mL or less (see Subsection B of 20.6.4.14 NMAC):~~

~~_____ (3) The acute total ammonia criteria set forth in Subsection K of 20.6.4.900 NMAC (salmonids absent) are applicable to this use.~~

[20.6.4.128 NMAC - N, 05-23-05, A, XX-XX-XX]

BASIS FOR CHANGE: The Department proposes to:

- Strike the phrase, “except the chronic criteria for aquatic life” because the criteria applicable to the limited aquatic life use in section 900.H do not include chronic criteria. It is therefore not necessary to exclude them here.
- Replace “applicable for the designated uses” with “applicable to the designated uses” for consistency with other sections.
- Restructure subsection B for the reasons given in section 101.

20.6.4.129 RIO GRANDE BASIN - Perennial reaches of the Rio Hondo.

A. Designated Uses: domestic water supply, high quality coldwater aquatic life, irrigation, livestock watering, wildlife habitat and [~~secondary~~] primary contact.

B. Criteria:

[~~————— (1) In any single sample: specific conductance 400 μ mhos/cm or less, pH within the range of 6.6 to 8.8, total phosphorous (as P) less than 0.1 mg/L and temperature 20°C (68°F) or less.~~] The use-specific numeric criteria set forth in 20.6.4.900 NMAC are applicable to the designated uses [~~listed above in Subsection A of this section~~], except that the following segment-specific criteria apply: specific conductance 400 μ S/cm or less and total phosphorus (as P) less than 0.1 mg/L.

[~~————— (2) The monthly geometric mean of E. coli bacteria 126 cfu/100 mL or less; single sample 410 cfu/100 mL or less (see Subsection B of 20.6.4.14 NMAC).~~]

[20.6.4.129 NMAC - N, 05-23-05; A, XX-XX-XX]

BASIS FOR CHANGE: The Department proposes to:

- Change the contact use designation to “primary contact” to be consistent with the assigned criteria for the reasons explained in section 98.
- Restructure subsection B for the reasons given in section 101..
- Change μ mhos/cm to μ S/cm for the reasons given in section 7.A.

20.6.4.130 RIO GRANDE BASIN – The Rio Puerco from the Rio Grande upstream to Arroyo Chijuilla, excluding the reaches on Isleta, Laguna, Canoncito Navajo and Jemez pueblos; and the Jemez river from the Rio Grande upstream to the Jemez pueblo boundary, excluding the reaches on Santa Ana, San Felipe and Zia pueblos.

A. Designated Uses: irrigation, marginal warmwater aquatic life, livestock watering, wildlife habitat and primary contact.

B. Criteria: The use-specific numeric criteria set forth in 20.6.4.900 NMAC are applicable to the designated uses.

[20.6.4.130 NMAC – N, XX-XX-XX]

BASIS FOR CHANGE: The Department proposes to create this new segment from a portion of sections 105 and 106. The new segment covers the furthest downstream portion of the Rio Puerco (from the Rio Grande upstream to Arroyo Chijuilla excluding tribal waters). At Arroyo Chijuilla, there is a change in geology that causes the perennial flow of the Rio Puerco to disperse into alluvial fill material. As a result, the hydrology changes to intermittent flow. The new segment also includes the reach of the Jemez River downstream of the Jemez Pueblo boundary, which also is intermittent.

For this new segment, the Department proposes to carry over the designated uses and criteria from sections 105 and 106, except for the TDS, sulfate and chloride criteria (commonly referred to as salinity criteria) , which are not appropriate for this intermittent water. The salinity criteria date back to the 1967 Standards:

“For the main stem of the Rio Grande from Otowi Bridge downstream to the U.S. Geological Survey sampling station at San Marcial, New Mexico. These standards shall not apply during months when average monthly flow falls below 100 cfs at San Marcial.

(a) Chlorides – The monthly average concentration of chlorides shall not exceed 250 mg/l as determined by chemical analysis of samples collected at the U.S. Geological Survey gaging station at San Marcial, New Mexico.

(b) *Sulfates* – The monthly average concentration of sulfates shall not exceed 500 mg/l as determined by chemical analysis of samples collected at the U.S. Geological Survey gaging station at San Marcial, New Mexico.

(c) *Total Dissolved Solids* – The monthly average concentration of total dissolved solids shall not exceed 1,500 mg/l as determined by chemical analysis of samples collected at the U.S. Geological Survey gaging station at San Marcial, New Mexico.”

These criteria were intended to apply and continue to apply to the main stem of the Rio Grande but are not meaningful for these intermittent reaches of the Rio Puerco and Jemez River, especially given the 100 cfs flow qualifier. Monthly average flows of 100 cfs or more on these reaches seldom occur, as shown in the following table compiled from USGS discharge records.

Mean of Average Monthly Discharge, cfs

Description	Median of AMF	Percent of Months AMF > 100
Jemez River blw Jemez Can Dam	24	15
Rio Puerco at Cabezon	2	1
Rio Puerco abv Arroyo Chico	3	1
Rio Puerco at Rio Puerco	5	15
Rio Puerco near Bernardo	1	4
Rio Grande Floodway at San Marcial	858	93
Rio Grande Conveyance Channel at San Marcial	256	79
Rio Grande near Bernardo	620	88
Rio Grande at Albuquerque	812	99
Rio Grande at San Felipe	955	100
AMF = Average Monthly Flow		

Whereas 100 cfs is a relatively low flow along the main stem of the Rio Grande, it represents a high flow on the tributaries. Thus, even if the salinity criteria were left technically applicable to this segment, they would seldom be applicable. They are not associated with a CWA section 101(a)(2) use. However, it is worth noting that deleting these criteria will have no appreciable effect on the aquatic life use because the criteria would not apply most of the time.

20.6.4.131 RIO GRANDE BASIN – The Rio Puerco from the confluence of Arroyo Chijuilla upstream to the Highway 550 bridge.

A. Designated uses: marginal warmwater aquatic life, irrigation, livestock watering, wildlife habitat and primary contact.

B. Criteria: The use-specific numeric criteria set forth in 20.6.4.900 NMAC are applicable to the designated uses.

[20.6.4.131 NMAC – N, XX-XX-XX]

BASIS FOR CHANGE: The Department proposes to classify this reach of the Rio Puerco from the Highway 550 bridge to Arroyo Chijuilla, where perennial flow disperses into alluvial fill material. The perennial flow is augmented approximately two miles downstream of the bridge by the discharge from the Cuba Wastewater Treatment Plant. For this previously unclassified portion of the Rio Puerco, the Department proposes designated uses of irrigation, marginal warmwater aquatic life, livestock watering, wildlife habitat and primary contact.

The Department proposes marginal warmwater aquatic life use because the reach contains beaver dams, fish and benthic macroinvertebrates, but erosional processes are extensive. The segment contains water depths sufficient to support primary contact activities (see Attachment 4). The Department proposes to designate an irrigation use because of evidence from the Office of the State Engineer that David and Felix Sanchez have rights to pump water directly from the Rio Puerco near Lagunitas.

[20.6.4.130] 20.6.4.132 - 20.6.4.200: [RESERVED]

20.6.4.201 PECOS RIVER BASIN - The main stem of the Pecos river from the New Mexico-Texas line upstream to the mouth of the Black river (near Loving).

A. Designated Uses: irrigation, livestock watering, wildlife habitat, [~~secondary~~] primary contact and warmwater aquatic life.

B. Criteria:

(1) [~~In any single sample: pH within the range of 6.6 to 9.0 and temperature 32.2°C (90°F) or less.~~] The use-specific numeric criteria set forth in 20.6.4.900 NMAC are applicable to the designated uses [~~listed above in Subsection A of this section~~], except that the following segment-specific criterion applies: dissolved boron for irrigation use 2,000 µg/L or less.

(2) [~~The monthly geometric mean of E. coli bacteria 126 cfu/100 mL or less; single sample 410 cfu/100 mL or less (see Subsection B of 20.6.4.14 NMAC).~~]

~~_____~~ (3) At all flows above 50 cfs: TDS 20,000 mg/L or less, sulfate 3,000 mg/L or less and chloride 10,000 mg/L or less.

[20.6.4.201 NMAC - Rp 20 NMAC 6.1.2201, 10-12-00; A, 05-23-05; A, XX-XX-XX]

BASIS FOR CHANGE: The Department proposes to

- Change the contact use designation to “primary contact” to be consistent with the assigned criteria for the reasons explained in section 98.
- Restructure subsection B for the reasons given in section 101.
- Apply a segment-specific boron criterion to the irrigation designated use. Concentrations higher than 750 µg/L, the criterion identified in section 900.J, have been measured in this reach by the USGS and the Department. The high concentrations are attributable in part to discharges of saline ground water at Malaga Bend. No use of water from this reach for irrigation is currently known to occur. However, the higher criterion still protects the irrigation use because it allows for the cultivation of a variety of salt-tolerant crops. See Attachment 5 for more information.

20.6.4.202 PECOS RIVER BASIN - The main stem of the Pecos river from the mouth of the Black river upstream to lower Tansil dam, including perennial reaches of the Black river, the Delaware river and Blue spring.

A. Designated Uses: industrial water supply, irrigation, livestock watering, wildlife habitat, [~~secondary~~] primary contact and warmwater aquatic life.

B. Criteria:

(1) [~~In any single sample: pH within the range of 6.6 to 9.0 and temperature 34°C (93.2°F) or less.~~] The use-specific numeric criteria set forth in 20.6.4.900 NMAC are applicable to the designated uses [~~listed above in Subsection A of this section~~], except that the following segment-specific criterion applies: temperature 34°C (93.2°F) or less.

(2) [~~The monthly geometric mean of E. coli bacteria 126 cfu/100 mL or less; single sample 410 cfu/100 mL or less (see Subsection B of 20.6.4.14 NMAC).~~]

~~_____~~ (3) At all flows above 50 cfs: TDS 8,500 mg/L or less, sulfate 2,500 mg/L or less and chloride 3,500 mg/L or less.

C. Remarks: Diversion for irrigation frequently limits summer flow in this reach of the main stem Pecos river to that contributed by springs along the watercourse.

[20.6.4.202 NMAC - Rp 20 NMAC 6.1.2202, 10-12-00; A, 05-23-05, A, XX-XX-XX]

[NOTE: The segment covered by this section was divided effective 05-23-05. The standards for [~~the additional segment~~] Lower Tansil Lake and Lake Carlsbad are under 20.6.4.218 NMAC.]

BASIS FOR CHANGE: The Department proposes to:

- Change the contact use designation to “primary contact” to be consistent with the assigned criteria for the reasons explained in section 98.
- Restructure subsection B for the reasons given in section 101.
- Clarify the note at the end of the section.

20.6.4.203 PECOS RIVER BASIN - The main stem of the Pecos river from [lower] the headwaters of Lake Carlsbad upstream to Avalon dam.

A. Designated Uses: industrial water supply, livestock watering, wildlife habitat, primary contact and warmwater aquatic life.

B. Criteria:

~~_____ (1) In any single sample: pH within the range of 6.6 to 9.0 and temperature 34°C (93.2°F) or less.~~

The use-specific numeric criteria set forth in 20.6.4.900 NMAC are applicable to the designated uses [~~listed above in Subsection A of this section~~], except that the following segment-specific criteria apply: temperature 34°C (93.2°F) or less; the monthly geometric mean of E. coli bacteria 126 cfu/100 mL or less, single sample 235 cfu/100 mL or less.

~~_____ (2) The monthly geometric mean of E. coli bacteria 126 cfu/100 mL or less; single sample 235 cfu/100 mL or less (see Subsection B of 20.6.4.14 NMAC).~~

[20.6.4.203 NMAC - Rp 20 NMAC 6.1.2203, 10-12-00; A, 05-23-05, A, XX-XX-XX]

[NOTE: The segment covered by this section was divided effective 05-23-05. The standards for [the additional segment] Lower Tansil Lake and Lake Carlsbad are under 20.6.4.218 and for Avalon Reservoir are under 20.6.4.219 NMAC.]

BASIS FOR CHANGE: The Department proposes to:

- Strike “lower” from the segment description because it was missed during the last triennial when the downstream extent of the segment was changed from lower Tansil dam to the headwaters of Lake Carlsbad.
- Restructure subsection B for the reasons given in section 101.
- Clarify the note at the end of the section.

20.6.4.204 PECOS RIVER BASIN - The main stem of the Pecos river from the headwaters of Avalon reservoir upstream to Brantley dam.

A. Designated Uses: irrigation, livestock watering, wildlife habitat, secondary contact and warmwater aquatic life.

B. Criteria:

~~_____ (1) In any single sample: pH within the range of 6.6 to 9.0 and temperature 32.2°C (90°F) or less.~~

The use-specific numeric criteria set forth in 20.6.4.900 NMAC are applicable to the designated uses [~~listed above in Subsection A of this section~~].

~~_____ (2) The monthly geometric mean of E. coli bacteria 548 cfu/100 mL or less, single sample 2880 cfu/100 mL or less (see Subsection B of 20.6.4.14 NMAC).~~

[20.6.4.204 NMAC - Rp 20 NMAC 6.1.2204, 10-12-00; A, 05-23-05; A, XX-XX-XX]

[NOTE: The segment covered by this section was divided effective 05-23-05. The standards for Avalon Reservoir are under 20.6.4.219 NMAC.]

BASIS FOR CHANGE: The Department proposes to:

- Restructure subsection B for the reasons given in section 101.
- Change the E. coli single sample criterion from 2880 cfu/100 mL to 2507 cfu/100 mL for consistency with the secondary contact criteria in section 900. This is the only segment in the Standards with segment-specific secondary contact criteria. The proposed change results in a criterion only slightly more stringent.
- Add a note at the end of the section to explain that Avalon Reservoir was previously included in this segment.

20.6.4.205 PECOS RIVER BASIN - Brantley reservoir.

A. Designated Uses: irrigation storage, livestock watering, wildlife habitat, primary contact and warmwater aquatic life.

B. Criteria:

~~_____ (1) At any sampling site: pH within the range of 6.6 to 9.0 and temperature 32.2°C (90°F) or less.~~

The use-specific numeric criteria set forth in 20.6.4.900 NMAC are applicable to the designated uses [~~listed above in Subsection A of this section~~].

~~_____ (2) The monthly geometric mean of E. coli bacteria 126 cfu/100 mL or less; single sample 410 cfu/100 mL or less (see Subsection B of 20.6.4.14 NMAC).~~

[20.6.4.205 NMAC - Rp 20 NMAC 6.1.2205, 10-12-00; A, 05-23-05; A, XX-XX-XX]

BASIS FOR CHANGE: The Department proposes to restructure subsection B for the reasons given in section 101.

20.6.4.206 PECOS RIVER BASIN - The main stem of the Pecos river from the headwaters of Brantley reservoir upstream to Salt creek (near Acme), perennial reaches of the Rio Peñasco downstream from state highway 24 near Dunken, perennial reaches of the Rio Hondo and its tributaries below Bonney canyon and perennial reaches of the Rio Felix.

A. Designated Uses: irrigation, livestock watering, wildlife habitat, secondary contact and warmwater aquatic life.

B. Criteria:

~~(1) [In any single sample: pH within the range of 6.6 to 9.0 and temperature 32.2°C (90°F) or less.]~~
The use-specific numeric criteria set forth in 20.6.4.900 NMAC are applicable to the designated uses [~~listed above in Subsection A of this section~~].

~~(2) [The monthly geometric mean of E. coli bacteria 548 cfu/100 mL or less; single sample 2507 cfu/100 mL or less (see Subsection B of 20.6.4.14 NMAC).~~

~~(3) [At all flows above 50 cfs: TDS 14,000 mg/L or less, sulfate 3,000 mg/L or less and chloride 6,000 mg/L or less.~~

[20.6.4.206 NMAC - Rp 20 NMAC 6.1.2206, 10-12-00; A, 05-23-05; A, XX-XX-XX]

BASIS FOR CHANGE: The Department proposes to restructure subsection B for the reasons given in section 101.

20.6.4.207 PECOS RIVER BASIN - The main stem of the Pecos river from Salt creek (near Acme) upstream to Sumner dam.

A. Designated Uses: irrigation, marginal warmwater aquatic life, livestock watering, wildlife habitat and secondary contact.

B. Criteria:

~~(1) [In any single sample: pH within the range of 6.6 to 9.0 and temperature 32.2°C (90°F) or less.]~~
The use-specific numeric criteria set forth in 20.6.4.900 NMAC are applicable to the designated uses [~~listed above in Subsection A of this section~~].

~~(2) [The monthly geometric mean of E. coli 548 cfu/100 mL or less; single sample 2507 cfu/100 mL or less (see Subsection B of 20.6.4.14 NMAC).~~

~~(3) [At all flows above 50 cfs: TDS 8,000 mg/L or less, sulfate 2,500 mg/L or less and chloride 4,000 mg/L or less.~~

[20.6.4.207 NMAC - Rp 20 NMAC 6.1.2207, 10-12-00; A, 05-23-05; A, XX-XX-XX]

BASIS FOR CHANGE: The Department proposes to restructure subsection B for the reasons given in section 101.

20.6.4.208 PECOS RIVER BASIN - Perennial reaches of the Rio Peñasco and its tributaries above state highway 24 near Dunken, perennial reaches of the Rio Bonito downstream from state highway 48 (near Angus), the Rio Ruidoso downstream of the U.S. highway 70 bridge near Seeping Springs lakes, perennial reaches of the Rio Hondo upstream from Bonney canyon and perennial reaches of Agua Chiquita.

A. Designated Uses: fish culture, irrigation, livestock watering, wildlife habitat, coldwater aquatic life and [secondary] primary contact.

B. Criteria:

~~(1) [In any single sample: pH within the range of 6.6 to 8.8, temperature 30°C (86°F) or less and total phosphorus (as P) less than 0.1 mg/L.]~~
The use-specific numeric criteria set forth in 20.6.4.900 NMAC are applicable to the designated uses [~~listed above in Subsection A of this section~~], except that the following segment-specific criteria apply: temperature 30°C (86°F) or less, dissolved oxygen 6.0 mg/L or less and total phosphorus (as P) less than 0.1 mg/L.

~~(2) [The monthly geometric mean of E. coli bacteria 126 cfu/100 mL or less; single sample 410 cfu/100 mL or less (see Subsection B of 20.6.4.14 NMAC).~~

[20.6.4.208 NMAC - Rp 20 NMAC 6.1.2208, 10-12-00; A, 05-23-05; A, XX-XX-XX]

BASIS FOR CHANGE: The Department proposes to:

- Restructure subsection B for the reasons given in section 101.
- Change the contact use designation to “primary contact” to be consistent with the assigned criteria for the reasons explained in section 98.

20.6.4.209 PECOS RIVER BASIN - Perennial reaches of Eagle creek ~~[above]~~ upstream of Alto ~~[reservoir]~~ dam to the Mescalero Apache boundary, perennial reaches of the Rio Bonito and its tributaries upstream of state highway 48 (near Angus) and perennial reaches of the Rio Ruidoso and its tributaries upstream of the U.S. highway 70 bridge near Seeping Springs lakes, above and below the Mescalero Apache boundary.

A. Designated Uses: domestic water supply, ~~[fish culture,]~~ high quality coldwater aquatic life, irrigation, livestock watering, wildlife habitat, ~~[municipal and industrial]~~ public water supply and ~~[secondary]~~ primary contact.

B. Criteria:

~~[————— (1) In any single sample: specific conductance 600 µmhos/cm or less in Eagle creek, 1,100 µmhos or less in Bonito creek, and 1,500 µmhos or less in the Rio Ruidoso, pH within the range of 6.6 to 8.8, total phosphorus (as P) less than 0.1 mg/L and temperature 20°C (68°F) or less.]~~ The use-specific numeric criteria set forth in 20.6.4.900 NMAC are applicable to the designated uses ~~[listed above in Subsection A of this section], except that the following segment-specific criteria apply: specific conductance 600 µS/cm or less in Eagle creek, 1,100 µmhos or less in Bonito creek and 1,500 µS or less in the Rio Ruidoso; total phosphorus (as P) less than 0.1 mg/L; the monthly geometric mean of E. coli bacteria 126 cfu/100 mL or less, single sample 235 cfu/100 mL or less.~~

~~[————— (2) The monthly geometric mean of E. coli bacteria 126 cfu/100 mL or less; single sample 235 cfu/100 mL or less (see Subsection B of 20.6.4.14 NMAC).]~~

[20.6.4.209 NMAC - Rp 20 NMAC 6.1.2209, 10-12-00; A, 05-23-05; A, XX-XX-XX]

BASIS FOR CHANGE: The Department proposes to:

- Exclude waters on tribal lands because these waters are not under state jurisdiction. See section 103. See section 103.
- Replace “above” with “upstream of” for clarity
- Replace "reservoir" with "dam" to clarify that Alto Lake is included in this segment.
- Remove “fish culture” as a designated use because there is no fish hatchery within the segment. The use may be an artifact of earlier segment definitions. The August 1973 version of the segment included “all other perennial reaches of tributaries to the Pecos River between Acme and Artesia.” The Dexter National Fish Hatchery and Research Center is located near Dexter. The fish culture designated use may have been established to protect that facility. However, the facility now uses well water for its operations. Because of language changes effective in October 1976, the segment applicable to the Dexter National Fish Hatchery is now section 206. Because section 209 is limited to the headwaters of the Rio Bonito and the Rio Ruidoso, there is no fish hatchery in this segment.
- Change “municipal” to “public water supply” for the reasons given in section 7. The Alamogordo Domestic Water System, Carrizozo Water System and Fort Stanton Facility are public water systems supplied by Bonito Lake. The Ruidoso Water system draws from Eagle Creek, Alto Lake and Grindstone Lake. Also delete “industrial water supply” because industrial water uses do not exist in this segment.
- Restructure subsection B for the reasons given in section 101.
- Change the contact use designation to “primary contact” to be consistent with the assigned criteria for the reasons explained in section 98.
- Change µmhos/cm to µS/cm for the reasons given in section 7.A.

20.6.4.210 PECOS RIVER BASIN - Sumner reservoir.

A. Designated Uses: irrigation storage, livestock watering, wildlife habitat, primary contact and warmwater aquatic life.

B. Criteria:

~~[————— (1) At any sampling site: pH within the range of 6.6 to 9.0 and temperature 32.2°C (90°F) or less.]~~ The use-specific numeric criteria set forth in 20.6.4.900 NMAC are applicable to the designated uses ~~[listed above in Subsection A of this section], except that the following segment-specific criteria apply: the monthly geometric mean of E. coli bacteria 126 cfu/100 mL or less, single sample 235 cfu/100 mL or less.~~

~~[————— (2) The monthly geometric mean of E. coli bacteria 126 cfu/100 mL or less; single sample 235 cfu/100 mL or less (see Subsection B of 20.6.4.14 NMAC).]~~

[20.6.4.210 NMAC - Rp 20 NMAC 6.1.2210, 10-12-00; A, 05-23-05; A, XX-XX-XX]

BASIS FOR CHANGE: The Department proposes to restructure subsection B for the reasons given in section 101.

20.6.4.211 PECOS RIVER BASIN - The main stem of the Pecos river from the headwaters of Sumner reservoir upstream to Tecolote creek.

A. Designated Uses: fish culture, irrigation, marginal warmwater aquatic life, livestock watering, wildlife habitat and [~~secondary~~] primary contact.

B. Criteria:

~~(1) [In any single sample: pH within the range of 6.6 to 9.0 and temperature 32.2°C (90°F) or less.]~~
The use-specific numeric criteria set forth in 20.6.4.900 NMAC are applicable to the designated uses [~~listed above in Subsection A of this section~~].

~~(2) [The monthly geometric mean of E. coli bacteria 126 cfu/100 mL or less; single sample 410 cfu/100 mL or less (see Subsection B of 20.6.4.14 NMAC).]~~

~~(3) [At all flows above 50 cfs: TDS 3,000 mg/L or less, sulfate 2,000 mg/L or less and chloride 400 mg/L or less.~~

[20.6.4.211 NMAC - Rp 20 NMAC 6.1.2211, 10-12-00; A, 05-23-05; A, XX-XX-XX]

BASIS FOR CHANGE: The Department proposes to:

- Change the contact use designation to “primary contact” to be consistent with the assigned criteria for the reasons explained in section 98.
- Restructure subsection B for the reasons given in section 101.

20.6.4.212 PECOS RIVER BASIN - Perennial tributaries to the main stem of the Pecos river from the headwaters of Sumner reservoir upstream to Santa Rosa dam.

A. Designated Uses: irrigation, coldwater aquatic life, livestock watering, wildlife habitat and primary contact.

B. Criteria:

~~(1) [In any single sample: pH within the range of 6.6 to 8.8 and temperature 25°C (77°F) or less.]~~

The use-specific numeric criteria set forth in 20.6.4.900 NMAC are applicable to the designated uses [~~listed above in Subsection A of this section~~], except that the following segment-specific criterion applies: temperature 25°C (77°F) or less.

~~(2) [The monthly geometric mean of E. coli bacteria 126 cfu/100 mL or less; single sample 410 cfu/100 mL (see Subsection B of 20.6.4.14 NMAC).]~~

[20.6.4.212 NMAC - Rp 20 NMAC 6.1.2211.1, 10-12-00; A, 05-23-05; A, XX-XX-XX]

BASIS FOR CHANGE: The Department proposes to restructure subsection B for the reasons given in section 101.

20.6.4.213 PECOS RIVER BASIN - McAllister lake.

A. Designated Uses: coldwater aquatic life, secondary contact, livestock watering and wildlife habitat.

B. Criteria:

~~(1) [At any sampling site: pH within the range of 6.6 to 8.8 and temperature 25°C (77°F) or less.]~~

The use-specific numeric criteria set forth in 20.6.4.900 NMAC are applicable to the designated uses [~~listed above in Subsection A of this section~~], except that the following segment-specific criterion applies: temperature 25°C (77°F) or less.

~~(2) [The monthly geometric mean of E. coli bacteria 548 cfu/100 mL or less; single sample 2507 cfu/100 mL or less (see Subsection B of 20.6.4.14 NMAC).]~~

[20.6.4.213 NMAC - Rp 20 NMAC 6.1.2211.3, 10-12-00; A, 05-23-05; A, XX-XX-XX]

BASIS FOR CHANGE: The Department proposes to restructure subsection B for the reasons given in section 101.

20.6.4.214 PECOS RIVER BASIN - Storrie lake.

A. Designated Uses: coldwater aquatic life, warmwater aquatic life, primary contact, livestock watering, wildlife habitat, [~~municipal~~] public water supply and irrigation storage.

B. Criteria:

~~(1) [At any sampling site: pH within the range of 6.6 to 8.8 and temperature 20°C (68°F) or less.]~~

The use-specific numeric criteria set forth in 20.6.4.900 NMAC are applicable to the designated uses [~~listed above in~~

~~Subsection A of this section], except that the following segment-specific criteria apply: the monthly geometric mean of E. coli bacteria 126 cfu/100 mL or less, single sample 235 cfu/100 mL or less.~~

~~[(2) The monthly geometric mean of E. coli bacteria 126 cfu/100 mL or less; single sample 235 cfu/100 mL or less (see Subsection B of 20.6.4.14 NMAC).]~~

~~[20.6.4.214 NMAC - Rp 20 NMAC 6.1.2211.5, 10-12-00; A, 05-23-05; A, XX-XX-XX]~~

BASIS FOR CHANGE: The Department proposes to:

- Change “municipal water supply” to “public water supply” for the reasons explained in section 7. The public water system relying on this segment is the City of Las Vegas.
- Restructure subsection B for the reasons given in section 101.

20.6.4.215 PECOS RIVER BASIN - Perennial reaches of the Gallinas river and all its tributaries above the diversion for the Las Vegas municipal reservoir and perennial reaches of Tecolote creek and its perennial tributaries.

A. Designated Uses: domestic water supply, high quality coldwater aquatic life, irrigation, livestock watering, wildlife habitat, ~~municipal~~ public water supply, ~~and~~ industrial water supply and ~~secondary~~ primary contact.

B. Criteria:

~~[(1) In any single sample: specific conductance 300 µmhos/cm or less except specific conductance 450 µmhos/cm or less in Wright Canyon creek, pH within the range of 6.6 to 8.8 and temperature 20°C (68°F) or less.]~~ The use-specific numeric criteria set forth in 20.6.4.900 NMAC are applicable to the designated uses ~~[listed above in Subsection A of this section]~~, except that the following segment-specific criteria apply: specific conductance 300 µS/cm or less (450 µS/cm or less in Wright Canyon creek); the monthly geometric mean of E. coli bacteria 126 cfu/100 mL or less, single sample 235 cfu/100 mL or less.

~~[(2) The monthly geometric mean of E. coli bacteria 126 cfu/100 mL or less; single sample 235 cfu/100 mL or less (see Subsection B of 20.6.4.14 NMAC).]~~

~~[20.6.4.215 NMAC - Rp 20 NMAC 6.1.2212, 10-12-00; A, 05-23-05; A, XX-XX-XX]~~

BASIS FOR CHANGE: The Department proposes to:

- Change “municipal and industrial water supply” to “public water supply” and “industrial water supply” for the reasons explained in section 7. The public water system relying on this segment is the City of Las Vegas.
- Restructure subsection B for the reasons given in section 101.
- Change the contact use designation to “primary contact” to be consistent with the assigned criteria for the reasons explained in section 98.
- Change µmhos/cm to µS/cm for the reasons given in section 7.A.

20.6.4.216 PECOS RIVER BASIN - The main stem of the Pecos river from Tecolote creek upstream to Cañon de ~~Mazanita~~ Manzanita.

A. Designated Uses: irrigation, livestock watering, wildlife habitat, marginal coldwater aquatic life and primary contact.

B. Criteria:

~~[(1) [In any single sample: pH within the range of 6.6 to 9.0 and temperature 30°C (86°F) or less.]~~ The use-specific numeric criteria set forth in 20.6.4.900 NMAC are applicable to the designated uses ~~[listed above in Subsection A of this section]~~, except that the following segment-specific criterion applies: temperature 30°C (86°F) or less.

~~[(2) [The monthly geometric mean of E. coli bacteria 126 cfu/100 mL or less, single sample 410 cfu/100 mL or less (see Subsection B of 20.6.4.14 NMAC).]~~

~~[(3) At all flows above 10 cfs: TDS 250 mg/L or less, sulfate 25 mg/L or less and chloride 5 mg/L or less.~~

~~[20.6.4.216 NMAC - Rp 20 NMAC 6.1.2213, 10-12-00; A, 05-23-05; A, XX-XX-XX]~~

BASIS FOR CHANGE: The Department proposes to:

- Correct a typographical error in the name of Cañon de Manzanita.
- Restructure subsection B for the reasons given under section 101.

20.6.4.217 PECOS RIVER BASIN - Perennial reaches of Cow creek and all perennial reaches of its tributaries and the main stem of the Pecos river from Cañon de Manzanita upstream to its headwaters, including perennial reaches of all tributaries thereto.

A. Designated Uses: domestic water supply, fish culture, high quality coldwater aquatic life, irrigation, livestock watering, wildlife habitat and [~~secondary~~] primary contact; and public water supply on the main stem of the Pecos river.

