Exhibit 11

Timothy J. Goering

Phone: 505-665-0996

Email: goering@lanl.gov

PROFESSIONAL PROFILE

- Environmental professional and groundwater hydrologist.
- Excellent communication and interpersonal skills.
- Exemplary leadership abilities and strong work ethic.

AREAS OF EXPERTISE

- Hydrology and water resources
- Groundwater monitoring
- Environmental protection & compliance
- NM Water Quality Standards
- RCRA/ CERCLA/ NEPA/ UMTRA
- Clean Water Act
- Site assessment and remediation
- Environmental stewardship

EDUCATION

- M.S., Hydrology and Water Resources, University of Arizona, 1988
- B.A., Environmental Science, University of Virginia, 1983

PROFESSIONAL EXPERIENCE

Environmental Professional in the Environmental Protection and Compliance Division, *Triad National Security, 2020 to Present.*

- Environmental Professional supporting Triad's Groundwater and Surface Water Quality Program's regulatory activities under NMED Water Quality Control Commission (WQCC) Regulations.
- Analyzing data in support of Triad's Use Attainability Analysis (UAA) for Upper Sandia Canyon. Reviewing water temperature and air temperature data to identify the most stringent and attainable designated use for Upper Sandia Canyon.
- Analyzing stream flow gage data in perennial, intermittent and ephemeral reaches within Los Alamos National Laboratory boundaries.
- Providing technical and regulatory support for the Ground Water Discharge Permit for the Radioactive Liquid Waste Management Facility.
- Providing support for long-term stewardship activities related to LANL's facility groundwater monitoring program to meet RCRA compliance requirements.

Field Instrument Deployments and Operations Site Manager, *Los Alamos National Laboratory,* 2018 to 2020

- Site operations manager for the U.S. Department of Energy's Atmospheric Radiation Measurement (ARM) Mobile Facility One (AMF1), one of the world's premier observatories advancing atmospheric and climate research.
- Managed the deployment of atmospheric monitoring instruments and data systems at remote locations in Norway and Svalbard for the ARM COMBLE

Campaign. Responsibilities included project management, collaborating with international partners, and communicating with on-site technicians and scientists at national laboratories across the US.
- Managed the CACTI Campaign in Argentina, including, installation, operation, and shipment of the AMF1 atmospheric observatory. Responsibilities included oversight of on-site technicians, communicating with instrument scientists, preparing contracts and public outreach.

RDX Remediation Project Lead, *Los Alamos National Laboratory,* 2013 to 2018
- Technical lead on the RDX (hexahydro-1,3,5-trinitro-1,3,5-triazine) in groundwater project, working with a diverse group of scientists to assess high explosives (HE) contamination in soil and groundwater at Los Alamos National Laboratory. The RDX team was part of a multidisciplinary group which was awarded a Distinguished Performance Award for their efforts to investigate attenuation & remediation of contaminants in groundwater.
- Developed the "Remedy Completion Report for Corrective Measures Implementation (CMI) at Consolidated Unit 16-021(c)-99." The report was instrumental in closing out the surface CMI for the 260 Outfall, resulting in significant cost savings and allowing efforts to focus on deep groundwater contamination.
- Assisted ENV-CP personnel with preparation of workplans for land-application of treated groundwater in accordance with the requirements of Discharge Permit (DP)1793. The workplans proposed discharge of treated groundwater from aquifer tests conducted to investigate HE contamination.
- Supported ENV-CP personnel with preparation of Notices of Intent (NOIs) to Discharge to support aquifer testing operations and tracer tests at TA 16.
- Conducted public outreach for the RDX project, including presenting at Citizen's Advisory Board (CAB) meetings and leading tours of the study area.

Interim Facility-Wide Groundwater Monitoring Lead, *Los Alamos National Laboratory,* 2007 to 2015
- Served as technical lead for the Interim Facility-Wide Groundwater Monitoring Program from 2007 through 2015. Responsibilities included updating the Interim-Facility Wide Groundwater Monitoring Plan each year, negotiating with the New Mexico Environment Department (NMED) and collaborating with other organizations at the Laboratory to ensure monitoring needs were met.
- Assisted with regulatory interactions, public outreach, developing work plans for hydrologic characterization and well-installation, and preparing Annual Site Environmental Reports.
- Negotiated with the Pueblo of San Ildefonso annually to define groundwater monitoring requirements for the Memorandum of Understanding (MOU).
- Project management responsibilities included developing cost and schedule estimates, preparing baselines, reporting budget, schedule and status, and subcontract management.

Hydrogeologist, *GRAM Inc.,* Albuquerque, NM, 1992 to 2007

- Worked closely with the NMED, the Department of Energy, the City of Albuquerque, and the public to build a consensus regarding corrective action at Sandia National Laboratory's Mixed Waste Landfill (MWL).
- Provided expert testimony at a three-day NMED public hearing regarding MWL groundwater and cover design.
- Assisted with developing an alternative landfill cover design utilizing native vegetation to enhance evapotranspiration and minimize infiltration.
- Prepared the Long-Term Monitoring and Maintenance Plan for the MWL.
- Prepared groundwater characterization reports, RCRA facility investigation (RFI) work plans & reports, and a corrective measures study for the MWL.

Hydrogeologist, *Jacobs Engineering,* Albuquerque, NM, 1987 to 1992

- Managed hydrogeologic characterization and groundwater monitoring projects at uranium mill tailings sites in Colorado and Idaho.
- Prepared NEPA documents, including Environmental Impact Statements (EISs) and Environmental Assessments (EAs) for uranium mill tailings sites.
- Modeled groundwater flow and contaminant transport to assess landfill cover performance and disposal cell designs.

Hydrogeologist, *Hydro Geo Chem, Inc.,* Tucson, AZ, *1987*

- Assisted in a large-scale water resource evaluation of the Little Colorado River Basin in Arizona, utilizing inverse modeling techniques.

Environmental Scientist, *Ecology and Environment, Inc.,* Denver, CO, 1983 to 1985

- Conducted field assessments of hazardous waste sites, sampling surface water, groundwater, soil and air at potential Superfund sites in Colorado, Wyoming, Utah, and Montana.

ADDITIONAL TRAINING

- Public Speaking (Toastmasters)
- Project management
- RCRA/ CERCLA
- Bioremediation

Exhibit 12

DAVID BRYAN DAIL

Environmental Management—Los Alamos
Sealaska Technical Services
Phone: 505-206-6397
Email: daviddail65@gmail.com
https://www.researchgate.net/profile/David_Dail

EMPLOYMENT

Environmental Scientist
N3B—Sealaska Technical Services
Stormwater Program, Los Alamos Legacy Clean Up
July 2018-Present

Key responsibilities: Permit and Project deliverables, Annual reporting lead for the Sandia Wetland Performance Report; Individual Stormwater Permit, Investigative Project Implementation; Aluminum Toxicity Study and Biotic Ligand Model development; and Stormwater Processing Facility Management.

Adjunct Assistant Professor
Department of Biology, University of New Mexico.
September 1, 2016 – Present

Environmental Scientist-Advanced: Monitoring, Assessment, & Standards Section, Surface Water Quality Bureau, New Mexico Environment Department.
June 2013 – July 2018

- Interim Standards Coordinator, Standards, Planning & Reporting Team. August 2016 – March 2017.
- Interim Quality Assurance Officer, Standards, Planning & Reporting Team. February 2016 – May 2017.

Key Responsibilities: Developed Water Quality Standards through data review, modeling, and field investigations in support of Use Attainability Analyses. Development and delivery of water quality standards testimony before the Water Quality Control Commission. Review and comment on EPA's national 304(a) criteria for water quality standards. Surface water quality assessment and review of existing and new mine activities and permitting in New Mexico. Advised and assisted in implementation of the NMED Hydrology Protocol for determining the hydrologic regime of surface waters, and designated uses. Coordinated with state and contract labs to optimize data quality used in assessing state waters.

Research Scientist: Dept. of Plant Soil and Environmental Sciences, University of Maine. September 2007−June 2013.

Assistant Professor of Soil Microbiology: Dept. of Plant Soil and Environmental Science, University of Maine. August 2000 to August 2007.

EDUCATION

Post-Ph.D. 1998-2000**.** Department of Agronomy/The Energy Institute, The Pennsylvania State University.
Project title: Biotic and Abiotic Nitrogen Cycling in Forest Soils.

Ph.D. 1997. Dept. of Microbiology, The University of Georgia, Athens, GA.
Dissertation Title: Sulfur Transformations at the Forest Soil-Water Interface and in Stream Sediments.

B.S. 1991. Dept. of Biology, The University of New Mexico (Chemistry minor).
Undergraduate Research Theme: Contributions of methane to carbon cycling in 1st order streams.

PROFESSIONAL ACTIVITIES

Reviewer for Technical Reports and Scientific Journals:

Biogeochemistry	Ecosystems
Soil Biology & Biochemistry	Wetlands
Soil Science Society of America Journal	Ecology

Prior service to profession and mentoring:
Maine Science and Technology Fair
Maine MERITS Program DOE SURE Program

TEACHING EXPERIENCE

Graduate Career:
Teaching and laboratory assistantships in General Microbiology, Clinical Microbiology, Human Anatomy and Physiology, Comparative Anatomy and Physiology, Microbiology for Allied Health Majors, Microbiology for Non-majors, and Soil Ecology.

2001-2009 Professional Career (University of Maine, Orono, ME)

BMB 410 Microbial Diversity: An upper division lecture exploring the wide diversity of bacteria, algae and fungi on the planet.

PSE 469 Soil Microbiology: An upper division lecture and laboratory course exploring the diversity and functional roles of soil microorganisms.

INT 482 Pesticides in the Environment: An exploration of the uses, impacts, and alternatives to chemical pesticide use in agricultural, forest, and aquatic environments.

PSE 569 Techniques in Environmental Microbiology: A graduate level lab-based class using modern microbiological and enzymatic techniques to investigate terrestrial and aquatic environments.

I have contributed one or more guest lectures in other courses including PSE 440-Environmental Soil Chemistry and Plant Nutrition, ERS 602-Stable Isotope Geochemistry and Soil and Water Quality.

AWARDS AND FELLOWSHIPS

2015 **New Mexico Environment Department Employee of the Year**

2015 **New Mexico Environment Department Employee of the Quarter** (Q1, 2015)

2012 **World Meteorological Organization Norbert Gerbier-MUMM Award for Carbon-Climate Links** (as co-author), for the paper "Climate control of terrestrial carbon exchange across biomes and continents". Yi *et al*. (2010) *Environ. Res. Lett.* **5** 034007 doi: 10.1088/1748-9326/5/3/034007

2010 **Best Paper Award** (as co-author) The Effects of Long-Term Forest N Enrichment and Acidification on Soil CNP Dynamics" F. Fatemi, Presenter. Soil Science Society of America 2010 meeting, The Forest, Range and Wildland Division (S7), Long Beach, CA

2000 **USDA NRI Post-Doctoral Fellowship** "Abiotic nitrogen cycling in nitrogen-saturated soils"

1999 **NSF-TECO Post-doctoral Fellowship**, Department of Agronomy/The Energy Institute, The Pennsylvania State University.

1995 **Wildco Award for Best Oral Presentation in Basic Research**. North American Benthological Society annual meeting, Keystone, Colorado.

SELECT PUBLICATIONS

Sebestyen SD, Ross DS, Shanley JB, Elliott EM, Kendall C, Campbell JL, **Dail DB**, Fernandez IJ, Goodale CL, Lawrence GB Lovett GM, McHale PJ, Mitchell MJ, Nelson SJ, Shattuck MD, Wickman TR, Barnes RT, Bostic JT, Buda AR, Burns DA, Eshleman KN, Finlay JC, Nelson DM, Ohte N, Pardo LH, Rose LA, Sabo RD, Schiff SL, Spoelstra JW and WJ Karl. **2019**. Unprocessed Atmospheric Nitrate in Waters of the Northern Forest Region in the U.S. and Canada. Environmental Science & Technology. 53(7): 3620-3633.

Fatemi FR, Fernandez IJ, Simon KS, and **DB Dail. 2016**. Nitrogen and phosphorus regulation of soil enzyme activities in acid forest soils. *Soil Biology and Biochemistry* 98:171-179.

Templer PH, Mack MC, Chapin III FS, Christenson LM, Compton JE, Crook HD, Currie WS, Curtis C, **Dail DB**, D'Antonio CM, Emmett BA, Epstein H, Goodale CL, Gundersen P, Hobbie SE, Holland K, Hooper DU, Hungate BA, Lamontagne S, Nadelhoffer KJ, Osenberg CW, Perakis SS, Schleppi P, Schimel J, Schmidt IK, Sommerkorn M, Spoelstra J, Tietema A, Wessel WW, and DR Zak. **2012**. Sinks for Nitrogen Inputs in Terrestrial Ecosystems: A Meta-Analysis of ^{15}N Tracer Field Studies. *Ecology* **93**(8): 1816–1829.

Obrist D, Johnson DW, Lindberg SE, Luo Y, Hararuk O, Bracho R, Battles JJ, **Dail DB**, Edmonds RL, Monson RK, Ollinger SV, Pallardy AG, Pregitzer KS, and DE Todd Mercury distribution across 14 US forests. Part I: spatial patterns of concentrations in biomass, litter, and soils

Dail DB, Hollinger DY, Davidson EA, Fernandez I, Sievering HC, Scott NA and Gaige E. 2009. Distribution of ^{15}N Tracers Applied to the Canopy of a Mature Spruce-Hemlock Stand, Howland, Maine, USA. *Oecologia* **160**:589-599.

Davidson EA, **Dail DB** and J Chorover. 2008. Iron interference in the quantification of nitrate in soil extracts and its effect on hypothesized abiotic immobilization of nitrate. *Biogeochemistry* **90**(1):65-73. DOI 10.1007/s10533-008-9231-6

Gaige E, **Dail DB**, Hollinger DY, Davidson EA, Fernandez IJ, Sievering H, White A and W. Halteman. 2007. Changes in Canopy Processes Following Whole-Forest Canopy Nitrogen Fertilization of a Mature Spruce-Hemlock Forest. *Ecosystems* **10**(7): 1133-1147. DOI 10.1007/s10021-007-9081-4.

Scott NA, Rodrigues CA, Hughes H, Lee JT, Davidson EA, **Dail DB**, Malerba P, and DY Hollinger. 2004. Changes in carbon storage and net carbon exchange one year after an initial shelterwood harvest at Howland Forest, ME. *Environmental Management* **33** (Suppl. 1): S9-S22.

Davidson EA, Chorover J and **Dail DB.** 2003. A mechanism of abiotic immobilization of nitrate in forest ecosystems: the ferrous wheel hypothesis. *Global Change Biology* **9**:228-236.

Dail DB, Davidson EA and Chorover J. 2001. Rapid abiotic immobilization of nitrate in an acid forest soil. *Biogeochemistry* **54**:131-146.

Dail DB and Fitzgerald JW. 1999. S cycling in soil and stream sediment: Influence of season and in situ concentrations of carbon, nitrogen and sulfur. *Soil Biology and Biochemistry* **31**: 1395-1404.

Exhibit 13

Barry A. Fulton
barry.fulton@outlook.com
266 Morgan Dr. McCall, ID 83638
828.553.2829

Education
MS, Environmental Toxicology, Baylor University, 2008

BA, Ecology; BA, Environmental Science, Brevard College, 2005

Employment History

Benchmark Environmental LLC
2017-present Scientist/Owner

Arcadis
2016-2017 Principal Scientist
2013-2016 Senior Scientist
2011-2013 Project Scientist
2010-2011 Staff Scientist
2008-2010 Scientist II

Center for Reservoir & Aquatic Systems Research
2005-2009 Research Scientist

Brevard College
2005-2006 Laboratory Instructor

Barry A. Fulton, MS
Principal Scientist

Mr. Fulton is a scientist with 16 years of research and consulting experience. His core areas of expertise are surface water quality and regulations, environmental toxicology, hydrology, and ecological risk assessment. He has served as a project manager, program manager, and technical expert on mining, municipal, and industrial projects under various state and federal regulatory programs. He currently works closely with clients to develop and implement strategic and cost-effective solutions to address complex environmental issues, with a specific focus on surface water resources.

In 2017, Mr. Fulton formed Benchmark Environmental, a single-member LLC. His current projects include development of site-specific water quality standards and remedial action objectives (RAOs) at multiple mining and industrial sites in the western U.S.; Use Attainability Analyses (UAAs), development of whole-effluent toxicity (WET) testing programs and Toxicity Identification Evaluation (TIE)/Toxicity Reduction Evaluations (TRE) studies under NPDES, CERCLA, and state programs; design of long-term surface water monitoring and compliance plans under CERCLA; ecological risk assessments; and benthic macroinvertebrate assessments.

Prior to forming Benchmark Environmental LLC, Mr. Fulton worked for ten years as an environmental consultant at Arcadis U.S., Inc. He served as a technical expert on multiple projects related to surface water quality and ecological risk, and routinely led negotiations with regulatory personnel. His core projects at Arcadis included: development of site-specific water quality standards; NPDES permitting support; application of UAAs; technical impracticability (TI) waivers for surface water standards; NPDES permitting; design and implementation of long-term biological monitoring plans; TMDL studies; and large-scale ecological risk assessments for terrestrial and aquatic resources.

Prior to Arcadis, Mr. Fulton worked at Baylor University's Center for Reservoir and Aquatic Systems Research where he conducted field research on streams and reservoirs and managed an aquatic toxicity testing laboratory and stream mesocosm facility. He performed routine WET tests under multiple state regulatory programs, TIE/TRE studies, and researched toxicity mechanisms for a variety of chemicals and test species.

Sample Project Experience

Development of Site-Specific Aluminum, Copper, and Manganese Standards
Confidential Mining Client, Arizona, USA
2016-present
Developed a regulatory framework for achieving compliance with RAOs that includes development of site-specific criteria (SSC) for aluminum, copper, and manganese and implementation of a Use-Attainability Analysis (UAA) at a historic copper and gold mine impacted by smelter deposition and contaminated groundwater. Ongoing work

includes development and implementation of a surface water monitoring program, benthic macroinvertebrate assessments, laboratory toxicity studies, bioavailability models, and regulatory engagement to support SSC for these metals. Mr. Fulton is leading all aspects of field work, reporting, oversight to toxicity labs, and regulatory engagement, including expert testimony to support rulemaking.

Development of Site-Specific Selenium Standards
Clark County Regional Flood Control, Nevada, USA
2020-present
Developing selenium SSC for the Las Vegas wash sub-basin including site-specific fish-tissue and water-column elements. Mr. Fulton is leading all regulatory engagement and rulemaking efforts with NDEP and USEPA.

Use-Attainability Analyses
Clark County Regional Flood Control, Nevada, USA
2020-present
Conducting UAAs across a large, urbanized watershed to re-designate tributaries and storm-water conveyances to reflect attainable uses and corresponding aquatic life, human health, and agricultural water quality standards.

Rulemaking for Arsenic Human Health Criteria
Confidential Mining Client, Idaho
2019-present
Negotiated rulemaking to support DEQ's revisions to arsenic human health criteria for primary and secondary contact recreation uses.

Development of Site-Specific Selenium Standards
Confidential Mining Client, Idaho
2015-present
Led the development of SSC for selenium at multiple CERCLA sites and watersheds impacted by historic and active phosphate mining. He served as the expert witness during Idaho rulemaking for adoption of the SSC and led all discussions during public meetings. Currently, Mr. Fulton is working with Idaho DEQ on behalf of the client to develop implementation guidance for fish-tissue criteria as well as UAA guidance for implementing the SSC in fishless streams.

Stream Bioassessments for Narrative Criteria
Confidential Mining Client, Arizona
2020-present
In 2020, Mr. Fulton became the lead investigator of a long-term (20-yr) bioassessment program to demonstrate the protectiveness of mine operations to downstream aquatic communities and attainment of narrative water quality standards (e.g., bio-criteria). He leads all aspects of field work, analyses, and regulatory engagement.

Mixing Zone Study
Confidential client, Montana
2019-present
Designed a mixing zone study using conservative tracers to identify the extent of instream mixing under various hydrological conditions. Evaluating potential zones of chronic impacts due to elevated dissolved solids and considering resident aquatic life.

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266 Morgan Dr. McCall, ID 83638
828.553.2829

Development of Site-Specific Copper Standards
Confidential Client, New Mexico
2019-present
Serving as technical lead on the development of copper SSC across multiple watersheds impacted non-point and point-source contamination.

Reasonable Potential Analyses
Confidential Client, Montana
2019-present
Performing RP analyses on organic, inorganic, and radionuclides for permitted discharges to support revisions to ongoing monitoring and reporting under CERCLA.

Development of Site-Specific Selenium Standards
Confidential Client, Iowa
2018-present
Retained as technical expert to review strategy for development of site-specific selenium criteria for an industrialized portion of the Mississippi River.

Metal Translator Study and Use-Attainability Analysis
Confidential Client, Arizona, USA
2019-present
Conducted a site-specific metals translator study to convert state water quality standards from dissolved to total recoverable metal limits in an AZPDES permit. Given the low frequency at which the facility discharges, receiving water and effluents are mixed to simulate a range of conditions determined from hydrological and chemical modeling. In addition, Mr. Fulton is conducting a UAA to support re-designations based on existing aquatic life uses and developing study plans to conduct site-specific toxicity tests to support application of the biotic ligand model.

Site-Specific Performance Standards and WET testing
Confidential Client, Colorado, USA
2018-present
Mr. Fulton is leading field and laboratory studies to support the development of site-specific performance standards for multiple metals at legacy mine site. He is implementing a WET testing program to demonstrate performance of a passive, flow-through treatment system and conducting TIE/TRE studies to demonstrate its effectiveness.

Weight of Evidence Sediment Assessment
Confidential Mining Client, Montana, USA
2019-present
Mr. Fulton is developed a WOE framework to address removal criteria for contaminated stream sediment at a legacy mine site, comprised of benthic macroinvertebrate assessments, sediment assays, and sediment and surface-water bioavailability studies.

Site-Specific Whole-Effluent Toxicity Limits
Confidential Mining Client, Montana, USA
2017-present

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Mr. Fulton developed a WET testing program and designed TIE/TRE studies for treated effluent from a large pit lake at a historic mining site. After demonstrating that calcium and sulfate are the sole toxicants, he developed a WET compliance plan that uses calcium and sulfate threshold values and real-time receiving water flows, rather than the default effluent IC25s and receiving water low flows (7Q10). This plan allows the treatment and discharge of effluent volumes needed to avoid reaching critical water levels in the pit.

Stream Biological Monitoring
Confidential Mining Client, Montana, USA
2017-present
Designed and managed benthic macroinvertebrate monitoring program to correspond with long-term surface water monitoring and support decisions on TI waivers, alternative ARARs, and remedy effectiveness at a large NPL site spanning multiple watersheds. He currently leads all field sampling, report development, and stakeholder engagements.

Stream Biological Monitoring
Mining Client, Idaho
2014-present
Mr. Fulton developed, managed, and provided technical oversight to a stream biomonitoring program (fish and benthic invertebrates) that spans multiple CERCLA sites and watersheds impacted by active and historic phosphate mining. Monitoring activities were tailored to fit within existing state methodologies and protocols from EPA's updated aquatic life criteria for selenium. Monitoring data were used to support use-attainability analyses and develop site-specific selenium standards.

Natural Resource Damage Assessment
Mining Client, Idaho
2015-present
Mr. Fulton served as the NRDA project manager on a mining portfolio consisting of seven mine sites and multiple potential responsible parties. He worked with clients, attorneys, economists and other technical experts on settlement strategies and development of terrestrial and aquatic injury assessment plans. He currently serves as a technical expert for fisheries and aquatic life assessments.

Technical Impracticability Evaluation
Mining Client, Montana
2012-present
To support a technical Impracticability evaluation of surface water standards at a major NPL site affected by historic smelting operations,, Mr. Fulton led fate and transport studies for a variety of metals, modeled hydrology, water chemistry, and performance of remedies to demonstrate that achieving default surface water quality standards are impracticable. Mr. Fulton currently works with attorneys, state agencies, and federal agencies on execution of the TI waiver and modifications to the existing Record of Decision.

Bioavailability and Site-Specific Toxicity Studies
Mining Client, Montana
2012-present
Designed, proposed, and implemented field and laboratory studies to evaluate the site-specific bioavailability and toxicity of cadmium, copper, and lead to aquatic invertebrates and fish. Studies were used to demonstrate existing remedies and stream conditions are protective of aquatic life uses when site-specific water quality criteria are

considered. Site-specific criteria for copper were developed from water effect ratio studies and biotic ligand model calculations performed during seasonal sampling throughout different watersheds. Mr. Fulton is currently working with state and federal agencies, on behalf of the client, to implement the site-specific criteria through a long-term surface water management plan.

Watershed Management Plan
Mining Client, Montana
2012 – Present
Developed a long-term surface water management plan for remedy performance and compliance monitoring. He designed surface water, storm water, and biological monitoring plans required for compliance determinations as part of EPA's five-year review process.

Development of Site-Specific Copper Criteria
Mining Client, New Mexico
2009 – 2016
Developed and implemented site-specific copper criteria across multiple intermittent and ephemeral drainages at a large smelter-impacted mine site. Mr. Fulton designed work plans, led field work, managed toxicity testing laboratories, and authored reports and petitions to adopt site-specific water quality criteria. In 2015, he provided expert testimony in New Mexico's Triennial Review hearings to support adoption of the site-specific criteria.

Hydrologic Use-Attainability Analysis
Mining Client, New Mexico
2010 – 2014
Mr. Fulton conducted multiple UAAs that re-classified ephemeral and intermittent streams to a limited aquatic life use designation. This resulted in a shift from chronic to acute aquatic life criteria for the study streams. He worked with state agencies to reclassify stream reaches based on the UAA study results.

Basin-wide Conceptual Site Model and Information Management
Mining Client, Montana
2010 - 2014
Mr. Fulton coordinated the development of a basin-wide conceptual site model that integrated geospatial, physical, chemical, and biological data collected over the past 20+ years to inform regulatory strategy and cost/benefit of remedial alternatives.

Ecological Risk Assessment for Aquatic Life
Industrial Client, Tennessee
2011 - 2012
Mr. Fulton served as the principal ecological risk assessor for aquatic plants and periphyton affected by a fly-ash spill in a large river and reservoir system. He derived alternative screening levels for aquatic plants based on analysis of literature and site-specific data.

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barry.fulton@outlook.com
266 Morgan Dr. McCall, ID 83638
828.553.2829

Whole Effluent Toxicity Testing
Mining Client, South Carolina
2011-2012
Mr. Fulton developed pilot-scale WET tests during the mine permitting process and negotiated alternate test organisms tolerant of high dissolved salts for long-term testing. He provided technical oversight to sampling, stream-flow monitoring, and the toxicity testing laboratory and authored all reports pursuant to the state regulatory program.

Stream Biomonitoring
Mining Client, South Carolina
2011-2012
Mr. Fulton designed and performed stream biological and flow monitoring for the Environmental Impact Statement process at a permitted mine. This included work plan development, field coordination and execution, and report development.

Ecological Risk Assessment for Paper Production Site
Confidential Client, California
2009-2011
Mr. Fulton provided technical support to screening and baseline-level ecological risk assessments for multiple organic and inorganic constitutes in terrestrial and aquatic environments. He led all statistical evaluations, performed risk calculations using food web models and authored report sections.

Development of Tier-2 Water Quality Criteria
Confidential Client, Michigan
2010-2011
Mr. Fulton developed Tier-2 water quality criteria for several organic constituents in an industrial effluent. He developed toxicity testing protocols for alternative species and derived toxicological benchmarks in accordance with the state regulatory program. Mr. Fulton coordinated the protocol development and testing with the laboratory, performed all Tier-2 criteria calculations, authored all reports, and worked with state agencies to adopt the Tier-2 criteria

Whole Effluent Toxicity Testing
Confidential Client, California
2009 – 2013
Mr. Fulton developed a surface-water monitoring and WET testing program in accordance with EPA WET testing methodology at a large industrial site with multiple effluent discharge points. He led all aspects of the study, and negotiated dilution credits for effluent discharge.

Robust Summaries for European REACH program of Mesocosm Stream Studies
2009 – 2011
Confidential client, Ohio
Mr. Fulton assisted in summarizing more than 250 population and community-level endpoints for five surfactant chemicals under the European Union's REACH program. He conducted dose-response modeling on data collected from large, complex mesocosm studies to derive toxicological effect levels required for chemical registration.

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barry.fulton@outlook.com
266 Morgan Dr. McCall, ID 83638
828.553.2829

Ecological Risk Assessment for Michigan River Floodplain
Industrial Client, Michigan
2009 – 2011
Mr. Fulton provided the primary technical support on an ecological risk assessment of PCBs in a river and floodplain system. He developed and executed food-web models, derived alternative toxicity reference values, and authored the effects section of the baseline risk assessment report.

Ecological Risk Assessment for Large Mine Site
Mining Client, New Mexico
2009 – 2011
Mr. Fulton developed study plans, performed field work, and statistically analyzed environmental data for an ecological risk assessment at a mining site impacted by historical smelter emissions. He performed risk calculations via food-web modeling and conducted cupric ion activity calculations using site-specific soil chemistry data.

Ecological Risk Assessment for Nevada Mining Site
Confidential Client, Nevada
2009 – 2011
Mr. Fulton developed and managed an extensive database of bird observations/records on a large NPL site. He prepared weekly and monthly reports to USFWS on bird observations and observed mortalities.

Risk Assessment of Lead Shot under REACH program
Confidential Client, Belgium
2009 – 2010
Mr. Fulton assisted in a population-level risk assessment on the effects of lead shot to the gray partridge and buzzard. He conducted binomial probability modeling to estimate ingestion probability and developed population-level effect thresholds based on literature reviews.

Publications

Brooks BW, **Fulton BA**, Hanson ML. 2015. Aquatic toxicology studies with macrophytes and algae should balance experimental pragmatism with environmental realism. *Sci Total Environ*. 536: 406-407.

Fulton BA, Meyer JS. 2014. Development of a regression model to predict copper toxicity to Daphnia magna and site-specific copper criteria across multiple surface-water drainages in an arid landscape. *Environ Toxicol Chem*. 33:1865-1873

Bian J, Berninger JP, **Fulton BA**, Brooks BW. 2013. Nutrient Stoichiometry and concentrations influence silver toxicity in the aquatic macrophyte *Lemna gibba*. *Sci Total Environ.*449: 229-36.

Forbes M, Doyle R, Scott T, Stanley J, Huang H, **Fulton BA**, Brooks BW. 2012. Carbon sink to source: longitudinal gradients of planktonic P:R ratios in subtropical reservoirs. *Biogeochem*. 107:81-93.

Barry A. Fulton
barry.fulton@outlook.com
266 Morgan Dr. McCall, ID 83638
828.553.2829

Fulton BA, Brain RA, Usenko S, Back JA, Brooks BW. 2010. Exploring *Lemna gibba* thresholds to nutrient and chemical stressors: differential effects of triclosan on internal stoichiometry and nitrate uptake across a N:P gradient. *Environ Toxicol Chem.*29:2363-2370.

Fulton BA, Brain RA, Usenko S, Back JA, King RS, Brooks BW. 2009. Influence of N and P concentrations and ratios on *Lemna gibba* growth responses to triclosan in laboratory and stream mesocosm experiments. *Environ Toxicol Chem*. 28:2610-2621.

Brain RA, Ramirez AJ, **Fulton BA**, Chambliss CK, Brooks BW. 2008. Herbicidal effects of sulfamethoxazole in *Lemna gibba*: using *p*-aminobenzoic acid as a biomarker of effect. *Environ Sci Tecnol*. 42: 8965-8970.

King RS, Back JA, Taylor JM, **Fulton BA**, Brooks BW. 2009. Linking observational and experimental approaches for the development of regional nutrient criteria for wadeable streams. EPA #CP-966137-01. Draft Final Report. U.S. Environmental Protection Agency, Region 6.

References – Available Upon Request

Exhibit 14

John Toll, PhD
Managing Partner

Summary of Expertise

Dr. John Toll provides technical and strategic support to clients developing cost-effective plans for managing environmental risks posed by contaminated sites and pollutant discharges. His work includes site-specific projects, guidance development, and applied research to improve the science behind environmental regulations. He has 30 years' experience working in this capacity.

Dr. Toll is active and well regarded in his profession. He publishes regularly in peer-reviewed journals and is a senior editor of *Integrated Environmental Assessment and Management*. He has served as president of the Society of the Environmental Toxicology and Chemistry (SETAC) North American Board of Directors, as well as on a variety of national panels reviewing and advising on environmental policies and regulations.

Current Project Work

Team Leader, Los Alamos National Laboratory NPDES Support

Dr. Toll leads the Windward teams providing National Pollutant Discharge Elimination System (NPDES) support to Newport News Nuclear BWXT Los Alamos (N3B) and TRIAD National Security. Projects include individual stormwater permit renewal, regional water quality monitoring plan development, background concentration analysis for 303(d)-listed stormwater constituents, use attainability analysis (UAA) for temperature-impaired stream segments, biotic ligand model (BLM)-based site-specific water quality criteria development, and Triennial Review petitioning.

Senior Technical Advisor, Upper Columbia River Remedial Investigation and Feasibility Study

Dr. Toll serves as a senior advisor to Teck American Incorporated on the Upper Columbia river remedial investigation/ feasibility study (RI/FS).

Senior Technical Advisor, City of Portland Columbia Slough Sediment Program

Dr. Toll serves as senior technical advisor on a multi-firm team, supporting the City of Portland's Columbia Slough Sediment Program in its efforts to design cost- effective monitoring programs and negotiate a new intergovernmental agreement with the Oregon Department of Environmental Quality (DEQ).

Testifying Expert, PCB Bioaccumulation

Dr. Toll has been retained by multiple firms to prepare expert reports and provide expert testimony on polychlorinated biphenyl (PCB) sources and fate at numerous sediment sites. His reports and testimony have concerned baseline conditions and possible future remediation and restoration scenarios.

Education

- PhD, Engineering and Public Policy, Carnegie Mellon University, 1989
- BS, Chemical Engineering, University of Iowa, 1983

Work History

- Managing Partner
  Windward Environmental
  2020-present
- Partner
  Windward Environmental
  2007-2019
- Senior Scientist/Associate
  Windward Environmental
  2006
- Sole Proprietor
  Toll Environmental
  2004-2006
- Senior Consultant
  Parametrix
  1996-2004
- Senior Consultant
  EBASCO Environmental
  1993-1996
- Assistant Professor
  Environmental & Resource Engineering, SUNY College of Environmental Science & Forestry
  1989-1993

Memberships

- Society of Environmental Toxicology & Chemistry
- American Chemical Society
- American Water Resources Association

John Toll, PhD *(cont.)*
Managing Partner

Senior Technical Advisor, Newtown Creek Remedial Investigation and Feasibility Study

Dr. Toll represents a member of the Newtown Creek Group on issues pertaining to chemical fate and ecological risk.

Senior Technical Advisor, Willamette Cove Remedial Design

Dr. Toll serves as a senior technical advisor to the Willamette Cove In-Water Remedial Design Group of the Portland Harbor Superfund site. He previously led the team that wrote the baseline ERA and developed the chemical bioaccumulation models for the Portland Harbor RI/FS.

Senior Technical Advisor, Portland Harbor Remedial Design

Dr. Toll serves as a senior technical advisor to the City of Portland in its oversight capacity of in-water remedial design projects within the Portland Harbor Superfund site.

Publications

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- Toll J. 2020. The modern era of environmental regulation. Integr Environ Assess Manag 16(6):807-808.
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- DeForest DK, Croteau K, Ryan A, Santore R, Toll J. 2017. Retrospective on USEPA's guidelines for deriving ambient water quality criteria. Integr Environ Assess Manage 13(6).
- Judd N, Tear L, Toll J. 2014. From sediment to tissue and tissue to sediment: an evaluation of statistical bioaccumulation models. Integr Environ Assess Manage 10(1):102–113.
- Luxon M, Toll J, Hanson C. 2014. Assessing effects of PCB exposure on American mink (*Mustela vison*) abundance in Portland Harbor. Integr Environ Assess Manage 10(1):60–68.
- DeForest DK, Reash RJ, Toll J. 2013. Comment on "Wildlife and the coal waste policy debate: proposed rules for coal waste disposal ignore lessons from 45 years of wildlife poisoning." Environ Sci Technol 47(19):11363- 11364.
- Toll J, Garber K, DeForest DK, Brattin W. 2013. Assessing population-level effects of zinc exposure to brown trout (*Salmo trutta*) in the Arkansas River at Leadville, Colorado. Integr Environ Assess Manage 9(1):50–62.

