State of New Mexico

Water Quality Control Commission

FINAL 08/11/08
RECORD OF DECISION

For the 2008-2010 State of New Mexico CWA §303(d)/§305(b) Integrated List for Assessed Surface Waters

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RECORD OF DECISION (ROD)

for the

2008-2010 STATE OF NEW MEXICO
§303(d)/§305(b) INTEGRATED LIST FOR
ASSESSED SURFACE WATERS:

New Mexico Environment Department
Surface Water Quality Bureau
1190 St. Francis Drive
P.O. Box 26110
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August 11, 2008

Note: The following watersheds and/or waterbodies were studied during this biennial listing cycle: **Jemez River, Middle Rio Grande, Middle Rio Grande Mainstem Tributaries, Dry Cimarron, and Canadian River**. The Pajarito Plateau listings will be re-assessed to incorporate additional data received since the last listing cycle, and presented in a separate addendum to this list in early 2009.

The majority of impairment determinations outside of these watershed studies, with few individual exceptions, remain unchanged from the final 2006-2008 §303(d) list.

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TABLE OF CONTENTS

PREFACE **5**

I. What's New in 2008 ..... *5*
II. List Integration and Format (starting with 2004 cycle) *5*
III. Organization of List and ROD *6*
IV. Useful Definitions *7*
V. Abbreviations in Assessment Unit Names *10*
DEFINITIONS (NMAC 20.6.4 .7) *11*
GENERAL STANDARDS (NMAC 20.6.4.13) *14*

DRY CIMARRON RIVER BASIN **17**

HUC 11040001 Cimarron Headwaters *17*

CANADIAN RIVER BASIN **23**

HUC 11080001 Canadian Headwaters *23*
HUC 11080002 Cimarron *31*
HUC 11080003 Upper Canadian *54*
HUC 11080004 Mora *58*
HUC 11080005 Conchas *67*
HUC 11080006 Upper Canadian-Ute Reservoir *68*
HUC 11080008 Revuelto *70*
HUC 11100101 Upper Beaver *71*

SOUTHERN HIGH PLAINS BASIN **72**

HUC 12050001 Yellow House Draw *72*
HUC 12050002 Blackwater Draw *73*
HUC 12080001 Lost Draw *76*

RIO GRANDE BASIN **77**

UPPER RIO GRANDE (COCHITI RESERVOIR TO CO BORDER) 77
HUC 13010005 Conejos *77*
HUC 13020101 Upper Rio Grande *80*
HUC 13020102 Rio Chama *122*
MIDDLE RIO GRANDE (ELEPHANT BUTTE TO COCHITI RESERVOIR) 163
HUC 13020201 Rio Grande - Santa Fe *163*
HUC 13020202 Jemez *182*
HUC 13020203 Rio Grande - Albuquerque *211*
HUC 13020204 Rio Puerco *218*
HUC 13020207 Rio San Jose *223*
HUC 13020211 Elephant Butte Reservoir *228*
HUC 13030101 Caballo *229*
LOWER RIO GRANDE (TX BORDER TO ELEPHANT BUTTE) 231
HUC 13030102 El Paso-Las Cruces *231*

SOUTHWEST CLOSED BASIN **235**

HUC 13030202 Mimbres *235*

CENTRAL CLOSED BASIN **241**

HUC 13050003 Tularosa Valley *241*

PECOS RIVER BASIN **244**

UPPER PECOS (FT. SUMNER TO HEADWATERS) 244
HUC 13060001 Pecos Headwaters *244*
HUC 13060003 Upper Pecos *263*
HUC 13060007 Upper Pecos -Long Arroyo *264*
LOWER PECOS (TX BORDER TO FT. SUMNER) 265
HUC 13060008 Rio Hondo *265*
HUC 13060010 Rio Peñasco *270*
HUC 13060011 Upper Pecos-Black *272*

SAN JUAN RIVER BASIN **280**

HUC 14080101 Upper San Juan *280*
HUC 14080104 Animas *286*
HUC 14080105 Middle San Juan *291*

LITTLE COLORADO RIVER BASIN **295**

HUC 15020003 Carrizo Wash *295*
HUC 15020004 Zuni *296*

GILA RIVER BASIN **298**

HUC 15040001 Upper Gila *298*
HUC 15040002 Upper Gila - Mangas *311*
HUC 15040003 Animas Valley *315*

SAN FRANCISCO RIVER BASIN **317**

HUC 15040004 San Francisco *317*

PREFACE

This Record of Decision (ROD) document is a historical record of impaired surface waters (i.e., "Category 5 waters") provided to reviewers and users of the list and USEPA to help track listing and de-listing information used in the development of New Mexico's Integrated §303(d)/ §305(b) list and report. USEPA does not require this document and do not official approve or disapprove this document or any of its contents.

I. What's New in 2008

In 2005, the New Mexico Water Quality Control Commission adopted 20.6.4.97 through 20.6.4.99 to cover ephemeral, intermittent, and perennial water bodies that did not fall under any classified water quality standard segment (i.e., 20.6.4.101 through 20.6.4.899 NMAC). EPA Region 6 has not yet approved these three sections of 20.6.4 NMAC. They have requested that when data are available, water bodies falling under 20.6.4.98 be assessed against marginal warmwater aquatic life (MWWAL) criteria found in 20.6.4.900 Subsection H Paragraph (5), and water bodies falling under 20.6.4.99 be assessed against warmwater aquatic life (WWAL) criteria found in 20.6.4.900 Subsection H Paragraph (4). EPA presumes water bodies support these aquatic life uses, at a minimum, unless a use attainability analysis has demonstrated otherwise. For similar reasons, EPA Region 6 has also requested that no water bodies be noted as "WQS Reference" 20.6.4.97 on the Integrated List until this section is resolved, so these ephemeral water bodies are noted as "WQS Reference" 20.6.4.98.

II. List Integration and Format (starting with 2004 cycle)

Starting with the 2004 listing cycle, the State of New Mexico has prepared an Integrated §303(d)/ §305(b) list which includes designated use attainment status for <u>all</u> assessed surface waters in the state in accordance with USEPA Guidance (http://www.epa.gov/owow/tmdl/2006IRG/). Previous lists (2002 and earlier) only included the "303(d)" or impaired portion of the list. The new Integrated Listing methodology was built into the Assessment Protocols (http://www.nmenv.state.nm.us/swqb/protocols/index.html), which the SWQB utilizes to determine whether or not water quality standards are attained based on recent data.

An important concept in the Integrated List format is the "Integrated Report Category" or "IR Category." The determination of individual designated use support is combined to determine the overall water quality standard attainment category for each assessment unit (AU) (i.e., stream/river reach, lake, or reservoir). The specific IR Categories for New Mexico are described in the below <u>Useful Definitions</u> section. They are also discussed in detail in the Assessment Protocols referenced above.

The list of assessments units that are labeled as Category 5A, 5B, or 5C on the draft list is

equivalent to the State of New Mexico §303(d) list and are individually detailed in the Record of Decision (ROD). A list of these Category 5 waters is included at the beginning of the draft Integrated List to assist with review. The ROD is a voluntary document used to track designated use attainment decisions. The ROD is not an official requirement of the Clean Water Act and is provided as supporting documentation for listing and de-listing rationale. Although waters in Category 4A, 4B, 4C, and 4N waters are also impaired, the EPA interprets Category 5 waters as meeting the requirements on regulation 130.7(a): "…water quality limited segments still requiring wasteload allocations, load allocations and total maximum daily loads…," which is why only Category 5 waters constitute the §303(d) list from EPA's perspective.

Also, the exact wording of "Probable Causes of Impairment" and "Probable Sources of Impairment" has changed a bit from previous years because EPA developed a standardized list for the nation that New Mexico is utilizing for the most part.

III. Organization of List and ROD

Similar to the previous list, the list and Record of Decision (ROD) are organized by watershed (8-dgit HUC code). The following watersheds were studied during this biennial listing cycle:

- Jemez River
- Middle Rio Grande (including mainstem tributaries)
- Dry Cimarron
- Canadian River

During 2006 and 2007, the SWQB implemented a special study of the Pajarito Plateau. The waterbodies in this region will be re-assessed to incorporate these data as well as additional data received since the last listing cycle, and presented in a separate addendum to this list in early 2009 because all data were not received in time to collate and re-assess for inclusion in the release of the main draft Integrated List on June 9, 2008.

The majority of impairment determinations outside of these watershed studies, with few individual exceptions, remain unchanged from the final 2006-2008 §303(d) list.

If no new data were submitted by outside sources or collected by SWQB, then the listing were carried forward from the 2006-2008 list with a "**2008 ACTION:** None" notation in the ROD. All data collected during our 2007 intensive surveys were not available or checked for QA/QC purposes in time for development of this list. Conclusions from the 2007 intensive surveys and 2008 special surveys will be the focus of the 2010 listing cycle.

IV. Useful Definitions

INTEGRATED LIST FIELD HEADINGS AND CODES --

Assessment unit ID	An internal database code that is not intended to provide any specific information to the reader of the list
Assessment unit name	Descriptive name of a specific waterbody (stream reach or lake). Limited to 60 characters.
Attainment	The use attainment status for the given designated use
Cycle Last Assessed	This field generally notes the last Integrated Report Cycle when data for this particular watershed were assessed and reported.
Designated use(s)	Any designated uses specified in the State of New Mexico Standards for Interstate and Intrastate Surface Waters (20.6.4 NMAC) that apply to the given assessment unit and/or any documented existing uses that apply to the given assessment unit. Uses that are existing but not officially designated in NMAC are also listed here with a note in "Assessment Unit Comments."
DO	The amount of dissolved oxygen in the water; usually reported in mg/L.
E. coli Escherichia coli	
FS	Full Support or Fully Supporting
HUC	8-digit Hydrologic Unit Codes (HUC) that identify various watersheds. The US Geologic Survey defines these codes and associated watershed names.
IR (Integrated Report) Category	Overall water quality standards attainment category for each assessment unit as determined by combining individual designated use support decisions. The unique assessment categories for New Mexico are described as follows as follows:
IR Category 1	Attaining the water quality standards for all designated and existing uses. AUs are listed in this category if there are data and information that meet all requirements of the assessment and listing methodology and support a determination that the water quality criteria are attained.
IR Category 2	Attaining some of the designated or existing uses based on numeric and narrative parameters that were tested, and no reliable monitored data is available to determine if the remaining uses are attained or threatened. AUs are listed in this category if there are data and information that meet requirements of the assessment and listing methodology to support a determination that some, but not all, uses are attained based on numeric and narrative water quality criteria that were tested. Attainment status of the remaining uses is unknown because there is no reliable monitored

	data with which to make a determination.
IR Category 3	No reliable monitored data and/or information to determine if any designated or existing use is attained. AUs are listed in this category where data to support an attainment determination for any use are not available, consistent with requirements of the assessment and listing methodology.
IR Category 4A	Impaired for one or more designated uses, but does not require development of a TMDL because TMDL has been completed. AUs are listed in this subcategory once all TMDL(s) have been developed and approved by USEPA that, when implemented, are expected to result in full attainment of the standard. Where more than one pollutant is associated with the impairment of an AU, the AU remains in Category 5A (see below) until all TMDLs for each pollutant have been completed and approved by USEPA.
IR Category 4B	Impaired for one or more designated uses, but does not require development of a TMDL because other pollution control requirements are reasonably expected to result in attainment of the water quality standard in the near future. Consistent with the regulation under 40 CFR 130.7(b)(i),(ii), and (iii), AUs are listed in this subcategory where other pollution control requirements required by local, state, or federal authority are stringent enough to implement any water quality standard (WQS) applicable to such waters.
IR Category 4C	Impaired for one or more designated uses, but does not require development of a TMDL because impairment is not caused by a pollutant. AUs are listed in this subcategory if a pollutant does not cause the impairment. For example, USEPA considers flow alteration to be "pollution" vs. a "pollutant."
IR Category 4N	Impairment is caused solely due to natural conditions. AUs are listed in this subcategory if the impairment is due solely to natural conditions. These waters are still protected by antidegradation provisions, and decisions regarding discharges or activities in the watershed that could increase the pollutant of concern must consider these waters to be "impaired." To be placed in this category, SWQB must have evidence that anthropogenic activities are not contributing to the impairment.
IR Category 5/5A	Impaired for one or more designated or existing uses and a TMDL is underway or scheduled. AUs are listed in this category if the AU is impaired for one or more designated uses by a pollutant. Where more than one pollutant is associated with the impairment of a single AU, the AU remains in Category 5A until TMDLs for all pollutants have been completed and approved by USEPA.
IR Category 5/5B	Impaired for one or more designated or existing uses and a review of the water quality standard will be conducted. AUs are listed in this category when it is possible that water quality standards are not being met because

	one or more current designated use is inappropriate. After a review of the water quality standard is conducted, a Use Attainability Analysis (UAA) will be developed and submitted to USEPA for consideration, or the AU will be moved to Category 5A and a TMDL will be scheduled.
IR Category5/5C	Impaired for one or more designated or existing uses and Additional data will be collected before a TMDL is scheduled. AUs are listed in this category if there is not enough data to determine the pollutant of concern or there is not adequate data to develop a TMDL. For example, AUs with biological impairment will be listed in this category until further research can determine the particular pollutant(s) of concern. When the pollutant(s) are determined, the AU will be moved to Category 5A and a TMDL will be scheduled. If it is determined that the current designated uses are inappropriate, it will be moved to Category 5B and a UAA will be developed. If it is determined that "pollution" is causing the impairment (vs. a "pollutant"), the AU will be moved to Category 4C.
Monitoring Schedule	These proposed dates are primarily based on a revised 8-year SWQB rotational watershed monitoring schedule that is still under development. This date, as well as the "TMDL Schedule" date, is dependent upon personnel, financial, and laboratory resources which change on an annual basis.
NPDES	National Pollutant Discharge Elimination System. "Individual Active NPDES Permit" information towards the bottom of each entry is provided to alert users of the 303(d) list that there are active NPDES discharge permits in the watershed of the given assessment unit. The expanded information includes Permit Number and Permit Facility Name. This information is queried from the SWQB database that currently tracks Individual NPDES permits only (i.e., it does not include General NPDES permits such as storm water permits). The NPDES query was restricted to include only Active permits. Some NPDES permittees discharge directly into the given assessment unit, while others discharge into tributaries of the given assessment unit.
NS	Non Support or Not Supporting
PCBs Poly	chlorinated biphenyls; highly-persistent compounds that are fat soluble and accumulate in the food chain
Probable Cause(s)	Parameters and/or constituents that are causing non-attainment of the noted uses
Probable Source(s)	Probable sources that may be leading to non-attainment of the noted uses
SBD	Stream bottom deposits; water c ontaminants that settle and dam age or impair the norm al growth, function, or reproduction of aquatic life or significantly alter the physical or chemical properties of the bottom(NMAC 20.6.4.13). These listings are also referred to as Sedimentation/Siltation

Size	Streams and/or rivers = Miles, Lakes and/or playas = Acres
TDS Total	dissolved solids, also referred to as "total filterable residue"
TOC Total	organic carbon
TMDL Total	Maximum Daily Load
TMDL(s) schedule	These proposed dates are primarily based on a revised 8-year rotational monitoring schedule that is still under development, consent decree deadlines, date since last intensively surveyed, etc. If listed as Category 5A, this is the proposed year of TMDL completion. If 5B or 5C, new data should be collected by this date. At that point, either a TMDL should be developed, or the category changed accordingly. This date, as well as the "Monitoring Schedule" date, is dependent upon personnel and financial resources which change on an annual basis.
Watershed	The name of the 8-digit Hydrologic Unit Code (HUC) watershed of the assessment unit as defined by the US Geologic Survey.
WQS reference	Water Quality Standard segment as described in the State of New Mexico Standards for Interstate and Intrastate Surface Waters (20.6.4 NMAC) that applies to the given assessment unit

V. Abbreviations in Assessment Unit Names

The size of the assessment unit name is limited to 60 characters by the database. Therefore, the following abbreviations were used when necessary:

abv	=	above
AZ	=	Arizona
blw	=	below
bnd	=	boundary
Campgrd	=	Campground
Ck	=	Creek
CO	=	Colorado
confl	=	confluence
Div	=	Diversion
E	=	East
Fk	=	Fork
HWY	=	Highway
LANL	=	Los Alamos National Laboratory
M	=	Middle
mgd	=	million gallons per day
NM	=	New Mexico
N	=	North
nr	=	near

OK	=	Oklahoma
Prt	=	Portion
R	=	River or Rio
Rsvr	=	Reservoir
S	=	South
Spr	=	Spring
TX	=	Texas
VCNP	=	Valles Caldera National Preserve
USFS	=	United States Forest Service
W	=	West

The following list of definitions and general (narrative) water quality standards were extracted from the *State of New Mexico Standards for Interstate and Intrastate Surface Waters* (NMAC 20.6.4 as amended through August 1, 2007) is provided to the reader for clarity. Water quality standards are revised on a regular basis, so the reader should always refer to the Surface Water Quality Bureau (SWQB) web site (http://www.nmenv.state.nm.us/swqb/Standards/index.html) or call the office (505-827-0187) for the most current version of the water quality standards.

DEFINITIONS (NMAC 20.6.4 .7)

"coldwater aquatic life use"
in reference to an aquatic life use means a surface water of the state where the water temperature and other characteristics are suitable for the support or propagation or both of coldwater aquatic life

"designated use or uses"
means those uses specified in Sections 20.6.4.101 through 20.6.4.899 NMAC for each surface water of the state whether or not they are being attained.

"domestic water supply"
means a surface water of the state that may be used for drinking or culinary purposes after disinfection.

"ephemeral stream"
means a stream or reach of a stream that flows briefly only in direct response to precipitation or snowmelt in the immediate locality; its channel bed is always above the water table of the region adjoining the stream.

"fish culture"
means production of coldwater or warmwater fishes in a hatchery or rearing station.

"high quality coldwater aquatic life use"
means a perennial surface water of the state in a minimally disturbed condition which has considerable aesthetic value and is a superior coldwater aquatic life habitat. A surface water of the state to be so categorized must have water quality, stream bed characteristics, and other

attributes of habitat sufficient to protect and maintain a propagating coldwater aquatic life population.

“intermittent stream”
means a stream or reach of a stream that contains water only at certain times of the year, such as when it receives flow from springs, melting snow, or localized precipitation.

“irrigation”
means application of water to land areas to supply the water needs of beneficial plants.

“limited aquatic life”
means the surface water is capable of supporting only a limited community of aquatic life. This subcategory includes surface waters that support aquatic life 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.

“marginal warmwater aquatic life use”
means a surface water of the state where intermittent flow may severely limit the ability of the reach to sustain a natural fish population on a continuous annual basis; or a surface water of the state where historical data indicate that water temperature may routinely exceed 32.2°C (90°F).

“livestock watering”
means a surface water of the state used as a supply of water for consumption by livestock.

“marginal coldwater aquatic life use”
means that natural intermittent or low flows, or other natural habitat conditions severely limit maintenance of a coldwater aquatic life population or historical data indicate that the maximum temperature in the surface water of the state may exceed 25°C (77°F).

“perennial stream”
means 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.

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

“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.

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

“warmwater 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 warmwater aquatic life.

“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.

GENERAL STANDARDS (NMAC 20.6.4.13)

GENERAL CRITERIA: General criteria are established to sustain and protect existing or attainable uses of surface waters of the state. These general criteria apply to all surface waters of the state at all times, unless a specified criterion is provided elsewhere in this part. Surface waters of the state shall be free of any water contaminant in such quantity and of such duration as may with reasonable probability injure human health, animal or plant life or property, or unreasonably interfere with the public welfare or the use of property.

Bottom Deposits and Suspended or Settleable Solids:
(1) Surface waters of the state shall be free of water contaminants including fine sediment particles (less than two millimeters in diameter), precipitates or organic or inorganic solids from other than natural causes that have settled to form layers on or fill the interstices of the natural or dominant substrate in quantities that damage or impair the normal growth, function or reproduction of aquatic life or significantly alter the physical or chemical properties of the bottom.
(2) Suspended or settleable solids from other than natural causes shall not be present in surface waters of the state in quantities that damage or impair the normal growth, function or reproduction of aquatic life or adversely affect other designated uses.

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.

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.

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

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

Toxic Pollutants:
(1) Except as provided in 20.6.4.16 NMAC, surface waters of the state shall be free of toxic pollutants from other than natural causes in amounts, concentrations or combinations that affect the propagation of fish or that are toxic to humans, livestock or other animals, fish or other

aquatic organisms, wildlife using aquatic environments for habitation or aquatic organisms for food, or that will or can reasonably be expected to bioaccumulate in tissues of fish, shellfish and other aquatic organisms to levels that will impair the health of aquatic organisms or wildlife or result in unacceptable tastes, odors or health risks to human consumers of aquatic organisms.

(2) Pursuant to this section, the human health 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 20.6.4.11, 20.6.4.12 and 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 20.6.4.11, 20.6.4.12 and 20.6.4.14 NMAC.

(a) The chronic aquatic life criterion shall be the "freshwater criterion continuous concentration" published by the U.S. environmental protection agency pursuant to Section 304(a) of the federal Clean Water Act; 20.6.4 NMAC 11

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

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

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

(4) Pursuant to this section, the acute aquatic life criteria shall be as set out in 20.6.4.900 NMAC. For a toxic pollutant for aquatic life with no acute criterion 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.

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

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

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 would thereby be exceeded. These temperature criteria shall not apply to impoundments constructed offstream for the purpose of heat disposal. High water temperatures caused by unusually high ambient air temperatures are not violations of these standards.

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.

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.

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.

DRY CIMARRON RIVER BASIN

HUC 11040001 Cimarron Headwaters

Carrizozo Creek (Dry Cimarron River to headwaters)
WQS: 20.6.4.701 AU: NM-2701_40

Listed for chloride and removal of riparian habitat. Data are from one station (DCR701.000103) sampled in 1986. Chloride data indicate Full Support, Impacts Observed for the fishery use (1/3).

1998 ACTION: Chloride will be removed as a cause of non-support for this reach and will be listed on the 1998 305(b) report as Full Support, Impacts Observed for chloride. The reach will continue to be listed on the 1998 303(d) report with unknown as the cause of non-support.

2000 ACTION: None

2002 ACTION: The Dry Cimarron watershed was intensively surveyed by SWQB in 2000. The reach will be listed as **Not Supporting for DO (6/8) and chronic aluminum (3/9).** The reach will be listed as **Full Support, Impacts Observed for chloride and temperature (1/8).**

2004 ACTION: Aluminum was incorrectly assessed for the last listing cycle. Since multi-day data were available, means were determined and compared to the chronic criterion. There were 1 of 3 exceedences using seasonal means. Therefore, **aluminum will be removed as a cause of non support** Also, according to the survey lead, the DO measurements are not reliable because the only access point in this AU was a beaver bog. A healthy warmwater fishery was also present. Because of limited access and a naturally low DO condition due to the beaver bog, **dissolved oxygen will be removed as a cause of non support.**

2006 ACTION: None

2008 ACTION: None. This AU was not sampled during the 2006 survey, and may not be perennial.

Dry Cimarron River (Long Canyon to Oak Creek)
WQS: 20.6.4.701 AU: NM-2701_02

2008 ACTION: As of the date of this review (4/4/08), EPA Region 6 has not approved the 2005 triennial proposal to create WQ standard segment 20.6.4.702 under

which this AU would fall. Therefore, this AU still falls under 20.6.4.701 and the associated designated uses to make 2008 impairment determinations. This AU unit was intensively surveyed in 2006. There were 2 of 6 exceedences of the 235 cfu/100mL E. coli criterion for secondary contact. There were 3 of 7 exceedences of the segment-specific 1,200 mg/L total dissolved solids criterion. **Therefore, E. coli and total dissolved solids were added as causes of impairment.**

Dry Cimarron River (Perennial reaches OK bnd to Long Canyon)
WQS: 20.6.4.701 AU: NM-2701_00

Previously listed under "Dry Cimarron River, perennial portions" and listed for temperature, pH, salinity (TDS), fecal coliform, total ammonia and stream bottom deposits. Temperature data indicated the fishery use was not supported at 3 of 4 stations (5/5, 4/4, and 5/5) while it was supported at only one station (0/5). Data for pH are similar and indicate full support (0/5) for the fishery use at one station (same station as temperature), while the use was not supported at the other stations (4/5, 2/5, 5/5). Total dissolved solids (salinity) data indicated that the fishery use was not supported at 2 stations (DCR701.000102, 5/5 and DCR701.000105, 5/5), while it was supported at 2 stations (0/5 and 0/5). Fecal coliform data indicated full support of the contact recreation use at two stations (DCR701.000105, 0/1 and DCR701.002010, 0/1) and Full Support, Impacts Observed at station DCR701.000102 (1/1). Total ammonia data indicated that the fishery use was partially supported at 3 stations (2/5,2/5, and 2/4), while it was full support at station DCR701.002010, 0/5. A biological assessment was conducted in 1990 by the NMED. The biological assessment found that the fishery use for station DCR701.002010 was not supported (40% of reference). Station DCR701.000110 was full support (90% of reference) and station DCR701.000102 was Full Support, Impacts Observed (75% of reference) for the fishery use.