B. Criteria:

[~~————— (1) In any single sample: specific conductance 300 μ mhos/cm or less, pH within the range of 6.6 to 8.8 and temperature 20°C (68°F) or less.~~] The use-specific numeric criteria set forth in 20.6.4.900 NMAC are applicable to the designated uses [~~listed above in Subsection A of this section~~], except that the following segment-specific criteria apply: specific conductance 300 μ S/cm or less; the monthly geometric mean of E. coli bacteria 126 cfu/100 mL or less, single sample 235 cfu/100 mL or less.

[~~————— (2) The monthly geometric mean of E. coli bacteria 126 cfu/100 mL or less; single sample 235 cfu/100 mL or less (see Subsection B of 20.6.4.14 NMAC).~~]

[20.6.4.217 NMAC - Rp 20 NMAC 6.1.2214, 10-12-00; A, 05-23-05; A, XX-XX-XX]

[NOTE: The segment covered by this section was divided effective 05-23-05. The standards for the additional segments are under 20.6.4.220 and 20.6.4.221 NMAC.]

BASIS FOR CHANGE: The Department proposes to:

- Change the contact use designation to “primary contact” to be consistent with the assigned criteria for the reasons explained in section 98.
- Add “public water supply” because Tres Lagunas Home Owners Association relies on the waters of the main stem of the Pecos. This public water system is considered ground water under the influence of surface water.
- Restructure subsection B for the reasons given in section 101.
- Change μ mhos/cm to μ S/cm for the reasons given in section 7.A.

20.6.4.218 PECOS RIVER BASIN – Lower Tansil lake and Lake Carlsbad.

A. Designated Uses: industrial water supply, livestock watering, wildlife habitat, primary contact and warmwater aquatic life.

B. Criteria:

[~~————— (1) At any sampling site: pH within the range of 6.6 to 9.0 and temperature 34°C (93.2°F) or less.~~]

The use-specific numeric criteria set forth in 20.6.4.900 NMAC are applicable to the designated uses [~~listed above in Subsection A of this section~~], except that the following segment-specific criterion applies: temperature 34°C (93.2°F) or less.

[~~————— (2) The monthly geometric mean of E. coli bacteria 126 cfu/100 mL or less; single sample 410 cfu/100 mL or less (see Subsection B of 20.6.4.14 NMAC).~~]

[20.6.4.218 NMAC - N, 05-23-05; A, XX-XX-XX]

BASIS FOR CHANGE: The Department proposes to:

- Correctly identify Lower Tansil Lake in the segment description.
- Restructure subsection B for the reasons given in section 101.

20.6.4.219 PECOS RIVER BASIN - Avalon reservoir.

A. Designated Uses: irrigation storage, livestock watering, wildlife habitat, secondary contact and warmwater aquatic life.

B. Criteria:

[~~————— (1) At any sampling site: pH within the range of 6.6 to 9.0 and temperature 32.2°C (90°F) or less.~~]

The use-specific numeric criteria set forth in 20.6.4.900 NMAC are applicable to the designated uses [~~listed above in Subsection A of this section~~].

[~~————— (2) The monthly geometric mean of E. coli bacteria 548 cfu/100 mL or less, single sample 2507 cfu/100 mL or less (see Subsection B of 20.6.4.14 NMAC).~~]

[20.6.4.219 NMAC - N, 05-23-05; A, XX-XX-XX]

BASIS FOR CHANGE: The Department proposes to restructure subsection B for the reasons given in section 101.

20.6.4.220 PECOS RIVER BASIN - Perennial reaches of the Gallinas river and its tributaries from its mouth upstream to the diversion for the Las Vegas municipal reservoir, except Pecos Arroyo.

A. Designated Uses: irrigation, livestock watering, wildlife habitat, marginal coldwater aquatic life and primary contact.

B. Criteria:

~~[(1) In any single sample: pH within the range of 6.6 to 9.0 and temperature 30°C (86°F) or less.]~~ The use-specific numeric criteria set forth in 20.6.4.900 NMAC are applicable to the designated uses ~~[listed above in Subsection A of this section]~~, except that the following segment-specific criterion applies: temperature 30°C (86°F) or less.

~~[(2) The monthly geometric mean of E. coli bacteria 126 cfu/100 mL or less, single sample 410 cfu/100 mL or less.]~~

[20.6.4.220 NMAC - N, 05-23-05; A, XX-XX-XX]

BASIS FOR CHANGE: The Department proposes to restructure subsection B for the reasons given in section 101.

20.6.4.221 PECOS RIVER BASIN - Pecos Arroyo.

A. Designated Uses: livestock watering, wildlife habitat, warmwater aquatic life and ~~[secondary]~~ primary contact.

B. Criteria:

~~[(1) In any single sample: pH within the range of 6.6 to 9.0 and temperature 32.2°C (90°F) or less.]~~ The use-specific numeric criteria set forth in 20.6.4.900 NMAC are applicable to the designated uses ~~[listed above in Subsection A of this section]~~, except that the following segment-specific criteria apply: the monthly geometric mean of E. coli bacteria 206 cfu/100 mL, single sample 940 cfu/100 mL.

~~[(2) The monthly geometric mean of E. coli bacteria 548 cfu/100 mL or less, single sample 2507 cfu/100 mL or less (see Subsection B of 20.6.4.14 NMAC).]~~

[20.6.4.221 NMAC - N, 05-23-05; A, XX-XX-XX]

BASIS FOR CHANGE:

- The Department proposes to restructure subsection B for the reasons given in section 101.
- **EPA approval/primary contact:** This segment was created during the last triennial review, but EPA withheld approval. Based on the erroneous understanding that this segment was split out from section 216, EPA cited the need to provide more justification for downgrading the marginal coldwater aquatic life use to warmwater aquatic life. Pecos Arroyo was not previously included in Segment 216, as is clear from this segment description from the Standards effective October 11, 2002:

“The main stem of the Pecos river from Anton Chico upstream to the southern boundary of the Pecos national historical park, and perennial reaches of the Gallinas river from its mouth upstream to the diversion for the Las Vegas municipal reservoir.”

Pecos Arroyo, a tributary to the Gallinas River, was an unclassified water. This interpretation is confirmed by the State’s 2004-2006 303(d) list, in which the WQS reference for the Pecos Arroyo was “unclassified.” Because the warmwater aquatic life use satisfies the CWA section 101(a)(2) goal, and the designation is not being downgraded, a UAA is not required.

EPA also cited the need for a UAA to justify the secondary contact designation, as this designation does not meet the “swimmable” goal. The Department has conducted a UAA (Attachment 6) concluding that primary contact is attainable though not likely given unfavorable conditions such as a muddy substrate. The Department proposes to assign numeric criteria that EPA considers protective of primary contact in waters receiving infrequent use. The proposed criteria represent a 1% risk level, equivalent to an illness rate of 10 per 1000.

20.6.4.222 - 20.6.4.300: [RESERVED]

20.6.4.301 CANADIAN RIVER BASIN - The main stem of the Canadian river from the New Mexico-Texas line upstream to Ute dam, and any flow that enters the main stem from Revuelto creek.

A. Designated Uses: irrigation, marginal warmwater aquatic life, livestock watering, wildlife habitat and ~~[secondary]~~ primary contact.

B. Criteria:

(1) [~~In any single sample: pH within the range of 6.6 to 9.0, temperature 32.2°C (90°F) or less and TDS 6,500 mg/L or less at flows above 25 cfs.~~] The use-specific numeric criteria set forth in 20.6.4.900 NMAC are applicable to the designated uses [~~listed above in Subsection A of this section.~~].

(2) [~~The monthly geometric mean of E. coli bacteria 126 cfu/100 mL or less; single sample 410 cfu/100 mL or less (see Subsection B of 20.6.4.14 NMAC).~~] TDS 6,500 mg/L or less at flows above 25 cfs. [20.6.4.301 NMAC - Rp 20 NMAC 6.1.2301, 10-12-00; A, 05-23-05; A, XX-XX-XX]

BASIS FOR CHANGE: The Department proposes to:

- Change the contact use designation to “primary contact” to be consistent with the assigned criteria for the reasons explained in section 98.
- Restructure subsection B for the reasons given in section 101.

20.6.4.302 CANADIAN RIVER BASIN - Ute reservoir.

A. Designated Uses: livestock watering, wildlife habitat, [~~municipal~~] public water supply, [~~and~~] industrial water supply, primary contact and warmwater aquatic life.

B. Criteria:

[~~————— (1) At any sampling site: pH within the range of 6.6 to 9.0 and temperature 32.2°C (90°F) or less.~~] The use-specific numeric criteria set forth in 20.6.4.900 NMAC are applicable to the designated uses [~~listed above in Subsection A of this section~~], except that the following segment-specific criteria apply: the monthly geometric mean of E. coli bacteria 126 cfu/100 mL or less, single sample 235 cfu/100 mL or less.

[~~————— (2) The monthly geometric mean of E. coli bacteria 126 cfu/100 mL or less; single sample 235 cfu/100 mL or less (see Subsection B of 20.6.4.14 NMAC).~~]

[20.6.4.302 NMAC - Rp 20 NMAC 6.1.2302, 10-12-00; A, 05-23-05; A, XX-XX-XX]

BASIS FOR CHANGE: The Department proposes to:

- Change “municipal and industrial” to “public water supply” and “industrial water supply” for the reasons given in section 7. Plans are that Ute Reservoir will supply these uses in Curry, Roosevelt and Quay counties.
- Restructure subsection B for the reasons given in section 101.

20.6.4.303 CANADIAN RIVER BASIN - The main stem of the Canadian river from the headwaters of Ute reservoir upstream to Conchas dam, the perennial reaches of Pajarito and Ute creeks and their perennial tributaries.

A. Designated Uses: irrigation, marginal warmwater aquatic life, livestock watering, wildlife habitat and [~~secondary~~] primary contact.

B. Criteria:

[~~————— (1) In any single sample: pH within the range of 6.6 to 9.0 and temperature 32.2°C (90°F) or less.~~] The use-specific numeric criteria set forth in 20.6.4.900 NMAC are applicable to the designated uses [~~listed above in Subsection A of this section.~~]

[~~————— (2) The monthly geometric mean of E. coli bacteria 126 cfu/100 mL or less; single sample 410 cfu/100 mL or less (see Subsection B of 20.6.4.14 NMAC).~~]

[20.6.4.303 NMAC - Rp 20 NMAC 6.1.2303, 10-12-00; A, 05-23-05; A, XX-XX-XX]

BASIS FOR CHANGE: The Department proposes to:

- Change the contact use designation to “primary contact” to be consistent with the assigned criteria for the reasons explained in section 98.
- Restructure subsection B for the reasons given in section 101.

20.6.4.304 CANADIAN RIVER BASIN - Conchas reservoir.

A. Designated Uses: irrigation storage, livestock watering, wildlife habitat, public water supply, primary contact and warmwater aquatic life.

B. Criteria:

[~~————— (1) At any sampling site: pH within the range of 6.6 to 9.0 and temperature 32.2°C (90°F) or less.~~] The use-specific numeric criteria set forth in 20.6.4.900 NMAC are applicable to the designated uses [~~listed above in~~]

~~Subsection A of this section~~], except that the following segment-specific criteria apply: the monthly geometric mean of E. coli bacteria 126 cfu/100 mL or less, single sample 235 cfu/100 mL or less.

~~[(2) The monthly geometric mean of E. coli bacteria 126 cfu/100 mL or less; single sample 235 cfu/100 mL or less (see Subsection B of 20.6.4.14 NMAC)].~~

~~[20.6.4.304 NMAC - Rp 20 NMAC 6.1.2304, 10-12-00; A, 05-23-05; A, XX-XX-XX]~~

BASIS FOR CHANGE: The Department proposes to:

- Add “public water supply” as a designated use because the lake supplies water for the public water systems of Conchas Dam State Park and Big Mesa Water MDWCA.
- Restructure subsection B for the reasons given in section 101.

20.6.4.305 CANADIAN RIVER BASIN - The main stem of the Canadian river from the headwaters of Conchas reservoir upstream to the New Mexico-Colorado line, perennial reaches of the Conchas river, the Mora river downstream from the USGS gaging station near Shoemaker, the Vermejo river downstream from Rail canyon and perennial reaches of Raton, Chicorica and Uña de Gato creeks.

A. Designated Uses: irrigation, marginal warmwater aquatic life, livestock watering, wildlife habitat and ~~[secondary]~~ primary contact; and public water supply on Chicorica creek.

B. Criteria:

~~(1) [In any single sample: pH within the range of 6.6 to 9.0, temperature 32.2°C (90°F) or less and TDS 3,500 mg/L or less at flows above 10 cfs.]~~ The use-specific numeric criteria set forth in 20.6.4.900 NMAC are applicable to the designated uses ~~[listed above in Subsection A of this section].~~

~~(2) [The monthly geometric mean of E. coli bacteria 126 cfu/100 mL or less; single sample 410 cfu/100 mL or less (see Subsection B of 20.6.4.14 NMAC)].~~ TDS 3,500 mg/L or less at flows above 10 cfs.

~~[20.6.4.305 NMAC - Rp 20 NMAC 6.1.2305, 10-12-00; A, 05-23-05; A, XX-XX-XX]~~

BASIS FOR CHANGE: The Department proposes to:

- Change the contact use designation to “primary contact” to be consistent with the assigned criteria for the reasons explained in section 98.
- Add “public water supply” as a designated use on Chicorica Creek because Lake Maloya located on this creek is a water source for the City of Raton.
- Restructure subsection B for the reasons given in section 101.

20.6.4.306 CANADIAN RIVER BASIN - The Cimarron river downstream from state highway 21 in Cimarron to the Canadian river and all perennial reaches of tributaries to the Cimarron river downstream from state highway 21 in Cimarron.

A. Designated Uses: irrigation, warmwater aquatic life, livestock watering, wildlife habitat and ~~[secondary]~~ primary contact; and public water supply on Cimarroncito creek.

B. Criteria:

~~(1) [In any single sample: pH within the range of 6.6 to 9.0, temperature 32.2°C (90°F) or less and TDS 3,500 mg/L or less at flows above 10 cfs.]~~ The use-specific numeric criteria set forth in 20.6.4.900 NMAC are applicable to the designated uses ~~[listed above in Subsection A of this section].~~

~~(2) [The monthly geometric mean of E. coli bacteria 126 cfu/100 mL or less; single sample 410 cfu/100 mL or less (see Subsection B of 20.6.4.14 NMAC)].~~ TDS 3,500 mg/L or less at flows above 10 cfs.

~~[20.6.4.306 NMAC - Rp 20 NMAC 6.1.2305.1, 10-12-00; A, 7-19-01; A, 05-23-05; A, XX-XX-XX]~~

BASIS FOR CHANGE: The Department proposes to:

- Change the contact use designation to “primary contact” to be consistent with the assigned criteria for the reasons explained in section 98.
- Add “public water supply” as a designated use on Cimarroncito Creek because it supplies Cimarron Water System and Philmont Scout Camp.
- Restructure subsection B for the reasons given in section 101.

20.6.4.307 CANADIAN RIVER BASIN - Perennial reaches of the Mora river from the USGS gaging station near Shoemaker upstream to the state highway 434 bridge in Mora, all perennial reaches of tributaries to the Mora river downstream from the USGS gaging station at La Cueva in San Miguel and

Mora counties, perennial reaches of Ocate creek and its tributaries downstream of Ocate, and perennial reaches of Rayado creek downstream of Miami lake diversion in Colfax county.

A. Designated Uses: marginal coldwater aquatic life, warmwater aquatic life, [~~secondary~~] primary contact, irrigation, livestock watering and wildlife habitat.

B. Criteria:

[~~————— (1) In any single sample: temperature 25°C (77°F) or less and pH within the range of 6.6 to 9.0.~~] The use-specific numeric criteria set forth in 20.6.4.900 NMAC are applicable to the designated uses [~~listed above in Subsection A of this section.~~

~~————— (2) The monthly geometric mean of E. coli bacteria 126 cfu/100 mL or less; single sample 410 cfu/100 mL or less (see Subsection B of 20.6.4.14 NMAC)].~~

[20.6.4.307 NMAC - Rp 20 NMAC 6.1.2305.3, 10-12-00; A, 05-23-05; A, XX-XX-XX]

BASIS FOR CHANGE: The Department proposes to:

- Change the contact use designation to “primary contact” to be consistent with the assigned criteria for the reasons explained in section 98.
- Restructure subsection B for the reasons given in section 101.

20.6.4.308 CANADIAN RIVER BASIN - Charette lakes.

A. Designated Uses: coldwater aquatic life, warmwater aquatic life, secondary contact, livestock watering and wildlife habitat.

B. Criteria:

[~~————— (1) At any sampling site: pH within the range of 6.6 to 8.8 and temperature 20°C (68°F) or less.~~] The use-specific numeric criteria set forth in 20.6.4.900 NMAC are applicable to the designated uses [~~listed above in Subsection A of this section.~~

~~————— (2) The monthly geometric mean of E. coli bacteria 548 cfu/100 mL or less; single sample 2507 cfu/100 mL or less (see Subsection B of 20.6.4.14 NMAC)].~~

[20.6.4.308 NMAC - Rp 20 NMAC 6.1.2305.5, 10-12-00; A, 05-23-05; A, XX-XX-XX]

BASIS FOR CHANGE: The Department proposes to restructure subsection B for the reasons given in section 101.

20.6.4.309 CANADIAN RIVER BASIN - The Mora river and perennial reaches of its tributaries upstream from the state highway 434 bridge in Mora, all perennial reaches of tributaries to the Mora river upstream from the USGS gaging station at La Cueva, perennial reaches of Coyote creek and its tributaries, the Cimarron river and its perennial tributaries above state highway 21 in Cimarron, all perennial reaches of tributaries to the Cimarron river north and northwest of highway 64, perennial reaches of Rayado creek and its tributaries above Miami lake diversion, Ocate creek and perennial reaches of its tributaries upstream of Ocate, perennial reaches of the Vermejo river upstream from Rail canyon and all other perennial reaches of tributaries to the Canadian river northwest and north of U.S. highway 64 in Colfax county unless included in other segments.

A. Designated Uses: domestic water supply, irrigation, high quality coldwater aquatic life, livestock watering, wildlife habitat, [~~municipal and industrial water supply~~] and [~~secondary~~] primary contact; and public water supply on the Cimarron River upstream from Cimarron, on Eagle Nest lake and on perennial reaches of Rayado creek and its tributaries.

B. Criteria:

[~~————— (1) In any single sample: specific conductance 500 µmhos/cm or less, pH within the range of 6.6 to 8.8 and temperature 20°C (68°F) or less.~~] The use-specific numeric criteria set forth in 20.6.4.900 NMAC are applicable to the designated uses [~~listed above in Subsection A of this section~~], except that the following segment-specific criteria apply: specific conductance 500 µS/cm or less; the monthly geometric mean of E. coli bacteria 126 cfu/100 mL or less, single sample 235 cfu/100 mL or less.

[~~————— (2) The monthly geometric mean of E. coli bacteria 126 cfu/100 mL or less; single sample 235 cfu/100 mL or less (see Subsection B of 20.6.4.14 NMAC).~~]

[20.6.4.309 NMAC - Rp 20 NMAC 6.1.2306, 10-12-00; A, 7-19-01; A, 05-23-05; A, XX-XX-XX]

[NOTE: The segment covered by this section was divided effective 05-23-05. The standards for the additional segment are under 20.6.4.310 NMAC.]

BASIS FOR CHANGE: The Department proposes to:

- Change the contact use designation to “primary contact” to be consistent with the assigned criteria for the reasons explained in section 98.
- Change “municipal and industrial water supply” to “public water supply” for the reasons given in section 7. The designation is restricted to those waters with public water systems. There is a pipeline to Raton from the Cimarron river above the town of Cimarron, Eagle Nest Lake supplies water to the Springer water system, Miami Lake on Rayado Creek supplies the Miami Water Users Association, and a spring on Cimarroncita Creek (tributary to the Cimarron River) supplies the Cimarroncita, LLC water system.
- Restructure subsection B for the reasons given in section 101.
- Change $\mu\text{mhos/cm}$ to $\mu\text{S/cm}$ for the reasons given in section 7.A.

20.6.4.310 CANADIAN RIVER BASIN - Perennial reaches of Corrupma creek [~~and perennial reaches of tributaries of the Canadian river north of U.S. highway 54/66 and east and northeast of the Ute creek drainage~~].

A. Designated Uses: livestock watering, wildlife habitat, irrigation, [~~secondary~~] primary contact and [~~warmwater~~] coldwater aquatic life.

B. Criteria:

(1) [~~In any single sample: pH within the range of 6.6 to 9.0 and temperature 32.2°C (90°F) or less.~~] The use-specific numeric criteria set forth in 20.6.4.900 NMAC are applicable to the designated uses [~~listed above in Subsection A of this section~~], except that the following segment-specific criterion applies: temperature 25°C (77°F) or less; the monthly geometric mean of E. coli bacteria 126 cfu/100 mL or less, single sample 235 cfu/100 mL or less.

(2) [~~The monthly geometric mean of E. coli bacteria 548 cfu/100 mL or less, single sample 2507 cfu/100 mL or less (see Subsection B of 20.6.4.14 NMAC).~~] TDS 1,200 mg/L or less, sulfate 600 mg/L or less, chloride 40 mg/L or less.

[20.6.4.310 NMAC - N, 05-23-05; A, XX-XX-XX]

BASIS FOR CHANGE:

- EPA did not approve this new segment during the last triennial review. The segment was created because Corrupma Creek had been incorrectly included in section 701 of the Dry Cimarron River basin. Even though the creek had been incorrectly classified, EPA maintained that assigning less stringent designated uses and criteria than specified in section 701 required a UAA. The Department has determined that additional data must be collected to conduct a UAA. Therefore, in the interim, the Department proposes to assign those uses and criteria from section 701 that applied before the last triennial review, e.g., effective on October 12, 2002. The Department also proposes to delete waters not previously listed in section 701. Those waters will remain unclassified.
- The Department proposes to change the contact use designation to “primary contact” to be consistent with the assigned criteria for the reasons explained in section 98.
- The Department proposes to restructure subsection B for the reasons given in section 101.

20.6.4.311 - 20.6.4.400: [RESERVED]

20.6.4.401 SAN JUAN RIVER BASIN - The main stem of the San Juan river from the Navajo Nation boundary at the Hogback upstream to its confluence with the Animas river.

A. Designated Uses: [~~municipal and~~] public water supply, industrial water supply, irrigation, livestock watering, wildlife habitat, [~~secondary~~] primary contact, marginal coldwater aquatic life and warmwater aquatic life.

B. Criteria:

(1) [~~In any single sample: pH within the range of 6.6 to 9.0 and temperature 32.2°C (90°F) or less.~~] The use-specific numeric criteria set forth in 20.6.4.900 NMAC are applicable to the designated uses [~~listed above in Subsection A of this section~~], except that the following segment-specific criterion applies: temperature 32.2°C (90°F) or less.

(2) [~~The monthly geometric mean of E. coli bacteria 126 cfu/100 mL or less; single sample 410 cfu/100 mL or less (see Subsection B of 20.6.4.14 NMAC).~~]

[20.6.4.401 NMAC - Rp 20 NMAC 6.1.2401, 10-12-00; A, 05-23-05; A, XX-XX-XX]

[NOTE: The segment covered by this section was divided effective 05-23-05. The standards for the additional segment are under 20.6.4.408 NMAC.]

BASIS FOR CHANGE: The Department proposes to:

- Split “municipal and industrial water supply” into “public water supply” and “industrial water supply” for the reasons provided in section 7. This reach of the San Juan River supplies the Lower Valley Water Users Association.
- Change the contact use designation to “primary contact” to be consistent with the assigned criteria for the reasons explained in section 98.
- Restructure subsection B for the reasons given in section 101.

20.6.4.402 SAN JUAN RIVER BASIN - La Plata river from its confluence with the San Juan river upstream to the New Mexico-Colorado line.

A. Designated Uses: irrigation, marginal warmwater aquatic life, marginal coldwater aquatic life, livestock watering, wildlife habitat and [~~secondary~~] primary contact.

B. Criteria:

[~~————— (1) In any single sample: pH within the range of 6.6 to 9.0 and temperature 32.2°C (90°F) or less.~~] The use-specific numeric criteria set forth in 20.6.4.900 NMAC are applicable to the designated uses [~~listed above in Subsection A of this section~~], except that the following segment-specific criterion applies: temperature 32.2°C (90°F) or less.

[~~————— (2) The monthly geometric mean of E. coli bacteria 126 cfu/100 mL or less; single sample 410 cfu/100 mL or less (see Subsection B of 20.6.4.14 NMAC).]~~

[20.6.4.402 NMAC - Rp 20 NMAC 6.1.2402, 10-12-00; A, 05-23-05; A, XX-XX-XX]

BASIS FOR CHANGE: The Department proposes to:

- Change the contact use designation to “primary contact” to be consistent with the assigned criteria for the reasons explained in section 98.
- Restructure subsection B for the reasons given in section 101.

20.6.4.403 SAN JUAN RIVER BASIN - The Animas river from its confluence with the San Juan upstream to Estes Arroyo.

A. Designated Uses: [~~municipal and~~] public water supply, industrial water supply, irrigation, livestock watering, wildlife habitat, marginal coldwater aquatic life, primary contact and warmwater aquatic life.

B. Criteria:

[~~————— (1) In any single sample: pH within the range of 6.6 to 9.0 and temperature 27°C (80.6°F) or less.~~] The use-specific numeric criteria set forth in 20.6.4.900 NMAC are applicable to the designated uses [~~listed above in Subsection A of this section~~], except that the following segment-specific criterion applies: temperature 27°C (80.6°F) or less.

[~~————— (2) The monthly geometric mean of E. coli bacteria 126 cfu/100 mL or less; single sample 410 cfu/100 mL or less (see Subsection B of 20.6.4.14 NMAC).]~~

[20.6.4.403 NMAC - Rp 20 NMAC 6.1.2403, 10-12-00; A, 05-23-05; A, XX-XX-XX]

BASIS FOR CHANGE: The Department proposes to:

- Split “municipal and industrial water supply” into “public water supply” and “industrial water supply” for the reasons provided in section 7. This reach of the Animas River supplies the Farmington Water System and Morningstar Water Supply System.
- Restructure subsection B for the reasons given in section 101.

20.6.4.404 SAN JUAN RIVER BASIN - The Animas river from Estes Arroyo upstream to the New Mexico-Colorado line.

A. Designated Uses: coldwater aquatic life, irrigation, livestock watering, wildlife habitat, [~~municipal and~~] public water supply, industrial water supply and [~~secondary~~] primary contact.

B. Criteria:

[~~————— (1) In any single sample: pH within the range of 6.6 to 8.8, temperature 20°C (68°F) or less and total phosphorus (as P) 0.1 mg/L or less.~~] The use-specific numeric criteria set forth in 20.6.4.900 NMAC are applicable to the designated uses [~~listed above in Subsection A of this section~~], except that the following segment-specific criterion applies: total phosphorus (as P) 0.1 mg/L or less.

~~_____ (2) The monthly geometric mean of E. coli bacteria 126 cfu/100 mL or less; single sample 410 cfu/100 mL or less (see Subsection B of 20.6.4.14 NMAC);~~
[20.6.4.404 NMAC - Rp 20 NMAC 6.1.2404, 10-12-00; A, 05-23-05; A, XX-XX-XX]

BASIS FOR CHANGE: The Department proposes to:

- Change the contact use designation to “primary contact” to be consistent with the assigned criteria for the reasons explained in section 98.
- Split “municipal and industrial water supply” into “public water supply” and “industrial water supply” for the reasons provided in section 7. This reach of the Animas River supplies the Aztec Domestic Water System and Northstar Water Users Association.
- Restructure subsection B for the reasons given in section 101.

20.6.4.405 SAN JUAN RIVER BASIN - The main stem of the San Juan river from Canyon Largo upstream to the Navajo dam.

A. Designated Uses: high quality coldwater aquatic life, irrigation, livestock watering, wildlife habitat, ~~municipal and~~ public water supply, industrial water supply and ~~secondary~~ primary contact.

B. Criteria:

~~_____ (1) In any single sample: specific conductance 400 µmhos/cm or less, pH within the range of 6.6 to 8.8 and temperature 20°C (68°F) or less.~~ The use-specific numeric criteria set forth in 20.6.4.900 NMAC are applicable to the designated uses ~~[listed above in Subsection A of this section]~~, except that the following segment-specific criteria apply: specific conductance 400 µS/cm or less; the monthly geometric mean of E. coli bacteria 126 cfu/100 mL or less, single sample 235 cfu/100 mL or less.

~~_____ (2) The monthly geometric mean of E. coli bacteria 126 cfu/100 mL or less; single sample 235 cfu/100 mL or less (see Subsection B of 20.6.4.14 NMAC);~~
[20.6.4.405 NMAC - Rp 20 NMAC 6.1.2405, 10-12-00; A, 05-23-05; A, XX-XX-XX]

BASIS FOR CHANGE: The Department proposes to:

- Split “municipal and industrial water supply” into “public water supply” and “industrial water supply” for the reasons provided in section 7. The diversion for Citizens Ditch is located on this reach of the San Juan River. Citizens Ditch supplies Blanco MDWCA, Bloomfield Water Supply System, Harvest Gold Subdivision and Enterprise Products Company Chaco Plant.
- Change the contact use designation to “primary contact” to be consistent with the assigned criteria for the reasons explained in section 98.
- Restructure subsection B for the reasons given in section 101.
- Change µmhos/cm to µS/cm for the reasons given in section 7.A.

20.6.4.406 SAN JUAN RIVER BASIN - Navajo reservoir in New Mexico.

A. Designated Uses: coldwater aquatic life, warmwater aquatic life, irrigation storage, livestock watering, wildlife habitat, ~~municipal and industrial water storage~~ public water supply, industrial water supply and primary contact.

B. Criteria:

~~_____ (1) At any sampling site: pH within the range of 6.6 to 8.8, temperature 20°C (68°F) or less and total phosphorus (as P) 0.1 mg/L or less.~~ The use-specific numeric criteria set forth in 20.6.4.900 NMAC are applicable to the designated uses ~~[listed above in Subsection A of this section]~~, except that the following segment-specific criteria apply: total phosphorus (as P) 0.1 mg/L or less; the monthly geometric mean of E. coli bacteria 126 cfu/100 mL or less, single sample 235 cfu/100 mL or less.

~~_____ (2) The monthly geometric mean of E. coli bacteria 126 cfu/100 mL or less; single sample 235 cfu/100 mL or less (see Subsection B of 20.6.4.14 NMAC);~~
[20.6.4.406 NMAC - Rp 20 NMAC 6.1.2406, 10-12-00; A, 05-23-05; A, XX-XX-XX]

BASIS FOR CHANGE: The Department proposes to:

- Split “municipal and industrial water supply” into “public water supply” and “industrial water supply” for the reasons provided in section 7. The reservoir supplies Navajo Dam Domestic Water Consumers, Navajo Lake State Park – Pine Site, Navajo Lake State Park – Cottonwood Camp and Navajo Lake State Park – Sims Mesa.
- Restructure subsection B for the reasons given in section 101.

20.6.4.407 SAN JUAN RIVER BASIN - Perennial reaches of the Navajo ~~and Los Pinos rivers~~ river from the Jicarillo Apache pueblo boundary to the Colorado border and perennial reaches of Los Pinos river in New Mexico.