John Toll, PhD *(cont.)*
Managing Partner

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- Andersen HB, Caldwell RS, Toll J, Do T Saban L. 2010. Sensitivity of lamprey ammocoetes to six chemicals. Arch Environ Contam Toxicol 59(4):622-631.
- Evans D, Newman DJ, Lavine MC, Jaworski JC, Toll J, Brooks BW, Brock TCM. 2010. The Bayesian vantage for dealing with uncertainty. Chapter 5 in W Warren-Hicks, A Hart (ed.). Application of Uncertainty Analysis to Ecological Risks of Pesticides. Boca Raton: CRC Press.
- Warren-Hicks WJ, Qian S, Toll J, Fischer DL, Fite E, Landis WG, Hamer M, Smith EP. 2010. Monte Carlo, Bayesian Monte Carlo, and first-order error analysis. Chapter 4 in Warren-Hicks WJ, Hart A (ed.). Application of Uncertainty Analysis to Ecological Risks of Pesticides. Boca Raton: CRC Press.
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- Brix, KV, Toll J, Tear LM, DeForest DK, Adams WJ. 2005. Setting site-specific water quality standards using tissue residue thresholds and bioaccumulation data. Part 2: Calculating site-specific selenium water quality standards for protecting fish and birds. Environ Toxicol Chem 24(1):231-237.
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- Toll J, Adams WJ, Brix KV, Burger M, Cardwell RD, DeForest DK, Tear LM, Cordoso T. 2001. Proposed approach for deriving predicted no effect concentrations for substances protecting aquatic ecosystems. Prepared for EU-ECB Special Technical Meeting: PNEC Derivation for Data-Rich Substances, London, UK. January 17-18, 2001.
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John Toll, PhD *(cont.)*
Managing Partner

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- Dakins ME, Toll J, Small MJ, Brand K. 1995. Risk-based environmental remediation: Bayesian Monte Carlo analysis and the expected value of sample information. Risk Anal 16(1):67-69.
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Exhibit 15

David DeForest
Partner

Summary of Expertise

Mr. DeForest has more than 25 years of experience in aquatic toxicology, hazard assessment, and ecological risk assessment (ERA). In particular, he has worked on a wide variety of projects related to metals in the environment, including ERAs of mine sites and bioaccumulation and toxicity reviews relative to hazard classification methods for metals. Mr. DeForest's ERA experience consists of both screening-level and detailed analyses of aquatic and terrestrial biota, including the use of probabilistic techniques to quantify variability and uncertainty in risk estimates. He has developed ERAs for sites with widely varying habitat characteristics (e.g., arid environments, estuaries, rivers, wetlands, saline water bodies) and stressor types (e.g., metals, dioxins, polychlorinated biphenyls [PCBs], polycyclic aromatic hydrocarbons [PAHs]).

Much of Mr. DeForest's experience relates to various aspects of water quality criteria (WQC), including critical reviews of aquatic toxicity studies, technical reviews of existing and draft criteria, updates of criteria, development of alternative approaches for deriving WQC, and reviews of the applicability of criteria to unique environments. He has also developed bioavailability-based criteria for several metals on behalf of both industry and regulatory clients. Finally, Mr. DeForest is experienced in the methods by which WQC are incorporated into effluent-based evaluations following US Environmental Protection Agency (EPA) guidance, including reasonable potential analyses and derivation of permit limitations.

Mr. DeForest also has more than two decades of experience in evaluating issues and concerns associated with selenium in the environment; he has produced critical reviews of tissue-based toxicity guidelines for fish and birds, site-specific selenium ERAs for fish and shorebirds, technical reviews of The EPA's draft fish tissue-based criterion for selenium, selenium bioaccumulation models, and ecological selenium risk assessments at coal mining sites in the United States and Canada. Mr. DeForest also participated in a Society of Environmental Toxicology and Chemistry (SETAC) Pellston workshop, which resulted in a book on the state-of-the-science for selenium fate and effects in aquatic environments.

Areas of Specialization

- Aquatic toxicology
- Hazard assessment
- Ecological risk assessment
- Metals
- Selenium
- Water quality criteria

Education

- BS, Environmental Science, Western Washington University, 1994

Work History

- Windward Environmental LLC,
  - Environmental Toxicologist, 2009–2015
  - Partner, 2015-present
- Environmental Toxicologist, Parametrix, Inc., 1994–2009

Memberships

- Society of Environmental Toxicology and Chemistry

Awards and Honors

- Associate Editor, Ecotoxicology
- Editorial Board, Integrated Environmental Assessment and Management

David DeForest (*cont.*)
Partner

Project Experience

2009 New Mexico Triennial Review of Water Quality Standards

When the State of New Mexico conducted its regular review of water quality standards, Mr. DeForest provided technical details that were reflected in adopted updates to the aquatic life criteria for aluminum, cadmium, and zinc. Specifically, he undertook a critical review of the toxicity literature for these three metals, compiled databases of new toxicity data, and proposed updated values in compliance with EPA guidelines for criteria development. With other team members, Mr. DeForest integrated his findings into technical support documents and, on behalf of Los Alamos National Laboratories, submittedthosedocumentstotheNew Mexico Water Quality Control Commission.

Evaluation of AWQC for Protection of Aquatic Life in Ephemeral and Effluent Dependent Waters of the Arid Western United States

Mr. DeForest and colleagues evaluated the relevance of selected national ambient water quality criteria (AWQC) to ephemeral and effluent-dependent watercourses in the arid western United States. AWQC for copper, selenium, diazinon, and ammonia were evaluated as models for several contaminant classes of interest to dischargers in the geographic region.

Development of Multiple Linear Regression Models for Developing Water Quality Criteria for Aluminum

Mr. DeForest and colleagues evaluated the influence of dissolved organic carbon (DOC), pH, and hardness on aluminum toxicity to three indicator organisms (*Ceriodaphnia dubia, Pimephales promelas*, and *Pseudokirchiella subcapitata*). Multiple linear regression (MLR) models developed from the results of the evaluation explained the variation in aluminum toxicity as a function of water chemistry. Following both US and European approaches, Mr. DeForest used the models to recommend WQC and guidelines in a paper published in *Environmental Toxicology and Chemistry* in 2018, which was then updated in 2020 based on additional aluminum toxicity testing. EPA used the study to support development of its updated AWQC for aluminum.

Development of Multi-linear Regression Models for Developing Water Quality Criteria for Copper

Mr. DeForest and colleagues developed MLR models for predicting copper toxicity to freshwater aquatic life as a function of water DOC, hardness, and pH. Following EPA's approach, they used these models to develop MLR-based AWQC. This study was published in *Environmental Science and Technology* in 2017.

Development of Updated Bioavailability-based Ambient Water Quality Criteria for Lead

Mr. DeForest helped develop biotic ligand model (BLM)-based AWQC for lead in fresh waters consistent with EPA guidance for AWQC development. The BLM-based criteria accounted for the bioavailability of lead over a wide range of water chemistry conditions. This study was published in *Environmental Toxicology and Chemistry* in 2017.

Bioavailability-based Assessment of Ambient Water Quality Criteria for Zinc

Mr. DeForest developed BLM-based AWQC for zinc in fresh waters consistent with EPA guidance for AWQC development. Using existing acute and chronic zinc BLMs, he and a colleague derived a unifiedBLMthat accurately predicted both acute and chronic zinc toxicity over a wide range of water chemistries. They then applied the unifiedzincBLMtoupdatedacuteandchroniczinctoxicitydatasetstoderiveA WQC. In precluding the need to specify a chronic criterion by applying an acute-to-chronic ratio (ACR), this approach reduced uncertainty in the derived chronic criteria. The study, published by *Environmental Toxicology and Chemistry* in 2012, is actively used by zinc stakeholders to encourage EPA's adoption of BLM-based zinc AWQC.

David DeForest (*cont.*)
Partner

Development of Chronic Marine Nickel Species Sensitivity Distribution and HC5 Values

Mr. DeForest developed a chronic species sensitivity distribution (SSD) for marine species exposed to nickel. He augmented published chronic nickel toxicity data with new data for 10 marine species; developed an SSD based on chronic toxicity studies that met European Union guidelines; and, from the SSD, identified the concentration that was hazardous to 5% of the species (i.e., the HC5). The peer-reviewed journal *Integrated Environmental Assessment and Management* published the study in 2013.

Development of Multi-linear Regression Models for Setting Site-specific Water Quality Criteria for Iron

Mr. DeForest and colleagues evaluated the influence of DOC, pH, and hardness on iron toxicity to three indicator organisms (*C. dubia, P. promelas, P. subcapitata*). MLR models developed from the results of the evaluation explained the variation in iron toxicity as a function of water chemistry. All available data in the literature on aquatic iron toxicity were compiled and normalized to each factor using the MLRs; subsequently, these data were used to develop WQC for iron.

Development of Draft Updated Canadian Environmental Quality Guidelines for Lead and Iron

Mr. DeForest and colleagues are currently drafting updated Canadian freshwater environmental quality guidelines for lead and iron, using MLR models to describe the toxicity of these metals as a function of DOC, pH, and hardness. The recommended guidelines more accurately reflect the site-specific bioavailability of lead and iron than do the current guidelines.

Review of Environment Canada's Draft Water Quality Guidelines for Zinc

Mr. DeForest provided a technical review of Environment Canada's draft water quality guidelines for zinc. As part of this task, he commented on the completeness and technical accuracy of the data compiled to develop the draft guidelines and the degree to which the draft guidelines reflected the "state of the science" on zinc bioavailability and toxicity to freshwater organisms.

Avoidance and Olfactory Impairment in Salmonids Exposed to Copper

Mr. DeForest provided initial background support for copper avoidance studies conducted at the Parametrix Environmental Research Laboratory (PERL) in Albany, Oregon. Specifically, he reviewed the existing studies on copper avoidance by fish, including levels of effects observed and types of exposure systems used to evaluate the avoidance endpoint. This review of existing avoidance studies supported development of PERL's testing protocol for evaluating copper avoidance by rainbow trout. As published in 2011 in *Integrated Environmental Assessment and Management*, existing hardness-based copper criteria still implemented in most states are almost always protective against olfactory impairment, and EPA's BLM-based copper criteria, which more accurately account for factors that influence copper bioavailability, are always protective.

Selenium Mixing Zone and Site-specific Criteria Support for Alaska Mine

Mr. DeForest supported an Alaska mine operator in obtaining a National Pollutant Discharge Elimination System (NPDES) permit. Specifically, he helped complete an application for an approved effluent selenium mixing zone and preliminary evaluations for development of a site-specific selenium criterion.

Ecological Risk Assessment of Dioxins, Furans, and PCBs at an Arid Site

Mr. DeForest evaluated risks to wildlife (birds, mammals), soil receptors (microbes, plants, invertebrates), and aquatic life (brine flies, brine shrimp) at a site near the south shore of the Great Salt Lake, Utah. Chemicals of concern were polychlorinated dibenzo-*p*-dioxins, polychlorinated dibenzofurans, PCBs (dioxin-like congeners and total), and selected metals. The ERA was used to identify locations of unacceptable risk to wildlife populations and to prioritize possible remedial actions.

David DeForest (*cont.*)
Partner

Cook Inlet NPDES Permit Support

Mr. DeForest provided technical support that allowed several oil and gas companies to renew the general Cook Inlet NPDES permit for the discharge of produced waters and other industrial or sanitary wastewaters from offshore platforms and onshore treatment facilities. Following EPA guidance, Mr. DeForest first analyzed whether effluent constituents might exceed WQC. He then used modeling results to complete applications for regulatory agency approval of proposed effluent mixing zones, including the risk assessment required by the State of Alaska. With his help, the oil and gas operations successfully renewed their general Cook Inlet NPDES permit.

Threatened and Endangered Species Evaluation for Cyanide

Mr. DeForest evaluated whether proposed updates to cyanide AWQC would protect threatened and endangered (T&E) species. After a literature review to identify cyanide toxicity data for T&E species or appropriate surrogates, he developed concentration-response relationships for T&E surrogates and used them to determine the levels of effect that could be expected at concentrations equal to the cyanide criteria. Overall, the analysis concluded that the proposed updates for freshwater cyanide AWQC were likely to be protective of most T&E species, although, based on EPA's Web-based Interspecies Correlation Estimation application, some individuals of two T&E species could be affected at concentrations equal to the acute criteria. If T&E species were of concern in a waterbody that received a cyanide discharge, Mr. DeForest recommended against consideration of site-specific approaches for less restrictive AWQC.

Assessment of Risks to Aquatic Life from Zinc in Stormwater

Mr. DeForest assisted in a fate and transport study, which included an assessment of risk to aquatic life from zinc in stormwater, at SeaTac International Airport in Washington State. Potential risk to aquatic life was evaluated in two tiers. Tier 1 was a simple comparison of surface water zinc concentrations with hardness-adjusted acute and chronic water quality standards. Those locations where concentrations were greater than the adjusted WQC were further evaluated probabilistically in Tier 2 using SSDs. The SSDs were adjusted for bioavailability using water effect ratios derived from BLMs for zinc. The overall risk was expressed as the percentage of time that a given percentage of aquatic species might be affected during storm events.

Nickel Aquatic Toxicity Testing

Mr. DeForest and colleagues conducted nickel toxicity studies with rainbow trout (*Oncorhynchus mykiss*) and a water flea (*C. dubia*). Acute and chronic toxicity to rainbow trout were evaluated for three objectives: to assess the repeatability of an existing study, to generate preliminary data for the development of a BLM for nickel, and to evaluate nickel's mode of toxic action on trout. Major ions, as well as nickel, were assessed in the water, blood, and gills. Acute and chronic nickel toxicity to *C. dubia* was also evaluated. Results were intended to further elucidate the relationship between nickel bioavailability and four levels of hardness, to generate additional ACRs for the development of chronic AWQC, and to produce preliminary data for the development of a nickel BLM for daphnids.

Ecological Risk Assessment Downstream of British Columbia Coal Mines

Mr. DeForest conducted a site-specific screening-level risk assessment of selenium and other trace elements in periphyton, benthic macroinvertebrates, fish, amphibian egg masses, and bird eggs downstream of coal mining operations. Dietary and direct toxicity risks to aquatic receptors were evaluated, and risk conclusions were used to design the monitoring program for trace elements.

David DeForest (*cont.*)
Partner

Ecological Risk Assessment of Selenium Downstream of Alberta Coal Mines

Mr. DeForest conducted site-specific ERAs of selenium-induced risk to fish and aquatic-dependent birds downstream of historical and active coal mining operations in west-central Alberta, Canada. The ERAs used multiple lines of evidence, including comparisons of selenium concentrations in fish and bird tissues with toxicity thresholds, site-specific toxicity study results, and fish population data. The results of the ERAs were used to prioritize locations for potential selenium management decisions at the coal mine sites.

Upper Columbia River Remedial Investigation/Feasibility Study

Mr. DeForest is supporting multiple aspects of the Upper Columbia River remedial investigation/feasibility study (RI/FS), including a baseline ecological risk assessment of metals and other trace elements in both aquatic and terrestrial environments. For the aquatic component, risks to fish from both dietborne and waterborne pathways are being assessed. For the terrestrial component, risk to plants and invertebrates due to metals are being assessed based on recent advances in accounting for key factors that influence metal bioavailability in soils.

Ecological Risk Assessment of Selenium in South Shore Wetlands of the Great Salt Lake

Mr. DeForest and colleagues conducted a probabilistic assessment of potential selenium risks to aquatic shorebirds. Bird egg exposures to selenium were quantified using a combination of measured and predicted concentrations. Predicted concentrations were estimated using site-specific dietary selenium data and diet-to-egg trophic transfer factors from several sites in the western United States. Probability distributions of egg selenium concentrations were developed using Bayesian Monte Carlo analysis. The concentrations were then compared with species-specific probability distributions relating the probability of bird embryo deformities to egg selenium concentrations. This approach resulted in quantitative risk estimates that allowed resources to be directed to locations within the site that required corrective actions.

Methods for Biokinetic Modeling of Selenium in Aquatic Food Chains

Mr. DeForest led a team that developed methods for biokinetic modeling of selenium into aquatic food chains following pulse waterborne exposures. The models provide a framework for developing acute aquatic selenium criteria that are protective against bioaccumulation-based toxicity. They are also applicable for development of site-specific, time-variable selenium bioaccumulation models. The evaluation was published in a peer-reviewed journal.

Site-specific Water Quality Criteria Method for Selenium

Mr. DeForest assisted in the development of an approach for deriving WQC to protect fish and birds from selenium. This process required the development of a bioaccumulation database for several sites in the western United States. Consisting of whole-body fish and bird egg selenium concentrations and co-located with water selenium concentrations, the database was accessed to develop "global" bioaccumulation models for fish and birds. In a Bayesian Monte Carlo analysis, site-specific water and tissue concentration data were used to update the probabilities on a Monte Carlo sample of the prior probability density function. This update was then used to determine the site-specific WQC based on concentrations of selenium in tissue.

Review and Evaluation of Technical Documents Relating to Selenium Toxicity in the San Francisco Bay Estuary

Mr. DeForest and colleagues conducted a critical evaluation of selenium bioaccumulation and toxicity for the San Francisco Bay Estuary to support an estuary-specific dissolved selenium criterion. Using a partitioning model, the team examined relative selenium concentrations in fish tissues and fish dietary items, in invertebrates and their prey, and in particulates and water. They also developed screening guidelines for both lotic (flowing) and lentic (standing) waters, as well as a sulphate-dependent water selenium guideline for selenate-dominated lotic systems.

David DeForest (*cont.*)
Partner

Review of British Columbia's Draft Water Quality Guidelines for Selenium

Mr. DeForest provided a critical review of British Columbia's draft water quality guidelines for selenium, which had been developed for surface water, sediment, aquatic food chains (diet), fish tissues (whole body, muscle, eggs, ovaries), and bird eggs. He assessed the completeness and technical accuracy of the data compiled to develop the draft guidelines and the degree to which the draft guidelines reflected the "state of the science: on the fate and effects of selenium in aquatic systems.

Aquatic and Wildlife Risk Assessment Downstream from Copper Mine

Mr. DeForest led an aquatic risk assessment of mine-related impacts on the Ok Tedi/Fly River system in Papua New Guinea. The risk assessment focused on the effects of copper and total suspended solids (TSS) on aquatic biota. Exposure was characterized probabilistically based on output from site-specific models of sediment transport and copper fate. Before characterizing the effects of copper probabilistically, Mr. DeForest created a database on the toxicity of copper to 91 aquatic species. To assess TSS effects on aquatic life, the team also developed a new methodology that considered various modes of action (e.g., scouring, turbidity, burial). Exposure and effects were integrated using a food web-based approach reflecting key species and functional groups within the aquatic ecosystem.

Peer-Reviewed Publications

- DeForest DK, Brix KV, Tear LM, Cardwell AS, Stubblefield WA, Nordheim N, Adams WJ. 2020. Updated multiple linear regression (MLR) models for predicting chronic aluminum toxicity to freshwater aquatic organisms and developing water quality guidelines. Environ Toxicol Chem 39:1724-1736.
- Adams WJ, Cardwell AS, DeForest DK, Gensemer RW, Santore RC, Wang N, Nordheim E. 2018. Aluminum bioavailability and toxicity to aquatic organisms: introduction to the special section. Environ Toxicol Chem 37(1):34-35.
- DeForest DK, Brix KV, Tear LM, Adams WJ. 2018. Multiple linear regression models for predicting chronic aluminum toxicity to freshwater aquatic organisms and developing water quality guidelines. Environ Toxicol Chem 37(1):80-90.
- Meyer JS, DeForest DK. 2018. Protectiveness of copper water quality criteria against impairment of behavior and chemo/mechanosensory responses: An update. Environ Toxicol Chem 37:1260-1279.
- Church B, van Sprang P, Chowdhury M, DeForest D. 2017. Updated species sensitivity distribution evaluations for acute and chronic lead toxicity to saltwater aquatic life. Environ Toxicol Chem 36(11):2974-2980.
- DeForest DK, Brix KV, Elphick JR, Rickwood CJ, deBruyn AMH, Tear LM, Gilron G, Hughes SA, Adams WJ. 2017. Lentic, lotic, and sulfate-dependent waterborne selenium screening guidelines for freshwater systems. Environ Toxicol Chem 36(9):2503-2513.
- Brix KV, DeForest DK, Tear L, Grosell M, Adams WJ. 2017. Use of multiple linear regression models for setting water quality criteria for copper: a complementary approach to the biotic ligand model. Environ Sci Technol 51:5182-5192.
- DeForest D, Santore R, Ryan A, Church B, Chowdhury M, Brix K. 2017. Development of biotic ligand model-based freshwater aquatic life criteria for lead following US Environmental Protection Agency guidelines. Environ Toxicol Chem 36(11):2965-2973.
- DeForest DK, Pargee S, Claytor C, Canton SP, Brix KV. 2016. Biokinetic food chain modeling of waterborne selenium pulses into aquatic food chains: implications for water quality criteria. Integr Environ Assess Manag 12(2):230-246.

David DeForest (*cont.*)
Partner

- Adams, WJ, DK DeForest, LM Tear, K Payne, KV Brix. 2015. Long-term monitoring of arsenic, copper, selenium and other elements in Great Salt Lake (Utah, USA) surface water, brine shrimp, and brine flies. Environ Monit Assess 187(3):Article 118.
- DeForest DK, Meyer JS. 2015. Critical review: toxicity of dietborne metals to aquatic organisms. Crit Rev Environ Sci Tech 45(11):1176-1241.
- DeForest, DK, RJ Reash, JE Toll. 2013. Comment on "Wildlife and the coal waste policy debate: Proposed rules for coal waste disposal ignore lessons from 45 years of wildlife poisoning." Environ Sci Technol 47:11363-11364. 2013.
- Cardwell, RD, DK DeForest, KV Brix, and WJ Adams. 2013. Do Cd, Cu, Ni, Pb, and Zn biomagnify in aquatic ecosystems? Reviews of Environmental Contamination and Toxicology, 226:101-122. 2013.
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Exhibit 16

STATE OF NEW MEXICO
WATER QUALITY CONTROL COMMISSION

IN THE MATTER OF THE TRIENNIAL REVIEW OF STANDARDS FOR INTERSTATE AND INTRASTATE SURFACE WATERS, 20.6.4 NMAC

WQCC 03-05(R)

STATEMENT OF REASONS FOR AMENDMENT OF STANDARDS

I. INTRODUCTION

A. Clean Water Act

1. The federal Clean Water Act (CWA), Section 101(a)(2), states its objective as the restoration and maintenance of the chemical, physical and biological integrity of the Nation's waters.
2. The CWA achieves this objective by ensuring "wherever attainable, water quality which provides for the protection and propagation of fish, shellfish and wildlife, and provides for recreation in and on the water be achieved."
3. CWA Section 303(c)(2) establishes the purpose of water quality standards ("WQS" or "standards") as "serv[ing] the purposes of the Clean Water Act." Generally speaking, this language means that the WQS should fulfill the objectives, goals and policies of the CWA.
4. The Environmental Protection Agency's (EPA's) *Water Quality Standards Handbook* (Handbook) provides more specific guidance regarding the meaning of "serv[ing] the purposes of the Clean Water Act." To "serve the purposes of the Clean Water Act", WQS must (a) include provisions for restoring and maintaining chemical, physical, and biological integrity of state waters; (b) wherever attainable, achieve a level of water quality that provides for the protection and propagation of fish, shellfish and wildlife, and recreation in and on the water; and (c) consider the use and value of state waters for public water supplies, propagation of fish and wildlife, recreation, agriculture and industrial purposes, and navigation.
5. WQS serve two important purposes: (a) to "define the goals for a water body, or portion, thereof, by designating the use or uses to be made of the water, by setting criteria necessary to protect the uses"; and (b) to "serve as the regulatory basis for the establishment of water-quality-based treatment controls and strategies beyond technology-based levels of treatment required by sections 301(b) and 306 of the Act" in National Pollutant Discharge Elimination system (NPDES) and Dredge-or-Fill permits.

B. Water Quality Act

6. The New Mexico Water Quality Act (WQA), Section 74-6-3.E, designates the New Mexico Water Quality Control Commission ("WQCC" or "Commission") as the state's water pollution control agency for all purposes of the CWA.

7. The WQA requires the WQCC to take all necessary steps to comply with the CWA and to protect water quality in New Mexico.

8. WQA Section 74-6-4.C provides that the WQCC:

> shall adopt water quality standards for surface and ground water of the state based on credible scientific data and other evidence appropriate under the Water Quality Act. The standards shall include narrative standards and as appropriate, the designated uses of the waters and the water quality criteria necessary to protect such uses. The standards shall at a minimum protect the public health or welfare, enhance the quality of water and serve the purposes of the Water Quality Act. In making standards, the commission shall give weight it deems appropriate to all facts and circumstances, including the use and value of the water for water supplies, propagation of fish and wildlife, recreational purposes and agricultural, industrial and other purposes.

9. WQA Section 74-6-4.E designates the New Mexico Environment Department (NMED) to provide technical services to the WQCC.

10. As part of this designation, and as specifically provided by the 1998 *State of New Mexico Continuing Planning Process* (CPP), NMED takes the lead technical role in the triennial review process.

C. Triennial Review Process

11. CWA Section 303(c)(1) requires New Mexico to hold a public hearing at least once every three years to review applicable water quality standards and, as appropriate, to modify and adopt standards.

12. The states have considerable latitude in developing and tailoring their WQS to achieve state goals and priorities, but the WQS must comply with federal guidelines.

13. After the WQCC holds a hearing, it modifies and adopts the standards based on the hearing record and sends to EPA for review and approval.

14. If the EPA approves the WQS, they become enforceable under federal law.

15. If the EPA does not approve the WQS, in whole or in part, it gives the state an opportunity to correct the problem.

16. If the state cannot or will not correct the problem, then the EPA must promulgate WQS for the state.

17. There have been several instances in the history of New Mexico's WQS that the EPA has disapproved a portion of the standards. In each case, the WQCC has avoided federal promulgation by correcting the problem itself.

D. 1998 Triennial Review

18. New Mexico's most recent triennial review hearing was in 1998, and the final order was completed in 2000.

19. On January 23, 2001, EPA informed the WQCC that the WQS amendments adopted in the 1998 triennial review were acceptable except for (a) the definition of "surface waters of the state"; (b) the implementation of the "reasonable operation of irrigation and flood control exemption"; (c) the designated uses for the Cimarron River and tributaries; (d) the secondary contact designated use for the lower Rio Grande; and (e) human health criteria for priority toxic pollutants. EPA also noted that the WQCC had not adopted adequate antidegradation implementation procedures.

20. The WQCC successfully addressed each of these items, except the antidegradation implementation procedures, in separate hearings.

21. With respect to antidegradation implementation procedures, NMED initiated a process for adopting such procedures, releasing a preliminary draft for public review and comment in November 2003.

22. Although EPA approved the WQS amendments adopted in the 1998 triennial review, EPA still may revise its decision based on consultations with the U.S. Fish and Wildlife Service (USFWS) pursuant to the federal Endangered Species Act.

E. 2003 Triennial Review

23. NMED implemented a full public participation process for the 2003 triennial review.

24. On February 21, 2003, NMED initiated a 45-day comment period on a discussion draft of possible changes to the WQS.

25. The comment period was publicly noticed through legal advertisements, written notice to the WQCC and NMED Surface Water Quality Bureau (SWQB) mailing lists, and the NMED website.

26. NMED held public meetings regarding the discussion draft in Las Cruces, Roswell, Santa Fe and Farmington.

27. NMED met with all stakeholders who requested an opportunity to discuss the discussion draft.

28. As a result of these meetings, NMED extended the comment period by 30 days.

29. NMED revised its discussion draft to take into account many of the comments received during the public participation process.

30. NMED filed its petition to amend the WQS on August 15, 2003, initiating the 2003 triennial review.

31. The WQCC published notice of the hearing.

32. The WQCC held the hearing on February 24, 2004, continuing until March 4, 2004.

33. At the hearing, all interested persons were given a reasonable opportunity to submit data, views and arguments orally and in writing, and to examine witnesses testifying at the hearing.

34. The Commission deliberated over the course of five days in its November 2004, December 2004 and January 2005 meetings to come to agreement or to a vote of the majority on the following changes to the standards, the basis for which follows each section in summary form. Unless otherwise noted, the Commission approved these changes based on credible scientific data.

35. For a more detailed understanding of the basis for each change and citations to the specific supporting testimony and evidence in the record, this Statement, adopted by the Commission as part of its regular meeting on April 12, 2005, must be read in conjunction with Attachment A to the Hearing Officer's Report, submitted to the Commission prior to its deliberations and discussed at length during its deliberations.

II. CHANGES TO THE STANDARDS

A. SCOPE AND OBJECTIVE

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, XX-XX-05]

36. The Commission adopts NMED's proposal to add a comma for clarification.

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 [~~which~~]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 [~~which is~~]required for [~~recreation and maintenance of a fishery and protection of wildlife~~] 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, XX-XX-05]

37. The Commission adopts NMED's proposal to replace "which" with "that" for grammatical accuracy in this section and in many subsequent sections; this change is shown in legislative format below but will not be called out again. Other slight punctuation changes are made for clarity, and "which is" is deleted for simplification.

38. The Commission adopts NMED's proposal to replace the phrase "recreation and maintenance of a fishery and protection of wildlife" with "protection and propagation of fish, shellfish and wildlife, and recreation in and on the water" because the latter phrase is consistent with CWA Section 101(a)(2).

39. The Commission rejects Amigos Bravos' (AB's) proposal to replace the words "where practicable" at the end of paragraph B with "unless the provisions of Section 20.6.4.14 of this Part are fully met," because, as in the last triennial review, it is concerned about creating inflexibility and possibly establishing a hierarchy of uses. The Commission takes a serious view of "practicability," however, and will add a legal definition of "practicable" in the definitions section of the standards.

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. "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. "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.

40. The Commission adopts University of California's (UC's) proposal to include a definition of gross alpha for clarification, and NMED's proposal to make it "adjusted" gross alpha to reflect that it is something less than all alpha. The word "adjusted" will be added to those places in the standards where the term appears.

C. "**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.

41. The Commission adopts NMED's proposal to define "aquatic life" in connection with its adoption of NMED's proposal to replace the designated use of "fishery" with "aquatic life." This change is supported by and based upon EPA guidance to conform the definition to its intended breadth. The CWA objectives of restoring and maintaining biological integrity and the goal of protecting and propagating fish and shellfish require the consideration of all the organisms comprising the aquatic community, not just the fish and shellfish.

42. The term "fishery" has created confusion among the public for many years, and (in the related subcategories) also had the effect of excluding aquatic communities from protection because fish were not present.

43. EPA's recommended aquatic life criteria are based on the toxicity of pollutants to a variety of non-fish aquatic species.

44. The Commission rejects Elephant Butte Irrigation District's (EBID's) proposal to define "coldwater aquatic habitat," because "aquatic life" is the term EPA uses for the development of criteria to protect this designated use, and a different term would create ambiguity in purpose and scope.

D. "**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.

45. The Commission adopts NMED's proposal to define a term used throughout the WQS. The definition is taken from the EPA regulations, 40 CFR 131.10(d), with the words "implementation of" added by the Commission for clarity.

46. The Commission rejects the EBID and San Juan Water Commission (SJWC) proposals for this definition because the language deviates from the federal language without good cause, and the WQS already reflect the largely voluntary nature of BMPs for nonpoint sources in other sections.

47. The UC proposed definition is nearly identical to the NMED proposed definition, but adds an unnecessary word, "use" when nearly every instance of "attainable" in the standards is paired with "use," and therefore it is rejected as well.

[~~B~~]E. **"Best management practices" or "BMPs"** [~~means schedules of activities, prohibitions of certain practices, implementation of maintenance procedures, or other measures or practices selected by the state or a designated management agency to achieve control of sources of water pollutants.~~]

(1) 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) 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.

48. The Commission adopts NMED's proposal to replace the definition with the federal definitions to address substantial confusion in the 1998 triennial review. The first paragraph is the exact language from EPA's NPDES regulations, 40 C.F.R. §122.2. The second paragraph is the exact language from EPA's water quality planning regulations, 40 C.F.R. § 130.2(m), and is the term commonly used in nonpoint source contexts.

49. The Commission adopts NMED's proposal to add the final sentence in the second paragraph to clarify that best management practices are voluntary as to the type of BMP for nonpoint sources unless required by state or federal law, including Section 74-6-10 and all other parts of the New Mexico statutes.

50. The Commission rejects AB's proposal to require that BMPs be approved by NMED rather than selected by an agency because the proposal lacks support in the record and is inconsistent with the federal definition without good cause.

[~~C~~]F. **"Bioaccumulation"** refers to the uptake and retention of a substance by an organism from its surrounding medium and food.

[~~D~~]G. **"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.

[~~E~~]H. **"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.

I. **"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.

51. The Commission adopts NMED's proposal to accurately define a term used in the WQS.

[~~F~~]J. **"cfs"** means cubic feet per second.

K. **"cfu"** means colony forming units.

52. The Commission adopts NMED's proposal to accurately define a term used in conjunction with the proposal to switch from fecal coliform to E. coli criteria, and necessary to implement the WQS.

[~~G~~]L. **"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.

[~~H~~]M. **"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 [~~standards. Segment descriptions, designated use or uses, and water quality standards for classified waters of the state are set forth~~] criteria in [~~this part~~] 20.6.4.101 through 20.6.4.899 NMAC.

53. The Commission adopts NMED's proposal to delete the word "standards" at the end of the first sentence because the correct word is "criterion." "Standards" consist of the uses of water and the supporting criteria. "Criterion" describes the concentration of a constituent representing a quality of water supporting the particular use. This change occurs throughout the WQS below, without further mention, and has no substantive effect.

54. The Commission adopts NMED's proposal to delete the second sentence to eliminate unnecessary wording.

55. The Commission adopts NMED's proposal to substitute the phrase "criteria [in] 20.6.4.101 through 20.6.4.899 NMAC" for "this part" because "this part" is overbroad.

[~~I~~]N. **"Coldwater [~~fishery~~]"** 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 [~~fishes~~] aquatic life.

56. The Commission adopts NMED's proposal to replace the designated use of "fishery" with "aquatic life" and rejects EBID's proposal to establish "coldwater aquatic habitat" for the reasons stated above in paragraphs 41-44. The Commission rejects the remainder of EBID's proposal to add a number of specifics about stream characteristics and the word "native" because this would complicate the definition and make it ambiguous as to when the definition would apply. The Commission adopts NMED's proposal because it serves as the natural evolution of interpretation and practice in the field.

[~~J~~]O. **"Commission"** means the New Mexico water quality control commission.

[~~K~~]P. **"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 [~~generally~~] protect the designated use.

57. The Commission adopts in part AB's proposal to amend the definition of criteria to insure that a standard does protect a use, by deleting the word "generally" as subjective. The Commission rejects AB's proposal to insert the words "fully" and "particular" in order to require protection of "the most sensitive life stage of the most sensitive organism which utilizes or inhabits the water" as inconsistent with the manner in which water quality criteria are established, and as it is too difficult to establish the "most sensitive life stage of the most sensitive organism," particularly when this can change from time to time.

Q. "DDT and derivatives" means 4,4'-DDT (CAS number 50293), 4,4'-DDE (CAS number 72559) and 4,4'-DDD (CAS number 72548).

58. The Commission adopts NMED's proposal to accurately define a term used in the WQS.

[~~L~~]**R. "Department"** means the New Mexico environment department.

[~~M~~]**S. "Designated use [~~or uses~~]"** means [~~those uses~~] a use specified in Sections 20.6.4.101 through 20.6.4.899 NMAC for [~~each~~] a surface water of the state whether or not [~~they are~~] it is being attained.

59. The Commission adopts NMED's proposal to amend the definition to eliminate the plural form because the Uniform Statute and Rule Construction Act ("USRCA") Section 12-2A-5 provides that the use of the singular includes the plural.

[~~N~~]**T. "Dissolved"** means a constituent of a water sample [~~which~~] 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."

[~~O~~]**U. "Domestic water supply"** means a surface water of the state that [~~may~~] could be used for drinking or culinary purposes after disinfection.

60. The Commission adopts NMED's proposal to replace the word "may" with "could" to eliminate ambiguity and avoid the implication that the standards convey authority to use water.

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

61. The Commission adopts NMED's proposal to replace the fecal coliform bacterial criteria with E. coli to conform with current EPA guidance, and therefore requires an accurate definition of E. coli.

[~~P~~]**W. "Ephemeral [~~stream~~]"** when used to describe a surface water of the state means [~~a stream or reach of a stream that flows briefly~~] a water body that flows only in direct response to precipitation or snowmelt in the immediate locality; its [~~channel~~] bed is always above the water table of the adjacent region [~~adjoining the stream and does not support a self-sustaining population of fish~~].

62. The Commission amends this definition and adopts, in part, NMED's proposal to clarify the definition of "ephemeral" by striking the last phrase, which is generally true of ephemeral waters but not a necessary element of the definition. The Commission further makes its own clarifications, such as inserting the words "that flows" after "waterbody" to reflect the distinction between waters in New Mexico that are flow-based, and those that are stationary. The Commission rejects NMED's proposal to combine ephemeral and intermittent waterbodies into a single category of non-perennial waterbodies, because there are recognizable differences, particularly with respect to hydrologic realities. Further, the notice in this triennial review that this would be proposed was not optimal; the original proposals did not include such a plan.

[~~Q~~]X. **"Existing use"** means [~~those uses~~] a use actually attained in a surface water of the state on or after November 28, 1975, whether or not [~~they are included in the water quality standards~~] it is a designated use.

63. The Commission adopts NMED's proposed clarifying changes.

[~~R~~]Y. **"Fecal coliform bacteria"** means the portion of the coliform group [~~which is~~] of bacteria present in the gut or the feces of warmblooded animals. It generally includes organisms [~~which are~~] capable of producing gas from lactose broth in a suitable culture medium within 24 hours at 44.5 ± 0.2°C.