1998 ACTION: Fecal coliform will be removed as a cause of non-support for this reach but will be listed on the 1998 305(b) list as Full Support, Impacts Observed. The reach will continue to be included on the 1998 303(d) list as not Supported for stations below DCR701.0002010 with temperature, TDS, pH, total ammonia and stream bottom deposits as the causes of non-support.

2000 ACTION: None

2002 ACTION: This reach was defined by segmenting "Dry Cimarron River, perennial portions" into two assessment units. The Dry Cimarron watershed was intensively surveyed by SWQB in 2000. The reach will be listed as **Not Supporting for TDS (10/45) and temperature** based on thermograph data and temperature assessment protocol (data indicate an exceedence of the segment specific criteria of 25 C for more than 6 consecutive hours). This reach will be **de-listed for pH (0/40), total ammonia (0/37), and stream bottom deposits (benthic and sediment sampling stations are reference sites).**

2004 ACTION: None. This AU should be listed as Category 5B because CWF is not an existing use and likely not an attainable use.

2006 ACTION: WQS was changed during the 2005 triennial review process. AU was split at Long Canyon for 2006 survey. Aquatic life use was changed to Warmwater (temperature criterion of 32.2 degrees C). The max temperature from the 2000 survey was 30.0. Therefore, temperature was removed as a cause of non support.

2008 ACTION: As of the date of this review (4/4/08), EPA Region 6 has not approved the 2005 triennial proposal to create WQ standard segment 20.6.4.702 under which this AU would fall. Therefore, this AU still falls under 20.6.4.701 and the associated designated uses to make 2008 impairment determinations. This AU unit was intensively surveyed in 2006. There were 4 of 7 exceedences of the segment-specific 1,200 mg/L total dissolved solids criterion. There were 3 of 7 exceedences of the segment-specific 600 mg/L sulfate criterion. Dissolved oxygen concentration and saturation data lead to a conclusion of non support. The maximum temperature measured by thermograph was 30 degrees C, and the criterion of 25 degrees C was also exceeded for > 6 consecutive hours for > 3 consecutive days. **Therefore, total dissolved solids, sulfate, dissolved oxygen, and temperature were added as causes of impairment.** Note that both the temperature and dissolved oxygen impairments were measured at station DCR at Wiggins Road which has wetland characteristics and may not be representative of the rest of the AU.

Dry Cimarron River (Oak Creek to headwaters)
WQS: 20.6.4.701 AU: NM-2701_01

Previously listed as "Dry Cimarron River, perennial portions" and listed for temperature, pH, salinity (TDS), fecal coliform, total ammonia and stream bottom deposits. Temperature data indicated the fishery use was not supported at 3 of 4 stations (5/5, 4/4, and 5/5) while it was supported at only one station (0/5). Data for pH are similar and indicate full support (0/5) for the fishery use at one station (same station as temperature), while the use was not supported at the other stations (4/5, 2/5, 5/5). Total dissolved solids (salinity) data indicated that the fishery use was not supported at 2 stations (DCR701.000102, 5/5 and DCR701.000105, 5/5), while it was supported at 2 stations (0/5 and 0/5). Fecal coliform data indicated full support of the contact recreation use at two stations (DCR701.000105, 0/1 and DCR701.002010, 0/1) and Full Support, Impacts Observed at station DCR701.000102 (1/1). Total ammonia data indicated that the fishery use was partially supported at 3 stations (2/5,2/5, and 2/4), while it was full support at station DCR701.002010, 0/5. A biological assessment was conducted in 1990 by the NMED. The biological assessment found that the fishery use for station DCR701.002010 was not supported (40% of reference). Station DCR701.000110 was full support (90% of reference) and station DCR701.000102 was Full Support, Impacts Observed (75% of reference) for the fishery use.

1998 ACTION: Fecal coliform will be removed as a cause of non-support for this reach but will be listed on the 1998 305(b) list as Full Support, Impacts Observed. The reach will continue to be included on the 1998 303(d) list as not Supported for stations below DCR701.0002010 with temperature, TDS, pH, total ammonia and stream bottom deposits as the causes of non-support.

2000 ACTION: None

2002 ACTION: This reach was defined by segmenting "Dry Cimarron River, perennial portions" into two assessment units. The Dry Cimarron watershed was intensively surveyed by SWQB in 2000. This reach will be **de-listed for pH (1/8 at 8.87 which is within meter error range of 0.2), TDS (0/8), temperature (no exceedences of 25 C standard based on thermograph data), total ammonia (0/17), and stream bottom deposits (benthic data indicate 87% of reference and percent fines are lower than the reference).**

2004 ACTION: None

2006 ACTION: None

2008 ACTION: As of the date of this review (4/4/08), EPA Region 6 has not approved the 2005 triennial proposal to change the aquatic life use from CWAL to MCWAL and WWAL. Therefore, CWAL is still in effect and was the ALU used for the 2008 impairment determinations. This AU unit was intensively surveyed in 2006. No impairments were determined.

Long Canyon (Perennial portions abv Dry Cimarron)
WQS: 20.6.4.701 AU: NM-2701_20

Previously listed for temperature and total ammonia. Data are from one station (DCR701.000505) sampled in 1990. Temperature data indicated that the fishery use was not supported (2/4). Total ammonia data indicated that the use was supported (0/5).

1998 ACTION: Total ammonia will be removed as a cause of non-support for this reach. The reach will continue to be listed on the 1998 303(d) list with temperature as the cause of non-support.

2000 ACTION: None

2002 ACTION: The Dry Cimarron watershed was intensively surveyed by SWQB in 2000. The reach will continue to be listed as **Not Supporting for temperature** based on thermograph data and temperature assessment protocol (data indicate an exceedence of the segment specific criteria of 25 C for more than 6 consecutive hours).

2004 ACTION: This AU should be listed as Category 5B because CWF is not an existing use and likely not an attainable use.

2006 ACTION: WQS was changed during the 2005 triennial review process. Aquatic life use was changed to warm water (temperature criterion of 32.2 degrees C). The exceedence rate of the applicable criterion of 32.2 was < 9.7%. **Therefore, temperature was removed as a cause of non support.**

2008 ACTION: As of the date of this review (4/4/08), EPA Region 6 has not approved the 2005 triennial proposal to create WQ standard segment 20.6.4.702 under which this AU would fall. Therefore, this AU still falls under 20.6.4.701 and the associated designated uses to make 2008 impairment determinations. This AU unit was intensively surveyed in 2006. There were 4 of 6 exceedences of the 235 cfu/100mL E. coli criterion for secondary contact. There were 3 of 4 exceedences of the 5 ug/L total recoverable selenium criterion for both wildlife habitat and aquatic life uses. There were 2 of 8 exceedences of the temperature criterion of 25 degrees C. A thermograph was deployed May 2008 to confirm the listing. **Therefore, E. coli, temperature, and total recoverable selenium were added as causes of impairment.**

Oak Creek (Dry Cimarron River to headwaters)
WQS: 20.6.4.701 AU: NM-2701_10

Listed for temperature, total ammonia, pH, and Removal of Riparian Habitat. There are two stations with data from 1990. Station DCR701.001501 indicated full support of the fishery use for all parameters (0/5). Station DCR701.001507 indicated Full Support, Impacts Observed for all three parameters (1/1). This station was also the reference site for a 1990 biological survey, which indicates full support for the fishery use.

1998 ACTION: The chemical and biological data supports upgrading this reach to full support. However the reach will continue to be listed as Partially Supporting with unknown as the cause on non-support.

2000 ACTION: None

2002 ACTION: The Dry Cimmarron watershed was intensively surveyed by SWQB in 2000. The reach will be **de- listed for cause Unknown** because survey data indicates Full Support for known contaminants.

2004 ACTION: None

2006 ACTION: None

2008 ACTION: As of the date of this review (4/4/08), EPA Region 6 has not approved the 2005 triennial proposal to change the aquatic life use from CWAL to MCWAL and WWAL. Therefore, CWAL is still in effect and was the ALU used for the 2008 impairment determinations. This AU unit was intensively surveyed in 2006. There were 3 of 6 exceedences of the 235 cfu/100mL E. coli criterion for secondary contact. A Level 2 nutrient assessment indicated nutrient impairment due to total nitrogen, total phosphorus, and chlorophyll *a* values above applicable numeric thresholds, as well as low dissolved oxygen. **Therefore, E. coli and nutrients were added as causes of impairment.**

CANADIAN RIVER BASIN

HUC 11080001 Canadian Headwaters

Caliente Canyon (Vermejo River to headwaters)
WQS: 20.6.4.309 AU: NM-2306.A_151

2004 ACTION: This reach was intensively sampled during the 2002 Canadian part 1 survey. There were 2 of 2 exceedences of the specific conductance criterion of 500 umhos/cm. **Therefore, specific conductance will be added as a cause of non support.** This AU will be placed in Category 5B because it probably is incorrectly classified as a HQCWF due to low flows and high base temperatures.

2006 ACTION: None

2008 ACTION: A TMDL was completed for specific conductance.

Canadian River (Cimarron River to CO border)
WQS: 20.6.4.305 AU: NM-2305.A_200

Previously listed for stream bottom deposits and fecal coliform. There are five sampling stations on this reach. All data are from 1988 and 1993 surveys. Fecal coliform data indicate full support at station CRB306.019020 (0/1), and Full Support, Impacts Observed at station CRB306.019010 (1/3). There are no data to support the listing of stream bottom deposits for this LWWF.

1998 ACTION: This reach will be listed as Full Support, Impacts Observed on the 1998 305(b) list with fecal coliform as the cause. The reach has been dropped from the 1998 303(d) list.

2000 ACTION: None

2002 ACTION: None

2004 ACTION: None

2006 ACTION: None

2008 ACTION: This AU was intensively surveyed during the Canadian Part 2 (2006) watershed survey. A Level 2 nutrient assessment indicated nutrient impairment due to total nitrogen, and total phosphorus values above

applicable numeric thresholds, as well as low dissolved oxygen (based on grab data). **Therefore, nutrients were added as a cause of non support.** A sonde should be deployed to verity %DO saturation exceedences.

Canadian River (Conchas River to Mora River)
WQS: 20.6.4.305 AU: NM-2305.A_000

2008 ACTION: This AU was intensively surveyed during the Canadian Part 2 (2006) watershed survey. There were 2 of 13 exceedences of the E. coli criterion. **Therefore, E. coil was added as a cause of non support.**

Canadian River (Ute Reservoir to Conchas Reservoir)
WQS: 20.6.4.303 AU: NM-2303_00

2008 ACTION: This AU was intensively surveyed during the Canadian Part 2 (2006) watershed survey. There were 2 of 5 exceedences of the E. coli criterion. **Therefore, E. coil was added as a cause of non support.**

Chicorica Creek (Canadian River to East Fork Chicorica)
WQS: 20.6.4.305 AU: NM-2305.A_250

Previously listed for, fecal coliform, plant nutrients, and stream bottom deposits. There is one sampling station on this reach. All data are from 1989 and 1993 surveys. There is supporting data for the fecal coliform listing (1/1) as Full Support, Impacts Observed and also for the plant nutrients listing. There are no data to support the listing of stream bottom deposits.

1998 ACTION: The reach continues to be listed on the 1998 303(d) list as Partially Supporting for plant nutrients. The reach will be included in the 1998 305(b) report as Full Support, Impacts Observed for fecal coliform.

2000 ACTION: None

2002 ACTION: None

2004 ACTION: None

2006 ACTION: None

2008 ACTION: Name was changed to Chicorica Creek (Canadian River to East Fork Chicorica). This AU was intensively surveyed during the Canadian Part 2 (2006) watershed survey. A Level 2 nutrient assessment indicated full support because there were only two indicators present (total nitrogen and total phosphorus values above applicable numeric thresholds). **Therefore,**

nutrients were removed as a cause of non support.

Hunter Creek (Throttle Reservoir to headwaters)
WQS: 20.6.4.305 AU: NM-2305.A_40

Previously listed for fecal coliform. There is one sampling station on this reach. There is one data point (600/100ml) from 1989 that indicate Full Support, Impacts Observed.

1998 ACTION: The reach was removed from the 303(d) list and will be added to the 305(b) list as Full Support, Impacts Observed.

2000 ACTION: None

2002 ACTION: None

2004 ACTION: None

2006 ACTION: None

2008 ACTION: None

Lake Maloya
WQS: 20.6.4.305 AU: NM-2305.B_20

1998 ACTION: This lake is listed because there are fish consumption guidelines due to mercury contamination.

2000 ACTION: None

2002 ACTION: None

2004 ACTION: None

2006 ACTION: None

2008 ACTION: This AU was studied during the Lakes (2006) survey. Coldwater Aquatic Life is an existing use. Applying a CWAL temperature criterion of 20 degrees C, there were 2 of 6 exceedences. **Therefore, temperature was added as a cause of impairment.** There continues to be a fish advisory for mercury.

Raton Creek (Chicorica Creek to the headwaters)
WQS: 20.6.4.305 AU: NM-2305.A_253

Previously listed for metals (Cu), total ammonia and plant nutrients. There are two sampling stations on this reach. All data are from 1989, 1991, 1993, and 1995 surveys. The data ratios for dissolved copper are 0/3,03/ and 0/1 within the last 12 years. Data ratios for total ammonia within the last 12 years are 0/5,0/5, and 02. There are supporting data to justify supporting or removing the plant nutrients listing.

1998 ACTION: Copper and total ammonia will be removed as causes of non-support for this reach. This reach will continue to belisted on the 1998 303(d) list with plant nutrients as the cause of non-support.

2000 ACTION: None

2002 ACTION: None

2004 ACTION: None

2006 ACTION: None

2008 ACTION: None

Stubblefield Lake
WQS: 20.6.4.99 **AU: NM-9000.B_101**

1998 ACTION: This lake is listed because there are fish consum ption guidelines due to mercury contamination.

2000 ACTION: None

2002 ACTION: None

2004 ACTION: None

2006 ACTION: WQS change to 20.6.4.99 based on 2005 triennial review. W armwater Aquatic Life is an existing use.

2008 ACTION: This AU was studied during the Lakes(2006) survey. No impairments were identified as a result ofthis survey. There continues to be a fish advisory for mercury.

Una de Gato Creek (Chicorica Creek to HWY 64)
WQS: 20.6.4.305 AU: NM-2305.A_254

Previously listed for fecal coliform and stream bottom deposits. There are three sampling stations on this reach. All data are from a 1989 survey. Fecal coliform ratios are 1/1, 0/1, and 0/2. There are no data to support the listing of stream bottom deposits on this LWWF.

1998 ACTION: Fecal coliform and stream bottom deposits will be removed as causes of non-support on the 303(d) list. The reach has therefore been dropped from the 1998 303(d) list. The reach will be listed as Full Support, Impacts Observed for fecal coliform at one station.

2000 ACTION: None

2002 ACTION: None

2004 ACTION: None

2006 ACTION: None

2008 ACTION: None

VanBremmer Creek (HWY 64 to headwaters)
WQS: 20.6.4.309 AU: NM-2306.A_140

2004 ACTION: This was a secondary site during the 2002 Canadian part I survey (sampled 3 times). There were 1 of 2 exceedences of the turbidity criterion of 25 NTU, 2 of 4 exceedences of the temperature criterion of 20 degrees C, and 3 of 3 exceedences of the specific conductance criterion of 500 umhos/cm. **Therefore, turbidity, temperature, and specific conductance will be added as causes of non support**. This AU will be listed as Cateogry 5B -- This trib to the Vermejo R probably does not belong in WQS 20.6.4.309 (should be CWF, not HQCWF); WQS 20.6.4.305 incl the Vermejo, but does not specify tribs and would not be protective of resident CWF. Vermejo Park has fisheries data. Also, additional data are needed (thermograph, sonde, bugs).

2006 ACTION: All numeric segment-specific turbidity criteria were removed during the 2005 triennial review, and replaced with General Criteria 20.6.4.13.J. New assessment methods to determine turbidity impairment based on this new language are not yet available. SWQB will retain historic turbidity listings in the interim.

2008 ACTION: None

Vermejo River (Canadian River to Rail Canyon)
WQS: 20.6.4.305 AU: NM-2305.A_210

Previously listed for metals (Se). There are four sampling stations on this reach. All data are from 1988, 1989 and 1993 surveys. Selenium data indicate full support (0/2).

1998 ACTION: This reach has been removed from the 1998 303(d) list.

2000 ACTION: None

2002 ACTION: None

2004 ACTION: This reach was intensively sampled during the 2002 Canadian part 1 survey. The station at I-25 was sampled five times. The flow was <10 cfs, so the TDS criterion did not apply. This reach went dry during late summer and fall. Both drought and diversion contributed to the dry condition of Vermejo River. At Dawson, water is diverted to the Maxwell Wildlife Refuge and to Stubblefield Lake. During parts of 2002 the entire flow of the Vermejo appeared to be diverted. This AU will be listed as Category 4C – Impairment (low and no flow) due to diversion.

2006 ACTION: None

2008 ACTION: None

Vermejo River (Rail Canyon to York Canyon)
WQS: 20.6.4.309 AU: NM-2305.A_220

Previously listed for stream bottom deposits. There are two sampling stations on this reach. All data are from a 1989 survey. There are supporting data for adding total phosphorus at station CRB306.014020 as Full Support, Impacts Observed.

1998 ACTION: The reach continues to be listed on the 1998 303(d) list as Partially Supporting for stream bottom deposits.

2000 ACTION:

Stream Bottom Deposits: A 1999 fall survey was conducted todetermine the validity of this listing. An embeddedness of 39%, a percent fines of 25%, width/depth ratio was 31.6 and an entrenchment ratio of 3.5 rates the stream bottom as fully supporting for aquatic life.

Water quality standards, as assessed using the 1998 Assessment Protocol are currently being met for stream bottom deposits on this reach.

2002 ACTION: None

2004 ACTION: None

2006 ACTION: This AU was intensively studied in 2002. There were 6 of 7 exceedences of the specific conductance criterion. The temperature criterion was exceeded for >4 consecutive hours for > 3 consecutive days. **Therefore, temperature and specific conductance were added as causes of non support.**

2008 ACTION: TMDLs were prepared for specific conductance and temperature.

Vermejo River (York Canyon to headwater)
WQS: 20.6.4.309 AU: NM-2305.A_230

2006 ACTION: The AU was intensively sampled in 2002. The temperature criterion was exceeded for >4 consecutive hours for > 3 consecutive days. Benthic macroinvertebrates were sampled at the station @ Juan Baca Canyon and compared to the reference station Vermego River Below Leandro Creek. The bio score was 61% of reference. There were 31% fines at the study station compared to 44% fines at the reference station. **Therefore, temperature and Benthic Macroinvertebrates - Bioassessments will be added as a cause of non support**.

2008 ACTION: A TMDL was prepared for temperature.

York Canyon (Vermejo River to headwaters)
WQS: 20.6.4.309 AU: NM-2306.A_153

2004 ACTION: This reach was intensively sampled during the 2002 Canadian part 1 survey. There were 2 of 7 exceedences of the turbidity criterion of 25 NTU, 7 of 7 exceedences of the specific conductance criterion of 500 umhos/cm. **Therefore, turbidity and specific conductance were listed as causes of non support.** There was 1 of 7 exceedences of total mercury detected. There is an inactive coal mine with processing and rail facilities in the watershed. Reclamation is in progress.This may be moved to Category 4B if it is determined that the reclamation is directed at reducing the impairments.

2006 ACTION: All numeric segment-specific turbidity criteria were removed during the 2005 triennial review, and replaced with General Criteria 20.6.4.13.J. New assessment methods to determine turbidity impairment based on this new language are not yet available. SWQB will retain historic turbidity listings in the interim.

2008 ACTION: A TMDL was prepared for specific conductance.

HUC 11080002 Cimarron

Cieneguilla Creek (Eagle Nest Lake to headwaters)
WQS: 20.6.4.309 AU: NM-2306.A_065

Previously listed for turbidity, fecal coliform, stream bottom deposits and plant nutrients. There are five sampling stations on this reach. All data are from 1992 and 1993 surveys. Turbidity ratios are 0/6, 2/10, 3/9, 3/9, and 3/8. Fecal coliform ratios are 1/3, 1/3, 0/3, 1/3, and 1/6. A biological assessment was performed on Cieneguilla Creek in 1993. Five biological stations were surveyed on this stream The upper most station (CC1) was used as the reference site for this survey. Another station above the WWTP (CC3) was also FS (87%). A station located at the WWTP and near a horse corral was NS (54%). The station immediately down stream from the WWTP was FS (80%). The most down stream station (CC5) was only PS (61%). This is attributed to the accumulation of impacts from the upper watershed.

1998 ACTION: Fecal coliform will be listed on the 1998 305(b) report as Full Support, Impacts Observed. The reach will continue to be listed on the 303(d) list as Not Supported for turbidity, stream bottom deposits, and plant nutrients.

2000 ACTION:

Plant Nutrients: Field assessments were conducted using the draft Nutrient Assessment Protocol and draft Source Documentation Protocol. Since there is no numeric standard for plant nutrients in New Mexico, the narrative standard for plant nutrients is evaluated using this protocol. No plant nutrient impairments were found along this reach. There were no exceedences of nutrient related criteria such as total phosphorus, nitrogen, pH and dissolved oxygen during any sampling season. As well, there were no observations of nutrient over-enrichment noted on field sheets during any sampling season. In addition, there was a biological assessment conducted on Cieneguilla Creek in October of 1998. The Hilsenhoff Biotic Index (HBI), which is used as an indicator of nutrient enrichment, showed calculated values of 3.93 and 3.94 respectively. These numbers fall in the HBI range of 3.51-4.50 meaning water quality is very good with possible to slight organic pollution present.

Water quality standards, as assessed using the 1998 Assessment Protocol and 1999 draft Nutrient Assessment Protocol are currently being met for plant nutrients on Cieneguilla Creek.

Stream Bottom Deposits: This stream is characterized by two stations. The upper station is Cieneguilla Creek below Crooked Creek. This

upper station is a Rosgen E5 stream type with a % fines <2mm of 66% indicating a high level of impairment. The lower station is Cieneguilla Creek at the USGS Gage. This lower station is a Rosgen F5 stream type with a % fines <2mm of 64% also indicating a high level of impairment.

A TMDL was developed for Cieneguilla Creek to address stream bottom deposits.

Turbidity: Four sampling stations on this reach have 1998-1999 exceedence ratios of 7/10, 3/8, 4/7 and 2/10 respectively.

A TMDL was developed for Cieneguilla Creek to address turbidity.

Fecal Coliform: Confirmation samples for fecal coliform were taken in 1998 and 1999.

The summer sample taken at Angel Fire Road 110fcu/100ml on this reach.

A TMDL was developed for Cieneguilla Creek to address fecal coliform.

Metals (Al chronic): The 4-day chronic sampling that was conducted during the spring had an average concentration of 292ug/l. There were no exceedences of the acute criterion.

Aluminum (chronic) will be added as a cause of non-support

Metals (Pb acute): The 4-day average for lead was below the chronic criterion but one sample was higher than the acute criterion.

Add to the 305(b) Report as FSIO.

Temperature: One thermograph was deployed on this reach. The thermograph was deployed where Crooked Creek turns into Cieneguilla Creek. The thermograph exceeded the HQCWF criterion 110/3,884 times with a maximum temperature of 22.46°C. This site exceeded the draft Temperature Protocol for hours of exceedence duration > 4hours, but no more than six hours in a 24-hour cycle, and for no more than three consecutive days.