A. Designated Uses: coldwater aquatic life, irrigation, livestock watering, public water supply, wildlife habitat and ~~[secondary]~~ primary contact.

B. Criteria:

~~[————— (1) In any single sample: pH within the range of 6.6 to 8.8, temperature 20°C (68°F) or less and total phosphorus (as P) 0.1 mg/L or less.]~~ The use-specific numeric criteria set forth in 20.6.4.900 NMAC are applicable to the designated uses ~~[listed above in Subsection A of this section]~~, except that the following segment-specific criteria apply: total phosphorus (as P) 0.1 mg/L or less; the monthly geometric mean of E. coli bacteria 126 cfu/100 mL or less, single sample 235 cfu/100 mL or less.

~~[————— (2) The monthly geometric mean of E. coli bacteria 126 cfu/100 mL or less; single sample 235 cfu/100 mL or less (see Subsection B of 20.6.4.14 NMAC).]~~

[20.6.4.407 NMAC - Rp 20 NMAC 6.1.2407, 10-12-00; A, 05-23-05; A, XX-XX-XX]

BASIS FOR CHANGE: The Department proposes to:

- Exclude waters on tribal lands because these waters are not under state jurisdiction. See section 103.
- Change the contact use designation to “primary contact” to be consistent with the assigned criteria for the reasons explained in section 98.
- Add “public water supply” as a designated use because the Navajo River supplies the Lumberton MDWCA and Los Pinos River supplies the Pine River Subdivision Water Users Association. Both of these public water systems are classified as ground water under the influence of surface water.
- Restructure subsection B for the reasons given in section 101.

20.6.4.408 SAN JUAN RIVER BASIN - The main stem of the San Juan river from its confluence with the Animas river upstream to its confluence with Canyon Largo.

A. Designated Uses: ~~[municipal and]~~ public water supply, industrial water supply, irrigation, livestock watering, wildlife habitat, ~~[secondary]~~ primary contact, marginal coldwater aquatic life and warmwater aquatic life.

B. Criteria:

~~[————— (1) In any single sample: pH within the range of 6.6 to 9.0, and temperature 32.2°C (90°F) or less.]~~ The use-specific numeric criteria set forth in 20.6.4.900 NMAC are applicable to the designated uses ~~[listed above in Subsection A of this section]~~, except that the following segment-specific criterion applies: temperature 32.2°C (90°F) or less.

~~[————— (2) The monthly geometric mean of E. coli bacteria 126 cfu/100 mL or less; single sample 410 cfu/100 mL or less (see Subsection B of 20.6.4.14 NMAC).]~~

[20.6.4.408 NMAC - N, 05-23-05; A, XX-XX-XX]

BASIS FOR CHANGE: The Department proposes to:

- Split municipal and industrial water supply into public water supply and industrial water supply for the reasons provided in section 7. The Farmington Water System and Lee/Hammond Water Treatment Plant rely on this reach of the San Juan River.
- Change the contact use designation to “primary contact” to be consistent with the assigned criteria for the reasons explained in section 98.
- Restructure subsection B for the reasons given in section 101.

~~[20.6.4.409 — 20.6.4.500: [RESERVED]]~~

20.6.4.409 SAN JUAN RIVER BASIN – Lake Farmington.

A. Designated Uses: public water supply, wildlife habitat, livestock watering, primary contact, coldwater aquatic life and warmwater aquatic life.

B. Criteria: The use-specific numeric criteria set forth in 20.6.4.900 NMAC are applicable to the designated uses, except that the following segment-specific criterion applies: temperature 25°C (77°F) or less.

[20.6.4.409 NMAC - N, XX-XX-XX]

BASIS FOR CHANGE: The Department proposes to add this new segment to address specific uses and criteria for Lake Farmington. The 2004-2006 Integrated Report lists Lake Farmington as an unclassified water. In comments on the 2004-2006 Integrated Report, the City of Farmington stated that the designated uses for Lake Farmington (a.k.a. Beeline Reservoir) needed to be reevaluated because it is the source of the municipal water supply for Farmington. The City also stated that Lake Farmington should not be classified with a livestock watering use. The Department proposes the specified designated uses for the following reasons:

- Public water supply because the lake provides water for the Farmington Water System.
- Wildlife habitat because all surface waters provide wildlife habitat.
- Livestock watering because this use is considered a default use for all surface waters as evidenced by sections 97-99. The designation does not imply that livestock are allowed access to the lake.
- Primary contact because a designated use of secondary contact would require a UAA to demonstrate the use is not attainable. Primary contact is not allowed, yet it could take place because recreation is allowed at the lake and depths in the lake make immersion possible.
- Cold and warmwater aquatic life because both cold and warmwater species are stocked in the lake. The proposed temperature criterion of 25°C is based on ambient conditions and is protective of the fish species present.

20.6.4.410 - 20.6.450: [RESERVED]

20.6.4.451 ZUNI RIVER BASIN – The Rio Nutria upstream of the Zuni pueblo boundary, Tampico draw, Agua Remora, Tampico springs.

A. Designated Uses: coolwater aquatic life, livestock watering, wildlife habitat and primary contact.
B. Criteria: The use-specific numeric criteria set forth in 20.6.4.900 NMAC are applicable to the designated uses.

[20.6.4.451 NMAC - N, XX-XX-XX]

BASIS FOR CHANGE: The Zuni River Basin is located in western New Mexico and encompasses much of Zuni Pueblo. In Arizona, the basin empties into the Little Colorado River. The waters of the basin under state jurisdiction have never been classified. In 2004, the Department conducted a water quality survey of the waters flowing onto and across Zuni Pueblo, including the Rio Nutria watershed. The designated uses recommended here are based on the results of that study. In particular, three fish species were recorded in the new segment, including the state-listed endangered Zuni bluehead sucker, a species with intermediate temperature preferences. Accordingly, the Department proposes to designate the new coolwater aquatic life use. The Department also determined that the measured depths of perennial waters were sufficient to support primary contact uses. The Department found no evidence that irrigation and domestic water supply were existing or probable uses.

20.6.4.452 ZUNI RIVER BASIN – Ramah lake.

A. Designated Uses: coldwater aquatic life, warmwater aquatic life, irrigation, livestock watering, wildlife habitat and primary contact.

B. Criteria: The use-specific numeric criteria set forth in 20.6.4.900 NMAC are applicable to the designated uses, except that the following segment-specific criterion applies: temperature 25°C (77°F) or less.

[20.6.4.452 NMAC - N, XX-XX-XX]

BASIS FOR CHANGE: Ramah lake was constructed on the Zuni River near the village of Ramah for irrigation purposes. It has become a popular boating and fishing lake. The Department of Game and Fish stocks rainbow trout regularly and also lists bass as a fishable resident. The lake is fed by the ephemeral Cebolla Creek. The proposed temperature criterion of 25°C accommodates fluctuating conditions that result from ephemeral inflow but still provides protection for the stocked species.

20.6.4.452 - 20.6.4.500: [RESERVED]

20.6.4.501 GILA RIVER BASIN - The main stem of the Gila river from the New Mexico-Arizona line upstream to Redrock canyon and perennial [~~reaches of~~] streams in Hidalgo county.

A. Designated Uses: irrigation, marginal warmwater aquatic life, livestock watering, wildlife habitat and primary contact.

B. Criteria:

~~[(1) In any single sample: pH within the range of 6.6 to 9.0 and temperature 32.2°C (90°F) or less.]~~
The use-specific numeric criteria set forth in 20.6.4.900 NMAC are applicable to the designated uses ~~[listed above in Subsection A of this section]~~.

~~[(2) The monthly geometric mean of E. coli bacteria 126 cfu/100 mL or less; single sample 410 cfu/100 mL or less (see Subsection B of 20.6.4.14 NMAC).]~~

[20.6.4.501 NMAC - Rp 20 NMAC 6.1.2501, 10-12-00; A, 05-23-05; A, XX-XX-XX]

BASIS FOR CHANGE: The Department proposes:

- An editorial change to the segment description.
- To restructure subsection B for the reasons given in section 101.

20.6.4.502 GILA RIVER BASIN - The main stem of the Gila river from Redrock canyon upstream to the confluence of the West Fork Gila river and East Fork Gila river and perennial reaches of tributaries to the Gila river below Mogollon creek.

A. Designated Uses: industrial water supply, irrigation, livestock watering, wildlife habitat, marginal coldwater aquatic life, primary contact and warmwater aquatic life.

B. Criteria:

~~[(1) In any single sample: pH within the range of 6.6 to 9.0 and temperature 28°C (82.4°F) or less.]~~

The use-specific numeric criteria set forth in 20.6.4.900 NMAC are applicable to the designated uses ~~[listed above in Subsection A of this section]~~, except that the following segment-specific criteria apply: pH within the range of 6.6 to 9.0 and temperature 28°C (82.4°F) or less.

~~[(2) The monthly geometric mean of E. coli bacteria 126 cfu/100 mL or less; single sample 410 cfu/100 mL or less (see Subsection B of 20.6.4.14 NMAC).]~~

[20.6.4.502 NMAC - Rp 20 NMAC 6.1.2502, 10-12-00; A, 05-23-05; A, XX-XX-XX]

BASIS FOR CHANGE: The Department proposes restructuring subsection B for the reasons given in section 101.

20.6.4.503 GILA RIVER BASIN - All perennial tributaries to the Gila river above and including Mogollon creek.

A. Designated Uses: domestic water supply, high quality coldwater aquatic life, irrigation, livestock watering, wildlife habitat and ~~[secondary]~~ primary contact.

B. Criteria:

~~[(1) In any single sample: specific conductance 300 µmhos/cm or less for the main stem of the Gila river above Gila hot springs and 400 µmhos or less for other reaches, pH within the range of 6.6 to 8.8 and temperature 20°C (68°F) or less except 32.2°C (90°F) or less in the east fork of the Gila river and Sapillo creek below lake Roberts.]~~ The use-specific numeric criteria set forth in 20.6.4.900 NMAC are applicable to the designated uses ~~[listed above in Subsection A of this section]~~, except that the following segment-specific criteria apply: specific conductance 300 µS/cm or less for the main stem of the Gila river above Gila hot springs and 400 µS/cm or less for other reaches; 32.2°C (90°F) or less in the east fork of the Gila river and Sapillo creek below lake Roberts; the monthly geometric mean of E. coli bacteria 126 cfu/100 mL or less, single sample 235 cfu/100 mL or less.

~~[(2) The monthly geometric mean of E. coli bacteria 126 cfu/100 mL or less; single sample 235 cfu/100 mL or less (see Subsection B of 20.6.4.14 NMAC).]~~

[20.6.4.503 NMAC - Rp 20 NMAC 6.1.2503, 10-12-00; A, 05-23-05; A, XX-XX-XX]

BASIS FOR CHANGE: The Department proposes to:

- Change the contact use designation to “primary contact” to be consistent with the assigned criteria for the reasons explained in section 98.
- Restructure subsection B for the reasons given in section 101.
- Change µmhos/cm to µS/cm for the reasons given in section 7.A.

20.6.4.504 GILA RIVER BASIN - Wall lake, Lake Roberts and Snow lake.

A. Designated Uses: coldwater aquatic life, irrigation, livestock watering, wildlife habitat and ~~[secondary]~~ primary contact.

B. Criteria:

~~[(1) In any single sample: specific conductance 300 µmhos/cm or less, pH within the range of 6.6 to 8.8 and temperature 22°C (72°F) or less.]~~ The use-specific numeric criteria set forth in 20.6.4.900 NMAC are applicable to the designated uses ~~[listed above in Subsection A of this section]~~, except that the following segment-specific criteria apply: specific conductance 300 µS/cm or less and temperature 22°C (72°F) or less.

~~[(2) The monthly geometric mean of E. coli bacteria 126 cfu/100 mL or less; single sample 410 cfu/100 mL or less (see Subsection B of 20.6.4.14 NMAC).]~~

[20.6.4.504 NMAC - Rp 20 NMAC 6.1.2504, 10-12-00; A, 05-23-05; A, XX-XX-XX]

[NOTE: The segment covered by this section was divided effective 05-23-05. The standards for the additional segment are under 20.6.4.806 NMAC.]

BASIS FOR CHANGE: The Department proposes to:

- Change the contact use designation to “primary contact” to be consistent with the assigned criteria for the reasons explained in section 98.
- Restructure subsection B for the reasons given in section 101.
- Change µmhos/cm to µS/cm for the reasons given in section 7.A.

20.6.4.505 - 20.6.4.600: [RESERVED]

20.6.4.601 SAN FRANCISCO RIVER BASIN - The main stem of the San Francisco river from the New Mexico-Arizona line upstream to state highway 12 at Reserve and perennial reaches of Mule creek.

A. Designated Uses: irrigation, marginal warmwater and marginal coldwater aquatic life, livestock watering, wildlife habitat and ~~[secondary]~~ primary contact.

B. Criteria:

~~[(1) In any single sample: pH within the range of 6.6 to 9.0 and temperature 32.2°C (90°F) or less.]~~

The use-specific numeric criteria set forth in 20.6.4.900 NMAC are applicable to the designated uses ~~[listed above in Subsection A of this section]~~.

~~[(2) The monthly geometric mean of E. coli bacteria 126 cfu/100 mL or less; single sample 410 cfu/100 mL or less (see Subsection B of 20.6.4.14 NMAC).]~~

[20.6.4.601 NMAC - Rp 20 NMAC 6.1.2601, 10-12-00; A, 05-23-05; A, XX-XX-XX]

BASIS FOR CHANGE: The Department proposes to:

- Change the contact use designation to “primary contact” to be consistent with the assigned criteria for the reasons explained in section 98.
- Restructure subsection B for the reasons given in section 101.

20.6.4.602 SAN FRANCISCO RIVER BASIN - The main stem of the San Francisco river from state highway 12 at Reserve upstream to the New Mexico-Arizona line.

A. Designated Uses: coldwater aquatic life, irrigation, livestock watering, wildlife habitat and primary contact.

B. Criteria:

~~[(1) In any single sample: pH within the range of 6.6 to 8.8 and temperature 25°C (77°F) or less.]~~

The use-specific numeric criteria set forth in 20.6.4.900 NMAC are applicable to the designated uses ~~[listed above in Subsection A of this section]~~, except that the following segment-specific criterion applies: temperature 25°C (77°F) or less.

~~[(2) The monthly geometric mean of E. coli bacteria 126 cfu/100 mL or less; single sample 410 cfu/100 mL or less (see Subsection B of 20.6.4.14 NMAC).]~~

[20.6.4.602 NMAC - Rp 20 NMAC 6.1.2602, 10-12-00; A, 05-23-05; A, XX-XX-XX]

BASIS FOR CHANGE: The Department proposes to restructure subsection B for the reasons given in section 101.

20.6.4.603 SAN FRANCISCO RIVER BASIN - All perennial reaches of tributaries to the San Francisco river above the confluence of Whitewater creek and including Whitewater creek.

A. Designated Uses: domestic water supply, fish culture, high quality coldwater aquatic life, irrigation, livestock watering, wildlife habitat and ~~[secondary]~~ primary contact.

B. Criteria:

~~[(1) In any single sample: specific conductance 400 µmhos/cm or less, pH within the range of 6.6 to 8.8 and temperature 20°C (68°F) or less except 25°C (77°F) or less in Tularosa creek.]~~ The use-specific numeric criteria set forth in 20.6.4.900 NMAC are applicable to the designated uses ~~[listed above in Subsection A of this section]~~, except that the following segment-specific criteria apply: specific conductance 400 µS/cm or less; the monthly geometric mean of E. coli bacteria 126 cfu/100 mL or less, single sample 235 cfu/100 mL or less; and temperature 25°C (77°F) or less in Tularosa creek.

~~[(2) The monthly geometric mean of E. coli bacteria 126 cfu/100 mL or less; single sample 235 cfu/100 mL or less (see Subsection B of 20.6.4.14 NMAC).]~~

[20.6.4.603 NMAC - Rp 20 NMAC 6.1.2603, 10-12-00; A, 05-23-05; A, XX-XX-XX]

BASIS FOR CHANGE: The Department proposes to:

- Change the contact use designation to “primary contact” to be consistent with the assigned criteria for the reasons explained in section 98.
- Restructure subsection B for the reasons given in section 101.
- Change µmhos/cm to µS/cm for the reasons given in section 7.A.

20.6.4.604 - 20.6.4.700: [RESERVED]

20.6.4.701 DRY CIMARRON RIVER - Perennial portions of the Dry Cimarron river above Oak creek and perennial reaches of Oak creek.

A. **Designated Uses:** ~~[marginal]~~ coldwater aquatic life, warmwater aquatic life, irrigation, livestock watering, wildlife habitat and ~~[secondary]~~ primary contact.

B. **Criteria:**

(1) ~~[In any single sample: pH within the range of 6.6 to 8.8, temperature 25°C (77°F) or less, TDS 1,200 mg/L or less, sulfate 600 mg/L or less, and chloride 40 mg/L or less.]~~ The use-specific numeric criteria set forth in 20.6.4.900 NMAC are applicable to the designated uses ~~[listed above in Subsection A of this section]~~, except that the following segment-specific criteria apply: temperature 25°C (77°F) or less, the monthly geometric mean of E. coli bacteria 126 cfu/100 mL or less, single sample 235 cfu/100 mL or less.

(2) ~~[The monthly geometric mean of E. coli bacteria 126 cfu/100 mL or less; single sample 235 cfu/100 mL or less (see Subsection B of 20.6.4.14 NMAC).]~~ TDS 1,200 mg/L or less, sulfate 600 mg/L or less and chloride 40 mg/L or less.

[20.6.4.701 NMAC - Rp 20 NMAC 6.1.2701, 10-12-00; A, 05-23-05 A, XX-XX-XX]

[NOTE: The segment covered by this section was divided effective 05-23-05. The standards for the additional segment are under 20.6.4.702 NMAC.]

BASIS FOR CHANGE:

- **Primary contact as designated use.** The Department proposes that the contact use designation be changed to “primary contact” to be consistent with the assigned criteria for the reasons explained under 20.6.4.98.
- **Restructuring subsection B.** The Department proposes restructuring subsection B for the reasons given in section 101.
- **Coldwater.** EPA did not approve the amendment of this section during the last triennial review. Portions of the segment were moved to the new segments 310 and 702, and the aquatic life use for this segment was changed from “coldwater” to “marginal coldwater.” EPA asserted that a UAA was needed to support this change. The Department disagrees because the applicable criteria were not changed. However, at this time the Department proposes to re-assign the EPA-approved coldwater use that applied before the last triennial review, i.e., effective on October 12, 2002. Designated uses and criteria applicable to segments 702 and 310 are being reviewed, and appropriate applications of the new coolwater aquatic life use are being considered. Appropriate changes to this segment could be considered as part of those efforts.

20.6.4.702 DRY CIMARRON RIVER - Perennial portions of the Dry Cimarron river below Oak creek, and perennial portions of Long canyon and Carrizozo creeks.

A. **Designated Uses:** ~~[warmwater]~~ coldwater aquatic life, irrigation, livestock watering, wildlife habitat and ~~[secondary]~~ primary contact.

B. **Criteria:**

(1) ~~[In any single sample: pH within the range of 6.6 to 8.8, temperature 32.2°C (90°F) or less, TDS 1,200 mg/L or less, sulfate 600 mg/L or less and chloride 40 mg/L or less.]~~ The use-specific numeric criteria set forth in 20.6.4.900 NMAC are applicable to the designated uses ~~[listed above in Subsection A of this section]~~, except that the following segment-specific criteria apply: temperature 25°C (77°F) or less; the monthly geometric mean of E. coli bacteria 126 cfu/100 mL or less, single sample 235 cfu/100 mL or less.

(2) ~~[The monthly geometric mean of E. coli bacteria 126 cfu/100 mL or less; single sample 235 cfu/100 mL or less (see Subsection B of 20.6.4.14 NMAC-);~~ TDS 1,200 mg/L or less, sulfate 600 mg/L or less and chloride 40 mg/L or less.

[20.6.4.702 NMAC - N, 05-23-05; A, XX-XX-XX]

BASIS FOR CHANGE:

- **Primary contact as designated use.** The Department proposes that the contact use designation be changed to “primary contact” to be consistent with the assigned criteria for the reasons explained under 20.6.4.98.
- **Restructuring subsection B.** The Department proposes restructuring subsection B for the reasons given in section 101.
- **Coldwater aquatic life.** EPA did not approve this new segment adopted during the last triennial review, asserting that the evidence presented in the UAA was insufficient to support changing the aquatic life use from coldwater to warmwater and the associated temperature criterion from 25 to 32.2°C. In response, the Department evaluated the available data more thoroughly. Based on limited data and stream temperature modeling using the SSTEMP model from the USGS, the Department has reached the preliminary conclusion that reasonable restoration efforts may result in attainment of the 25°C criterion that applied prior to 2005. Therefore, at this time the Department proposes reverting to the pre-2005 uses and criteria which are already EPA-approved. The segment warrants additional consideration, and it may be a good candidate for the new coolwater use.

20.6.4.703 - 20.6.4.800: [RESERVED]

20.6.4.801 CLOSED BASINS - Rio Tularosa ~~[lying]~~ east of the old U.S. highway 70 bridge crossing east of Tularosa and all perennial tributaries to the Tularosa basin except Three Rivers and excluding waters on the Mescalero tribal lands.

A. Designated Uses: coldwater aquatic life, ~~[fish culture,]~~ irrigation, livestock watering, wildlife habitat, ~~[municipal and industrial]~~ public water supply and ~~[secondary]~~ primary contact.

B. Criteria:

~~[~~ (1) ~~In any single sample: pH within the range of 6.6 to 8.8 and temperature 20°C (68°F) or less.]~~
The use-specific numeric criteria set forth in 20.6.4.900 NMAC are applicable to the designated uses ~~[listed above in Subsection A of this section]~~, except that the following segment-specific criteria apply: the monthly geometric mean of E. coli bacteria 126 cfu/100 mL or less, single sample 235 cfu/100 mL or less.

~~[~~ (2) ~~The monthly geometric mean of E. coli bacteria 126 cfu/100 mL or less; single sample 235 cfu/100 mL or less (see Subsection B of 20.6.4.14 NMAC-);~~

[20.6.4.801 NMAC - Rp 20 NMAC 6.1.2801, 10-12-00; A, 05-23-05; A, XX-XX-XX]

BASIS FOR CHANGE: The Department proposes to:

- Exclude waters on tribal lands because these waters are not under state jurisdiction. See section 103.
- Remove “fish culture” as a designated use because the only fish hatchery in the area is the Mescalero Fish Hatchery, located upstream of the segment.
- Change “municipal and industrial” to “public water supply” for the reasons described in section 7. Fresno Canyon supplies the Alamogordo Domestic Water System and La Luz MDWCA; Tularosa Creek and Reservoir supply the Tularosa Water System, and La Luz Creek is another source for La Luz MDWCA. Industrial uses are not known to exist on this segment.
- Change the contact use designation to “primary contact” to be consistent with the assigned criteria for the reasons explained in section 98.
- Restructure subsection B for the reasons given in section 101.

20.6.4.802 CLOSED BASINS - Perennial reaches of Three Rivers.

A. Designated Uses: irrigation, domestic water supply, high quality coldwater aquatic life, ~~[secondary]~~ primary contact, livestock watering and wildlife habitat.

B. Criteria:

~~[(1) In any single sample: specific conductance 500 µmhos/cm or less, pH within the range of 6.6 to 8.8 and temperature 20°C (68°F) or less.]~~ The use-specific numeric criteria set forth in 20.6.4.900 NMAC are applicable to the designated uses ~~[listed above in Subsection A of this section]~~, except that the following segment-specific criteria apply: specific conductance 500 µS/cm or less; the monthly geometric mean of E. coli bacteria 126 cfu/100 mL or less, single sample 235 cfu/100 mL or less.

~~[(2) The monthly geometric mean of E. coli bacteria 126 cfu/100 mL or less; single sample 235 cfu/100 mL or less (see Subsection B of 20.6.4.14 NMAC).]~~

[20.6.4.802 NMAC - Rp 20 NMAC 6.1.2802, 10-12-00; A, 05-23-05; A, XX-XX-XX]

BASIS FOR CHANGE: The Department proposes to

- Change the contact use designation to “primary contact” to be consistent with the assigned criteria for the reasons explained in section 98.
- Restructure subsection B for the reasons given in section 101.
- Change µmhos/cm to µS/cm for the reasons given in section 7.A.

20.6.4.803 CLOSED BASINS - Perennial reaches of the Mimbres river downstream of the confluence with Willow Springs canyon and all perennial reaches of tributaries thereto.

A. Designated Uses: coldwater aquatic life, irrigation, livestock watering, wildlife habitat and ~~[secondary]~~ primary contact.

B. Criteria:

~~[(1) In any single sample: pH within the range of 6.6 to 8.8 and temperature 20°C (68°F) or less.]~~

The use-specific numeric criteria set forth in 20.6.4.900 NMAC are applicable to the designated uses ~~[listed above in Subsection A of this section]~~, except that the following segment-specific criteria apply: the monthly geometric mean of E. coli bacteria 126 cfu/100 mL or less, single sample 235 cfu/100 mL or less.

~~[(2) The monthly geometric mean of E. coli bacteria 126 cfu/100 mL or less; single sample 235 cfu/100 mL or less (see Subsection B of 20.6.4.14 NMAC).]~~

[20.6.4.803 NMAC - Rp 20 NMAC 6.1.2803, 10-12-00; A, 05-23-05; A, XX-XX-XX]

BASIS FOR CHANGE: The Department proposes to

- Change the contact use designation to “primary contact” to be consistent with the assigned criteria for the reasons explained in section 98.
- Restructure subsection B for the reasons given in section 101.

20.6.4.804 CLOSED BASINS - Perennial reaches of the Mimbres river upstream of the confluence with Willow Springs canyon and all perennial tributaries thereto.

A. Designated Uses: irrigation, domestic water supply, high quality coldwater aquatic life, livestock watering, wildlife habitat and ~~[secondary]~~ primary contact.

B. Criteria:

~~[(1) In any single sample: specific conductance 300 µmhos or less, pH within the range of 6.6 to 8.8 and temperature 20°C (68°F) or less.]~~ The use-specific numeric criteria set forth in 20.6.4.900 NMAC are applicable to the designated uses ~~[listed above in Subsection A of this section]~~, except that the following segment-specific criteria apply: specific conductance 300 µS/cm or less; the monthly geometric mean of E. coli bacteria 126 cfu/100 mL or less, single sample 235 cfu/100 mL or less.

~~[(2) The monthly geometric mean of E. coli bacteria 126 cfu/100 mL or less; single sample 235 cfu/100 mL or less (see Subsection B of 20.6.4.14 NMAC).]~~

[20.6.4.804 NMAC - Rp 20 NMAC 6.1.2804, 10-12-00; A, 05-23-05; A, XX-XX-XX]

BASIS FOR CHANGE: The Department proposes to

- Change the contact use designation to “primary contact” to be consistent with the assigned criteria for the reasons explained in section 98.
- Restructure subsection B for the reasons given in section 101.
- Change µmhos/cm to µS/cm for the reasons given in section 7.A.

20.6.4.805 CLOSED BASINS - Perennial reaches of the Sacramento river (Sacramento-Salt Flat closed basin) and all perennial tributaries thereto.

A. Designated Uses: domestic [~~and municipal~~] water supply, livestock watering, wildlife habitat, marginal coldwater aquatic life and [~~secondary~~] primary contact.

B. Criteria:

[~~————— (1) In any single sample: pH within the range of 6.6 to 9.0 and temperature 25°C (77°F) or less.~~] The use-specific numeric criteria set forth in 20.6.4.900 NMAC are applicable to the designated uses [~~listed above in Subsection A of this section.~~

~~————— (2) The monthly geometric mean of E. coli bacteria 126 cfu/100 mL or less; single sample 410 cfu/100 mL or less (see Subsection B of 20.6.4.14 NMAC)].~~

[20.6.4.805 NMAC - Rp 20 NMAC 6.1.2805, 10-12-00; A, 05-23-05; A, XX-XX-XX]

BASIS FOR CHANGE: The Department proposes to:

- Delete “municipal water supply” as a designated use because there is no longer a public water system on this segment. According to 40 CFR 131.10(h), states may not remove a designated use that is an existing use “unless a use requiring more stringent criteria is added.” No criteria are applicable to this use. The criteria associated with the remaining designated uses are more stringent, so the use may be removed.
- Change the contact use designation to “primary contact” to be consistent with the assigned criteria for the reasons explained in section 98.
- Restructure subsection B for the reasons given in section 101.

20.6.4.806 CLOSED BASINS - Bear canyon reservoir.

A. Designated Uses: coldwater aquatic life, irrigation, livestock watering, wildlife habitat and [~~secondary~~] primary contact.

B. Criteria:

[~~————— (1) In any single sample: specific conductance 300 µmhos/cm or less, pH within the range of 6.6 to 8.8 and temperature 22°C (72°F) or less.~~] The use-specific numeric criteria set forth in 20.6.4.900 NMAC are applicable to the designated uses [~~listed above in Subsection A of this section~~], except that the following segment-specific criteria apply: specific conductance 300 µS/cm or less and temperature 22°C (72°F) or less.

[~~————— (2) The monthly geometric mean of E. coli bacteria 126 cfu/100 mL or less; single sample 410 cfu/100 mL or less (see Subsection B of 20.6.4.14 NMAC).~~]

[20.6.4.806 NMAC - N, 05-23-05; A, XX-XX-XX]

BASIS FOR CHANGE: The Department proposes to

- Change the contact use designation to “primary contact” to be consistent with the assigned criteria for the reasons explained in section 98.
- Restructure subsection B for the reasons given in section 101.
- Change µmhos/cm to µS/cm for the reasons given in section 7.A.

20.6.4.807 - 20.6.4.899: [RESERVED]

20.6.4.900 CRITERIA APPLICABLE TO [~~ATTAINABLE OR DESIGNATED~~] EXISTING, DESIGNATED OR ATTAINABLE USES UNLESS OTHERWISE SPECIFIED IN 20.6.4.97 THROUGH 20.6.4.899 NMAC.

BASIS FOR CHANGE: The Department proposes to add “existing” uses because these uses must be protected under the antidegradation policy in section 8. Once identified, existing uses should become designated uses, but there is often a lapse in time between identifying an existing use and designating the use in the Standards through rulemaking.

A. Fish Culture^[5] and Water Supply [~~and Storage~~]: Fish culture, public water supply [~~and municipal~~] and industrial water supply [~~and storage~~] are designated uses in particular classified waters of the state where these uses are actually being realized. However, no numeric criteria apply uniquely to these uses. Water quality adequate for these uses is ensured by the general criteria and numeric criteria for bacterial quality, pH and

temperature [that are established to for all classified waters of the state listed in 20.6.4.97 through 20.6.4.899 NMAC].

BASIS FOR CHANGE: The Department proposes to:

- Change “municipal and industrial” to “public water supply” and “industrial water supply” and to delete “storage” to be consistent with the new definitions proposed in section 7.
- To strike the last phrase because the Department is proposing to identify E. coli, pH and temperature criteria in sections 97 – 899 only if they are segment-specific; otherwise, the criteria listed in section 900 are applicable. Therefore, no sections should be referenced here.