64. The Commission rejects NMED's proposal to delete the definition, but adopts NMED's alternative proposal to make clarifying changes.

[~~S~~]Z. **"Fish culture"** means production of coldwater or warmwater fishes in a hatchery or rearing station.

AA. **"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.

65. The Commission adopts NMED's proposal to accurately define a term used in the WQS.

[~~T. **"flow,"** relative to the four definitions of streams herein, means natural flow ensuing from the earth's hydrologic cycle, i.e., atmospheric precipitation resulting in surface and/or ground-water runoff. Natural in-stream flow may be interrupted or eliminated by dams and diversions.~~]

66. The Commission adopts NMED's proposal to delete the definition because the WQS do not use "the four definitions of streams herein."

[~~U~~]BB. **"High quality coldwater [~~fishery~~]"** in reference to an aquatic life use means a perennial surface water of the state in a minimally disturbed condition [~~which has~~] with considerable aesthetic value and [~~is a~~] superior coldwater [~~fishery~~] 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 [~~fishery~~] aquatic life population.

67. The Commission adopts NMED's proposal to replace the designated use of "fishery" with "aquatic life" and rejects EBID's proposal to establish "high quality coldwater aquatic habitat" for the reasons stated above in paragraphs 41-44. The Commission further rejects EBID's proposal to add the word "native;" there are a lot of non-native fish in New Mexico.

[~~V~~]**CC. "Intermittent [~~stream~~]"** when used to describe a surface water of the state means [~~a stream or reach of a stream that flows~~] a water body that contains water only at certain times of the year, such as when it receives flow from springs, melting snow[,] or [~~localized~~] precipitation.

68. The Commission adopts NMED's proposal to delete the word "stream" and the phrase "a stream or reach of a stream that flows" because lakes, ponds and playas also can be intermittent; and to delete the phrase "localized" because the word adds nothing to the definition; the Commission retains the word "precipitation" in order to include playas.

[~~W. "interrupted stream" means a stream that contains perennial reaches with intervening intermittent or ephemeral reaches.~~]

69. The Commission adopts NMED's proposal to delete the definition because the term is not used in the standards.

[~~X~~]**DD. "Interstate waters"** means all surface waters of the state [~~which~~] that cross or form a part of the border between states.

70. The Commission rejects AB's proposal to include the phrase "including those surface waters which cross or form a part of a border with an Indian Tribe" in order "to reflect Tribal authorities," because of a lack of support in the record and because this issue should not be addressed in a definition.

[~~Y~~]**EE. "Intrastate waters"** means all surface waters of the state [~~which~~] that are not interstate waters.

[~~Z~~]**FF. "Irrigation"** means [~~a water of the state used as a supply of water for crops~~] application of water to land areas to supply the water needs of beneficial plants.

71. The Commission adopts NMED's proposal to replace the phrase "a water of the state used as a supply of water for crops" with the phrase "application of water to land areas to supply the water needs of beneficial plants" because irrigation is a use, not a water of the state, and the new phrase more accurately reflects the designated use.

72. The Commission also adopts NMED's proposal to change the subject of the designated use from "crops" to "beneficial plants" because the word "crops" generally implies a product grown and harvested for profit or subsistence, and might exclude activities of more recent origin that are

understood to constitute irrigation, such as the use of water for golf courses and landscaping and the cultivation of plants not grown for harvest.

[~~AA~~]GG. **"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.

HH. **"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.

73. The Commission adopts NMED's proposed new use for naturally poor quality waters that may not support a full community of aquatic life to ensure the proper level of protection for aquatic communities in naturally poor quality waters. A prime example is Sulphur Creek, which has a natural pH range between 2.0 and 4.0, and supports a limited macroinvertebrate community.

74. The Commission rejects UC's proposal to modify NMED's proposed definition by adding the phrase "but not fish" at the end of the first sentence because it would exclude those waters with naturally poor water quality that support fish that are tolerant of one or more of the listed conditions, and a water with a designated use of limited aquatic life might be left without protection if a fish population were subsequently established.

75. The Commission concurs with the Hearing Officer's notes on protecting communities which have adapted to stressful environments.

76. The Commission rejects EBID's proposal to establish a "limited aquatic life" use which centers on "habitat" for the reasons stated above in paragraphs 41-44.

[~~CC~~]II. **"Livestock watering"** means the use of a surface water of the state [~~used~~] as a supply of water for consumption by livestock.

77. The Commission adopts NMED's proposal to add the term "the use of" and delete the word "used" because it clarifies that "livestock watering" is a use, not a surface water of the state.

[~~DD~~]JJ. **"Marginal coldwater [~~fishery~~]"** in reference to an aquatic life use means [~~a surface water of the state known to support a coldwater fish population during at least some portion of the year, even though~~] 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 [~~20~~]25°C ([~~68~~]77°F).

78. The Commission rejects Phelps Dodge's (PD's) proposal to delete this section because the subcategory is consistent with EPA guidance and provides a meaningful classification for waters

with less than ideal coldwater conditions for aquatic communities, which exist and must be protected.

79. The Commission adopts NMED's proposal to change the definition from "fishery" to "aquatic life" and rejects EBID's proposal to establish "marginal coldwater aquatic habitat" for the reasons stated above in paragraphs 41-44.

80. The Commission adopts NMED's proposal to eliminate the reference to "surface water of the state" because a designated use is not a water.

81. The Commission adopts NMED's proposal to change "20" to "25" because it is consistent with the criteria for this use in Section 20.6.4.900.H.3, and corrects the Fahrenheit calculation in parentheses for accuracy.

82. The Commission rejects SJWC's proposed language for this section regarding self-sustaining, diverse coldwater aquatic life because it creates uncertainty regarding the type of community that a water might otherwise support; SJWC's proposal also does not correct an error in reflecting the actual criteria set out in Section 900.H.3 relating to temperature.

83. The Commission does adopt that part of the SJWC proposal that makes this definition more consistent with the definition for "marginal warmwater fishery," such that a consideration of the types of biological criteria is expanded, and adds language that addresses EPA's concerns about whether conditions are natural. Thus, the phrase "or other natural habitat conditions" is inserted.

[~~BB~~]KK. **"[~~limited~~] Marginal warmwater [~~fishery~~]"** in reference to an aquatic life use means [~~a surface water of the state where~~] natural intermittent or low flow or other natural habitat conditions [~~may~~] severely limit the ability of the [~~reach~~] surface water of the state to sustain a natural [~~fish~~] aquatic life population on a continuous annual basis; or [~~a surface water of the state where~~] historical data indicate that natural water temperature [~~may~~] routinely [~~exceed~~]exceeds 32.2°C (90°F).

84. The Commission rejects PD's proposal to delete this section because the subcategory is consistent with EPA guidance and provides a meaningful classification for waters with less than ideal warmwater conditions for aquatic communities, which exist and must be protected.

85. The Commission adopts NMED's proposal to change the word "limited" to "marginal" to avoid confusion with the proposed designated use of "limited aquatic life."

86. The Commission adopts NMED's proposal to delete the phrase "surface water of the state" because a designated use is not a water.

87. The Commission adopts NMED's proposal to replace "reach" with "surface water of the state" because it recognizes that the use may apply to lakes and other waters besides streams.

88. The Commission adopts NMED's proposal to delete the word "may" in two places to address EPA's concern that the designated use could be assigned to waters without evidence of severely-limiting low flows or routine temperature exceedances.

89. The Commission adopts NMED's proposal to add the word "natural" in two places to address EPA's concern in the last triennial review that the use not include waters affected by man-made conditions, because if a stream is degraded by human-caused conditions it should be listed as impaired rather than classified with a less protective designated use.

90. The Commission rejects SJWC's proposal because it allows this use for waters that would be in a more protective category except for man-made conditions, contradicting CWA and EPA guidance, and effectively codifying the degraded aquatic community and man-made impacts without the process mandated by the CWA.

[~~EE~~]LL. **"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.

[~~FF~~]MM. **"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.

[~~GG~~]NN. **"Minimum quantification level"** means the minimum quantification level for a constituent determined by official published documents of the United States environmental protection agency.

[~~HH~~]OO. **"Natural causes"** means those causal agents [~~which~~]that would affect water quality and the effect is not caused by human activity but is due to naturally occurring conditions.

[~~II~~]PP. **"Nonpoint source"** means any source of pollutants not regulated as a point source [~~which~~]that degrades the quality or adversely affects the biological, chemical[,] or physical integrity of surface waters of the state.

[~~JJ~~]QQ. **"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).

RR. **"Organoleptic"** means the capability to produce a detectable sensory stimulus such as odor or taste.

91. The Commission adopts NMED's proposal to accurately define a term used in the proposed revisions to Section 20.6.4.13.D.

SS. **"Playa"** means a shallow closed basin lake typically found in the high plains and deserts.

92. The Commission adopts NMED's proposal to accurately define a term used in the WQS.

[~~KK~~]TT. **"Perennial [~~stream~~]"** when used to describe a surface water of the state means [~~a stream or reach of a stream that flows~~]the water body contains water continuously throughout the year in all years; its upper surface, generally, is lower than the water table of the region adjoining the stream.

93. The Commission adopts NMED's proposal to revise the definition to reflect the actual language used in the WQS, and to delete the phrase "a stream or reach of a stream" because it recognizes that lakes, ponds and reservoirs also can be perennial.

[~~LL~~]UU. **"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.

[~~MM~~]VV. **"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.

WW. **"Practicable"** means that which may be done, practiced or accomplished; that which is performable, feasible, possible.

94. The Commission amends this section to define a term used in the WQS. The definition is taken from a legal dictionary.

[~~NN~~]XX. **"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 [~~native American traditional~~] cultural, religious[~~,~~] or ceremonial purposes in which there is intimate human contact with the water, including but not limited to ingestion or immersion, that [~~involves considerable risk sufficient to~~] could pose a significant health [~~risk~~]hazard. [~~The contact may include but is not limited to ingestion or immersion.~~]

95. The Commission adopts NMED's proposed clarifying changes, and NMED's proposal to expand the definition to include cultural, religious or ceremonial uses by persons other than Native Americans because there is no rational basis for limiting such protection to Native American uses.

96. The Commission adds the word "human" before "contact" as a clarification.

[~~OO~~]YY. **"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.

97. The Commission adds the word "human" before "contact" as a clarification. The insertion of the term "human" is the logical outgrowth of testimony that humans use ditches, streams and stretches.

[~~PP~~]ZZ. **"Segment"** means [~~a water quality standards segment, the surface waters of which have common~~]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 [~~regulation~~] regimes, [~~possess common~~] and natural physical, chemical[~~,~~] and biological characteristics[~~,~~] and exhibit [~~common~~] similar reactions to external stresses, such as the discharge of pollutants.

98. The Commission adopts NMED's proposed clarifying changes.

AAA. **"Specific conductance"** means conductivity adjusted to 25°C.

99. The Commission adopts NMED's proposal to accurately define a term used in the WQS.

[~~QQ~~]**BBB.** **"State"** means the state of New Mexico.

[~~RR~~]**CCC.** **"Surface water(s) of the state"** means all [~~interstate~~]surface waters situated wholly or partly within or bordering upon the state, including [~~interstate wetlands, and all intrastate waters, such as intrastate~~]lakes, rivers, streams (including intermittent streams), mudflats, sandflats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes, reservoirs or natural ponds[~~, the use, degradation, or destruction of which would affect interstate or foreign commerce~~]. Surface waters of the state also means all tributaries of such waters, including adjacent wetlands,[~~, and~~] any manmade bodies of water [~~which~~]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) [~~which~~]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.

100. The Commission adopts NMED's proposal to amend the definition to reflect New Mexico's plenary power over waters within its borders because the WQCC's authority to adopt WQS is not constrained by the Commerce Clause of the United States Constitution.

101. The interests of the state are critically linked both economically and culturally to good water quality in all of the state's waters, not just waters that can be linked to interstate commerce. Non-perennial waters make up over 80% of this state's waters, and should be expressly protected in the standards. Extending the WQS to intrastate waters is consistent with applicable federal case law. The U.S. Supreme Court supports the goal of protecting isolated intrastate waters - waters with no relation to interstate commerce - at the state level, rather than federal level. The SWANCC decision, 531 U.S. 159 (2001), did not strip state jurisdiction; it just limited federal jurisdiction.

102. The Commission adopts NMED's proposal to add an explicit reference to the federal definition of "waters of the United States" because it ensures that the state definition is broad enough to encompass all waters subject to federal jurisdiction as required by the CWA.

103. The Commission adopts NMED's proposal to add a comma and the words "and actively used" to clarify that the exemption for waste treatment systems does not apply after deactivation of the system. This ensures that waters comply with the WQS once they have completed their purpose as waste treatment systems, thereby avoiding the abandonment of large polluted waters throughout the state.

104. The Commission rejects AB's proposal to add the following sentence to the end of the definition: All mine pits shall be protected as waters of the State unless the owner and/or operator has

effectively precluded the use of these waters by livestock or wildlife. AB did not present any supporting evidence, and the phrase is unnecessary.

105. The Commission rejects the Middle Rio Grande Conservancy District's change for lack of supporting evidence.

[~~SS~~]**DDD.** **"TDS"** means total dissolved solids, also termed "total filterable residue."

[~~TT~~]**EEE.** **"Technology-based [~~controls~~]limitations"** means the application of technology-based effluent limitations as required under Section 301(b) of the federal Clean Water Act.

106. The Commission adopts NMED's proposal to revise the term being defined to more accurately reflect the term used in the WQS.

[~~UU~~]**FFF.** **"Total"** means a constituent of a water sample [~~which~~]that is analytically determined without filtration.

GGG. **"Total PCBs"** means the sum of all homolog, all isomer, all congener or all aroclor analyses.

107. The Commission adopts NMED's proposal to accurately define a term used in the WQS. The definition is derived from EPA guidance.

[~~VV~~]**HHH.** **"Toxic pollutant"** means those pollutants, or combination of pollutants, including disease-causing agents, [~~which~~]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 [~~malfunctions~~]changes, reproductive or physiological impairment or physical deformations in such organisms or their offspring.

108. The Commission adopts AB's proposal to amend the definition to clarify the type of effects caused by toxic pollutants, which can manifest in many ways other than "death, disease, behavioral malfunctions or physical deformations in such organisms or their offspring" as stated previously.

III. **"Tributary"** means a perennial, intermittent or ephemeral waterbody that flows into a larger waterbody, and includes a tributary of a tributary.

109. Although NMED withdrew its proposal to define this term after the hearing, the Commission considered EBID's proposed definition, and concludes that it is necessary to define a term used in the WQS, particularly a term that has raised questions in previous proceedings. The Commission rejects as unnecessary EBID's proposal to expressly exclude rills; it is clear from the language used that the waterbody must be at least an ephemeral or intermittent waterbody, even if it is not a direct tributary.

[~~WW~~]**JJJ.** **"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.

[~~XX~~]**KKK.** **"Warmwater[~~-fishery~~]"** with reference to an aquatic life use means [~~a surface water of the state where the~~]that water temperature and other characteristics are suitable for the support or propagation or both of warmwater [~~fishes~~]aquatic life.

110. The Commission adopts NMED's proposal to change the definition from "fishery" to "aquatic life" and rejects EBID's proposal to establish "warmwater aquatic habitat" for the reasons stated above in paragraphs 41-44.

111. The Commission adopts NMED's proposal to eliminate the reference to "surface water of the state" because a designated use is not a water.

[~~YY~~]**LLL.** **"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.

[~~ZZ~~]**MMM.** **"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.

112. The Commission rejects NMED's proposed deletion of the word "to" for simplification, because this definition tracks with language in the Water Quality Act, Section 74-6-2.C, and could be considered a term of art.

[~~AAA~~]**NNN.** **"Water quality-based controls"** means effluent limitations, as provided under Section 301(b)(1)(C) of the federal Clean Water Act, [~~which~~]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).

[~~BBB~~]**OOO.** **"Wetlands"** means those areas [~~which~~]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. [~~Constructed wetlands used for wastewater treatment purposes~~]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.

113. The Commission adopts NMED's and UC's proposal to replace "constructed wetlands used for wastewater treatment purposes" with the underlined text to address EPA's concerns in the 1998 triennial review that the phrase could be construed to preclude jurisdiction over manmade bodies of water originally created in, or resulting from the impoundment of surface waters of the state.

[~~CCC~~]**PPP.** **"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.

[20.6.4.7 NMAC - Rp 20 NMAC 6.1.1007, 10-12-00; A, 7-19-01; A, XX-XX-05]

New Definitions Proposed But Not Adopted:

114. The Commission rejects a new definition of **"discharge"** proposed by NMED as unduly narrow, and it is unclear whether it could be applied consistently.

115. The Commission rejects a new definition of **"fully support"** proposed by AB because the phrase is not used in the WQS with the exception of Amigos Bravos' proposal to amend Section 20.6.4.7.K, which was not adopted.

116. The Commission rejects a new definition of **"irrigation and flood control facilities"** proposed by AB for lack of support in the record and because the Commission previously has interpreted the irrigation and flood control exemption in correspondence to EPA, and EPA and a federal court approved the Commission's interpretation. Moreover, BMPs should not have to be approved by the department.

117. The Commission rejects AB's proposed new definition of **"unusually high ambient air temperatures"** for lack of a scientific basis in the record.

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 high quality waters designated by the commission as outstanding national resource waters (ONRWs). [~~ONRWs may include, but are not limited to, surface waters of the state within national and state monuments, parks, wildlife refuges, waters of exceptional recreational or ecological significance, and waters identified under the Wild and Scenic Rivers Act.~~]

(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.

118. The Commission adopts SJWC's proposal to move the second sentence in paragraph (3) to NMED's new section specifically addressing ONRWs, below, because it describes a nonexclusive list of waters that may qualify for ONRW nomination.

119. The Commission rejects AB's proposal to make significant amendments addressing the different tiers because it varies widely from the EPA regulations, 40 C.F.R. §131.12. Deviation from the well-established federal language creates the possibility of confusion in application. The AB proposal also moves to the Department decisions properly left to the Commission, which is a policy-making body.

~~[B. **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 based on scientific principles in support of the nomination, including specific reference to the applicable criteria for ONRW;~~

~~(3) supporting scientific evidence demonstrating that one or more of the applicable ONRW criteria listed in Subsection C of this section has been met;~~

~~(4) water quality data to establish a baseline for the proposed ONRW;~~

~~(5) a discussion of activities that might contribute to the reduction of water quality in the proposed ONRW;~~

~~(6) any additional evidence to substantiate such a designation, including an analysis of the economic impact of the designation on the local and regional economy within the state of New Mexico; and~~

~~(7) 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.~~

~~C. Pursuant to a petition filed under Subsection B of this section, the commission may classify a surface water of the state as an ONRW.~~

~~D. **Reserved:** This subsection is reserved for a list of waters classified as ONRWs.~~]

120. The Commission adopts NMED's proposal to move Sections 20.6.4.B, C, and D to a new section. The antidegradation policy and implementation plan relate to all classes of water, not just ONRWs. Conversely, because ONRWs receive special treatment under the antidegradation policy and implementation plan, the procedures for nominating and adopting ONRWs should be contained in a separate section.

[~~E~~]**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 [~~the~~] existing data [~~base~~][~~,~~] and [~~if additional information is needed,~~] 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 [~~standards~~]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, [~~voluntary~~]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 state or federal 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 [~~20.6.4.14~~]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, XX-XX-05]

121. The Commission rejects AB's proposal to replace Section E entirely with a procedure to implement the antidegradation policy. NMED has drafted a fully developed set of implementation procedures that would satisfy the current standard of review, and the public has commented on them. The Commission is considering NMED's draft antidegradation policy implementation procedures separately, and it would be a duplication of effort and waste of resources to consider changes to 20.6.4.8(E) NMAC as part of the triennial review. Antidegradation policy implementation procedures should be adopted as part of the continuing planning process rather than as part of the water quality standards.

122. The Commission adopts NMED's proposal to make minor changes in paragraphs (2) and (3); in (2) the language would more accurately reflect the procedure used to conduct a water quality survey. The Commission deletes the word "voluntary" and adds language to the end of paragraph 13 for clarity and consistency with the language in the definition of BMPs.

123. The Commission rejects UC's proposal to outline the process in paragraph (16) for development and approval of the 303(d) list. The Commission has already rejected this proposal, and already plans to approve and submit future 305(b) and 303(d) reports as a combined document.

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 the applicable ONRW criteria listed in Subsection B of this section;

(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.

124. The Commission adopts with some modification NMED's proposal to relocate and revise the ONRW nominating process. Merging paragraphs 2 and 3 simplifies the section. Adding the phrase "if available" regarding water quality data revises language which might unnecessarily burden the ONRW nomination process, and, as EPA has articulated the concern, to force a formal assessment of water quality prior to nomination could "effectively bar the general public from nominating any waters."

125. The Commission rejects NMED's and AB's proposal to delete a consideration of economic benefit altogether, but does replace "analysis" with "discussion" to address concerns that the requirement is currently overly rigorous.

126. The Commission adopts SJWC's proposal to reference in paragraph (2) ONRW criteria in Subsection B as clarification.

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 trout fishery, 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

(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 uses and human health 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.

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.

127. The Commission adopts SJWC's proposal to aid the public and the Commission by identifying the procedures required for nominating an ONRW and the criteria for designating an ONRW. The Commission concurs with the Hearing Officer's notes on the petitioner's burden of creating an analysis and EPA's position. If the petitioner's economic discussion is not sufficient, the commission will have the opportunity to request more information or deny the request. The burden of proof should be placed on the petitioner to persuade the Commission at a hearing. The federal government places the burden on the petitioner in wildlife and landmark requests. The burden standard of "beneficial to the state" is not light and thus will protect against allegations of a "taking."

128. The criteria proposed accurately reflect EPA regulations concerning ONRWs (40 C.F.R. § 131.12(a)(3)) and the ONRW characteristics referred to in the existing surface water quality standards (20.6.4.8(A) and (B) NMAC).

D. Waters classified as ONRWs: Rio Santa Barbara, including the West, Middle and East Forks from their headwaters downstream to the boundary of the Pecos Wilderness.

[20.6.4.9 NMAC - Rn, Subsections B, C and D of 20.6.4.8 NMAC, XX-XX-05; A, XX-XX-05]

129. The Commission considered extensive public comment in support of and in opposition to AB's proposal to classify the Rio Santa Barbara as an ONRW, in addition to the technical testimony offered. Recognizing historic uses, including livestock grazing, the Commission adopts AB's proposal because it has fulfilled all the current ONRW designation requirements in its Nomination for the Rio Santa Barbara as New Mexico's First Outstanding National Resource Water. The Commission was persuaded based on the information that was presented at the hearing that the

Rio Santa Barbara is a water of both exceptional ecological and recreational significance, and exceeds the criteria for the designated use of high quality coldwater fishery.

130. EPA has expressed concerns that no ONRWs have been nominated in New Mexico, but, particularly with changes being made concurrently to the anti-degradation policy, the Commission is comfortable with the designation.

[~~20.6.4.9~~]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 [~~standards~~]criteria have been adopted [~~which~~]that reflect use designations rather than existing conditions of surface waters of the state. Narrative [~~standards~~]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 [~~standards~~]criteria. When justified by sufficient data and information, the water quality [~~standards~~]criteria will be modified to protect the [~~designated~~]attainable uses [~~which are attainable~~].

C. It is also recognized that contributions of water contaminants by diffuse nonpoint sources of water pollution may make attainment of certain [~~standards~~]criteria difficult. Revision of these [~~standards~~]criteria may be [~~required~~]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, XX-XX-05; A, XX-XX-05]

131. The Commission adopts NMED's proposal to simplify the language.

132. The Commission rejects EBID's proposal to replace "standards" with designated uses and their associated criteria" as duplicative and unnecessary. The Commission rejects EBID's proposal to repeat in this section a process set out elsewhere in the WQS to change a designated use as duplicative and unnecessary.

[~~20.6.4.10~~]20.6.4.11 APPLICABILITY OF WATER QUALITY STANDARDS:

A. [~~**Livestock Watering and Wildlife Habitat Uses**~~]**Waters Created by Discharge**:

[~~(1)~~] When a discharge [~~creates a water which could be used by livestock and/or wildlife in a non-classified,~~]to an otherwise ephemeral or intermittent, non-classified surface water of the state[~~, such water shall be protected for the uses of livestock watering and/or wildlife habitat by the standards applicable to these uses as set forth in 20.6.4.900 NMAC.~~

~~(2) Designated uses of such water will be limited to livestock watering and/or wildlife habitat only when such a water does not enter a classified surface water of the state with criteria which are more restrictive than those necessary to protect livestock watering and/or wildlife habitat, except in direct response to precipitation or runoff. The commission shall adopt any additional designated uses for such surface waters of the state by rulemaking proceedings.~~

~~(3) When such a water, except in direct response to precipitation or runoff, enters a classified~~]causes water to enter a surface water of the state with criteria [~~which~~]that are more restrictive than [~~those necessary to protect livestock watering and/or wildlife habitat, the numeric standards established for the classified surface water of the state~~]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 [~~classified~~] surface water of the state with the more restrictive criteria. If discharge to such otherwise ephemeral or intermittent, non-classified waters of the state ceases or is diverted elsewhere[~~, all uses adopted under this section or subsequently under additional rulemaking proceedings for such waters of the state shall be deemed no longer designated, existing, or attainable~~] the criteria listed in 20.6.4.97 or 20.6.4.98 NMAC shall apply.

133. The Commission adopts NMED's proposal to conform this section to Sections 20.6.4.97 and 20.6.4.98 and the established requirements for use attainability analyses. It is appropriate to clarify that the criteria in NMED's proposed Section 20.6.4.97 apply to ephemeral streams, while more stringent criteria apply whenever ephemeral streams enter classified waters. The Commission inserts the words "or intermittent, non-classified" to further clarify applicability of criteria and ensure that classified segment criteria will not be trumped.

B. Critical Low Flow: The numeric standards set under Subsection F of [~~20.6.4.12~~]20.6.4.13 NMAC, 20.6.4.101 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 [~~of the stream in question~~], 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:

134. The Commission adopts NMED's proposal to delete the phrase "of the stream in question" because the phrase is superfluous.

135. The Commission adopts NMED's proposal to add a reference to narrative criteria because the narrative criteria apply at all times, including below critical low flow.

(1) for human health 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.

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

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

$$\text{Modified Harmonic Mean} = \left[\frac{\sum_{i=1}^{M-No} \frac{1}{Qi}}{Nt-No}\right]^{-1} x \left[\frac{Nt-No}{Nt}\right]$$

where, Qi = nonzero flow
Nt = total number of flow values
and No = number of zero flow values

133. The Commission adopts NMED's proposal to substitute "Q" for "x" in the harmonic mean equation because it is consistent with the modified harmonic mean formula, and makes the necessary correction in the diagram.

136. The Commission adopts NMED's proposal to define "n" and "Q" to clarify the harmonic mean equation.

(2) for all other narrative and numeric criteria, the minimum average four consecutive day flow [~~which~~]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.

C. Guaranteed Minimum Flow: [~~On a case-by-case basis and upon consultation with the interstate stream commission, the~~]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.

137. The Commission adopts NMED's proposal to clarify the shared responsibility to determine guaranteed minimum flows.

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 [~~which~~]that allow the application of a dilution factor in calculations of effluent limitations. Effluent limitations shall be developed [~~which~~]that will protect the most sensitive existing, designated or attainable use of the receiving water.

138. The Commission rejects AB's proposal to preclude mixing zones in surface waters with the designated use of domestic water supply absent a showing that the mixing zones do not include a domestic water intake because the existing mixing zone policy is authorized by, and satisfies the requirements of, the Clean Water Act and EPA regulations. EPA has fully approved New Mexico's mixing zone policy.

139. The mixing zones currently adopted by the Commission allow reasonable implementation of the water quality standards.

E. Mixing Zone Limitations: Wastewater mixing zones, in which the numeric [~~standards~~]criteria set under Subsection F of [~~20.6.4.12~~]20.6.4.13 NMAC, 20.6.4.101 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 [~~standards~~]criteria set under Subsection F of [~~20.6.4.12~~]20.6.4.13 NMAC, 20.6.4.101 through 20.6.4.899 NMAC and 20.6.4.900 NMAC at the point of discharge.

(2) The acute numeric [~~standards~~]criteria, as set out in Paragraph (1) of Subsection [~~J~~]I, Subsection [~~M~~]J, [~~Paragraph (1) of Subsection N, and Paragraph (1) of~~]and Subsection [~~O~~]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 [~~fishery~~]aquatic life use.

(3) The general [~~standards~~]criteria set out in Subsections A, B, C, D, E, G, H[~~,~~] and J of [~~20.6.4.12~~]20.6.4.13 NMAC, and the provision set out in Subsection D of [~~20.6.4.13~~]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 [~~standards~~]criteria set under Subsection F of [~~20.6.4.12~~]20.6.4.13 NMAC, 20.6.4.101 through 20.6.4.899 NMAC and 20.6.4.900 NMAC, [~~except Paragraph (1) of Subsection J, acute aquatic life criteria of Subsection M, Paragraph (1) of Subsection N, and Paragraph (1) of Subsection O of 20.6.4.900 NMAC,~~] 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 [~~standards~~]criteria and allows the migration of aquatic life presently common in surface waters of the state with no effect on their populations.

140. The Commission adopts NMED's proposed clarifying changes and revisions to internal references to conform to changes in Section 20.6.4.900. The Commission deletes proposed references to parts of subsections J, M, N and O as unnecessary: a discharger must meet these criteria at the point of discharge, so the criteria would be already met at the boundary of the mixing zone, as well.

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

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

141. The Commission adopts NMED's proposed clarifying changes and revisions to conform internal references.

142. The Commission adopts NMED's proposal to change the definition from "fishery" to "aquatic life" for the reasons stated above in paragraphs 41-44. Commissioner Hutchinson dissented based on previous opposition to the last sentence.

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.

143. The Commission adopts NMED's proposal to add a section clarifying the circumstances in which the aquatic life criteria are applicable because it reflects the fact that unlike other uses, aquatic life has separate criteria for acute and chronic exposure. The intent is to apply the criteria to all

surface waters for the reasons stated in Sections 20.6.4.97- 99, except in two circumstances: (1) when the "limited aquatic life" subcategory has been designated with specific criteria developed on a site-specific basis; and (2) when the WQS specifically provide that the chronic criteria do not apply, such as in mixing zones.

144. The Commission rejects EBID's proposal to adopt a parallel provision to implement EBID's proposed designated use of "aquatic habitat" and "expected aquatic life" because the proposal is unclear and relies on the adoption of "aquatic habitat," which was not adopted.

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 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, XX-XX-05; A, XX-XX-05]

145. The Commission adopts NMED's proposal to move this language from existing Section 20.6.4.12 and restructure it for clarity.

~~[20.6.4.11]~~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.

146. The Commission adopts NMED's proposal to add a preamble to clarify that the section is used only to guide enforcement determinations, but changes the order of the wording for readability.

147. The Commission rejects SJWC's proposal that water quality data taken below critical low flow may not be used to assess waters as impaired. The WQCC must be able to assess impairment based on all available data, including data from samples collected during low flow conditions, and this is consistent with EPA's direction. Moreover, the proposal would be virtually impossible to implement. NMED has not calculated critical low flow for most of the streams in New Mexico, and does not maintain a network of gages to collect such data across the state.

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

B. Compliance with chronic water quality [~~standards~~]criteria shall be determined from the arithmetic mean of the analytical results of samples collected using applicable protocols. Chronic [~~standards~~]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 [~~20.6.4.13~~]20.6.4.14 NMAC, or by attainment of applicable ammonia [~~standards~~]criteria set out in Subsections [~~N and O~~]K, L and M of 20.6.4.900 NMAC.

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

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 [~~standards~~]criteria for chromium an analysis [~~which~~]that measures both the trivalent and hexavalent ions shall be used.

G. For compliance with hardness-dependent numeric [~~standards dependent on hardness~~]criteria, hardness (as mg $CaCO_3$/L) shall be determined from a sample taken at the same time that the sample for the water contaminant is taken[~~, or from available verifiable data sources including, but not limited to, the U.S. environmental protection agency's STORET water quality database~~].

H. 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. The total ammonia 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 [~~standards~~]criteria for 0°C shall apply; for temperatures above 30°C, the total ammonia [~~standards~~]criteria for 30°C shall apply. For pH values below 6.5, the total ammonia [~~standards~~]criteria for 6.5 shall apply; for pH values above 9.0, the total ammonia [~~standards~~]criteria for 9.0 shall apply.

J. 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 [~~national pollutant discharge elimination system (~~]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. 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, XX-XX-05; A, XX-XX-05]

148. The Commission adopts NMED's proposal to revise internal references in subsection C to conform the section with Section 20.6.4.900.

149. The Commission adopts NMED's proposal to change "standards dependent on hardness" to "hardness-dependent" in subsection G to simplify the language, and to delete the last phrase in subsection G to ensure that the hardness determination is based on sampling data.

150. The Commission rejects UC's proposal to make extensive revisions to this section in order to conform the provision to applicable EPA guidance on the implementation of water quality criteria, because it would impose onerous requirements for multiple samples over lengthy periods of time, making the enforcement of the WQS very difficult. The state does not have infinite resources. Although UC's argument is scientifically reasonable, the Commission has to balance protection of the environment with the department's ability to prove that there has been a violation. The

department testified that a single sample would not form the basis for an enforcement action; an exceedance would first be confirmed. In any event, a discharger can always challenge an enforcement action. Beyond the staff time needed to collect lots of samples, the analysis of the samples would be prohibitively expensive.

151. NMED's assessment protocols are consistent with EPA guidance documents and have been approved by the WQCC and EPA. Section 20.6.4.12 as written is consistent with those EPA guidance documents. UC's proposed data requirements would pose a serious obstacle to assessment determinations by imposing an artificially high threshold on the data that can be used.

152. The Commission rejects SJWC's proposed variance procedures as a new subsection K in this section because the Water Quality Act does not authorize the WQCC to grant variances from standards. Section 74-6-4(G)) expressly grants the Commission authority only to adopt a variance procedure for "regulations," and Sections 74-6-4C and 74-6-4D are different. Commissioner Hutchinson abstained on the vote regarding the variance language.

[~~20.6.4.12~~]20.6.4.13 GENERAL [~~STANDARDS~~]CRITERIA: General [~~standards~~]criteria are established to sustain and protect existing or attainable uses of surface waters of the state. These general [~~standards~~]criteria apply to all surface waters of the state at all times, unless a specified [~~standard~~]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.[~~When changes in dissolved oxygen, temperature, dissolved solids, sediment or turbidity in a water of the state is attributable to natural causes or the reasonable operation of irrigation and flood control facilities that are not subject to federal or state water pollution control permitting, numerical standards for temperature, dissolved solids content, dissolved oxygen, sediment or turbidity adopted under the Water Quality Act do not apply. The foregoing provision does not include major reconstruction of storage dams or diversion dams except for emergency actions necessary to protect health and safety of the public, or discharges from municipal separate storm sewers.~~]

153. The Commission adopts NMED's proposal to move the last two sentences to Section 20.6.4.11.I because it makes more sense for the sentences to be in that section.

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 [~~will settle and~~]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.

154. The Commission adopts NMED's proposal to restructure the section because it more accurately reflects the difference between materials that have settled and those that have not. The use of the future tense causes ambiguity, so the changes are clarifying.

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. [~~Odor and Taste of Fish~~]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[~~, or~~].

(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.

155. The Commission adopts NMED's proposal to change the title and restructure this section and insert subsection titles because it more accurately reflects the terms and subject matter used to describe effects registered by the human senses of taste and smell.

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

F. Toxic Pollutants:

(1) [~~Surface~~]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 [~~which~~]that affect the propagation of fish or [~~which~~]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 [~~which~~]that will or can reasonably be expected to bioaccumulate in tissues of fish, shellfish and other aquatic organisms to levels [~~which~~]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 criteria shall be as set out in 20.6.4.900 NMAC. For a toxic pollutant for human health not listed in 20.6.4.900 NMAC, the following provisions shall be applied in accordance with [~~20.6.4.10, 20.6.4.11~~]20.6.4.11, 20.6.4.12 and [~~20.6.4.13~~]20.6.4.14 NMAC.

(a) The human health 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 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 shall be as set out in 20.6.4.900 NMAC. For a toxic pollutant for aquatic life with no chronic standard listed in 20.6.4.900 NMAC, the following provisions shall be applied in sequential order in accordance with [~~20.6.4.10, 20.6.4.11~~]20.6.4.11, 20.6.4.12 and [~~20.6.4.13~~]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[~~, which~~] 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 [~~which~~]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 [~~which~~]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 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.

~~[(6) 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), shall not be a violation of Subsection F of this section when such use has been approved by the commission. Any person seeking commission approval of the use of a piscicide shall file a written petition with the commission. The petition shall contain, at a minimum, the following information: (1) petitioner's name and address; (2) identity of the piscicide; (3) documentation of registration under FIFRA and NMPCA; (4) target and potential non-target species, including threatened or endangered species; (5) potential environmental consequences and protocols for limiting such impacts; (6) affected surface water of the state; (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. The commission shall review the petition and require 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. 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.]~~

156. The Commission adopts NMED's proposal to correct an inadvertent error in Paragraph F(2). Rather than placing the formulae in the WQMP, the paragraph is amended to reference the EPA methodology document containing the formulae, as well as information describing the use and derivation of the formulae.