Temperature will be added as a cause of non-support for this reach

2002 ACTION: This reach will be **de-listed for temperature** based on a re-evaluation of the

thermograph data collected in 1999. The temperature protocol states that "instantaneous (hourly) temperature do not exceed 23°C and temperatures do not exceed 20°C for more than four hours in a 24-hour cycle and for no more than three consecutive days." The maximum temperature was 22.46°C. However, temperatures did exceed 20°C for no more five consecutive hours, but not on consecutive days. These temperatures ranged from 20.71°C to 22.04°C. SWQB also used the SSTEMP model to determine whether temperature exceedences were likely. The model predicted that there should be no temperature violations in this reach. The macroinvertebrate community is healthy and comprised of moderate numbers of pollution sensitive taxa. A TMDL was developed for chronic Al.

2004 ACTION: TMDLs for fecal coliform, chronic Al, and turbidity were revised in order to add wasteload allocations for the Village of Angel Fire WWTP discharge into Cieneguilla Creek. Muncipal Point Source was added as a Probable Source of pollution to the 303(d) list for these parameters.

2006 ACTION: All numeric segment-specific turbidity criteria were removed during the 2005 triennial review, and replaced with General Criteria 20.6.4.13.J. New assessment methods to determine turbidity impairment based on this new language are not yet available. SWQB will retain historic turbidity listings in the interim.

The associated water quality criteria for contact use support was changed from fecal coliform to E. coli during the 2005 triennial review. These historic fecal coliform listings will be retained until E. coli data are collected to determine whether there is any impairment of contact uses. E. coli data must be collected before TMDL development can occur.

2008 ACTION: This AU was intensively surveyed during the Canadian Part 2 (2006) watershed survey. The fecal coliform criterion was changed to E. coli during the 2005 triennial, and there were 0 of 4 exceedences of the chronic aluminum criterion. There were 4 of 6 exceedences of the E. coli criterion (235 cfu/100mL single sample). Additional E. coli data were collected in 2007 once a week (n=5 duplicates each sampling event) by NMSU during a bacteria source tracking study of tributaries to Eagle Creek. There were 11 of 34 exceedences (32.4%) of the the E. coli criterion, thus confirming the conclusion of Non Support. These data were not collated with SWQB's data prior to assessment because different sample analysis methods were used. A thermograph recorded criterion exceedences for >4 consecutive hours for > 3 consecutive days, with a maximum temperature of 27.1 degrees C. The sedimentation/siltation impairment was confirmed according to the 2008 Assessment Protocols because the M-SCI score was 52 and the percent fines was not applicable because there was ~2mm of silt on the riffle surface. A Level 2 nutrient assessment indicated nutrient impairment due to total nitrogen, and total phosphorus values above applicable numeric thresholds,

as well as low dissolved oxygen. **Therefore, aluminum and fecal coliform were removed, sedimentation and turbidity remain, and nutrients and temperature were added as causes of non support.**

Cimarron River (Canadian River to Cimarron Village)
WQS: 20.6.4.306 AU: NM-2305.1.A_10

Previously listed as "Cimarron River from the Canadian River to Turkey Creek" and listed for turbidity, plant nutrients and stream bottom deposits. There are three sampling stations on this reach. All data are from 1988 and 1989 surveys. There is no turbidity standard for a warmwater fishery. There are supporting data to justify the plant nutrients listing but not the stream bottom deposits listing.

1998 ACTION: Stream bottom deposits will be removed as a cause of non-support for this reach. This reach will continue to be included on the 1998 303(d) list with plant nutrients as a cause.

2000 ACTION: Plant nutrients will remain listed as a cause of non-support.

Metals (Al Chronic): The 4-day average from the spring sampling for this site was 162ug/l. Results of four other samples collected in the summer and fall were all less than detect.

Aluminum (chronic) will be added as a cause of non-support. A TMDL was written for this reach (under the original reach name) in 1999.

2002 ACTION: The original listed reach was split into two assessment units because it spanned two different water quality standard segments. The Nutrient Assessment protocol was performed June 2000. This reach was determined not be nutrient enriched following the level one nutrient assessment analysis. A summary of the nutrient assessment is in the administrative record. **Plant nutrients were removed as a cause of non-support. A de-list letter was prepared (under the original reach name).**

2004 ACTION: This reach was intensively sampled during the 2002 Canadian part 1 survey. The 1998 survey data used to determine aluminum impairment was re-assessed in light of the split. The assessment was done incorrectly for both the upper and lower portion. Aluminum was sampled at the USGS gage in Springer. There was one exceedence of the chronic criterion of 0.087 mg/L during the spring run. The seasonal mean was 0.045 mg/L. Therefore, there were no exceedences of the chronic criteria using seasonal means. **Therefore, chronic aluminum will be removed as a cause of non support.**

2006 ACTION: None

2008 ACTION: This AU was intensively surveyed during the Canadian Part 2 (2006) watershed survey. Aluminum data collected during this survey confirm that aluminum is not a problem (0 of 4 exceedences) and the TMDL should be withdrawn. A Level 2 nutrient assessment indicated nutrient impairment due to total nitrogen and total phosphorus values above applicable numeric thresholds, as well as low dissolved oxygen. **Therefore, nutrients were added as causes of impairment.**

Cimarron River (Cimarron Village to Turkey Creek)
WQS: 20.6.4.309 AU: NM-2306.A_040

Previously listed as "Cimarron River from the Canadian River to Turkey Creek" and listed for turbidity, plant nutrients and stream bottom deposits. There are three sampling stations on this reach. All data are from 1988 and 1989 surveys. There is no turbidity standard for a warmwater fishery. There are supporting data to justify the plant nutrients listing but not the stream bottom deposits listing.

1998 ACTION: Stream bottom deposits will be removed as a cause of non-support for this reach. This reach will continue to be included on the 1998 303(d) list with plant nutrients as a cause.

2000 ACTION: Plant nutrients will remain listed as a cause of non-support.

Metals (Al Chronic): The 4-day average from the spring sampling for this site was 162ug/l. Results of four other samples collected in the summer and fall were all less than detect.

Aluminum (chronic) will be added as a cause of non-support. A TMDL was written for this reach (under the original reach name) in 1999.

2002 ACTION: The original listed reach was split into two assessment units because it spanned two different water quality standard segments. The Nutrient Assessment protocol was performed June 2000. This reach was determined not be nutrient enriched following the level one nutrient assessment analysis. A summary of the nutrient assessment is in the administrative record. **Plant nutrients were removed as a cause of non-support. A de-list letter was prepared (under the original reach name).**

2004 ACTION: The 1998 survey data used to determine aluminum impairment was re-assessed in light of the split. The assessment was done incorrectly for both the upper and lower portion. Aluminum was sampled at the station above the town of Cimarron. There were four exceedences of the chronic criterion of 0.087 mg/L during the spring run. The seasonal mean was 0.1625 mg/L. Therefore, there was one exceedence of the chronic criteria using seasonal means which should have lead to a conclusion of FSIO. **Therefore, chronic**

aluminum will be removed as a cause of non support.

2006 ACTION: None

2008 ACTION: This AU was intensively surveyed during the Canadian Part 2 (2006) watershed survey. Aluminum data collected during this survey confirm that aluminum is not a problem (0 of 4 exceedences) and the TMDL should be withdrawn. There were 3 of 4 exceedences of the arsenic criterion for domestic water supply. A thermograph recorded criterion exceedences for >4 consecutive hours for > 3 consecutive days, with a maximum temperature of 26.2 degrees C. **Therefore, arsenic and temperature were added as causes of non support.**

Cimarron River (Turkey Creek to Eagle Nest Dam)
WQS: 20.6.4.309 AU: NM-2306.A_130

Previously listed for total phosphorus. This listing is supported at station 11550 with ratios of 4/15 within 10 years. The ratio at station 11505 is 1/16.

1998 ACTION: This reach is included in the 1998 303(d) list as Not Supported for total phosphorus at the upper station only.

2000 ACTION:

Total Phosphorus: Two stations were sampled on this reach. The TP ratios were 0/4 and 0/11.

There is no longer a standard associated with total phosphorus. The Nutrient Assessment Protocol indicated no impairment due to nutrient loading on this reach. A de-list letter was written for total phosphorus.

2002 ACTION: None. Corrected 303(d) list with above 2000 comments on nutrients.

2004 ACTION: None

2006 ACTION: None

2008 ACTION: This AU was intensively surveyed during the Canadian Part 2 (2006) watershed survey. There were 3 of 4 exceedences of the arsenic criterion for domestic water supply. A Level 2 nutrient assessment indicated nutrient impairment due to total nitrogen, total phosphorus, and chlorophyll *a* values above applicable numeric thresholds, as well as low dissolved oxygen. **Therefore, arsenic and nutrients were added as causes of impairment.**

Eagle Nest Lake
WQS: 20.6.4.309 AU: NM-2306.B_00

1998 ACTION: This lake is listed for mercury in fish tissue because there are fish consumption guidelines due to mercury contamination.

2000 ACTION: None

2002 ACTION: None

2004 ACTION: None

2006 ACTION: This lake was in intensively sampled in 2005. There were 4 of 6 exceedences of the domestic water supply arsenic criterion of 2.3 ug/L. There were 6 of 6 exceedences of the high quality cold water aquatic life criterion of 6.0 mg/L. **Therefore, both arsenic and dissolved oxygen were added as causes of non support.**

2008 ACTION: None

McCrystal Creek (North Ponil Creek to headwaters)
WQS: 20.6.4.309 AU: NM-2306.A_112

2000 ACTION:

Temperature: One thermograph was deployed on this reach. The thermograph was deployed above McCrystal Creek Campground. The thermograph exceeded the HQCWF criterion 57/4,853 times with a maximum temperature of 22.48°C. This site exceeded the Temperature Protocol for hours of exceedence duration > 4hours, but no more than six hours in a 24-hour cycle, and for no more than three consecutive days.

Temperature will be added as a cause of non-support for this reach

2002 ACTION: None

2004 ACTION: None

2006 ACTION: None

2008 ACTION: This AU was surveyed during 2006 to establish baseline conditions as soon

as possible after ONRW status was established for surface waters in the Valle Vidal. A thermograph was deployed to verify the temperature listing but buried in sediment and the data are sporadic so the data were not assessable. This AU continues to be listed for temperature.

Middle Ponil Creek (Greenwood Creek to headwaters)
WQS: 20.6.4.309 AU: NM-2306.A_124

2008 ACTION: This AU was created and surveyed during 2006 to establish baseline conditions as soon as possible after ONRW status was established for surface waters in the Valle Vidal. A Level 2 nutrient assessment indicated nutrient impairment due to total nitrogen and total phosphorus values above applicable numeric thresholds, as well as low dissolved oxygen. **Therefore, nutrients was added as a cause of impairment.** Chlorophyll *a* data should be collected to confirm the impairment.

Middle Ponil Creek (South Ponil Creek to Greenwood Creek)
WQS: 20.6.4.309 AU: NM-2306.A_121

Previously listed for total phosphorus and streambottom deposits. There are two sampling stations on this reach. All data are from a 1989 survey. There are supporting data for a total phosphorus listing at station CRB306.011065 (3/5) but not for station CRB306.011050 (0/5).

1998 ACTION: This reach is included in the 1998 303(d) list as Not Supported for total phosphorus at the upper station only.

2000 ACTION:

Total Phosphorus: The ratio of exceedences for the two stations on this reach was 0/4 and 0/5.

There is no longer a standard associated with total phosphorus. The Nutrient Assessment Protocol will be used to assess nutrient loadings to this reach.

Stream Bottom Deposits: Two stations characterize this reach. The upper site above FR 1950 is a B3 type stream with low % fines (16) and a moderate embeddedness of 48%. Embeddedness greater than 40% on a B-type stream is considered degraded. The lower station is a B4 type stream with a % fines value of 46 and an embeddedness value of 55%.

Stream bottom deposits will be retained as a cause of non-support

Temperature: One thermograph was deployed on this reach. The

thermograph was deployed above the confluence with South Ponil Creek. The thermograph exceeded the HQCWF criterion 170/1,630 times with a maximum temperature of 25.5°C. This site exceeded the Temperature Protocol for a one-time maximum temperature (23°C).

Temperature will be added as a cause of non-support for this reach

Turbidity: The exceedence ratio for turbidity on this reach at the two stations was 2/8 and 2/8.

Turbidity will be added to the reach as a cause of non-support

Total Organic Carbon (TOC): The exceedence ratios for TOC on this reach were 1/4 at the lower site above Ponil Camp and 0/4 at the upper site.

Added to the 305(b) Report as FSIO.

2002 ACTION: There is no longer a total phosphorus standard for this reach. The Nutrient Assessment protocol was performed June 2000. This reach was determined not be nutrient enriched following the level one nutrient assessment analysis. A summary of the nutrient assessment is in the administrative record. **A de-list letter was prepared for total phosphorus. TMDLs were written for turbidity and temperature.**

In 2002, The WQCC deleted the total organic carbon criterion (20.6.4.900C of NMAC) for the high quality coldwater fishery designated use. The TOC criterion was adopted in 1973. Before then, the water quality standards contained an ambient narrative criterion for combined COD/BOD. This criterion, adopted originally in 1967, stated that "materials in solution and in suspension which exert an oxygen demand, shall not be present in concentrations sufficient to reduce the dissolved oxygen in the stream to 50 percent of the saturation concentration or to 6.0 mg/l" for trout-producing and warm-water fish producing waters. In 1973, the Commission replaced this narrative criterion with the current numeric criterion for TOC, applicable to the high quality coldwater fishery designated use. Since then, this criterion has been rendered unnecessary. Over the years, the Commission has adopted use-specific and segment-specific dissolved oxygen criteria that offer a higher degree of protection than the TOC criterion. EPA considers the TOC criterion to be an artifact from an earlier time. Indeed, only one other state—Louisiana—still maintains a TOC criterion, and that number is used only as a discharge limitation for effluents and storm water discharges. **TOC was removed as a cause of FSIO.**

2004 ACTION: None

2006 ACTION: All numeric segment-specific turbidity criteria were removed during the 2005 triennial review, and replaced with General Criteria 20.6.4.13.J. New assessment methods to determine turbidity impairment based on this new language are not yet available. SWQB will retain historic turbidity listings in the interim.

2008 ACTION: Previously named Middle Ponil Creek (South Ponil to headwaters), this AU was split to acknowledge the Valle Vidal boundary because all surface waters in the Valle Vidal were granted ONRW status. This AU was intensively surveyed during the Canadian Part 2 (2006) watershed survey. A thermograph deployed at South Ponil confirmed the temperature listing (max temperature of 27.6 degrees C). The AU was determined to be non support for unidentified biological impairment according to the 2008 Assessment Protocols because the M-SCI score was 49 but the measured percent fines was only 16. All numeric segment-specific turbidity criteria were removed during the 2005 triennial review, and replaced with General Criteria 20.6.4.13.J. New assessment methods to determine turbidity impairment based on this new language are not yet available. SWQB will retain historic turbidity listings in the interim. **Therefore, turbidity and temperature remains, sedimentation/siltation was removed, and Benthic-Macroinvertebrate Bioassessments (Streams) was added as a cause of non support.**

Moreno Creek (Eagle Nest Lake to headwaters)
WQS: 20.6.4.309 AU: NM-2306.A_060

Previously listed for fecal coliform and plant nutrients. There is one sampling station on this reach. All data are from 1992 and 1993 surveys. There are supporting data for fecal coliform with a ratio of 2/3. A biological assessment was conducted on Moreno Creek in 1993. The assessment of one station on Moreno Creek was Full Support, Impacts Observed (70%). The degradation at his site was attributed to poor habitat (58%).

1998 ACTION: This reach is on the 1998 303(d) list as Partially Supported for fecal coliform and plant nutrients.

2000 ACTION:

Fecal Coliform: Confirmation samples for fecal coliform were taken in 1998 and 1999. One of the summer samples taken on Moreno Creek was 220fcu/100ml on this reach.

A TMDL was developed for Moreno Creek to address fecal coliform.

Turbidity: One sampling station on this reach has a 1998-1999

exceedence ratio of 4/10.

A TMDL was developed for Moreno Creek to address turbidity.

Plant Nutrients: Field assessments were conducted in November of 1999 using the draft Nutrient Assessment Protocol and draft Source Documentation Protocol. Since there is no numeric standard for plant nutrients in New Mexico, the narrative standard for plant nutrients is evaluated using this protocol. No plant nutrient impairments were found along this reach. There were no exceedences of nutrient related criteria such as total phosphorus, nitrogen, pH and dissolved oxygen during any sampling season. As well, there were no observations of nutrient over-enrichment noted on field sheets during any the three season study (May, July and October, 1998) sampling season. There was a biological assessment conducted on Moreno Creek in October of 1993. The macroinvertebrate community at he reference site appeared to be healthy and comprised of moderate numbers of pollution sensitive taxa.

Slightly impaired biological conditions were present at Moreno Creek, which were most likely the result of poor habitat conditions. The biological condition of Moreno Creek is rated as being 70% of the reference conditions, which according to the 1998 Assessment Protocol rates this stream as full support, impacts observed. Although the HBI index was high, overall macroinvertebrate numbers, taxa and several other metrics show acceptable values. The EPT Index for the reference site was 13, while Moreno Creek was rated a 10. The macroinvertebrate community as a whole is acceptable, although there is a shift in the community to midges, which is reflected in the full support, impacts observed statement.

2002 ACTION: None

2004 ACTION: None

2006 ACTION: All numeric segment-specific turbidity criteria were removed during the 2005 triennial review, and replaced with General Criteria 20.6.4.13.J. New assessment methods to determine turbidity impairment based on this new language are not yet available. SWQB will retain historic turbidity listings in the interim.

The associated water quality criteria for contact use support was changed from fecal coliform to E. coli during the 2005 triennial review. These

historic fecal coliform listings will be retained until E. coli data are collected to determine whether there is any impairment of contact uses. E. coli data must be collected before TMDL development can occur.

2008 ACTION: This AU was intensively surveyed during the Canadian Part 2 (2006) watershed survey. A thermograph recorded criterion exceedences for >4 consecutive hours for > 3 consecutive days, with a maximum temperature of 27.4 degrees C. A Level 2 nutrient assessment indicated nutrient impairment due to total nitrogen, total phosphorus, and chlorophyll *a* values above applicable numeric thresholds, as well as low dissolved oxygen. There were 1 of 6 exceedences of the E. coli criterion (235 cfu/100mL single sample). Additional E. coli data were collected in 2007 once a week (n=5 duplicates each sampling event were averaged) by NMSU during a bacteria source tracking study of tributaries to Eagle Creek. There were 4 of 34 exceedences of the the E. coli criterion (11.8%), thus confirming the conclusion of Full Support. These data were not collated with SWQB data prior to assessment because different sample analysis methods were used. **Therefore, temperature and nutrients were added as causes of impairment. Fecal Coliform was removed as a cause of impairment because recent E. coli data indicates Full Support.**

North Ponil Creek (Seally Canyon to headwaters)
WQS: 20.6.4.309 AU: NM-2306.A_162

2008 ACTION: This AU was created and surveyed during 2006 to establish baseline conditions as soon as possible after ONRW status was established for surface waters in the Valle Vidal. There were 2 of 4 exceedences of the chronic aluminum criterion (87 ug/L). There was 1 of 1 exceedence (38.8 pCi/L) of the adjusted gross alpha criterion for domestic water supply (15.0 pCi/L). There was 1 of 1 exceedence (6.36 pCi/L) of the radium 226+228 criterion for domestic water supply (5.0 pCi/L). A thermograph deployed above Seally Canyon recorded exceedences for >4 consecutive hours for >3 consecutive days (max temperature of 29.3 degrees C). **Therefore, aluminum, gross alpha, radium 226+228, and temperature were added as causes of impairment.**

North Ponil Creek (South Ponil Creek to Seally Canyon)
WQS: 20.6.4.309 AU: NM-2306.A_110

Previously listed for temperature, fecal coliform and stream bottom deposits. There are two sampling stations on this reach. All data are from a 1989 survey. Temperature data are not supporting for station CRB306.011045 (4/5) and Full Support, Impacts Observed for station CRB306.011060 (1/5). Fecal coliform data are 0/1 and 1/1. Total phosphorus was 0/6 at the lower station and 1/6 at the upper station.

1998 ACTION: This reach will be listed on the 1998 305(b) report as Full Support, Impacts Observed for fecal coliform, temperature, and total phosphorus at the upper station. The reach is listed as Not Supported on the 1998 303(d) list with temperature and stream bottom deposits as the cause.

2000 ACTION:

Temperature: Thermographs on this reach were deployed from July 17 through September 23, 1998. HQCWF temperature criteria were exceeded at the two thermograph sites. The upper site exceedence ratio was 44/1,631. This site exceeded the draft Temperature Protocol for hours of exceedence duration > 6 hours. The lower site had an exceedence ratio of 339/1,632 with a one-time maximum temperature exceedence of 28°C.

A TMDL was developed for the North Ponil Creek to address temperature.

Turbidity: Two sampling stations on this reach have a 1998-1999 exceedence ratio of 7/10 and 6/10 respectively.

A TMDL was developed for North Ponil Creek to address turbidity.

Stream Bottom Deposits: There are two stations on this reach that were used to characterize North Ponil Creek. The upper reach of North Ponil Creek at FR 1950 is a Rosgen E5 stream type with a % fines <2mm of 79.9% indicating a high level of impairment.

The lower reach of North Ponil Creek above Ponil Creek is a Rosgen E4 stream type with a % fines <2mm of 29% indicating a moderate level of impairment.

A TMDL was developed for North Ponil Creek to address stream bottom deposits.

Total Phosphorus: Two sampling station was established on this reach. Monitoring at the stations documented 3/13 exceedences for total phosphorus.

A TMDL was developed for North Ponil Creek to address total phosphorus.

Fecal Coliform: Fecal coliform was removed from the 1998-2000 303(d) list but remained listed in the 1998 305(b) Report as full support, impacts observed (FSIO).

Add to the 305(b) Report as FSIO.

2002 ACTION: This assessment unit will be **de-listed for total phosphorus**. There is no longer a total phosphorus standard for this reach. The Nutrient Assessment protocol was performed June 2000. This reach was determined not be nutrient enriched following the level one nutrient assessment analysis. A summary of the nutrient assessment is in the administrative record.

2004 ACTION: None

2006 ACTION: Sedimentation/siltation impairment was re-assessed using the current Assessment Protocol. The biological condition at North Ponil Creek at FR 1950 was 96% of reference using Cieneguilla Creek at Crooked Creek as a reference. The lower station was 79% of reference. As a result, **sedimentation/siltation was removed as a cause of non support**.

2008 ACTION: Previously named North Ponil Creek (South Ponil to McCrystal Creek), this AU was split to acknowledge the Valle Vidal boundary because all surface waters in the Valle Vidal were granted ONRW status. This AU was intensively surveyed during the Canadian Part 2 (2006) watershed survey. A thermograph deployed above South Ponil confirmed the temperature listing (max temperature of 27.4 degrees C). There were 2 of 6 exceedences of the E. coli criterion. A Level 2 nutrient assessment indicated nutrient impairment due to total nitrogen and total phosphorus values above applicable numeric thresholds, as well as low dissolved oxygen. All numeric segment-specific turbidity criteria were removed during the 2005 triennial review, and replaced with General Criteria 20.6.4.13.J. New assessment methods to determine turbidity impairment based on this new language are not yet available. SWQB will retain historic turbidity listings in the interim. **Therefore, turbidity and temperature remains, nutrients, and E. coli were added as causes of non support. C**hlorophyll *a* data should be collected to confirm the impairment.

Pajarito Creek (Ute Reservoir to headwaters)
WQS: 20.6.4.303 AU: NM-2303_10

2008 ACTION: This AU was intensively surveyed during the Canadian Part 2 (2006) watershed survey. There were 3 of 7 exceedences of the applicable E. coli criterion. A Level 2 nutrientassessment indicated nutrient impairment due to total nitrogen and total phosphorus above applicable numeric thresholds, as well as low dissolved oxygen. **Therefore, E. coli and nutrientswere added as causes of impairment.**

Ponil Creek (Cimarron River to US 64)

WQS: 20.6.4.306 AU: NM-2306.A_100

Previously listed for temperature, conductivity, turbidity, fecal coliform and total phosphorus and lumped as "Ponil Creek (Cimarron River to confl of North and South Ponil," this AU was split in 2006 so the AU did not span two water quality standard segments.