B. Domestic Water Supply: Surface waters of the state designated for use as domestic water supplies shall not contain substances in concentrations that create a lifetime cancer risk of more than one cancer per 100,000 exposed persons. Those criteria listed under domestic water supply in Subsection J of this section apply to this use.

C. Irrigation and Irrigation Storage: The following numeric criteria and those criteria listed under irrigation in Subsection J of this section apply to this use:

- | | | | |
|-----|---|------|------|
| (1) | dissolved selenium | 0.13 | mg/L |
| (2) | dissolved selenium in presence of >500 mg/L SO ₄ | 0.25 | mg/L |

D. Primary Contact: The monthly geometric mean of E. coli bacteria of 126 cfu/100 mL and single sample of 410 cfu/100 mL [~~apply to this use~~] and pH [~~shall be~~] within the range of 6.6 to 9.0 apply to this use.

BASIS FOR CHANGE: The Department proposes a minor editorial change for consistency of style.

E. Secondary Contact: The monthly geometric mean of E. coli bacteria of 548 cfu/100 mL and single sample of 2507 cfu/100 mL apply to this use.

F. Livestock Watering: The criteria listed in Subsection J for livestock watering apply to this use.

G. Wildlife Habitat: Wildlife habitat shall be free from any substances at concentrations that are toxic to or will adversely affect plants and animals that use these environments for feeding, drinking, habitat or propagation; can bioaccumulate; or might impair the community of animals in a watershed or the ecological integrity of surface waters of the state. The discharge of substances that bioaccumulate, in excess of levels listed in Subsection J for wildlife habitat is allowed if, and only to the extent that, the substances are present in the intake waters that are diverted and utilized prior to discharge, and then only if the discharger utilizes best available treatment technology to reduce the amount of bioaccumulating substances that are discharged. The numeric criteria listed in Subsection J for wildlife habitat apply to this use [~~except when a site specific or segment specific criterion has been adopted under 20.6.4.101 through 20.6.4.899 NMAC~~].

BASIS FOR CHANGE: The Department proposes to strike the last phrase because the header already states, “...UNLESS OTHERWISE SPECIFIED IN 20.6.4.97 THROUGH 20.6.4.899 NMAC.” Were the phrase to be retained, it should reference section 97 instead of section 101 for the reasons given in section 11.B.

H. Aquatic Life: Surface waters of the state with a designated, existing or attainable use of aquatic life shall be free from any substances at concentrations that can impair the community of plants and animals in or the ecological integrity of surface waters of the state. Except as provided in paragraph [~~6 below~~] (7) of this subsection, the acute and chronic aquatic life criteria set out in Subsections I, [~~and~~] J, K and L of this section and the human health-organism only criteria set out in Subsection J of this section are applicable to this use. In addition, the specific criteria for aquatic life subcategories in the following paragraphs [~~shall~~] apply to waters classified under the respective designations.

BASIS FOR CHANGE:

The Department proposes simplifying and clarifying this subsection. In the last triennial review amendments, the Commission adopted the general aquatic life use for waters included in sections 98 and 99. EPA did not approve this approach, as discussed in section 98. In response, the Department’s proposal no longer applies the general aquatic life use. As a result, the first paragraph of this subsection becomes an introduction to the subcategories. Criteria listed in this introduction need not be repeated under every subcategory.

(1) **High Quality Coldwater:** Dissolved oxygen 6.0 mg/L or more, temperature 20°C (68°F) or less, pH within the range of 6.6 to 8.8 and specific conductance a segment-specific limit [~~varying~~] between 300 [~~µmhos/cm~~] µS/cm and 1,500 [~~µmhos/cm~~] µS/cm depending on the natural background in the particular surface water[s] of the state (the intent of this criterion is to prevent excessive increases in dissolved solids which would result in changes in community structure). [~~The total ammonia criteria set out in Subsections K, L and M of this section and the human health criteria for pollutants listed in Subsection J of this section are applicable to this use.~~]

BASIS FOR CHANGE: The Department proposes to:

- Change µmhos/cm to µS/cm for the reasons given in section 7.A.
- Clarify that the specific conductance criterion is a particular value set on a segment-specific basis that falls within the range of 300-1,500 µS/cm.
- Delete the reference to ammonia and human health criteria because they are specified in the introductory paragraph.

(2) **Coldwater:** Dissolved oxygen 6.0 mg/L or more, temperature 20°C (68°F) or less and pH within the range of 6.6 to 8.8. [~~The total ammonia criteria set out in Subsections K, L and M of this section and the human health criteria listed in Subsection J of this section are applicable to this use.~~]

BASIS FOR CHANGE: The Department proposes to delete the reference to ammonia and human health criteria because these are specified in the introductory paragraph.

(3) **Marginal Coldwater:** Dissolved oxygen [~~than~~] 6 mg/L or more, ~~on a case-by-case basis maximum~~ temperature[s ~~may exceed~~] 25°C (77°F) or less and [~~the~~] pH [~~may~~] within the range from 6.6 to 9.0. [~~The total ammonia criteria set out in Subsections K, L and M of this section and the human health criteria listed in Subsection J of this section are applicable to this use.~~]

BASIS FOR CHANGE: The Department proposes to:

- Delete the phrase referring to temperatures exceeding 25°C on a case-by-case basis. The intent of this phrase is to allow a segment-specific criterion to be set higher than 25°C in accordance with the portion of the definition of “marginal coldwater” that states, “historical data indicate that the maximum temperature in the surface water of the state may exceed 25°C.” Nine segments with the marginal coldwater designation currently have a segment-specific temperature criterion higher than 25° (and one has a lower criterion). Deleting the phrase here will have no effect on those segments because Section 900 criteria apply only if segment-specific criteria are not indicated. Striking the phrase does eliminate confusion regarding assessment. Where the intended temperature criterion is 25°C, the water is assessed at 25°C without special considerations to allow exceedences.
- Delete the reference to ammonia and human health criteria because they are specified in the introductory paragraph.

(4) **Coolwater:** Dissolved oxygen 6 mg/L or more, temperature 29°C (77°F) or less and pH within the range of 6.6 to 9.0.

BASIS FOR CHANGE: The Department proposes to specify criteria for the new coolwater aquatic life use. See Attachment 1 for more information.

~~(4)~~(5) **Warmwater:** Dissolved oxygen 5 mg/L or more, temperature 32.2°C (90°F) or less, and pH within the range of 6.6 to 9.0. [~~The total ammonia criteria set out in Subsections K, L and M of this section and the human health criteria listed in Subsection J of this section are applicable to this use.~~]

BASIS FOR CHANGE: The Department proposes to delete the reference to ammonia and human health criteria because they are specified in the introductory paragraph.

~~(5)~~(6) **Marginal Warmwater:** Dissolved oxygen 5 mg/L or more, pH within the range of 6.6 to 9.0 and [~~on a case-by-case basis maximum~~] temperature[s ~~may exceed~~] 32.2°C (90°F) or less. [~~The total ammonia criteria set out in Subsections K, L and M of this section and the human health criteria listed in Subsection J of this section are applicable to this use.~~]

BASIS FOR CHANGE: The Department proposes to:

- Delete the phrase referring to temperatures exceeding 32.2°C on a case-by-case basis. The intent of this phrase is to allow a segment-specific criterion to be set higher than 32.2°C in accordance with the portion of the definition of “marginal warmwater” that states, “historical data indicate that natural water temperature routinely exceeds 32.2°C.” Only one segment with the marginal warmwater designation has a segment-specific temperature criterion higher than 32.2°. Deleting the phrase here will have no effect on this segment because Section 900 criteria apply only if segment-specific criteria are not indicated. On the other hand, striking the phrase eliminates confusion regarding assessment. When the intended temperature criterion is 32.2°C, the water is assessed at 32.2°C without special considerations to allow exceedences.
- Delete the reference to ammonia and human health criteria because these are specified in the introductory paragraph.

~~(6)~~(7) **Limited Aquatic Life:** ~~[Criteria shall be developed on a segment specific basis.]~~ The acute aquatic life criteria of Subsections I and J of this section ~~shall~~ apply to this subcategory. Chronic aquatic life criteria do not apply unless adopted on a segment-specific basis. Human health-organism only criteria apply only for persistent pollutants unless adopted on a segment-specific basis.

BASIS FOR CHANGE: The Department proposes to:

- Delete the first sentence because the criteria specified in the rest of the paragraph are protective of this aquatic life use. Adopting segment-specific criteria is not required; rather, it is an option when appropriate.
- Add the last sentence for consistency with section 11.G regarding applicability of the human health-organism only criteria.

~~I.~~ The following schedule of equations for the determination of numeric criteria for the substances listed and those criteria listed in Subsection J for aquatic life shall apply to the subcategories of aquatic life identified in this section:

~~(1) Acute criteria:~~

- ~~(a) dissolved silver $0.85 e^{(1.72(\ln(\text{hardness})) - 6.59)}$ $\mu\text{g/L}$~~
- ~~(b) dissolved cadmium $(e^{(1.0166(\ln(\text{hardness})) - 3.924)})cf$ $\mu\text{g/L}$, the hardness dependent formulae for cadmium must be multiplied by a conversion factor (cf) to be expressed as dissolved values; the acute factor for cadmium is $cf = 1.136672 - ((\ln \text{hardness})(0.041838))$~~
- ~~(c) dissolved chromium $0.316 e^{(0.819(\ln(\text{hardness})) + 3.7256)}$ $\mu\text{g/L}$~~
- ~~(d) dissolved copper $0.960 e^{(0.9422(\ln(\text{hardness})) - 1.700)}$ $\mu\text{g/L}$~~
- ~~(e) dissolved lead $(e^{(1.273(\ln(\text{hardness})) - 1.46)})cf$ $\mu\text{g/L}$, the hardness dependent formulae for lead must be multiplied by a conversion factor (cf) to be expressed as dissolved values; the acute and chronic factor for lead is $cf = 1.46203 - ((\ln \text{hardness})(0.145712))$~~
- ~~(f) dissolved nickel $0.998 e^{(0.8460(\ln(\text{hardness})) + 2.255)}$ $\mu\text{g/L}$~~
- ~~(g) dissolved zinc $0.978 e^{(0.8473(\ln(\text{hardness})) + 0.884)}$ $\mu\text{g/L}$~~

~~(2) Chronic criteria:~~

- ~~(a) dissolved cadmium $(e^{(0.7409(\ln(\text{hardness})) - 4.719)})cf$ $\mu\text{g/L}$, the hardness dependent formulae for cadmium must be multiplied by a conversion factor (cf) to be expressed as dissolved values; the chronic factor for cadmium is $cf = 1.101672 - ((\ln \text{hardness})(0.041838))$~~
- ~~(b) dissolved chromium $0.860 e^{(0.819(\ln(\text{hardness})) + 0.6848)}$ $\mu\text{g/L}$~~
- ~~(c) dissolved copper $0.960 e^{(0.8545(\ln(\text{hardness})) - 1.702)}$ $\mu\text{g/L}$~~
- ~~(d) dissolved lead $(e^{(1.273(\ln(\text{hardness})) - 4.705)})cf$ $\mu\text{g/L}$, the hardness dependent formulae for lead must be multiplied by a conversion factor (cf) to be expressed as dissolved values; the acute and chronic factor for lead is $cf = 1.46203 - ((\ln \text{hardness})(0.145712))$~~
- ~~(e) dissolved nickel $0.997 e^{(0.846(\ln(\text{hardness})) + 0.0584)}$ $\mu\text{g/L}$~~
- ~~(f) dissolved zinc $0.986 e^{(0.8473(\ln(\text{hardness})) + 0.884)}$ $\mu\text{g/L}$~~

I. Hardness-dependent acute and chronic aquatic life criteria for dissolved metals are calculated using the following equations. Hardness is based on a dissolved sample as indicated in subsection F of 20.6.4.12 NMAC.

(1) Acute aquatic life criteria for metals. The equation to calculate acute criteria in $\mu\text{g/L}$ is $\exp(m_A[\ln(\text{hardness})] + b_A)(CF)$, where the parameters are as follows:

Metal (dissolved)	m_A	b_A	Conversion factor (CF)
<u>Cadmium</u>	<u>1.0166</u>	<u>-3.924</u>	<u>1.136672-[(ln hardness)(0.041838)]</u>
<u>Chromium III</u>	<u>0.8190</u>	<u>3.7256</u>	<u>0.316</u>
<u>Copper</u>	<u>0.9422</u>	<u>-1.700</u>	<u>0.960</u>
<u>Lead</u>	<u>1.273</u>	<u>-1.460</u>	<u>1.46203-[(ln hardness)(0.145712)]</u>
<u>Nickel</u>	<u>0.8460</u>	<u>2.255</u>	<u>0.998</u>
<u>Silver</u>	<u>1.72</u>	<u>-6.59</u>	<u>0.85</u>
<u>Zinc</u>	<u>0.8473</u>	<u>0.884</u>	<u>0.978</u>

(2) **Chronic aquatic life criteria for metals.** The equation to calculate chronic criteria in µg/L is $\exp(m_C[\ln(\text{hardness})] + b_C)(CF)$, where the parameters are as follows:

Metal (dissolved)	m_C	b_C	Conversion factor (CF)
<u>Cadmium</u>	<u>0.7409</u>	<u>-4.719</u>	<u>1.101672-[(ln hardness)(0.041838)]</u>
<u>Chromium III</u>	<u>0.8190</u>	<u>0.6848</u>	<u>0.860</u>
<u>Copper</u>	<u>0.8545</u>	<u>-1.702</u>	<u>0.960</u>
<u>Lead</u>	<u>1.273</u>	<u>-4.705</u>	<u>1.46203-[(ln hardness)(0.145712)]</u>
<u>Nickel</u>	<u>0.8460</u>	<u>0.0584</u>	<u>0.997</u>
<u>Zinc</u>	<u>0.8473</u>	<u>0.884</u>	<u>0.986</u>

(3) Selected values of calculated acute and chronic criteria (µg/L).

<u>Hardness as CaCO₃ (mg/L)</u>		<u>Silver</u>	<u>Cadmium</u>	<u>Chromium III</u>	<u>Copper</u>	<u>Lead</u>	<u>Nickel</u>	<u>Zinc</u>
<u>25</u>	<u>Acute</u>	<u>0.3</u>	<u>0.5</u>	<u>180</u>	<u>4</u>	<u>14</u>	<u>140</u>	<u>36</u>
	<u>Chronic</u>	-	<u>0.1</u>	<u>24</u>	<u>3</u>	<u>1</u>	<u>16</u>	<u>36</u>
<u>30</u>	<u>Acute</u>	<u>0.4</u>	<u>0.6</u>	<u>210</u>	<u>4</u>	<u>17</u>	<u>170</u>	<u>42</u>
	<u>Chronic</u>	-	<u>0.1</u>	<u>28</u>	<u>3</u>	<u>1</u>	<u>19</u>	<u>43</u>
<u>40</u>	<u>Acute</u>	<u>0.7</u>	<u>0.8</u>	<u>270</u>	<u>6</u>	<u>24</u>	<u>220</u>	<u>54</u>
	<u>Chronic</u>	-	<u>0.1</u>	<u>35</u>	<u>4</u>	<u>1</u>	<u>24</u>	<u>54</u>
<u>50</u>	<u>Acute</u>	<u>1.0</u>	<u>1.0</u>	<u>320</u>	<u>7</u>	<u>30</u>	<u>260</u>	<u>65</u>
	<u>Chronic</u>	-	<u>0.2</u>	<u>42</u>	<u>5</u>	<u>1</u>	<u>29</u>	<u>66</u>
<u>60</u>	<u>Acute</u>	<u>1.3</u>	<u>1.2</u>	<u>370</u>	<u>8</u>	<u>37</u>	<u>300</u>	<u>76</u>
	<u>Chronic</u>	-	<u>0.2</u>	<u>49</u>	<u>6</u>	<u>1</u>	<u>34</u>	<u>77</u>
<u>70</u>	<u>Acute</u>	<u>1.7</u>	<u>1.4</u>	<u>430</u>	<u>10</u>	<u>44</u>	<u>350</u>	<u>87</u>
	<u>Chronic</u>	-	<u>0.2</u>	<u>55</u>	<u>7</u>	<u>2</u>	<u>38</u>	<u>87</u>
<u>80</u>	<u>Acute</u>	<u>2.2</u>	<u>1.6</u>	<u>470</u>	<u>11</u>	<u>51</u>	<u>390</u>	<u>97</u>
	<u>Chronic</u>	-	<u>0.2</u>	<u>62</u>	<u>7</u>	<u>2</u>	<u>43</u>	<u>98</u>
<u>90</u>	<u>Acute</u>	<u>2.7</u>	<u>1.8</u>	<u>520</u>	<u>12</u>	<u>58</u>	<u>430</u>	<u>107</u>
	<u>Chronic</u>	-	<u>0.2</u>	<u>68</u>	<u>8</u>	<u>2</u>	<u>48</u>	<u>108</u>
<u>100</u>	<u>Acute</u>	<u>3.2</u>	<u>2.0</u>	<u>570</u>	<u>13</u>	<u>65</u>	<u>470</u>	<u>117</u>
	<u>Chronic</u>	-	<u>0.2</u>	<u>74</u>	<u>9</u>	<u>3</u>	<u>52</u>	<u>118</u>
<u>200</u>	<u>Acute</u>	<u>11</u>	<u>4</u>	<u>1010</u>	<u>26</u>	<u>140</u>	<u>840</u>	<u>210</u>
	<u>Chronic</u>	-	<u>0</u>	<u>130</u>	<u>16</u>	<u>5</u>	<u>90</u>	<u>210</u>
<u>300</u>	<u>Acute</u>	<u>21</u>	<u>6</u>	<u>1400</u>	<u>38</u>	<u>210</u>	<u>1190</u>	<u>300</u>
	<u>Chronic</u>	-	<u>1</u>	<u>180</u>	<u>23</u>	<u>8</u>	<u>130</u>	<u>300</u>
<u>400</u>	<u>Acute</u>	<u>35</u>	<u>8</u>	<u>1770</u>	<u>50</u>	<u>280</u>	<u>1510</u>	<u>380</u>
	<u>Chronic</u>	-	<u>1</u>	<u>230</u>	<u>29</u>	<u>11</u>	<u>170</u>	<u>380</u>

BASIS FOR CHANGE: The Department proposes to:

- Change the introductory sentence to note that these criteria are hardness-dependent and add a sentence referring back to section 12.F to highlight that hardness is based on a dissolved sample. The dependency relationship is the reason why these metals criteria must be expressed by an equation. The phrase “and those criteria listed in Subsection J for aquatic life shall apply to the subcategories of aquatic life identified in this section” should be deleted because it is incomplete (i.e., ammonia criteria in subsection K and L also apply to some subcategories) and misplaced (i.e., subsection H indicates which aquatic life criteria apply to the aquatic life subcategories).
- Express the criteria equations in a more readable form. This is the form used in EPA’s *National Recommended Water Quality Criteria*.
- Apply the chromium criteria to the trivalent ion, chromium III. EPA’s currently recommended aquatic life criteria for chromium were first published in the California Toxics Rule (65 FR 31682, May 2000). The hardness-dependent equations in the Standards correspond to EPA’s chromium III recommendations, yet the criteria are applied to analyses for both trivalent and hexavalent ions (see section 12.F – proposed for deletion). NM has no criteria corresponding to EPA’s recommendation for chromium VI, the more toxic form. The Department proposes to identify the chromium III equations as such, to add chromium VI criteria to the criteria table in section 900.J and to delete section 12.F.
- Include a table showing selected calculated criteria values at a range of hardnesses. The table is intended to help the public interpret water quality data.

J. Use-Specific Numeric criteria.

(1) Notes applicable to the Table of Numeric Criteria in paragraph (2):

(a) Where the letter “a” is indicated in a cell, the criterion is hardness-based and can be referenced in Subsection I of 20.6.4.900 NMAC.

(b) Where the letter “b” is indicated in a cell, the criterion can be referenced in Subsection C of 20.6.4.900 NMAC.

(c) Criteria are in µg/L unless otherwise indicated.

(d) Abbreviations are as follows: CAS – Chemical Abstracts Service (see definition for “CAS Number” in 20.6.4.7 NMAC); DWS – domestic water supply; Irr – irrigation; LW – livestock watering; WH – wildlife habitat; HH-OO – human health-organism only; C – cancer-causing; P – persistent.

(e) The criteria are applicable to analysis of a whole-water sample except where “dissolved” is indicated.

(f) The criteria listed under human health-organism only (HH-OO) are intended to protect human health when aquatic organisms are consumed from waters containing pollutants. These criteria do not protect the aquatic life itself; rather, they protect the health of humans who ingest fish or other aquatic organisms.

(g) The cyanide criteria are based on analysis of a whole-water sample for recoverable cyanide (hydrogen cyanide, cyanide ion and cyanide complexes) expressed as CN/L.

(h) The dioxin criteria apply to the sum of the dioxin toxicity equivalents expressed as 2,3,7,8-TCDD dioxin.

(i) The criteria for polychlorinated biphenyls (PCBs) applies to the sum of all congeners, to the sum of all homologs or to the sum of all aroclors.

BASIS FOR CHANGE: The Department proposes to add this paragraph to help the public interpret the criteria table in paragraph (2). Footnotes are not allowed in NMAC filings, but this format can serve the same purpose.

- Subparagraphs (a) and (b) represent non-substantive formatting changes that make it easier to read the criteria table because it is no longer necessary to state “See 20.6.4.900.I” or “See 20.6.4.900.C” in the applicable cells.
- Subparagraphs (c) and (d) are also non-substantive formatting changes that allow for simplification of the criteria table.
- Subparagraph (e) clarifies that unfiltered samples are to be analyzed unless dissolved is indicated. The use of the term “whole-water” is recommended rather than “total” for the reasons given in the definitions section, 20.6.4.7.
- Subparagraph (f) proposes that the current human health criteria be termed “human health-organism only” criteria and explains what the new term means. The term “human health” is too broad to correctly represent what these criteria are intended to protect. The criteria do not represent safe concentrations for drinking the water or swimming in the water, two commonly assumed meanings for human health. Instead, these criteria are based on EPA’s recommended human health criteria for the consumption of organisms only. Consuming fish from waters

with pollutant concentrations higher than these criteria poses a human health risk because of the effects of bioaccumulation in the food chain.

- Subparagraph (g) – See discussion of proposed changes to the cyanide criteria under paragraph (2).
- Subparagraph (h) – The Department proposes to clarify that the dioxin criteria apply, in accordance with EPA recommendations, to the sum of the dioxin toxicity equivalents expressed as 2,3,7,8-tetrachlorodibenzo-p-dioxin (TCDD). Dioxins include a group of chemicals that share certain similar chemical structures and biological characteristics. The chemical 2,3,7,8-TCDD dioxin is the most studied and the most toxic of these compounds. Because exposure is typically to variable mixtures of dioxins, EPA and others use Toxicity Equivalency Factors (TEFs) that compare the potential toxicity of each of the individual dioxins to the relative toxicity of TCDD. The toxicity of a mixture can be expressed in terms of its Toxicity Equivalents (TEQs), which is the amount of TCDD it would take to equal the combined toxic effect of all the dioxin-like compounds found in that mixture. In its 2002 National Recommended Water Quality Criteria document, EPA explained that the recommended dioxin criteria were expressed in terms of 2,3,7,8 TCDD dioxin and “and should be used in conjunction with the national/international convention of toxicity equivalence factors (TEF/TEQs) to account for the additive effects of other dioxin-like compounds (dioxins).” The clarification is needed in the Standards so that the criteria are not interpreted to apply only to 2,3,7,8 TCDD dioxin. Such an interpretation would discount the toxic effects of other dioxin compounds. For additional information, see Attachment 7.
- Subparagraph (i) notes that the PCB criteria apply to the sum of all PCBs, expressed either as congeners, homologs or aroclors. PCB congener is the term used to refer to one of the 209 PCB compounds or isomers. For PCBs, the terms congener, isomer and compound are synonyms. This information replaces the definition of “total PCBs” in section 7. It should be included here rather than in section 7 because it pertains to how the criteria are interpreted, rather than truly defining PCBs.

(2) Table of Numeric Criteria: The following table sets forth the numeric criteria applicable to ~~[adopted by the commission to protect]~~ existing, designated and attainable uses. Additional criteria that are not compatible with this table are found in Subsections A through I, K and L of this section.

BASIS FOR CHANGE: The Department proposes to:

- Replace “adopted by the commission to protect” with “applicable to” because section 900 concerns criteria applicable to uses, and because the human health criteria are not intended to protect the aquatic life uses themselves. The substitute wording is more accurate.
- Add reference to the ammonia criteria in subsections K and L which was previously omitted.

Pollutant total, unless indicated	CAS Number	Domestic Water Supply µg/L unless indicated	Irrigation µg/L unless indicated	Livestock Watering µg/L unless indicated	Wildlife Habitat µg/L unless indicated	Aquatic Life		Human Health	Cancer Causing (C) or Persistent (P)
						Acute	Chronic		

Pollutant Whole-water, unless indicated	CAS Number	DWS	Irr	LW	WH	Aquatic Life			Type
						Acute	Chronic	HH-OO	

BASIS FOR CHANGE: The Department proposes to revise the header row of the table as follows:

- Use abbreviations, explained in paragraph (1), to provide more flexibility in column width. Particular advantages are that more space can be allowed for the pollutant name and that the new “organism only” extension of the human health criteria can be accommodated. The columns retain the same order as the existing table.
- List the human health-organism only criteria under the aquatic life use because human health is not a designated use as are the other criteria column headers; rather, these criteria apply to aquatic life uses as do acute and chronic criteria.

For NMAC filing, the entire table must be shown as struck out and a new table substituted. However, the Department has retained the header and identified individual changes to criteria values to make it easier for the public to see the proposed changes.

Pollutant Whole-water, unless indicated	CAS Number	DWS	Irr	LW	WH	Aquatic Life			Type
						Acute	Chronic	HH-OO	
Aluminum, dissolved	7429-90-5		5,000			750	87		
Antimony, dissolved	7440-36-0	[5-6] 6						640	P
Arsenic, dissolved	7440-38-2	[2-3] 10	100	200		340	150	9.0	C,P
Asbestos	1332-21-4	7,000,000 fibers/L							
Barium, dissolved	7440-39-3	2,000							
Beryllium, dissolved	7440-41-7	4							
Boron, dissolved	7440-42-8		750	5,000					
Cadmium, dissolved	7440-43-9	5	10	50		[See 20.6.4.9 00.F] a	[See 20.6.4.900.F] a		
Chlorine residual	7782-50-5				11	19	11		
Chromium <u>III</u> , dissolved	[18540-29-9] 16065-83-1	[100]	[100]	[1,000]		[See 20.6.4.9 00.F] a	[See 20.6.4.900.F] a		
Chromium <u>VI</u> , dissolved	18540-29-9					16	11		
Chromium <u>III + VI</u> , dissolved		100	100	1,000					
Cobalt, dissolved	7440-48-4		50	1,000					
Copper, dissolved	7440-50-8	1300	200	500		[See 20.6.4.9 00.F] a	[See 20.6.4.900.F] a		
Cyanide, dissolved	57-12-5	200	-	-	-	-	-	-	-
Cyanide[<u>-weak acid dissociable</u>]	57-12-5	[700] 200			5.2	22.0	5.2	[220,000] 140	
Lead, dissolved	7439-92-1	[50] 15	5,000	100		[See 20.6.4.9 00.F] a	[See 20.6.4.900.F] a		
Mercury	7439-97-6	2		10	0.77				
Mercury, dissolved	7439-97-6					1.4	0.77		
Methylmercury	22967-92-6							0.3 mg/kg in fish tissue	P
Molybdenum, dissolved	7439-98-7		1,000						
Nickel, dissolved	7440-02-0	[100] 700				[See 20.6.4.9 00.F] a	[See 20.6.4.900.F] a	4,600	P
Nitrate as N		10 mg/L							
Nitrite + Nitrate as N				[132] 20 mg/L					
Selenium, dissolved	7782-49-2	50	[See 20.6.4.9 00.C] b	50				4,200	P
Selenium[<u>-total recoverable</u>]	7782-49-2				5.0	20.0	5.0		
Silver, dissolved	7440-22-4					[See 20.6.4.9 00.F] a			
Thallium, dissolved	7440-28-0	[1-7] 2						[6-3] 0.47	P
Uranium, dissolved	7440-61-1	[5,000] 30							
Vanadium, dissolved	7440-62-2		100	100					
Zinc, dissolved	7440-66-6	[7,400] 10,500	2,000	25,000		[See 20.6.4.9 00.F] a	[See 20.6.4.900.F] a	26,000	P

Pollutant Whole-water, unless indicated	CAS Number	DWS	Irr	LW	WH	Aquatic Life			Type
						Acute	Chronic	HH-OO	
Adjusted gross alpha [(see 20.6.4.900-B and -F)]		15 pCi/L		15 pCi/L					
Radium 226 + Radium 228		5 pCi/L		30.0 pCi/L					
Strontium 90		8 pCi/L							
Tritium		20,000 pCi/L		20,000 pCi/L					
Acenaphthene	83-32-9	[670] 2,100					990		
Acrolein	107-02-8	[490] 546					290		
Acrylonitrile	107-13-1	[0.54] 0.65					2.5		C
Aldrin	309-00-2	[0.00049] 0.021				3.0	0.00050		C,P
Anthracene	120-12-7	[8,300] 10,500					40,000		
Benzene	71-43-2	[22] 5					510		C
Benzidine	92-87-5	[0.00086] 0.0015					0.0020		C
Benzoanthracene	56-55-3	[0.038] 0.048					0.18		C
Benzoapyrene	50-32-8	[0.038] 0.2					0.18		C,P
Benzo(b)fluoranthene	205-99-2	[0.038] 0.048					0.18		C
Benzo(k)fluoranthene	207-08-9	[0.038] 0.048					0.18		C
alpha-BHC	319-84-6	[0.026] 0.056					0.049		C
beta-BHC	319-85-7	0.091					0.17		C
Gamma-BHC (Lindane)	58-89-9	[0.19] 0.20				0.95	[0.63] 1.8		[C]
Bis(2-chloroethyl) ether	111-44-4	0.30					5.3		C
Bis(2-chloroisopropyl) ether	108-60-1	1,400					65,000		
Bis(2-ethylhexyl) phthalate	117817	[12] 6					22		C
Bromoform	75-25-2	[43] 4					1,400		C
Butylbenzyl phthalate	85-68-7	[1,500] 7,000					1,900		
Carbon tetrachloride	56-23-5	[2.3] 5					16		C
Chlordane	57-74-9	[0.0080] 2				2.4	0.0043	0.0081	C,P
Chlorobenzene	108-90-7	[680] 100					[21,000] 1,600		
Chlorodibromomethane	124-48-1	[4.0] 4.2					130		C
Chloroform	67-66-3	57					4,700		C
2-Chloronaphthalene	91-58-7	[1,000] 2,800					1,600		
2-Chlorophenol	95-57-8	[81] 175					150		
Chrysene	218-01-9	[0.038] 0.048					0.18		C
<u>Diazinon</u>	<u>333-41-5</u>					<u>0.17</u>	<u>0.17</u>		
4,4'-DDT and derivatives		[0.0022] 1.0			0.001	1.1	0.001	0.0022	C,P
Dibenzo(a,h)anthracene	53-70-3	[0.038] 0.048					0.18		C
Dibutyl phthalate	84-74-2	[2,000] 3,500					4,500		
1,2-Dichlorobenzene	95-50-1	[2,700] 600					[17,000] 1,300		
1,3-Dichlorobenzene	541-73-1	[320] 469					960		
1,4-Dichlorobenzene	106-46-7	[400] 75					[2,600] 190		
3,3'-Dichlorobenzidine	91-94-1	[0.24] 0.78					0.28		C
Dichlorobromomethane	75-27-4	[5.5] 5.6					170		C
1,2-Dichloroethane	107-06-2	[3.8] 5					370		C
1,1-Dichloroethylene	75-35-4	[0.57] 7					[32] 7,100		C
2,4-Dichlorophenol	120-83-2	[77] 105					290		