157. The Commission adopts NMED's proposal to move Paragraph F(6) to a new section because the proposed revisions to Paragraph F(6) are substantial.

158. The Commission rejects SJWC's proposal to adopt a new subsection in order to explicitly acknowledge the efficacy of site-specific ambient standards, because the proposal duplicates existing authority and is not needed. When uses or criteria cannot be met because of natural or

human-induced water quality problems, there are other methods to adjust them. For example, uses can be adjusted through UAAs. Criteria can be adjusted to reflect site-specific conditions.

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 [~~standards~~]criteria set forth in the New Mexico Radiation Protection Regulations, [~~20.3.1.400 through 20.3.1.499~~]20.3.1 and 20.3.4 NMAC[~~(5-3-95)~~].

159. The Commission does update regulatory references to the New Mexico Administrative Code for accuracy, and it is the logical outgrowth of the testimony that the citation is outdated.

160. The Commission, considering UC's motion to reopen the record, rejects NMED's proposal to include a specific reference to Table II in the Radiation Protection Regulations for lack of an adequate record to weigh potential consequences of the change.

H. Pathogens: Surface waters of the state shall be [~~virtually~~]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.[~~In particular, surface waters of the state used for irrigation of table crops such as lettuce shall be virtually free of *Salmonella* and *Shigella* species.~~]

161. The Commission adopts NMED's proposal to delete the phrase "virtually free" because the phrase is vague.

162. The Commission adopts NMED's proposal to delete the second sentence because the sentence appears to exceed the WQCC's authority to regulate water quality in surface waters and impinges on the authority of federal and state agencies charged with the regulation of food safety.

I. Temperature: Maximum temperatures for each classified water of the state have been specified in 20.6.4.101 through 20.6.4.899 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 [~~(generally 20°C (68°F) for coldwater fisheries and 32.2°C (90°F) for warmwater fisheries)~~] would thereby be exceeded. These temperature [~~standards~~]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.

163. The Commission adopts NMED's proposal to delete the parenthetical phrase in the third sentence because the reference to temperatures that are "generally" the maximum value is not relevant when the segments specify the applicable temperature criterion.

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. Turbidity shall not exceed 10 NTU over background turbidity when the background turbidity is 50 NTU or less, or 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 activities necessary to accommodate dredging, construction or other similar activities and that cause the criterion to be exceeded may be authorized

provided all practicable turbidity control techniques have been applied and all appropriate permits and approvals have been obtained.

164. The Commission adopts NMED's proposal to replace the numeric turbidity criteria with a uniform requirement applicable to all surface waters because the uniform requirement protects waters from activities that cause turbidity to exceed background levels, while avoiding an inappropriate impairment determination during periods of naturally caused sediment transport, such as runoff.

165. The Commission concludes that PD abandoned its original proposals for this section by not making a record and not pursuing the point in its post-hearing submittal.

K. [~~**Salinity: Where existing information is sufficient, numerical standards for TDS (or conductivity), chlorides and sulfates, have been adopted in 20.6.4.101 through 20.6.4.899 NMAC. The following standards apply at the downstream point of the reach in which they are set:**~~]**Total Dissolved Solids (TDS):** 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.

[~~**(1) 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 report "1999 Review, water quality standards for salinity, Colorado river system."**~~

~~**(2) Numeric criteria 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.**~~

~~**(3) 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.**~~

~~**(4) In determining compliance with the numeric criteria hereby adopted, salinity (TDS) shall be determined by either the "calculation method" (sum of constituents) or the filterable residue method. Approved test procedures for these determinations are as set forth in 20.6.4.13 NMAC.**~~]

166. The Commission adopts NMED's proposal to establish a narrative criterion in Section K because the current section, while in the narrative standards, does not establish a narrative standard, but rather acknowledges the existence of numeric criteria in some segments. The proposed standard is TDS, which is the constituent being measured, rather than salinity, which is a subset of TDS.

167. The Commission adopts NMED's proposal to move Sections K.1, 2, and 3 to new Section 20.6.4.54 because the restructuring separates the narrative standards from the Colorado River Basin provisions.

168. The Commission rejects EBID's proposal to add a sentence at the end of the section effectively exempting irrigation and flood control projects from the narrative standard for TDS. The WQA exempts irrigation and flood control projects only from numeric criteria. In addition, the phrases "native" and "natural causes" cannot be sensibly implemented. The effect might be protection for nuisance species.

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.

[20.6.4.13 NMAC - Rp 20 NMAC 6.1.1105, 10-12-00; A, 10-11-02; Rn, 20.6.4.12 NMAC, XX-XX-05; A, XX-XX-05]

~~[20.6.4.13]~~20.6.4.14 SAMPLING AND ANALYSIS:

A. ~~[All methods of sample collection, preservation and analysis used in determining water quality and maintenance of these standards shall be in accordance with approved or accepted test procedures published in "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. Test procedures approved or accepted under 40 CFR Part 136 are published in the references cited herein and in other references.~~

~~**(1)** "Standard methods for the examination of water and wastewater," American public health association.~~

~~**(2)** "Methods for chemical analysis of water and wastes," U.S. environmental protection agency.~~

~~**(3)** "Methods for determination of inorganic substances in water and fluvial sediments," techniques of water-resource investigations of the U.S. geological survey.~~

~~**(4)** "Methods for the determination of organic substances in water and fluvial sediments," techniques of water-resource investigations of the U.S. geological survey.~~]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.

169. The Commission rejects NMED's proposal to set out the authority of the environment secretary to approve additional methods because this would delegate the Commission's approval authority to the secretary without substantive criteria for approval or an appropriate process for affected parties.

170. The Commission accepts NMED's proposal to restructure the section because the restructuring allows the listing of more test procedures.

172. The Commission accepts NMED's proposal to delete the phrase "or in other references" because it is vague and open-ended.

173. The Commission accepts NMED's proposal to expand the list of test methods. The procedures in Paragraph 1 apply specifically to NPDES applications and permits and other requests for effluent data. The procedures in Paragraphs 2-7 are derived from the list adopted by the WQCC for the ground water standards, see Section 20.6.2.3107.B, and NMED's recent proposal regarding methods published under the Safe Drinking Water Act. The proposal would conform the test methods used by the NMED bureaus responsible for regulating water quality in New Mexico.

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

C. Sampling Procedures:

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

(2) Lakes: Sampling stations in lakes shall be located at least 250 feet from a [~~waste~~] 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 [~~standards~~]criteria, except that attainment of [~~standards~~]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.

174. The Commission accepts NMED's proposal to delete the word "waste" in Sections C(1) and (2) because the relevant word is "discharge," and the term "waste discharge" has no regulatory meaning.

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" [~~(4th Ed., 1991, EPA/600/4-90/027)~~](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 [~~fishery~~]aquatic life use.

175. The Commission adopts NMED's proposal to change the reference because it reflects the updated version, and adds the phrase referring to EPA's adoption under Part 136 for clarity.

176. The Commission rejects UC's proposal to insert "more than once every three years" at the end of the section because it might allow recurring acute toxicity.

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" [~~(2nd Ed., 1989, EPA 600/4-89/001)~~](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 [~~fishery~~]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, XX-XX-05, A, XX-XX-05]

177. The Commission adopts NMED's proposal to change the reference because it reflects the updated version, and adds the phrase referring to EPA's adoption under Part 136 for clarity.

[~~20.6.4.14~~]20.6.4.15 USE ATTAINABILITY ANALYSIS:

A. A use attainability analysis is a scientific study [~~which~~]that shall be 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[~~as follows~~]:

(1) [~~The department must conduct a use attainability analysis whenever it~~]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 [~~which~~]that do not include the uses specified in Section 101(a)(2) of the federal Clean Water Act must conduct a use attainability analysis. Section 101(a)(2) uses 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.

(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.

B. [~~Any person proposing to conduct a use attainability analysis or equivalent study shall publish notice of this intent in a newspaper of local and statewide circulation. The cost of publication shall be the responsibility of the person proposing such action. The notice shall describe the surface water of the state and uses to be assessed, identify the persons to contact for complete information, and describe how interested persons can participate in the use attainability analysis or equivalent study.~~

~~**C.** Any person may submit a petition to the department stating that they intend to conduct a use attainability analysis or equivalent study. At a minimum, the department, the New Mexico game and fish department, the state engineer and the U.S. fish and wildlife service shall be consulted during the development of a work plan for such analysis or equivalent study. The petitioner 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 administrator of the EPA for review and approval. A copy of the petition and the work plan must be submitted concurrently to the commission. Upon approval of the work plan by the department and the regional administrator, the petitioner 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 petitioner.~~

~~**D.**~~] 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.

[~~E~~]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.

[~~F~~]D. A use attainability analysis or equivalent study should include[~~any applicable information concerning the following~~]:

(1) identification of existing uses of the surface water of the state to be reviewed [~~which~~]that have existed since 1975;

(2) an evaluation of the best water quality attained in the surface water of the state to be reviewed [~~which~~]that has existed since 1975;

(3) [~~a technological analysis which identifies available treatment options for point and nonpoint sources to meet applicable water quality standards for the designated uses~~]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) [~~an economic analysis which evaluates social and economic impacts associated with available treatment options;~~

~~(5)~~] a physical [~~and biological~~]evaluation of the surface water of the state to be reviewed to identify [~~any~~] factors [~~unrelated to water quality which~~]that impair attainment of designated uses and to determine which designated uses are feasible to attain in such surface water of the state[~~, given existing physical limitations~~];

[~~(6)~~](5) an evaluation of the water chemistry of the surface water of the state to be reviewed to identify chemical constituents [~~which~~]that impair the designated uses [~~which~~]that are feasible to attain in such water; and

[~~(7)~~](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.

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.

[~~G~~]F. [~~Upon completion of the use attainability analysis or equivalent study, the petitioner shall submit to the department and the commission the data and their findings and conclusions.~~]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 [~~shall~~]or the proponent may request [~~authority from~~]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, XX-XX-05; A, XX-XX-05]

178. The Commission adopts a number of changes proposed by NMED for the following reasons: to restructure the entire section because it clarifies the UAA process; to delete the phrase "as follows" in Section A because the phrase is unnecessary; to expand the category of persons who may conduct a use attainability analysis (UAA) in Section A(1) because neither the CWA nor EPA regulations limit the category of persons who may conduct a UAA; to delete Section B because the notice of intent requirement is burdensome and unnecessary, considering other applicable notice requirements; to eliminate the phrase "any applicable information concerning the following" in relettered Section D because the phrase is unnecessary; to revise relettered Section D(3) and to delete relettered Section D(4) because technological and economic analyses are not required or appropriate for all UAAs; to delete the phrases "and biological," "unrelated to water quality," "given existing physical limitations" and the word "any" in relettered Section D(4) because the first phrase duplicates relettered Section D(6), the second phrase is ambiguous, and the third phrase and the word "any" are unnecessary; to change the words "petition" to "notice" and "petitioner" to "proponent" in relettered Section E because the new words better reflect the

intended meaning in context; to include a new sentence concerning consultation in relettered Section E because not all UAAs involve fish and wildlife issues and the consultation is more appropriate in the work plan approval section on a proposal-specific basis; to substitute EPA staff for the EPA administrator regarding work plan review in relettered Section E because it better reflects the actual review process at EPA; to add new language regarding work plans in relettered Section E because it clarifies the work plan requirements; to move the first sentence in Section G because the sentence is more appropriate in the previous section; and to delete the phrase "authority from" in Section G because the phrase is unnecessary and inappropriate.

179. The Commission inserts the phrase "or reclassify to a designated use with less stringent criteria" for clarity and consistency with federal law and regulation.

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, XX-XX-05; A, XX-XX-05]

180. The Commission accepts NMED's proposal to set out a new section regarding piscicides because the topic is long enough to warrant its own section, but the Commission rejects the new section proposed as a compromise by several parties, because it might result in more hearings, not fewer; notice is not likely to reach those most interested in the applications; and beneficial changes to the protocols have been made as a result of the hearing process before the Commission.

181. The proposal uses the word "may" and does not bind the Commission to having to approve a project.

182. The Commission accepts the hearing officer's proposed new section because it includes a number of clarifying words and phrases, sets out additional specifics for timelines for petition review, sets out a rebuttable presumption that EPA's determinations in registering the piscicide are valid, and provides additional notice to the public in the vicinity of the piscicide application. The Commission corrected the introductory paragraph by deleting a reference to treatment for nuisance plants and animal species other than native, as that was not the intent of the section, which was meant to address piscicides only. Commissioner Hutchinson dissented on grounds that as a general matter he does not support the application of toxins to water. The Hearing Officer's proposal is the logical outgrowth of the testimony on the issue.

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, XX-XX-05]

183. The Commission adopts NMED's proposal to reserve these sections for basin-specific standards to plan for future expansion of the WQS. The final digit of the section number will be the same as the first digit of segments in the basin.

20.6.4.51 - 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, XX-XX-05; A, XX-XX-05]

184. The Commission adopts NMED's proposal to move the basin-specific standards for the San Juan River Basin to Section A because the San Juan Basin contain the only basin-specific standards.

185. The Commission adopts NMED's proposal to replace the year with the phrases "most current" and "equivalent report by the Colorado river salinity control forum" because it simplifies the rulemaking process.

186. The Commission adopts NMED's proposal to amend Section A to conform the section to the language used by the Salinity Control Forum and its member states.

20.6.4.55 - 20.6.4.96: [RESERVED]

20.6.4.97 EPHEMERAL WATERS - All ephemeral 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.

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 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, XX-XX-05]

187. The Commission rejects NMED's proposal to combine ephemeral and intermittent waterbodies into a single category of non-perennial waterbodies, because there are recognizable differences,

particularly with respect to hydrologic realities. Further, the notice in this triennial review that this would be proposed was not optimal; the original proposals did not include such a plan.

188. The Commission adopts NMED's proposal to create a provision containing default designated uses for unclassified nonperennial waters to ensure that all unclassified nonperennial waters are protected in compliance with the CWA. The default designated uses are livestock watering, wildlife habitat, secondary contact and limited aquatic life. Each use is appropriate for the following reasons:

(a) The section formalizes the WQCC's presumption that livestock watering and wildlife habitat are default uses for all unclassified waters. See Section 20.6.4.10.A. Wildlife habitat is required by the CWA Section 101(a)(2) and EPA's regulations, 40 CFR 131.2. Livestock watering should be protected because of its importance to New Mexico and the likelihood that livestock will use these waters when available.

(b) Recreation and aquatic life are required uses under the CWA.

(c) Regarding the primary contact use, the CWA and EPA regulations require the protection of recreation in and on the water. Primary contact criteria for E. coli bacteria are calculated using the specified formulae based upon an illness rate and the extent of anticipated use. In the case of nonperennial waters, both the likelihood of exposure by ingestion and the frequency of use for recreation are low. NMED proposes criteria that protect primary contact at the rate of 14 illnesses per thousand (assuming infrequent use). The resulting criteria are a monthly geometric mean of 548/100 mL, and a single sample criterion 2507/100 mL. 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.

(d) Regarding the aquatic life use, the CWA and EPA regulations require the protection and propagation of fish and shellfish. All surface waters must include an aquatic life use unless a UAA has determined that the use is not attainable. The limited aquatic life subcategory is appropriate for nonperennial waters because the other subcategories are temperature-specific. Moreover, the limited aquatic life subcategory "fits" the type of aquatic communities likely to be found in nonperennial waters. Finally, the limited aquatic life subcategory is appropriate because

it satisfies the CWA and EPA regulations while avoiding the substantial burden on the state of preparing UAAs to justify not designating another subcategory of the aquatic life use for nonperennial waters.

189. The Commission rejects NMED's proposal to apply chronic aquatic life criteria to ephemeral waters because it desires more input and study before making such a change; however, the Commission believes it is appropriate to apply acute criteria to ephemeral waters because of the potential short-term exposures of aquatic life to pollutants.

190. The Commission rejects EBID's proposal to establish "coldwater aquatic habitat" as the designated use for the reasons stated above in paragraphs 41-44.

191. The Commission rejects AB's proposal to assign the default use of "aquatic life" rather than "limited aquatic life" to these unclassified waters, because it is not supported.

20.6.4.98 INTERMITTENT WATERS - All intermittent 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.

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

B. Criteria:

(1) The use-specific criteria in 20.6.4.900 NMAC.

(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).

[20.6.4.98 NMAC - N, XX-XX-05]

192. The Commission adopts NMED's proposal to create a provision containing default designated uses for unclassified intermittent waters to ensure that all unclassified intermittent waters are protected in compliance with the CWA. Intermittent waters have the same default uses as ephemeral waters for the same reasons stated above in paragraph 188, except that it is "aquatic life" rather than "limited aquatic life." Aquatic life in intermittent waters have a longer residence time, and there are many intermittent reaches of perennial streams. The Commission believes it is appropriate to apply chronic criteria to intermittent waters because of the potential long-term exposure of aquatic life to pollutants.

193. The Commission rejects EBID's proposal to establish "coldwater aquatic habitat" as the designated use for the reasons stated above in paragraphs 41-44.

20.6.4.99 PERENNIAL WATERS - All perennial 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.

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

(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).

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

194. The Commission adopts NMED's proposal to create a provision containing default designated uses for unclassified perennial waters to ensure that all unclassified perennial waters are protected in compliance with the CWA. Perennial waters have the same default uses as intermittent waters for the same reasons stated above in paragraph 188. When an unclassified perennial water is placed in a segment, one of the subcategories will be assigned. The majority of perennial waters are classified. As unclassified perennial waters are studied, they will be moved to existing or new segments with more specific criteria.

195. The Commission rejects EBID's proposal to establish "coldwater aquatic habitat" as the designated use for the reasons stated above in paragraphs 41-44.

20.6.4.100: [RESERVED]

20.6.4.101 RIO GRANDE BASIN - The main stem of the Rio Grande from the international boundary [~~and water commission sampling station above American dam~~] with Mexico upstream to one mile below Percha dam. [~~(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.)~~]

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

B. [~~Standards~~]Criteria:

(1) In any single sample: pH [~~shall be~~]; within the range of 6.6 to 9.0[,] and temperature [~~shall not exceed~~] 34°C (93.2°F) or less. The use-specific numeric [~~standards~~] 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 fecal coliform bacteria shall not exceed 200/100 mL; no single sample shall exceed 400/100 mL~~] The monthly geometric mean of E. coli bacteria 126 cfu/100 mL or less; single sample 410 cfu/100 mL (see Subsection B of [~~20.6.4.13~~]20.6.4.14 NMAC).

(3) At mean monthly flows above 350 cfs, the monthly average concentration for: TDS [~~shall not exceed~~] 2,000 mg/L or less, sulfate [~~shall not exceed~~] 500 mg/L or less[,] and chlorides [~~shall not exceed~~] 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, XX-XX-05]

196. The Commission adopts NMED's proposal to change the segment because including the reach between the IBWC sampling station above American Dam and the International Boundary ensures that this reach has designated uses and criteria.

197. The Commission adopts NMED's proposal to move the comments to a separate section because the restructuring makes the segment easier to read. This change is made below in several other sections and is not again specifically called out.

198. The Commission adopts NMED's proposal to change the bacterial criteria type and values based on EPA guidance. The segment currently has a secondary contact designated use and criteria for fecal coliform bacteria of 200/100 mL (geometric mean) and 400/100 mL (single sample). These criteria translate to E. coli criteria of 126/100 mL (geometric mean) and 410/100 mL (single sample maximum). EPA recommends the single sample criterion for waters lightly used for full body contact with a 90% confidence limit. NMED also proposed to make similar changes in other segments (Sections 105, 106, 110, 111, 118, 125, 129, 201, 202, 208, 211, 301, 303, 305, 306, 307, 401, 402, 404, 408, 504, 601, 805 and 806), and the Commission has adopted these changes below on the same basis.

199. The Commission adopts NMED's proposal to delete imperative phrases such as "shall be", "shall not exceed", and "shall be less than" throughout these sections because the criteria should be a simple statement of the applicable numbers. The effect of exceeding the criteria is explicitly addressed in Section 20.6.4.11, which describe when criteria are exceeded for compliance purposes, and in the assessment protocols, which describe when criteria are exceeded for assessment purposes. This change will not be mentioned again.

20.6.4.102 RIO GRANDE BASIN - The main stem of the Rio Grande from one mile below Percha dam upstream to [~~the headwaters of~~] Caballo [~~reservoir~~] dam. [~~including Caballo reservoir.~~ (~~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.)~~]

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

B. [~~Standards~~]Criteria:

(1) At any sampling site: pH [~~shall be~~] within the range of 6.6 to 9.0[~~,~~] and temperature [~~shall not exceed~~] 32.2°C (90°F) or less, [~~and turbidity shall not exceed 50 NTU~~]. The use-specific numeric [~~standards~~] 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 fecal coliform bacteria shall not exceed 100/100 mL; no single sample shall exceed 200/100 mL~~] 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 [~~20.6.4.13~~]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, XX-XX-05]

200. The Commission adopts NMED's proposal to amend the segment description because it moves the Rio Grande above the Caballo Dam (e.g., the Caballo Reservoir) into Section 20.6.4.104. The Commission adopts NMED's proposal to replace the segment-specific numeric turbidity criterion with the narrative criterion in Section 20.6.4.13.J for the reasons stated under that section. NMED proposes to make similar changes in other segments for the reasons stated above (Sections 102, 104, 107, 108, 109, 112, 113, 114, 115, 119, 120, 121, 122, 123, 203, 209, 210, 214, 215, 302, 304, 309, 405, 406, 503, 603, 802, 804 and 805), and the Commission has adopted these changes below on the same basis.

201. The Commission adopts NMED's proposal to change the bacterial criteria type and values based on EPA guidance. The segment currently has a primary contact designated use and criteria for fecal coliform bacteria of 100/100 mL (geometric mean) and 200/100 mL (single sample). These criteria translate to E. coli criteria of 126/100 mL (geometric mean), based upon an assumed illness rate of 8 illnesses per 1000 exposed persons, and 235/100 mL (single sample maximum), based upon beach area full body contact with a 75% confidence limit. NMED proposes to make similar changes in other segments for these reasons (Sections 104, 109, 112, 120, 121, 122, 203, 210, 214, 302, 304 and 406), and the Commission has adopted these changes below on the same basis.

20.6.4.103 RIO GRANDE BASIN - The main stem of the Rio Grande from the headwaters of Caballo [~~lake~~] reservoir upstream to Elephant Butte dam and perennial reaches of tributaries to the Rio Grande in Sierra and Socorro counties. [~~(Flow in this reach of the Rio Grande main stem is dependent upon release from Elephant Butte dam.)~~]

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

B. [~~Standards~~]Criteria:

(1) In any single sample: pH [~~shall be~~] within the range of 6.6 to 9.0[~~,~~] and temperature [~~shall not exceed~~] 25°C (77°F) or less. The use-specific numeric [~~standards~~] 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 fecal coliform bacteria shall not exceed 1,000/100 mL; no single sample shall exceed 2,000/100 mL~~]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 [~~20.6.4.13~~]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, XX-XX-05]

202. The Commission adopts NMED's proposal to amend the segment description because it moves Caballo Reservoir to a more appropriate section. The Commission adopts NMED's proposal to change the bacterial criteria type and values based on EPA guidance. The segment currently has a

secondary contact designated use and criteria for fecal coliform bacteria of 1000/100 mL (geometric mean) and 2000/100 mL (single sample). EPA guidance states that a secondary contact criterion five times the primary contact criterion is acceptable. Recent EPA guidance continues to recommend a secondary contact criterion five times the primary contact criterion for the geometric mean, but does not make a similar recommendation for a single sample maximum. Translating from fecal coliform to E. coli criteria, EPA guidance provides a range of acceptable values for E. coli based on projected illness rates. From this range, it is appropriate to select a geometric mean density of 548/100 mL, which is associated with an illness rate of 14 per 1000 persons exposed to bacteria in water by ingestion as a result of immersion, and a single sample maximum of 2507/100 mL for waters infrequently used for full body contact at a 95% confidence limit. NMED proposes to make similar changes in other segments for these reasons (Sections 113, 116, 124, 126, 128, 206, 207, 213, 219, 221, 308 and 310), and the Commission has adopted these changes below on the same basis.

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 [~~fishery~~] aquatic life.

B. [~~Standards~~]Criteria:

(1) At any sampling site: pH [~~shall be~~] within the range of 6.6 to 9.0[~~,~~] and temperature [~~shall not exceed~~] 32.2°C (90°F) or less[~~, and turbidity shall not exceed 50 NTU~~]. The use-specific numeric [~~standards~~]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 fecal coliform bacteria shall not exceed 100/100 mL; no single sample shall exceed 200/100 mL~~]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 [~~20.6.4.13~~]20.6.4.14 NMAC).

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

203. The Commission adopts NMED's proposal to amend the segment description because this segment properly includes Caballo Reservoir. The change does not affect the designated uses and criteria, except that the designated use of irrigation becomes irrigation storage, which is more appropriate given the reservoir's purpose.

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)[~~, the Jemez river from the Jemez pueblo boundary upstream to the Rio Guadalupe,~~] and intermittent [~~flow~~]water below the perennial reaches of the Rio Puerco [~~and Jemez river which~~]that enters the main stem of the Rio Grande.

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

B. [~~Standards~~]Criteria:

(1) In any single sample: pH [~~shall be~~] within the range of 6.6 to 9.0[~~;~~] and temperature [~~shall not exceed~~] 32.2°C (90°F) or less. The use-specific numeric [~~standards~~]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 fecal coliform bacteria shall not exceed 1,000/100 mL; no single sample shall exceed 2,000/100 mL~~]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 [~~20.6.4.13~~]20.6.4.14 NMAC).

(3) At mean monthly flows above 100 cfs, the monthly average concentration for: TDS [~~shall not exceed~~] 1,500 mg/L or less, sulfate [~~shall not exceed~~] 500 mg/L or less[~~;~~] and chloride [~~shall not exceed~~] 250 mg/L or less.

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

204. The Commission adopts NMED's proposal to move the reach of the Jemez River from the north boundary of Jemez Pueblo to the Rio Guadalupe from this section to Section 20.6.4.107. This 20-mile reach is 30 miles from Section 20.6.4.105 and contiguous to two reaches in Section 20.6.4.107. The segment change will upgrade the designated uses for this reach from secondary contact to primary contact and limited warmwater to coldwater aquatic life.

205. The Commission adopts NMED's proposal to move the Jemez River's intermittent flow into the Rio Grande to Section 20.6.4.106 because this reach enters the Rio Grande in Section 20.6.4.106 and is 15 miles from the upstream end of Section 20.6.4.105. The reach is short, consisting only of those portions of the Jemez River that lie outside of the Jemez Pueblo boundaries. The change will not affect any designated uses, but will result in an upgrade in bacterial criteria from secondary contact to primary contact.

206. The Commission rejects RGCDC's proposal to change the designated use to primary contact, as it does not want to encourage swimming in this segment, but accepts its proposal to change the criteria to primary contact. Swimming appears to be an existing use, and existing uses must be protected. This body extends up to Albuquerque and is more likely to be used because of population density and thus is different than a body in a less populated area. This conclusion was supported by photographic evidence of children in the water.

207. The Commission has adopted this approach of just setting primary contact criteria for numerous segments in the past, most recently the lower Rio Grande in segment 101, and EPA has approved this approach.

208. For the single sample maximum for E. coli, the Commission concludes that based on the evidence and to be consistent with a similar segment in Las Cruces, the appropriate assumption for the calculation is "lightly used" full body contact rather than "infrequently used" full body contact. This same assumption is made for segments in Section 106 and 110, below.

209. Commissioner Brandvold dissented and Commissioner Glass abstained because his employer holds a NPDES permit for a discharge into this segment.

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, [~~limited~~]marginal warmwater [~~fishery~~]aquatic life, livestock watering, wildlife habitat[~~,~~] and secondary contact.

B. [~~Standards~~]Criteria:

(1) In any single sample: dissolved oxygen [~~shall be~~] greater than 5.0 mg/L, pH [~~shall be~~] within the range of 6.6 to 9.0[~~,~~] and temperature [~~shall be~~] less than 32.2°C (90°F). The use-specific numeric [~~standards~~]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 fecal coliform bacteria shall not exceed 200/100 mL; no single sample shall exceed 400/100 mL~~]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 [~~20.6.4.13~~]20.6.4.14 NMAC).

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

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

210. The Commission adopts NMED's proposal to amend the segment description for the reasons described in Section 20.6.4.105. The Commission rejects RGCDC's proposal to change the designated use to primary contact, as it does not want to encourage swimming in this segment, but accepts its proposal to change the criteria to primary contact. Swimming appears to be an existing use, and existing uses must be protected. The Commission has adopted this approach of just setting primary contact criteria for numerous segments in the past, most recently the lower Rio Grande in segment 101, and EPA has approved this approach.

20.6.4.107 RIO GRANDE BASIN - The Jemez river from [~~its confluence with the Rio Guadalupe~~]the Jemez pueblo boundary upstream to [~~state highway 4~~]Soda dam near the town of Jemez Springs and perennial reaches of Vallecito creek.

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

B. [~~Standards~~]Criteria:

(1) In any single sample: temperature [~~shall not exceed~~] 25°C (77°F)[~~,~~] and pH [~~shall be~~] within the range of 6.6 to 8.8[~~, and turbidity shall not exceed 25 NTU~~]. The use-specific numeric [~~standards~~]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 fecal coliform bacteria shall not exceed 200/100 mL; no single sample shall exceed 400/100 mL~~]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 [~~20.6.4.13~~]20.6.4.14 NMAC).

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

211. The Commission adopts NMED's proposal to amend the segment description to include the Jemez River from the boundary of Jemez Pueblo upstream to the Rio Guadalupe because this segment is more appropriate here than Segment 20.6.4.105. The Commission adopts NMED's proposal to change the division point from "State highway 4" to "Soda dam" because it relies on a geologic rather than a cultural feature. Soda Dam is approximately 3/8 mile above the highway crossing. The use of highway crossings can cause ambiguity when highways are rerouted or renumbered. Because Soda Dam is less than 1/2 mile above the highway crossing, the changed segment is de minimis. In this segment, the change to the aquatic life use would result in a change of the temperature criterion from 20 degrees C to 25 degrees C. Considering the contributions of hot springs to the river at Soda Dam, this change appears to be reasonable.

212. The Commission adopts NMED's proposal to change the bacterial criteria type and values. The proposed changes are based on EPA guidance. This segment currently has a designated use of primary contact and criteria based upon EPA prior recommendations for fecal coliform bacteria of 200/100 mL (geometric mean) and 400/100 mL (single sample). The EPA primary contact recommendation for E. coli criteria is a geometric mean of 126/100 mL based upon an assumed illness rate of 8 illnesses per 1000 exposed persons. EPA guidance suggests a single sample maximum of 410/100 mL based upon lightly used full body contact with an upper 90% confidence limit. This criterion provides approximately the same level of protection provided by the existing fecal coliform criteria. NMED proposes to make similar changes in other segments for these reasons (Sections 114, 117, 127, 205, 212, 216, 218, 220, 403, 501, 502 and 602), and the Commission has adopted these changes below on the same basis.

20.6.4.108 RIO GRANDE BASIN - [~~The~~] Perennial reaches of the Jemez river and all its tributaries above [~~state highway 4~~] 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 [~~fishery~~]aquatic life, irrigation, livestock watering, wildlife habitat[~~,~~] and secondary contact.

B. [~~Standards~~]Criteria:

(1) In any single sample: [~~conductivity shall not exceed~~]specific conductance 400 µmhos/cm or less, pH [~~shall be~~] within the range of 6.6 to 8.8[~~,~~] and temperature [~~shall not exceed~~] 20°C (68°F) or less[~~, and turbidity shall not exceed 25 NTU~~]. The use-specific numeric [~~standards~~]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 fecal coliform bacteria shall not exceed 100/100 mL; no single sample shall exceed 200/100 mL~~]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 [~~20.6.4.13~~]20.6.4.14 NMAC).
[20.6.4.108 NMAC - Rp 20 NMAC 6.1.2106, 10-12-00; A, XX-XX-05]
[NOTE: The segment covered by this section was divided effective XX-XX-05. The standards for the additional segment are under 20.6.4.124 NMAC.]

213. The Commission adopts NMED's proposal to amend the segment description because it applies the designated uses to perennial reaches and changes the reference from "state highway 4" to "Soda dam" to use a geologic rather than a cultural feature. Currently, this segment includes all tributaries in the Jemez and Guadalupe River watersheds, instead of just perennial waters. Intermittent reaches will be covered by new Section 20.6.4.98. The Commission adopts NMED's proposal to move Sulphur Creek to a new section to reflect its unique conditions for the reasons stated in Section 20.6.4.124.

214. The Commission adopts NMED's proposal to change the bacterial criteria type and values. The proposed changes are based on EPA guidance. The segment currently has a secondary contact designated use and more stringent primary contact criteria for fecal coliform bacteria of 100/100 mL (geometric mean) and 200/100 mL (single sample). These criteria translate to E. coli criteria of 126/100 mL (geometric mean) and 235/100 mL (single sample). NMED's proposal to make similar changes in other segments is adopted for these reasons (Section 115, 119, 121, 123, 209, 215, 309, 405, 407, 503, 603, 701, 702, 801, 802, 803, and 804), and the Commission adopts those changes below on the same basis.

20.6.4.109 RIO GRANDE BASIN - Perennial reaches of Bluewater creek, Rio Moquino, Seboyeta creek, Rio Paguate, the Rio Puerco [~~within the Santa Fe national forest~~]above 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.

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

B. [~~Standards~~]Criteria:

(1) In any single sample: pH shall be within the range of 6.6 to 8.8, temperature [~~shall not exceed~~] 20°C (68°F) or less[,] and total phosphorus (as P) [~~shall not exceed~~] 0.1 mg/L[~~, and turbidity shall not exceed 25 NTU~~]. The use-specific numeric [~~standards~~]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 fecal coliform bacteria shall not exceed 100/100 mL; no single sample shall exceed 200/100 mL~~]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 [~~20.6.4.13~~]20.6.4.14 NMAC).
[20.6.4.109 NMAC - Rp 20 NMAC 6.1.2107, 10-12-00; A, XX-XX-05]

215. The Commission adopts NMED's proposal to amend the segment description to include the perennial reaches downstream from the Santa Fe national forest boundary because these perennial reaches are currently either unclassified or a part of Section 20.6.4.105 and are logically included

with the adjacent segment. The most logical hydrologic feature to use as a division point is Arroyo San Jose.

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 contact, coldwater [~~fishery~~]aquatic life[~~,~~] and warmwater [~~fishery~~]aquatic life.

B. [~~Standards~~]Criteria:

(1) In any single sample: pH [~~shall be~~] within the range of 6.6 to 9.0[~~,~~] and temperature [~~shall not exceed~~] 25°C (77°F) or less. The use-specific numeric [~~standards~~]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 fecal coliform bacteria shall not exceed 200/100 mL; no single sample shall exceed 400/100 mL~~]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 [~~20.6.4.13~~]20.6.4.14 NMAC).

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

216. The Commission rejects RGCDC's proposal to change the designated use to primary contact, as it does not want to encourage swimming in this segment, but accepts its proposal to change the criteria to primary contact. Swimming appears to be an existing use, and existing uses must be protected. The Commission has adopted this approach of just setting primary contact criteria for numerous segments in the past, most recently the lower Rio Grande in segment 101, and EPA has approved this approach.

20.6.4.111 RIO GRANDE BASIN - Perennial reaches of Las Huertas [~~and San Pedro creeks~~]creek.

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

B. [~~Standards~~]Criteria:

(1) In any single sample: pH [~~shall be~~] within the range of 6.6 to 8.8[~~,~~] and temperature [~~shall not exceed~~] 25°C (77°F) or less. The use-specific numeric [~~standards~~]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 fecal coliform bacteria shall not exceed 200/100 mL; no single sample shall exceed 400/100 mL~~]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 [~~20.6.4.13~~]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, XX-XX-05]

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

217. Los Placitas Association ("LPA") proposes to change the designated use for the perennial reaches of Las Huertas Creek from coldwater to high quality coldwater aquatic life because the evidence supports high quality coldwater as an existing use. LPA submitted evidence of water quality and macroinvertebrates in Las Huertas Creek demonstrating that high quality coldwater aquatic life is the existing use. The high quality coldwater aquatic life use is protected by a criterion for specific conductance between 300 and 1500 umhos/cm. See Section 20.6.4.900.H(1). The data indicates that the specific conductance in Las Huertas Creek is generally below 500 umhos. Conversely,

there is no evidence that San Pedro Creek has an existing use of high quality coldwater aquatic life, nor has LPA attempted to demonstrate that the high quality coldwater aquatic life is an attainable use. It is appropriate to place San Pedro Creek in a separate segment with its current uses and criteria.

20.6.4.112 RIO GRANDE BASIN - Cochiti reservoir.

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

B. [~~Standards~~]Criteria:

(1) At any sampling site: pH [~~shall be~~] within the range of 6.6 to 9.0[~~,~~] and temperature [~~shall not exceed~~] 25°C (77°F)[~~, and turbidity shall not exceed 25 NTU~~]. The use-specific numeric [~~standards~~]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 fecal coliform bacteria shall not exceed 100/100 mL; no single sample shall exceed 200/100 mL~~]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 [~~20.6.4.13~~]20.6.4.14 NMAC).