The assessment of the pre-1998 data and the original lumped AU is retained in the below paragraphs in italics. It is retained here for a historic record of the listing. Both AUs are part of SWQB's 2006 intensive survey, so rather that re-assess based on the split, the listings will be retained for both AUs and re-assessed with data collected in 2006 for the 2008 list.

This segment was evaluated in the 1998 surveys for use attainment. Data was available from three stations two NMED and one USGS. One NMED station is at the USGS station so these values will be summed. Data ratios for temperature are erratic. At the lower station ratios are 0/5 and at the two higher stations the ratio is 3/16 within the last 5 years and 7/32 for data 5-10 years old. For conductivity the ratios are 5/5 at the lower station and 0/52 at the upper station. Turbidity is available from one survey that took place after a rain event. Ratios at the lower station are 5/5 and 0/5 at the higher station. Fecal coliform is 0/2 at the upper stations and 1/1 at the lower station. Total phosphorus values are similar with 0/5 exceedences at the upper stations and 5/5 at the lower station.

1998 ACTION: *This reach will continue to be listed as Not Supported on the 1998 303(d) list with temperature, conductivity, turbidity, fecal coliform, and total phosphorus.*

2000 ACTION:

Temperature: *One thermograph was deployed on this reach. The thermograph was deployed above the USGS gage. The thermograph exceeded the HQCWF criterion 342/1,632 times with a maximum temperature of 28°C. This site exceeded the Temperature Protocol for a one-time maximum temperature (23°C).*

Temperature will be retained as a cause of non-support for this reach

Conductivity: *Two stations were used to assess this reach. One is at Hwy 58 below the Town of Cimarron and the second is above the town. Conductivity at the upper station was 0/8 (Standards Segment 20.6.4.309). At the lower station the exceedence ratio was 4/8. There is no criterion for this Standard Segment 20.6.4.307. This segment is thought to be mis-classified as a HQCWF and a UAA is recommended.*

Conductivity will be removed as a cause of non-support for this reach

Turbidity: *The exceedence ratio for turbidity at the upper station on this reach was 6/8. There are no criteria for the lower Segment 20.6.4.307.*

Turbidity will be retained as a cause of non-support for the upper station

Total Phosphorus: *The exceedence ratio for total phosphorus at the upper station was 0/5. There are no criteria for total phosphorus at the lower station.*

There is no longer a standard associated with total phosphorus. The Nutrient Assessment Protocol indicates no impairment due to nutrient loading on this reach.

Fecal Coliform: *The exceedence ratio for fecal coliform at the upper station on this reach was 0/2 while it was 1/2 at the lower station below the WWTP.*

Add to the 305(b) Report as FSIO.

Stream Bottom Deposits: *One site was at the USGS gage was used to characterize this reach. The embeddedness value for this reach was 55% indicating an impaired stream bottom habitat.*

Stream bottom deposits will be added to this reach as a cause of non-support

Metals (Al chronic): *One sampling station, Ponil Creek at the Gage had an exceedence ratio of 6/9 for dissolved aluminum.*

Metals (al chronic) will be added to this reach as a cause of non-support

2002 ACTION: *None. TMDLs were written for turbidity, temperature, stream bottom deposits, and chronic aluminum.*

2004 ACTION: *None*

2006 ACTION: Previously lumped as "Ponil Creek (Cimarron River to confl of North and South Ponil," this AU was split in 2006 so the AU did not span two water quality standard segments. This AU is part of SWQB's 2006 intensive survey, so rather that re-assess based on the split, the listings for turbidity, temperature, stream bottom deposits, and chronic aluminum are retained and will be re-assessed with data collected in 2006 for the 2008 list.

2008 ACTION: This AU was intensively surveyed during the Canadian Part 2 (2006) watershed survey. There were 0 of 4 exceedences of the chronic aluminum criterion. A thermograph deployed above the Cimarron River did not record

any data above the criterion of 32.2 degrees C (max of 26.8 degrees C). The original basis for the previous sedimentation/siltation listing was incorrect (SWQB has never listed based on embeddedness alone, and the USGS station mentioned as the basis for the previous listing is not in this AU). All numeric segment-specific turbidity criteria were removed during the 2005 triennial review, and replaced with General Criteria 20.6.4.13.J. New assessment methods to determine turbidity impairment based on this new language are not yet available. SWQB will retain historic turbidity listings in the interim There were 2 of 6 exceedences of the E. coli criterion. **Therefore, aluminum, sedimentation/siltation, and temperature were removed, turbidity was retained, and E. coli was added as a causes of impairment.**

Ponil Creek (US 64 to the confl North Ponil & South Ponil)
WQS: 20.6.4.309 AU: NM-2306.A_101

2006 ACTION: Previously lumped as "Ponil Creek (Cimarron River to confl of North and South Ponil," this AU was split in 2006 so the AU did not span two water quality standard segments. This AU is part of SWQB's 2006 intensive survey, so rather that re-assess based on the split, the listings for turbidity, temperature, stream bottom deposits, and chronic aluminum are retained and will be re-assessed with data collected in 2006 for the 2008 list. The assessment of the pre-1998 data and the original lumped AU is retained in the above ROD entry in italics. It is retained there for a historic record of the listing.

2008 ACTION: This AU was intensively surveyed during the Canadian Part 2 (2006) watershed survey. There were 0 of 4 exceedences of the chronic aluminum criterion. Thermographs deployed above NM 64 and below the North and South confluence confirm the temperature listing (max temp of 29.4 and 25.9 degrees C, respectively). The original basis for the previous sedimentation/siltation listing was incorrect (SWQB has never listed based on embeddedness alone, and the USGS station mentioned as the basis for the previous listing is not in this AU). All numeric segment-specific turbidity criteria were removed during the 2005 triennial review, and replaced with General Criteria 20.6.4.13.J. New assessment methods to determine turbidity impairment based on this new language are not yet available. SWQB will retain historic turbidity listings in the interim. There were 3 of 6 exceedences of the E. coli criterion. A Level 2 nutrient assessment indicated nutrient impairment due to total nitrogen and total phosphorus values above applicable numeric thresholds, as well as low dissolved oxygen. **Therefore, aluminum and sedimentation/siltation were removed, temperature and turbidity were retained, and E. coli and nutrients was added as causes of impairment.**

Raton Creek (Chicorica Creek to headwaters)
WQS: 20.6.4.305 AU: NM-2305.A_253

2008 ACTION: This AU was intensively surveyed during the Canadian Part 2 (2006) watershed survey. There were 2 of 5 exceedences of the E. coli criterion. A Level 2 nutrient assessment confirmed the nutrient impairment due to total nitrogen and total phosphorus values above applicable numeric thresholds, as well as low dissolved oxygen. T**herefore, nutrients was retained, and E. coli was added as a cause of impairment.**

Rayado Creek (Cimarron River to Miami Lake Diversion)
WQS: 20.6.4.307 AU: NM-2305.3.A_80

Previously listed for stream bottom deposits and fecal coliform. There is only one sample station on this reach. There is only one data point in the STORET database for fecal coliform. This value is less than the fecal coliform criteria for this segment.

1998 ACTION: Fecal coliform will be removed as a cause of non-support for this reach. This reach will continue to be listed on the 1998 303(d) list with stream bottom deposits as the cause.

2000 ACTION:

Stream Bottom Deposits: Stream bottom deposits will be retained as a cause of non-support.

2002 ACTION: None. A TMDL was developed for stream bottom deposits.

2004 ACTION: None

2006 ACTION: None

2008 ACTION: This AU was intensively surveyed during the Canadian Part 2 (2006) watershed survey. No new data were collected with respect to the sedimentation/siltation listing. A Le vel 2 nutrient assessm ent indicated nutrient impairment due to total nitrogen and total phosphorus values above applicable numeric thresholds, as well as low dissolved oxygen (based on grab data). **Therefore, sedimentation/siltation remains, and nutrients was added as a cause of impairment.** A sonde should be deployed at the station to confirm the nutrient impairment.

Rayado Creek (Miami Lake Diversion to headwaters)
WQS: 20.6.4.309 AU: NM-2306.A_051

2008 ACTION: This AU was intensively surveyed during the Canadian Part 2 (2006) watershed survey. There were 2 of 7exceedences of the E. coli criterion. A thermograph deployed at the station near NM 21 recorded exceedences for >4 hours for >3 consecutive days (max temperature of 27.3 degrees C). **Therefore, E. coli and temperature were added as causes of impairment.**

Revuelto Creek (Canadian River to headwaters)
WQS: 20.6.4.301 AU: NM-2301_10

2008 ACTION: This AU was intensively surveyed during the Canadian Part 2 (2006) watershed survey. There were 2 of 34 exceedences of the boron criterion of irrigation uses, measured between 4/10/00 to 4/18/07 at USGS gage 07227100 near Logan, NM. **Therefore, boron was added as a cause of impairment.**

Sixmile Creek (Eagle Nest Lake to the headwaters)
WQS: 20.6.4.309 AU: NM-2306.A_064

Previously listed for fecal coliform and plant nutrients. There is one sampling station on this reach. All data are from 1992 and 1993 surveys. Fecal coliform data indicate Full Support, Impacts Observed for the contact recreation use (1/3). A biological assessment conducted by NMED in 1990 indicates full support of the fishery use. The biological assessment was 83% of the reference site. There are no indications of plant nutrient enrichment on this reach.

1998 ACTION: The reach will be included on the 305(b) list as Full Support, Impacts Observed for fecal coliform. The reach has been removed from the 1998 303(d) list.

2000 ACTION:

Fecal Coliform: Confirmation samples for fecal coliform were taken in 1998 and 1999. The summer samples taken on Six-Mile Creek were 720fcu/100ml and 200fcu/100ml on this reach.

A TMDL was developed for Six-Mile Creek to address fecal coliform.

Turbidity: One sampling station on this reach has a 1998-1999 exceedence ratio of 5/10.

A TMDL was developed for Six-Mile Creek to address turbidity.

Plant Nutrients: Field assessments were conducted using the draft Nutrient Assessment Protocol and draft Source Documentation

Protocol. Since there is no numeric standard for plant nutrients in New Mexico, the narrative standard for plant nutrients is evaluated using this protocol. No plant nutrient impairments were found along this reach. There were no exceedences of nutrient related criteria such as total phosphorus, nitrogen, pH and dissolved oxygen during any sampling season. As well, there were no observations of nutrient over-enrichment noted on field sheets during any sampling season. In addition, there was a biological assessment conducted on Six-Mile Creek in October of 1993. The Hilsenhoff Biotic Index (HBI), which is used as an indicator of nutrient enrichment, showed a calculated value of 5.20. This number falls in the HBI range of 4.51-5.50 meaning water quality is good with some organic pollution present.

Water quality standards, as assessed using the 1998 Assessment Protocol and 1999 draft Nutrient Assessment Protocol are currently being met for plant nutrients on Six-Mile Creek.

2002 ACTION: None

2004 ACTION: None

2006 ACTION: All numeric segment-specific turbidity criteria were removed during the 2005 triennial review, and replaced with General Criteria 20.6.4.13.J. New assessment methods to determine turbidity impairment based on this new language are not yet available. SWQB will retain historic turbidity listings in the interim.

2008 ACTION: This AU was intensively surveyed during the Canadian Part 2 (2006) watershed survey. A Level 2 nutrient assessment indicated nutrient impairment due to total nitrogen and total phosphorus values above applicable numeric thresholds, as well as low dissolved oxygen. There were 2 of 6 exceedences of the E. coli criterion. A thermograph deployed above US 64 recorded exceedences for >4 hours for >3 consecutive days (max temperature of 28.1 degrees C). **Therefore, nutrients, E. coli, and temperature were added as causes of impairment.** Fecal coliform was removed because the water quality criteria were replaced with E. coli during the 2005 triennial.

South Ponil Creek (Ponil Creek to headwaters)
WQS: 20.6.4.309 AU: NM-2306.A_120

2008 ACTION: This AU was intensively surveyed during the Canadian Part 2 (2006)

watershed survey. A thermograph deployed above North Ponil recorded exceedences for >4 hours for >3 consecutive days (max temperature of 24.6 degrees C). **Therefore, temperature was added as a cause of impairment.**

Springer Lake
WQS: 20.6.4.99 AU: NM-2305.1.B_10

1998 ACTION: This lake is listed for mercury in fish tissue because there are fish consumption guidelines due to mercury contamination.

2000 ACTION: None

2002 ACTION: None

2004 ACTION: None

2006 ACTION: WQS change to 20.6.4.99 based on 2005 triennial review and analysis that this is not an in-line reservoir so it is not covered under 20.6.4.306. Warmwater Aquatic Life and Irrigation are existing uses.

2008 ACTION: This AU was studied during the Lakes (2006) survey. No impairments were identified as a result of this survey. There continues to be a fish advisory for mercury.

Uña de Gato Creek (Chicorica Creek to HWY 64)
WQS: 20.6.4.305 AU: NM-2305.A_254

2008 ACTION: This AU was intensively surveyed during the Canadian Part 2 (2006) watershed survey. A Level 2 nutrient assessment indicated nutrient impairment due to total nitrogen and total phosphorus values above applicable numeric thresholds, as well as low dissolved oxygen. **Therefore, nutrients was added as a cause of impairment.** The sonde DO data were recorded at a station 13 miles upstream of the rest of the nutrient field assessment.

Uña de Gato Creek (HWY 64 to headwaters)
WQS: 20.6.4.305 AU: NM-2305.A_030

2008 ACTION: This AU was intensively surveyed during the Canadian Part 2 (2006) watershed survey. A Level 2 nutrient assessment indicated nutrient impairment due to total nitrogen, total phosphorus, and chlorophyll *a* values above applicable numeric thresholds. **Therefore, nutrients was added as a**

cause of impairment.

Ute Creek (Cimarron River to headwaters)
WQS: 20.6.4.309 AU: NM-2306.A_068

Previously listed for turbidity, total phosphorus and total organic carbon. There is one sam pling station on this reach. All data are from a 1989 survey. Turbidity ratios are 2/5.
Total phosphorus ratios are 2/5 and Total organic carbon ratios are 1/1.

1998 ACTION: Total organic carbon will be removed as a cause of non-support on the 1998 303(d) list and will be listed on the 1998305(b) list as Full Support, Impacts Observed. This reach will continue tobe listed on the 303(d) list as Partially Supporting for turbidity and total phosphorus.

2000 ACTION:

Turbidity: The ratio of exceedences for turbidity on this reach was 0/8.

Water quality standards, as assessed using the 1998 Assessment Protocol are currently being met for turbidity on Ute Creek.

Total Phosphorus: The ratio of exceedences for TP on this reach was 0/7.

There is no longer a standard a ssociated w ith total phosphorus. The Nutrient Assessment Protocol indicated no impairment due to nutrient loading on this reach.

2002 ACTION: None

2004 ACTION: None

2006 ACTION: None

2008 ACTION: This AU was intensively surveyed during the Canadian Part 2 (2006) watershed survey. There were 3 of 4 exceedences of the arsenic criterion. There were 2 of 6 exceedences of the E. coli criterion. The tem perature criterion of 20 degrees C was exceeded for >6 consecutive hours for >3 consecutive days, with a m aximum recorded tem perature of 24.8. **Therefore, arsenic, E. coli, and temperature were added as causes of non support.**

Ute Creek (Ute Reservoir to headwaters)
WQS: 20.6.4.309 AU: NM-2303_20

2008 ACTION: This AU was intensively surveyed during the Canadian Part 2 (2006) watershed survey. No impairments were identified.

HUC 11080003 Upper Canadian

Canadian River (Conchas River to the Mora River)
WQS: 20.6.4.305 AU: NM-2305.A_000

Previously listed for plant nutrients and streambottom deposits. There aretwo sampling stations on this reach. The fishery use is a LWWF and accordingly the streambottom deposits listing has been dropped. Data was reviewed to assess the plant nutrients listing and it has beendetermined that this listing is not supported. There are several reports on this segment of the river that do not include any indications of nutrient enrichment. Chemical parameters of nitrogen, phosphorus, and DO are within watershed norms.

1998 ACTION: This reach has been removed from the 1998 303(d) list.

2000 ACTION: None

2002 ACTION: None

2004 ACTION: None

2006 ACTION: None

2008 ACTION: None

Canadian River (Mora River to Cimarron River)
WQS: 20.6.4.305 AU: NM-2305.A_100

Previously listed for plant nutrients and streambottom deposits. There aretwo sampling stations on this reach. The fishery use is a LWWF and accordingly the streambottom deposits listing has been dropped. Data was reviewed to assess the plant nutrients listing and it has beendetermined that this listing is not supported. There are several reports on this segment of the river that do not include any indications of nutrient enrichment. Chemical parameters of nitrogen, phosphorus, and DO are within watershed norms.

1998 ACTION: This reach has been removed from the 1998 303(d) list.

2000 ACTION: None

2002 ACTION: None

2004 ACTION: None

2006 ACTION: None

2008 ACTION: None

Charette Lake (Lower)
WQS: 20.6.4.308 AU: NM-2305.5_10

1998 ACTION: This lake is listed for mercury in fish tissue because there are fish consumption guidelines due to mercury contamination.

2000 ACTION: None

2002 ACTION: None

2004 ACTION: None

2006 ACTION: None

2008 ACTION: This AU was studied during the Lakes (2006) survey. No impairments were identified as a result of this survey.

Conchas Reservoir
WQS: 20.6.4.304 AU: NM-2304_00

1998 ACTION: This lake is listed for mercury in fish tissue because there are fish consumption guidelines due to mercury contamination.

2000 ACTION: Conchas Reservoir was characterized (in a report titled, ***New Mexico Clean Lakes Program: Lake Water Quality Assessment for FY 89)*** as oligo-mesotrophic based on the Carlson index for chlorophyll a and total phosphorus concentrations. Total nitrogen to total phosphorus ratios indicate phosphorus is the limiting nutrient for algal growth. Phytoplankton density ranged from 57 to 156 cells per ml. The Shannon-Wiener diversity indices listed in the BIOS data tables indicate the algal diversity to be good to excellent (i.e., greater than 2.0). Thermal stratification and dissolved oxygen depletion in the bottom third of the water column (i.e., 3.0 mg/l) was observed during August at the dam and Ute Creek outlet stations. Conversely, the Horseshoe station was well mixed and oxygenated throughout the year. Water quality standards were attained.

Although the data for this lake is dated, it is still listed in the State's 305(b) Report as impaired for nutrients and therefore will be listed on the 303(d) List until new data are collected to either verify or refute the listing.

2002 ACTION: None

2004 ACTION: None

2006 ACTION: None

2008 ACTION: This AU was studied during the Lakes(2006) survey. No impairments were identified as a result ofthis survey. The nutrient listing was retained pending development of lake nutrient assessment protocols. There continues to be a fish advisory for mercury.

Manueles Creek (Ocate Creek to headwaters)
WQS: 20.6.4.309 AU: NM-2306.A_090

Previously listed for reduction of riparian vegetation and streambank destabilization.

1998 ACTION: This reach will continue to be listed as Partially Supported on the 1998 303(d) list with unknown as the cause.

2000 ACTION: None

2002 ACTION: None

2004 ACTION: This reach was intensively sampled during the 2002 Canadian part 1 survey. There were no exceedences of water quality standards for any dissolved metals, total metals, fecal coliform, or field parameters. A thermograph was deployed and recorded no exceedences of the tem perature criterion. **Therefore, unknown will be removed as a cause of non support.**

2006 ACTION: None

2008 ACTION: None

Ocate Creek (Ocate to Wheaton Creek)
WQS: 20.6.4.309 AU: NM-2306.A_070

Previously listed for reduction of riparian vegetation and streambank destabilization.

1998 ACTION: This reach will continue to be listed as Partially Supported on the 1998 303(d) list with unknown as the cause.

2000 ACTION: None

2002 ACTION: None

2004 ACTION: This reach was intensively sampled during the 2002 Canadian part 1 survey. The site was dry in early fall and summer due to drought and diversion. The site was sampled five times for dissolved metals, nutrients, ions, field parameters, ions, Hg, and Se. There were no exceedences of the standards. **Therefore, unknown will be removed as a cause of non support.** This AU will be listed as Category 4C because diversion (flow modification) "pollution" is de-watering the channel.

2006 ACTION: None

HUC 11080004 Mora

Coyote Creek (Mora River to Black Lake)
WQS: 20.6.4.309 AU: NM-2306.A_020

New listing for turbidity, total phosphorus, fecal coliform, total ammonia, and stream bottom deposits. There are four sampling stations on this reach. All data are from 1986, 1992 and 1993 surveys. Data ratios for turbidity are 0/6, 0/6, 0/6, and 0/1. Total phosphorus ratios are 1/6, 0/6, 1/6, and 0/1. Fecal coliform data indicate Full Support, Impacts Observed 1/1(230 /100 ml) in 1986. Total ammonia ratios are 0/4, 0/4, and 0/4.

1998 ACTION: Turbidity and total ammonia will be removed as causes of non-support for this reach. Total phosphorus will be removed as a cause of non-support but will be listed on the 1998 305(b) list as Full Support, Impacts Observed for this parameter and fecal coliform. This reach will continue to be listed as Not Supported on the 1998 303(d) list with stream bottom deposits as the cause.

2000 ACTION: None

2002 ACTION: None

2004 ACTION: This reach was intensively sampled during the 2002 Canadian part 1 survey. There were 8 of 19 exceedences (42%) of the specific conductance criterion (all at the station one mile above the Mora River at Thal Ranch), likely exacerbated by dry conditions during the survey. A thermograph deployed at Coyote Creek @ State Park recorded 7 days where the temperature exceeded the criterion of 20 degree C for more than 6 consecutive hours. **Therefore, temperature and specific conductance will be added as causes of non support.** This AU will be placed in Category 5B because there is a healthy trout fishery in this reach, so the conductivity criterion does not seem appropriate. Benthic scores were 93% of reference and percent fines were actually lower than the reference station (7 vs. 11).**Therefore, SBD will be removed as a cause of non support.**

2006 ACTION: None

2008 ACTION: TMDLs were completed for specific conductance and temperature.

Little Coyote Creek (Black Lake to headwaters)
WQS: 20.6.4.309 AU: NM-2306.A_024

New listing for metals (Al), turbidity and stream bottom deposits. There are four sampling stations on this reach. All data are from a 1991 survey. No dissolved aluminum data was

collected. Turbidity remains for all stations with the exception of CRB306.005078. Temperature is added to the list for all but station CRB306.00507. This is a partially supporting listing. Total phosphorus is also added to the list for all stations. This is a not supporting listing.

1998 ACTION: Aluminum was removed as a cause of non-support. Turbidity and stream bottom deposits were retained and phosphorus and temperature were added as causes of non-support.

2000 ACTION: Total phosphorus will be removed from the list.

There is no longer a standard associated with total phosphorus. The Nutrient Assessment Protocol will be used to assess nutrient loading on this reach.