Pollutant Whole-water, unless indicated	CAS Number	DWS	Irr	LW	WH	Aquatic Life			Type
						Acute	Chronic	HH-OO	
1,2-Dichloropropane	78-87-5	5.0						150	C
1,3-Dichloropropene	542-75-6	[49] 3.5						[1,700] 210	C
Diieldrin	60-57-1	[0.00052] 0.022				0.24	0.056	0.00054	C,P
Diethyl phthalate	84-66-2	[47,000] 28,000						44,000	
Dimethyl phthalate	131-11-3	[270,000] 350,000						1,100,000	
2,4-Dimethylphenol	105-67-9	[380] 700						850	
2,4-Dinitrophenol	51-28-5	[69] 70						5,300	
2,4-Dinitrotoluene	121-14-2	1.1						34	C
[2,3,7,8-TCDD] Dioxin	[1746-01-6]	[5.0E-08] 3.0E-05						5.1E-08	C,P
1,2-Diphenylhydrazine	122-66-7	[0.36] 0.44						2.0	C
alpha-Endosulfan	959-98-8	62				0.22	0.056	89	
beta-Endosulfan	33213-65-9	62				0.22	0.056	89	
Endosulfan sulfate	1031-07-8	62						89	
Endrin	72-20-8	[0.76] 2				0.086	0.036	[0.81] 0.060	
Endrin aldehyde	7421-93-4	[0.29] 10.5						0.30	
Ethylbenzene	100-41-4	[3,100] 700						[29,000] 2,100	
Fluoranthene	206-44-0	[130] 1,400						140	
Fluorene	86-73-7	[1,100] 1,400						5,300	
Heptachlor	76-44-8	[0.00079] 0.40				0.52	0.0038	0.00079	C
Heptachlor epoxide	1024-57-3	[0.00039] 0.20				0.52	0.0038	0.00039	C
Hexachlorobenzene	118-74-1	[0.0028] 1						0.0029	C,P
Hexachlorobutadiene	87-68-3	[4.4] 4.5						180	C
Hexachlorocyclopentadiene	77-47-4	[240] 50						[17,000] 1,100	
Hexachloroethane	67-72-1	[14] 25						33	C
Ideno(1,2,3-cd)pyrene	193-39-5	[0.038] 0.048						0.18	C
Isophorone	78-59-1	[350] 368						9,600	C
Methyl bromide	74-83-9	[47] 49						1,500	
2-Methyl-4,6-dinitrophenol	534-52-1	[13] 14						280	
Methylene chloride	75-09-2	[46] 5						5,900	C
Nitrobenzene	98-95-3	[17] 18						690	
N-Nitrosodimethylamine	62-75-9	0.0069						30	C
N-Nitrosodi-n-propylamine	621-64-7	0.050						5.1	C
N-Nitrosodiphenylamine	86-30-6	[33] 71						60	C
Nonylphenol	84852-15-3					28	6.6		
Polychlorinated Byphenyls (PCBs)	1336-36-3	[0.00064] 0.50			0.014	2	0.014	0.00064	C,P
Pentachlorophenol	87-86-5	[2.7] 1.0				19	15	30	C
Phenol	108-95-2	21,000						1.7E+6	
Pyrene	129-00-0	[830] 1,050						4,000	
1,1,2,2-Tetrachloroethane	79-34-5	[1.7] 1.8						40	C
Tetrachloroethylene	127-18-4	[6.9] 5						33	C,P
Toluene	108-88-3	[6,800] 1,000						[200,000]	

Pollutant Whole-water, unless indicated	CAS Number	DWS	Irr	LW	WH	Aquatic Life			Type
						Acute	Chronic	HH-OO	
								<u>15,000</u>	
Toxaphene	8001-35-2	[0.0028] <u>3</u>				0.73	0.0002	0.0028	C
1,2-Trans- dichloroethylene	156-60-5	[700] <u>100</u>						[140,000] <u>10,000</u>	
1,2,4-Trichlorobenzene	120-82-1	[260] <u>70</u>						[940] <u>70</u>	
<u>1,1,1-Trichloroethane</u>	<u>71-55-6</u>	<u>200</u>							
1,1,2-Trichloroethane	79-00-5	[5.9] <u>5</u>						160	C
Trichloroethylene	79-01-6	[25] <u>5</u>						300	C
2,4,6-Trichlorophenol	88-06-2	[14] <u>32</u>						24	C
Vinyl chloride	75-01-4	[20] <u>2</u>						[5,300] <u>24</u>	C

BASIS FOR CHANGE:

- **Whole-water:** The Department proposes to use the term “whole-water” instead of “total” in the header column for the reasons given in section 7. A note under paragraph (1) of this subsection provides additional information.
- **Domestic Water Supply:** The Department proposes revised domestic water supply criteria based on a new approach intended to better protect the designated use. The current criteria are generally based on drinking water standards (maximum contaminant levels or MCLs) or EPA’s recommended human health criteria for the consumption of water plus organism. Which basis to rely upon in setting or updating criteria has not been clear. The result is that some of the criteria are more and some less stringent than MCLs, even though MCLs are considered the appropriate level of protection for drinking water under the federal Safe Drinking Water Act. The prior practice of basing domestic water supply criteria on EPA’s water plus organism recommendations has been criticized by members of the Commission and others because the designated use pertains only to ingesting water not fish.

In order to address these concerns, the Department proposes that domestic water supply criteria be set equal to the MCL whenever an MCL exists. The intent is to provide the same drinking water quality to people relying on private, unregulated systems, represented by the domestic water supply use, as those who are served by public water systems which are required to meet MCLs. This policy would also lay the groundwork for more consistency between New Mexico’s surface water and ground water standards. Where no MCL exists, the Department proposes that a “water-only” value serve as the criterion instead of a water-plus-organism value. “Water-only” values consider the health risks of ingesting only water and can be calculated using the same equations that EPA uses to derive water-plus-organism values, except that the bioaccumulation factor drops away. The resulting equation is also the same as that used to derive maximum contaminant level goals (MCLGs) under the Safe Drinking Water Act. The human health criteria, proposed to be termed “human health-organism only” criteria (see discussion under paragraph (1) of this subsection), continue to protect persons who consume fish or other aquatic organisms.

The calculated water-only values proposed as domestic water supply criteria include EPA’s 2003 recommended updates for thallium, cyanide, gamma-BHC (lindane), chlorobenzene, 1,2 dichlorobenzene, 1,4-dichlorobenzene, 1,1-dichloroethylene, 1,3-dichloropropene, endrin, ethylbenzene, hexachlorocyclopentadiene, toluene, 1,2 trans-dichloroethylene, 1,2,4-trichlorobenzene and vinyl chloride (Federal Register Vol. 68, p. 75510, December 31, 2003). The risk level for carcinogens was adjusted to 10⁻⁵ per New Mexico’s practice.

Compared to the current domestic water supply criteria, some of the revised criteria would be *more stringent* due to the use of MCLs. Examples include benzene, methylene chloride and trichloroethylene. Examples of criteria that would become *less stringent* due to the use of MCLs include chlordane, dioxin, heptachlor and PCBs. However, in some cases, more stringent criteria continue to apply to the pollutant to protect other designated uses, as in the case of dioxin and PCBs.

Examples of criteria that would be significantly *less stringent* due to the use of water-only calculations instead of water plus organism include: aldrin, DDT and endrin. These differences reflect a higher risk for these pollutants associated with consumption of fish as opposed to water.

Additional background on the Department's proposal, including the water-only equations and a comparison of the proposed criteria revisions with EPA 304(a) criteria, MCLs and ground water standards, is provided in Attachment 8.

- **Human Health-Organism Only Criteria:** The Department proposes to refer to the human health criteria as human health-organism only criteria for the reasons given in paragraph (1) and to place them under aquatic life uses as explained at the beginning of this paragraph. The revised values reflect EPA's 2003 recommended updates, with the values for carcinogens adjusted to a risk level of 10^{-5} per New Mexico's practice.
- **Adjusted Gross Alpha:** The Department proposes to strike the reference to section 900.B and F because it is incorrect. The intended reference was to the definition of adjusted gross alpha in section 7, but it is not necessary to reference the definition.
- **Chromium:** As discussed in section 900.I, the Department proposes to differentiate aquatic life criteria for chromium III and chromium VI in accordance with EPA criteria recommendations. The existing criteria for domestic water supply (MCL), livestock watering and irrigation (1972 Blue Book), however, are based on analysis for both ions, so these are proposed for separate listing in the table.
- **Cyanide:** The Department proposes that the human health-organism only cyanide criteria be updated based upon EPA's 2003 recommendations; that the domestic water supply criterion be based on the MCL consistent with the proposal discussed above for setting domestic water supply criteria; that cyanide be analyzed from whole-water samples because analysis of the dissolved portion does not measure cyanide that is retained on particles; that whole-water samples be analyzed for recoverable cyanide for all designated uses because this analytical method captures cyanide in the majority of the forms that may have a deleterious effect on uses; and that it be clarified that cyanide should be reported as CN/L. A detailed discussion of these proposals is provided in Attachment 9.
- **Nitrite + Nitrate:** The Department proposes to change the criterion for livestock watering to 20 mg/L nitrate + nitrite as nitrogen. Literature from the National Research Council and NMSU Extension Service agrees that water with concentrations of nitrate as nitrogen ($\text{NO}_3\text{-N}$) in excess of 20 mg/L could be unsafe for dairy cattle. See Attachment 10.
- **Selenium:** The department proposes to strike "total recoverable" because the type of sample (whole-water, not dissolved) is already indicated in section 900.J(1)(e).
- **Diazinon and Nonylphenol:** The Department proposes to add acute and chronic aquatic life criteria for two new pollutants, diazinon and nonylphenol. EPA promulgated recommended criteria for these non-priority pollutants in February 2006 pursuant to CWA section 304(a). Although the 304(a) criteria do not impose any legally enforceable requirements, states and tribes are encouraged to use the criteria as guidance in the adoption of water quality standards. The criteria being proposed are discussed in EPA guidance documents 822-R-05-005 (nonylphenol) and 822-R-05-006 (diazinon).

Diazinon is a pesticide that has had widespread use throughout the United States in urban areas, agricultural areas, and households. Although the use of the chemical has been banned in urban areas and households since 2004, diazinon continues to be used in agricultural areas and is moderately persistent in the environment and is often found in wastewater treatment plant discharges and in storm water runoff. Due to the widespread use and toxic effects of diazinon, the Department recommends adoption of EPA's recommended criteria in order to protect aquatic life.

Nonylphenol is an organic chemical produced in large quantities in the United States. It is toxic to aquatic life, causing reproductive effects in aquatic organisms. Nonylphenol is resistant to natural degradation in water and is often found in wastewater treatment plant discharges as a breakdown product from surfactants and detergents.

Due to the toxic effects of nonylphenol on fish and its potential to be discharged from wastewater treatment plants, the Department recommends adoption of EPA's recommended criteria in order to protect aquatic life.

More information about diazinon and nonylphenol and further discussion of the Department's recommendations are provided in Attachment 11.

- **Dioxin:** The Department recommends referring to the pollutant as “dioxin” and deleting the CAS number because the criteria apply to all dioxin compounds as expressed through toxicity equivalence factors, not just to 2,3,7,8 TCDD dioxin. See additional discussion of proposed changes relating to the dioxin criteria under paragraph (1).
- **PCBs:** The Department proposes to add an acute aquatic life criterion for PCBs based on EPA's 1986 Gold Book. EPA's current *National Recommended Water Quality Criteria* document does not specify an acute aquatic life value. Several states, including Arizona and Colorado, have retained the 1986 criterion, and the Department believes it is better to adopt the earlier criterion than to have no criterion.

K. ~~Acute Criteria, Total Ammonia (mg/L as N)~~ Acute aquatic life criteria for ammonia (un-ionized ammonia and ammonium ion) based on analysis of whole-water samples are dependent on pH and the presence or absence of salmonids. The criteria in mg/L as N are as follows:

pH	<u>Where Salmonids Present</u>	<u>Where Salmonids Absent</u>
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

BASIS FOR CHANGE:

- For both subsections K and L the Department proposes to add an introductory sentence clarifying that the ammonia criteria are aquatic life criteria. The sentence also avoids the use of the word “total” for the reasons given in section 7. Instead, it identifies the ammonia species of interest. According to EPA's *1999 Update of Ambient Water Quality Criteria for Ammonia*, the joint toxicity of un-ionized ammonia and ammonium ion is an

important factor in the overall toxicity of ammonia. The sentence specifies that the analysis is of whole-water samples – the previous language was silent on this point.

- The Department proposes to add the word “where” in the header on the table to give an indication that the determination of the presence or absence of salmonids is based on the aquatic life use or historical records for each water body, rather than timing or season.

L. [Chronic Criteria, Total Ammonia (mg/L as N), Fish Early Life Stages Present] Chronic aquatic life criteria for ammonia (un-ionized ammonia and ammonium ion) based on analysis of whole-water samples are dependent on pH, temperature and whether fish in early life stages are present or absent. The criteria are calculated according to the following equations.

(1) Chronic criteria for ammonia when fish early life stages are present:

(a) The equation to calculate chronic criteria in mg/L as N is:

$$\left(\frac{0.0577}{1+10^{7.688-pH}} + \frac{2.487}{1+10^{pH-7.688}} \right) \times \text{MIN}(2.85, 1.45 - 10^{0.028 \times (25-T)})$$

(b) Selected values of calculated chronic criteria:

pH	Temperature (°C)										
	0	14	15	16	18	20	22	24	26	28	30
6.5	6.67	6.67	6.46	6.06	5.33	4.68	4.12	3.62	3.18	2.80	2.46
6.6	6.57	6.57	6.36	5.97	5.25	4.61	4.05	3.56	3.13	2.75	2.42
6.7	6.44	6.44	6.25	5.86	5.15	4.52	3.98	3.50	3.07	2.70	2.37
6.8	6.29	6.29	6.10	5.72	5.03	4.42	3.89	3.42	3.00	2.64	2.32
6.9	6.12	6.12	5.93	5.56	4.89	4.30	3.78	3.32	2.92	2.57	2.25
7.0	5.91	5.91	5.73	5.37	4.72	4.15	3.65	3.21	2.82	2.48	2.18
7.1	5.67	5.67	5.49	5.15	4.53	3.98	3.50	3.08	2.70	2.38	2.09
7.2	5.39	5.39	5.22	4.90	4.31	3.78	3.33	2.92	2.57	2.26	1.99
7.3	5.08	5.08	4.92	4.61	4.06	3.57	3.13	2.76	2.42	2.13	1.87
7.4	4.73	4.73	4.59	4.30	3.78	3.32	2.92	2.57	2.26	1.98	1.74
7.5	4.36	4.36	4.23	3.97	3.49	3.06	2.69	2.37	2.08	1.83	1.61
7.6	3.98	3.98	3.85	3.61	3.18	2.79	2.45	2.16	1.90	1.67	1.47
7.7	3.58	3.58	3.47	3.25	2.86	2.51	2.21	1.94	1.71	1.50	1.32
7.8	3.18	3.18	3.09	2.89	2.54	2.23	1.96	1.73	1.52	1.33	1.17
7.9	2.80	2.80	2.71	2.54	2.24	1.96	1.73	1.52	1.33	1.17	1.03
8.0	2.43	2.43	2.36	2.21	1.94	1.71	1.50	1.32	1.16	1.02	0.897
8.1	2.10	2.10	2.03	1.91	1.68	1.47	1.29	1.14	1.00	0.879	0.773
8.2	1.79	1.79	1.74	1.63	1.43	1.26	1.11	0.973	0.855	0.752	0.661
8.3	1.52	1.52	1.48	1.39	1.22	1.07	0.941	0.827	0.727	0.639	0.562
8.4	1.29	1.29	1.25	1.17	1.03	0.906	0.796	0.700	0.615	0.541	0.475
8.5	1.09	1.09	1.06	0.990	0.870	0.765	0.672	0.591	0.520	0.457	0.401
8.6	0.920	0.920	0.892	0.836	0.735	0.646	0.568	0.499	0.439	0.386	0.339
8.7	0.778	0.778	0.754	0.707	0.622	0.547	0.480	0.422	0.371	0.326	0.287
8.8	0.661	0.661	0.641	0.601	0.528	0.464	0.408	0.359	0.315	0.277	0.244
8.9	0.565	0.565	0.548	0.513	0.451	0.397	0.349	0.306	0.269	0.237	0.208
9.0	0.486	0.486	0.471	0.442	0.389	0.342	0.300	0.264	0.232	0.204	0.179

[M. Chronic Criteria, Total Ammonia (mg/L as N), Fish Early Life Stages Absent]

(2) Chronic criteria for ammonia when fish early life stages are absent.

(a) The equation to calculate chronic criteria in mg/L as N is:

$$\left(\frac{0.0577}{1 + 10^{7.688 - \text{pH}}} + \frac{2.487}{1 + 10^{\text{pH} - 7.688}} \right) \times 1.45 \times 10^{0.028(25 - \text{MAX}(T, 7))}$$

(b) Selected values of calculated chronic criteria:

pH	Temperature (°C)									
	0	7	8	9	10	11	12	13	14	15
6.5	10.8	10.8	10.1	9.51	8.92	8.36	7.84	7.35	6.89	6.46
6.6	10.7	10.7	9.99	9.37	8.79	8.24	7.72	7.24	6.79	6.36
6.7	10.5	10.5	9.81	9.20	8.62	8.08	7.58	7.11	6.66	6.25
6.8	10.2	10.2	9.58	8.98	8.42	7.90	7.40	6.94	6.51	6.10
6.9	9.93	9.93	9.31	8.73	8.19	7.68	7.20	6.75	6.33	5.93
7.0	9.60	9.60	9.00	8.43	7.91	7.41	6.95	6.52	6.11	5.73
7.1	9.20	9.20	8.63	8.09	7.58	7.11	6.67	6.25	5.86	5.49
7.2	8.75	8.75	8.20	7.69	7.21	6.76	6.34	5.94	5.57	5.22
7.3	8.24	8.24	7.73	7.25	6.79	6.37	5.97	5.60	5.25	4.92
7.4	7.69	7.69	7.21	6.76	6.33	5.94	5.57	5.22	4.89	4.59
7.5	7.09	7.09	6.64	6.23	5.84	5.48	5.13	4.81	4.51	4.23
7.6	6.46	6.46	6.05	5.67	5.32	4.99	4.68	4.38	4.11	3.85
7.7	5.81	5.81	5.45	5.11	4.79	4.49	4.21	3.95	3.70	3.47
7.8	5.17	5.17	4.84	4.54	4.26	3.99	3.74	3.51	3.29	3.09
7.9	4.54	4.54	4.26	3.99	3.74	3.51	3.29	3.09	2.89	2.71
8.0	3.95	3.95	3.70	3.47	3.26	3.05	2.86	2.68	2.52	2.36
8.1	3.41	3.41	3.19	2.99	2.81	2.63	2.47	2.31	2.17	2.03
8.2	2.91	2.91	2.73	2.56	2.40	2.25	2.11	1.98	1.85	1.74
8.3	2.47	2.47	2.32	2.18	2.04	1.91	1.79	1.68	1.58	1.48
8.4	2.09	2.09	1.96	1.84	1.73	1.62	1.52	1.42	1.33	1.25
8.5	1.77	1.77	1.66	1.55	1.46	1.37	1.28	1.20	1.13	1.06
8.6	1.49	1.49	1.40	1.31	1.23	1.15	1.08	1.01	0.951	0.892
8.7	1.26	1.26	1.18	1.11	1.04	0.976	0.915	0.858	0.805	0.754
8.8	1.07	1.07	1.01	0.944	0.855	0.829	0.778	0.729	0.684	0.641
8.9	0.917	0.917	0.860	0.806	0.756	0.709	0.664	0.623	0.584	0.548
9.0	0.790	0.790	0.740	0.694	0.651	0.610	0.572	0.536	0.503	0.471

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 (refer to table in paragraph (1) [Subsection L of 20.6.4.900 NMAC]).

BASIS FOR CHANGE: The Department proposes to:

- Add an introductory sentence for the reasons given under Subsection K.
- Delete subsection M and instead include both sets of chronic criteria in one subsection.
- State the criteria in equation form, similar to the metals criteria in Subsection I. The tables are retained, but they represent selected calculated values. For temperatures not listed in the tables, the equation must be used to arrive at the applicable criterion.
- Add the word “when” in reference to the presence or absence of fish in early life stages as an indication that the determination is based on the time of the year.

~~[N — Dissolved oxygen saturation based on temperature and elevation.~~

~~(1) — Elevation 5,000 feet or less:]~~

		Elevation (feet)										
		0	500	1,000	1,500	2,000	2,500	3,000	3,500	4,000	4,500	5,000
perat time	0	14.6	14.3	14.1	13.8	13.6	13.3	13.1	12.8	12.6	12.3	12.1
	1	14.2	13.9	13.7	13.4	13.2	12.9	12.7	12.5	12.2	12.0	11.8
	2	13.8	13.6	13.3	13.1	12.8	12.6	12.4	12.1	11.9	11.7	11.5

	Elevation (feet)										
	0	500	1,000	1,500	2,000	2,500	3,000	3,500	4,000	4,500	5,000
3	13.4	13.2	13.0	12.7	12.5	12.3	12.0	11.8	11.6	11.4	11.1
4	13.1	12.8	12.6	12.4	12.2	11.9	11.7	11.5	11.3	11.1	10.9
5	12.7	12.5	12.3	12.1	11.8	11.6	11.4	11.2	11.0	10.8	10.6
6	12.4	12.2	12.0	11.8	11.5	11.3	11.1	10.9	10.7	10.5	10.3
7	12.1	11.9	11.7	11.5	11.3	11.1	10.8	10.6	10.4	10.2	10.1
8	11.8	11.6	11.4	11.2	11.0	10.8	10.6	10.4	10.2	10.0	9.8
9	11.5	11.3	11.1	10.9	10.7	10.5	10.3	10.1	9.9	9.8	9.6
10	11.3	11.1	10.9	10.7	10.5	10.3	10.1	9.9	9.7	9.5	9.4
11	11.0	10.8	10.6	10.4	10.2	10.0	9.9	9.7	9.5	9.3	9.1
12	10.8	10.6	10.4	10.2	10.0	9.8	9.6	9.5	9.3	9.1	8.9
13	10.5	10.3	10.1	9.9	9.8	9.6	9.4	9.2	9.1	8.9	8.7
14	10.3	10.1	9.9	9.7	9.6	9.4	9.2	9.0	8.9	8.7	8.5
15	10.1	9.9	9.7	9.5	9.3	9.2	9.0	8.8	8.7	8.5	8.4
16	9.8	9.7	9.5	9.3	9.2	9.0	8.8	8.7	8.5	8.3	8.2
17	9.6	9.5	9.3	9.1	9.0	8.8	8.6	8.5	8.3	8.2	8.0
18	9.4	9.3	9.1	8.9	8.8	8.6	8.5	8.3	8.1	8.0	7.8
19	9.3	9.1	8.9	8.8	8.6	8.4	8.3	8.1	8.0	7.8	7.7
20	9.1	8.9	8.7	8.6	8.4	8.3	8.1	8.0	7.8	7.7	7.5
21	8.9	8.7	8.6	8.4	8.3	8.1	8.0	7.8	7.7	7.5	7.4
22	8.7	8.6	8.4	8.2	8.1	8.0	7.8	7.7	7.5	7.4	7.2
23	8.6	8.4	8.2	8.1	7.9	7.8	7.7	7.5	7.4	7.2	7.1
24	8.4	8.2	8.1	7.9	7.8	7.7	7.5	7.4	7.2	7.1	7.0
25	8.2	8.1	7.9	7.8	7.7	7.5	7.4	7.2	7.1	7.0	6.8
26	8.1	7.9	7.8	7.7	7.5	7.4	7.2	7.1	7.0	6.8	6.7
27	7.9	7.8	7.7	7.5	7.4	7.2	7.1	7.0	6.8	6.7	6.6
28	7.8	7.7	7.5	7.4	7.2	7.1	7.0	6.9	6.7	6.6	6.5
29	7.7	7.5	7.4	7.3	7.1	7.0	6.9	6.7	6.6	6.5	6.4
30	7.5	7.4	7.3	7.1	7.0	6.9	6.7	6.6	6.5	6.4	6.3

[————— (2) Elevation greater than 5,000 feet:]

	Temperature (°C)	Elevation (feet)									
		5,500	6,000	6,500	7,000	7,500	8,000	8,500	9,000	9,500	10,000
0	11.9	11.6	11.4	11.2	11.0	10.8	10.6	10.3	10.1	9.9	
1	11.5	11.3	11.1	10.9	10.7	10.5	10.3	10.1	9.9	9.7	
2	11.2	11.0	10.8	10.6	10.4	10.2	10.0	9.8	9.6	9.4	
3	10.9	10.7	10.5	10.3	10.1	9.9	9.7	9.5	9.3	9.1	
4	10.7	10.4	10.2	10.0	9.8	9.7	9.5	9.3	9.1	8.9	
5	10.4	10.2	10.0	9.8	9.6	9.4	9.2	9.0	8.9	8.7	
6	10.1	9.9	9.7	9.5	9.4	9.2	9.0	8.8	8.6	8.5	
7	9.9	9.7	9.5	9.3	9.1	8.9	8.8	8.6	8.4	8.2	
8	9.6	9.4	9.3	9.1	8.9	8.7	8.6	8.4	8.2	8.0	
9	9.4	9.2	9.0	8.9	8.7	8.5	8.3	8.2	8.0	7.8	
10	9.2	9.0	8.8	8.7	8.5	8.3	8.1	8.0	7.8	7.7	
11	9.0	8.8	8.6	8.5	8.3	8.1	8.0	7.8	7.6	7.5	
12	8.8	8.6	8.4	8.3	8.1	7.9	7.8	7.6	7.5	7.3	
13	8.6	8.4	8.2	8.1	7.9	7.8	7.6	7.5	7.3	7.2	
14	8.4	8.2	8.1	7.9	7.7	7.6	7.4	7.3	7.1	7.0	
15	8.2	8.0	7.9	7.7	7.6	7.4	7.3	7.1	7.0	6.8	
16	8.0	7.9	7.7	7.6	7.4	7.3	7.1	7.0	6.8	6.7	
17	7.9	7.7	7.6	7.4	7.3	7.1	7.0	6.8	6.7	6.6	
18	7.7	7.5	7.4	7.3	7.1	7.0	6.8	6.7	6.6	6.4	

	Elevation (feet)									
	5,500	6,000	6,500	7,000	7,500	8,000	8,500	9,000	9,500	10,000
19	7.5	7.4	7.2	7.1	7.0	6.8	6.7	6.6	6.4	6.3
20	7.4	7.2	7.1	7.0	6.8	6.7	6.6	6.4	6.3	6.2
21	7.2	7.1	7.0	6.8	6.7	6.6	6.4	6.3	6.2	6.0
22	7.1	7.0	6.8	6.7	6.6	6.4	6.3	6.2	6.1	5.9
23	7.0	6.8	6.7	6.6	6.4	6.3	6.2	6.1	5.9	5.8
24	6.8	6.7	6.6	6.4	6.3	6.2	6.1	5.9	5.8	5.7
25	6.7	6.6	6.5	6.3	6.2	6.1	6.0	5.8	5.7	5.6
26	6.6	6.5	6.3	6.2	6.1	6.0	5.8	5.7	5.6	5.5
27	6.5	6.3	6.2	6.1	6.0	5.9	5.7	5.6	5.5	5.4
28	6.4	6.2	6.1	6.0	5.9	5.8	5.6	5.5	5.4	5.3
29	6.2	6.1	6.0	5.9	5.8	5.7	5.5	5.4	5.3	5.2
30	6.1	6.0	5.9	5.8	5.7	5.6	5.4	5.3	5.2	5.1

[20.6.4.900 NMAC - Rp 20 NMAC 6.1.3100, 10-12-00; A, 10-11-02; A, 05-23-05; A, 07-17-05; A, XX-XX-XX]

BASIS FOR CHANGE: The Department proposes to delete the dissolved oxygen saturation tables for the reasons given under 20.6.4.113 NMAC.

20.6.4.901 PUBLICATION REFERENCES: These documents are intended as guidance and are available for public review during regular business hours at the offices of the surface water quality bureau and the New Mexico environment department public library. Copies of these documents have also been filed with the New Mexico state records center in order to provide greater access to this information.

A. American public health association. 1992. *Standard methods for the examination of water and wastewater, 18th Edition*. Washington, D.C. 1048 p.

B. American public health association. 1995. *Standard methods for the examination of water and wastewater, 19th Edition*. Washington, D.C. 1090 p.

C. American public health association. 1998. *Standard methods for the examination of water and wastewater, 20th Edition*. Washington, D.C. 1112 p.

D. United States geological survey. 1987. *Methods for determination of inorganic substances in water and fluvial sediments, techniques of water-resource investigations of the United States geological survey*. Washington, D.C. 80 p.

E. United States geological survey. 1987. *Methods for the determination of organic substances in water and fluvial sediments, techniques of water-resource investigations of the U.S. geological survey*. Washington, D.C. 80 p.

F. United States environmental protection agency. 1974. *Methods for chemical analysis of water and wastes*. National environmental research center, Cincinnati, Ohio. (EPA-625-/6-74-003). 298 p.

G. New Mexico water quality control commission. 2003. *(208) state of New Mexico water quality management plan*. Santa Fe, New Mexico. 85 p.

H. Colorado river basin salinity control forum. 2002. *2002 Review, water quality standards for salinity, Colorado river system*. Phoenix, Arizona. 176 p.

I. United States environmental protection agency. 2002. *Methods for measuring the acute toxicity of effluents and receiving waters to freshwater and marine organisms*. Office of research and development, Washington, D.C. (5th Ed., EPA 821-R-02-012). 293 p. <http://www.epa.gov/ost/WET/disk2/atx.pdf>

J. United States environmental protection agency. 1989. *Short-term methods for estimating the chronic toxicity of effluents and receiving waters to freshwater organisms*. Environmental monitoring systems laboratory, Cincinnati, Ohio. (2nd Ed., EPA 600/4-89/001). 250 p.

K. Ambient-induced mixing, in United States environmental protection agency. 1991. *Technical support document for water quality-based toxics control*. Office of water, Washington, D.C. (EPA/505/2-90-001). 2 p.