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

218. The Commission adopts changes proposed by NMED and already described above.

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

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

B. [~~Standards~~]Criteria:

(1) In any single sample: pH [~~shall be~~] within the range of 6.6 to 9.0, temperature [~~shall not exceed~~] 30°C (86°F) or less[~~,~~] [~~turbidity shall not exceed 50 NTU,~~] and dissolved oxygen [~~shall not be less than~~] 4.0 mg/L or more. Dissolved oxygen [~~shall not be less than~~] 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 the dissolved oxygen saturation value, the dissolved oxygen saturation value will be used in calculating the 24-hour average. The dissolved oxygen saturation value shall be determined from the table set out in Subsection [~~P~~]N of 20.6.4.900 NMAC. The use-specific numeric [~~standards~~]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 fecal coliform bacteria shall not exceed 1,000/100 mL; no single sample shall exceed 2,000/100 mL~~]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 [~~20.6.4.13~~]20.6.4.14 NMAC).

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

219. The Commission adopts NMED's proposal to amend the segment description to limit the designated uses to perennial reaches because the intermittent reaches are properly covered by new Section 20.6.4.98.

20.6.4.114 RIO GRANDE BASIN - The main stem of the Rio Grande from the headwaters of Cochiti reservoir upstream to [~~Taos Junction bridge~~]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, the Santa Cruz river below Santa Cruz dam, the Rio Tesuque below the Santa Fe national forest and the Pojoaque river below Nambe dam.

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

B. [~~Standards~~]Criteria:

(1) In any single sample: pH [~~shall be~~] within the range of 6.6 to 9.0[~~,~~] and temperature [~~shall not exceed~~] 22°C (71.6°F) or less[~~, and turbidity shall not exceed 50 NTU~~]. The use-specific numeric

[~~standards~~]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 fecal coliform bacteria shall not exceed 200/100 mL; no single sample shall exceed 400/100 mL~~]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 [~~20.6.4.13~~]20.6.4.14 NMAC).

(3) At mean monthly flows above 100 cfs, the monthly average concentration for: TDS [~~shall not exceed~~] 500 mg/L or less, sulfate [~~shall not exceed~~] 150 mg/L or less[,] and chloride [~~shall not exceed~~]25 mg/L or less.

[20.6.4.114 NMAC - Rp 20 NMAC 6.1.2111, 10-12-00; A, XX-XX-05]

220. The Commission adopts NMED's proposal to replace "Taos Junction Bridge" with "Rio Pueblo de Taos" because the division point relies on a hydrologic rather than a cultural feature. The use of highway crossings can cause ambiguity when highways are rerouted or renumbered. The confluence of Rio Pueblo de Taos lies approximately 1/4 mile upstream from the bridge, and therefore constitutes a de minimis change.

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 [~~fishery~~]aquatic life, livestock watering, wildlife habitat[,] and secondary contact.

B. [~~Standards~~]Criteria:

(1) In any single sample: [~~conductivity shall not exceed~~]specific conductance 300 µmhos/cm or less, pH [~~shall be~~] within the range of 6.6 to 8.8[,]and temperature [~~shall not exceed~~] 20°C (68°F) or less[~~, and turbidity shall not exceed 10 NTU~~]. The use-specific numeric [~~standards~~]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 fecal coliform bacteria shall not exceed 100/100 mL; no single sample shall exceed 200/100 mL~~]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 [~~20.6.4.13~~]20.6.4.14 NMAC).

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

221. The Commission adopts NMED's proposal to amend the segment description to limit the designated uses to perennial reaches because the intermittent reaches are properly covered by new Section 20.6.4.98.

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 [~~fishery~~]aquatic life, warmwater [~~fishery~~]aquatic life[,] and secondary contact.

B. [~~Standards~~]Criteria:

(1) In any single sample: pH [~~shall be~~] within the range of 6.6 to 8.8[,] and temperature [~~shall not exceed~~] 31°C (87.8°F) or less. The use-specific numeric [~~standards~~]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 fecal coliform bacteria shall not exceed 1,000/100 mL; no single sample shall exceed 2,000/100 mL~~]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 [~~20.6.4.13~~]20.6.4.14 NMAC).

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

222. The Commission adopts NMED's proposal to amend the segment description to limit the designated uses to perennial reaches because the intermittent reaches are properly covered by new Section 20.6.4.98.

20.6.4.117 RIO GRANDE BASIN - Abiquiu reservoir.

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

B. [~~Standards~~]Criteria:

(1) At any sampling site: pH [~~shall be~~] within the range of 6.6 to 8.8[~~,~~] and temperature [~~shall not exceed~~] 25°C (77°F) or less. The use-specific numeric [~~standards~~]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 fecal coliform bacteria shall not exceed 100/100 mL; no single sample shall exceed 200/100 mL~~]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 [~~20.6.4.13~~]20.6.4.14 NMAC).

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

223. The Commission adopts changes proposed by NMED and already described above.

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 [~~fishery~~]aquatic life, warmwater [~~fishery~~]aquatic life[~~,~~] and secondary contact.

B. [~~Standards~~]Criteria:

(1) In any single sample: pH [~~shall be~~] within the range of 6.6 to 8.8[~~,~~] and temperature [~~shall not exceed~~] 26°C (78.8°F) or less. The use-specific numeric [~~standards~~]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 fecal coliform bacteria shall not exceed 200/100 mL; no single sample shall exceed 400/100 mL~~]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 [~~20.6.4.13~~]20.6.4.14 NMAC).

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

224. The Commission adopts NMED's proposal to amend the segment description to limit the designated uses to perennial reaches because the intermittent reaches are properly covered by new Section 20.6.4.98.

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 [~~fishery~~]aquatic life, irrigation, livestock watering, wildlife habitat[~~,~~] and secondary contact.

B. [~~Standards~~]Criteria:

(1) In any single sample: [~~conductivity shall not exceed~~]specific conductance 500 µmhos/cm or less (1,000 µmhos or less for Coyote creek), pH [~~shall be~~] within the range of 6.6 to 8.8[~~,~~] and temperature [~~shall not exceed~~] 20°C (68°F) or less[~~, and turbidity shall not exceed 25 NTU~~]. The use-specific numeric [~~standards~~]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 fecal coliform bacteria shall not exceed 100/100 mL; no single sample shall exceed 200/100 mL~~]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 [~~20.6.4.13~~]20.6.4.14 NMAC).

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

225. The Commission adopts changes proposed by NMED and already described above.

20.6.4.120 RIO GRANDE BASIN - El Vado and Heron reservoirs.

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

B. [~~Standards~~]Criteria:

(1) At any sampling site: pH [~~shall be~~] within the range of 6.6 to 8.8[~~,~~] and temperature [~~shall not exceed~~] 20°C (68°F) or less[~~, and turbidity shall not exceed 25 NTU~~]. The use-specific numeric [~~standards~~]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 fecal coliform bacteria shall not exceed 100/100 mL; no single sample shall exceed 200/100 mL~~]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 [~~20.6.4.13~~]20.6.4.14 NMAC).

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

226. The Commission adopts changes proposed by NMED and already described above.

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.

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

B. [~~Standards~~]Criteria:

(1) In any single sample: [~~conductivity shall not exceed~~]specific conductance 300 µmhos/cm or less, pH [~~shall be~~] within the range of 6.6 to 8.8[~~,~~] and temperature [~~shall not exceed~~] 20°C (68°F) or less[~~, and turbidity shall not exceed 10 NTU~~]. The use-specific numeric [~~standards~~]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 fecal coliform bacteria shall not exceed 100/100 mL; no single sample shall exceed 200/100 mL~~]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 [~~20.6.4.13~~]20.6.4.14 NMAC).

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

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

227. The Commission adopts changes proposed by NMED and already described above.

20.6.4.122 RIO GRANDE BASIN - The main stem of the Rio Grande from [~~Taos Junction bridge~~]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 [~~fishery~~]aquatic life, fish culture, irrigation, livestock watering, wildlife habitat[~~,~~] and primary contact.

B. [~~Standards~~]Criteria:

(1) In any single sample: pH [~~shall be~~] within the range of 6.6 to 8.8[~~,~~] and temperature [~~shall not exceed~~] 20°C (68°F) or less[~~, and turbidity shall not exceed 50 NTU~~]. The use-specific numeric [~~standards~~]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 fecal coliform bacteria shall not exceed 100/100 mL; no single sample shall exceed 200/100 mL~~]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 [~~20.6.4.13~~]20.6.4.14 NMAC).

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

228. The Commission adopts changes proposed by NMED and already described above.

229. The Commission rejects AB's proposal of a new segment for the Red River from the fish hatchery to the mouth of Placer Creek with the designated use of high quality coldwater aquatic life. AB failed to present evidence to demonstrate that high quality coldwater aquatic life is either an

existing or attainable use. AB also failed to explain the legal basis for challenging a decision made 14 years ago.

20.6.4.123 RIO GRANDE BASIN - [~~The~~]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.

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

B. [~~Standards~~]Criteria:

(1) In any single sample: [~~conductivity shall not exceed~~]specific conductance 400 µmhos/cm or less (500 µmhos or less for the Rio Fernando de Taos)[,] and pH [~~shall be~~] within the range of 6.6 to 8.8, temperature [~~shall not exceed~~] 20°C (68°F) or less[~~, and turbidity shall not exceed 25 NTU~~]. For the Red river in this segment, total phosphorus (as P) less than 0.1 mg/L. The use-specific numeric [~~standards~~]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 fecal coliform bacteria shall not exceed 100/100 mL; no single sample shall exceed 200/100 mL~~]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 [~~20.6.4.13~~]20.6.4.14 NMAC).

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

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

230. The Commission adopts NMED's proposal to amend the segment description to limit the designated uses to perennial reaches because the intermittent reaches are properly covered by new Section 20.6.4.98.

231. The Commission adopts NMED's proposed numeric segment-specific criterion for total phosphorus for the Red River (and for the Rio Hondo in segment 129) because it corrects an inadvertent error. The criterion was applicable to these streams until the 1998 triennial review, when it was inadvertently removed. Similar segment-specific criteria for total phosphorus are currently applicable to Sections 109, 208, 404, 406, and 407.

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 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, XX-XX-05]

232. 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.

233. The Commission rejects AB's proposal to replace "limited aquatic life" with "aquatic life" and to exclude the chronic criteria in Section 20.6.4.900.J for the reasons stated in Section 20.6.4.HH, and there is no reason to adopt the second proposal if the first is not adopted.

20.6.4.125 RIO GRANDE BASIN - Perennial reaches of San Pedro creek.

A. Designated Uses: coldwater aquatic life, irrigation, 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 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).

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

234. The Commission adopts this new segment for San Pedro Creek for the reasons set out above in paragraph 210, above; see Segment 111.

20.6.4.126 RIO GRANDE BASIN - Perennial portions of Cañon deValle 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.

(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, XX-XX-05]

235. Both UC and NMED proposed to segment and adopt segment-specific standards for waters within or near LANL. The segments, set out now as segments 126, 127 and 128, are identical, but different designated uses and criteria were urged in this segment.

236. The Commission adopts this new segment to classify waters based upon an intensive study by the USFWS. The study supports the designated uses of coldwater aquatic life, wildlife habitat, secondary contact, and livestock watering. The aquatic life, wildlife habitat and recreation uses are required by CWA Section 101(a)(2) unless a UAA supports not designating them. For this segment, coldwater is the appropriate subcategory of aquatic life use because it is supported by the USFWS report and is consistent with the aquatic life use in adjacent Section 20.6.4.121, which includes tributaries of the Rio Grande in Bandelier National Monument (where high quality coldwater is the designated use). For this segment, secondary contact is the appropriate

subcategory of recreation because full-body contact in these small streams is unlikely and infrequent, and if it does occur the proposed criteria offer a proper level of protection. Finally, the uses of wildlife habitat and livestock watering are appropriate. The WQCC has historically presumed these uses for all unclassified surface waters. There is no question about wildlife using these streams. There also is evidence that livestock watering is an existing use. Laboratory publications acknowledge the presence of livestock on or adjacent to this segment, including horseback riding, cattle grazing and free-range chickens and dairy goats. The designation of livestock watering is based on both the existing use of these waters by livestock, as well as for the protection of downstream livestock watering uses.

237. The Commission rejects UC's proposal to designate just limited aquatic life because USFWS demonstrated that shellfish typically found in coldwater aquatic communities is present in these streams. The coldwater subcategory is intended for "the protection and propagation of fish, shellfish and wildlife." Accordingly, the presence of shellfish indicative of a coldwater aquatic community establishes an existing use, even in the absence of fish. In addition, the USFWS documented existing macroinvertebrate communities in all of these streams (except Water Canyon). These macroinvertebrate communities (except Sandia Canyon) compare favorably (only slightly impaired or full support - impacts observed) to Upper Los Alamos Canyon, a coldwater fishery at the time of the study. The USFWS also determined that eight species in Los Alamos and Pajarito Canyons (identified by NMED) were classified by the Idaho Department of Environmental Quality (DEQ) as preferring coldwater. Moreover, the Laboratory's invertebrate data included several species that prefer coldwater in Los Alamos, Pajarito, Sandia and Chaquehui Canyons. Finally, to the extent that the absence of fish is relevant to the subcategory designation, the term "existing use" has a broader meaning than "existing on this date". The absence of fish in 2003 is not the benchmark for designation of an aquatic life use.

238. The Commission rejects UC's proposal not to designate the livestock watering use on the basis that it is not an existing or attainable use because livestock are not permitted on Laboratory property and will not be in the foreseeable future, pointing to fencing and security patrols as evidence of an intent to exclude livestock. The evidence indicates that livestock continue to use

streams on Laboratory property despite UC's intent to exclude them; NMED has observed tracks, feces, wallows, and overgrazing, and has discussed the impacts of livestock grazing on surface water on Laboratory property with UC representatives. Accordingly, livestock watering is an existing use, and cannot be removed without a UAA.

239. At the hearing, UC suggested the streams in this segment could be divided between lower reaches used by livestock and upper reaches that are not used by livestock. It suggested that the division points could be based on "breaks in the slopes and positions of the springs." UC did not make any proposal to this effect, however, and the Commission will not adopt such a division after the hearing in the absence of an earlier proposal.

240. The Commission rejects UC's proposed dissolved oxygen (DO) criterion of 5 mg/l for Pajarito Canyon, Starmers Gulch and Water Canyon, and 4 mg/l for Canon de Vale and Sandia Canyon, and adopts NMED's proposed DO criterion of 6 mg/l for all waters in this segment in order to protect the designated use of coldwater aquatic life.

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, XX-XX-05]

241. The Commission adopts another new segment proposed by NMED and UC, for the same reasons as set out above in paragraphs 235-236. The proposed uses are appropriate, as discussed above. The only difference involves the designated use of primary contact, which is based on evidence of swimming in Los Alamos Reservoir.

242. The Commission has adopted NMED's proposed "aquatic life" designation elsewhere, so rejects UC's retention of the "fishery" designation.

20.6.4.128 RIO GRANDE BASIN - Ephemeral and intermittent portions of watercourses within lands managed by U.S. department of energy (DOE) within Los Alamos national laboratory, 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 the designated uses listed 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 acute total ammonia criteria set forth in section 20.6.4.900.K (Salmonids Absent) are applicable to this use.

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

243. The Commission adopts another new segment proposed by NMED and UC, for the same reasons as set out above in paragraphs 235-236. The proposed uses are appropriate, as discussed above.

244. The Commission adopts UC's proposed acute total ammonia criteria for this segment in order to identify the applicable criteria.

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 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, 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.

(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, XX-XX-05]

245. The Commission adopts NMED's proposal to create a new segment and to restore the phosphorous criterion removed inadvertently in the 1998 triennial review. The designated uses and associated criteria have been carried forward from the original segment; see segment 123, above.

20.6.4.130 - 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 contact[~~,~~] and warmwater [~~fishery~~]aquatic life.

B. **[~~Standards~~]Criteria**:

(1) In any single sample: pH [~~shall be~~] within the range of 6.6 to 9.0 and temperature [~~shall not exceed~~] 32.2°C (90°F) or less. The use-specific numeric [~~standards~~]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 fecal coliform bacteria shall not exceed 200/100 mL; no single sample shall exceed 400/100 mL~~]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 [~~20.6.4.13~~]20.6.4.14 NMAC).

(3) At all flows above 50 cfs: TDS [~~shall not exceed~~]20,000 mg/L or less, sulfate [~~shall not exceed~~]3,000 mg/L[~~,~~] or less and chloride [~~shall not exceed~~]10,000 mg/L or less.

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

246. The Commission adopts changes proposed by NMED and already described above.

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 [~~(diversion for irrigation frequently limits summer flow in this reach to that contributed by springs along the watercourse)~~], 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 contact[~~,~~] and warmwater [~~fishery~~]aquatic life.

B. [~~Standards~~]Criteria:

(1) In any single sample: pH [~~shall be~~] within the range of 6.6 to 9.0[~~,~~] and temperature [~~shall not exceed~~] 34°C (93.2°F) or less. The use-specific numeric [~~standards~~]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 fecal coliform bacteria shall not exceed 200/100 mL; no single sample shall exceed 400/100 mL~~]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 [~~20.6.4.13~~]20.6.4.14 NMAC).

(3) At all flows above 50 cfs: TDS [~~shall not exceed~~]8,500 mg/L or less, sulfate [~~shall not exceed~~]2,500 mg/L or less[~~,~~] and chloride [~~shall not exceed~~]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, XX-XX-05]

[NOTE: The segment covered by this section was divided effective XX-XX-05. The standards for the additional segment are under 20.6.4.218 NMAC.]

247. The Commission adopts NMED's proposal to amend the segment description to limit the designated uses to perennial reaches because the nonperennial reaches are properly covered by new Section 20.6.4.98.

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

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

B. [~~Standards~~]Criteria:

(1) [~~At any sampling site~~]In any single sample: pH [~~shall be~~] within the range of 6.6 to 9.0[~~,~~] and temperature [~~shall not exceed~~] 34°C (93.2°F) or less[~~, and turbidity shall not exceed 25 NTU~~]. The use-specific numeric [~~standards~~]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 fecal coliform bacteria shall not exceed 100/100 mL; no single sample shall exceed 200/100 mL~~]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 [~~20.6.4.13~~]20.6.4.14 NMAC).

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

[NOTE: The segment covered by this section was divided effective XX-XX-05. The standards for the additional segment are under 20.6.4.219 NMAC.]

248. The Commission adopts changes proposed by NMED and already described above.

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

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

B. [~~Standards~~]Criteria:

(1) [~~At any sampling site~~]In any single sample: pH [~~shall be~~] within the range of 6.6 to 9.0[~~,~~] and temperature [~~shall not exceed~~] 32.2°C (90°F) or less. The use-specific numeric [~~standards~~]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 fecal coliform bacteria shall not exceed 1,000/100 mL; no single sample shall exceed 2,000/100 mL~~]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 [~~20.6.4.13~~]20.6.4.14 NMAC).
[20.6.4.204 NMAC - Rp 20 NMAC 6.1.2204, 10-12-00; A, XX-XX-05]

249. The Commission adopts changes proposed by NMED and already described above.

20.6.4.205 PECOS RIVER BASIN - Brantley reservoir.

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

B. [~~Standards~~]Criteria:

(1) At any sampling site: pH [~~shall be~~] within the range of 6.6 to 9.0[,] and temperature [~~shall not exceed~~] 32.2°C (90°F) or less. The use-specific numeric [~~standards~~]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 fecal coliform bacteria shall not exceed 200/100 mL; no single sample shall exceed 400/100 mL~~]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 [~~20.6.4.13~~]20.6.4.14 NMAC).
[20.6.4.205 NMAC - Rp 20 NMAC 6.1.2205, 10-12-00; A, XX-XX-05]

250. The Commission adopts changes proposed by NMED and already described above.

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, [~~any flow at the mouth of~~] perennial reaches of the Rio Hondo and its tributaries below Bonney canyon and [~~any flow from~~] perennial reaches of the Rio Felix[~~, which enters the main stem of the Pecos river~~].

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

B. [~~Standards~~]Criteria:

(1) In any single sample: pH [~~shall be~~] within the range of 6.6 to 9.0 and temperature [~~shall not exceed~~] 32.2°C (90°F) or less. The use-specific numeric [~~standards~~]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 fecal coliform bacteria shall not exceed 1,000/100 mL; no single sample shall exceed 2,000/100 mL~~]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 [~~20.6.4.13~~]20.6.4.14 NMAC).

(3) At all flows above 50 cfs: TDS [~~shall not exceed~~] 14,000 mg/L or less, sulfate [~~shall not exceed~~] 3,000 mg/L or less[,] and chloride [~~shall not exceed~~] 6,000 mg/L or less.
[20.6.4.206 NMAC - Rp 20 NMAC 6.1.2206, 10-12-00; A, XX-XX-05]

251. The Commission adopts NMED's proposal to amend the segment description to limit the designated uses to perennial reaches because the nonperennial reaches are properly covered by new Section 20.6.4.98.

252. The Commission adopts NMED's proposal to identify the segment terminus at Bonney Canyon because it eliminates a possible conflict with Section 20.6.4.208.

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, [~~limited~~]marginal warmwater [~~fishery~~]aquatic life, livestock watering, wildlife habitat[,] and secondary contact.

B. [~~Standards~~]Criteria:

(1) In any single sample: pH [~~shall be~~] within the range of 6.6 to 9.0 and temperature [~~shall not exceed~~] 32.2°C (90°F) or less. The use-specific numeric [~~standards~~]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 fecal coliform bacteria shall not exceed 1,000/100 mL; no single~~

~~sample shall exceed 2,000/100 mL~~]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 [~~20.6.4.13~~]20.6.4.14 NMAC).

(3) At all flows above 50 cfs: TDS [~~shall not exceed~~] 8,000 mg/L or less, sulfate [~~shall not exceed~~] 2,500 mg/L or less[~~,~~] and chloride [~~shall not exceed~~] 4,000 mg/L or less.

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

253. The Commission adopts changes proposed by NMED and already described above.

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 [~~fishery~~]aquatic life[~~,~~] and secondary contact.

B. [~~Standards~~]Criteria:

(1) In any single sample: pH [~~shall be~~] within the range of 6.6 to 8.8, temperature [~~shall not exceed~~] 30°C (86°F) or less and total phosphorus (as P) [~~shall be~~] less than 0.1 mg/L. The use-specific numeric [~~standards~~]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 fecal coliform bacteria shall not exceed 200/100 mL; no single sample shall exceed 400/100 mL~~]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 [~~20.6.4.13~~]20.6.4.14 NMAC).

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

254. The Commission adopts NMED's proposal to amend the segment description to limit the designated uses to perennial reaches because the nonperennial reaches are properly covered by new Section 20.6.4.98.

20.6.4.209 PECOS RIVER BASIN - Perennial reaches of Eagle creek above Alto reservoir, 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.

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

B. [~~Standards~~]Criteria:

(1) In any single sample: [~~conductivity shall not exceed~~]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 [~~shall be~~]within the range of 6.6 to 8.8, total phosphorus (as P) less than 0.1 mg/L and temperature [~~shall not exceed~~] 20°C (68°F) or less[~~, and turbidity shall not exceed 10 NTU~~]. The use-specific numeric [~~standards~~]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 fecal coliform bacteria shall not exceed 100/100 mL; no single sample shall exceed 200/100 mL~~]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 [~~20.6.4.13~~]20.6.4.14 NMAC).

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

255. The Commission adopts NMED's proposal to add a phosphorous criterion because it restores a criterion that was removed inadvertently in the 1998 triennial review.

256. The Commission adopts NMED's proposal to amend the segment description to limit the designated uses to perennial reaches because the nonperennial reaches are properly covered by new Section 20.6.4.98.

20.6.4.210 PECOS RIVER BASIN - Sumner reservoir.

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

B. [~~Standards~~]Criteria:

(1) At any sampling site: pH [~~shall be~~] within the range of 6.6 to 9.0[~~,~~] and temperature [~~shall not exceed~~] 32.2°C (90°F) or less[~~, and turbidity shall not exceed 25 NTU~~]. The use-specific numeric [~~standards~~]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 fecal coliform bacteria shall not exceed 100/100 mL; no single sample shall exceed 200/100 mL~~]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 [~~20.6.4.13~~]20.6.4.14 NMAC).

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

257. The Commission adopts changes proposed by NMED and already described above.

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

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

B. [~~Standards~~]Criteria:

(1) In any single sample: pH [~~shall be~~] within the range of 6.6 to 9.0 and temperature [~~shall not exceed~~] 32.2°C (90°F) or less. The use-specific numeric [~~standards~~]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 fecal coliform bacteria shall not exceed 200/100 mL; no single sample shall exceed 400/100 mL~~]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 [~~20.6.4.13~~]20.6.4.14 NMAC).

(3) At all flows above 50 cfs: TDS [~~shall not exceed~~] 3,000 mg/L or less, sulfate [~~shall not exceed~~] 2,000 mg/L or less[~~,~~] and chloride [~~shall not exceed~~] 400 mg/L or less.

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

258. The Commission adopts NMED's proposal to amend the segment description because it uses Tecolote Creek as a break point rather than "Anton Chico," which describes an areal extent rather than a point, and causes ambiguity regarding the place where the segment changes.

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 [~~fishery~~]aquatic life, livestock watering, wildlife habitat[~~,~~] and primary contact.

B. [~~Standards~~]Criteria:

(1) In any single sample: pH [~~shall be~~] within the range of 6.6 to 8.8 and temperature [~~shall not exceed~~] 25°C (77°F) or less. The use-specific numeric [~~standards~~]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 fecal coliform bacteria shall not exceed 200/100 mL; no single sample shall exceed 400/100 mL~~]The monthly geometric mean of E. coli bacteria 126 cfu/100 mL or less; single sample 410 cfu/100 mL (see Subsection B of [~~20.6.4.13~~]20.6.4.14 NMAC).

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

259. The Commission adopts changes proposed by NMED and already described above.

20.6.4.213 PECOS RIVER BASIN - McAllister lake.

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

B. [~~Standards~~]Criteria:

(1) At any sampling site: pH [~~shall be~~] within the range of 6.6 to 8.8 and temperature [~~shall not exceed~~] 25°C (77°F) or less. The use-specific numeric [~~standards~~]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 fecal coliform bacteria shall not exceed 1,000/100 mL; no single sample shall exceed 2,000/100 mL~~]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 [~~20.6.4.13~~]20.6.4.14 NMAC).

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

260. The Commission adopts changes proposed by NMED and already described above.

20.6.4.214 PECOS RIVER BASIN - Storrie lake.

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

B. [~~Standards~~]Criteria:

(1) At any sampling site: pH [~~shall be~~] within the range of 6.6 to 8.8[~~,~~] and temperature [~~shall not exceed~~] 20°C (68°F) or less[~~, and turbidity shall not exceed 25 NTU~~]. The use-specific numeric [~~standards~~]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 fecal coliform bacteria shall not exceed 100/100 mL; no single sample shall exceed 200/100 mL~~]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 [~~20.6.4.13~~]20.6.4.14 NMAC).

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

261. The Commission adopts changes proposed by NMED and already described above.

20.6.4.215 PECOS RIVER BASIN - [~~The~~]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 [~~fishery~~]aquatic life, irrigation, livestock watering, wildlife habitat, municipal and industrial water supply[~~,~~] and secondary contact.

B. [~~Standards~~]Criteria:

(1) In any single sample: [~~conductivity shall not exceed~~]specific conductance 300 µmhos/cm or less except [~~conductivity shall not exceed~~]specific conductance 450 µmhos/cm or less in Wright Canyon creek, pH [~~shall be~~] within the range of 6.6 to 8.8[~~,~~] and temperature [~~shall not exceed~~]20°C (68°F) or less[~~, and turbidity shall not exceed 10 NTU~~]. The use-specific numeric [~~standards~~]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 fecal coliform bacteria shall not exceed 100/100 mL; no single sample shall exceed 200/100 mL~~]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 [~~20.6.4.13~~]20.6.4.14 NMAC).

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

262. The Commission adopts NMED's proposal to amend the segment description to limit the designated uses to perennial reaches because the nonperennial reaches are properly covered by new Section 20.6.4.98.

20.6.4.216 PECOS RIVER BASIN - The main stem of the Pecos river from [~~Anton Chico~~]Tecolote creek upstream to [~~the southern boundary of the Pecos national historical park~~]Cañon de Mazanita[~~, and perennial reaches of the Gallinas river from its mouth upstream to the diversion for the Las Vegas municipal reservoir~~].

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

B. [~~Standards~~]Criteria:

(1) In any single sample: pH [~~shall be~~] within the range of 6.6 to 9.0 and temperature [~~shall not exceed~~] 30°C (86°F) or less. The use-specific numeric [~~standards~~]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 fecal coliform bacteria shall not exceed 1,000/100 mL; no single sample shall exceed 2,000/100 mL~~]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 [~~20.6.4.13~~]20.6.4.14 NMAC).

(3) At all flows above 10 cfs: TDS [~~shall not exceed~~] 250 mg/L or less, sulfate [~~shall not exceed~~] 25 mg/L or less[~~,~~] and chloride [~~shall not exceed~~] 5 mg/L or less.

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

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

263. The Commission adopts NMED's proposal to change "Anton Chico" to "Tecolote Creek" for the reasons stated in Section 20.6.4.211.

264. The Commission adopts NMED's proposal to change the "boundary of Pecos National Historical Park" to" Cañon de Manzanita" because it relies on a hydrologic rather than a cultural feature. The park boundary does not appear on many maps, while the nearest downstream tributary is Cañon de Manzanita. To reflect evidence of swimming in this section, primary contact is added as a designated use.

265. The Commission adopts NMED's proposal to move the Gallinas River to a new section for the reasons stated in Section 20.6.4.220.

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 [~~the southern boundary of the Pecos national historical park~~]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 [~~fishery~~]aquatic life, irrigation, livestock watering, wildlife habitat[~~,~~] and secondary contact.

B. [~~Standards~~]Criteria:

(1) In any single sample: [~~conductivity shall not exceed~~]specific conductance 300 µmhos/cm or less, pH [~~shall be~~] within the range of 6.6 to 8.8[~~,~~] and temperature [~~shall not exceed~~] 20°C (68°F) or less[~~, and turbidity shall not exceed 10 NTU~~]. The use-specific numeric [~~standards~~]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 fecal coliform bacteria shall not exceed 100/100 mL; no single sample shall exceed 200/100 mL~~]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 [~~20.6.4.13~~]20.6.4.14 NMAC).

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

266. The Commission adopts NMED's proposal to amend the segment description to limit the designated uses to perennial reaches because the nonperennial reaches are properly covered by new Section 20.6.4.98.

267. The Commission adopts NMED's proposal to change the division point for the reasons stated in Section 20.6.4.216.

20.6.4.218 PECOS RIVER BASIN - 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.

(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, XX-XX-05]

268. The Commission adopts NMED's proposal to place the reservoirs in a separate section because the definition of "segment" in Section 20.6.4.7.PP indicates that the waters within a segment should have similar hydrologic characteristics or flow regimes, and natural physical, chemical and biological characteristics, and exhibit similar reactions to external stresses. Streams and reservoirs do not share many of these characteristics and therefore should not be included in the same segment. The designated uses and associated criteria have been carried forward from the original segment; see segment 202, above.

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, XX-XX-05]

269. The Commission adopts NMED's proposal to place the reservoirs in a separate section because the definition of "segment" in Section 20.6.4.7.PP indicates that the waters within a segment should have similar hydrologic characteristics or flow regimes, and natural physical, chemical and biological characteristics, and exhibit similar reactions to external stresses. Streams and reservoirs do not share many of these characteristics and therefore should not be included in the same segment. The designated uses and associated criteria have been carried forward from the original segment; see segment 203, above.

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. (see Subsection B of 20.6.4.14 NMAC)

(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, XX-XX-05]

270. The Commission adopts NMED's proposal to create a new section containing waters formerly in Section 20.6.4.216 because these waters share a distinct chemical quality attributable to the hot springs above the Village of Pecos and from Pecos Arroyo. Before 1991, the Gallinas River from its mouth upstream to the diversion for Las Vegas Municipal Reservoir was not included in the WQS. When the river was added, it was contained in Section 20.6.4.216 (formerly Section 20.6.4.2213). The assigned criteria for TDS, chloride, and sulfate and the flow limiter, which were derived from data developed for the main stem of the Pecos River, are not appropriate and should be removed.

271. The Commission adopts NMED's proposal to move Pecos Arroyo to new Section 20.6.4.221 because Pecos Arroyo has naturally high salinity that differs from the chemical quality of the waters in Section 20.6.4.220.

272. The Commission adopts NMED's proposal to designate the primary contact use because the evidence indicates that swimming near the hot springs is an existing use.

20.6.4.221 PECOS RIVER BASIN - Pecos Arroyo.

A. Designated Uses: livestock watering, wildlife habitat, warmwater aquatic life 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 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, XX-XX-05]

273. The Commission adopts changes proposed by NMED and already described above; see segments 216 and 220.

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 [~~which~~]that enters the main stem from Revuelto creek.

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

B. [~~Standards~~]Criteria:

(1) In any single sample: pH [~~shall be~~]within the range of 6.6 to 9.0, temperature [~~shall not exceed~~] 32.2°C (90°F) or less[~~,~~] and TDS [~~shall not exceed~~] 6,500 mg/L or less at flows above 25 cfs. The use-specific numeric [~~standards~~]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 fecal coliform bacteria shall not exceed 200/100 mL; no single sample shall exceed 400/100 mL~~] 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 [~~20.6.4.13~~]20.6.4.14 NMAC).
[20.6.4.301 NMAC - Rp 20 NMAC 6.1.2301, 10-12-00; A, XX-XX-05]

274. The Commission adopts changes proposed by NMED and already described above.

20.6.4.302 CANADIAN RIVER BASIN - Ute reservoir.

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

B. [~~Standards~~]Criteria:

(1) At any sampling site: pH [~~shall be~~] within the range of 6.6 to 9.0[~~, turbidity shall not exceed 25 NTU~~] and temperature [~~shall not exceed~~] 32.2°C (90°F) or less. The use-specific numeric [~~standards~~]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 fecal coliform bacteria shall not exceed 100/100 mL; no single sample shall exceed 200/100 mL~~]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 [~~20.6.4.13~~]20.6.4.14 NMAC).
[20.6.4.302 NMAC - Rp 20 NMAC 6.1.2302, 10-12-00; A, XX-XX-05]

275. The Commission adopts changes proposed by NMED and already described above.

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 [~~creek, and Ute creek and its~~] and Ute creeks and their perennial tributaries.

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

B. [~~Standards~~]Criteria:

(1) In any single sample: pH [~~shall be~~] within the range of 6.6 to 9.0[~~,~~] and temperature [~~shall not exceed~~]32.2°C (90°F) or less. The use-specific numeric [~~standards~~]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 fecal coliform bacteria shall not exceed 200/100 mL; no single sample shall exceed 400/100 mL~~]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 [~~20.6.4.13~~]20.6.4.14 NMAC).
[20.6.4.303 NMAC - Rp 20 NMAC 6.1.2303, 10-12-00; A, XX-XX-05]

276. The Commission adopts NMED's proposal to amend the segment to include the perennial tributaries of Pajarito Creek because the current language is ambiguous regarding whether these reaches are included.

277. The Commission adopts NMED's proposal to amend the segment description to limit the designated uses to perennial reaches because the nonperennial reaches are properly covered by new Section 20.6.4.98.

20.6.4.304 CANADIAN RIVER BASIN - Conchas reservoir.

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

B. [~~Standards~~]Criteria:

(1) At any sampling site: pH [~~shall be~~] within the range of 6.6 to 9.0[~~,~~] and temperature [~~shall not exceed~~] 32.2°C (90°F) or less[~~, and turbidity shall not exceed 25 NTU~~]. The use-specific numeric [~~standards~~]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 fecal coliform bacteria shall not exceed 100/100 mL; no single sample shall exceed 200/100 mL~~]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 [~~20.6.4.13~~]20.6.4.14 NMAC).

[20.6.4.304 NMAC - Rp 20 NMAC 6.1.2304, 10-12-00]

278. The Commission adopts changes proposed by NMED and already described above.

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, [~~limited~~]marginal warmwater [~~fishery~~]aquatic life, livestock watering, wildlife habitat[~~,~~] and secondary contact.

B. [~~Standards~~]Criteria:

(1) In any single sample: pH [~~shall be~~] within the range of 6.6 to 9.0, temperature [~~shall not exceed~~] 32.2°C (90°F) or less[~~,~~] and TDS [~~shall not exceed~~] 3,500 mg/L or less at flows above 10 cfs. The use-specific numeric [~~standards~~]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 fecal coliform bacteria shall not exceed 200/100 mL; no single sample shall exceed 400/100 mL~~]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 [~~20.6.4.13~~]20.6.4.14 NMAC).

[20.6.4.305 NMAC - Rp 20 NMAC 6.1.2305, 10-12-00]

279. The Commission adopts NMED's proposal to move the upper reaches of the Vermejo River to Section 20.6.4.309 because the Section 20.6.4.309 is the better location for these reaches.

280. The Commission adopts NMED's proposal to amend the segment description to limit the designated uses to perennial reaches because the nonperennial reaches are properly covered by new Section 20.6.4.98.

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 [~~fishery~~]aquatic life, livestock watering, wildlife habitat[~~,~~] and secondary contact.