2002 ACTION: None

2004 ACTION: This reach was intensively sampled during the 2002 Canadian part 1 survey. There was major road construction during the 1991 survey that contributed to turbidity and other impairments. The area around the construction has since been re-vegetated. There were 0 of 9 exceedences of the turbidity criterion of 25 NTU. **Therefore, turbidity will be removed as a cause of non support.** There were 2 of 8 exceedences (25%) of the pH criterion. A sonde deployed above HWY recorded an overall 30% exceedence rate. A thermograph deployed at State Park recorded 7 days where the temperature exceeded the criterion of 20 degree C for more than 6 consecutive hours. **Therefore, temperature and pH will be added as a cause of non support.** This AU will be placed in Category 5B because sonde data indicates FS for pH using draft protocol while grab data indicates NS. Also, thermograph was placed d/s of diversion. Benthic macroinvertebrates and pebble counts were collected @ HWY 434 and compared to Rio de las Casas. The biological score was 83% and there were 33% fines at the station compared to 11% at the reference. This AU is full support for SBD/sedimentation according to the Stream Bottom Deposit Assessment Protocol and best professional judgment (since the bio score was between 70-83%). Therefore, **SBD/sedimentation was removed as a cause of non support.**

The nutrient assessment protocol was performed on 07/11/02 at the site at HWY 434. Total nitrogen values were above the ecoregion criteria of 0.3 mg/L in >15% of the samples, total phosphorus values were above the ecoregion criteria of 0.03 mg/L in > 15% of the samples the percent DO saturation was greater than 110%, and the pH was greater than 9.0 for > 2 hours. Since three or more indicators were present at both sites, **nutrients will be added as a cause of non support.**

2006 ACTION: The thermograph data from the 2002 Canadian Part 1 survey were re-evaluated. The thermograph was unknowingly placed downstream of a

diversion and most of the streamflow was diverted during the summer, which contributed to the exceedences noted above. According to NMAC 20.6.4.11.I (as amended through February 16, 2006), numeric criteria for temperature adopted under the Water Quality Act do not apply when changes in temperature in a surface water of the state are attributable to the reasonable operation of irrigation and flood control facilities that are not subject to federal or state water pollution control permitting. Based on the exception to the applicability of water quality standards noted above, **temperature was removed as a cause of non-support.**

2008 ACTION: A TMDL was completed for nutrients.

Manuelitas Creek (Sapello River to the headwaters)
WQS: 20.6.4.307 AU: NM-2305.3.A_21

Listed for turbidity and stream bottom deposits. Turbidity values at two stations were 1/5 and 4/5. This data are misleading in that the sampling took place during a runoff event from a rain. For example at the lower station values were above criteria until the last day when the flows subsided and were then within the reach criteria. A biological assessment conducted by NMED in 1990 indicates full support of the fishery use. The biological assessment was 90% of the reference site. It is the opinion of the biologist conducting this assessment that stream bottom deposits do not impact this reach. The high quality biology at this site indicates that the temporary turbidity exceedences are not impairing the reach.

1998 ACTION: This reach has been removed from the 1998 303(d) list.

2000 ACTION: None

2002 ACTION: None

2004 ACTION: This AU was intensively sampled in 2002 during the Canadian Part 1 survey. No impairments were noted.

2006 ACTION: None

2008 ACTION: None

Mora River (Canadian River to USGS gage east of Shoemaker)
WQS: 20.6.4.305 AU: NM-2305.A_020

Previously listed for metals chronic (Pb), total ammonia and fecal coliform. There is only one sample station on this reach. All data are from a 1986 survey. Total ammonia had an acute exceedence ratio of 0/5 and a chronic exceedence ratio of 1/5. There are no dissolved lead data in STORET therefore there is insufficient data to modify the listing. Fecal coliform data are limited to

1/1 data (440/100 ml).

1998 ACTION: This reach will be listed on the 1998 303(d) list with lead (chronic) as the cause of non-support. The reach will be listed as Full Support, Impacts Observed on the 1998 305(b) list with fecal coliform and chronic total ammonia as a cause.

2000 ACTION: None

2002 ACTION: None

2004 ACTION: This reach was intensively sampled during the 2002 Canadian part 1 survey. There were 0 of 8 exceedences of the hardness dependent chronic lead criterion. **Therefore, lead will be removed as a cause of non support.** There were 2 of 9 dissolved oxygen measurements lower than the 5.0 mg/L criterion. **Therefore, dissoloved oxygen will be added as a cause of non support**. This AU will be categorized as 5C -- A sonde will be deployed to verify the DO listing.

2006 ACTION: A sonde was re-deployed in 2006 during the Canadian Part 2 survey to verify the dissolved oxygen listing. According to the Large Dissolved Oxygen Dataset Assessment Protocol, a combined instantaneous minimum of 5.0 milligrams per liter (mg/L) and 90% saturation or a percent saturation instantaneous minimum of 75% is allowable for warmwater aquatic life uses. The results from the 10-day sonde deployment in 2006 indicated a combined instantaneous minimum of 7.9 mg/L and 87.5% saturation. Since the DO concentration (in mg/L) is well above the 5.0 mg/L minimum, there were no exceedences observed for the combined results. Furthermore, the results indicated that the percent saturation instantaneous minimum was 86%, which is above the 75% minimum value. Thus no exceedences were observed for the percent saturation instantaneous minimum. The results from the deployment clearly indicate that the DO was above the minimum allowable concentration and had saturation values between 75% and 120% verifying Full Support for dissolved oxygen. **Therefore, dissolved oxygen was removed as a cause of non support.**

2008 ACTION: None

Mora River (USGS gage east of Shoemaker to HWY 434)
WQS: 20.6.4.307 AU: NM-2305.3.A_00

2004 ACTION: This reach was intensively sampled during the 2002 Canadian part 1 survey. Sondes were deployed at the stations Mora River above WWTP and below WWTP. The sondes were only deployed for 3 days, so the 7 day minimum could not be determined. The sonde data applied to percentages indicated

impairment while grab data did not. **Therefore, dissolved oxygen will be added as a cause of non support.** This AU will be listed as Category 5C because sonde data indicates impairment while grab data does not.

The potential for excessive nutrients in the Mora River were first noted through visual observation. To address this concern, data collected during 1999, 2002, and 2004 from seven stations in the assessment unit were collated and applied to the nutrient assessment protocol. Total nitrogen values were above the Southern Rockies ecoregion criteria of 0.30 mg/L in >15% (48%) of the samples, total phosphorus values were above the ecoregion criteria of 0.0.025 mg/L in >15% (28%) of the samples, and the percent dissolved oxygen (DO) saturation was greater than 120% in >15% (51%) of the samples. Chlorophyll a and ash free dry mass (AFDM) samples collected at the station above the WWTP exceeded numeric thresholds detailed in the nutrient assessment protocol as well. Since three or more indicators were present above threshold values, **the reach was determined to be Not Supporting for Nutrient/Eutrophication Biological Indicators**. This water will be listed as Category 5C to acknowledge that additional data are needed.

2006 ACTION: None.

2008 ACTION: A TMDL was completed for nutrients.

Mora River (HWY 434 to headwaters)
WQS: 20.6.4.309 AU: NM-2306.A_000

Previously listed for total phosphorus, fecal coliform, turbidity, and stream bottom deposits. There are two sampling stations on this reach. All data are from a 1986 survey. Data at two stations had ratios of 5/5 and 1/5 for total phosphorus. Turbidity ratios are similar at 4/5 and 1/4. Fecal coliform ratios are 1/1 and 0/1.

1998 ACTION: This reach will continue to be listed on the 1998 303(d) list with total phosphorus, turbidity, and stream bottom deposits as the cause above stations 0030. The reach will be listed on the 1998 305(b) lists as Full Support, Impacts Observed for fecal coliform.

2000 ACTION: Total phosphorus will be removed from the list.

There is no longer a standard associated with total phosphorus. The Nutrient Assessment Protocol will be used to assess nutrient loading on this reach.

2002 ACTION: None

2004 ACTION: Previously called "Mora River (Rio la Casa to headwaters)," this reach was

intensively sampled during the 2002 Canadian part 1 survey. There were 2 of 16 exceedences of the turbidity criterion of 25 NTU. **Therefore, turbidity will be removed as a cause of non support.** A thermograph deployed at Mora River @ Cleveland recorded no exceedences of the 20 degree C criterion. There were 15 of 16 exceedences of the specific conductance criterion of 500 umhos/cm. **Therefore, specific conductance will be added as a cause of non support**. This AU will be categorized as 5B – Mineral spring in the area and inflow from wetlands may be contributing to exceedences. Benthic scores were 70% of reference and percent fines were 464% of reference. Therefore, the SBD listing remains.

2006 ACTION: None

2008 ACTION: TMDLs were completed for specific conductance and sedimentation/siltation.

Mora River (Wolf Creek to Rio la Casa)
WQS: 20.6.4.307 AU: NM-2305.3.A_00

Previously listed for plant nutrients. There is only one sample station on this reach. All data are from 1988. Total phosphorus values are somewhat elevated. There is inadequate data to make a definitive determination.

1998 ACTION: This reach will continue to be listed on the 1998 303(d) list with plant nutrients as the cause.

2000 ACTION:

Plant Nutrients: A limited study was conducted on this reach in 1999. The study (using the Nutrient Assessment Protocol) concluded that this reach is nutrient limited and should remain listed for plant nutrients.

Plant nutrients will be retained as a cause of non-support.

2002 ACTION: The Nutrient Assessment protocol was performed in 2000 and 2001. This reach was determined not be nutrient enriched following the level one nutrient assessment analysis. A summary of the nutrient assessment is in the administrative record. A de-list letter was prepared.

2004 ACTION: None

2006 ACTION: None

2008 ACTION: None

Morphy (Murphy) Lake
WQS: 20.6.4.99 AU: NM-2305.3.B_30

1998 ACTION: **Not listed**

2000 ACTION: Morphy Lake was characterized (in a report titled, ***New Mexico Clean Lakes Program, Classification Phase I, Final Report, September 1982)*** by water temperatures that were nearly isothermal during the summer, with only slight dissolved oxygen stratification occurring. Aquatic macrophyte coverage reached nearly 100% and pond weed was observed year-round. The pH was quite alkaline, exceeding 9.0. Chlorophyll maxima were observed in the fall. Algal diversity was particularly high. No algal blooms were detected and phosphorus was determined to be limiting.

Although the data for this lake is dated, it is still listed in the State's 305(b) Report as im paired for dissolved oxygen, nutrients, pH and siltation and therefore will be listed on the 303(d) Li st until new data are collected to either verify or refute the listing.

2002 ACTION: None

2004 ACTION: None

2006 ACTION: WQS change to 20.6.4.99 based on 2005 trie nnial review and analysis that this is not an in-line reservoir so it is not covered under 20.6.4.307. Marginal Coldwater, Warmwater Aquatic Life and Irrigation are existing uses.

2008 ACTION: The sedimentation/siltation listing was removed because there were no data or applicable assessment protocols available to make this determination.

Rio la Casa (Mora River to the confl of North and South Forks)
WQS: 20.6.4.309 AU: NM-2306.A_030

Previously listed for turbidity and stream bottom deposits. There is one sam pling station on this reach. All data are from 1988. Turbidity data indicated full support (0/2).

1998 ACTION: Turbidity was removed as a cause of non-support. Stream bottom deposits was retained as a cause of non-support.

2000 ACTION: None

2002 ACTION: None

2004 ACTION: Rio la Casa was intensively sampled during the Canadian 1 study (2002). The Rio la Casa sampling station is used asa reference station for several AUs in the Canadian study. There were 11% fines at the station. **Therefore, SBD will be removed as a cause of non support.**

2006 ACTION: None

2008 ACTION: None

Sapello River (Manuelitas Creek to the headwaters)
WQS: 20.6.4.309 AU: NM-2305.3.A_30

Previously listed for stream bottom deposits. A biological assessment conducted by NMED in 1990 indicates full support of fishery use. The biological assessment was 80% of the reference site.

1998 ACTION: This reach has been removed from the 1998 303(d) list.

2000 ACTION: None

2002 ACTION: None

2004 ACTION: None

2006 ACTION: This AU was intensively surveyed during the Canadian Part 1 (2002) survey. There were no impairments determined as the result of the survey.

2008 ACTION: None

Sapello River (Mora River to Manuelitas Creek)
WQS: 20.6.4.307 AU: NM-2305.3.A_20

Previously listed for turbidity. While listed for turbidity, there are no applicable numeric turbidity criteria for this marginal coldwater and warmwater fishery. A biological assessment conducted by NMED in 1990 indicates Full Support, Im pacts Observed for the fishery use. The biological assessment was 70% of the reference site with references to in stream impacts from human activities.

1998 ACTION: This reach is listed as Partially Supported on the 1998 303(d) list with unknown as the cause.

2000 ACTION: None

2002 ACTION: None

2004 ACTION: This reach was intensively sampled during the 2002 Canadian part 1 survey. This reach had very low flow due to drought conditions. The site was sampled eight times for fecal coliform, dissolved metals, nutrients, ions, field parameters, ions, Hg, and Se. There were no exceedences of the standards. **Therefore, unknown will be removed as a cause of non support.**

2006 ACTION: Benthic macroinvertebrates surveys and pebble counts were conducted at the top and bottom of the assessment unit in March 2006. The bio score as a percent of reference and percent increase in fines at the downstream station, Sapello River @ Emplazado, as compared to the reference station, Sapello River below Manuelistas Creek at HWY 518, were 53% and 40%, respectively. **Therefore, Sedimentation/Siltation was added as a cause of non support.**

2008 ACTION: A TMDL was prepared for sedimentation/siltation.

HUC 11080005 Conchas

Conchas River (Conchas Lake to the headwaters)
WQS: 20.6.4.305 AU: NM-2305.A_010

Previously listed for metals (Al) and stream bottom deposits. There is one sampling station on this reach. There is no dissolved alum inum data. Because it is a lim ited warmwater fishery, stream bottom deposits was proposed to be removed as a cause of non-support.

1998 ACTION: The reach was removed from the 303(d) list.

2000 ACTION: None

2002 ACTION: None

2004 ACTION: None

2006 ACTION: None

2008 ACTION: None

HUC 11080006 Upper Canadian-Ute Reservoir

Canadian River (TX border to Ute Dam)
WQS: 20.6.4.301 AU: NM-2301_00

Previously listed for metals (mercury), salinity, plant nutrients and stream bottom deposits. There are two sampling stations on this reach. A 1988 intensive survey by NMED found no exceedences of the mercury criteria (0/1). The survey also found that the levels of nitrogen and phosphorus were low. There were no exceedences of the TDS (salinity) criteria for USGS station 07227140 (1969-1986). As the reach is designated as a limited warmwater fishery, stream bottom deposits was proposed to be removed.

1998 ACTION: The reach was removed from the 303(d) list.

2000 ACTION: None

2002 ACTION: None

2004 ACTION: None

2006 ACTION: None

2008 ACTION: None

Canadian River (Ute Reservoir to Conchas Reservoir)
WQS: 20.6.4.303 AU: NM-2303_00

Previously listed for metals (Hg), plant nutrients and stream bottom deposits. There are two sampling stations on this reach. Mercury data indicate full support for the fishery use as there were no exceedences of criteria in the last 10 years (0/3). The fishery use is a LWWF and accordingly the stream bottom deposits listing has been dropped. Data was reviewed to assess the plant nutrients listing and it has been determined that this listing is not supported. There are several reports on this segment of the river that do not include any indications of nutrient enrichment. Chemical parameters of nitrogen, phosphorus, and DO are within watershed norms.

1998 ACTION: This reach has been removed from the 1998 303(d) list.

2000 ACTION: None

2002 ACTION: None

2004 ACTION: None

2006 ACTION: None

2008 ACTION: None

Ute Reservoir
WQS: 20.6.4.302 AU: NM-2302_00

1998 ACTION: This lake is listed for mercury in fish tissue because there are fish consumption guidelines due to mercury contamination.

2000 ACTION: Ute Reservoir was characterized (in a report titled, ***New Mexico Clean Lakes Program: Lake Water Quality Assessment for FY 89)*** as oligo-mesotrophic based on the Carlson index for chlorophyll a and total phosphorus concentrations. Total nitrogen to total phosphorus ratios indicate phosphorus is the limiting nutrient for algal growth. Phytoplankton density ranged from 57 to 156 cells per ml. The Shannon-Wiener diversity indices listed in the BIOS data tables indicate the algal diversity to be good to excellent (i.e., greater than 2.0). Thermal stratification and dissolved oxygen depletion in the bottom third of the water column (i.e., 3.0 mg/l) was observed during August at the dam and Ute Creek outlet stations. Conversely, the Horseshoe station was well mixed and oxygenated throughout the year. Water quality standards were attained.

Although the data for this lake is dated, it is still listed in the State's 305(b) Report as impaired for metals (Al) and siltation and therefore will be listed on the 303(d) List until new data are collected to either verify or refute the listing.

2002 ACTION: None

2004 ACTION: None

2006 ACTION: None

2008 ACTION: This AU was studied during the Lakes (2006) survey. There were 2 of 12 exceedences of the chronic aquatic life criterion, confirming the previous aluminum listing. The sedimentation/siltation listing was removed because there were no data or applicable assessment protocols available to make this determination. There continues to be a fish advisory for mercury. **Therefore, this AU continues to be listed for aluminum as well as mercury in fish tissue.**

HUC 11080008 Revuelto

Revuelto Creek (Canadian River to headwaters)
WQS: 20.6.4.301 AU: NM-2301_10

Previously listed for metals, total ammonia and plant nutrients. Limited total ammonia data within the last 12 years has a ratio of 0/3. The levels of am monia seen are approxim ately 20% of the criteria value. This stream is an intermittent stream according to USGS.

1998 ACTION: This reach was removed from the 1998 303(d) list.

2000 ACTION: None

2002 ACTION: None

2004 ACTION: None

2006 ACTION: None

2008 ACTION: None

HUC 11100101 Upper Beaver

Clayton Lake
WQS: 20.6.4.99 **AU: NM-9000.B_030**

1998 ACTION: This lake is listed for m ercury in fish tissue because there are fish consumption guidelines due to mercury contamination.

2000 ACTION: None

2002 ACTION: None

2004 ACTION: None

2006 ACTION: WQS changed to 20.6.4.99 based on 2005 triennial review. Marginal Coldwater, Warmwater Aquatic Life and Irrigation are existing uses.

2008 ACTION: None

SOUTHERN HIGH PLAINS BASIN

HUC 12050001 Yellow House Draw

Tule Lake
WQS: 20.6.4.98 **AU: NM-9000.B_104**

1998 ACTION: **Not listed**

2000 ACTION:

Toxic Substances: Lake Water Quality Assessment Surveys, Playa Lakes 1994, NMED/SWQB, pages 13-22. Wildlife habitat and livestock watering uses sections 3100L and 3100 K. Though possibly of natural origin, concentrations of Boron did exceed standard for livestock watering. Narrative section on toxic substances in section 1105, paragraph F. "...from any substances at concentrations that are toxic toor will adversely affect plants and animals that use these environments for feeding, drinking, habitat or propagation..."

This playa will be listed on the 303(d) list fomot meeting the designated use of wildlife habitat with the cause being the narrative standard of toxic substances.

2002 ACTION: Re-evaluation of the Playa Lakes1994 NMED/SWQB Report and associated data do not indicate any impairment due to Toxic Substances. Non toxicity tests were performed during the 1993 study. Therefore, Toxic Substances was removed as a cause of non support. The boron criterion of 5 mg/L was exceeded during the 1993 survey at concentration of 13 mg/L. Also, the system was noted to be eutrophic. Therefore, boron and plant nutrients will be listed as Full Support, Impacts Observed.

2004 ACTION: None

2006 ACTION: None

2008 ACTION: None

HUC 12050002 Blackwater Draw

Dennis Chaves Lake (Curry)
WQS: 20.6.4.99 AU: NM-9000.B_036

1998 ACTION: Not listed

2000 ACTION:

Toxic Substances: Lake Water Quality Assessment Surveys, Playa Lakes 1994, NMED/SWQB, pages 41-53. Wildlife habitat and limited warm water fishery uses sections 3100 L and 3100 E. There is no data suggesting problems with secondary contact. Low oxygen value from study was exceeded (by low concentration) resulting in useimpairment. Narrative section on toxic substances in section 1105, paragraph F. "...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..."

This playa will be listed on the 303(d) list fomot meeting the designated use of wildlife habitat and limited warmwater fishery with the cause being the narrative standard of toxic substances.

2002 ACTION: Secondary Contact and limited warmwater fishery were added as existing uses. Re-evaluation of the Playa Lakes 1994 NMED/SWQB Report and associated data do not indicate any impairment due to Toxic Substances. Non toxicity tests were performed during the 1993 study. Therefore, Toxic Substances was removed as a cause of non support. Dissolved oxygen was measured at 4 mg/L during the 1993 survey during before noon. This is the lower acceptable limit for a limited warmwater fisher. Also, the systemwas noted to be eutrophic. Therefore, dissolved oxygen will and plant nutrients be listed as Full Support, Impacts Observed until further study.

2004 ACTION: None

2006 ACTION: WQS changed to 20.6.4.99 based on 2005 triennial review. Existing use upgraded to Warmwater Fishery.

2008 ACTION: None

Green Acres Lake
WQS: 20.6.4.99 AU: NM-9000.B_046

1998 ACTION: Not listed

2000 ACTION:

Toxic Substances: Lake Water Quality Assessment Surveys, Playa Lakes 1994, NMED/SWQB, pages 23-40. Wildlife habitat and Marginal coldwater fishery uses apply sections 3100 L and 3100 F. No data exist to support concern of secondary contact. Low oxygen value from study was exceedence (by low concentration) of standard under MCF use. This playa is subject to great amounts of urban runoff with associated pollutants and oxygen demanding materials. Narrative section on toxic substances in section 1105, paragraph F. "...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..."

This playa will be listed on the 303(d) list for not meeting the designated use of wildlife habitat and marginal coldwater fishery with the cause being the nutrients and organic enrichment.

2002 ACTION: Warmwater Fishery were added as existing uses. The dissolved oxygen concentration during the 1993 survey were below the lower limit of 6.0 mg/L for an existing use of marginal cold water fishery. Therefore, dissolved oxygen will be listed as FSIO until further study. The nutrient and organic enrichment list was changed to plant nutrients for consistency with the narrative standards.

2004 ACTION: None

2006 ACTION: WQS was changed to 20.6.4.99 based on 2005 triennial review. Marginal Coldwater and Warmwater Aquatic Life are existing uses.

Ingram Lake
WQS: 20.6.4.99 AU: NM-9000.B_050

1998 ACTION: **Not listed**

2000 ACTION:

Toxic Substances: Lake Water Quality Assessment Surveys, Playa Lakes 1994,

NMED/SWQB, pages 93-109. Wildlife habitat, limited warm water fishery and livestock watering uses sections 3100 L, 3100 E and 3100 K. This playa lake has been affected for years with urban runoff, meat packing plant blood pits, solid waste dump encroachment, cheese processing plant waste and municipal waste water facility discharge. Dead animals and fish were observed. Narrative section on toxic substances in section 3100, paragraph F. "...from any substances at concentrations that are toxic toor will adversely affect plants and animals that use these environments for feeding, drinking, habitat or propagation..."

This playa will be listed on the 303(d) list for not meeting the designated use of wildlife habitat limited warmwater fishery and livestock watering with the cause being toxic substances.

2002 ACTION: Re-evaluation of the Playa Lakes 1994 NMED/SWQB Report and associated data do not indicate any impairment due to Toxic Substances. Ingram Lake was eutrophic according to Carlson's indices for phosphorus. Therefore, the listing was changed from Toxic Substances to FSIO for plant nutrients until further study.

2004 ACTION: None

2006 ACTION: WQS was changed to 20.6.4.99 based on 2005 triennial review. Warmwater Aquatic Life is an existing use.

2008 ACTION: None

HUC 12080001 Lost Draw

Lane Salt Lake
WQS: 20.6.4.98 AU: NM-9000.B_072

1998 ACTION: Not listed

2000 ACTION:

Toxic Substances: Lake Water Quality Assessment Surveys, Playa Lakes 1992, NMED/SWQB, pages 42-62. Wildlife habitat designated use section 3100 L. Threatened by historic discharge from produced water (oil extraction industry). Narrative section on toxic substances in section 1105, paragraph F. "...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..."

This playa will be listed on the 303(d) list for not meeting the designated use of wildlife habitat with the cause being the narrative standard of toxic substances.

2002 ACTION: Boron was added as Full Support Impacts Observed due to one measurement at 150 mg/L (standard of 5 mg/L). Radium 256 and 228 was added as Full Support Impacts Observed due to one measurement at 256 pCi/L (standard of 30 pi/L).

2004 ACTION: None

2006 ACTION: WQS changed to 20.6.4.98 based on triennial review.

2008 ACTION: None

RIO GRANDE BASIN

UPPER RIO GRANDE (Cochiti Reservoir to CO border)

HUC 13010005 Conejos

Rio de los Pinos (New Mexico reaches)
WQS: 20.6.4.123 AU: NM-2120.A_900

Previously listed for metals (Al), total phosphorus,temperature and streambottom deposits. Data on this reach are limited to single grab sample data collected at two times during 1990. The first sampling was during April and the second during August.For temperature, the ratios at four offive sampling stations (URG120.031010, URG120.031020, URG120.031030 and URG120.031040) were 1/2 with all exceedences during the summer sampling. Station URG120.031050 had no exceedences. Temperature will be classified as Full Support, Impacts Observed at the exceeding stations and full support at. URG120.031050. For total phosphorus, the results were similar but with the exceedences occurring during the spring sampling. Stations URG120.031010, URF120.031030 and URG120.031050 all had 1/2 ratios withstations URG120.031020 and URG120.031040 having 0/2 exceedences. For aluminum, only one station had an exceedence. At station URG120.031010, 1/1 samples collected exceeded the screening criteria. There were no exceedences of the acute criteria.