L. United States environmental protection agency. 1983. *Technical support manual: waterbody surveys and assessments for conducting use attainability analyses*. Office of water, regulations and standards, Washington, D.C. 251 p. <http://www.epa.gov/OST/library/wqstandards/uaavol123.pdf>

M. United States environmental protection agency. 1984. *Technical support manual: waterbody surveys and assessments for conducting use attainability analyses, volume III: lake systems*. Office of water, regulations and standards, Washington, D.C. 208 p. <http://www.epa.gov/OST/library/wqstandards/uaavol123.pdf> [20.6.4.901 NMAC - Rp 20 NMAC 6.1.4000, 10-12-00; A, 05-23-05]

HISTORY of 20.6.4 NMAC:

Pre-NMAC History:

Material in the part was derived from that previously filed with the commission of public records - state records center and archives:

WQC 67-1, Water Quality Standards, filed 7-17-67, effective 8-18-67
WQC 67-1, Amendment Nos. 1-6, filed 3-21-68, effective 4-22-68
WQC 67-1, Amendment No. 7, filed 2-27-69, effective 3-30-69
WQC 67-1, Amendment No. 8, filed 7-14-69, effective 8-15-69
WQC 70-1, Water Quality Standards for Intrastate Waters and Tributaries to Interstate Streams, filed July 17, 1970;
WQC 67-1, Amendment Nos. 9 and 10, filed 2-12-71, effective 3-15-71
WQC 67-1, Amendment No. 11, filed 3-4-71, effective 4-5-71
WQC 73-1, New Mexico Water Quality Standards, filed 9-17-73, effective 10-23-73
WQC 73-1, Amendment Nos. 1 and 2, filed 10-3-75, effective 11-4-75
WQC 73-1, Amendment No. 3, filed 1-19-76, effective 2-14-76
WQC 77-2, Amended Water Quality Standards for Interstate and Intrastate Streams in New Mexico, filed 2-24-77, effective 3-11-77
WQC 77-2, Amendment No. 1, filed 3-23-78, effective 4-24-78
WQC 77-2, Amendment No. 2, filed 6-12-79, effective 7-13-79
WQCC 80-1, Water Quality Standards for Interstate and Intrastate Streams in New Mexico, filed 8-28-80, effective 9-28-80
WQCC 81-1, Water Quality Standards for Interstate and Intrastate Streams in New Mexico, filed 5-5-81, effective 6-4-81
WQCC 81-1, Amendment No. 1, filed 5-19-82, effective 6-18-82
WQCC 81-1, Amendment No. 2, filed 6-24-82, effective 7-26-82
WQCC 85-1, Water Quality Standards for Interstate and Intrastate Streams in New Mexico, filed 1-16-85, effective 2-15-85
WQCC 85-1, Amendment No. 1, filed 8-28-87, effective 9-28-87
WQCC 88-1, Water Quality Standards for Interstate and Intrastate Streams in New Mexico, filed 3-24-88, effective 4-25-88
WQCC 91-1, Water Quality Standards for Interstate and Intrastate Streams in New Mexico, filed 5-29-91, effective 6-29-91
WQCC 91-1, Amendment No. 1, filed 10-11-91, effective 11-12-91

History of the Repealed Material:

WQC 67-1, Water Quality Standards, - Superseded, 10-23-73
WQC 73-1, New Mexico Water Quality Standards, - Superseded, 3-11-77
WQC 77-2, Amended Water Quality Standards for Interstate and Intrastate Streams in New Mexico, - Superseded, 9-28-80
WQCC 80-1, Water Quality Standards for Interstate and Intrastate Streams in New Mexico, - Superseded, 6-4-81
WQCC 81-1, Water Quality Standards for Interstate and Intrastate Streams in New Mexico, - Superseded, 2-15-85
WQCC 85-1, Water Quality Standards for Interstate and Intrastate Streams in New Mexico, - Superseded, 4-25-88
WQCC 88-1, Water Quality Standards for Interstate and Intrastate Streams in New Mexico, - Superseded, 6-29-91
WQCC 91-1, Water Quality Standards for Interstate and Intrastate Streams in New Mexico, - Superseded, 1-23-95
20 NMAC 6.1, Standards for Interstate and Intrastate Streams, - Repealed, 2-23-00
20 NMAC 6.1, Standards for Interstate and Intrastate Surface Waters, - Repealed, 10-12-00



BILL RICHARDSON
Governor
DIANE DENISH
Lieutenant Governor

NEW MEXICO
ENVIRONMENT DEPARTMENT

Surface Water Quality Bureau

Harold Runnels Building, N2050
1190 South St. Francis Drive (87505)
P.O. Box 26110, Santa Fe, NM 87502
Phone (505) 827-0187 Fax (505) 827-0160
www.nmenv.state.nm.us



RON CURRY
Secretary
JON GOLDSTEIN
Deputy Secretary

MEMORANDUM

To: Pam Homer, Water Quality Standards Coordinator
From: Stephanie Stringer
Re: Proposal to add Coolwater Aquatic Life Use
Date: 13 June 2008

Fishes are cold-blooded vertebrates inherently intolerant to significant thermal change. When temperatures rise and fall, fish experience metabolic and behavioral changes and respiratory stress which can greatly affect reproduction and can be lethal to more sensitive species. The SWQB has collaborated with numerous staff from the NM Department of Game and Fish, Bureau of Land Management, US Fish and Wildlife Service and US Forest Service to develop a coolwater aquatic life use that provides more appropriate protection for coolwater aquatic life populations and transitional waterbodies. The proposed criteria for a coolwater aquatic life are a temperature criterion of 29°C, dissolved oxygen criterion of 6.0 mg/L, and a pH criterion of 6.6 to 9.0. The acute and chronic criteria set forth in 20.6.4.900 I and J NMAC; the ammonia criteria set forth in 20.6.4.900 K, L and M NMAC; and the human health criteria set forth in 20.6.4.900 J NMAC all apply to this proposed coolwater aquatic life use.

Currently, the designated aquatic life uses in NM's water quality standards are based on physiological requirements for warm and coldwater aquatic life; however, there are numerous aquatic life species with physiological tolerances that are intermediate between warm and coldwater aquatic life, hereafter referred to as coolwater aquatic life. An examination of current and historical fish records indicates that a number of NM's stream segments support only coolwater aquatic life and a number of streams are transitional areas where there are various combinations of warm, cool and coldwater aquatic life that are supported throughout the year.

Historically the strategy has been to classify transitional areas as both warm and coldwater aquatic life (or the marginal classifications of each of these uses). Segments that support primarily warmwater aquatic life with a few coldwater organisms supported during certain times of the year for particular aspects of their life histories (such as reproduction or foraging) are protected at the coldwater criteria at all times. Temperature assessments are based on data collected during an index period from May to September when the highest temperatures are most likely to be observed. During this sampling period the temperatures may exceed the temperature criterion for coldwater aquatic life, when in fact the coldwater species are not exposed to these higher temperatures because they have retreated back to their primary habitat in colder waters. The result is that a healthy waterbody serving as a transitional area during specific times of the year is inappropriately listed on the CWA §303(d) list of impaired waters. Alternatively, protecting these areas at the colder, more stringent criteria could negatively impact the warmwater aquatic life populations inhabiting the transitional area. While this dual use strategy may provide adequate protection in a portion of NM's streams, it is a more appropriate strategy to develop an aquatic life use that is more suitable for these transitional and coolwater areas.

The idea of developing a coolwater use is to correctly reflect the aquatic life community for each waterbody and apply appropriate criteria that are protective of those populations. Based on preliminary examination, the interagency workgroup believes the majority of marginal coldwater and the majority of marginal warmwater aquatic life use designations should be reviewed. SWQB anticipates introducing the coolwater aquatic life use in a phased approach. The first phase is to develop a proposal that establishes the coolwater aquatic life use and applies that use to a small subset of waterbodies while concurrently revising temperature assessment protocols for all aquatic life use categories. The second phase would include a systematic review of all segments, perhaps in a basin-by-basin process, the development of proposals to reclassify waterbodies to the coolwater use as appropriate and preparation of Use Attainability Analyses as needed.

Proposed Public Water Supply Segments

This table lists active public water systems subject to surface water treatment requirements under New Mexico's Drinking Water Regulations (20.6.10 NMAC). The Department proposes to designate the source waters for these systems for public water supply (previously municipal) use in the surface water quality standards (20.6.4 NMAC). This would be a new designation for the waters listed in **bold**.

Public Water System Name	County	Type ¹	Source	WQS Segment ²
ALBUQUERQUE BERNALILLO COUNTY	BERNALILLO	SW	Rio Grande below Alameda bridge	105
CIMARRON WATER SYSTEM	COLFAX	SW	Cimarroncito reservoir on Cimarroncito creek	306
CIMARRONCITA, LLC	COLFAX	GU	spring near Cimarroncita creek (not to be confused with Cimarroncito creek)	309
CITY OF RATON/RATON WATER WORKS	COLFAX	SW	Lake Molya on Chicorica creek	305
CITY OF RATON/RATON WATER WORKS	COLFAX	SW	Cimarron river pipeline to Raton	309
MIAMI WATER USERS ASSOCIATION	COLFAX	SW	Miami lake diversion from Rayado creek	309
PHILMONT CYPHERS MINE	COLFAX	SW	Cimarroncito creek	306
PHILMONT HEADQUARTERS	COLFAX	SW	Urraca & Philips rsvs on Cimarroncito creek	306
SPRINGER WATER SYSTEM	COLFAX	SW	City rsv diversion from Eagle Nest lake	309
CARRIZOZO WATER SYSTEM	LINCOLN	SW	Bonito lake	209
FORT STANTON FACILITY	LINCOLN	SW	Bonito lake	209
RUIDOSO WATER SYSTEM	LINCOLN	SW	Eagle creek, Alto lake, Grindstone rsv	209
LOS ALAMOS DEPT PUBLIC UTILITIES	LOS ALAMOS	SW	Rio Grande at White Rock	114
ALAMOGORDO DOMESTIC WATER SYSTEM	OTERO	SW	Bonito lake	209
ALAMOGORDO DOMESTIC WATER SYSTEM	OTERO	SW	Fresnal cny	801
LA LUZ MDWCA	OTERO	SW	La Luz creek, Fresnal cny	801
TULAROSA WATER SYSTEM	OTERO	SW	Tularosa creek, rsv	801
CHAMA WATER SYSTEM	RIO ARRIBA	SW	Rio Chama abv Abiquiu dam	119
EL VADO LAKE STATE PARK	RIO ARRIBA	SW	El Vado lake	120
ESPANOLA WATER SYSTEM	RIO ARRIBA	SW	Rio Grande near Espanola	114
HERON LAKE STATE PARK (SURFACE WATER)	RIO ARRIBA	SW	Heron lake	120

Public Water System Name	County	Type¹	Source	WQS Segment²
LA ASSOCIATION DE AGUA DE LOS BRAZOS	RIO ARRIBA	GU	Infiltration gallery near Rio Brazos	119
LUMBERTON MDWCA	RIO ARRIBA	GU	Infiltration gallery near Navajo river	407
NAVAJO LAKE STATE PARK - SIMS MESA	RIO ARRIBA	SW	Navajo lake	406
NORTHERN NEW MEXICO COMMUNITY COLLEGE	RIO ARRIBA	SW	El Rito	115
RUTHERON MUTUAL WATER ASSOCIATION	RIO ARRIBA	GU	Infiltration gallery near Rio Chama	119
VALLECITOS MDWCA	RIO ARRIBA	GU	Infiltration gallery near Rio Vallecitos	115
AZTEC DOMESTIC WATER SYSTEM	SAN JUAN	SW	Animas river	403, 404
BLANCO MDWCA	SAN JUAN	GU	Infiltration gallery near Citizens (aka Bloomfield) ditch diversion from San Juan	405
BLOOMFIELD WATER SUPPLY SYSTEM	SAN JUAN	SW	Aragon rsv on Citizens ditch	405
ENTERPRISE PRODUCTS COMPANY CHACO PLANT	SAN JUAN	SW	Rsv on Citizens ditch	405
FARMINGTON WATER SYSTEM	SAN JUAN	SW	Animas river	403
FARMINGTON WATER SYSTEM	SAN JUAN	SW	San Juan river	408
FARMINGTON WATER SYSTEM	SAN JUAN	SW	Lake Farmington, diversion from Animas river	409
HARVEST GOLD SUBDIVISION	SAN JUAN	SW	Citizens ditch	405
LEE/HAMMOND WATER TREATMENT PLANT	SAN JUAN	SW	San Juan river	408
LOWER VALLEY WATER USERS ASSOCIATION	SAN JUAN	SW	Farmer's Mutual Ditch diversion from San Juan river	408
LOWER VALLEY WATER USERS ASSOCIATION	SAN JUAN	SW	San Juan river	401
MORNINGSTAR WATER SUPPLY SYSTEM	SAN JUAN	SW	Animas river	403
NAVAJO DAM DOMESTIC WATER CONSUMERS INC	SAN JUAN	SW	Navajo lake	406
NAVAJO LAKE STATE PARK - COTTONWOOD CAMP	SAN JUAN	GU	Infiltration gallery near Navajo lake	406
NAVAJO LAKE STATE PARK - PINE SITE	SAN JUAN	SW	Navajo lake	406
NORTHSTAR WATER USERS ASSOCIATION	SAN JUAN	SW	Animas river	404
PINE RIVER SUBDIVISION WATER USERS ASSN	SAN JUAN	GU	Well near Los Pinos river	407
BIG MESA WATER MDWCA	SAN MIGUEL	SW	Conchas lake	304
CONCHAS DAM STATE PARK	SAN MIGUEL	SW	Conchas lake	304

Public Water System Name	County	Type¹	Source	WQS Segment²
LAS VEGAS (CITY OF)	SAN MIGUEL	SW	Petersen rsv diversion from Gallinas river	220
LAS VEGAS (CITY OF)	SAN MIGUEL	SW	Bradner rsv diversion from Gallinas river	220
LAS VEGAS (CITY OF)	SAN MIGUEL	SW	Storrie lake	214
LAS VEGAS (CITY OF)	SAN MIGUEL	SW	Gallinas river	215
TRES LAGUNAS HOME OWNERS ASSOCIATION	SAN MIGUEL	GU	Well near Pecos river	217
LA JARA WATER USERS ASSOCIATION	SANDOVAL	SW	La Jara creek	109
PONDEROSA MDWCA	SANDOVAL	GU	Infiltration gallery near Vallecito creek	107
EL VADITO DE LOS CERRILLOS WATER ASSOC	SANTA FE	GU	Cerrillos rsv filled by springs near San Marcos Arroyo	121
HYDE MEMORIAL STATE PARK	SANTA FE	GU	spring near Little Tesuque	121
SANTA FE (COUNTY)	SANTA FE	SW	Rio Grande at Buckman	114
SANTA FE SKI BASIN	SANTA FE	GU	spring near Rio en Medio	121
SANTA FE WATER SYSTEM (CITY OF)	SANTA FE	SW	Rio Grande at Buckman	114
SANTA FE WATER SYSTEM (CITY OF)	SANTA FE	SW	Santa Fe river	121
CANON MDWCA	TAOS	GU	Well near Rio Fernando de Taos	123
SIPAPU LODGE AND CAFE	TAOS	GU	spring near Rio Pueblo	123

¹ SW - surface water. GU - groundwater under the influence of surface water. A GU system, which may be a spring, well, or infiltration gallery, is subject to surface water treatment under drinking water regulations. An infiltration gallery is a system built to collect shallow groundwater. The Surface Water Quality Bureau assumed the closest stream or lake to be the influencing surface water, and the segment on which this water body occurs is proposed for a public water supply designated use.

² Water Quality Standards segments are identified in 20.6.4.100-899 NMAC. The numbers in this column correspond to final numbers in the citation. For example, segment 123 is described at 20.6.4.123 NMAC.

USE ATTAINABILITY ANALYSIS

Segment-specific Criteria (pH) for Sulphur Creek, from Redondo Creek to San Antonio Creek

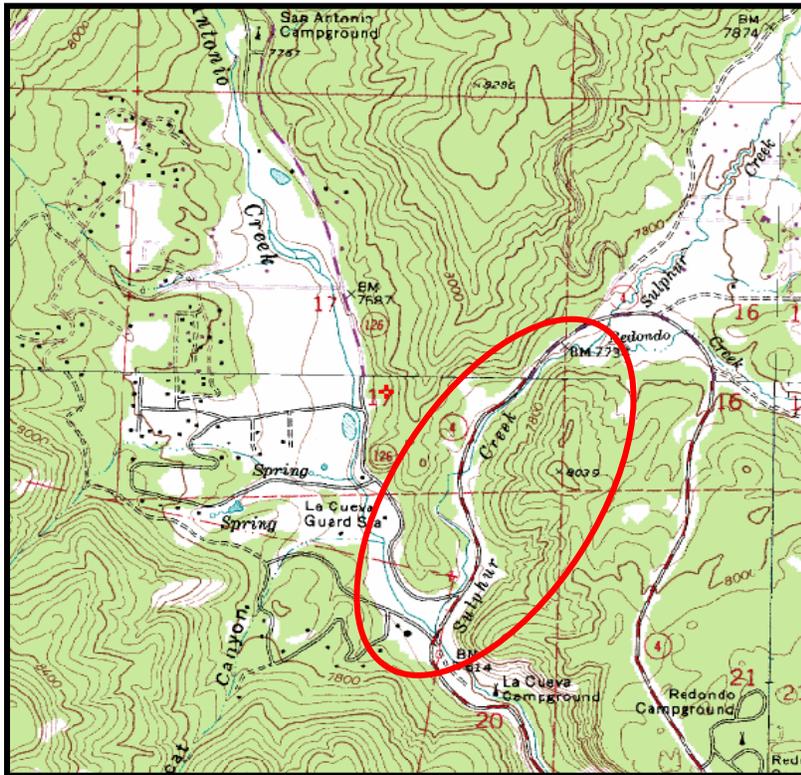
Prepared by the New Mexico Environment Department
Surface Water Quality Bureau
July 2008

SUMMARY

The waters covered by this Use Attainability Analysis (UAA) are those in the one-mile long reach of Sulphur Creek from San Antonio Creek to Redondo Creek that is in Segment 108.

This UAA provides justification for changing the pH criterion from the previous range of 6.6 – 8.8 to a range of 2.0 – 8.8 for the lowermost reach of Sulphur Creek, from San Antonio Creek to Redondo Creek.

LOCATION DESCRIPTION



Sulphur Creek arises near a series of thermal springs known as Sulphur Springs. The springs result from geologically recent volcanic activity that created the Jemez Mountains.

Sulphur Creek has a drainage area of 38 square miles, mostly within the Valles Caldera National Preserve. It flows southward for six miles to San Antonio Creek.

Redondo Creek, with a drainage area of 12 square miles, contributes to the discharge of Sulphur Creek from its confluence to San Antonio Creek.

The reach circled in red in the map at the left is the one-mile reach of Sulphur Creek that is in Segment 108, and is the subject of this UAA.

STANDARDS HISTORY

In 2005, the New Mexico Water Quality Control Commission amended New Mexico Water Quality Standards (20.6.4 NMAC), separating the upper portion of Sulphur Creek (headwaters to Redondo Creek) from Section 20.6.4.108 and establishing new Segment 20.6.4.124. The range of allowable pH was set at 2.0 to 9.0 for the new segment. According to the May 2005 Statement of Reasons, "The Commission adopts NMED's proposal of a new section based upon the unique conditions of Sulphur Creek because the current use and pH criterion are not appropriate. The pH in Sulphur Creek at normal base flows generally varies between 2.0 and 5.0."

Segment 124 includes the portion of Sulphur Creek from its headwaters to its confluence with Redondo Creek. However, as the topographic map indicates, Sulphur Creek extends for one mile past Redondo Creek to San Antonio Creek. The reach below Redondo Creek remains in Segment 108.

CHARACTERISTICS OF LOWER SULPHUR CREEK

The lower reach of Sulphur Creek shares characteristics with the upper reach of Sulphur Creek; in particular, it shares the low pH of the source waters at Sulphur Springs.

Data collected in 2005 indicate that the reach of Sulphur Creek from Redondo Creek to San Antonio Creek is characterized by low pH. Table 1 shows that five of the 12 samples (42%) collected in 2005 had values of pH lower than the high quality coldwater aquatic life criteria minimum value of 6.6.

Table 1
pH Data Collected during the 2005 Jemez Intensive Survey
Sulphur Creek above San Antonio Creek

Collection Date	pH
3/28/2005	3.44
4/18/2005	5.21
5/2/2005	4.99
5/23/2005	5.74
6/2/2005	7.66
6/13/2005	7.72
6/27/2005	7.74
7/7/2005	7.71
7/19/2005	6.63
8/15/2005	3.26
9/19/2005	7.45
10/17/2005	7.64

CONCLUSION

Natural geological conditions produce low pH levels in the previously reclassified upper reach and in the lower reach of Sulphur Creek. The waters in these reaches are influenced by a naturally occurring pollutant: the hydrogen ion measured as pH, resulting from the source waters at Sulphur Springs. Due to this naturally occurring condition, the high quality coldwater pH criterion of 6.6 to 8.8 that applies to Segment 108 cannot be attained. Federal regulations allow changes to a criterion upon demonstration that the criterion cannot be attained. The data outlined above support changing the lower limit of the pH criterion for the lower reach of Sulphur Creek to 2.0, the same as for the upper reach.

Segment 131 Rio Puerco from the Highway 550 Bridge to Arroyo Chijuilla

Figure 1
Beaver Dam, Rio Puerco below WWTP, March 2006



Figure 2
Fathead Minnow, Rio Puerco below WWTP, March 2006



Figure 3
Collecting Benthic Macroinvertebrates, Rio Puerco below WWTP, March 2006



Figure 4
Water Depth, Rio Puerco below WWTP, 2004





**NEW MEXICO
ENVIRONMENT DEPARTMENT**



Surface Water Quality Bureau

1190 South St. Francis Drive, Room N2050
P.O. Box 26110, Santa Fe, NM 87502-6110
Phone (505) 827-0187 Fax (505) 827-0160
www.nmenv.state.nm.us

BILL RICHARDSON
Governor
DIANE DENISH
Lieutenant
Governor

RON CURRY
Secretary
JON GOLDSTEIN
Deputy Secretary

MEMORANDUM

TO: Pam Homer, Standards, Planning and Reporting Team Leader

FROM: Tim Michael, Standards, Planning and Reporting Team

DATE: July 28, 2008

SUBJECT: Boron, Segment 201 Segment-specific Criterion

WQS Segment 20.6.4.201 is the main stem of the Pecos River from the New Mexico-Texas line upstream to the mouth of the Black River. In 2003, at the two southernmost sampling stations on this segment (Pierce Canyon Crossing and Red Bluff) the Surface Water Quality Bureau measured concentrations of boron in excess of the irrigation criterion value of 750 µg/L. As the table below shows, these concentrations were measured 4 of 5 times at Pierce Canyon Crossing and 4 of 9 times near Red Bluff.

Date	PC Crossing B, µg/L	near Red Bluff B, µg/L
3/10/2003		400
4/14/2003		600
5/12/2003	900	900
6/9/2003		600
7/14/2003	1,100	1,000
8/11/2003		600
9/15/2003	1,200	1,500
10/7/2003	1,000	1,100
12/1/2003	400	300

The USGS has also measured dissolved boron concentrations at Pierce Canyon and Red Bluff, New Mexico and at Orla, Texas. Summary statistics are shown below:

**USGS Measurements of Dissolved Boron Concentrations
Pierce Canyon and Red Bluff, New Mexico and Orla Texas**

	Pierce Canyon Crossing, NM 08407000 (1963-2003)	Red Bluff, NM 08407500 (1959-1981)	Orla, TX 08412500 (1995-2003)
MIN	40	40	466
MAX	2700	5140	1340
MEAN	723	948	782
MEDIAN	590	790	646

	Pierce Canyon Crossing, NM 08407000 (1963-2003)	Red Bluff, NM 08407500 (1959-1981)	Orla, TX 08412500 (1995-2003)
n (0-999)	170	117	6
n (1000-1999)	39	46	3
n (2000-2999)	5	11	0
n (> 3000)	0	2	0
Total	214	176	9

The source of the boron in Segment 201 is likely discharge of saline ground water containing high concentrations of boron at Malaga Bend. Discharges of saline waters are well-documented. According to the *Decision Makers Field Conference 2003 Handbook*, "Saline waters in the Rustler Formation discharge into the Pecos River near Malaga Bend, south of Loving, resulting in a dramatic increase in salinity of the river downstream." And this, from Lorenz (2005): "As early as 1938, Robinson and Lang suggested that the Rustler waters from the Nash Draw area discharge in springs at Malaga Bend on the Pecos River citing an increase in the chloride of the river water at this location as evidence."

According to Hopkins (2007),

"...the exceedences that triggered the listing for non-support of the irrigation use are, indeed, below the Malaga brine springs. These springs are caused by a collapse of the Rustler limestone formation in the area of Malaga Bend, allowing hyporheic connection of the Pecos River with the underlying Salado evaporite formation. There were no exceedences for boron at the Harroun Crossing station immediately above the area of the springs, but numerous exceedences at Pierce Canyon Crossing immediately below."

Irrigators at Malaga use water from the Carlsbad Irrigation District. Pecos River water is not used for irrigation from Malaga to Red Bluff Reservoir in Texas (Ahrens 2008).

Ayers and Westcott (1985) provide a list from Maas (1984) that indicates the relative boron tolerance of agricultural crops. The list groups crops into five classifications of boron tolerance:

Tolerance	Boron, $\mu\text{g/L}$
• Very Sensitive	< 500
• Sensitive	500 – 1000
• Moderately Sensitive	1000 – 2000
• Moderately Tolerant	2000 – 4000
• Tolerant	4000 – 6000
• Very Tolerant	6000 – 15000

Very sensitive crops include citrus, fruit trees, grapes, pecans and onions; sensitive crops include wheat, beans, strawberries and peanuts; and moderately sensitive crops include peppers, potatoes and carrots. Moderately tolerant crops include lettuce, oats, maize and sweet clover; tolerant crops include sorghum, tomatoes and alfalfa; very tolerant crops include cotton and asparagus.

PROPOSED CRITERION

As indicated above, a variety of crops can tolerate the concentrations of boron that have been measured in this reach of the Pecos in exceedence of the existing criterion of 750 $\mu\text{g/L}$. Irrigators in the area have long chosen crops and farming practices to manage the unusually high mineral content of the Pecos.

For these reasons, the boron criterion can be raised on this segment without impairing the irrigation use. Flynn (2007) recommends that boron concentrations should not exceed 3,000 $\mu\text{g/L}$. Ambient concentrations indicate that a value of 2,000 $\mu\text{g/L}$ is reasonable, a value that would still allow for the

cultivation of some moderately sensitive crops. Therefore, this memorandum proposes that a segment-specific criterion of 2,000 µg/L of boron be adopted.

The irrigation designated use is not a Clean Water Act 101(a)(2) use and therefore, this criterion change does not require a UAA per 40 CFR 131.10 (g).

References

Ahrens, Bill, Manager Carlsbad Irrigation District, personal communication, June 6, 2008.

Ayers, R.S., and Westcot, D.W. 1985. *Water Quality for Agriculture*. FAO Irrigation and Drainage Paper 29 (Rev. 1), Rome, Italy, 174 p.

Flynn, R.P. Dr. Robert P. Flynn, Extension Agronomist, Cooperative Extension Service, New Mexico State University, Artesia Agricultural Science Center. Personal communication to Tim Michael, October 21, 2007.

Hopkins, Scott, Environmental Scientist, New Mexico Environment Department, Surface Water Quality Bureau, personal communication, November 28, 2007.

Lorenz, J.C. 2005. *Assessment of the Potential for Karst in the Rustler Formation at the WIPP Site*. November 19, 2005. Sandia National Laboratories, Albuquerque, New Mexico, 129 p. Found May 29, 2008 at http://www.epa.gov/radiation/docs/wipp/lorenzkarst_final.pdf.

Use Attainability Analysis of the Contact Uses of Pecos Arroyo Segment 20.6.4.221 NMAC DRAFT

Prepared by the New Mexico Environment Department
Surface Water Quality Bureau
July 2008

Introduction

New Mexico Water Quality Standards (20.6.4 NMAC) were amended as of July 17, 2005 to include a new segment, 20.6.4.221 NMAC, Pecos Arroyo, a previously unclassified water. Designated uses for this segment were identified as livestock watering, wildlife habitat, warmwater aquatic life and secondary contact.

In its December 29, 2006 Record of Decision, the EPA withheld approval of Segment 221 because the secondary contact designated use did not meet the goal of providing for "recreation in and on the water" as established by Section 101(a)(2) of the Clean Water Act. In order for the EPA to approve the secondary contact use, the state was advised to prepare a Use Attainability Analysis (UAA) pursuant to 40 CFR 131.10(g) that demonstrates that attaining a primary contact use is not feasible.

The purpose of conducting this UAA was to determine the highest attainable contact use of Pecos Arroyo.

Description

Pecos Arroyo has a drainage area of approximately 53 square miles (Map, Figure 1). It is approximately 12 miles in length from its source to its confluence with the Gallinas River above the City of Las Vegas wastewater treatment plant. It is nonperennial from its source until it reaches the vicinity of Storrie Lake. It does not connect directly with the lake but flows past the lake, at which point it becomes perennial, likely due to seepage from the lake and the Storrie Lake Project acequia. It then flows south to Las Vegas, through the urban area, to its confluence with the Gallinas River.

There are no National Pollutant Discharge Elimination System permitted discharges on the Pecos Arroyo, and no permanent gauging stations. Potential pollution sources include municipal and industrial stormwater runoff, septic systems and livestock. It is subject to flash floods and the floodplain is generally wet meadow. Due to the salty anaerobic soils, there are few riparian trees, and therefore little shade. Depth is variable, ranging from zero inches to over 3 feet.

Methodology

The method for assessing attainable uses relied on EPA Region 6 guidance for developing recreational contact UAAs (<http://www.epa.gov/earth1r6/6wq/ecopro/watershd/standard/recguide.htm>). The guidance recommends consideration of existing uses, water quality, access, recreational facilities, physical conditions and costs. The guidance recommends a presumption that primary contact is attainable wherever water depth provides for full body immersion, that depth generally being 18 inches or greater. Primary contact is defined in the NMED Water Quality Standards as a "recreational or other water use in which there is prolonged and intimate human contact with the water...."

The Pecos Arroyo was surveyed in 2001 as part of the Upper Pecos River study. Data from this study are housed in the Surface Water Quality Bureau (SWQB) database and in STORET. Results from the study are reported in Hopkins (2003). The existing data were reviewed with respect to contact uses and SWQB staff were consulted for any other pertinent information. Depth, flow, and bacterial data were not collected during the 2001 study.

The following additional data were collected in March and May of 2007:

- Photographs
- Depth
- Flow
- E. coli
- Substrate
- Access

The following additional data were collected in July of 2008:

- E. coli

In March 2007 photographs of the Pecos Arroyo were taken at various locations (Figures 2-5). Three sites were selected for further data collection (see Map, Figure 1). Site 1 is north of the city near I-25. Site 2 (Figure 4) is adjacent to city property on the east side of the stream. The landowner on the west side has livestock, but the livestock's access to the water is blocked by a fence. Site 3 (Figure 4) is at the bridge on San Miguel County Road 23, just above the confluence with the Gallinas River.