B. [~~Standards~~]Criteria:

(1) In any single sample: pH [~~shall be~~] within the range of 6.6 to 9.0, temperature [~~shall not exceed~~] 32.2°C (90°F) or less[~~,~~] and TDS [~~shall not exceed~~] 3,500 mg/L or less at flows above 10 cfs. The use-specific numeric [~~standards~~]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 fecal coliform bacteria shall not exceed 200/100 mL; no single sample shall exceed 400/100 mL~~]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 [~~20.6.4.13~~]20.6.4.14 NMAC).

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

281. The Commission adopts changes proposed by NMED and already described above.

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 [~~fishery~~]aquatic life, warmwater [~~fishery~~]aquatic life, secondary contact, irrigation, livestock watering[~~,~~] and wildlife habitat.

B. [~~Standards~~]Criteria:

(1) [~~At any sampling site~~]In any single sample: temperature [~~shall not exceed~~] 25°C (77°F)[~~,~~] or less and pH [~~shall be~~] within the range of 6.6 to 9.0. The use-specific numeric [~~standards~~]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 fecal coliform bacteria shall not exceed 200/100 mL; no single sample shall exceed 400/100 mL~~]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 [~~20.6.4.13~~]20.6.4.14 NMAC).

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

282. The Commission adopts NMED's proposal to change the phrase "at any sampling site" to "in any single sample" because it is consistent with other sections.

20.6.4.308 CANADIAN RIVER BASIN - Charette lakes.

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

B. [~~Standards~~]Criteria:

(1) At any sampling site: pH [~~shall be~~] within the range of 6.6 to 8.8[~~,~~] and temperature [~~shall not exceed~~] 20°C (68°F) or less. The use-specific numeric [~~standards~~]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 fecal coliform bacteria shall not exceed 1,000/100 mL; no single sample shall exceed 2,000/100 mL~~]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 [~~20.6.4.13~~]20.6.4.14 NMAC).

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

283. The Commission adopts changes proposed by NMED and already described above.

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 [~~fishery~~]aquatic life, livestock watering, wildlife habitat, municipal and industrial water supply[~~,~~] and secondary contact.

B. [~~Standards~~]Criteria:

(1) In any single sample: [~~conductivity shall not exceed~~]specific conductance 500 µmhos/cm or less[~~ (at 25°C)~~], pH [~~shall be~~]within the range of 6.6 to 8.8[~~,~~] and temperature [~~shall not exceed~~] 20°C (68°F)[~~, and turbidity shall not exceed 25 NTU~~] or less. The use-specific numeric [~~standards~~]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 fecal coliform bacteria shall not exceed 100/100 m/L; no single sample shall exceed 200/100 mL~~]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 [~~20.6.4.13~~]20.6.4.14 NMAC).

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

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

284. The Commission adopts NMED's proposal to move the upper reaches of the Vermejo River to another section for the reasons described in Section 20.6.4.305.

285. The Commission adopts NMED's proposal to amend the segment description to limit the designated uses to perennial reaches because the nonperennial reaches are properly covered by new Section 20.6.4.98.

20.6.4.310 CANADIAN RIVER BASIN – Perennial reaches of Corrumpa 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, 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).

[20.6.4.310 NMAC - N, XX-XX-05]

286. The Commission adopts NMED's proposal to create a new segment because these waters are not correctly classified in Section 20.6.4.701. These waters include Corrumpa, Seneca, Apache, Perico, Carrizo and Tramperos Creeks, and other tributary creeks with perennial reaches. The designated uses and associated criteria have been carried forward from the original segment; see segment 309, above.

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 [~~point where the San Juan leaves New Mexico and enters Colorado~~]Navajo Nation boundary at the Hogback upstream to [~~U.S. highway 64 at Blanco, and any flow which enters the San Juan river from the Mancos and Chaco rivers~~]its confluence with the Animas river.

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

B. [~~Standards~~]Criteria:

(1) In any single sample: pH [~~shall be~~] within the range of 6.6 to 9.0[~~,~~] and temperature [~~shall not exceed~~] 32.2°C (90°F) or less. The use-specific numeric [~~standards~~]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 fecal coliform bacteria shall not exceed 200/100 mL; no single sample shall exceed 400/100 mL~~]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 [~~20.6.4.13~~]20.6.4.14 NMAC).

[20.6.4.401 NMAC - Rp 20 NMAC 6.1.2401, 10-12-00; A, XX-XX-05]

[NOTE: The segment covered by this section was divided effective XX-XX-05. The standards for the additional segment are under 20.6.4.408 NMAC.]

287. The Commission adopts NMED's proposal to split the segment at the confluence of the Animas River because the water quality of the San Juan River changes at its confluence with the Animas River.

288. The Commission adopts NMED's proposal to exclude the main stem of the San Juan River below the Hogback, the Mancos and Chaco Rivers because these waters are entirely within the Navajo Nation.

289. The Commission adopts NMED's proposal to move the division point between Sections 20.6.4.401 and 405 from U.S. Highway 64 at Blanco to Canyon Largo because it relies on a hydrologic feature rather than a cultural feature.

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, [~~limited~~]marginal warmwater [~~fishery~~]aquatic life, marginal coldwater [~~fishery~~]aquatic life, livestock watering, wildlife habitat[~~,~~] and secondary contact.

B. [~~Standards~~]Criteria:

(1) In any single sample: pH [~~shall be~~] within the range of 6.6 to 9.0 and temperature [~~shall not exceed~~] 32.2°C (90°F) or less. The use-specific numeric [~~standards~~]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 fecal coliform bacteria shall not exceed 200/100 mL; no single sample shall exceed 400/100 mL~~]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 [~~20.6.4.13~~]20.6.4.14 NMAC).

[20.6.4.402 NMAC - Rp 20 NMAC 6.1.2402, 10-12-00; A, XX-XX-05]

290. The Commission adopts changes proposed by NMED and already described above.

20.6.4.403 SAN JUAN RIVER BASIN - The Animas river from its confluence with the San Juan upstream to [~~U.S. highway 550 at Aztec~~]Estes Arroyo.

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

B. [~~Standards~~]Criteria:

(1) In any single sample: pH [~~shall be~~] within the range of 6.6 to 9.0[~~,~~] and temperature [~~shall not exceed~~] 27°C (80.6°F) or less. The use-specific numeric [~~standards~~]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 fecal coliform bacteria shall not exceed 200/100 mL; no single sample shall exceed 400/100 mL~~]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 [~~20.6.4.13~~]20.6.4.14 NMAC).

[20.6.4.403 NMAC - Rp 20 NMAC 6.1.2403, 10-12-00; A, XX-XX-05]

291. The Commission adopts NMED's proposal to change the segment description because it relies on hydrologic rather than a cultural feature.

292. The Commission adopts NMED's proposal to upgrade the designated use from secondary to primary contact because the evidence demonstrates that swimming is an existing use.

20.6.4.404 SAN JUAN RIVER BASIN - The Animas river from [~~U.S. highway 550 at Aztec~~]Estes Arroyo upstream to the New Mexico-Colorado line.

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

B. [~~Standards~~]Criteria:

(1) In any single sample: pH [~~shall be~~] within the range of 6.6 to 8.8, temperature [~~shall not exceed~~] 20°C (68°F) or less[~~,~~] and total phosphorus (as P) [~~shall not exceed~~]0.1 mg/L or less. The use-specific numeric

[~~standards~~]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 fecal coliform bacteria shall not exceed 200/100 mL; no single sample shall exceed 400/100 mL~~]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 [~~20.6.4.13~~]20.6.4.14 NMAC).

[20.6.4.404 NMAC - Rp 20 NMAC 6.1.2404, 10-12-00; A, XX-XX-05]

293. The Commission adopts NMED's proposal to amend the segment description because it relies on a hydrologic rather than a cultural feature.

20.6.4.405 SAN JUAN RIVER BASIN - The main stem of the San Juan river from [~~U.S. highway 64 at Blanco~~]Canyon Largo upstream to the Navajo dam.

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

B. [~~Standards~~]Criteria:

(1) In any single sample: [~~conductivity shall not exceed~~]specific conductance 400 µmhos/cm or less[~~(at 25°C)~~], pH [~~shall be~~] within the range of 6.6 to 8.8[~~,~~] and temperature [~~shall not exceed~~] 20°C (68°F)[~~, and turbidity shall not exceed 10 NTU~~] or less. The use-specific numeric [~~standards~~]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 fecal coliform bacteria shall not exceed 100/100 mL; no single sample shall exceed 200/100 mL~~]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 [~~20.6.4.13~~]20.6.4.14 NMAC).

[20.6.4.405 NMAC - Rp 20 NMAC 6.1.2405, 10-12-00; A, XX-XX-05]

294. The Commission adopts NMED's proposal to amend the segment description because it relies on a hydrologic rather than a cultural feature.

20.6.4.406 SAN JUAN RIVER BASIN - Navajo reservoir in New Mexico.

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

B. [~~Standards~~]Criteria:

(1) At any sampling site: pH [~~shall be~~] within the range of 6.6 to 8.8, temperature [~~shall not exceed~~] 20°C (68°F) or less and[~~,~~] total phosphorus (as P) [~~shall not exceed~~] 0.1 mg/L or less[~~, and turbidity shall not exceed 25 NTU~~]. The use-specific numeric [~~standards~~]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 fecal coliform bacteria shall not exceed 100/100 mL; no single sample shall exceed 200/100 mL~~]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 [~~20.6.4.13~~]20.6.4.14 NMAC).

[20.6.4.406 NMAC - Rp 20 NMAC 6.1.2406, 10-12-00; A, XX-XX-05]

295. The Commission adopts changes proposed by NMED and already described above.

20.6.4.407 SAN JUAN RIVER BASIN - [~~The~~]Perennial reaches of the Navajo and Los Pinos rivers in New Mexico.

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

B. [~~Standards~~]Criteria:

(1) In any single sample: pH [~~shall be~~] within the range of 6.6 to 8.8, temperature [~~shall not exceed~~] 20°C (68°F) or less and total phosphorus (as P) [~~shall not exceed~~] 0.1 mg/L or less. The use-specific numeric [~~standards~~]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 fecal coliform bacteria 100/100 mL; no single sample shall exceed 200/100 mL~~]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 [~~20.6.4.13~~]20.6.4.14 NMAC).

[20.6.4.407 NMAC - Rp 20 NMAC 6.1.2407, 10-12-00; A, XX-XX-05]

296. The Commission adopts NMED's proposal to amend the segment description to limit the designated uses to perennial reaches because the nonperennial reaches are properly covered by new Section 20.6.4.98.

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 industrial water supply, irrigation, livestock watering, wildlife habitat, secondary 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.

(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, XX-XX-05]

297. The Commission adopts changes proposed by NMED and already described above for segment 401 in paragraphs 287-89. The designated uses and associated criteria have been carried forward from the original segment; see segment 401, above.

20.6.4.409 - 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 [~~state highway 464 in Red Rock,~~]Redrock canyon and perennial reaches of streams in Hidalgo county.

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

B. [~~Standards~~]Criteria:

(1) In any single sample: pH [~~shall be~~] within the range of 6.6 to 9.0[~~,~~] and temperature [~~shall not exceed~~] 32.2°C (90°F) or less. The use-specific numeric [~~standards~~]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 fecal coliform bacteria shall not exceed 200/100 mL; no single sample shall exceed 400/100 mL~~]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 [~~20.6.4.13~~]20.6.4.14 NMAC).

[20.6.4.501 NMAC - Rp 20 NMAC 6.1.2501, 10-12-00; A, XX-XX-05]

298. The Commission adopts NMED's proposal to amend the segment description because it relies on a hydrologic rather than a cultural feature. The canyon is properly named "Redrock," not "Red Rock," which is a town located near Gallup.

20.6.4.502 GILA RIVER BASIN - The main stem of the Gila river from [~~state highway 464 in Red Rock~~]Redrock canyon upstream to [~~Gila hot springs~~]the confluence of the West Fork Gila river and East Fork Gila river and perennial reaches of tributaries to the Gila river below [~~the town of Cliff~~]Mogollon creek.

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

B. [~~Standards~~]Criteria:

(1) In any single sample: pH [~~shall be~~] within the range of 6.6 to 9.0[~~;~~] and temperature [~~shall not exceed~~] 28°C (82.4°F) or less. The use-specific numeric [~~standards~~]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 fecal coliform bacteria shall not exceed 200/100 mL; no single sample shall exceed 400/100 mL~~]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 [~~20.6.4.13~~]20.6.4.14 NMAC).

[20.6.4.502 NMAC - Rp 20 NMAC 6.1.2502, 10-12-00; A, XX-XX-05]

299. The Commission adopts NMED's proposal to amend the segment description because it relies on a hydrologic rather than a cultural feature.

300. The Commission adopts NMED's proposal to amend the segment description because it clarifies that the main stem of the Gila River ends at the confluence of the East and West Forks.

20.6.4.503 GILA RIVER BASIN - [~~The main stem of the Gila river from Gila hot springs upstream to the headwaters and all~~]All perennial tributaries to the Gila river [~~at or~~] above [~~the town of Cliff~~]and including Mogollon creek.

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

B. [~~Standards~~]Criteria:

(1) In any single sample: [~~conductivity shall not exceed~~]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 [~~shall be~~] within the range of 6.6 to 8.8[~~;~~] and temperature [~~shall not exceed~~] 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[~~, where the temperature shall not exceed 32.2°C (90°F), and turbidity shall not exceed 10 NTU~~]. The use-specific numeric [~~standards~~]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 fecal coliform bacteria shall not exceed 100/100 mL; no single sample shall exceed 200/100 mL~~]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 [~~20.6.4.13~~]20.6.4.14 NMAC).

[20.6.4.503 NMAC - Rp 20 NMAC 6.1.2503, 10-12-00; A, XX-XX-05]

294. The Commission adopts changes proposed by NMED and already described above.

20.6.4.504 GILA RIVER BASIN - Wall lake, Lake Roberts[~~, Bear Canyon lake~~] and Snow lake.

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

B. [~~Standards~~]Criteria:

(1) In any single sample: [~~conductivity shall not exceed~~]specific conductance 300 µmhos/cm or less, pH [~~shall be~~] within the range of 6.6 to 8.8[~~;~~] and temperature [~~shall not exceed~~] 22°C (72°F) or less. The use-specific numeric [~~standards~~]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 fecal coliform bacteria shall not exceed 200/100 mL; no single sample shall exceed 400/100 mL~~]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 [~~20.6.4.13~~]20.6.4.14 NMAC).

[20.6.4.504 NMAC - Rp 20 NMAC 6.1.2504, 10-12-00; A, XX-XX-05]

[NOTE: The segment covered by this section was divided effective XX-XX-05. The standards for the additional segment are under 20.6.4.806 NMAC.]

295. The Commission adopts NMED's proposal to move Bear Canyon Lake into a new section because the lake is in the Mimbres River basin, not the Gila River basin.

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, [~~limited~~]marginal warmwater and marginal coldwater [~~fishery~~]aquatic life, livestock watering, wildlife habitat[~~,~~] and secondary contact.

B. [~~Standards~~]Criteria:

(1) In any single sample: pH [~~shall be~~] within the range of 6.6 to 9.0[~~,~~] and temperature [~~shall not exceed~~] 32.2°C (90°F) or less. The use-specific numeric [~~standards~~]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 fecal coliform bacteria shall not exceed 200/100 mL; no single sample shall exceed 400/100 mL~~]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 [~~20.6.4.13~~]20.6.4.14 NMAC).

[20.6.4.601 NMAC - Rp 20 NMAC 6.1.2601, 10-12-00; A, XX-XX-05]

296. The Commission adopts changes proposed by NMED and already described above.

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 [~~fishery~~]aquatic life, irrigation, livestock watering, wildlife habitat[~~,~~] and primary contact.

B. [~~Standards~~]Criteria:

(1) In any single sample: pH [~~shall be~~] within the range of 6.6 to 8.8[~~,~~] and temperature [~~shall not exceed~~] 25°C (77°F) or less. The use-specific numeric [~~standards~~]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 fecal coliform bacteria shall not exceed 200/100 mL; no single sample shall exceed 400/100 mL~~]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 [~~20.6.4.13~~]20.6.4.14 NMAC).

[20.6.4.602 NMAC - Rp 20 NMAC 6.1.2602, 10-12-00; A, XX-XX-05]

297. The Commission adopts changes proposed by NMED and already described above.

20.6.4.603 SAN FRANCISCO RIVER BASIN - All perennial reaches of tributaries to the San Francisco river [~~at or above the town of Glenwood~~]above the confluence of Whitewater creek and including Whitewater creek.

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

B. [~~Standards~~]Criteria:

(1) In any single sample: [~~conductivity shall not exceed~~]specific conductance 400 µmhos/cm or less, pH [~~shall be~~] within the range of 6.6 to 8.8[~~,~~] and temperature [~~shall not exceed~~] 20°C (68°F) or less except 25°C (77°F) or less in Tularosa creek[~~, where the temperature shall not exceed 25°C (77°F), and turbidity shall not exceed 10 NTU~~]. The use-specific numeric [~~standards~~]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 fecal coliform bacteria shall not exceed 100/100 mL; no single sample shall exceed 200/100 mL~~]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 [~~20.6.4.13~~]20.6.4.14 NMAC).

[20.6.4.603 NMAC - Rp 20 NMAC 6.1.2603, 10-12-00; A, XX-XX-05]

298. The Commission adopts NMED's proposal to amend the segment description because it relies on a hydrologic rather than a cultural feature.

20.6.4.604 - 20.6.4.700: [RESERVED]

20.6.4.701 DRY CIMARRON RIVER - Perennial portions of the Dry Cimarron river [~~in Union and Colfax counties~~]above Oak creek and perennial reaches of Oak creek[~~, Long canyon, and Corrumpa and Carrizozo creeks~~].

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

B. [~~Standards~~]Criteria:

(1) In any single sample: pH [~~shall be~~] within the range of 6.6 to 8.8, temperature [~~shall not exceed~~] 25°C (77°F) or less, TDS [~~shall not exceed~~] 1,200 mg/L or less, sulfate [~~shall not exceed~~] 600 mg/L or less, and chloride [~~shall not exceed~~] 40 mg/L or less. The use-specific numeric [~~standards~~]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 fecal coliform bacteria shall not exceed 100/100 mL; no single sample shall exceed 200/100 mL~~]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 [~~20.6.4.13~~]20.6.4.14 NMAC).

[20.6.4.701 NMAC - Rp 20 NMAC 6.1.2701, 10-12-00; A, XX-XX-05]

[NOTE: The segment covered by this section was divided effective XX-XX-05. The standards for the additional segment are under 20.6.4.702 NMAC.]

299. The Commission adopts NMED's proposal to move Corrumpa Creek to Section 20.6.4.310.

300. The Commission adopts NMED's proposal to change the designated use from coldwater to marginal coldwater aquatic life because Corrumpa Creek is a tributary of the Canadian River and should be placed in that basin. A UAA performed by the SWQB in 2000 indicates that the designation is erroneous.

301. The Commission encourages NMED to consider further segmentation where, as here, there are cold water and warm water designations in different parts of the same stream.

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 aquatic life, irrigation, livestock watering, wildlife habitat and secondary 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.

(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).

[20.6.4.702 NMAC - N, XX-XX-05]

302. The Commission adopts NMED's proposal to assign the designated use of warmwater aquatic life because a UAA performed by the SWQB in 2000 indicates that warmwater is the proper subcategory. Otherwise, the designated uses and associated criteria have been carried forward from the original segment; see segment 701, above.

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.

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

B. [~~Standards~~]Criteria:

(1) In any single sample: pH [~~shall be~~] within the range of 6.6 to 8.8[~~;~~] and temperature [~~shall not exceed~~] 20°C (68°F) or less. The use-specific numeric [~~standards~~]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 fecal coliform bacteria shall not exceed 100/100 mL; no single sample shall exceed 200/100 mL~~]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 [~~20.6.4.13~~]20.6.4.14 NMAC).

[20.6.4.801 NMAC - Rp 20 NMAC 6.1.2801, 10-12-00; A, XX-XX-05]

303. The Commission adopts changes proposed by NMED and already described above.

20.6.4.802 CLOSED BASINS - Perennial reaches of Three Rivers.

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

B. [~~Standards~~]Criteria:

(1) In any single sample: [~~conductivity shall not exceed~~]specific conductance 500 µmhos/cm or less, pH [~~shall be~~] within the range of 6.6 to 8.8[~~;~~] and temperature [~~shall not exceed~~] 20°C (68°F) or less[~~, and turbidity shall not exceed 10 NTU~~]. The use-specific numeric [~~standards~~]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 fecal coliform bacteria shall not exceed 100/100 mL; no single sample shall exceed 200/100 mL~~]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 [~~20.6.4.13~~]20.6.4.14 NMAC).

[20.6.4.802 NMAC - Rp 20 NMAC 6.1.2802, 10-12-00; A, XX-XX-05]

304. The Commission adopts changes proposed by NMED and already described above.

20.6.4.803 CLOSED BASINS - Perennial reaches of the Mimbres river downstream of [~~the USGS gaging station at Mimbres~~]the confluence with Willow Springs canyon and all perennial reaches of tributaries thereto.

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

B. [~~Standards~~]Criteria:

(1) In any single sample: pH [~~shall be~~] within the range of 6.6 to 8.8[~~;~~] and temperature [~~shall not exceed~~] 20°C (68°F) or less. The use-specific numeric [~~standards~~]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 fecal coliform bacteria shall not exceed 100/100 mL; no single sample shall exceed 200/100 mL~~]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 [~~20.6.4.13~~]20.6.4.14 NMAC).

[20.6.4.803 NMAC - Rp 20 NMAC 6.1.2803, 10-12-00; A, XX-XX-05]

305. The Commission adopts NMED's proposal to amend the segment description because it currently references the USGS gaging station. Current USGS topographic maps do not show the gage at Mimbres, while older USGS topographic maps show the gage at a location approximately 1½ miles above the present location. Rather than rely on the gage, a hydrologic feature should be used. The change results in moving the segment boundary approximately 100 feet upstream.

20.6.4.804 CLOSED BASINS - [~~The~~]Perennial reaches of the Mimbres river upstream of [~~the USGS gaging station at Mimbres~~]the confluence with Willow Springs canyon and all perennial tributaries thereto.

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

B. [~~Standards~~]Criteria:

(1) In any single sample: [~~conductivity shall not exceed~~]specific conductance 300 µmhos or less; pH [~~shall be~~] within the range of 6.6 to 8.8[~~,~~] and temperature [~~shall not exceed~~] 20°C (68°F) or less[~~, and turbidity shall not exceed 10 NTU~~]. The use-specific numeric [~~standards~~]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 fecal coliform bacteria shall not exceed 100/100 mL; no single sample shall exceed 200/100 mL~~]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 [~~20.6.4.13~~]20.6.4.14 NMAC).

[20.6.4.804 NMAC - Rp 20 NMAC 6.1.2804, 10-12-00; A, XX-XX-05]

306. The Commission adopts NMED's proposal to amend the segment description for the reasons stated in Section 20.6.4.803.

307. The Commission adopts NMED's proposal to amend the segment description to limit the designated uses to perennial reaches because the nonperennial reaches are properly covered by new Section 20.6.4.98.

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 [~~fishery~~]aquatic life[~~,~~] and secondary contact.

B. [~~Standards~~]Criteria:

(1) In any single sample: pH [~~shall be~~] within the range of 6.6 to 9.0[~~,~~] and temperature [~~shall not exceed~~] 25°C (77°F) or less[~~, and turbidity shall not exceed 10 NTU~~]. The use-specific numeric [~~standards~~]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 fecal coliform bacteria shall not exceed 200/100 mL; no single sample shall exceed 400/100 mL~~]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 [~~20.6.4.13~~]20.6.4.14 NMAC).

[20.6.4.805 NMAC - Rp 20 NMAC 6.1.2805, 10-12-00; A, XX-XX-05]

308. The Commission adopts changes proposed by NMED and already described above.

20.6.4.806 CLOSED BASINS - Bear canyon reservoir.

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

(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, XX-XX-05]

309. The Commission adopts NMED's proposal for the reasons stated in Section 20.6.4.504. The designated uses and associated criteria have been carried forward from the original segment; see segment 504, above.

20.6.4.807 - 20.6.4.899: [RESERVED]

20.6.4.900 [~~STANDARDS~~]CRITERIA APPLICABLE TO ATTAINABLE OR DESIGNATED USES UNLESS OTHERWISE SPECIFIED IN [~~20.6.4.101~~]20.6.4.97 THROUGH 20.6.4.899 NMAC.

310. The Commission adopts NMED's proposal to change Section 20.6.4.101 to 20.6.4.97 because it reflects the addition of sections for unclassified waters in Sections 20.6.4.97, 20.6.4.98 and 20.6.4.99. This change is also made below without further comment. The basis for deleting the following paragraphs A, C, E, F and H appears below, in paragraph 324.

A. [~~**Coldwater Fishery:** Dissolved oxygen shall not be less than 6.0 mg/L, temperature shall not exceed 20°C (68°F), and pH shall be within the range of 6.6 to 8.8. The acute and chronic aquatic life standards set out in Subsections J and M of this section are applicable to this use. The total ammonia standards set out in Subsection O of this section and the human health standards listed in Subsection M of this section are applicable to this use.~~]**Fish Culture, Water Supply and Storage:** Fish culture 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 for all classified waters of the state listed in 20.6.4.97 through 20.6.4.899 NMAC.

311. The Commission adopts NMED's proposal to move this section to the beginning of the criteria because Section 20.6.4.900's structure makes this broad statement difficult to locate. Placing this section upfront will make it easier for the public interested in these uses to locate the criteria statement.

312. The Commission concurs with the Hearing Officer's note that UC did not, in relation to this section, pose any express objections to NMED's proposal in its post-hearing submittal.

313. The Commission adopts NMED's and UC's proposal to remove the designated use of "secondary contact" because this use has criteria, which are contained in new Section 20.6.4.900.E.

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. [~~The following numeric standards and those standards~~]Those criteria listed under domestic water supply in Subsection [~~M~~]J of this section [~~shall not be exceeded:~~]apply to this use.

[~~(1) dissolved nitrate (as N) 10. mg/L~~
~~(2) radium-226 + radium-228 5. pCi/L~~
~~(3) strontium-90 8 pCi/L~~
~~(4) tritium 20,000 pCi/L~~
~~(5) gross alpha (including radium-226, but excluding radon and uranium) 15 pCi/L~~]

314. The Commission adopts NMED's proposal to move these criteria to the table in Section 20.6.4.900.J because it consolidates the criteria in an easily-accessible format.

315. The Commission adopts NMED's proposal to replace the phrase "shall not be exceeded" with the phrase "apply to this use" because the phrase is unnecessary and eliminates a potential conflict

with the compliance and implementation provisions in Section 20.6.4.11. This change is also made below without further comment.

C. [~~**High Quality Coldwater Fishery:** Dissolved oxygen shall not be less than 6.0 mg/L, temperature shall not exceed 20°C (68°F), pH shall be within the range of 6.6 to 8.8, turbidity shall not exceed 10 NTU (25 NTU in certain reaches where natural background prevents attainment of lower turbidity), and conductivity (at 25°C) shall not exceed a limit varying between 300 µmhos/cm and 1,500 µmhos/cm depending on the natural background in particular surface waters of the state (the intent of this standard is to prevent excessive increases in dissolved solids which would result in changes in community structure). The acute and chronic aquatic life standards set out in Subsections J and M of this section are applicable to this use. The total ammonia standards set out in Subsection O of this section and the human health standards for pollutants listed in Subsection M of this section are applicable to this use.~~

~~**D.**~~]**Irrigation and Irrigation Storage:** [~~The monthly geometric mean of fecal coliform bacteria shall not exceed 1,000/100 mL; no single sample shall exceed 2,000/100 mL.~~]The following numeric [~~standards~~]criteria and those [~~standards~~]criteria listed under irrigation in Subsection [~~M~~]J of this section [~~shall not be exceeded~~]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

316. The Commission adopts NMED's proposal to retain the selenium criteria in this section, rather than in the consolidated table because placement in the table would require a footnote, but the New Mexico Commission of Public Records does not allow the use of footnotes in rules.

317. The Commission adopts NMED's proposal to delete the fecal coliform criteria and not replace them with E coli criteria. NMED's proposal to replace the fecal coliform criteria has been adopted throughout the WQS, but EPA does not recommend E. coli criteria for this use.

[~~**E. Limited Warmwater Fishery:** Dissolved oxygen shall not be less than 5 mg/L, pH shall be within the range of 6.6 to 9.0, and on a case by case basis maximum temperatures may exceed 32.2°C. The acute and chronic aquatic life standards set out in Subsections J and M of this section are applicable to this use. The total ammonia standards set out in Subsection N of this section and the human health standards listed in Subsection M of this section are applicable to this use.~~

~~**F. Marginal Coldwater Fishery:** Dissolved oxygen shall not be less than 6 mg/L, on a case by case basis maximum temperatures may exceed 25°C and the pH may range from 6.6 to 9.0. The acute and chronic aquatic life standards set out in Subsections J and M of this section are applicable to this use. The total ammonia standards set out in Subsection O of this section and the human health standards listed in Subsection M of this section are applicable to this use.~~

~~**G**~~]**D. Primary Contact:** The monthly geometric mean of [~~fecal coliform bacteria shall not exceed 200/100 mL, no single sample shall exceed 400/100 mL~~]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.

318. The Commission adopts the identical NMED and UC proposals to change fecal coliform to E. coli criteria because it is consistent with EPA guidance. The change affects every stream segment because all segments are designated for primary or secondary contact. Escherichia coli, or E. coli for short, is the scientific name for a species of bacteria that EPA has determined to be an appropriate indicator of the presence of bacteria that may cause gastrointestinal illness in humans.

EPA explained its recommendation in Ambient Water Quality Criteria for Bacteria – 1986, EPA 440/5-84-002, January 1986. EPA relied on studies indicating that there is no direct correlation between concentration of fecal coliform bacteria and occurrence of gastrointestinal illness in swimmers. On the other hand, these studies found a direct correlation between the concentration of E. coli and occurrence of gastrointestinal illness in swimmers.

319. EPA also recommended criteria to protect primary and secondary contact. Specifically, EPA recommends primary contact criteria based on an illness rate of 8 illnesses per 1000 exposed persons. At this rate, a maximum geometric mean of 126/100 mL is calculated. EPA's recommended single-sample maximum is a function of the anticipated frequency or extent of use. EPA provided additional guidance for criteria implementation in Implementation Guidance for Ambient Water Quality Criteria for Bacteria (Draft), EPA-823-B-02-003, May 2002. Approved test methods for E. coli in ambient water are published in the Federal Register, Vol. 68, No. 139, July 21, 2003, pp. 43272-43283.

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.

320. The Commission adopts the identical NMED and UC proposals to switch from fecal coliform to E. coli for the reasons stated in Section 20.6.4.900.D. EPA guidance provides some flexibility in selecting the secondary contact criteria. It indicates that a secondary contact criterion five times the primary contact criterion for the geometric mean (which would result in a geometric mean for secondary contact of 630/100 mL) is acceptable. However, it does not recommend a single sample maximum. Instead, the guidance provides a range of values that would protect recreational use based on projected illness rates. NMED proposes to adopt the geometric mean density of 548/100 mL, which is associated with an illness rate of 14 per 1000 persons exposed to bacteria in water by ingestion as a result of immersion, and 2507/100 mL for a single sample maximum for waters infrequently used for full body contact at a 95% confidence limit. The proposal is consistent with EPA guidance and provides flexibility in the implementation of secondary contact criteria.

~~[H. Warmwater Fishery: Dissolved oxygen shall not be less than 5 mg/L, temperature shall not exceed 32.2°C (90°F), and pH shall be within the range of 6.6 to 9.0. The acute and chronic aquatic life standards set out in Subsections J and M of this section are applicable to this use. The total ammonia standards set out in~~

~~Subsection N of this section and the human health standards listed in Subsection M of this section are applicable to this use.~~

~~I. Fish culture, secondary contact, and municipal and industrial water supply and storage are also designated in particular classified waters of the state where these uses are actually being realized. However, no numeric standards apply uniquely to these uses. Water quality adequate for these uses is ensured by the general standards and numeric standards for bacterial quality, pH, and temperature which are established for all classified waters of the state listed in 20.6.4.101 through 20.6.4.899 NMAC.~~

~~J. The following schedule of equations for the determination of numeric standards for the substances listed and those standards listed in Subsection M for aquatic life shall apply to the subcategories of fisheries identified in this section:~~

~~(1) Acute standards~~

~~(a) dissolved silver $e^{(1.72[\ln(\text{hardness})]-6.6825)}$ µg/L~~

~~(b) dissolved cadmium $(e^{(1.128[\ln(\text{hardness})]-3.6867)})$cf µg/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 hardness)(0.041838)].~~

~~(c) dissolved chromium $e^{(0.819[\ln(\text{hardness})]+2.5736)}$ µg/L~~

~~(d) dissolved copper $e^{(0.9422[\ln(\text{hardness})]-1.7408)}$ µg/L~~

~~(e) dissolved lead $(e^{(1.273[\ln(\text{hardness})]-1.46)})$cf µg/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 hardness)(0.145712)].~~

~~(f) dissolved nickel $e^{(0.8460[\ln(\text{hardness})]+2.253)}$ µg/L~~

~~(g) dissolved zinc $e^{(0.8473[\ln(\text{hardness})]+0.8618)}$ µg/L~~

~~(2) Chronic standards~~

~~(a) dissolved cadmium $(e^{(0.7852[\ln(\text{hardness})]-2.715)})$cf µg/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 hardness)(0.041838)].~~

~~(b) dissolved chromium $e^{(0.819[\ln(\text{hardness})]+0.534)}$ µg/L~~

~~(c) dissolved copper $e^{(0.8545[\ln(\text{hardness})]-1.7428)}$ µg/L~~

~~(d) dissolved lead $(e^{(1.273[\ln(\text{hardness})]-4.705)})$cf µg/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 hardness)(0.145712)].~~

~~(e) dissolved nickel $e^{(0.846[\ln(\text{hardness})]+0.0554)}$ µg/L~~

~~(f) dissolved zinc $e^{(0.8473[\ln(\text{hardness})]+0.8699)}$ µg/L~~

~~K~~[F. **Livestock Watering:** ~~[The following numeric standards and those standards~~]The criteria listed in Subsection [~~M~~]J for livestock watering [~~shall not be exceeded:~~]apply to this use.

~~[(1) radium-226 + radium-228 30.0 pCi/L~~

~~(2) tritium 20,000 pCi/L~~

~~(3) total gross alpha (including radium-226, but excluding radon and uranium) 15 pCi/L~~]

321. The Commission adopts NMED's proposal to move these criteria to the table in Section 20.6.4.900.J for the reasons stated above.

[~~L~~]G. **Wildlife Habitat:** Wildlife habitat [~~should~~]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[~~, or~~]; can bioaccumulate; [~~and~~]or might impair the community of animals in a watershed or the ecological integrity of surface waters of the state. [~~In the absence of site-specific information, and subject to the following paragraph, the chronic numeric standards listed in Subsection M for wildlife habitat shall not be exceeded.~~]The discharge of substances [~~which~~]that bioaccumulate, in excess of levels listed in Subsection [~~M~~]J for wildlife habitat is allowed if, and only to the extent that, the substances are present in the intake waters [~~which~~]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 [~~which~~]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.

322. The Commission adopts NMED's proposal to move these criteria to the table in Section 20.6.4.900.J for the reasons stated above.

323. The Commission adopts NMED's proposals to make changes for clarity: "should" to "shall" for consistency with other sections in the criteria; deleting the reference in the second sentence to "following paragraph" because there is no "following paragraph" as a result of an earlier revision to this section; revising the second sentence and placing it at the end of the paragraph.

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, the acute and chronic aquatic life criteria set out in subsections I and 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

(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 limit varying between 300 µmhos/cm and 1,500 µmhos /cm depending on the natural background in particular surface waters 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.

(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.

(3) **Marginal Coldwater:** Dissolved oxygen than 6 mg/L or more, on a case by case basis maximum temperatures may exceed 25°C (77°F) and the pH may 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.

(4) **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.

(5) **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 temperatures may exceed 32.2°C (90°F). 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.

(6) **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. Chronic aquatic life criteria do not apply unless adopted on a segment specific basis.

324. The Commission adopts NMED's proposal to move current Sections 20.6.4.900.A, C, E, F and H, into a single section for simplification, making it easier for the public and regulated community to locate the relevant subcategories and criteria. Moving common language from each subcategory to the general statement also clarifies the section.

325. The Commission adopts NMED's proposal regarding the "fishery" to "aquatic life" subcategories for the reasons stated in Section 20.6.4.7.I.

326. The Commission adopts NMED's proposal to replace the use-specific numeric criteria for turbidity with the narrative criterion in Section 20.6.4.13.J for the reasons stated in paragraph 164.

327. The Commission adopts NMED's proposal to create the subcategory of "limited aquatic life" because it allows the development of segment-specific criteria for waters that support an aquatic life population under conditions that would otherwise result in natural exceedances of aquatic life criteria. Sulphur Creek, which has a very low pH, is an example of a water with the limited aquatic life category. The Commission's goal in the change is to ensure human health standards are not excluded and that limited aquatic life is a blanket only for persistent criteria.