1998 ACTION: This reach will be listed as Full Support, Impacts Observed on the 1998 305(b) list with aluminum, total phosphorus, and temperature as the causes. The reach continues to be listed as Partially Supporting on the 1998 303(d) list with stream bottom deposits as the cause.

2000 ACTION:

Metals (Al): Data reviewed from 8/09/90 shows that the aluminum listing on the Rito de los Pinos is erroneous. The SLD Analytical Report from the 1990 results shows digested aluminum at <0.3 mg/L. The STORET retrieval shows a dissolved aluminum number of 300 ug/L. This is obviously a data entry error and the listing for aluminum will be deleted.

2002 ACTION: This reach was sampled during the 2000 Upper Rio Grande 1 intensive water quality study. Benthic macroinvertebrate and pebble count data were collected at Rio de lost Pinos at the NMDGF area for comparison to reference condition at Rio Los Pinos at the FS boundary. The biological condition was 86% of reference condition at this site with 25% fines. Combined geomorphologic and benthic macroinvertebrate data from this station combined with the fact that a second Rio Los Pinos station is a reference station indicate Full Support for stream bottom deposits.

The dissolved oxygen criterion (≥6.0 mg/L) was exceeded on 17 May at Station 1 (5.32 mg/L) and at Station 2 (5.68 mg/L). A total of eight samples were collected at each station. However, the proportion of exceedences was such that this reach will be listed as Full Support Impacts Observed for dissolved oxygen.

2004 ACTION: In 2002, two thermographs were deployed on Rio de los Pinos at USGS gage and Rio de los Pinos at the USFS bridge. At the USGS gage, recorded temperatures from July 2 through August 31, 2002 exceeded the HQCWF criterion 508 of 1,446 times (35%) with a maximum temperature of 29.8°C. At the USFS bridge in 2002, recorded temperatures from July 2 through August 31, 2003 exceeded the HQCWF criterion 344 of 1,446 times (24%) with a maximum temperature of 27.7°C. In 2003, two thermographs were re-deployed at these two stations. At the USGS gage, recorded temperatures from July through August 31, 2002 exceeded the HQCWF criterion 246 of 1,446 times (17%) with a maximum temperature of 25.3°C. At the USFS bridge in 2003, recorded temperatures from July 2 through August 31, 2003 exceeded the HQCWF criterion 387 of 1,446 times (27%) with a maximum temperature of 27.1°C. **Therefore, temperature will be added as a cause of non support.**

2006 ACTION: A TMDL was prepared for temperature.

2008 ACTION: None

Rio San Antonio (Montoya Canyon to headwaters)
WQS: 20.6.4.123 AU: NM-21210.A_901

Previously listed for stream bottom deposits, reduction of riparian vegetation and stream bank destabilization. No associated physical/chemical data are available.

1998 ACTION: The reach was retained on the 303(d) with stream bottom deposits as the cause of non-support.

2000 ACTION: None

2002 ACTION: This reach was sampled during the 2000 Upper Rio Grande 1 intensive water quality study. Benthic macroinvertebrate and pebble count data were collected at for comparison to reference condition at Rio Los Pinos. The biological condition was 73% of reference condition at this site with 31% fines. There were 17% fines at the reference station which corresponds to an 82% increase in fines at the sample condition. Combined geomorphologic and benthic macroinvertebrate data from this water body **indicate Full Support Impacts Observed for stream bottom deposits.**

The dissolved oxygen standard (≥6.0 mg/L) was exceeded on 18 October at Station 4 (5.15 m g/L). The proportion of exceedences was such that this reach is listed **as Full Support Impacts Observed for dissolved oxygen.**

2004 ACTION: Previously listed as Rio San Antonio (CO border to headwaters), this AU was split to acknowledge the different character above at Montoya Canyon. Thermograph data from station 4 (Forest Road 87) indicate non-support for temperature for this AU, as instantaneous tem perature readings exceeded 23°C (maximum = 26.97°C). **Therefore, temperature will be added as a cause of non support.**

2006 ACTION: None

2008 ACTION: None

Rio San Antonio (CO border to Montoya Canyon)
WQS: 20.6.4.123 AU: NM-2120.A_902

2004 ACTION: This reach was sampled during the 2000 Upper Rio Grande 1 intensive water quality study. Previously listed as Rio San Antonio (CO border to headwaters), this AU was split to acknowledge the changing character between at Montoya Canyon. The station near the CO border at Ortiz was dry during the summer sampling run.

2006 ACTION: None

2008 ACTION: None

HUC 13020101 Upper Rio Grande

Bitter Creek (Red River to headwaters)
WQS: 20.6.4.123 AU: NM-2120.A_705

Previously listed for metals (aluminum), stream bottom deposits, reduction of riparian vegetation and stream bank destabilization. Aluminum data indicate an exceedence ratio of 3/3 at station URG120.028530.

1998 ACTION: The reach will be listed for aluminum at station URG120.028530 and stream bottom deposits.

2000 ACTION:

Metals (Al acute): Station URG120.028070 was sampled in the spring. The exceedence ratio for Al was 3/4 with an acute level of 750ug/L.

Metals (Al acute) will be retained as a cause of non-support

Stream Bottom Deposits: Sand and gravel operation plus land development above the gravel operations have lead to very high levels of sediment transport and deposition throughout this reach. An ongoing 319(h) program is attempting to stabilize this area.

Stream bottom deposits will be retained as a cause of non-support

2002 ACTION: None. TMDLs were drafted for acute aluminum and stream bottom deposits as part of the Red River TMDLs document.

2004 ACTION: Molycorp submitted monitoring data for various stations on Red River and Cabresto Creek. Since no new data was available for Bitter Creek, the listings remain.

2006 ACTION: None

2008 ACTION: None

Cabresto Creek (Red River to headwaters)
WQS: 20.6.4.123 AU: NM-2120.A_701

Previously listed for turbidity and stream bottom deposits. There have been no exceedences (0/5) of the turbidity criteria in the last five years. The cumulative turbidity ratio from three stations for 10

years is 1/21.

1998 ACTION: Turbidity will be removed as a cause of non-support. This reach is listed as Partially Supported on the 303(d) list with stream bottom deposits as the cause.

2000 ACTION:

Metals (Al chronic): Station URG120.028017 was sampled in the spring. The exceedence ratio for Al was 4/4.

A new listing will be added for metals (Al chronic).

Stream Bottom Deposits: One station was evaluated along this reach. The reach had 7% fines <2m m (FS) and an em beddedness of 38.3%(FS).

Water quality standards, as assessed using the 1998 Assessment Protocol, are currently being met for stream bottom deposits on Cabresto Creek.

2002 ACTION: None. TMDL was drafted for acute al uminum as part of the Red River TMDLs document.

2004 ACTION: Molycorp submitted monitoring data for various stations on Red River and Cabresto Creek. Nine stations were sampled along Cabresto Creek Oct 6-7, 2002 and Mar 23, 2003. There were 0 of 17 exceedences of the dissolved aluminum chronic screening criterion 0.1305 ug/L (= 1.5 x 0.087 ug/L). Combining the most recent 5 years of available data (1999-2003), there were 4 of 21 (19%) total exceedences of the chronic screening criterion. The Assessment Protocol states that when consecutive day data are available, means will first be calculated and then compared to the chronic criterion. The 1999 spring data used to develop the existing aluminum data was re-assessed in this fashion because it was collected on consecutive days, leading to one exceedence of the chronic criteria for aluminum. According to this re-assessment, Cabresto Creek should not have been listed for aluminum. More recent multi-season data submitted by Molycorp for multiple stations along Cabresto Creek did not show any exceedences (0 of 17). Due to this new data and the incorrect assessment of the 1999 data, the listing for aluminum was removed from the list. There were no exceedences of the hardness-dependent criteria for chromium, cadmium, copper, nickel, or zinc.

2006 ACTION: TMDLs were developed for AL acute and sedimentation/siltation.

2008 ACTION: None

Comanche Creek (Costilla Creek to headwaters)
WQS: 20.6.4.123 AU: NM-2120.A_827

Listed for total phosphorus, metals (Al, chronic), and stream bottom deposits. Some total phosphorus exceedences were recorded from 5-10 year data (1/16,1/4,1/12,3/12,1/10,2/10). Nonpoint source projects have been implemented in this watershed. Eight stations have been sampled within 5 years with no exceedences seen for total phosphorus. This is a total of 0/15 samples at the same stations sampled previously. Results for aluminum are similar which is expected since the source of phosphorus and aluminum in this watershed is from eroding soils. In the 5-10 year time period data ratios were 2/6, 0/3, 2/6, 2/6, 2/6, 2/7, and 2/6. In the last 5 years the data ratios are 0/2, 1/2, 1/2, 0/1, 0/2, and 0/1.

1998 ACTION: This reach is listed as Partially Supported on the 303(d) list with total phosphorus, aluminum and stream bottom deposits as the cause.

2000 ACTION: There is no longer a water quality standard for total phosphorus for the designated use of high quality coldwater fishery. Therefore, total phosphorus was removed as a cause of impairment. Total phosphorus concentrations will be measured during the Upper Rio Grande intensive study to verify the de-listing.

2002 ACTION: This reach was sampled during the 2000 Upper Rio Grande 1 intensive water quality study. Benthic macroinvertebrate and pebble count data were collected at two sites for comparison to reference condition at Casias Creek. The biological condition was 71% and 62% of reference condition at these sites. There were 27.6 % fines at the reference site Casias Creek and 44% and 34% fines at the Comanche Creek above Costilla and Comanche Creek @ Upper Exclosure, respectively. Combined geomorphologic and benthic macroinvertebrate data from this water body **indicate Full Support Impacts Observed for stream bottom deposits.**

There were 0 of 16 exceedences for dissolved aluminum at the two sites. Therefore, **aluminum will be removed as a cause of Non Support.**

Total phosphorus was measured eight times at both stations. Twelve of these measurements were below the detection limit. 0.04 mg/L and 0.071 mg/L were measured at Comanche Creek @ Upper Exclosure during the summer sampling run. 0.04 mg/L and 0.05 mg/L were measured at Comanche Creek above Costilla on during on 8/1/00 and 5/17/00, respectively.

2004 ACTION: Thermograph data from Station 11 (Comanche Creek below upper exclosure) indicate non-support for temperature as instantaneous readings exceeded 23°C (maximum = 27.1°C). **Temperature will be added as a cause of non-support.** Thermograph data from this station were collected during 2002 as the thermograph data from the 2000 intensive survey were inadvertently compromised.

2006 ACTION: A TMDL was developed for temperature. Name was extended to headwaters. Sedimentation/siltation impairment was re-assessed using the current Assessment Protocol. As a result, **sedimentation/siltation was added as a cause of non support**.

2008 ACTION: This AU was surveyed during 2006 to establish baseline conditions as soon as possible after ONRW status was established for surface waters in the Valle Vidal. 2006 thermograph data confirmed the existing listing. There were only 3% fines measured at station Comanche Creek above Costilla Creek, and the M-SCI score for benthic macroinvertebrates was 59. Therefore, according to the 2008 assessment protocol for sedimentation, **this AU was determined to be full support for sedimentation/siltation.**

Cordova Creek (Costilla Creek to headwaters)
WQS: 20.6.4.123 AU: NM-2120.A_823

Previously listed for turbidity, stream bottom deposits and total phosphorus. 0/9 samples at 2 stations show exceedences of the turbidity criteria. Total phosphorus is not supporting (5/10) at station the downstream station while the upstream station is fully supporting (0/3) for total phosphorus.

1998 ACTION: Turbidity will be removed as a cause of non-support. The reach will continue to be listed as Not Supported for total phosphorus and stream bottom deposits on the 1998 303(d) list.

2000 ACTION:

Total Phosphorus: This stream is severely impacted by increased sedimentation from NM196 that was built in the original streamchannel up to the Ski Rio ski area. The stream is also severely impacted by modifications as a result of Ski Area development and additional runoff from snowmaking. Increased sedimentation is also a result of land development, grazing, and recreation at Ski Rio.

A TMDL was developed for Cordova Creek to address total phosphorus.

Stream Bottom Deposits: This stream is severely impacted by increased sedimentation from NM 196 that was built in the original streamchannel up to the Ski Rio ski area. The stream is also severely impacted by modifications as a result of ski area development and additional runoff from snowmaking. Increased sedimentation is also a result of land development, grazing and recreation at Ski Rio.

A TMDL was developed for Cordova Creekto address stream bottom deposits.

Turbidity: This stream is severely impacted by increased sedimentation from NM 196 that was built in the original streamchannel up to the Ski Rio ski area. The stream is also severely impacted by modifications as a result of Ski Area development and additional runoff from snowmaking. Increased sedimentation is also a result of land development, grazing and recreation at Ski Rio.

A TMDL was developed for Cordova Creek to address turbidity.

2002 ACTION: This reach was sampled during the 2000 Upper Rio Grande 1 intensive water quality survey. The dissolved oxygen standard (≥6.0 mg/L) was exceeded for two samples (5.88 mg/L on 01 August; 5.82 mg/L on 02 August) out of eight at Station 35. No exceedences were detected out of eight samples at Station 36. Thus, this water body is in **full support of the dissolved oxygen standard, but impacts have been observed** that warrant close attention during future surveys.

There were 0 of 16 turbidity exceedences during the 2000 study. Therefore, **turbidity will be removed as a cause of Non Support for this reach.**

There is no longer a water quality standard for total phosphorus for the designated use of high quality coldwater fishery. The Nutrient Assessment protocol was performed July 2000. This reach was determined not be nutrient enriched following the level one nutrient assessment analysis. A summary of the nutrient assessment is in the administrative record. Therefore, **total phosphorus will be removed as a cause of Non Support for this reach.**

2004 ACTION: None. Although there were 0 of 16 turbidity exceedences during the 2000 study, visual observation and photodocumentation continues to show that Cordova Creek is impacted by sedimentation and turbidity following storm events due to the above mentioned causes. Nonpoint source projects are being implemented in this watershed.

2006 ACTION: None

2008 ACTION: None

Costilla Creek (CO border to diversion above Costilla)
WQS: 20.6.4.123 AU: NM-2120.A_810

Previously listed for stream bottom deposits only. The assessment review found that turbidity and metals (Al, acute) should be added to this listing due to 3/9 (33%) of turbidity readings within 5 years being above the criteria. 1/6 values exceeded the acute aluminum criteria and 2/6 (33%) exceeded the chronic aluminum criteria.

1998 ACTION: This reach is listed as Partially Supported on the 303(d) list with turbidity, aluminum, and stream bottom deposits as the cause.

2000 ACTION: None

2002 ACTION: This reach was sampled during the 2000 Upper Rio Grande 1 intensive water quality survey. The turbidity standard (25 NTU) was exceeded for both spring samples (87.7 NTU on 16 May; 44.7 NTU on 17 May) at Station 39. These values may be attributable to natural causes (i.e., spring runoff) or the operation of irrigation or flood control facilities (flows are at bankfull from spring to fall due to dam operations). However, benthic macroinvertebrate data indicate suboptimal habitat conditions, **thus this reach is considered to still be in Partial Support of the turbidity standard**.

Benthic macroinvertebrate and percent fines data was used to assess potential stream bottom deposits utilizing the Protocol for the Assessment of Stream Bottom Deposits. The biological condition was 56% of reference and had 24% fines at the sample station. The reference site used for comparison was Rio Hondo @ the USGS gage. According to the protocol, **stream bottom deposits will be noted as Full Support, Impacts Observed.**

The seasonal arithmetic means for aluminum were 0.075, 0.060, and <0.01 mg/L for spring, summer, and fall, respectively. Arithmetic means were used because multiple day sampling data were available for aluminum. Therefore, **aluminum will be noted as Full Support.**

2004 Action: While preparing TMDLs for this assessment unit, it was determined that the station used to make these original listings (and the subsequent follow-up sampling in 2000) was actually upstream of this assessment unit. SWQB has actually never been able to sample this AU because it goes dry during the irrigation season (see gage and thermograph data). **Therefore, turbidity will be removed as a cause of non-support, and this AU will be listed as Category 4C because it is impaired by the pollutant "flow modification" due to diversion**. The the upstream AU – Costilla Creek (Diversion to Comanche Creek)—was reassessed below.

2006 ACTION: None

2008 ACTION: None

Costilla Creek (diversion abv Costilla to Comanche Creek)
WQS: 20.6.4.123 AU: NM-2120.A_820

2004 Action: This AU was intensively sampled during the 2000 Upper Rio Grande survey. The data were reassessed in 2003 because the lowest station in the assessment unit was previously mistakenly associated with the assessment unit downstream. There were three stations in this AU: Costilla above Costilla @ HWY 196 (station 39), Costilla above Amalia @ HWY 196 (station 38), and Costilla below Comanche Creek (station 6). A thermograph deployed in 2002 at the first station recorded a maximum temperature of 25.81 degrees C. **Therefore, temperature will be listed as a cause of non support**. There were 3 of 24 exceedences of the turbidity criterion of 25 NTU.

2006 ACTION: A TMDL was developed for temperature.

2008 ACTION: None

Costilla Creek (Comanche Creek to Costilla Dam)
WQS: 20.6.4.123 AU: NM-2120.A_830

Previously listed for metals (Al, chronic) and turbidity. Turbidity values for 0-10 years at 3 stations were 1/17, 0/2 and 0/4. Alum inum has been recorded at acute levels at stations Costilla065 and Costilla095.

1998 ACTION: Remove turbidity as a cause on non-support for this reach. Aluminum will continue to be listed as a cause of non-support.

2000 ACTION: None

2002 ACTION: This reach was sampled during the 2000 Upper Rio Grande 1 intensive water quality survey. The seasonal arithmetic means for aluminum were 0.075, 0.070, and <0.01 mg/L for spring, summer, and fall, resepectively, at Station 40. Arithmetic means were use because SWQB had multiple day sampling data for aluminum. The seasonal arithmetic means for aluminum were 0.077 and <0.013 mg/L for summer and fall, resepectively, at Station 12. There was only one data point for spring at this station, so the result was taken times 1.5 and compared to the chronic criterion of 0.087 mg/L. This value, 0.09 mg/L, exceeded the criterion for aluminum. Therefore, **aluminum will be noted as Full Support, Impacts Observed.**

One exceedence (0.02 mg/L) above the hardness-dependent acute criterion (0.006 mg/L) and chronic criterion (0.004mg/L) for dissolved copper was detected on 16 May at Station 12. The mean value for samples collected at

this station for this parameter was below the chronic criterion, thus only a violation of the acute criterion is recognized. **However, the proportion of exceedences was such that this water body will be noted as Full Support, Impacts Observed for copper.**

One exceedence (0.09 mg/L) above the hardness-dependent acute criterion (0.062 mg/L) and chronic criterion (0.063 mg/L) for dissolved zinc was detected on 17 May at Station 40. The mean value for samples collected at this station for this parameter was below the chronic criterion, thus only a violation of the acute criterion is recognized. **However, the proportion of exceedences was such that this water body will be noted as Full Support, Impacts Observed for zinc.**

2004 ACTION: None

2006 ACTION: None

2008 ACTION: This AU was surveyed during 2006 to establish baseline conditions as soon as possible after ONRW status was established for surface waters in the Valle Vidal. This AU continues to be listed as full support for all designated uses based on the results of this survey.

Embudo Creek (Cañada de Ojo Sarco to Picuris Pueblo bnd)
WQS: 20.6.4.114 AU: NM-2111_40

Previously listed as "Embudo Creek (Rio Grande to Picuris Pueblo bnd)" and listed for metals (chronic Al), turbidity, temperature, and streambottom deposits. There are 4 sampling stations from a 1994 survey used to assess this reach. Temperature values were: 0/17, 1/9, 0/9 and 0/9. In 5-10 year data the values were similar. There appears to be no justification for a temperature listing on this reach. Aluminum exceeded the chronic screening criteria at stations URG111.021505 (2/5) and URG111.021590 (2/3) with similar results from 5-10 year data. Turbidity exceeded the criteria in 2/9 (22%) of the samples. Embudo Creek at USGS gauge station was sampled for macroinvertebrates in 1994. This station was NS (54%) with a habitat score of 36% compared to the reference. The write-up cites severe siltation as a cause of non-support.

1998 ACTION: Temperature will be removed as a cause of non-support for this reach. The reach will continue to be listed as Not Supported for turbidity, aluminum, and stream bottom deposits.

2000 ACTION: None

2002 ACTION: None

2004 ACTION: This assessment unit was intensively sampled as part of the URG II 2001 survey. The assessment unit was split where the stream leaves the canyon

and enters the developing valley. There were 0 of 3 exceedences of the chronic aluminum criteria using seasonal means (because consecutive day data were available) and 0 of 8 turbidity exceedences. **Therefore, aluminum and turbidity will be removed as causes of non support.** A benthic marcroinvertebrate survey was performed using Rio Santa Barbara at the Santa Barbara Campground as a reference. The bio score was 59% of reference, with 9% fines. **Therefore, benthic macroinvertebrate bioassessments will be added while SBD/sedimentation/siltation will be removed as a cause of non support**. The AU will be listed as category 5C until the cause of impairment is determined.

2006 ACTION: None

2008 ACTION: None. The 2004 thermograph data were re-assessed to verify full support for temperature.

Embudo Creek (Rio Grande to Cañada de Ojo Sarco)
WQS: 20.6.4.114 AU: NM-2111_41

Previously listed as "Embudo Creek (Rio Grande to Picuris Pueblo bnd)" and listed for metals (chronic Al), turbidity, temperature, and streambottom deposits. There are 4 sampling stations from a 1994 survey used to assess this reach. Temperature values were: 0/17, 1/9, 0/9 and 0/9. In 5-10 year data the values were similar. There appears to be no justification for a temperature listing on this reach. Aluminum exceeded the chronic screening criteria at stations URG111.021505 (2/5) and URG111.021590 (2/3) with similar results from 5-10 year data. Turbidity exceeded the criteria in 2/9 (22%) of the samples. Embudo Creek at USGS gauge station was sampled for macroinvertebrates in 1994. This station was NS (54%) with a habitat score of 36% compared to the reference. The write-up cites severe siltation as a cause of non-support.

1998 ACTION: Temperature will be removed as a cause of non-support for this reach. The reach will continue to be listed as Not Supported for turbidity, aluminum, and stream bottom deposits.

2000 ACTION: None

2002 ACTION: None

2004 ACTION: This assessment unit was intensively sampled as part of the URG II 2001 survey. The assessment unit was split where the stream leaves the canyon and enters the developing valley. There were 0 of 3 exceedences of the chronic aluminum criteria using seasonal means (because consecutive day data were available) and 2 of 8 turbidity exceedences. **Therefore, aluminum will be removed and turbidity will remain a cause of non support.** A benthic marcroinvertebrate survey was performed using Santa Cruz River in Cundiyo as a reference. The bio score was 65% of reference,

with 24% fines. This AU goes through episodes of heavy sedimentation followed by scouring. During previous surveys, the cobble was 100% embedded with sand. Heavy sediment inputs in Dixon come from roads running perpendicular to the river. Also, dry watercourses in Dixon are used as roads. **Therefore, sedimentation/siltation will be added as a cause of non support**.

2006 ACTION: TMDLs were developed for sedimentation/siltation (SBD) and turbidity. All numeric segment-specific turbidity criteria were removed during the 2005 triennial review, and replaced with General Criteria 20.6.4.13.J. New assessment methods to determine turbidity impairment based on this new language are not yet available. SWQB will retain historic turbidity listings in the interim.

2008 ACTION: None

Goose Lake
WQS: 20.6.4.123 AU: NM-2120.B_12

1998 ACTION: Not listed

2000 ACTION: Listed for siltation, nutrients, and fish guidelines.

2002 ACTION: **The cause of Fish Guidelines was removed** because this in not on the current fish consumption guidelines.