In May 2007, at each site, six to ten depth measurements were taken of the thalweg in a longitudinal section approximately 30 feet in length. The width of the channel at each site was estimated at 10-12 feet. At Sites 1 and 3, flow was estimated and at each site a single sample of water was collected and analyzed for E. coli bacteria. The substrate type and access to the water were noted at all sites. In July 2008, a single sample of water was again collected at each of sites 1 and 3, following a storm event, and analyzed for E. coli.

Results

Results of the May 2007 data collection are presented in the following table.

Parameter	Site 1	Site 2	Site 3
Depth range (inches)	14-39	15-25	16-21
Average depth (inches)	27	18	19
Estimated flow (cfs)	1.0	not estimated	1.5
E. coli (cfu/100 mL)	39.3	no sample collected	172.6

At Site 1, depth was measured in the thalweg including a large pool approximately 15 feet in length. The substrate was muddy and the water was somewhat turbid. At Site 2, the substrate consisted of thick, muddy, dark grey clay which clouded the water upon disturbance. The landowner at this location mentioned that at one time this area had been a swimming hole. At Site 3, as with the other two sites, the substrate was muddy and water was turbid. The fences on either side have not been successful in excluding livestock, as tracks were seen by the water's edge.

Results of the July 2008 data collection are presented in the following table.

Parameter	Site 1	Site 2	Site 3
E. coli (cfu/100 mL)	78.0	no sample collected	2419.6

Discussion

Measurements in the Pecos Arroyo indicate average depth to be at or above EPA's guidance of 18 inches for primary contact recreation; that is, physical conditions could allow for full body immersion. E. coli concentrations were below the single sample criterion (410 cfu/100 mL) for primary contact for 3 out of 4 samples. Access appears not to be a limiting factor, as all sampling locations are near public roads and not blocked by fences or other barriers. However, the muddy substrate and turbidity present at all locations sampled may diminish the appeal and frequency of primary contact.

Conclusion

Based on this review, primary contact appears to be an attainable use and "prolonged and intimate human contact" with the water is possible. It is therefore recommended that Pecos Arroyo be designated for primary contact during the next Triennial Review of New Mexico's Water Quality Standards.

Acknowledgments

Field work was completed in support of this UAA by SWQB staff as follows:
Photos, March 2007 by S. Hopkins.
Sampling, May 2007 by D. Sarabia and S. Hopkins.

Reference

Hopkins, J.S. 2003. *Water Quality Assessment of the Gallinas River and Tecolote Creek 2001*. Monitoring and Assessment Section, Surface Water Quality Bureau, New Mexico Environment Department, NMED/SWQ-03/2, Santa Fe, NM.

Figure 1

Pecos Arroyo Segment 20.6.4.221 NMAC

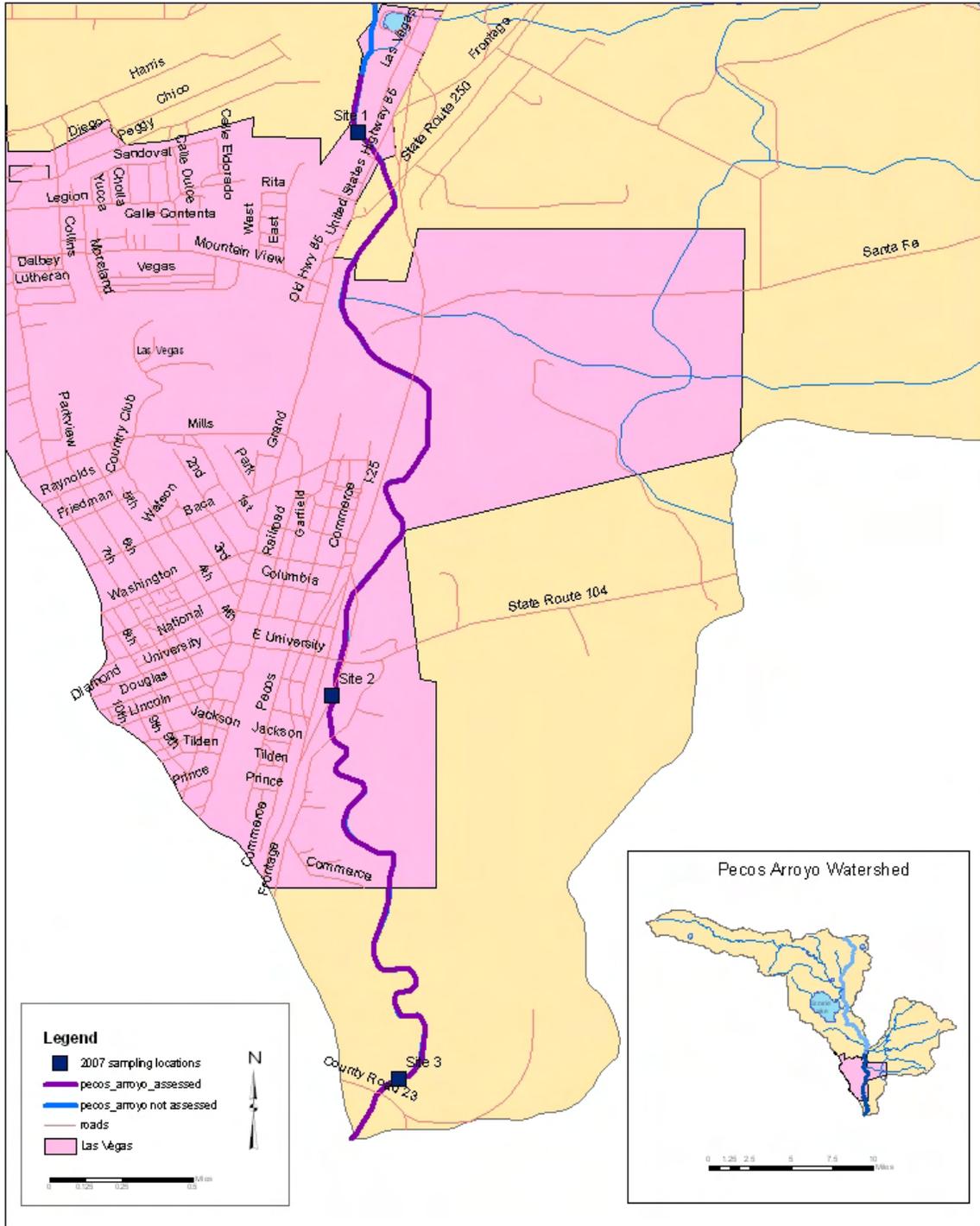


Figure 2.



03/08/2007 Pecos Arroyo. View north to headwaters upstream of Storrie dam. This reach is typically dry.

Figure 3.



03/08/2007 Pecos Arroyo facing upstream towards the I-25 bridge.

Figure 4.



03/08/2007 Pecos Arroyo Site 2, facing upstream. Private property is to the left of Pecos Arroyo in the photo and city property to the right.

Figure 5.



03/08/2007 Pecos Arroyo Site 3. View upstream from San Miguel County Road 23 bridge, just above the confluence with the Gallinas River.



NEW MEXICO
ENVIRONMENT DEPARTMENT

Surface Water Quality Bureau

1190 South St. Francis Drive, Room N2050
P.O. Box 26110, Santa Fe, NM 87502-6110
Phone (505) 827-0187 Fax (505) 827-0160
www.nmenv.state.nm.us



BILL RICHARDSON
Governor
DIANE DENISH
Lieutenant
Governor

RON CURRY
Secretary
JON GOLDSTEIN
Deputy Secretary

MEMORANDUM

TO: Pam Homer, Standards, Planning and Reporting Team Leader
FROM: Tim Michael, Standards, Planning and Reporting Team
DATE: August 6, 2008
SUBJECT: Dioxin Expressed as Toxicity Equivalents

Introduction

New Mexico Water Quality Standards 20.6.4 NMAC amendments through August 1, 2007 includes Table 900.J., which lists numeric water quality criteria for a number of toxic pollutants. One of these is 2,3,7,8 -TCDD Dioxin. Criteria are:

- For Domestic Water Supply, 5.0 E-08 µg/L
- For Human Health, 5.1 E-08 µg/L

These values are based on EPA's 2002 National Recommended Water Quality Criteria for human health for the consumption of water plus organism and organism only (EPA 2002).

Dioxins include a group of chemicals that share certain similar chemical structures and biological characteristics. The chemical 2,3,7,8,tetrachlorodibenzo-p-dioxin (TCDD) is the most studied and the most toxic of these compounds.

Scientists believe that dioxins cause toxic effects in similar ways. Because of this and because exposure is typically to variable mixtures of dioxins, EPA and others use Toxicity Equivalency Factors (TEFs) that compare the potential toxicity of each of the individual dioxins to the relative toxicity of TCDD. With such factors, the toxicity of a mixture can be expressed in terms of its Toxicity Equivalents (TEQs), which is the amount of TCDD it would take to equal the combined toxic effect of all the dioxin-like compounds found in that mixture. In this approach, the concentration of each dioxin is multiplied by its respective TEF. The products of the concentrations and their respective TEFs are then summed in order to obtain a single TCDD TEQ value for the complex mixtures of dioxins found in the sample.

In its 2002 criteria document, EPA explained that the recommended dioxin criteria were expressed in terms of 2,3,7,8 -TCDD dioxin and "and should be used in conjunction with the national/international convention of toxicity equivalence factors (TEF/TEQs) to account for the additive effects of other dioxin-like compounds (dioxins)" (EPA 2002, p. 5). The most recent compilation of toxicity equivalence factors is found in Van den Berg et al. (2006).

Need for Clarification

NMED interprets the 2,3,7,8 TCDD dioxin criteria in Table 900.J as EPA recommended in the 2002 criteria document. However, this interpretation is not explicitly stated in the water quality standards (20.6.4.NMAC).

Proposal

- Insert the following note applicable to the Table of Numeric Criteria (20.6.4.900.J): The dioxin criteria apply to the sum of the dioxin toxicity equivalents expressed as 2,3,7,8 -TCDD dioxin.
- Change the name of the pollutant in Table 900.J. from “2,3,7,8 -TCDD Dioxin” to “**Dioxin.**”
- Remove the CAS Number for dioxin from Table 900 J Column 2.

Discussion

The proposed changes clarify that the water quality criteria are to be applied in accordance with EPA recommendations.

From the 2002 Criteria Update (EPA 2002)

The section 304(a) water quality criteria for dioxin contained in this compilation is expressed in terms of 2,3,7,8-Tetrachloro-dibenzo-p-dioxin (2,3,7,8-TCDD) and should be used in conjunction with the national/international convention of toxicity equivalence factors (TEF/TEQs) to account for the additive effects of other dioxin-like compounds (dioxins). EPA supports the use of either the 1989 interim procedures or the 1998 World Health Organization (WHO) TEF scheme, but prefers the 1998 WHO TEF scheme because it is based on more recent data and is internationally accepted...By applying the TEF/TEQ approach, the other highly toxic dioxins will be properly taken into account.

The reason for clarifying that the term “dioxin” means the sum of the dioxin equivalents expressed as 2,3,7,8 -TCDD dioxin is that the term dioxin to some means that the toxicity resulting from more than one compound is intended.

The reason for removing the CAS Number for dioxin from Table 900 J Column 2 is that dioxin as defined above refers to neither a single chemical compound nor group of compounds, but to the sum of toxicity equivalents.

References and Bibliography

EPA 1989. *Interim Procedures for Estimating Risks Associated with Exposures to Mixtures of Chlorinated Dibenzo-p-dioxins and -dibenzofurans*, EPA/625/3-89/016, March 1989. United States Environmental Protection Agency, Risk Assessment Forum, Washington, D.C. 98p. Found at National Service Center for Environmental Publications <http://www.epa.gov/nscep/> January 23, 2008. Search under 625389016.

EPA 2002. *National Recommended Water Quality Criteria: 2002*. EPA-822-R-02-047, November 2002. United States Environmental Protection Agency, Office of Water, Office of Science and Technology, Washington, D.C., 36p. Found at <http://www.epa.gov/waterscience/criteria/nrwqc-2002.pdf>, January 11, 2008.

EPA 2003. *Exposure and Human Health Reassessment of 2,3,7,8-Tetrachlorodibenzo-p-Dioxin (TCDD) and Related Compounds*. EPA/600/P-00/001Cb, December 2003. United States Environmental Protection Agency, Exposure Assessment and Risk Characterization Group, National Center for Environmental Assessment - Washington Office, Office of Research and Development, Washington, DC. Found at <http://www.epa.gov/NCEA/pdfs/dioxin/nas-review/> January 23, 2008.

EPA 2006. *National Recommended Water Quality Criteria*. 2006. United States Environmental Protection Agency, Office of Water, Office of Science and Technology. Found at <http://www.epa.gov/waterscience/criteria/wqcriteria.html>, and <http://www.epa.gov/waterscience/criteria/nrwqc-2006.pdf>, January 11, 2008.

EPA 2007. Found at <http://www.epa.gov/safewater/contaminants/index.html>, January 11, 2008.

Nelson 2007. Personal communication from Russell Nelson to Jane DeRose-Bamman, August 10, 2007.

Van den Berg et al. 2006. *The 2005 World Health Organization Reevaluation of Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-Like Compounds*, July 2006. *Toxicological Sciences* 93(2). Pages 223-241.



BILL RICHARDSON
Governor
DIANE DENISH
Lieutenant Governor

NEW MEXICO
ENVIRONMENT DEPARTMENT

Surface Water Quality Bureau

Harold Runnels Building, N2050
1190 South St. Francis Drive (87505)
P.O. Box 26110, Santa Fe, NM 87502
Phone (505) 827-0187 Fax (505) 827-0160
www.nmenv.state.nm.us



RON CURRY
Secretary
JON GOLDSTEIN
Deputy Secretary

MEMORANDUM

From: Pam Homer, Standards Coordinator
Re: Recommended Revisions to Domestic Water Supply Criteria
Date: June 10, 2008

“Domestic water supply,” as defined in New Mexico’s water quality standards at 20.6.4.7 NMAC, means “a surface water of the state that could be used for drinking or culinary purposes after disinfection.” Disinfection, through such methods as boiling, chlorination or filtration, removes pathogens but not other pollutants. New Mexico has only applied the domestic water supply designation where it is known that a water body is used privately for drinking water without the benefit of more extensive treatment. The designation does not apply to water sources that supply public water systems.

Sixteen segments in the water quality standards are designated for domestic water supply. They are located primarily, though not exclusively, in the northern and Gila highlands. The segments account for approximately 2,400 stream miles.

EPA has developed two sets of recommended water quality criteria to protect human health pursuant to Section 304(a) of the Clean Water Act. The “water plus organism” criteria are intended to protect human health if both water and aquatic organisms (e.g., fish or shellfish) from the water are consumed. The “organism only” criteria consider the risk associated with consuming only the aquatic organisms. EPA generally recommends relying upon the water+organism criteria for designated drinking water uses; however, a state may chose another basis with justification.

A separate but related EPA program authorized under the Safe Drinking Water Act regulates public water systems that provide drinking water to communities. These systems must ensure that the water they provide does not exceed Maximum Contaminant Levels (MCLs). MCLs are health-based; however, other factors are taken into account such as treatment capability, analytical methods and costs. Maximum Contaminant Level Goals (MCLGs) are based upon health effects only and represent non-enforceable public health goals. (<http://www.epa.gov/safewater/standard/setting.html>.)

History of Domestic Water Supply Criteria in New Mexico

As early as 1973, the state’s water quality standards protected drinking water supplies from “hazardous substances in amounts which exceed drinking water standards established by the U.S. Public Health Service.” In 1980 the reference to “drinking water supplies” was changed to “domestic water supplies.” Specific numeric criteria for domestic water supply were first established in 1991. Prior to the 2002-2005 Triennial Review, there were domestic water supply criteria for 18 pollutants, all based on MCLs (Table 1).

During the 2002-2005 Triennial Review, domestic water supply criteria were added for all EPA-identified priority toxic pollutants. If a state criterion for a priority pollutant already existed, the state chose either the MCL or EPA’s 304(a) water+organism criterion, whichever was more stringent. Where the state did not previously have domestic water supply criteria for priority pollutants, EPA’s 304(a) water+organism

criteria were adopted, whether or not an MCL existed. Domestic water supply criteria for non-priority pollutants were not changed.

2003 Human Health Criteria Updates

In 2003 EPA published updated 304(a) human health criteria for 15 priority pollutants (68 FR 75510; December 31, 2003). As New Mexico's 2003-2005 Triennial Review was well underway at the time they were published, these updates were not incorporated in the 2005 amendments. The updates are being considered, however, for the upcoming Triennial Review. Of the 15 pollutants, all but two are pollutants for which MCLs exist. If New Mexico were to use the same approach as it did previously to incorporate these updates, some values would be higher and some lower than the MCLs.

There are several reasons for reviewing this approach for setting domestic water supply criteria. During the 2002-2005 Triennial Review it was a reasonable approach to consider priority pollutants in two groups: those that already had domestic water supply criteria and those that did not. Over time, however, it will become more and more confusing to maintain this approach. In addition, the Commission raised two issues during the 2002-2005 Triennial Review Hearing regarding domestic water supply: the inconsistencies between these surface water criteria and the New Mexico ground water standards, and the appropriateness of setting a domestic water supply criterion based on the health effects of consuming not only water but water and fish. Lastly, while New Mexico currently does not have criteria for public water supplies, it is anticipated that such criteria will be considered in the future. The policy direction chosen now for domestic water supply could influence the discussion of public water supply criteria later.

Proposed New Approach

As a new approach, the Department could propose to set domestic water supply criteria based on MCLs where they exist and otherwise on water-only values. This combination approach would protect the designated use and also address the concerns raised by the Commission regarding consistency with ground water standards and the fish consumption factor.

Under the federal Safe Drinking Water Act, public water systems that provide drinking water to New Mexicans must ensure that the MCLs are not exceeded. Since MCLs are considered protective of drinking water delivered by a public system, it is difficult to justify a different level of protection for people relying on a private system. A criterion *less* stringent than the MCL indicates that water being designated for drinking water receiving only disinfection does not need to be of drinking water quality. If that is to be the state's practice, it would be better to change the definition of the use to advise treatment in addition to disinfection. A criterion *more* stringent than the MCL suggests more protection for people relying on private water systems than for the larger number of New Mexicans relying on public systems. In addition, a more stringent criterion could result in a stream being listed as impaired for domestic water supply even when the water quality meets the drinking water standard for the pollutant of concern. Another consequence could be the requirement that a wastewater treatment plant treat to a higher level than would be required of a drinking water plant.

Relying on MCLs would begin to address the discrepancy between New Mexico's surface water standards at 20.6.4 NMAC and the ground water standards at 20.6.2.3103 NMAC, both of which are intended to protect water for drinking without treatment. The Commission recently approved a new uranium standard based on the updated MCL, the same value included in this proposal. Similar updates in either set of standards could lead to more consistency between the programs.

Where there is no MCL, then a water-only value could be used instead of a water+organism value. The 2003-2005 Triennial Review hearing record questions the appropriateness of basing domestic water supply criteria on the health effects of consuming not only water but water and fish. Such a basis does not fit the use definition. Furthermore, the incidence of a person relying on a private water system and consuming significant amount of fish taken from the same water is remote in New Mexico. Where it may occur, the human health criteria, based on EPA's organism-only criteria, provide protection.

The Department testified at the 2003-2005 hearing that it was not aware of reliable water-only values that could be used instead of water+organism values. The Department has since confirmed that the equations used to develop EPA's water+organism criteria can be modified to remove the fish consumption components and produce a water-only value. The resulting equation for non-carcinogens (1-1) is the same as that used by EPA to derive MCLGs in the drinking water program (<http://www.epa.gov/safewater/standard/setting.html>). The resulting equation for carcinogens (1-2) can be used to derive drinking water values, based on a chosen risk level.

Equation 1-1: Non-carcinogens

$$\text{AWQC (water only)} = \text{RfD} \times \text{RSC} \times 1000 \mu\text{g/mg} \times \text{BW/DI}$$

where:

AWQC	=	ambient water quality criterion ($\mu\text{g/L}$)
RfD	=	reference dose for non-cancer effects (mg/kg-day)
RSC	=	relative source contribution to account for non-water sources of exposure (0.2 is default value)
BW	=	body weight (70 kg is default value)
DI	=	drinking water intake (2 L/day is default value)

Equation 1-2: Carcinogens

$$\text{AWQC (water only)} = \text{ICR}/q1^* \times 1000 \mu\text{g/L} \times \text{BW/DI}$$

where:

AWQC	=	ambient water quality criterion ($\mu\text{g/L}$)
ICR	=	Incremental cancer rate (10^{-5} is default for NM)
$q1^*$	=	cancer potency factor
BW	=	body weight (70 kg is default value)
DI	=	drinking water intake (2 L/day is default value)

Where MCLs are not available for priority pollutants, water-only values have been calculated using these equations and the same inputs used in EPA's recommended water quality criteria table. Table 1 presents proposed revisions to the domestic water supply criteria based first on MCLs, then on these water-only values.

Compared to the current domestic water supply criteria, some revised criteria would be *more stringent* due to the use of MCLs. Examples include benzene, methylene chloride and trichloroethylene. Examples of criteria that would become *less stringent* due to the use of MCLs include chlordane, dioxin, heptachlor and PCBs. However, in some cases, more stringent criteria continue to apply to the pollutant to protect other designated uses, as in the case of dioxin and PCBs.

Examples of criteria that would be significantly *less stringent* due to the use of water-only calculations instead of water+organism include: aldrin, DDT and endrin. These differences reflect a higher risk for these pollutants associated with consumption of fish as opposed to water.

Lead and copper represent special cases. EPA no longer has an MCL for lead or copper. Instead, action levels have been established which prompt water providers to take actions to control the corrosiveness of their water which affects the leaching of copper and lead from pipes. These action levels are recommended here as domestic water supply criteria.

Other special cases may present themselves and should be considered when appropriate, whether they relate to particular contaminants or particular segment-specific concerns.

Table 1: Proposed Revisions to Domestic Water Supply Criteria

This table shows proposed revisions to the domestic water supply criteria found in 20.6.4 NMAC. The revised values were derived based on a two-step process: 1) Use the MCL if available; 2) If no MCL exists, use the water-only calculated value. The other columns are presented for comparison.

Pollutant Priority Pollutants in <i>italics</i> . Pollutants with 2003 EPA updates in bold .	Domestic Water Supply ⁱ	NM Ground Water ⁱⁱ	EPA MCL ⁱⁱⁱ	EPA HH W+O ^{iv}	Water Only Calculated ^v	NM Most Stringent ^{vi}	Cancer causing
total, unless indicated	µg/L	µg/L	µg/L	µg/L	µg/L		
INORGANICS							
Aluminum	x	5,000	x	x	x	87	
<i>Antimony, dissolved</i>	5.6 6	x	6	5.6	5.6	5.6	
<i>Arsenic, dissolved</i>	2.3 10	100	10	0.018	0.2	9	√
<i>Asbestos</i>	7 mfl ^{vii}	x	7 mfl	7mfl	x	7mfl	
Barium, dissolved	2,000	1,000	2,000	1,000	x	2,000	
<i>Beryllium, dissolved</i>	4	x	4	x	x	4	
Boron	x	750	x	x	x	750	
<i>Cadmium, dissolved</i>	5	10	5	x	x	0.2 @ 100	
Chloride	x	250	x	x	x	x	
<i>Chromium, dissolved</i>	100	50	100	x	x	74 @ 100	
Cobalt	x	50	x	x	x	50	
<i>Copper, dissolved</i>	1,300	1,000	1,300 ^{viii}	1,300	x	9 @ 100	
<i>Cyanide, see footnotes</i>	200 ^{ix} / 700 ^x	200 ^j	200 ^{xi}	140 ^{xii}	140 ^j	5.2 ^j	
Fluoride	x	1,600	400		x	x	
Iron	x	1,000	x	300	x	x	
<i>Lead, dissolved</i>	50 15	50	15	x	x	2.5 @ 100	
Manganese	x	200	x	50	x	x	
<i>Mercury</i>	2	2	2	x	x	0.77	
<i>Methylmercury</i>	x	x	x	x	x	0.3 mg/kg	
Molybdenum	x	1,000	x	x	x	x	
<i>Nickel, dissolved</i>	400 700	200	x	610	700	52 @ 100	
Nitrate as N	10,000	10,000	10,000	10,000	x	10,000	
<i>Selenium, dissolved</i>	50	50	50	170	175	50	
<i>Silver</i>	x	50	x	x	x	3.2 @ 100	
Sulfate	x	600,000	x	x	x	x	
<i>Thallium, dissolved</i>	4.7 2	x	2	0.24	0.48	1.7	
Uranium, dissolved	5,000 30	30	30	x	x	5,000	
<i>Zinc, dissolved</i>	7,400 10,500	10,000	x	7,400	10,500	117 @ 100	
RADIONUCLIDES							
Adjusted gross alpha	15 pCi/L	x	15 pCi/L	x	x	15 pCi/L	
Radium 226 + Radium 228	5 pCi/L	30 pCi/L	5 pCi/L	x	x	5 pCi/L	
Strontium 90	8 pCi/L	x	8 pCi/L	x	x	8 pCi/L	
Tritium	20,000 pCi/L		20,000 pCi/L	x	x	20,000 pCi/L	
ORGANICS							
<i>Acenaphthene</i>	670 2,100	x	x	670	2,100	670	
<i>Acenaphthylene</i>	x	x	x	x	x	x	
<i>Acrolein</i>	190 546	x	x	190	546	190	
<i>Acrylonitrile</i>	0.51 0.65	x	x	0.051	0.65	0.51	√

Pollutant Priority Pollutants in <i>italics</i> . Pollutants with 2003 EPA updates in bold .	Domestic Water Supplyⁱ	NM Ground Waterⁱⁱ	EPA MCLⁱⁱⁱ	EPA HH W+O^{iv}	Water Only Calculated^v	NM Most Stringent^{vi}	Cancer causing
<i>Aldrin</i>	0.00049 0.021	x	x	4.9E-5	0.021	4.9E-4	√
<i>Anthracene</i>	8,300 10,500	x	x	8,300	10,500	8,300	
<i>Benzene</i>	22 5	10	5.0	2.2	23	22	√
<i>Benzidine</i>	8.6E-4 0.0015	x	x	8.6E-5	0.0015	8.6E-4	√
<i>Benzo(a)anthracene</i>	0.038 0.048	x	x	0.0038	0.048	0.038	√
<i>Benzo(a)pyrene</i>	0.038 0.2	0.7	0.20	0.0038	0.048	0.038	√
<i>Benzo(b)fluoranthene</i>	0.038 0.048	x	x	0.0038	0.048	0.038	√
<i>Benzo (ghi) perylene</i>	x	x	x	x	x	x	
<i>Benzo(k)fluoranthene</i>	0.038 0.048	x	x	0.0038	0.048	0.038	√
<i>alpha-BHC</i>	0.026 0.056	x	x	0.0026	0.056	0.026	√
<i>beta-BHC</i>	0.091 0.19	x	x	0.00910	0.19	0.091	√
<i>delta-BHC</i>	x	x	x	x	x	x	
gamma-BHC (Lindane)	0.19 0.20	x	0.20	0.98	2.1	0.19	
<i>Bis(2-Chloroethoxy) Methane</i>	x	x	x	x	x	x	
<i>Bis(2-chloroethyl) ether</i>	0.3	x	x	0.03	0.32	0.3	√
<i>Bis(2-chloroisopropyl) ether</i>	1,400	x	x	1,400	1,400	1,400	
<i>Bis(2-ethylhexyl) phthalate, Di(2-ethylhexyl phthalate)</i>	42 6	x	6	1.2	25	12	√
<i>Bromoform (THM)</i>	43 44	x	x	4.3	44	43	√
<i>4-Bromophenyl Phenyl Ether</i>	x	x	x	x	x	x	
<i>Butylbenzyl phthalate</i>	1,500 7,000	x	x	1,500	7,000	1,500/ 1,900 ^{xiii}	
<i>Carbon tetrachloride</i>	2.3 5	10	5	0.23	2.7	2.3	√
<i>Chlordane</i>	0.0080 2	x	2	0.0008	1	0.0043	√
Chlorobenzene	680 100	x	100	130	140	680	
<i>Chlorodibromomethane</i>	4.0 4.2	x	x	0.40	4.2	4.0	√
<i>Chloroethane</i>	x	x	x	x	x	x	
<i>2-Chloroethylvinyl ether</i>	x	x	x	x	x	x	
<i>Chloroform (THM)</i>	57	100	x	5.70	57	57	√
<i>2-Chloronaphthalene</i>	1,000 2,800	x	x	1,000	2,800	1,000/ 1,600 ^m	
<i>2-Chlorophenol</i>	81 175	x	x	81	175	81/150 ^m	
<i>4-Chlorophenyl Phenyl Ether</i>	x	x	x	x	x	x	
<i>Chrysene</i>	0.038 0.048	x	x	0.0038	0.048	0.038	√
<i>4,4'-DDT and derivatives</i>	0.0022 1.0	x	x	0.00022	1.0	0.001	√
<i>Dibenzo(a,h)anthracene</i>	0.038 0.048	x	x	0.0038	0.048	0.038	√
<i>Dibutyl phthalate</i>	2,000 3,500	x	x	2,000	3,500	2,000	
1,2-Dichlorobenzene (o-dichlorobenzene)	2,700 600	x	600	420	630	2,700	
<i>1,3-Dichlorobenzene (p-dichlorobenzene)</i>	320 469	x	x	320	469	320	
1,4-Dichlorobenzene	400 75	x	75	63	94	400	
<i>3,3-Dichlorobenzidine</i>	0.21 0.78	x	x	0.021	0.78	0.21/0.28 ^m	√
<i>Dichlorobromomethane</i>	5.5 5.6	x	x	0.55	5.6	5.5	√
<i>1,1-Dichloroethane</i>	x	25	x	x	x	x	√
<i>1,2-Dichloroethane</i>	3.8 5	10	5	0.38	3.8	3.8	√