328. The Commission rejects AB's proposed changes to numeric criteria for total phosphorous, total inorganic nitrogen, acute dissolved aluminum and chronic dissolved aluminum applicable to high quality coldwater, coldwater and marginal coldwater aquatic life designated uses, for lack of credible scientific data supporting the proposals.

329. The commission rejects AB's proposal to replace the limited aquatic life subcategory with the default use of "aquatic life" because the limited aquatic life subcategory is designed for waters that have aquatic communities adapted to unusual chemical and physical conditions.

330. The Commission rejects EBID's proposal to create a different designated use, "expected aquatic life," for the reasons stated above in Section 20.6.4.7.I, and because it has no definition.

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 $0.85\ e^{(1.72[\ln(\text{hardness})]-6.59)}$ µg/L

(b) dissolved cadmium $(e^{(1.0166[\ln(\text{hardness})]-3.924)})\text{cf}$ µg/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 hardness)(0.041838)).

(c) dissolved chromium $0.316\ e^{(0.819[\ln(\text{hardness})]+3.7256)}$ µg/L

(d) dissolved copper $0.960\ e^{(0.9422[\ln(\text{hardness})]-1.700)}$ µg/L

(e) dissolved lead $(e^{(1.273[\ln(\text{hardness})]-1.46)})\text{cf}$ µg/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 hardness)(0.145712)).

(f) dissolved nickel $0.998\ e^{(0.8460[\ln(\text{hardness})]+2.255)}$ µg/L

(g) dissolved zinc $0.978\ e^{(0.8473[\ln(\text{hardness})]+0.884)}$ µg/L

(2) Chronic criteria:

(a) dissolved cadmium $(e^{(0.7409[\ln(\text{hardness})]-4.719)})\text{cf}$ µg/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 hardness)(0.041838)).

(b) dissolved chromium $0.860\ e^{(0.819[\ln(\text{hardness})]+0.6848)}$ µg/L

(c) dissolved copper $0.960\ e^{(0.8545[\ln(\text{hardness})]-1.702)}$ µg/L

(d) dissolved lead $(e^{(1.273[\ln(\text{hardness})]-4.705)})\text{cf}$ µg/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 hardness)(0.145712)).

(e)	dissolved nickel	$0.997\ e^{(0.846[\ln(\text{hardness})]+0.0584)}$	µg/L
(f)	dissolved zinc	$0.986\ e^{(0.8473[\ln(\text{hardness})]+0.884)}$	µg/L

331. The Commission adopts the identical NMED and UC proposals to update the formulae based on the most recent EPA guidance, National Recommended Water Quality Criteria: 2002, EPA-822-R-02-047, November 2002.

[~~M~~]**J. Numeric criteria.** The following table sets forth the numeric criteria adopted by the commission to protect existing, designated and attainable uses. Additional criteria that are not compatible with this table [~~and~~]are found in Subsections A through [~~L~~]I of this section.

332. Regarding table format, titles, and introduction, the Commission adopts NMED's proposal to delete the first column of the table because the column is unnecessary, to delete the CAS Numbers for "DDT and derivatives" and "PCBs" because these pollutants have multiple CAS Numbers, and to change the column headings because it allows the use of units other than µg/L when appropriate.

333. The Commission rejects UC's proposed introductory phrase that all criteria are chronic because only aquatic life criteria are "chronic." The other criteria may consider long-term exposure, but EPA does not use the term "chronic". Stated differently, EPA does not distinguish between criteria on the basis of "acute" and "chronic" with the exception of aquatic life. As a result, the designation of these criteria as "chronic" is erroneous, even if they were calculated to protect against long-term exposures.

334. Regarding the "Domestic Water Supply" criteria the Commission adopts NMED's proposal to move the criteria for nitrate, radium, strontium, tritium and gross alpha from Section 20.6.4.900.B because it is consistent with the restructured criteria, and to add the criteria for priority toxic pollutants because it protects human health from exposure in organisms and water. The criteria are based on the consumption of fish, shellfish and two liters of water per day. The domestic water supply use is based upon the use of untreated water for drinking purposes. As a result, it is appropriate to consider the consumption of two liters of water per day without the benefit of treatment.

335. The Commission adopts the identical NMED and UC proposals to revise the chronic and acute criteria for mercury to be consistent with EPA's recommended criteria pursuant to 40 CFR §131.11.

336. The Commission adopts the identical NMED and UC proposals to add a methylmercury criterion of 0.3 mg/kg for protection of human health, as recommended by EPA in 2001.

337. The Commission adopts NMED's proposed revised nitrate criteria based on the research of Dr. Sam Fernald of New Mexico State University, who demonstrated that the revised criteria protect livestock watering.

338. Regarding the "Aquatic Life" criteria the Commission adopts the identical NMED and UC proposals to delete the beryllium criteria because EPA has withdrawn its recommended values. EPA no longer recommends beryllium aquatic life criteria.

339. Regarding the "Human Health" criteria the Commission adopts NMED's proposal to amend the criteria based upon the current EPA recommendations in National Recommended Water Quality Criteria: 2002, EPA-822-R-02-047. The recalculated criteria integrate an updated national default fish consumption rate (17.5 g/day) and, in some cases, relative source contribution values obtained from primary drinking water standards and new cancer potency information from EPA's Integrated Risk Information System.

340. Of these criteria, only the arsenic criterion is New Mexico-specific (e.g., the updated national default fish consumption rate applied to site-specific data collected during a 1997 joint agency study of arsenic in the middle Rio Grande in the vicinity of Albuquerque. The site specific data included: (1) geometric mean of dissolved arsenic concentrations from all river and drain stations of 2.88 mg/L; (2) geometric mean of total arsenic concentrations in eight composited fish-tissue samples from fish collected in the river and drains of 13.13 µg/kg; and (3) risk assumptions, including (a) risk level = 10^{-5}; (b) body weight = 70 kg; (c) cancer potency factor = 1.5; (d) bioaccumulation factor = 4.57 L/kg (geomean tissue 13.13/ geomean H20 2.88); and (e) inorganic As = 65 percent). The recalculation resulted in an arsenic criterion of 9.0 µg/L for consumption of organisms only, and 2.3 µg/L for consumption of water plus organisms. The Commission

expresses its concern to the department that the assumptions of the level of fish consumption from the Rio Grande may be overstated.

341. The Commission rejects AB's proposal to include numeric criteria for perchlorate-domestic water supply- at 1 ug/L for lack of credible scientific data in the record, and because EPA has not recommended a criterion for ambient waters.

342. The Commission rejects AB's proposal to change the criteria for uranium, dissolved- Domestic Water Supply to 7 ug/L for lack of credible scientific data in the record, and because EPA has not recommended a criterion for ambient waters. The Commission is concerned about uranium, and mindful that it recently lowered the ground water standard, but the record in this triennial review simply does not support such a change at this time.

343. The Commission rejects AB's proposed wildlife habitat dissolved aluminum numeric criterion, proposed aquatic life cyanide numeric criteria, and proposed wildlife habitat and aquatic life selenium numeric criteria for lack of credible scientific data in the record.

[tables begin on next page]

	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 µg/L	Cancer Causing (C) [and/or] or Persistent (P)
							Acute µg/L	Chronic µg/L		
[1	Aluminum, dissolved	7429-90-5		5,000	5,000		750	87		
	Aluminum	7429-90-5			500					
2	Antimony, dissolved	7440-36-0	[6]5.6						[4,300]640	P
3	Arsenic, dissolved	7440-38-2	[50]2.3	100	[200]		340	150	[24.2]9.0	C,P
	Arsenic	7440-38-2			20					
	Asbestos	1332-21-4	7,000,000 fibers/L							
4	Barium, dissolved	7440-39-3	2,000							
	Barium (mg/L)	7440-39-3			10 mg/L					
5	Beryllium, dissolved	7440-41-7	4				[130]	[5.3]		
6	Boron, dissolved	7440-42-8		750	5,000					
7	Cadmium, dissolved	7440-43-9	5	10	50		see 20.6.4.900[.J].I	see 20.6.4.900[.J].I		
	Cadmium	7440-43-9			5					
8	Chlorine residual	7782-50-5				11	19	11		
9	Chromium, dissolved	18540-29-9	100	100	1,000		see 20.6.4.900[.J].I	see 20.6.4.900[.J].I		
10	Cobalt, dissolved	7440-48-4		50	1,000					
11	Copper, dissolved	7440-50-8	1300	200	500		see 20.6.4.900[.J].I	see 20.6.4.900[.J].I		
12	Cyanide, dissolved	57-12-5	200							
13	Cyanide, weak acid dissociable	57-12-5	700			5.2	22.0	5.2	220,000	
	Fluoride, (mg/L)				2 mg/L					

	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 µg/L	Cancer Causing (C) [and/or] or Persistent (P)
							Acute µg/L	Chronic µg/L		
~~14~~	Lead, dissolved	7439-92-1	50	5,000	100		see 20.6.4.900[~~.J~~].I	see 20.6.4.900[~~.J~~]I		
	Lead	7439-92-1			15					
~~15~~	Mercury	7439-97-6	2		10	[~~0.77~~]	[~~2.4~~]	[~~0.012~~]		
	Mercury, dissolved	7439-97-6				.77	1.4	.77		
	Methymercury	22967-92-6							0.3 mg/kg in fish tissue	P
~~16~~	Molybdenum, dissolved	7439-98-7		1,000						
~~17~~	Nickel, dissolved	7440-02-0	100				see 20.6.4.900[~~.J~~].I	see 20.6.4.900[~~.J~~].I	4,600	P
	Nickel	7440-02-0			250					
	Nitrate as N (mg/L)		10 mg/L							
	Nitrite + Nitrate (mg/L)				132 mg/L					
~~18~~	Selenium, dissolved	7782-49-2	50	see Subsection (C) of 20.6.4.900 [~~.D~~]	50				[~~11,000~~] 4,200	P
~~19~~	Selenium, total recoverable	7782-49-2				5.0	20.0	5.0		
~~20~~	Silver, dissolved	7440-22-4					see 20.6.4.900[~~.J~~].I			
~~21~~	Thallium, dissolved	7440-28-0	[~~2~~]1.7						6.3	P
~~22~~	Uranium, dissolved	7440-61-1	5,000							
~~23~~	Vanadium, dissolved	7440-62-2		100	100					
~~24~~	Zinc, dissolved	7440-66-6	7,400	2,000	[~~25,000~~]		see 20.6.4.900[~~.J~~].I	see 20.6.4.900[~~.J~~].I	[~~69,000~~] 26,000	P
	Zinc	7440-66-6			5 mg/L					
	Adjusted gross alpha (see		15 pCi/L		15 pCi/L					

	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 µg/L	Cancer Causing (C) ~~and/or~~ or Persistent (P)
							Acute µg/L	Chronic µg/L		
	Subsections B and F of 20.6.4.900)									
	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					
~~25~~	Acenaphthene	83-32-9	670						~~2,700~~]990	
~~26~~	Acrolein	107-02-8	190						~~780~~]290	
~~27~~	Acrylonitrile	107-13-1	0.51						~~6.6~~]2.5	C
~~28~~	Aldrin	309-00-2	0.00049				3.0		~~0.0014~~] 0.00050	C,P
~~29~~	Anthracene	120-12-7	8,300						~~110,000~~]40,000	
~~30~~	Benzene	71-43-2	22						~~710~~]510	C
~~31~~	Benzidine	92-87-5	0.00086						~~0.0054~~] 0.0020	C
~~32~~	Benzo(a)anthracene	56-55-3	0.038						~~0.49~~]0.18	C
~~33~~	Benzo(a)pyrene	50-32-8	0.038						~~0.49~~]0.18	C,P
~~34~~	Benzo(b)fluoranthene	205-99-2	0.038						~~0.49~~]0.18	C
~~35~~	Benzo(k)fluoranthene	207-08-9	0.038						~~0.49~~]0.18	C
~~36~~	alpha-BHC	319-84-6	0.026						~~0.13~~]0.049	C
~~37~~	beta-BHC	319-85-7	0.091						~~0.46~~]0.17	C
~~38~~	Gamma-BHC (Lindane)	58-89-9	0.19				0.95		0.63	C
~~39~~	Bis(2-chloroethyl) ether	111-44-4	0.30						~~14~~]5.3	C
~~40~~	Bis(2-chloroisopropyl) ether	108-60-1	1,400						~~170,000~~]65,000	
~~41~~	Bis(2-ethylhexyl) phthalate	117817	12						~~59~~]22	C
~~42~~	Bromoform	75-25-2	43						~~3600~~]1,400	C
~~43~~	Butylbenzyl phthalate	85-68-7	1,500						~~5,200~~]1,900	

	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 µg/L	Cancer Causing (C) [and/or] or Persistent (P)
							Acute µg/L	Chronic µg/L		
44	Carbon tetrachloride	56-23-5	2.3						[44]16	C
45	Chlordane	57-74-9	0.0080				2.4	0.0043	[0.022]0.0081	C,P
46	Chlorobenzene	108-90-7	680						21,000	
47	Chlorodibromomethane	124-48-1	4.0						[340]130	C
48	Chloroform	67-66-3	57						4,700	C
49	2-Chloronaphthalene	91-58-7	1,000						[4,300]1,600	
50	2-Chlorophenol	95-57-8	81						[400]150	
51	Chrysene	218-01-9	0.038						[0.49]0.18	C
52	4,4'-DDT and derivatives	50-29-3	0.0022			0.001	1.1	0.001	[0.0059]0.0022	C,P
53	Dibenzo(a,h)anthracene	53-70-3	0.038						[0.49]0.18	C
54	Dibutyl phthalate	84-74-2	2,000						[12,000]4,500	
55	1,2-Dichlorobenzene	95-50-1	2,700						17,000	
56	1,3-Dichlorobenzene	541-73-1	320						[2,600]960	
57	1,4-Dichlorobenzene	106-46-7	400						2,600	
58	3,3'-Dichlorobenzidine	91-94-1	0.21						[0.77]0.28	C
59	Dichlorobromomethane	75-27-4	5.5						[460]170	C
60	1,2-Dichloroethane	107-06-2	3.8						[990]370	C
61	1,1-Dichloroethylene	75-35-4	0.57						32	C
62	2,4-Dichlorophenol	120-83-2	77						[790]290	
63	1,2-Dichloropropane	78-87-5	5.0						[390]150	C
64	1,3-Dichloropropene	542-75-6	10						1,700	
65	Dieldrin	60-57-1	0.00052				0.24	0.056	[0.0014]0.00054	C,P
66	Diethyl phthalate	84-66-2	17,000						[120,000]44,000	

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							Acute µg/L	Chronic µg/L		
~~67~~	Dimethyl phthalate	131-11-3	270,000						~~[2,900,000]~~1,100,000	
~~68~~	2,4-Dimethylphenol	105-67-9	380						~~[2,300]~~850	
~~69~~	2,4-Dinitrophenol	51-28-5	69						~~[14,000]~~5,300	
~~70~~	2,4-Dinitrotoluene	121-14-2	1.1						~~[91]~~34	C
~~71~~	2,3,7,8-TCDD Dioxin	1746-01-6	5.0E-08						~~[1.4E-07]~~5.1E-08	C,P
~~72~~	1,2-Diphenylhydrazine	122-66-7	0.36						~~[5.4]~~2.0	C
~~73~~	alpha-Endosulfan	959-98-8	62				0.22	0.056	~~[240]~~89	
~~74~~	beta-Endosulfan	33213-65-9	62				0.22	0.056	~~[240]~~89	
~~75~~	Endosulfan sulfate	1031-07-8	62						~~[240]~~89	
~~76~~	Endrin	72-20-8	0.76				0.086	0.036	0.81	
~~78~~	Endrin aldehyde	7421-93-4	0.29						~~[0.81]~~0.30	
~~79~~	Ethylbenzene	100-41-4	3,100						29,000	
~~80~~	Fluoranthene	206-44-0	130						~~[370]~~140	
~~81~~	Fluorene	86-73-7	1,100						~~[14,000]~~5,300	
~~82~~	Heptachlor	76-44-8	0.00079				0.52	0.0038	~~[0.0021]~~0.00079	C
~~83~~	Heptachlor epoxide	1024-57-3	0.00039				0.52	0.0038	~~[0.0011]~~0.00039	C
~~84~~	Hexachlorobenzene	118-74-1	0.0028						~~[0.0077]~~0.0029	C,P
~~85~~	Hexachlorobutadiene	87-68-3	4.4						~~[500]~~180	C
~~86~~	Hexachlorocyclopentadiene	77-47-4	240						17,000	
~~87~~	Hexachloroethane	67-72-1	14						~~[89]~~33	C
~~88~~	Ideno(1,2,3-cd)pyrene	193-39-5	0.038						~~[0.49]~~0.18	C
~~89~~	Isophorone	78-59-1	350						~~[26,000]~~9,600	C
~~90~~	Methyl bromide	74-83-9	47						~~[4000]~~1,500	

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							Acute µg/L	Chronic µg/L		
~~91~~	2-Methyl-4,6-dinitrophenol	534-52-1	13						[~~765~~]280	
~~92~~	Methylene chloride	75-09-2	46						[~~16,000~~] 5,900	C
~~93~~	Nitrobenzene	98-95-3	17						[~~1,900~~]690	
~~94~~	N-Nitrosodimethylamine	62-75-9	0.0069						[~~81~~]30	C
~~95~~	N-Nitrosodi-n-propylamine	621-64-7	0.050						[~~14~~]5.1	C
~~96~~	N-Nitrosodiphenylamine	86-30-6	33						[~~160~~]60	C
~~97~~	PCBs	1336-36-3	0.00064			0.014		0.014	[~~0.0017~~] 0.00064	C,P
~~98~~	Pentachlorophenol	87-86-5	2.7				19	15	[~~82~~]30	C
~~99~~	Phenol	108-95-2	21,000						[~~4,600,000~~]1,700,000	
~~100~~	Pyrene	129-00-0	830						[~~11,000~~] 4,000	
~~101~~	1,1,2,2-Tetrachloroethane	79-34-5	1.7						[~~110~~]40	C
~~102~~	Tetrachloroethylene	127-18-4	6.9						[~~88.5~~]33	C,P
~~103~~	Toluene	108-88-3	6,800						200,000	
~~104~~	Toxaphene	8001-35-2	0.0028				0.73	0.0002	[~~0.0075~~] 0.0028	C
~~105~~	1,2-Trans-dichloroethylene	156-60-5	700						140,000	
~~106~~	1,2,4-Trichlorobenzene	120-82-1	260						940	
~~107~~	1,1,2-Trichloroethane	79-00-5	5.9						[~~420~~]160	C
~~108~~	Trichloroethylene	79-01-6	25						[~~810~~]300	C
~~109~~	2,4,6-Trichlorophenol	88-06-2	14						[~~65~~]24	C
~~110~~]	Vinyl chloride	75-01-4	20						[~~5,250~~]5,300	C

~~[N. Total Ammonia (mg/L as N), Warmwater Fisheries:~~

~~(1) acute standards~~

~~pH~~

Temperature °C	6.50	6.75	7.00	7.25	7.50	7.75	8.00	8.25	8.50	8.75	9.00
0	30	26	23	19	14	10	6.6	4.7	3.1	2.2	1.70
1	28	26	23	19	14	9.9	6.5	4.7	3.1	2.2	1.70
2	28	26	22	18	14	9.7	6.4	4.6	3.1	2.2	1.69
3	28	25	22	18	14	9.6	6.3	4.6	3.0	2.2	1.69
4	27	25	22	18	14	9.5	6.2	4.5	3.0	2.2	1.69
5	27	25	22	18	13	9.4	6.1	4.5	3.0	2.2	1.68
6	27	24	21	18	13	9.3	6.1	4.5	3.0	2.1	1.68
7	26	24	21	17	13	9.2	6.0	4.4	3.0	2.1	1.68
8	26	24	21	17	13	9.1	6.0	4.4	2.9	2.1	1.68
9	26	24	21	17	13	9.0	5.9	4.4	2.9	2.1	1.68
10	25	23	21	17	13	8.9	5.9	4.3	2.9	2.1	1.68
11	25	23	20	17	13	8.9	5.8	4.3	2.9	2.1	1.68
12	25	23	20	17	13	8.8	5.8	4.3	2.9	2.1	1.69
13	25	23	20	16	13	8.7	5.7	4.3	2.9	2.1	1.69
14	25	23	20	16	13	8.7	5.7	4.3	2.9	2.1	1.70
15	24	23	20	16	13	8.6	5.7	4.3	2.9	2.1	1.70
16	24	22	20	16	13	8.6	5.7	4.3	2.9	2.1	1.71
17	24	22	20	16	13	8.5	5.6	4.2	2.9	2.1	1.72
18	24	22	19	16	13	8.5	5.6	4.2	2.9	2.1	1.73
19	24	22	19	16	13	8.5	5.6	4.2	2.9	2.1	1.74
20	24	22	19	16	13	8.5	5.6	4.2	2.9	2.1	1.75
21	24	22	19	16	13	8.4	5.6	4.2	2.9	2.1	1.77
22	24	22	19	16	13	8.4	5.6	4.2	2.9	2.1	1.78
23	24	22	19	16	13	8.4	5.6	4.2	2.9	2.1	1.80
24	24	22	19	16	13	8.4	5.6	4.2	2.9	2.1	1.81
25	24	22	19	16	13	8.4	5.6	4.2	2.9	2.1	1.83
26	22	20	18	15	11	7.9	5.2	3.1	2.9	2.1	1.80
27	20	19	17	14	10	7.3	4.9	3.0	2.8	2.1	1.76
28	19	18	15	13	9.7	6.9	4.6	2.7	1.7	1.1	0.73
29	18	16	14	12	9.1	6.4	4.3	2.6	1.6	1.0	0.70
30	17	15	13	11	8.5	6.0	4.1	2.4	1.5	0.97	0.68

~~(2) chronic standards~~

~~pH~~

Temperature °C	6.50	6.75	7.00	7.25	7.50	7.75	8.00	8.25	8.50	8.75	9.00
0	2.5	2.5	2.5	2.5	2.5	2.3	1.5	0.84	0.48	0.28	0.16
1	2.5	2.5	2.5	2.5	2.5	2.3	1.5	0.83	0.47	0.27	0.16
2	2.4	2.4	2.4	2.4	2.4	2.2	1.5	0.83	0.47	0.27	0.16
3	2.4	2.4	2.4	2.4	2.4	2.2	1.4	0.81	0.46	0.27	0.16
4	2.4	2.4	2.4	2.4	2.4	2.2	1.4	0.80	0.46	0.27	0.16
5	2.3	2.3	2.3	2.3	2.3	2.1	1.4	0.80	0.45	0.26	0.16
6	2.3	2.3	2.3	2.3	2.3	2.1	1.4	0.79	0.45	0.26	0.16
7	2.3	2.3	2.3	2.3	2.3	2.1	1.4	0.78	0.45	0.26	0.16
8	2.3	2.3	2.3	2.3	2.3	2.1	1.4	0.77	0.44	0.26	0.15
9	2.3	2.2	2.3	2.3	2.3	2.1	1.3	0.77	0.44	0.26	0.16
10	2.3	2.2	2.3	2.3	2.3	2.0	1.3	0.76	0.44	0.26	0.16
11	2.2	2.2	2.2	2.2	2.2	2.0	1.3	0.76	0.44	0.26	0.16
12	2.2	2.2	2.2	2.2	2.2	2.0	1.3	0.75	0.44	0.26	0.16
13	2.2	2.2	2.2	2.2	2.2	2.0	1.3	0.75	0.43	0.26	0.16
14	2.1	2.1	2.1	2.1	2.2	2.0	1.3	0.75	0.43	0.26	0.16
15	2.1	2.1	2.1	2.1	2.1	2.0	1.3	0.74	0.43	0.26	0.16
16	2.1	2.1	2.1	2.1	2.1	2.0	1.3	0.74	0.43	0.26	0.16
17	2.1	2.1	2.1	2.1	2.1	1.9	1.3	0.74	0.43	0.26	0.16
18	2.1	2.1	2.1	2.1	2.1	1.9	1.3	0.74	0.43	0.26	0.17
19	2.1	2.1	2.1	2.1	2.1	1.9	1.3	0.74	0.44	0.26	0.17
20	2.1	2.1	2.1	2.1	2.1	1.9	1.3	0.74	0.44	0.27	0.17
21	1.9	1.9	1.9	1.9	1.9	1.8	1.2	0.69	0.41	0.25	0.16
22	1.8	1.8	1.8	1.8	1.8	1.7	1.1	0.65	0.38	0.24	0.15
23	1.7	1.7	1.7	1.7	1.7	1.6	1.0	0.60	0.36	0.22	0.15
24	1.6	1.6	1.6	1.6	1.6	1.5	0.97	0.57	0.34	0.21	0.14
25	1.4	1.4	1.5	1.5	1.5	1.4	0.91	0.53	0.32	0.20	0.13
26	1.3	1.3	1.4	1.4	1.4	1.3	0.85	0.50	0.30	0.19	0.13
27	1.3	1.3	1.3	1.3	1.3	1.2	0.79	0.47	0.28	0.18	0.12
28	1.2	1.2	1.2	1.2	1.2	1.1	0.74	0.44	0.27	0.17	0.12
29	1.1	1.1	1.1	1.1	1.1	1.0	0.70	0.41	0.25	0.16	0.11
30	1.0	1.0	1.0	1.0	1.0	0.97	0.65	0.39	0.24	0.16	0.11

~~O. Total Ammonia (mg/L as N), Coldwater Fisheries:~~

~~(1) acute standards~~

~~pH~~

Temperature °C	6.50	6.75	7.00	7.25	7.50	7.75	8.00	8.25	8.50	8.75	9.00
0	29	26	23	19	14	10	6.6	3.7	2.1	1.2	0.70
1	28	26	23	19	14	9.9	6.5	3.7	2.1	1.2	0.70
2	28	26	22	18	14	9.7	6.4	3.6	2.1	1.2	0.69
3	28	25	22	18	14	9.6	6.3	3.6	2.0	1.2	0.69
4	27	25	22	18	14	9.5	6.2	3.5	2.0	1.2	0.69
5	27	25	22	18	13	9.4	6.1	3.5	2.0	1.2	0.68
6	27	24	21	18	13	9.3	6.1	3.5	2.0	1.1	0.68
7	26	24	21	17	13	9.2	6.0	3.4	2.0	1.1	0.68
8	26	24	21	17	13	9.1	6.0	3.4	1.9	1.1	0.68
9	26	24	21	17	13	9.0	5.9	3.4	1.9	1.1	0.68
10	25	23	21	17	13	8.9	5.9	3.3	1.9	1.1	0.68
11	25	23	20	17	12	8.9	5.8	3.3	1.9	1.1	0.68
12	25	23	20	17	12	8.8	5.8	3.3	1.9	1.1	0.67
13	25	23	20	16	12	8.7	5.7	3.3	1.9	1.1	0.67
14	25	23	20	16	12	8.7	5.7	3.3	1.9	1.1	0.70
15	24	23	20	16	12	8.6	5.7	3.3	1.9	1.1	0.70
16	24	23	20	16	12	8.6	5.7	3.3	1.9	1.1	0.71
17	24	23	20	16	12	8.5	5.6	3.2	1.9	1.1	0.72
18	24	23	19	16	12	8.5	5.6	3.2	1.9	1.2	0.73
19	24	23	19	16	12	8.5	5.6	3.2	1.9	1.2	0.74
20	24	23	19	16	12	8.5	5.6	3.2	1.9	1.2	0.75
21	23	20	18	15	11	7.9	5.2	3.0	1.8	1.1	0.71
22	21	19	17	14	10	7.3	4.9	2.8	1.7	1.0	0.68
23	19	18	15	13	9.7	6.8	4.5	2.7	1.6	0.98	0.65
24	18	16	14	12	9.0	6.4	4.2	2.5	1.5	0.93	0.62
25	17	15	13	11	8.4	6.0	4.0	2.3	1.4	0.88	0.59
26	16	14	12	10	7.9	5.6	3.7	2.2	1.3	0.84	0.56
27	14	13	12	9.6	7.3	5.2	3.5	2.1	1.2	0.79	0.54
28	13	12	11	9.0	6.9	4.9	3.3	1.9	1.2	0.76	0.52
29	12	12	10	8.4	6.4	4.6	3.1	1.8	1.1	0.72	0.50
30	12	11	10	7.8	6.0	4.3	2.9	1.7	1.1	0.69	0.48

~~(2) chronic standards~~

~~pH~~

Temperature °C	6.50	6.75	7.00	7.25	7.50	7.75	8.00	8.25	8.50	8.75	9.00
0	2.5	2.5	2.5	2.5	2.5	2.3	1.5	0.84	0.48	0.28	0.16
1	2.5	2.5	2.5	2.5	2.5	2.3	1.5	0.83	0.47	0.27	0.16
2	2.4	2.4	2.4	2.4	2.4	2.2	1.5	0.82	0.47	0.27	0.16
3	2.4	2.4	2.4	2.4	2.4	2.2	1.4	0.81	0.46	0.27	0.16
4	2.4	2.4	2.4	2.4	2.4	2.2	1.4	0.80	0.46	0.27	0.16
5	2.3	2.3	2.3	2.3	2.3	2.1	1.4	0.80	0.45	0.26	0.16
6	2.3	2.3	2.3	2.3	2.3	2.1	1.4	0.79	0.45	0.26	0.16
7	2.3	2.3	2.3	2.3	2.3	2.1	1.4	0.78	0.45	0.26	0.16
8	2.3	2.3	2.3	2.3	2.3	2.1	1.4	0.77	0.44	0.26	0.15
9	2.2	2.2	2.2	2.2	2.2	2.1	1.3	0.77	0.44	0.26	0.16
10	2.2	2.2	2.2	2.2	2.2	2.0	1.3	0.76	0.44	0.26	0.16
11	2.2	2.2	2.2	2.2	2.2	2.0	1.3	0.76	0.44	0.26	0.16
12	2.2	2.2	2.2	2.2	2.2	2.0	1.3	0.75	0.44	0.26	0.16
13	2.2	2.2	2.2	2.2	2.2	2.0	1.3	0.75	0.43	0.26	0.16
14	2.1	2.1	2.1	2.1	2.2	2.0	1.3	0.75	0.43	0.26	0.16
15	2.1	2.1	2.1	2.1	2.1	2.0	1.3	0.74	0.43	0.26	0.16
16	2.0	2.0	2.0	2.0	2.0	1.8	1.2	0.69	0.40	0.24	0.15
17	1.8	1.8	1.8	1.8	1.8	1.7	1.1	0.64	0.38	0.23	0.14
18	1.7	1.7	1.7	1.7	1.7	1.6	1.0	0.60	0.35	0.21	0.14
19	1.6	1.6	1.6	1.6	1.6	1.5	0.97	0.56	0.33	0.20	0.13
20	1.5	1.5	1.5	1.5	1.5	1.4	0.90	0.52	0.31	0.19	0.12
21	1.4	1.4	1.4	1.4	1.4	1.3	0.84	0.49	0.29	0.18	0.12
22	1.3	1.3	1.3	1.3	1.3	1.2	0.78	0.46	0.27	0.17	0.11
23	1.2	1.2	1.2	1.2	1.2	1.1	0.73	0.43	0.26	0.16	0.10
24	1.1	1.1	1.1	1.1	1.1	1.0	0.69	0.40	0.24	0.15	0.10
25	1.0	1.0	1.0	1.0	1.0	0.96	0.64	0.38	0.23	0.14	0.095
26	0.95	0.95	0.96	0.96	0.97	0.9	0.60	0.35	0.21	0.13	0.091
27	0.89	0.89	0.89	0.90	0.91	0.84	0.56	0.33	0.20	0.13	0.087
28	0.83	0.83	0.83	0.84	0.85	0.79	0.53	0.31	0.19	0.12	0.084
29	0.77	0.78	0.78	0.78	0.79	0.73	0.49	0.29	0.18	0.12	0.080
30	0.72	0.73	0.73	0.73	0.74	0.69	0.46	0.28	0.17	0.11	0.077

K. Acute Criteria, Total Ammonia (mg/L as N)

pH	Salmonids Present	Salmonids Absent
6.5	32.6	48.8
6.6	31.3	46.8
6.7	29.8	44.6
6.8	28.1	42.0
6.9	26.2	39.1
7.0	24.1	36.1
7.1	22.0	32.8
7.2	19.7	29.5
7.3	17.5	26.2
7.4	15.4	23.0
7.5	13.3	19.9
7.6	11.4	17.0
7.7	9.65	14.4
7.8	8.11	12.1
7.9	6.77	10.1
8.0	5.62	8.40
8.1	4.64	6.95
8.2	3.83	5.72
8.3	3.15	4.71
8.4	2.59	3.88
8.5	2.14	3.20
8.6	1.77	2.65
8.7	1.47	2.20
8.8	1.23	1.84
8.9	1.04	1.56
9.0	0.885	1.32

L. Chronic Criteria, Total Ammonia (mg/L as N), Fish Early Life Stages Present

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

pH	Temperature (°C)										
	0	14	15	16	18	20	22	24	26	28	30
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

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 Subsection L of 20.6.4.900 NMAC).										

[P]N. Dissolved oxygen saturation based on temperature and elevation.

(1) Elevation 5,000 feet or less:

Temperature (°C)	Elevation (feet)										
	0	500	1,000	1,500	2,000	2,500	3,000	3,500	4,000	4,500	5,000
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
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
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, XX-XX-05]

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.

[B]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.

[~~C~~]**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.

[~~D~~]**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.

[~~E~~]**G.** New Mexico water quality control commission. [~~1978~~]2003. *(208) state of New Mexico water quality management plan* [~~(updated 1988)~~]. Santa Fe, New Mexico. [~~226.~~]85 p.

[~~F~~]**H.** Colorado river basin salinity control forum. [~~1993~~]2002. *[~~1993~~]2002 Review, water quality standards for salinity, Colorado river system.* Phoenix, Arizona. [~~154~~]176 p.

[~~G~~]**I.** United States environmental protection agency. [~~1991~~]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. ([~~4th Ed., EPA/600/4-90/027~~]5th Ed., EPA 821-R-02-012). 293 p. http://www.epa.gov/ost/WET/disk2/atx.pdf

[~~H~~]**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. ~~http://www.epa.gov/ost/WET/etf/pdf.~~

[~~I~~]**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.

[~~J~~]**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

[~~K~~]**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, XX-XX-05]

344. The Commission adopts NMED's proposal to update the references, and add new references and correct web addresses.

Dated: 5/13/05

CHAIR, WATER QUALITY CONTROL COMMISSION

Exhibit 17

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 6
1445 ROSS AVENUE, SUITE 1200
DALLAS, TX 75202-2733

DEC 29 2006

RECEIVED
JAN 10 2007
SURFACE WATER
QUALITY BUREAU

RECEIVED
JAN 10 2007
NM ENVIRONMENT DEPARTMENT
OFFICE OF THE SECRETARY

Mr. Ron Curry
Chairman
Water Quality Control Commission
Harold Runnels Building
1190 Saint Francis Drive
Santa Fe, NM 87502

Subject: EPA Approval of Revisions to New Mexico's Standards for Interstate and Intrastate Surface Waters, 20.6.4 NMAC

Dear Mr. Curry:

I am pleased to inform you that we have completed our review of the State's triennial revisions. As always, I thank you for the efforts of the New Mexico Water Quality Control Commission and particularly the New Mexico Environment Department in the development of these revisions.

The new and revised water quality standards include a number of important amendments. These include the development of standards for non-classified ephemeral, intermittent and perennial waters; revisions to the State's bacteriological criteria, specifying *E. coli* as the indicator organism consistent with the Environmental Protection Agency's (EPA) recommendation; revision of rules for the applicability of criteria to prevent inappropriate attainment decisions; revisions to use attainability analyses procedures; and revised classified segments. The Commission and the Environment Department should be commended for making these important revisions to New Mexico's water quality standards.

EPA's review was of amendments to the *Standards for Interstate and Intrastate Surface Waters* 20.6.4. NMAC. These revisions where adopted by the Commission and became effective as State law on May 23, 2005, with revisions effective on July 17, 2005. The amendments were certified by the Assistant Attorney General by letter dated July 1, 2005, and were submitted to EPA as required under federal regulations at 40 CFR 131.20(c). EPA received the documents on July 7, 2005.

In today's action, EPA is approving the majority of these amendments. However, based on a review of the record, EPA was unable to take action on a few provisions because they did not meet the minimum requirements for a water quality standards submission. See 40 CFR 131.6(b) and (f). Specifically, EPA was unable to take action on the limited aquatic life, aquatic life and/or secondary contact recreation use designations for Sections 20.6.4.97, 20.6.4.98 and

20.6.4.99. EPA strongly supports the concept the State has used in developing standards for unclassified ephemeral, intermittent and perennial surface waters; however, adequate supporting documentation (such as a use attainability analysis) was not available which would allow us to take action on all portions of these provisions. Similarly, EPA was unable to take action on the new and/or revised use designations and modifications for six classified segments because adequate supporting documentation (such as a use attainability analysis) was not available to support the modifications. See segments 20.6.4.126, 128, 221, 310, 701 and 702.

The enclosed detailed Record of Decision explains EPA's basis for the approval action taken and provides an explanation of the type of documentation that is necessary for EPA to be able to approve the remaining provisions. We would be glad to work with you and provide technical assistance regarding the needed supporting documentation.