2004 ACTION: None

2006 ACTION: None

2008 ACTION: None

Guaje Canyon (San Ildefonso bnd to headwaters)
WQS: 20.6.4.98 AU: NM-9000.A_005

2002 ACTION: **Gross Alpha was listed as Non Support** because the Livestock Watering criterion of 15 pCi/L was exceeded four times in time-weighted composite samples in 2001. The uranium-corrected gross alpha minus plutonium and americium exceedences were as follows (pCi/L): 481.73, 194.27, 464.26, and 441.02. **Selenium was listed as Non Support** because the Wildlife Habitat chronic screening criterion of 7.5 mg/L (5.0 mg/L x 1.5) was exceeded four times in time-weighted composite samples in 2000 and 2001. Selenium exceedences were as follows (ug/L): 8.8, 17.3, 34.5, and 17.6. Los Alamos

National Laboratory collected all data used in these assessments during storm events in 2000 and 2001.

2004 ACTION: Selenium will remain listed as Non Support. There was an additional exceedence of the Wildlife Habitat chronic screening criterion of 7.5 ug/L (5.0 ug/L x 1.5) in 2002 during stormwater quality sampling. Total selenium exceedences were as follows (ug/L): 10.0 and 10.0 at station GU-0.01 on 7/31/02 (counted as one exceedence according to the Assessment Protocol, section 2.1.2). These data were collected by the NMED DOE Oversite Bureau. There were three additional selenium exceedences as follows in LANL 2002 time-weighted storm water samples (ug/L): 8.12, 10.1, and 9.06.
Gross Alpha will remain listed as Non Support. There was one additional exceedences of the Livestock Watering criterion of 15 pCi/L at station GU-0.01 (692.99 pCi/L) in 2002. This datum was collected by the NMED DOE Oversite Bureau. In the LANL time-weighted composite 2003 storm event data set, there were three additional exceedences at the station above Rendija Canyon (2183.47, 1135.54, and 1851.93 pCi/L) and one additional exceedence at the station at SR-502 (2959.34 pCi/L). All these data were calculated as uranium-corrected gross alpha minus plutonium and americium.

2006 ACTION: Available LANL, DOE, and NMED DOE Oversite Bureau data from 2001 to 2005 were queried from the RACER database in late 2005 and assessed. The Livestock Watering criterion of 15 pCi/L Adjust Gross Alpha was exceeded 8 of 14 times (8/12 at Guaje abv Rendija). The uranium-corrected gross alpha minus plutonium and americium exceedences were used in this determination. The selenium criterion (5.0 mg/L) for Wildlife Habitat was exceeded 7 of 17 times (7/11 at Guaje @ SR-502). **Therefore, gross alpha and selenium remain as a cause of non support.**

2008 ACTION: None

Little Tesuque Creek (Big Tesuque Creek to the headwaters)
WQS: 20.6.4.121 AU: NM-2118.A_34

Listed for turbidity and metals (Al and Cd). Criteria violations for turbidity are documented at all stations. The listing for Cd is not supported. 1/10 (10%) samples on the reach for dissolved cadmium were reported as greater than the chronic screening criteria. One exceedence within 5 years is permitted. This sample did not meet quality control requirements because the dissolved portion exceeded the reported total Cd concentration. Acute exceedences of aluminum were observed at stations URG118.003407, URG118.003414, and URG118.003417.

1998 ACTION: The reach is listed on the 1998 303(d) list as Not Supported with aluminum and turbidity as causes of non-support. Cadmium will be removed as a cause of non-support for this reach.

2000 ACTION: None

2002 ACTION: None

2004: ACTION: This reach was intensively sampled as part of the URG II survey in 2001. There were 0 of 8 turbidity exceedences at the station above Hyde Park and 0 of 8 turbidity exceedences at the station at the first HWY 475 crossing during the survey. Therefore, **turbidity will be removed as a cause of non-support.** The acute aluminum standard of 0.77 ug/L was not exceeded during any of the ten sampling events at either station. During the 4-day spring run, the mean of the results (0.138 ug/L) exceeded the chronic criteria of 0.087 ug/L at the station above Hyde Park. The mean of the results (0.5 ug/L) also exceeded the chronic criteria of 0.087 ug/L at the station at the first HWY 475 crossing. Means were calculated and compared against the chronic criterion because consecutive day data were available. Because there was more than one exceedence of the chronic criterion, **aluminum will be retained as a cause of non-support**.

WQS 20.6.4.114 should include a statement regarding "tributaries of the Rio Tesuque below the Santa Fe national forest boundary" so that the assessment unit Little Tesuque Creek (Rio Tesuque to USFS boundary) would fall clearly under this WQS instead of 20.6.4.121 (where it currently resides). Regardless of this proposed WQS change, it will still be listed for aluminum.

2006 ACTION: A TMDL for aluminum was prepared.

2008 ACTION: None

Los Alamos Canyon (within LANL)
WQS: 20.6.4.128 AU: NM-9000.A_006

2002 ACTION: **Gross Alpha was listed as Non Support** because the Livestock Watering criterion of 15 pCi/L was exceeded 10 times in time-weighted composite samples in 2000 and 2001. The uranium-corrected gross alpha minus plutonium and americium exceedences were as follows (pCi/L): 748.59, 677.72, 197.92, 344.43, 34.70, 590.59, 246.77, 120.62, 543.66, and 102.27. **Selenium was listed as Non Support** because the Wildlife Habitat chronic screening criterion of 7.5 mg/L (5.0 mg/L x 1.5) was exceeded nine times in time-weighted composite samples in 2000 and 2001. Selenium exceedences were as follows (ug/L): 7.54, 8.41, 8.81, 18.8, 9.04, 8.33, 22.7, 9.3, and 12. Los Alamos National Laboratory collected all data used in these assessments during storm events in 2000 and 2001. **Mercury was listed as Full Support Impacts Observed**

because the Wildlife Habitat chronic screening criterion of 1.16 ug/L (0.77 ug/L x 1.5) was exceeded on 7/26/01 with a value of 1.69 ug/L.

The Wildlife Habitat chronic screening criterion of 0.021 ug/L (0.014 ug/L x 1.5) was exceeded on 10/28/00 with a value of 0.12544 ug/L. This data was provided by DOE Oversite. NMED cannot use these data to determine water quality for the purposes of the 303(d) list because the DOE Oversite used a method that is not currently in listed in 40 CFR Part 136. They used a method published by USEPA Office of Water entitled Method 1668, Revision A: *Chlorinated Biphenyl Congeners in Water, Soil, Sediment, and Tissue by HRGC/HRMS* (USEPA, EPA-821-R-00-002, December 1999). Section 1.2, page 1 of the Method states: "This Method is for use in data gathering and monitoring associated with the Clean Water Act, the Resource Conservation and Recovery Act, the Comprehensive Environmental Response, Compensation and Liability Act, and the Safe Drinking Water Act." The DOE Oversight Bureau first began using method EPA Method 1668A for determining PCBs in fish tissue in 1999 and 2000. The Method Detection Limit in water for the 40 CFR Part 136 AROCLOR method is 1.0 ug/L or seventy one times the wildlife habitat standard of 0.014 ug/L. The 40 CFR Part136 method is not capable of detecting PCBs at the level of the New Mexico Wildlife Standard. Method 1668A is capable of detecting PCBs up to 2,800 times below the Wildlife Standard.

2004 ACTION: None

2006 ACTION: Available LANL, DOE, and NMED DOE Oversite Bureau data from 2001 to 2005 were queried from the RACER database in late 2005 and assessed. The Livestock Watering criterion of 15 pCi/L Adjust Gross Alpha was exceeded 19 of 22 times (9/11 at LA abv DP Canyon, 7/8 at LA abv SR-4, and 3/3 at LA blw Ice Rink). The uranium-corrected gross alpha minus plutonium and americium exceedences were used in this determination. The total selenium criterion (5.0 ug/L) for Wildlife Habitat was exceeded 11 of 83 times (5/17 at LA abv DP Canyon, 5/28 at LA abv SR-4, and 1/16 at LA blw Ice Rink). The acute aluminum criterion (0.75 mg/L) for Limited Aquatic Life was exceeded 24 of 70 times (8/13 at LA abv DP Canyon, 9/24 at LA abv SR-4, 1/13 at LA blw Ice Rink, 5/13 at LA blw LA Weir, and 1/6 at LA abv Ice Rink). The total mercury criterion (0.77 ug/L) for Wildlife Habitat was exceeded 5 of 78 times (2/13 at LA abv DP Canyon, and 3/27 at LA abv SR-4). The total PCB criterion of 0.64 ng/L for Human Health associated with Limited Aquatic Life Use was exceeded 5 of 5 times (2/2 at LA abv DP Canyon, and 3/3 at LA abv SR-4). **Therefore, gross alpha and selenium remain, and aluminum, mercury, and PCBs in Water were added as causes of non support.**

2008 ACTION: None

Los Alamos Reservoir
WQS: 20.6.4.127 AU: NM-9000.B_077

2002 ACTION: Marginal coldwater fishery was added as an existing use. In 2000, the Cerro Grande fire within the contributing watershed resulted in debris flows, erosion, and sedimentation that filed Los Alamos reservoir with organic debris, sediments, and potential contaminants adhered to the sediments. Physical and chemical changes resulted. Fish kill was observed. Therefore, this reservoir was listed as Not Supporting for unknown toxicity until further study.

2004 ACTION: The existing fishery use was changed to Coldwater Fishery.

2006 ACTION: The WQS was upgraded as a result of the 2005 triennial review. Cause of impairment was changed from "unknown toxicity" to "other."

2008 ACTION: The Cerro Grande fire (2000) within the contributing watershed resulted in debris flows, erosion, and sedimentation that filed Los Alamos reservoir with organic debris. Sedimentation rates for the contributing watershed have since recovered to pre-fire rates (USFS presentation March 2008). Sediments have been dredged, and inflow into the reservoir has been piped around the reservoir (as of Oct 2007). **Therefore, "other" was removed as a cause of impairment.** There are current plans (as of March 2008) to re-engineer the dam to comply with new OSE Dam Safety requirements, and to re-vitalize the dam for recreational and water supply (Pajarito Ski Area snow making) uses.

North Fork Tesuque Creek (Tesuque Creek to headwaters))
WQS: 20.6.4.121 AU: NM-2118.A_32

Not on 1996 303(d) list. At two stations from a 1994 survey ratios for total phosphorous were 1/4 and 3/15 (20%). In this survey biological assessments were also conducted. The North Tesuque Creek site was selected as the survey reference site because of its high quality habitat and in-stream characteristics. In this case the biological assessment will override the physical/chemical data.

1998 ACTION: The reach will be added to the 305(b) list as Full Support, Impacts Observed for total phosphorus.

2000 ACTION: None

2002 ACTION: None

2004 ACTION: None

2006 ACTION: None

2008 ACTION: Name changed from Tesuque Creek (North Fork) to North Fork Tesuque Creek (Tesuque Creek to headwaters).

Pioneer Creek (Red River to headwaters)
WQS: 20.6.4.123 AU: NM-2120.A_703

Previously listed for turbidity, stream bottom deposits, reduction of riparian vegetation and streambank destabilization. No associated physical/chemical data are available.

1998 ACTION: The reach was retained on the 303(d) with stream bottom deposits and turbidity as the cause of non-support.

2000 ACTION:

Stream Bottom Deposits: Excessive bedload was observed during all visits. Pioneer Creek has been channelized. Its mouth has been moved 1/2 to 1/4 miles downstream (personal communication with local residents in October 1999). This channelization has reduces the gradient and has greatly increased the amount of sediment deposition in this part of the creek.

Stream bottom deposits will be retained as a cause of non-support

Turbidity: Station URG120.028065 was sampled in the spring. The exceedence ratio for turbidity was 4/4.

Turbidity will be retained as a cause of non-support

2002 ACTION: A TMDL was drafted for turbidity as part of the Red River TMDLs. Benthic macroinvertebrate and percent fines data was collected fall of 2001 in order to assess potential stream bottom deposits utilizing the Protocol for the Assessment of Stream Bottom Deposits. The biological condition was 63% of reference and had 54% fines at the sample station. The reference site used for comparison was Columbine Creek. The percent fines observed at this reference site was 4%. According to the protocol, **stream bottom deposits will be noted as Full Support, Impacts Observed. A de-list letter was prepared.**

2004 ACTION: Molycorp submitted monitoring data for various stations on Red River and Cabresto Creek. Since no new data was available for Pioneer Creek, the turbidity listing remains.

2006 ACTION: A TMDL was developed for turbidity. All numeric segment-specific turbidity criteria were removed during the 2005 triennial review, and replaced with General Criteria 20.6.4.13.J. New assessment methods to determine turbidity impairment based on this new language are not yet available. SW QB will retain historic turbidity listings in the interim.

2008 ACTION: This AU is likely ephemeral, but EPA has not yet approved 20.6.4.97 and UAAs have not been prepared at the time of this writing (6/4/08). Therefore, this AU will be noted as WQS Reference 20.6.4.98 for now and UAAs are planned.

Placer Creek (Red River to headwaters)
WQS: 20.6.4.123 AU: NM-2120.A_706

Previously listed for stream bottom deposits, reduction of riparian vegetation and stream bank destabilization. No associated physical/chemical data are available.

1998 ACTION: The reach was retained on the 303(d) with stream bottom deposits as the cause of non-support.

2000 ACTION:

Stream Bottom Deposits: The bottom 1/2 mile of this runs parallel to a National Forest Service road and eventually runs down the middle of the road delivering high sediment loads to the Red River.

Stream bottom deposits will be retained as a cause of non-support

Metals (Al acute): Station RR09 was sampled in the spring. The exceedence ratio for Al was 4.4 with an acute level of 1075ug/L.

A new listing will be added for metals (Al acute).

2002 ACTION: A TMDL was drafted for acute aluminum as part of the Red River TMDLs. Benthic macroinvertebrate and percent fines data was collected fall of 2001 in order to assess potential stream bottom deposits utilizing the Protocol for the Assessment of Stream Bottom Deposits. The biological condition was 72% of reference and had 28% fines at the sample station. The reference site used for comparison was Columbine Creek. According to the protocol, **stream bottom deposits will be noted as Full Support, Impacts Observed. A de-list letter was prepared.**

2004 ACTION: Molycorp submitted monitoring data for various stations on Red River and Cabresto Creek. Since no new data was available for Placer Creek, the listing remains.

2006 ACTION: A TMDL was developed for Al acute.

2008 ACTION: None

Pojoaque River (San Ildefonso bnd to Pojoaque bnd)
WQS: 20.6.4.114 AU: NM-2111_20

Previously listed as "Pojoaque River from mouth on Rio Grande to Nam be Dam" and listed for turbidity, stream bottom deposits and nutrients. There is limited 5-10 year data, 0/6 samples at 2 stations from 1987 are greater than the 50 NTU standard. In the Best Professional Judgment of the Surveillance and Nonpoint staff this streamreach is not impacted by nutrients. There have been no documented cases of algal growth. There are no num eric stream standards for nutrients for this stream classification. Stream bottom deposits and extreme low flow events impact this reach.

1998 ACTION: This reach will upgraded to Full Suppor t for turbidity and nutrients. The reach will continue to be listed on the 303(d) list as Partially Supported for Stream Bottom Deposits.

2000 ACTION: None

2002 ACTION: None. Name was revised because previous name included portions of tribal land.

2004 ACTION: None

2006 ACTION: None

2008 ACTION: None

Pueblo Canyon (NM 502 to headwaters)
WQS: 20.6.4.98 AU: NM-9000.A_043

2002 ACTION: **Gross Alpha was listed as Non Support** because the Livestock Watering criterion of 15 pCi/L was exceeded four times in time-weighted composite samples in 2001. The uranium-corrected gross alpha minus plutonium and americium exceedences were as follows (pCi/L): 1196.51, 77.56, 866.74, and 1569.45. **Selenium was listed as Non Support** because the Wildlife Habitat chronic screening criterion of 7.5 ug/L (5.0 ug/L x 1.5) was exceeded three times in time-weighted composite samples in 2001. Selenium exceedences were as follows (ug/L): 26.8, 15.1, and 13.1. Los

Alamos National Laboratory collected all data used in these assessments during storm events in 2000 and 2001.

The Wildlife Habitat chronic screening criterion for PCBs of 0.021 ug/L (0.014 ug/L x 1.5) PCBs was exceeded on 09/08/00 with a value of 0.8217 ug/L near Bayo Treatment Plant and 0.5208 ug/L in the North Tributary. This data was provided by DOE Oversite. NMED cannot use these data to determine water quality for the purposes of the 303(d) list because the DOE Oversite used a method that is not currently in listed in 40 CFR Part 136. They used a method published by USEPA Office of Water entitled Method 1668, Revision A: *Chlorinated Biphenyl Congeners in Water, Soil, Sediment, and Tissue by HRGC/HRMS* (USEPA, EPA-821-R-00-002, December 1999). Section 1.2, page 1 of the Method states: "This Method is for use in data gathering and monitoring associated with the Clean Water Act, the Resource Conservation and Recovery Act, the Comprehensive Environmental Response, Compensation and Liability Act, and the Safe Drinking Water Act." The DOE Oversight Bureau first began using method EPA Method 1668A for determining PCBs in fish tissue in 1999 and 2000. The Method Detection Limit in water for the 40 CFR Part 136 AROCLOR method is 1.0 ug/L or seventy one times the wildlife habitat standard of 0.014 ug/L. The 40 CFR Part136 method is not capable of detecting PCBs at the level of the New Mexico Wildlife Standard. Method 1668A is capable of detecting PCBs up to 2,800 times below the Wildlife Standard.

2004 ACTION: **Mercury was added as Non Support** because the Wildlife Habitat chronic screening criterion of 0.001155 mg/L (0.00077 mg/L x 1.5) was exceeded four times in 2002 during stormwater quality sampling. Total mercury exceedences were as follows (mg/L): 0.00390* and 0.00150 at station PU-0.3 on 7/26/02 (counted as one exceedence according to the Assessment Protocol, section 2.1.2), 0.00170 at station PU-5.5 on 7/18/02, and 0.0063* at station PU-5.5 on 7/25/02, and 0.00130* at station PU-0.01 on 7/18/02. These data were collected by the NMED DOE Oversite Bureau. A time-weighed composite sample collected by LANL on 9/26/2003 (0.0013 ug/L) also exceeded the screening level.

NOTES: * = Holding time was exceeded for these measurements. According to the Assessment Protocol (section 2.1.1), "…*results from samples that are flagged by the laboratory as "exceeded holding time" will be considered estimates and will be used during the assessment process unless the result is deemed "rejected" based on professional judgment … From USEPA's perspective, the time and expense associated with the sample collection and processing is forfeited when data exceeding the holding time is rejected even though the analytical results may in fact be accurate and usable (USEPA 2002e).*

Selenium will remain listed as Non Support. There were three additional exceedences of the Wildlife Habitat chronic screening criterion of 7.5 ug/L (5.0 ug/L x 1.5) in 2002 during stormwater quality sampling. Selenium exceedences were as follows (ug/L): 8.2 at station PUN-6.7 on 7/18/02, 30.0 at station PUN-0.01 on 7/18/02, and 40.0 and 10.0 at station PUN-0.3 on 7/26/02 (counted as one exceedence according to the Assessment Protocol, section 2.1.2). These data were collected by the NMED DOE Oversite Bureau. A time-weighed composite sample collected by LANL on 8/30/2003 (9.54 ug/L) also exceeded the screening level.

Gross Alpha will remain listed as Non Support. There were ten additional exceedences of the Livestock Watering criterion of 15 pCi/L. Exceedences ranged from 36.86 to 2909.86 pCi/L. These data were collected by the NMED DOE Oversite Bureau in 2002. In the time-weighted composite LANL 2003 storm event data set, there were three additional exceedences at the station above Acid Canyon (398.97, 39.68, and 144.66 pCi/L) and two additional exceedences at the station above SR-502 (335.68 and 35.07 pCi/L). All these data were calculated as uranium-corrected gross alpha minus plutonium and americium.

An active watershed group has formed in the Pajarito Plateau and has developed a Watershed Action Restoration Strategy (WRAS) to help address water quality concerns in the Pueblo Canyon Watershed. The document is available on the web at http://www.ppwatershed.org/ppwatershed/default.htm.

2006 ACTION: Originally listed under AU **Pueblo Canyon (Los Alamos Canyon to headwaters)**, AU name was changed due to 2005 WQS triennial review and impending land transfer. Available LANL, DOE, and NMED DOE Oversite Bureau data from 2001 to 2005 were queried from the RACER database in late 2005 and assessed. The Livestock Watering criterion of 15 pCi/L Adjust Gross Alpha was exceeded 48 of 48 (exceedences included 10/10 Above Acid, 2/2 at PU-5.5, 6/6 at PU-6.4, 11/ at PU-6.7, 19/19 at PU-0.3, and 10/10 Above SR-502) . The uranium-corrected gross alpha minus plutonium and americium exceedences were used in this determination. The acute aluminum criterion of 750 ug/L for Limited Aquatic Life was exceeded 13 of 39 times (exceedences included 5/15 Above Acid and 8/17 Above SR-502). The total mercury criterion (0.77 ug/L) for Wildlife Habitat was exceeded 17 of 69 times (exceedences included 2/17 Above Acid, 2/4 at PU-5.5, 4/4 at PU-6.4, 7/19 at PU-0.3, and 2/17 Above SR-502) . The total PCB criterion of 0.64 ng/L for Human Health associated with Limited Aquatic Life Use was exceeded 3 of 3 times (exceedences included 1/1 at PU-0.3, 1/1 at PU-4.1, and 1/1 at PU-3.1. The total selenium criterion (5.0 ug/L) for Wildlife Habitat was exceeded 10 of 73 times (exceedences included 1/19 Above Acid, 1/4 at

PU-5.5, 1/2 at PU-6.7, 3/19 at PU- 0.3, and 4/18 Above SR-502). The Radium 226+228 criterion for livestockwatering (30 pCi/L) was exceeded 7 of 30 times (exceedences included 4/9 Above Acid and 3/14 Above SR-502).

Therefore, mercury, selenium, and gross alpha remain, and radium 226+228, aluminum, and PCBs in Water were added as causes of non support.

2008 ACTION: This AU is likely ephemeral above the new Los Alamos WWTP outfall, but EPA has not yet approved 20.6.4.97 and UAAs have not been prepared at the time of this writing (6/4/08). Theref ore, this AU will be noted as W QS Reference 20.6.4.98 for now and UAAs are planned. This AU will be split during the upcom ing Pajarito Plateau addendum (early 2009) to acknowledget the effluent-dom inated perennial portion below the W WTP outfall (design flow of 0.82 mgd).

Red River (Placer Creek to headwaters)
WQS: 20.6.4.123 AU: 2120.A_710

2000 ACTION:

Metals (Al chronic): Station HRG22 was sam pled in the spring. The exceedence ratio for chronic Al was 8/8 with a mean concentration of 254ug/l.

A new listing will be added for metals (Al chronic).

2002 ACTION: A TMDL was drafted for chronic aluminum as part of the Red River TMDLs.

2004 ACTION: Molycorp submitted monitoring data for various stations on Red River and Cabresto Creek. There were 0 of 2 exceedences of the dissolved aluminum chronic criterion of 0.1305 ug/L (=1.5 x 0.087 ug/L) at the one station in this AU (Zwergle). Combining the most recent 5 years of available data (1999-2003), there were 8 of 10 total exceedences of the chronic criterion. Therefore, the listing remains. There were no exceedences of the hardness-dependent criteria for chromium, cadmium, copper, nickel, or zinc.