Pollutant Priority Pollutants in <i>italics</i> . Pollutants with 2003 EPA updates in bold .	Domestic Water Supplyⁱ	NM Ground Waterⁱⁱ	EPA MCLⁱⁱⁱ	EPA HH W+O^{iv}	Water Only Calculated^v	NM Most Stringent^{vi}	Cancer causing
1,1-Dichloroethylene	0.57 7	5	7	330	350	0.57	√
<i>2,4-Dichlorophenol</i>	77 105	x	x	77	105	77	
<i>1,2-Dichloropropane</i>	5.0	x	5	0.50	5.2	5.0	√
1,3-Dichloropropene	40 3.5	x	x	0.34	3.5	10	√
<i>Dieldrin</i>	0.000520 0.022	x	x	5.2E-5	0.022	5.2E-4/ 5.4E-4 ^m	√
<i>Diethyl phthalate</i>	17,000 28,000	x	x	17,000	28,000	17,000	
<i>Dimethyl phthalate</i>	270,000 350,000	x	x	270,000	350,000	270,000	
<i>2,4-Dimethylphenol</i>	380 700	x	x	380	700	380	
<i>Di-n-Butyl Phthalate (Dibutyl phthalate)</i>	2,000 3,500	x	x	2,000	3,500	2,000	
<i>2,4-Dinitrophenol</i>	69 70	x	x	69	70	69	
<i>2,4-Dinitrotoluene</i>	1.1	x	x	0.11	1.1	1.1	√
<i>2,6-Dinitrotoluene</i>	x	x	x	x	x	x	√
<i>2,3,7,8-TCDD Dioxin</i>	5.E-08 3.E-05	x	3.E-05	5.E-09	2.2E-06	5.E-08/ 5.E-08 ^m	√
<i>1,2-Diphenylhydrazine</i>	0.36 0.44	x	x	0.036	0.44	0.36	√
<i>alpha-Endosulfan</i>	62	x	x	62	210	0.056	
<i>beta-Endosulfan</i>	62	x	x	62	210	0.056	
<i>Endosulfan sulfate</i>	62	x	x	62	210	62	
Endrin	0.76 2	x	2	0.059	2.1	0.036	
<i>Endrin aldehyde</i>	0.29 10.5	x	x	0.29	10.5	0.3	
Ethylbenzene	3400 700	750	700	530	700	3,100	
<i>Ethylene dibromide</i>	x	0.10	0.05	x	x	x	
<i>Fluoranthene</i>	130 1,400	x	x	130	1,400	130	
<i>Fluorene</i>	1100 1,400	x	x	1100	1,400	1,100	
<i>Heptachlor</i>	0.00079 0.40	x	0.40	7.9E-5	0.078	7.9E-4/ 7.9E-4 ^m	√
<i>Heptachlor epoxide</i>	0.00039 0.20	x	0.20	3.9E-5	0.038	3.9E-4/ 3.9E-4 ^m	√
<i>Hexachlorobenzene</i>	0.0028 1	x	1	0.00028	0.22	0.0028/ 0.0029 ^m	√
<i>Hexachlorobutadiene</i>	4.4 4.5	x	x	0.44	4.5	4.4	√
Hexachlorocyclopentadiene	240 50	x	50	40	42	240	
<i>Hexachloroethane</i>	14 25	x	x	1.4	25	14	√
<i>Ideno(1,2,3-cd)pyrene</i>	0.038 0.048	x	x	0.0038	0.048	0.038	√
<i>Isophorone</i>	350 368	x	x	35	368	350	√
<i>Methyl bromide</i>	47 49	x	x	47	49	47	
<i>Methyl chloride</i>	x	x	x	x	x	x	
<i>2-Methyl-4,6-dinitrophenol</i>	13 14	x	x	13	14	13	
<i>3-Methyl-4-chlorophenol</i>	x	x	x	x	x	x	
<i>Methylene chloride (dichloromethane)</i>	46 5	100	5	4.6	47	46	√
<i>Napthalene</i>	x	30	x	x	x	x	√
<i>Nitrobenzene</i>	17 18	x	x	17	18	17	
<i>2-Nitrophenol</i>	x	x	x	x	x	x	
<i>4-Nitrophenol</i>	x	x	x	x	x	x	

Pollutant Priority Pollutants in <i>italics</i> . Pollutants with 2003 EPA updates in bold .	Domestic Water Supplyⁱ	NM Ground Waterⁱⁱ	EPA MCLⁱⁱⁱ	EPA HH W+O^{iv}	Water Only Calculated^v	NM Most Stringent^{vi}	Cancer causing
<i>N-Nitrosodimethylamine</i>	0.0069	x	x	0.00069	0.0069	0.0069	√
<i>N-Nitrosodi-n-propylamine</i>	0.05	x	x	0.01	0.05	0.05	√
<i>N-Nitrosodiphenylamine</i>	33 71	x	x	3.30	71	33	√
<i>Phenanthrene</i>	x	x	x	x	x	x	
<i>PCBs</i>	6.4E-4 0.50	1	0.50	6.4E-5	0.175	6.4E-4/ 6.4E-4 ^m	√
<i>Pentachlorophenol</i>	2.7 1.0	x	1.0	0.27	2.9	2.7	√
<i>Phenol</i>	21,000	5?	x	21,000	21,000	21,000	
<i>Pyrene</i>	830 1,050	x	x	830	1,050	830	
<i>1,1,2,2-Tetrachloroethane</i>	1.7 1.8	10	x	0.17	1.8	1.7	√
<i>Tetrachloroethylene</i>	6.9 5	20	5	0.69	8.8	6.9	√
Toluene	6,800 1,000	750	1,000	1,300	1,400	6,800	
<i>Toxaphene</i>	0.0028 3	x	3	0.00028	0.32	0.0002	√
1,2-Trans-dichloroethylene	700 100	x	100	140	140	700	
1,2,4-Trichlorobenzene	260 70	x	70	35	70	260	
<i>1,1,1-Trichloroethane</i>	x 200	60	200	x	x	x	
<i>1,1,2-Trichloroethane</i>	5.9 5	10	5	0.59	6.1	5.9	√
<i>Trichloroethylene</i>	25 5	100	5	2.5	28	25	√
<i>2,4,6-Trichlorophenol</i>	14 32	x	x	1.4	32	14	√
Vinyl chloride	20 2	1	2	0.025	0.25	20	√
<i>Xylenes</i>	x	620	10,000	x	x	x	

ⁱ Values in normal font or strikethrough are NM's current criteria, effective August 1, 2007, found at 20.6.4.900(J) NMAC. Values in **bold** are proposed revisions.

ⁱⁱ Ground water standards found at 20.6.2.3103 NMAC, effective July 16, 2006.

ⁱⁱⁱ Maximum Contaminant Level: the highest level of a contaminant that allowed in drinking water under the National Primary Drinking Water Regulations.

^{iv} National Recommended Water Quality Human Health Criteria for the Consumption of Water + Organism, EPA 2006.

^v Value calculated based on consumption of water only.

^{vi} Values represent the most stringent criterion currently applicable to the pollutant, whether or not it is associated with the domestic water supply use. Where "@ 100" is listed, the aquatic life criterion is hardness dependent. The value indicates the standard at a typical hardness of 100 mg/L as calcium carbonate.

^{vii} Million fibers per liter.

^{viii} Action level under the Lead and Copper Rule at 40 CFR Part 141.

^{ix} Total cyanide as CN in dissolved fraction.

^x Weak acid dissociable.

^{xi} Free cyanide.

^{xii} Total cyanide, but based on free.

^{xiii} The second value indicates the most stringent criterion that would be applicable if the revised domestic water supply criterion were adopted.

NEW MEXICO
ENVIRONMENT DEPARTMENT



BILL RICHARDSON
Governor
DIANE DENISH
Lieutenant
Governor

Surface Water Quality Bureau

1190 South St. Francis Drive, Room N2050
P.O. Box 26110, Santa Fe, NM 87502-6110
Phone (505) 827-0187 Fax (505) 827-0160
www.nmenv.state.nm.us



RON CURRY
Secretary
JON GOLDSTEIN
Deputy Secretary

MEMORANDUM

TO: Pam Homer, Standards, Planning and Reporting Team Leader
FROM: Tim Michael, Standards, Planning and Reporting Team
DATE: July 31, 2008
SUBJECT: Cyanide, Modifications to Table 900.J, 20.6.4 NMAC

Introduction

The term "cyanide" specifically refers to the cyanide group (CN). Simple cyanides such as sodium cyanide and potassium cyanide readily dissociate and hydrolyze to form hydrogen cyanide (HCN) and the cyanide ion (CN⁻). "Free cyanide" is defined as the sum of HCN and the CN⁻ (EPA 1985).

Hydrogen cyanide is known to be toxic to aquatic life. Cyanide toxicity is essentially an inhibition of oxygen metabolism, i.e., rendering the tissues incapable of exchanging oxygen (EPA 1976).

In natural waters, cyanide can exist as HCN, CN⁻ and complexes of cyanide with a variety of metal cations. The toxicity to fish of most solutions of complex cyanides is attributable mainly to the HCN resulting from the dissociation of the complexes. The metal cation complexes exhibit a wide variety of stabilities that vary with pH, most dissociating appreciably in acidic solutions. Iron complexes such as sodium ferrocyanide can dissociate in sunlight to release free cyanide. Some of these complexes may be adsorbed to particles. In particular, sodium ferrocyanide, a component of fire retardant mixtures, has been found in turbid runoff waters after forest fires (Hopkins 2001).

Water can be analyzed for cyanide either in a dissolved sample (that portion that passes through a 0.45 micron filter) or in a whole-water sample. Analysis of a dissolved sample measures cyanide in the filtered water; analysis of the whole-water sample measures cyanide in the water as well as cyanide bound to suspended particles and sediment.

Whether the dissolved or whole-water portion is analyzed, the sample may be analyzed by at least three laboratory analytical techniques. Among them are (1) recoverable cyanide (frequently called "total recoverable cyanide"), (2) weak acid dissociable cyanide and (3) free cyanide. Recoverable cyanide measures free cyanide (HCN and CN⁻), complexes of low and intermediate stability and the more stable complexes (including the iron complexes). Weak acid dissociable cyanide measures free cyanide and complexes of low and intermediate stability. Free cyanide analysis measures HCN and CN⁻. The measurements are reported as weight of cyanide (CN) per volume of water, for example, µg CN/L.

History of Criteria

Criteria for cyanide in New Mexico's Water Quality Standards (20.6.4 NMAC) have changed since they were first included in 1991. "Cyanide dissolved" and "cyanide total," were first added to water quality standards in 1991, with values for domestic water supply and acute and chronic fisheries. In 1994, "cyanide total" was changed to "cyanide amenable to chlorination" with no changes in criteria. In February 2000, "cyanide amenable to chlorination" was changed to "cyanide weak acid dissociable" with no changes in criteria. In October 2000, a criterion was added for wildlife habitat. In 2002, for domestic water supply, the units were changed from mg/L to µg/L, and a criterion was added for human health. In 2005, a domestic water supply criterion for "cyanide weak acid dissociable" was added. The changes are summarized in Table 1 below. As is evident in the table, past and current criteria can lead to confusion regarding not only the applicable value but also the appropriate method of analysis.

Table 1 Past and Current Cyanide Criteria

Date		Domestic Water Supply	Wildlife Habitat	Fishery or Aquatic Life		Human Health
				Acute	Chronic	
1991	Cyanide, dissolved	0.2 mg/L				
	Cyanide, total			22 µg/L	5.2 µg/L	
1994	Cyanide, dissolved	0.2 mg/L				
	Cyanide amenable to chlorination			22 µg/L	5.2 µg/L	
Feb 2000	Cyanide, dissolved	0.2 mg/L				
	Cyanide, weak acid dissociable			22 µg/L	5.2 µg/L	
October 2000	Cyanide, dissolved	0.2 mg/L				
	Cyanide, weak acid dissociable		5.2 µg/L	22 µg/L	5.2 µg/L	
2002	Cyanide, dissolved	200 µg/L				
	Cyanide, weak acid dissociable		5.2 µg/L	22 µg/L	5.2 µg/L	220,000 µg/L
2005	Cyanide, dissolved	200 µg/L				
	Cyanide, weak acid dissociable ¹	700 µg/L	5.2 µg/L	22 µg/L	5.2 µg/L	220,000 µg/L

¹ The header on the table in 20.6.4.900.J NMAC (August 1, 2007) says "total, unless indicated."

Criteria Revisions

The EPA (2006) recommendation for freshwater aquatic life is 22.0 (acute) and 5.2 (chronic), "expressed as µg free cyanide as (CN/L)." (See EPA 2006 footnote Q). EPA updated its recommended human health criteria for cyanide in 2003 (FR 2003). The current recommendation for human health is 140 µg/L, whether for the consumption of water plus organism or organism only, "expressed as total cyanide." (See FR 2003 footnote and EPA 2006 footnote jj).

The domestic water supply criterion in New Mexico's current standards specifies analysis of a both a dissolved sample and a whole-water sample. For the dissolved sample, the analytical method is not specified. For the whole-water sample, the analytical method is specified as "weak acid dissociable." The wildlife habitat, aquatic life and human health criteria indicate that whole-water sample is analyzed and specify that the "weak acid dissociable" analytical method be used.

Possible revisions to New Mexico's criteria for cyanide, representing updated values and a single sample collection and analysis method, are shown in Table 2. New Mexico's current criteria (20.6.4.900.J NMAC) and EPA's current criteria recommendations are also shown for comparison.

**Table 2
Proposed Revisions to New Mexico's Criteria for Cyanide
Representing Updated Values and a Single Analysis Method**

	Pollutant	Dom. Water Supply µg/L	Wildlife Habitat µg/L	Aq Life Acute µg/L	Aq Life Chronic µg/L	Human Health Table 900.J µg/L	Human Health	
							Water plus Organism µg/L	Organism Only µg/L
EPA National Recommended Water Quality Criteria	Cyanide			22	5.2		140	140
EPA MCL	Cyanide	200						
Table 900.J	Cyanide, dissolved	200						
Table 900.J	Cyanide, weak acid dissociable	700	5.2	22	5.2	220,000		
Proposal	Cyanide, as CN¹	200	5.2	22	5.2	140		

¹ Based on analysis of a whole-water sample for recoverable cyanide (hydrogen cyanide, cyanide ion and cyanide complexes) expressed as CN/L.

The proposal is to base all of the cyanide criteria on a whole-water (unfiltered) sample. This is because in addition to soluble HCN and CN⁻, cyanide may exist in water as complexes of metal cations, some of which can dissociate to release free cyanide. Some of these complexes may be adsorbed to particles that could be removed by filtration.

Basing criteria on the whole-water sample is a conservative approach and provides protection for aquatic life and wildlife that may live in or consume water without filtration. Although water used for domestic water supply is often filtered, this basis also protects domestic water supplies where the particles may not be removed before consumption.

The proposal is also to recommend that samples should be analyzed for recoverable cyanide. It might be possible to refer to this as "total recoverable cyanide"; however, this use of the word "total" promotes confusion that the analytical method is somehow related to the sample handling procedure. The intent of the word "recoverable" is that the sample be analyzed by an analytical method that measures free cyanide (HCN and CN⁻), complexes of low and intermediate stability and the more stable complexes (including the iron complexes). That the analysis for recoverable cyanide is to be conducted on a whole-water sample is proposed to be explicitly stated in the standards.

Analysis for recoverable cyanide is also a conservative approach, because depending on the forms of cyanide in a sample, analysis for recoverable cyanide will provide higher values than analysis for either free cyanide or weak acid dissociable cyanide. The alternative, analysis for free or weak acid dissociable cyanide, may underestimate the concentration of the pollutant. The recommendation is that it should be made clear that analytical results should be expressed as the concentration of cyanide per liter of water, or CN/L.

The proposal is to retain the current value of 200 µg/L for domestic water supply, the same value as the current EPA Maximum Contaminant Level (MCL) for drinking water (EPA 2007). This value is also the same as the criteria value found in New Mexico's ground water quality standards (20.6.2.3103 NMAC).

References

EPA 1976. *Quality Criteria for Water*. EPA 440976023, July 26, 1976. United States Environmental Protection Agency, Washington, D.C., 534 p.

EPA 1985. *Ambient Water Quality Criteria for Cyanide, 1984*. EPA 440/5-84-028, January 1985. United States Environmental Protection Agency, Office of Water, Regulations and Standards, Criteria and Standards Division, Washington, D.C. 20460, 67 p. Found at <http://www.epa.gov/waterscience/criteria/library/ambientwqc/cyanide85.pdf>, January 11, 2008.

EPA 1994. *Water Quality Standards Handbook, Second Edition*. EPA-823-B-94-005, August 1994. United States Environmental Protection Agency, Water Quality Standards Branch, Office of Science and Technology, Washington, DC 20460. Found at <http://www.epa.gov/waterscience/standards/handbook/>, January 22, 2008

EPA 2002. *National Recommended Water Quality Criteria: 2002*. EPA-822-R-02-047, November 2002. United States Environmental Protection Agency, Office of Water, Office of Science and Technology, Washington, D.C., 36p. Found at <http://www.epa.gov/waterscience/criteria/nrwqc-2002.pdf>, January 11, 2008.

EPA 2006. *National Recommended Water Quality Criteria*. 2006. United States Environmental Protection Agency, Office of Water, Office of Science and Technology. Found at <http://www.epa.gov/waterscience/criteria/wqcriteria.html>, and <http://www.epa.gov/waterscience/criteria/nrwqc-2006.pdf>, January 11, 2008.

EPA 2007. Found at <http://www.epa.gov/safewater/contaminants/index.html>, January 11, 2008.

FR 2003. *National Recommended Water Quality Criteria for the Protection of Human Health*, 68 Federal Register 250 (December 31, 2003), p 75510. Found at <http://www.epa.gov/fedrgstr/EPA-WATER/2003/December/Day-31/w32211.htm>, January 16, 2008.

Hopkins 2001. Special Water Quality Survey of the Pecos and Gallinas Rivers below the Viveash and Manuelitas Fires 2000. New Mexico Environment Department/Surface Water Quality Bureau, February 2001.

NMED/SWQB 2007. *Standard Operating Procedures for Data Collection*. New Mexico Environment Department/Surface Water Quality Bureau, July 2007, 186 p. Found at <http://www.nmenv.state.nm.us/swqb/SOP/SWQB-MASStandardOperatingProcedures.pdf>, January 11, 2008.

NMED/SWQB 2008. Quality Assurance Project Plan for Water Quality Management Programs. New Mexico Environment Department/Surface Water Quality Bureau, March 2008. Found at <http://www.nmenv.state.nm.us/swqb/QAPP/2008QAPP-Approved.pdf>, May 6, 2008.

**NEW MEXICO
ENVIRONMENT DEPARTMENT**



Surface Water Quality Bureau

1190 South St. Francis Drive, Room N2050
P.O. Box 26110, Santa Fe, NM 87502-6110
Phone (505) 827-0187 Fax (505) 827-0160
www.nmenv.state.nm.us

BILL RICHARDSON
Governor
DIANE DENISH
Lieutenant
Governor

RON CURRY
Secretary
JON GOLDSTEIN
Deputy Secretary

MEMORANDUM

TO: Pam Homer, Standards, Planning and Reporting Team Leader
FROM: Tim Michael, Standards, Planning and Reporting Team
DATE: August 7, 2008
SUBJECT: Correction to Criteria for Nitrate + Nitrite (Livestock Watering)

Current Surface Water Quality criteria relating to oxides of nitrogen are as follows:

	Domestic Water Supply	Livestock Watering
Nitrate as N	10 mg/L	
Nitrate + Nitrite		132 mg/L

I have received two documents that bear on the discussion of the current criteria. The documents are (1) *Nutrients and Toxic Substances in Water for Livestock and Poultry*, National Research Council, 1974, and (2) *Nutrient Requirements of Dairy Cattle*, 7th rev. National Research Council, 2001.

The 1974 document recommended limits for the concentration of nitrogen-containing compounds in drinking water for livestock and poultry as follows: Nitrate-N, 100 mg/L, and Nitrite-N, 10 mg/L.

The recommendations of the 2001 document are different from these. The recommendations are contained in Table 8-3, which is reproduced below in its entirety:

TABLE 8-3 Nitrate in Water (from *Nutrient Requirements of Dairy Cattle*, 7th rev. National Research Council, 2001)

Nitrate (NO ₃) (mg/L)	Nitrate-Nitrogen (NO ₃ -N) (mg/L)	Guidelines
0-44	1-10	Safe for consumption by ruminants
45-132	10-20	Generally safe in balanced diets with low nitrate feeds
133-220	20-40	Could be harmful if consumed over long periods
221-660	40-100	Cattle at risk; and possible death
661	100	Unsafe, possible death, should not be used as a source of water

You will notice that the ratio of nitrate (NO₃) to nitrogen (N) has values of 4.4, 5.5 and 6.6. This is in error because the ratio of the formula weights of nitrate to nitrogen is a fixed value; it is 62/14, or 4.43. The value of 132 mg/L NO₃ does not accurately correspond to a value of 20 mg/L NO₃-N.

There is little disagreement in the literature, including in the New Mexico State University Cooperative Extension Service, Guide D-107, *Water for Dairy Cattle*, that water with concentrations of Nitrate as N (NO₃-N) in excess of 20 mg/L could be unsafe for dairy cattle. The value of 132 in the current standards is not consistent with Guide D-107. It appears that the value of 132 likely represents a value for nitrate instead of nitrate as N.

Therefore, I propose that to modify the criteria for the oxides of nitrogen as follows:

	Domestic Water Supply	Livestock Watering
Nitrate plus Nitrite as N	10 mg/L	20 mg/L

Basis:

1. The domestic water supply criterion remains consistent with EPA guidance.
2. For livestock watering, this is consistent with the middle column of Table 8-3 of the 2001 NRC document, and with the middle column of Table 5 of NM State Guide D-107, and avoids the error in the conversion from nitrogen to nitrate.
2. Although the row is not labeled nitrate + nitrite, (a) nitrite is typically not significant in surface water, and (b) the standard test (Method 4500) and EPA Method 353.2 (automated cadmium reduction) does not discriminate between the species.

References

Nutrients and Toxic Substances in Water for Livestock and Poultry, National Research Council, 1974. Washington, D.C., National Academy Press

Nutrient Requirements of Dairy Cattle, 7th rev. National Research Council, 2001. Washington, D.C., National Academy Press

Water for Dairy Cattle, New Mexico State University Cooperative Extension Service, Guide D-107



BILL RICHARDSON
Governor
DIANE DENISH
Lieutenant Governor

NEW MEXICO
ENVIRONMENT DEPARTMENT

Surface Water Quality Bureau

Harold Runnels Building, N2050
1190 South St. Francis Drive (87505)
P.O. Box 26110, Santa Fe, NM 87502
Phone (505) 827-0187 Fax (505) 827-0160
www.nmenv.state.nm.us



RON CURRY
Secretary
JON GOLDSTEIN
Deputy Secretary

MEMORANDUM

To: Pam Homer, Water Quality Standards Coordinator
From: Stephanie Stringer
RE: Aquatic Life Criteria Review
Date: 15 April 2008

**Summary of Aquatic Life Criteria Review –
Diazinon and Nonylphenol**

Section 304(a)(1) of the Clean Water Act requires the U. S. Environmental Protection Agency (USEPA) to publish water quality criteria that accurately reflect the latest scientific knowledge on the kind and extent of all identifiable effects on health and welfare that might be expected from the presence of pollutants in a water body. In February of 2006 USEPA published recommended aquatic life criteria for the non-priority pollutants diazinon and nonylphenol (FR 71 9336 and 9337). The *State of New Mexico Standards for Interstate and Intrastate Surface Waters* (20.6.4 NMAC) do not currently identify criteria for these pollutants for any designated use. This memorandum provides a review of USEPA's recommended criteria and proposes that the criteria be adopted in New Mexico.

Diazinon

USEPA's *Aquatic Life Ambient Water Quality Criteria - Diazinon* (2005a) provides details on the chemical composition and behavior of the compound in the environment and its effects on aquatic organisms. Diazinon poisons humans and insects through its effects on nerve enzymes. Diazinon combines chemically with the acetylcholinesterase enzyme and inactivates it. This enzyme is essential for the control of nerve impulse transmission. Loss of acetylcholinesterase allows the accumulation of acetylcholine, the substance secreted by nerves that activates muscles, glands, and other nerves. Accumulation of sufficient levels of acetylcholine at junctions between nerves and muscles will cause muscle contractions or twitching. Accumulation of acetylcholine at junctions between nerves and glands results in gland secretion; and accumulation between nerves in the brain causes sensory and behavioral disturbances (USEPA 2002).

The purpose of adopting ambient water quality aquatic life criteria is to protect the aquatic organisms that might be exposed to toxic compounds through exposure to contaminated waters. An array of test organisms were used to derive the suggested ambient water quality acute and chronic aquatic life criteria for diazinon included in the document. USEPA guidelines require that toxicity tests be performed on at least 8 different taxonomic families from a variety of specified groups (Stephan et al. 1985). While the individual species used to derive the proposed diazinon criteria may not occur in New Mexico, all of the families and the majority of the genera used are represented in New Mexico.

In December of 2004, as part of an agreement between USEPA and diazinon registrants to phase out and eliminate all residential uses of the insecticide diazinon, it became unlawful to sell outdoor, non-agricultural diazinon products in the United States. Furthermore, in January 2007 USEPA mailed letters to

diazinon registrants amending their registrations by canceling certain agricultural uses. The only remaining uses are agricultural uses on a variety of fruit, vegetable, nut, and field crops, as well as use on non-lactating cattle as an ear-tag. Diazinon products are currently registered in NM and therefore there is potential for this compound to be applied in NM .

Diazinon is analyzed in water samples using USEPA Method 8141A, Organophosphorus Compound by Gas Chromatography: Capillary Column Technique, which has a Method Detection Limit (MDL) of 0.20 µ/L. The NM Department of Health Scientific Laboratory Division is capable of analyzing for diazinon at this time; however, it has not been analyzing for it recently and the 24-hour holding time can be a limiting factor for this analysis. Paragon Laboratory indicated that it could analyze for diazinon using method SW-846:8141 (modified method, but still USEPA approved as far as I could determine) with a MDL of 0.12 - 0.13 µ/L and a Sample Detection Limit of 0.94 – 1.0 µ/L.

No diazinon data were available from the SWQB's water quality database. USGS has diazinon data available for numerous sites throughout NM that were collected primarily in 1995-1996 and 2002-2007. Data were collected in the majority of the watersheds throughout NM including Rio Grande, Pecos, Mimbres, Gila, San Francisco, Canadian, Rio Chama and the Jemez River. The sampling results show that diazinon has been detected in NM's waters, but only one detection of diazinon occurred above the proposed acute and chronic criteria level at Rio Hondo near Valdez. The sample was collected August 13, 2002 (from USGS database as provided by Phil Bowman 2008).

Diazinon has been shown to accumulate rapidly in fish test species that were exposed to diazinon for 14 days, reaching a steady-state in approximately 3 days (USEPA 2005a). Under USEPA's Persistent, Bioaccumulative, and Toxic (PBT) Chemical Initiative and as part of USEPA's National Lake Fish Tissue Study, fish tissue samples from two of New Mexico's lakes were examined. Tissue samples from two species of fish, white sucker and smallmouth bass, were analyzed from Navajo Reservoir. Tissue samples from two different species of fish, walleye and channel catfish, were analyzed from Brantley Reservoir. Diazinon was not detected in any of these samples using an analytical method with a detection limit of 100 ppb (<http://www.epa.gov/waterscience/fish/study/>).

Based on known negative effects of diazinon on aquatic organisms, because the product is registered and therefore possibly applied in NM, and because it has been detected in NM's waters, I recommend that water quality standards aquatic life criteria be proposed for diazinon in accordance with USEPA's recommendation of 0.17 µ/L for the acute criterion and 0.17 µ/L for the chronic criterion.

Nonylphenol

USEPA's Aquatic Life Ambient Water Quality Criteria - Nonylphenol (2005b) provides details on the chemical composition and behavior of the compound in the environment and its effects on aquatic organisms. Nonylphenol is a substance that has raised public concern for its toxic effect on fish and its suspected endocrine disrupting characteristics. Endocrine disruptors are chemicals that may interfere with the body's endocrine system and produce adverse developmental, reproductive, neurological, and immune effects in both humans and wildlife. There is little published research concerning the human health effects of nonylphenols. In September 2006, however, research published in Toxicological Sciences shows that human placenta exhibits changes in response to nonylphenol in the first trimester, resulting in possible early termination of pregnancy and fetal growth defects. It also found that the effects of nonylphenol are greater and longer lasting than estrogen and can occur at concentrations 100-1000 times lower than those previously studied (<http://www.sierraclub.org/healthycommunities/toxics/>).

The purpose of adopting ambient water quality aquatic life criteria is to protect the aquatic organisms that might be exposed to toxic compounds through exposure to contaminated waters. An array of test organisms were used to derive the suggested ambient water quality acute and chronic aquatic life criteria for nonylphenol included in the document. EPA guidelines require that toxicity tests be performed on at least 8 different taxonomic families from a variety of specified groups (Stephan et al. 1985). While the individual species used to derive the proposed nonylphenol criteria may not occur in New Mexico, all of the families and the majority of the genera used are represented in New Mexico.

Nonylphenol is used in oil soluble detergents (surfactants) and emulsifiers for industrial uses, cosmetics/lotions, paint/resin formulation, vat-cleaning in breweries. It has been detected in the environment in effluent from wastewater treatment plants and in sewage sludge. It has also been found in airport runoff as a result of its use as an aircraft deicer and antiicer. In a nationwide study conducted on 30 river reaches from 1989-1990 nonylphenol was found in approximately 30 percent of the water samples in concentrations ranging from 0.20 to 0.64 µg/L and 71 percent of sediment samples with concentrations ranging from approximately 10 to 2,960 µg/kg (USEPA 2005b). It is not known if any of the sampling stations were located in New Mexico. No nonylphenol data were available from the SWQB's water quality database or from the USGS water quality database.

Currently there is no USEPA approved analytical method for nonylphenol; however, USEPA scientists developed a method to measure nonylphenol and related compounds in the environment and successfully tested it using water and sediment from the Chicago area. The method is currently being reviewed by the American Society of Testing Materials (EPA website, dated July 2007). USGS's National Water Quality Laboratory and Axys Analytical Services, Ltd., can both analyze for nonylphenol using alternative methods not technically approved by USEPA. The NM Department of Health Scientific Laboratory Division is not capable of analyzing for nonylphenol at this time.

Nonylphenol has been shown to accumulate rapidly in fish test species that were exposed to nonylphenol, reaching a steady-state in approximately 2 days; however the compound was shown to be metabolized to some degree by the organism, resulting in lower than expected bioconcentration factors (USEPA 2005b). Under USEPA's Persistent, Bioaccumulative, and Toxic (PBT) Chemical Initiative and as part of USEPA's National Lake Fish Tissue Study, fish tissue samples from two of New Mexico's lakes were examined. Tissue samples from two species of fish, white sucker and smallmouth bass, were analyzed from Navajo Reservoir. Tissue samples from two different species of fish, walleye and channel catfish, were analyzed from Brantley Reservoir. Nonylphenol was not detected in any of these samples using an analytical method with a detection limit of 333 ppb (<http://www.epa.gov/waterscience/fish/study/>).

Based on known as well as potential negative effects of nonylphenol on aquatic organisms and the fact that this compound has the potential to be used in NM, I recommend that water quality standards aquatic life criteria be proposed for nonylphenol in accordance with USEPA's recommendation of 28 µ/L for the acute criterion and 6.6 µ/L for the chronic criterion.

References:

Stephan, C. E., D. I. Mount, D. J. Hansen, J. H. Gentile, G. A. Chapman and W. A. Brungs. 1985. *Guidelines for deriving numeric national water quality criteria for the protection of aquatic organisms and their uses*. USEPA, Office of Research and Development, 98 pp. <http://www.epa.gov/waterscience/criteria/85guidelines.pdf>.

USEPA. 2002. *Review of Diazinon Incident Reports*, US EPA, Office on Prevention, Pesticides and Toxic Substances, 2 July 2000, p2

USEPA. 2005a. *Aquatic Life Ambient Water Quality Criteria – Diazinon*. Office of Water. EPA-822-R-05-006. December 2005.

USEPA. 2005b. *Aquatic Life Ambient Water Quality Criteria – Nonylphenol*. Office of Water. EPA-822-R-05-005. December 2005.