It is important to note that EPA's approval of the State's water quality standards is considered a federal action which may be subject to the Section 7(a)(2) consultation requirements of the Endangered Species Act (ESA).[1] Section 7(a)(2) of the ESA states that "each federal agency ... shall ... insure that any action authorized, funded or carried out by such agency is not likely to jeopardize the continued existence of any endangered species or threatened species or result in the destruction or adverse modification of habitat of such species which is determined to be critical..."

EPA's approval of the water quality standards revisions, therefore, may be subject to the results of consultation with the U.S. Fish and Wildlife Service pursuant to Section 7(a)(2) of the ESA. Nevertheless, EPA also has a Clean Water Act obligation, as a separate matter, to complete its water quality standards action. Therefore, in approving New Mexico's water quality standards revisions today, EPA is completing its CWA Section 303(c) responsibilities. However, should the consultation process with the U.S. Fish and Wildlife Service identify information that supports a conclusion that one or more of these revisions is likely to jeopardize the continued existence of any endangered or threatened species, EPA will revisit and amend its approval decision for those revised or new water quality standards.

Pursuant to the *Memorandum of Agreement Between the Environmental Protection Agency, Fish and Wildlife Service and National Marine Fisheries Service Regarding Enhanced Coordination Under the Clean Water Act and Endangered Species Act* (66FR11202, February 22, 2001), EPA Headquarters and the Services have initiated a national consultation on all of EPA's published water quality criteria for the protection of aquatic organisms. As explained in the MOA, the national consultation provides Endangered Species Act Section 7 consultation coverage for any water quality criteria included in State water quality standards, approved by EPA, that are identical to or more stringent than EPA's recommended CWA Section 304(a) criteria. EPA Region 6, therefore, will defer to the national consultation on questions of

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[1] Where EPA concludes that its approval action will have "no effect" on listed endangered or threatened species, or is otherwise not subject to ESA consultation, EPA can issue an unconditional approval.

protectiveness for aquatic life criteria. In the unlikely event that the national consultation discovers EPA's published CWA Section 304(a) criteria (and by extension, the State standards) are likely to cause jeopardy to listed species or the adverse modification or destruction of designated critical habitat, EPA has retained its authority to revise its approval decision.

As mentioned earlier, I appreciate both the Commission's and the Environment Department's efforts in the development of these important revisions to New Mexico's water quality standards, and commend the Commission for its action. I also appreciate the cooperative and constructive way in which the Environment Department staff has worked with my staff as it developed its proposal for this triennial review of the State's water quality standards.

If you need additional detail and if you would like to schedule a meeting to work through the issues outlined in this letter, please call me at (214) 665-7101, or have the Environment Department staff contact Russell Nelson, my Regional Water Quality Standards Coordinator, at (214) 665-6646.

Sincerely,

Miguel I. Flores, Director
Water Quality Protection Division

Enclosure

cc: Denise Keehner, Director, SHPD
Amy Newman, Chief, RSTSSB
Lee Schroer, Office of General Counsel

Marcy Leavitt, Chief,
Surface Water Quality Bureau
New Mexico Environment Dept.

Lynn Wellman
Regional Water Quality Coordinator
USFWS
Box 1306
Albuquerque, NM 87103

Brian Hanson
Acting Field Supervisor
Ecological Services Office
USFWS
2105 Osuna Road NE
Albuquerque, NM 87113-1001

Exhibit 18

USE ATTAINABILITY ANALYSIS

for Waters Located on Los Alamos National Laboratory as described in Sections 20.6.4.126 and 128 NMAC New Mexico Water Quality Standards, July 17, 2005

Prepared by the New Mexico Environment Department
Surface Water Quality Bureau
August 2007

INTRODUCTION

The New Mexico Water Quality Control Commission's 2005 amendments to the State's surface water quality standards (20.6.4 NMAC) added Segments 126 and 128, both located on Los Alamos National Laboratory (LANL) property, as newly classified surface waters. The segment descriptions, designated uses and criteria from the 2005 amendments are included as Attachment 1. A map showing these segments is presented in Attachment 2.

For Segment 126, the recreational use was designated as secondary contact. For Segment 128, the recreational use was designated as secondary contact and the aquatic life use was designated as limited aquatic life. These uses are defined in 20.6.4.7 NMAC. Because secondary contact and limited aquatic life uses are not considered by EPA to satisfy the goal in Section 101(a)(2) of the Clean Water Act to provide for "the protection and propagation of fish, shellfish, and wildlife" and for "recreation in and on the water," the State is required by 40 CFR 131.10(j) to conduct a use attainability analysis (UAA).

The New Mexico Environment Department (NMED) has prepared this UAA to provide documentation as to the attainable recreation and aquatic life uses in Segments 126 and 128. The UAA relies on analyses of flow data from LANL stream gages, literature regarding the habitat requirements of fish species in the ecoregion, and the findings of an assessment of the physical, chemical and biological characteristics of LANL streams conducted by Lusk and MacRae (2002).

The UAA concludes that a secondary contact use is attainable in the two segments, and that a limited aquatic life use is attainable in Segment 128. Natural conditions of low flow and water level, the factor identified in 40 CFR 131.10(g)(2), prevent the attainment of primary contact uses in both segments as well as the attainment of a Section 101(a)(2) aquatic life use in Segment 128.

RECREATIONAL USES

Data collected by Lusk and MacRae (2002) and LANL stream gage data indicate that recreational use of Segments 126 and 128 is limited by low flows and water levels. Lusk and MacRae established six sampling stations on stream reaches included in Segment 126. Measurements (converted to English units) of stream discharge, wetted width and water depth at these stations are summarized in Table 1. These data indicate a maximum pool depth of approximately 9 inches and an average depth less than 5 inches. Photographs of typical pools and water levels at Lusk and MacRae sampling stations are shown in Attachment 3. Photographs, taken by representatives of the NMED Department of Energy Oversight Bureau, of stream reaches in Segment 128 are shown in Attachment 4.

Streamflow data from LANL gaging stations confirm that flow regimes in this area are dominated by low flows. Table 2 presents data from gaging stations on two streams in Segment 126. Mean and median daily flows are 0.1 cfs or lower for both streams. The data indicate that flows are very low on most days in the average year: less than 0.1 cubic feet per second (cfs) on 79% and 84% of days in the two streams respectively, and less than 0.2 cfs on 90% and 88% of days.

Table 3 presents data from gaging stations on stream reaches in Segment 128. Similar to the streams in Segment 126, these data also indicate low mean and median daily flows. In the average year, flows in these streams were less than 0.1 cfs on 77% to 100% of days.

Table 1
Dimensions of Streams in Segment 126

Stream Reach	Flow, cubic feet per second	Ave. Wetted Width, Feet	Max. Depth, inches	Mean Depth, inches
Segment 126				
Upper Cañon de Valle	0.1	2.3	7.1	2.0
Lower Cañon de Valle	0.15	2.3	4.7	2.4
Upper Sandia	0.55	4.3	9.1	3.5
Lower Sandia	0.3	4.4	8.9	4.7
Upper Pajarito	0.32	3.3	8.7	3.2
Lower Pajarito	0.3	5.2	5.1	2.4

Adapted from Lusk and MacRae (2002), pp. 230-231

Table 2
Streamflow data, Segment 126

Gaging Station	Period of Record	Mean Daily Disch., cfs	Median Daily Disch., cfs	Max. Daily Disch., cfs	% of days per year	
					Flow < 0.1 cfs	Flow < 0.2 cfs
Cañon de Valle below MDA-P	10/1/03 - 9/30/05	0.10	0.00	2.75	79%	90%
Water Canyon at SR-501	10/1/94 - 9/30/05	0.08	0.01	28.00	84%	88%

From LANL Water Quality Database, http://wqdbworld.lanl.gov

Table 3
Streamflow Data, Segment 128

Gaging Station	Period of Record	Mean Daily Disch., cfs	Median Daily Disch., cfs	Max. Daily Disch., cfs	% of days per year	
					Flow < 0.1 cfs	Flow < 0.2 cfs
Mortandad Canyon above Sediment Traps	10/1/96 - 9/30/05	0.00	0.00	1.70	99.9%	100%
Los Alamos Canyon above SR-4	10/1/94 - 10/1/05	0.31	0.00	15.91	78%	79%
Water Canyon at SR-4	1/1/95 - 9/30/05	0.05	0.00	10.64	94%	94%
Pajarito Canyon above Starmers Gulch	3/22/99 - 9/30/05	0.10	0.01	72.43	77%	80%

From LANL Water Quality Database, http://wqdbworld.lanl.gov

Higher flows do occur in these streams in response to rainfall and snowmelt events. Water levels tend to rise and then fall again very quickly, creating hazardous and sometimes destructive flash flood conditions. Lusk and MacRae (p. 49) discuss the effects of high-flow events on the fish cages they placed in the streams: “Cages frequently had large amounts of sediment deposited in them, were thrown from the stream, were ripped, or broken.” Stream gaging data provide the quantitative record of these events. The maximum daily discharge shown for Water Canyon in Table 2 is 28 cfs. The flow recorded for the previous day was only 0.02 cfs. Figures 1 depicts the hydrograph at this station in Water Canyon for a month in the summer of 2001. Figure 2 shows the spring 2005 hydrograph for Los Alamos Canyon near State Road 4. The pattern of rapidly changing water levels quickly returning to a low-flow condition is clearly evident in both hydrographs.

Figure 1

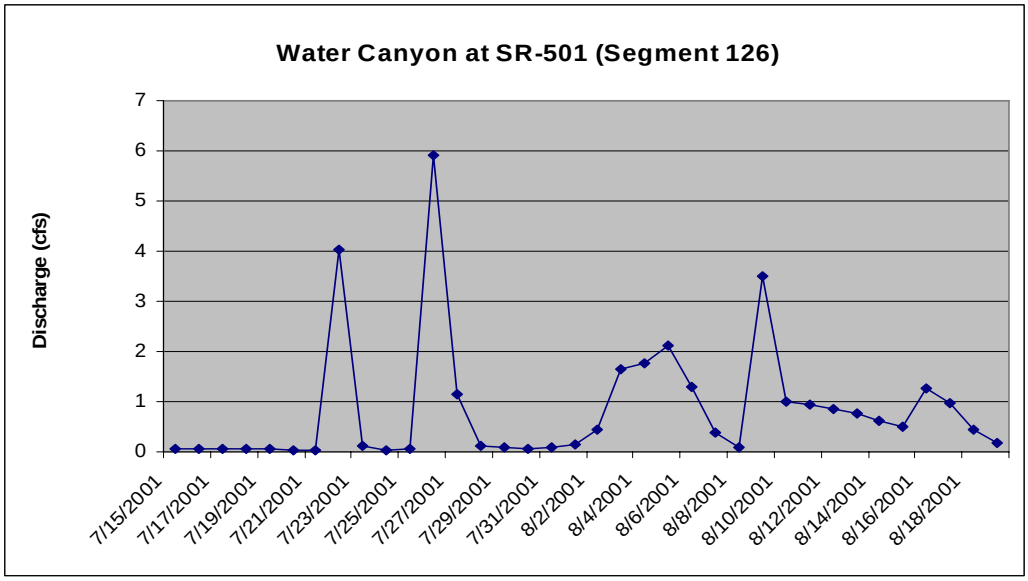
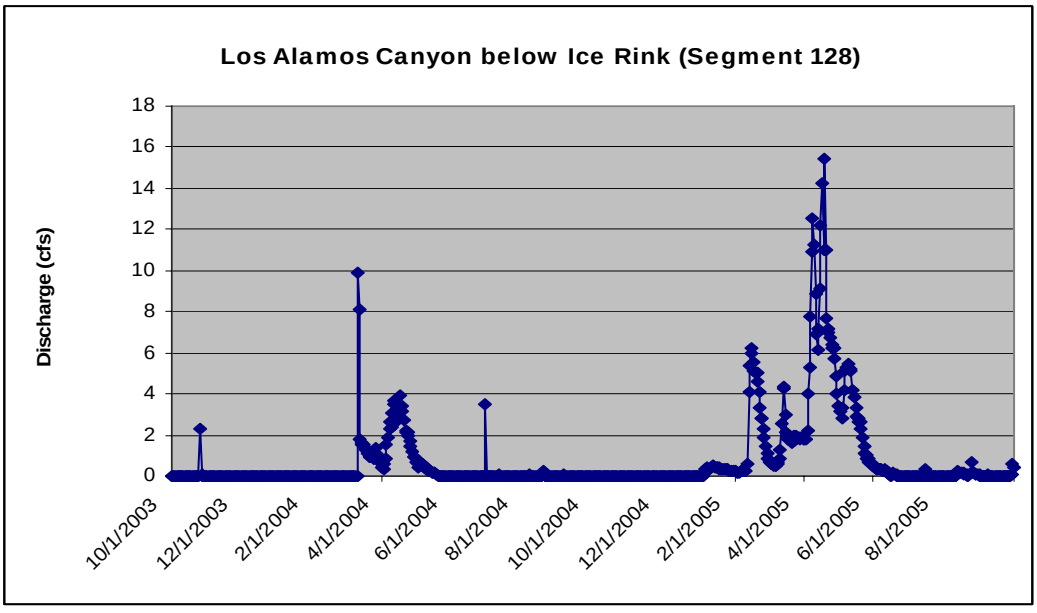


Figure 2



The term ”primary contact” in 20.6.4.7 NMAC is defined as “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 ….” Guidance developed by EPA Region 6 on recreation standards (http://www.epa.gov/earth1r6/6wq/ecopro/watershd/standard/recguide.htm) recommends that water bodies with sufficient flow and depth to provide for total body immersion, generally 18 inches of water depth, be presumed to support primary contact activities. The flows and depths presented here for Segments 126 and 128 are too low on most days to provide either for total body immersion or for prolonged and intimate contact with the water. Occasional higher flows are of short duration and typically create conditions hazardous for recreational activities involving immersion.

Recreational use of the waters in Segments 126 and 128 is also limited by difficult and restricted access as the streams are located in narrow canyons on property owned by the Department of Energy. Access by the general public is not permitted in any of the streams and is restricted by fencing, signs and, in some areas, security patrols (Fisher 2005). Based on observations made by Lusk and MacRae, some secondary contact recreation does occur along stream reaches in both segments, but primary recreation was not observed.

With the exception of Los Alamos Canyon, none of the watercourses in Segments 126 and 128 is subject to human modifications such as impoundments or diversions that alter the natural flow regime. However, Los Alamos reservoir is located in the upper reaches of Los Alamos Canyon above Segment 128. Since the Cerro Grande fire in May 2000, the reservoir has operated as a pass-through system because the drain at the bottom of the dam is not working properly. Water exits the reservoir through the currently open drain and by flow over the spillway when the reservoir is full. Because the reservoir is operating as a pass-through system, it currently does not significantly affect the natural flow regime of the stream and is not considered to impair downstream uses. The county plans to rehabilitate the dam for recreational and water supply uses, although no timeframe has been established. If the dam is again operational at some point in the future, its impact on the downstream flow regime and uses may need to be reevaluated.

The waters of Segments 126 and 128 have not been assessed by the State for bacterial contamination nor did Lusk and MacRae sample for pathogens, but it is expected that water quality is generally not impaired for recreational uses. The surrounding area supports wildlife, including elk and deer; however, livestock grazing is not permitted on LANL property. Bacterial contamination resulting from the presence of wildlife or incidental livestock is not expected to exceed primary contact criteria, except perhaps during high flows. Sandia Canyon in Segment 126 receives treated effluent from a LANL wastewater treatment plant. Review of the 2006 and 2007 Discharge Monitoring Reports for this outfall revealed a maximum fecal coliform bacteria concentration (13 colonies/100 mL) that does not impair primary contact use.

In conclusion, secondary contact recreation is an existing and attainable use for the stream reaches in Segments 126 and 128. Hydrologic modifications do not currently affect recreational opportunities, and water quality likely supports both secondary and primary contact activities. Nevertheless, primary contact is not an attainable use because flows and water levels are generally too low for full body immersion or prolonged and intimate contact with the water. This is the factor identified in 40 CFR 131.10(g)(2): “Natural, ephemeral, intermittent or low flow conditions or water levels prevent the attainment of the use…” Hazardous high-flow conditions and restricted access also limit the feasibility of primary contact recreation.

SEGMENT 20.6.4.128 AQUATIC LIFE USE

Lusk and MacRae (2002) provide information from numerous sources indicating that ephemeral and intermittent streams in the Jemez mountains support aquatic life that includes aquatic invertebrates and perhaps amphibians, but not fish. Their electrofishing surveys in the Sandia, Pajarito and Valle Canyon stream reaches did not locate fish. These sampling stations were on Segment 126 stream reaches that are continuous with Segment 128 watercourses (see map in Attachment 2). The water bodies included in

Segment 128 are identified as ephemeral and intermittent and therefore do not flow for varying periods throughout the year. Support of a fishable use in these types of water bodies would require a source population of fish that could enter and occupy these waters during wet periods. Lusk and MacRae's data indicate there is no source population existing in upstream perennial waters in the canyons they surveyed, and the 700-ft drop from the Pajarito Plateau into White Rock Canyon is too steep for fish to migrate up from the Rio Grande.

Hatch, et al. (1998) and Sublette, et al. (1990) were reviewed to identify native species of fish that might inhabit waters in this region. Hatch, et al. list 27 fish species that are native to the Rio Grande drainage. Review of the literature and a corresponding map of Level III Ecoregions (Griffith, et al. 2006) shows that six of these native species might be found in the ecoregion that includes Segment 128 (Ecoregion 21). Habitat requirements for these six species are shown in Table 4.

Table 4
Distinctive Fish Species Native to the Rio Grande Drainage and Level III Ecoregion 21[1]

COMMON NAME	SCIENTIFIC NAME	HABITAT[2]
Rio Grande cutthroat trout	*Oncorhynchus clarki virginalis*	Prefers clear, cold streams and lakes.
Rio Grande chub	*Gila pandora*	Found in impoundments and pools of small to moderate streams.
fathead minnow	*Pimephales promelas*	Found in a wide variety of habitats in rivers, streams, lakes, and ponds.
longnose dace	*Rhinichthys cataractae*	Seeks the interstices between stones in gravel-rock substrates of riffle areas of streams or in the surge zone or deeper water of lakes.
Rio Grande sucker	*Catostomus plebeius*	Lives in small to large, middle elevation (2,000 - 2,600 m) streams usually over gravel an cobble, but also in backwaters and in pools below riffles.
white sucker	*Catostomus commersoni*	Inhabits lakes, streams, and rivers in New Mexico, usually above 1,372 m in elevation.

[1]*Adapted from Hatch, et al. (1998)*
[2]*Adapted from Sublette, et al. (1990)*

Lusk and MacRae list nine "Fish of the Jemez Mountains." Table 5 reproduces this list. Three of the species, rainbow trout, brown trout and brook trout, are not native to the Jemez mountains.

Based on the habitat requirements shown in Table 4 and the guild assignments in Table 5, populations of these species do not survive and propagate in ephemeral or intermittent streams. The waters in Segment 128, therefore, cannot support a Section 101(a)(2) aquatic life use. Because a number of non-fish aquatic life populations are sustained along these streams, the "limited aquatic life" use subcategory is appropriate to protect both existing and attainable aquatic life uses.

According to Appendix A of the 2006-2008 303(d)/305(b) Integrated Report (NMED/SWQB 2007), water quality in seven assessment units in Segment 128 was not supporting attainment of the limited aquatic life use. The listings related to limited aquatic life use were based on exceedence of criteria for four metals: aluminum, cadmium, copper, and zinc. The listings were based on stormwater data. Investigation into the probable sources of these metals continues. When metals occur in water in higher than natural concentrations they can be highly toxic and cause major disruptions of aquatic ecosystems; however, numerous aquatic life populations, e.g., Diptera, have been shown to be highly tolerant of contamination from metals. The aquatic life use may be significantly altered, but still attainable under these conditions. At this point, there is not enough information to conclude that these exceedences prevent eventual attainment of the limited aquatic life use or other subcategories of aquatic life use.

Table 5
Fish of the Jemez Mountains

COMMON NAME	SCIENTIFIC NAME	GUILD			
		Fully Aquatic	Semi Aquatic	Riparian	Terrestrial
Fish of the Jemez Mountains					
Rio Grande cutthroat trout	*Oncorhynchus clarki virginalis*	Yes	No	No	No
rainbow trout	*Oncorhynchus mykiss*	Yes	No	No	No
brown trout	*Salmo trutta*	Yes	No	No	No
brook trout	*Salvelinus fontinalis*	Yes	No	No	No
Rio Grande chub	*Gila pandora*	Yes	No	No	No
fathead minnow	*Pimephales promelas*	Yes	No	No	No
longnose dace	*Rhinichthys cataractae*	Yes	No	No	No
Rio Grande sucker	*Catostomus plebeius*	Yes	No	No	No
white sucker	*Catostomus commersoni*	Yes	No	No	No

Adapted from Lusk and MacRae (2002), p. 127

As discussed for recreational uses, the dam in Los Alamos Canyon is currently operating as a pass-through system. As such, it does not significantly affect the natural flow regime of the stream and is not considered to impair downstream uses. There are no other dams or diversions affecting the waters in Segment 128.

In conclusion, a limited aquatic life use is attainable on stream reaches in Segment 128. Because fish species in Ecoregion 21 cannot survive in ephemeral and intermittent streams, Segment 128 streams cannot attain the Section 101(a)(2) aquatic life use due to the factor identified in 40 CFR 131.10(g)(2).

REFERENCES:

Fisher, Frederick M. 2005. Direct Testimony in the Matter of the Triennial Review of Standards for Interstate and Intrastate Surface Waters, 20.6.4 NMAC. WQCC 03-05 (R).

Griffith, G. E., Omernik, J. M., McGraw, M. M., Jacobi, G. Z., Canavan, C. M., Schrader, T. S., Mercer, D., Hill, R., and Moran, B. C. 2006. Ecoregions of New Mexico (color poster with map, descriptive text, summary tables and photographs). Reston, Virginia. United States Geological Survey (map scale 1:1,400,000). http://www.epa.gov/wed/pages/ecoregions/nm_eco.htm.

Hatch, M.D., Cowley, D.E., Sublette, J.E., Jacobi, G.Z. and Hermann, S.J. 1998. *Native Fish Faunal Regions in New Mexico*, 54p (Appendix to Development of an Index of Biotic Integrity for Use in Water Resource and Fishery Management, Project No. 01, Federal Aid Grant F-59-R-7).

Lusk, J.D. and MacRae, R.K. 2002. *A Water Quality Assessment of Four Intermittent Streams in Los Alamos County, New Mexico*. United States Fish and Wildlife Service, New Mexico Ecological Services Field Office, Environmental Contaminants Program, Albuquerque, NM. 262p.

NMED/SWQB New Mexico Environment Department / Surface Water Quality Bureau.2007. *2006-2008 State of New Mexico Integrated Clean Water Act §303(d) / §305(b) Report*, Santa Fe, NM.

Sublette, J.E., M.D. Hatch and M. Sublette. 1990. *The Fishes of New Mexico*, University of New Mexico Press, Albuquerque, NM.

Attachment 1

SEGMENT DESCRIPTIONS, DESIGNATED USES, AND CRITERIA

20.6.4.126 RIO GRANDE BASIN - Perennial portions of Cañon deValle 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.

(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).

20.6.4.128 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.

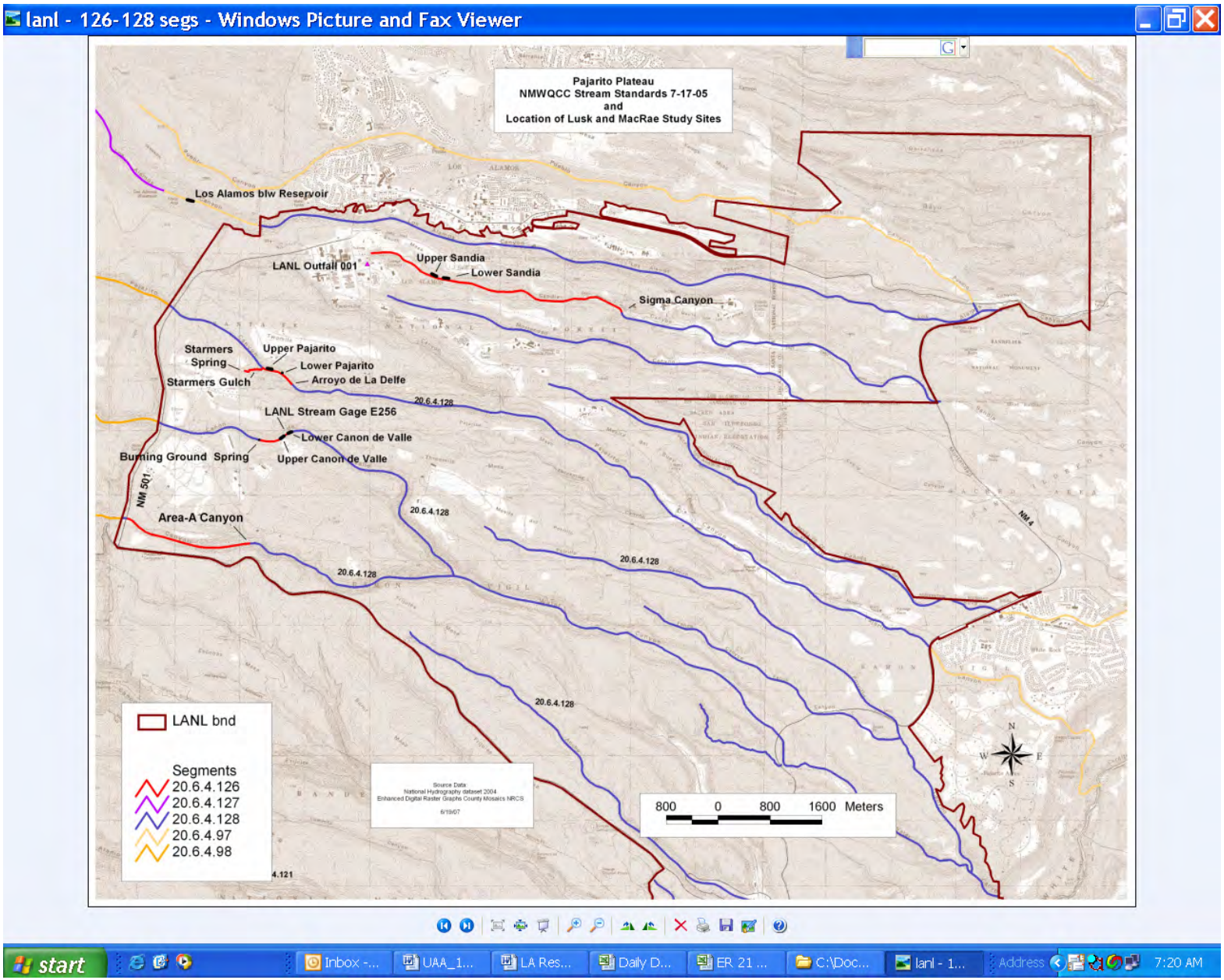
B. Criteria:

(1) The use-specific criteria in 20.6.4.900 NMAC, except the chronic criteria for aquatic life are applicable for the designated uses listed 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 acute total ammonia criteria set forth in Subsection K of 20.6.4.900 NMAC (salmonids absent) are applicable to this use.

Attachment 2
Map of Segments 126 and 128



Attachment 3
Photos of Lusk and MacRae Sampling Stations in Segment 126

Cañon de Valle Creek

Sandia Canyon Creek

Attachment 3

2020 TR LANL-00374

Pajarito Canyon Creek

Attachment 4
Photos of Stream Reaches in Segment 128

Single-stage Sampler in Ancho Canyon, July 2006

Installing Single-stage Sampler in Ancho Canyon July 2006

Attachment 4

2020 TR LANL-00377

Single-Stage Sampler in Cañon de Valle, July 2006

Attachment 4

2020 TR LANL-00378

Installing Single-stage Sampler in Water Canyon, July 2006

Installing Single-Stage Sampler in Pueblo Canyon, July 2006

Exhibit 19

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 6
1445 ROSS AVENUE, SUITE 1200
DALLAS, TX 75202-2733

Mr. Ron Curry
Chairman
Water Quality Control Commission
Harold Runnels Building
1190 Saint Francis Drive
Santa Fe, N.M., 87502

Subject: EPA Approval of Revisions to New Mexico's Standards for Interstate and Intrastate Surface Waters, 20.6.4 NMAC

Dear Mr. Curry:

I would like to inform you that we have completed our review of supporting documentation related to the State's 2005 triennial revisions. I would also like to express my appreciation for the efforts of the New Mexico Environment Department in the development of this documentation.

EPA's review was of a use attainability analysis, supporting the addition of sections 20.6.4.126 and 128 of the *Standards for Interstate and Intrastate Surface Waters* 20.6.4. NMAC. These revisions where adopted by the Commission and became effective as State law on May 23, 2005, with revisions effective on July 17, 2005. The original amendments were certified by the Assistant Attorney General by letter dated July 1, 2005, and were submitted to EPA as required under federal regulations at 40 CFR 131.20(c). EPA received this supporting use attainability analysis (UAA) on August 17, 2007. In today's action, EPA is approving sections 20.6.4.126 and 128 NMAC.

As detailed in my December 29, 2006, letter, EPA's approval of Sections 20.6.4.126 and 128 of the State's water quality standards is considered a federal action which may be subject to the Section 7(a)(2) consultation requirements of the Endangered Species Act (ESA).[1] EPA's approval of these sections of the water quality standards may be subject to the results of consultation with the U.S. Fish and Wildlife Service pursuant to Section 7(a)(2) of the ESA. EPA also has a Clean Water Act obligation, as a separate matter, to complete its water quality standards action. Therefore, in approving these revised sections of the New Mexico's water quality standards, EPA is completing its CWA Section 303(c) responsibilities for these sections. Should the consultation process with the U.S. Fish and Wildlife Service, as part of our consultation on the 2005 triennial submission, identify information that supports a conclusion that one or more of the revisions related to these sections is likely to jeopardize the continued existence of any endangered or threatened species, EPA will revisit and amend its approval decision for those revised or new water quality standards.

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1 Where EPA concludes that its approval action will have "no effect" on listed endangered or threatened species, or is otherwise not subject to ESA consultation, EPA can issue an unconditional approval.

As mentioned earlier, I appreciate both the Commission's and the Environment Department's efforts in the development of these important revisions to New Mexico's water quality standards, and commend the Commission for its action. I also appreciate the cooperative and constructive way in which the Environment Department staff has worked with my staff as in developing this UAA to support the 2005 amendments. If you need additional information, please call me at (214) 665-7101, or have the Environment Department staff contact Russell Nelson, my Regional Water Quality Standards Coordinator, at (214) 665-6646.

Sincerely,

Miguel I. Flores
Director
Water Quality Protection Division

cc: Denise Keehner, Director, SHPD
Amy Newman, Chief, RSTSSB
Lee Schroer, Office of General Counsel
Claudia Hosch, 6WQ-P
Marcy Leavitt, Chief,
Surface Water Quality Bureau
New Mexico Environment Dept.
Lynn Wellman
Regional Water Quality Coordinator
USFWS
Box 1306
Albuquerque, N.M., 87103
Brian Hanson
Acting Field Supervisor
Ecological Services Office
USFWS
2105 Osuna Road NE
Albuquerque, NM 87113-1001

Exhibit 20

PROPOSED AMENDMENTS AND STATEMENT OF BASIS
FOR NEW MEXICO ENVIRONMENT DEPARTMENT PETITION

THE 2003 TRIENNIAL REVIEW
OF THE NEW MEXICO SURFACE WATER QUALITY STANDARDS

AUGUST 15, 2003

This document contains the text of sections of the surface water quality standards that contain proposals for changes. Deleted materials are indicated by strikethrough, and new materials are indicated by underlining. Endnotes are used to provide the basis for changes that occur in multiple locations in the document and where the use of endnotes make the changes easier to follow. Endnotes begin at page 82.

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,[1] which are subject to the New Mexico Water Quality Act, Sections 74-6-1 through 74-6-17 NMSA 1978.

20.6.4.6 OBJECTIVE:

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 [~~which~~] that[2] 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 [~~which is~~][3] required for [~~recreation and maintenance of a fishery and protection of wildlife~~] protection and propagation of fish, shellfish and wildlife, and recreation in and on the water, where practicable.

Basis: Final sentence rephrased for consistency with previous sentence and CWA Section 101(a)(2).

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.

B. "best management practices" or "BMPs" means schedules of activities, prohibitions of certain practices, implementation of maintenance procedures, or other measures

B. **[~~Standards~~]Criteria[4]:**

(1) In any single sample: [~~conductivity~~] specific conductance[23] shall not exceed 500 µmhos (1,000 µmhos for Coyote creek), pH shall be within the range of 6.6 to 8.8, and temperature shall not exceed 20°C (68°F) [~~, and turbidity shall not exceed 25 NTU~~] [11]. The use-specific numeric [~~standards~~] criteria[4] set forth in 20.6.4.900 NMAC are applicable to the designated uses listed above in Subsection A of this section.

(2) [9] [~~The monthly geometric mean of fecal coliform bacteria shall not exceed 100/100 mL; no single sample shall exceed 200/100 mL~~] The monthly geometric mean of E. coli bacteria shall not exceed 126/100 mL; no single sample shall exceed 235/100 mL (see Subsection B of 20.6.4.13 NMAC).

20.6.4.120 RIO GRANDE BASIN - El Vado and Heron reservoirs.

A. Designated Uses: irrigation storage, livestock watering, wildlife habitat, primary contact, and coldwater [~~fishery~~] [5] aquatic life.

B. **[~~Standards~~]Criteria[4]:**

(1) At any sampling site: pH shall be within the range of 6.6 to 8.8, and temperature shall not exceed 20°C (68°F) [~~, and turbidity shall not exceed 25 NTU~~] [11]. The use-specific numeric [~~standards~~] criteria[4] set forth in 20.6.4.900 NMAC are applicable to the designated uses listed above in Subsection A of this section.

(2) [7] [~~The monthly geometric mean of fecal coliform bacteria shall not exceed 100/100 mL; no single sample shall exceed 200/100 mL~~] The monthly geometric mean of E. coli bacteria shall not exceed 126/100 mL; no single sample shall exceed 235/100 mL (see Subsection B of 20.6.4.13 NMAC).

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.

A. Designated Uses: domestic water supply, high quality coldwater [~~fishery~~] [5] aquatic life, irrigation, livestock watering, wildlife habitat, municipal and industrial water supply, secondary contact, and primary contact.

B. **[~~Standards~~]Criteria[4]:**

(1) In any single sample: [~~conductivity~~] specific conductance[23] shall not exceed 300 µmhos, pH shall be within the range of 6.6 to 8.8, and temperature shall not exceed 20°C (68°F) [~~, and turbidity shall not exceed 10 NTU~~] [11]. The use-specific numeric [~~standards~~] criteria[4] set forth in 20.6.4.900 NMAC are applicable to the designated uses listed above in Subsection A of this section.

(2) [7] [~~The monthly geometric mean of fecal coliform bacteria shall not exceed 100/100 mL; no single sample shall exceed 200/100 mL~~] The monthly geometric mean of E. coli bacteria shall not exceed 126/100 mL; no single sample shall exceed 235/100 mL (see Subsection B of 20.6.4.13 NMAC).

Basis: Adds "and" in segment description where it appears to be missing.

20.6.4.121a[24] RIO GRANDE BASIN – Perennial portions of Los Alamos Canyon below Los Alamos Reservoir and Perennial Portions of Cañon deValle, Sandia and Pajarito Canyons.

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

B. **Criteria**:

(1) In any single sample: pH shall be within the range of 6.6 to 8.8, and temperature shall not exceed 20°C (68°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 shall not exceed 126/100 mL; no single sample shall exceed 410/100 mL (see Subsection B of 20.6.4.13 NMAC).

Basis: New segment to classify waters based upon study by Fish and Wildlife Service.

20.6.4.121b[24] 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, secondary contact, and primary contact.

B. **Criteria**:

(1) In any single sample: pH shall be within the range of 6.6 to 8.8, and temperature shall not exceed 20°C (68°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 shall not exceed 126/100 mL; no single sample shall exceed 410/100 mL (see Subsection B of 20.6.4.13 NMAC).

Basis: New segment to classify waters based upon study by Fish and Wildlife Service.

20.6.4.122 RIO GRANDE BASIN - The main stem of the Rio Grande from [~~Taos Junction bridge~~] 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 [~~fishery~~][5] aquatic life, fish culture, irrigation, livestock watering, wildlife habitat, and primary contact.

B. **[~~Standards~~]Criteria**[4]:

(1) In any single sample: pH shall be within the range of 6.6 to 8.8, and temperature shall not exceed 20°C (68°F) [~~, and turbidity shall not exceed 50 NTU~~][11]. The use-specific numeric [~~standards~~] criteria[4] set forth in 20.6.4.900 NMAC are applicable to the designated uses listed above in Subsection A of this section.

(2)[7] [~~The monthly geometric mean of fecal coliform bacteria shall not exceed 100/100 mL; no single sample shall exceed 200/100 mL~~] The monthly geometric mean of E. coli bacteria shall not exceed 126/100 mL; no single sample shall exceed 235/100 mL (see Subsection B of 20.6.4.13 NMAC).

Basis: "Taos Junction bridge" changed to "Rio Pueblo de Taos" to use a hydrologic rather than a cultural feature.