2006 ACTION: None

2008 ACTION: None

Red River (Rio Grande to Placer Creek)
WQS: 20.6.4.122 AU: NM-2119_10

Previously listed for metals (Al, Cd, Zn), turbidity, and streambottom deposits. Aluminum has been sampled at numerous stations along this reach. The ratios for chronic impacts at these events are 0/6, 1/3, 1/6, 0/3, 0/3, 2/8,0/8, 1/8, and 0/6. For cadmium (chronic) the ratios are 0/6, 0/3, 0/6, 0/3, 0/3, 0/8, 0/8, 0/8, and 0/6. Therehave been no acute exceedences of aluminum or cadmium within the last 10 years. However, there are continuing concerns about these metals from groundwater seeps to the Red River. The reach is not supportingfor zinc, at acute levels, at two stations (HRG24, 2/6 and HRG25, 2/3) and fully supporting at all other stations. A March 1996 report by NMED documented high concentrations of aluminum, cadmium, copper, and zinc in groundwater seeps to the Red River (Red River Groundwater Investigation, March 1996). These concentrations exceeded acute criteria and indicated that acute criteria would be exceeded in the Red River. At station URG120.028025, toxicity testing indicatedchronic toxicity in a water sample collected on April 15, 1997. A biological survey was conducted in 1992 at eight stations along the Red River. Seven of these stations are in the referenced reach. The biology at stations 2 and 3 thatare above the town of Red River were Full Support (90 and 97% respectively). Station 3 that is in town but above the WWTP was found to be Full Support, Impacts Observed. Station 4 downstream from the WWTP was only Partially Supporting (66%). All stationsbelow this point were Not Supporting. Stations 6, 7, and 8 below Molycorp were 45%, 37%, and 57% of the reference. The habitat assessments for these stations show a similar pattern. Accordingto the survey write-up, the streambottom habitats show a downstream pattern of decline due to channel alteration, loss of vegetation and a reduction of available stream bottom substrate due to mineral deposition. Turbidity is Full Support, Impacts Observed at all stations (2/16,1/11,2/15,1/4,1/12).

1998 ACTION: This reach is included on the 1998 303(d) list as Not Supported with metals and stream bottom deposits as the cause of non-support. Turbidity has been dropped as a cause of non-support but will be listed on the 1998 305(b) list as Full Support, Impacts Observed.

2000 ACTION:

Metals: Seven Red River mainstem stations were sampled in the spring of 1999. Station HRG27 had an exceedence ratio for chronic Al of 4/4 and exceedence ratios for chronic Zn (0/4), Cd (0/4) and Cu (0/4). Station HRG25 had an exceedence ratio for chronic Al of 4/4 and exceedence ratios for chronic Zn (0/4), Cd (0/4) and Cu (0/4). Station URG120.028045 had an exceedence ratio for chronic Al of 4/4 and exceedence ratios for chronic Zn (0/4), Cd (0/4) and Cu (0/4). Station URG23.3 had an exceedence ratio for chronic Al of 4/4 and exceedence ratios for chronic Zn (0/4), Cd (0/4) and Cu (0/4). Station HRG23.1 had an exceedence ratio for chronic Al of 4/4 and exceedence ratios for chronic Zn (0/4), Cd (0/4) and Cu (0/4) and Station URG120.028069 had an exceedence ratio for chronic Al of 4/4 and

exceedence ratios for chronic Zn (0/4), Cd (0/4) and Cu (0/4).

Al will be retained as a cause of nonsupport at all stations. Zn, Cd and Cu will be removed as causes of non support

Stream Bottom Deposits: Nine stations were evaluated along this reach. Stations are listed from the lowest to highest: RR below the fish hatchery had 17% fines <2mm (FS) and an embeddedness of 47.8%(FSIO), RR above fish hatchery had 10% fines <2mm (FS) and an embeddedness of 38.2%(FS), RR above Questa Ranger Station had 11% fines <2mm (FS) and an embeddedness of 57.9%(PS), RR@GoatHill Gulch Campground had 24% fines <2mm (FSIO) and an embeddedness of 49.4%(FSIO), RR@Bobita above Molycorp had 17% fines <2mm (FS) and an embeddedness of 34.9%(FS), RR below Elephant Rock near Fawn Lakes had 12% fines <2mm (FS) and an embeddedness of 31.3%(FS), RR@Junebug Campground had 16% fines <2mm (FS) and an embeddedness of 55.4%(PS), RR@Zwergle Damhad 6% fines <2mm (FS) and an embeddedness of 30.5%(FS) and West Fork of the RR had 6% fines <2mm (FS) and an embeddedness of 37.3%(FS). Two out of the nine stations are considered partially supporting their designated use (22%). According to the Assessment Protocol, This reach is considered full support, impacts observed.

Add to the 305(b) report as FSIO.

2002 ACTION: A TMDL was drafted for chronic aluminum as part of the Red River TMDLs.

2004 ACTION: Molycorp submitted monitoring data for various stations on Red River and Cabresto Creek. Thirty-three stations were sampled along this portion of the Red River in 2002 and 2003. There were 77 of 123 exceedences of the dissolved aluminum chronic screening criterion 0.1305 ug/L (= 1.5 x 0.087 ug/L). Combining the most recent 5 years of available data (1999-2003), there were 101 of 147 (68.7%) total exceedences of the chronic screening criterion. Therefore, the listing remains. There were no exceedences of the hardness-dependent criteria for chromium, cadmium, copper, nickel, or zinc.

There were also two chronic water and one chronic sediment toxicity tests (on 10/25/00) with significant effect noted as compared to controls or

reference conditions collected between 1999-2003 (see http://www.epa.gov/earth1r6/6wq/ecopro/watershd/monitrng/toxnet/nm.pdf). Additionally, three sites were tested by CEC on 10/25/00 the request of Molycorp. The sites handled by CEC (downstream of Junebug Campground, downstream of Hansen Creek, and Goat Hill Campground) The results of that toxicity testing found significant effects on *C. dubia* reproduction at the site downstream of Hansen Creek and from Goat Hill Campground for water tests. Significant reproductive effects were also seen for *C. dubia* at all three sites and *P. promelas* survival at Junebug Campground for sediment tests. According to the Assessment Protocol, since significant effects were noted in more than one chronic test, both **Water Bioassay – Chronic and Sediment Bioassay - Chronic will be added as a cause of non support.**

2006 ACTION: Al acute TMDL was developed.

2008 ACTION: The chronic water and sediment toxicity test were repeated at a station near the bottom of the assessment unit. Repeat chronic water and sediment toxicity testing was performed on samples collected 9/17/07. After 7 days of exposure to both Ceriodaphnia dubia and Pimephales promelas, there were no significant effects in either test organisms exposed to water collected below the Fish Hatchery at the USGS gage. Therefore, **Water Bioassay – Chronic was removed as a cause of non support.** There were significant effects to Ceriodaphnia dubia after 7 days of sediment exposure (secondary endpoint of reproduction). There were no significant effects to Pimephales promelas after 7 days of sediment exposure. Also, during revisions to the 2008 Assessment Protocols, significant effects in acute or chronic sediment toxicity test results were removed as potential causes for listing. Therefore, **Sediment Bioassay – Chronic was removed as a cause of non support.**

Rendija Canyon (Guaje Canyon to headwaters)
WQS: 20.6.4.98 AU: NM-9000.A_45

2002 ACTION: **Selenium was listed as cause of Partial Support** because the Wildlife Habitat chronic screening criterion of 7.5 mg/L (5.0 mg/L x 1.5) was exceeded two times in time-weighted composite samples 2000 and 2001. Selenium exceedences were as follows (ug/L): 10.0 and 28.3. Los Alamos National Laboratory collected all data used in these assessments during storm events in 2000 and 2001.

2004 ACTION: None.

2006 ACTION: WQS was changed based on 2005 triennial review. Available LANL, DOE, and NMED DOE Oversite Bureau data from 2001 to 2005 were

assessed. There are no new data to include in the assessment. **Selenium remains as a cause of non support.**

2008 ACTION: This AU is likely ephemeral, but EPA has not yet approved 20.6.4.97 and UAAs have not been prepared at the time of this writing (6/4/08). Therefore, this AU will be noted as WQS Reference 20.6.4.98 for now and UAAs are planned.

Rio Chiquito (Picuris Pueblo bnd to headwaters)
WQS: 20.6.4.123 AU: NM-2120.A_421

2004 ACTION: This stream reach was seasonally sampled during the URG II 2001 survey. There were 2 of 3 exceedences of the turbidity criterion of 25 NTU. **Therefore, turbidity will be added as a cause of non support.**

2006 ACTION: None

2008 ACTION: The 2004 turbidity listing was based on very limited 2001 grab data. A sonde was deployed for one week in November of 2004. There were 0 of 165 exceedences of hourly readings. The sonde exceedence rate was 0%, with a maximum reading of 12.5 NTU. The combined 2001 grab and 2004 sonde exceedence rate was 1.2%. All numeric segment-specific turbidity criteria were removed during the 2005 triennial review, and replaced with General Criteria 20.6.4.13.J. New assessment methods to determine turbidity impairment based on this new language are not yet available. SW QB will retain historic turbidity listings in the interim.

Rio Chupadero (USFS bnd to headwaters)
WQS: 20.6.4.121 AU: NM-2118.A_40

Listed for metals (Al, Ni), turbidity, streambottom deposits and total phosphorus. For turbidity for the last five years the ratio of exceedences is 0/5 for the ten year period the ratios are 7/27 (26%). All turbidity exceedences are from spring sampling during runoff conditions. Turbidity values are not excessive. The greatest is 30 NTU. Station Chupadero Upper has 1/4 exceedences of the acute criteria for aluminum. Other stations are full support for dissolved aluminum. In 1988 1/1 sample was greater than the chronic criteria for dissolved nickel. Additional samples for dissolved nickel at these stations (0/4) from 1991-93 were all below the criteria. The cumulative ratio of all nickel samples for the reach is 1/13 in the last ten years. Total phosphorus data are available for the ten year period. Ratios for the three stations are 1/17 and 4/19 at the upper and lower Chupadero stations respectively for 5-10 year data and 0/1 within the last five years at the same stations. An additional station within 5 years has a ratio of 1/4.

1998 ACTION: The reach is listed as Not Supported on the 1998 303(d) list with turbidity, Al and stream bottom deposits as the cause of non-support. Nickel will be removed as a cause of non-support based on the most recent data. The reach

will be listed as Full Support, Impacts Observed on the 1998 305(b) report with total phosphorus as the cause.

2000 ACTION: None

2002 ACTION: None

2004 ACTION: This reach was surveyed as part of the 2001 URGII survey. The Rio Chupadero was sampled just upstream of the Rio en Medio diversion. The reference site was Rio Nambe above Nambe Reservoir. Although there were 43% fines at the Rio Chupadero site, but the benthic score was 81% of reference. Therefore, **stream bottom deposits will be removed as a cause of non support.** There were 4 of 8 exceedences of the turbidity criterion (10 NTU) at the station "above summer homes" and 1of 8 turbidity exceedences at the station at Borrego Canyon. The tubidity exceedences were minor in magnitude and all but 1 on 10/02/2001 were due to natural causes (ie., spring snowmelt). Benthic macroinvertebrates in this reach do not indicate impairment (81% of reference). **Turbidity will remain listed as a cause of non support -- additional data are needed to determine whether exceedences due to natural causes.**

The acute alumium standard of 0.77ug/L was not exceeded during any of the sampling events at either station. During the 3-day spring run, the mean of the results (0.218 ug/L) exceeded the chronic criteria of 0.087 ug/L at the station "above summer homes." The mean of the results (0.13 ug/L) also exceeded the chronic criteria of 0.087 ug/L at the station at at Borrego Canyon. Means were calculated and compared against the chronic criterion because consecutive day data were available. Because there was more than one exceedence of the chronic criterion, **aluminum will be retained as a cause of non-support**. As aluminum is naturally occurring in this area and therefore exceedences were only noted inassociation with snowmelt runoff, **this reach will be categorized in 5B** before a TMDL is scheduled.

2006 ACTION: None

2008 ACTION: None

Rio en Medio (non-pueblo lands Pojoaque R to Aspen Ranch)
WQS: 20.6.4.121 AU: NM-2118.A_41

Listed for metals (Al, Cd), turbidity, and total phosphorus. Cadmium was sampled at three stations on this reach. Ratios within the last 5 years are 0/1, 0/3, and 0/3. Ratios for five-ten year data are 0/6, 1/3, and 0/4 at the same stations. Similarly for aluminum data ratios are 1/4, 2/3, and 3/5 in the 5-10 time frame and 0/3, 0/3, and 0/1 within the last five years. For turbidity data from the same stations, ratios are 3/12, 0/13 and 3/11 in the 5-10 year period and 0/4, 0/3, and 0/1 for the last 5

years. For total phosphorus, 3/16 samples exceeded the criteria at station HRG80 with two other stations having 2/15 and 0/20 ratios within 5-10 years and 0/5 and 0/1 in the last 5 years. A biological assessment was conducted on this reach in 1994. The biological assessment found this station to be Fully Supporting (84%). The HBI for this station was 2.21 which is rated as excellent for organic pollution.

1998 ACTION: Cadmium and aluminum will be removed as causes of non-support. The reach is Full Support, Impacts Observed for turbidity and total phosphorus. The biological data are sufficient to classify the reach as Full Support.

2000 ACTION: None

2002 ACTION: None

2004 ACTION: None

2006 ACTION: None

2008 ACTION: None

Rio Fernando de Taos (Rio Pueblo de Taos to Tienditas Creek)
WQS: 20.6.4.123 AU: NM-2120.A_512

Previously called "Rio Fernando de Taos (Rio Pueblo de Taos to headwaters)", this AU was split during the 2006 listing cycle at Tienditas Creek near Valle Escondido where the character of the channel appears to become interrupted based on observations made during a 2006 study of the upper reach. This assessment unit break reflects the 20.6.4.123 NMAC standards segment, which applies to "perennial reaches of tributaries to the Rio Grande in Taos and Rio Arriba counties" not included in other standards segments. Previously listed for metals (Al), turbidity, total phosphorus, and stream bottom deposits. The Al listing should be not supporting for the entire reach based on acute ratios of 3/7, 2/4, 2/6, 1/6, and 1/6, 2/9, and 1/6. Ratios for turbidity are 2/8, 1/8, 1/8, 1/7, 1/10, 1/9, 1/8 and 1/8. Ratios for total phosphorus are 2/10, 3/9, 2/9, 2/9, 3/12, 2/11, 2/9, and 3/10. It should be noted that all exceedences come from the same spring runoff event.

1998 ACTION: Turbidity will be removed as a cause of non-support for this reach. The reach will be listed in the 1998 305(b) report as Full Support, Impacts Observed with turbidity as the cause. The 1998 303(d) list continues to show this reach as Partially Supported for aluminum, total phosphorus, and stream bottom deposits.

2000 ACTION: 10 (31 July); 856 mS/cm at Station 23 (19 October); and 707 at Station 25 (31 July). Thus, **this reach is listing for Not Supporting with conductivity as the cause.**

Thermograph data from Station 23 (maximum = 24.51°C) indicate non-

support of the temperature standard as instantaneous readings exceeded 23°C and temperature exceeded 20°C for more than six consecutive hours in a 24-hour cycle for more than three (maximum interval = 22) consecutive days. Thus, **this reach is listing of Non Support with temperature as the cause.**

Benthic macroinvertebrates and pebble count data were collected to assess attainment of the narrative streambottom deposit standard. One station at the highway 64 bridge is considered a reference station and is therefore Fully Supporting. The other station at El Nogel was 92% of biological reference condition using Cieneguilla as the reference station. There were 55% fines measured at Cieneguilla and 92% fines measured at Rio Fernando at HWY 64 bridge. Rio Fernando de Taos is a Rosgen classification E6 at this station. Although the overall percent fines is high, it is an E6 reference site with healthy habitat, benthic macroinvertebrate populations, and fish. Therefore, **stream bottom deposits will be removed as a cause of Non Support.**

Total phosphorus was measured eight times at HWY 64 bridge, twelve times at the USGS gage, and seven times near lower Ranchito. Six measurements at HWY 64 bridge and eight measurements at the USGS gage were below the detection limit. 0.062 mg/L and 0.209 mg/L were measured at at HWY 64 bridge during summer and fall sampling runs, respectively. Detected concentrations ranged from 0.03 to 0.05 mg/L and 0.03 to 0.07 mg/L the USGS gage and near lower Ranchito, respectively.

2004 ACTION: None.

2006 ACTION: TMDLs were prepared for temperature and specific conductance.

2008 ACTION: The USFS Carson National Forest in cooperation with SWQB collected E. coli data in 2007 (assessed for 2008 cycle). There were 2 of 5 exceedences of the 235 cfu/100mL criterion. Therefore, E. coli was listed as a cause of impairment.

Rio Fernando de Taos (Tienditas Creek to headwaters)
WQS: 20.6.4.98 AU: NM-98.A_001

2006 ACTION: Previously included under the AU "Rio Fernando de Taos (Rio Pueblo de Taos to headwaters)", this AU splitoccurred during the 2006 listing cycle at Tienditas Creek near Valle Escondido where the character of the channel appears to become interrupted based on observations made during a 2006 study of the upper reach. This assessment unit break reflects the 20.6.4.123 NMAC standards segment, which applies to "perennial reaches of tributaries to the Rio Grande in Taos and Rio Arriba counties" not included in other standards segments. The SWQB Watershed Protection Section completed a special study of E. coli levels in the upper 3 miles of Rio Fernando de Taos and the Apache Canyon tributary to assess impacts from livestock grazing.

The study demonstrated instances when grazing on the Flechado Allotment probably increased *E. coli* levels in Apache Canyon and this portion of the Rio Fernando de Taos in 2006. There were 1 of 20 exceedences of the applicable E. coli secondary contact criterion of 2507 cfu/100mL. Therefore, this AU is noted as Full Support for secondary contact.

2008 ACTION: The USFS Carson National Forest in cooperation with SWQB collected E. coli data in 2007 (combined with above 2006 data and assessed for 2008 cycle). There were 0 of 5 exceedences of the 2507 cfu/100mL criterion, for a combined 1 of 25 exceedence rate. Therefore, this AU continues to be noted as Full Support for secondary contact.

Click on 'sticky note' balloon above for important Feb. 13, 2009 changes and click here to see EPA's EPA's Record of Decision

Rio Frijoles (Rio Medio to Pecos Wilderness)
WQS: 20.6.4.121 AU: NM-2118.A_60

Previously listed for total phosphorus, reduction of riparian vegetation and stream bank destabilization. All data are from a 1988 survey. For total phosphorus, the exceedence ratio was 1/5, full support, impacts observed.

1998 ACTION: This reach is full support, impacts observed for total phosphorus and will be reflected in the 305(b) report. This reach will continue to be listed as Partially Supported for unknown cause on the 1998 303(d) list.

2000 ACTION: None

2002 ACTION: None

2004 ACTION: This stream reach was seasonally sampled during the URG II 2001 survey. There were 1 of 3 exceedences (33% exceedence rate) of the turbidity criterion of 10 NTU. A thermograph was deployed. There were no exceedences of the temperature criterion on 20 degrees C. There were no other exceedences of water quality standards. **Therefore, cause unknown will be removed as a cause of non support.**

2006 ACTION: None

2008 ACTION: None

Rio Grande (Red River to CO border)
WQS: 20.6.4.122 AU: NM-2119_05

Previously listed under "Rio Grande from Rio Pueblo de Taos to the NM-CO border" and listed for turbidity, stream bottom deposits and temperature. Only 1/37 (3%) samples collected from four stations in this reach exceeded the temperature criteria. Turbidity was 1/8(13%) at each of

the four stations on this reach.

1998 ACTION: Temperature will be upgraded to Full Support. Turbidity will be listed on the 305(b) report as Full Support, Impacts Observed. The reach will continue to be listed on the 303(d) list as Partial Support for Stream Bottom Deposits.

2000 ACTION: None

2002 ACTION: This reach was sampled during the 2000 Upper Rio Grande 1 intensive survey. The dissolved oxygen standard (≥6.0 mg/L) was exceeded on 16 May at Station 7 (5.5 mg/L). Seven samples were taken during the 2000 study. The proportion of exceedences was such that this reach is **Full Support Impacts Observed for dissolved oxygen.**

Seven of eight samples (maximum = 9.36) were outside the allowable pH range (6.6-8.8) at Station 7. Thus, this reach is listed as **Non Support for pH.**

Three of eight samples (maximum = 28.3°C) were above the criterion for temperature at Station 7. All three exceedences occurred during the summer sampling effort. Thus, this reach is listed as **Non Support for temperature**. A thermograph needs to be deployed to verify this listing and to generate data for the temperature TMDL.

Benthic macroinvertebrates and pebble count data were collected to assess attainment of the narrative stream bottom deposit standard. Rio Grande at the CO border (Lobotos) was considered to be reference station. Therefore, **stream bottom deposits will be removed as a cause of Non Support.**

2004 ACTION: None. Elevated pH levels are often indicative of nutrient enrichment. The Nutrient Assessment Protocol was not completed in this area, so SWQB does not have adequate data to determine whether nutrient enrichment is occurring. SWQB is in the process of refining our Nutrient Assessment Protocol and determining nutrient criteria. This AU will be studied as part of that effort to determine whether nutrient enrichment is contributing to elevated pH levels in this AU. Therefore, this AU will be listed under Category 5C as needing additional information. TMDL was drafted for temperature (April 2004).

2006 ACTION: A TMDL was prepared for temperature.

2008 ACTION: None

Rio Grande (Rio Pueblo de Taos to Red River)
WQS: 20.6.4.122 AU: NM-2119_00

Previously listed under "Rio Grande from Rio Pueblo de Taos to the NM-CO border" and listed for turbidity, stream bottom deposits and temperature. Only 1/37 (3%) samples collected from four stations in this reach exceeded the temperature criteria. Turbidity was 1/8(13%) at each of the four stations on this reach.

1998 ACTION: Temperature will be upgraded to Full Support. Turbidity will be listed on the 305(b) report as Full Support, Impacts Observed. The reach will continue to be listed on the 303(d) list as Partial Support for Stream Bottom Deposits.

2000 ACTION: None

2002 ACTION: None

2004 ACTION: None

2006 ACTION: None

2008 ACTION: None

Rio Grande (Embudo Creek to Rio Pueblo de Taos)
WQS: 20.6.4.114 AU: NM-2111_12

Previously named "Rio Grande from Guaje Canyon to the confluence with the Rio Pueblo de Taos" and listed for metals (Hg and Al), turbidity, temperature, stream bottom deposits and pH. For pH, there is an extensive data set. The cumulative ratio of 7 stations is 7/137. No single stations have ratios below full support. pH will be removed from the list. For temperature, the cumulative ratio of exceedences to samples at 12 stations is 2/100. Temperature should be removed from the list. Five stations contain information on aluminum. Three stations URG111.021035,URG111.021025, and URG110.003115 are Full Support, Impacts Observed. Turbidity is not supported at stations URG111.004407, URG111.003903, URG111.021035, URG111.021025, URG111.004410 and URG111.003115.

There is a ratio of 2/9 exceedences of mercury greater than detection in data prior to 1989 at USGS station 08276500. The greatest value was 0.2 ug/l. Twelve samples reported for total mercury at this site since 1990 have been less than detection (0.1 ug/l). NMED has collected twenty-five samples in this segment in the last 10 years. All have been reported back as less than detection (0.1 ug/l). The ROD should be modified to show the cumulative ratio of exceedences for mercury is 2/41 in the last 10 years and *0/31 within the last 5 years*.

Over the last five years the ratios for chronic aluminum at three NMED stations are 1/3, 1/3, and 1/3. Ratios for the two USGS stations are 1/14 and 0/4 for the last five years. USGS samples were collected quarterly and NMED samples were grab samples from various dates. SWQB believes that this is adequate data to support a change in the listing.

1998 ACTION: As per the assessment protocol, one exceedence of the chronic screening level, aluminum will be listed on the 305(b) list as Full Support, Impacts Observed. The reach will continue to be listed on the 303(d) list as Partial Support for Stream Bottom Deposits.

2000 ACTION: None

2002 ACTION: Name was changed to remove tribal portions. Only a portion of this reach was studied during the 2000 intensive study. Additional sites are included in the 2001 intensive study.

During the 2000 study, benthic macroinvertebrates and pebble count data were collected to assess attainment of the narrative stream bottom deposit standard. The station below Rio Pueblo de Taos at the USGS gage was 93% of biological reference condition using the Rio Grande at the CO border as the reference station. There were 45% fines at the reference station and 25% fines at the sample station. The reach starts incising into basalt near this location, resulting in very little geologic sediment input at this station compared to the reference site near the Colorado border. Therefore, **stream bottom deposits will be removed as a cause of Non Support.**

2004 ACTION: This assessment unit was split at Embudo Creek based on the results of the 2000 URG 1 and 2001 URG 2 surveys. The URG 2 survey included a station immediately above the confluence with Embudo Creek. There was no exceedence of any criterion at this station.

2006 ACTION: None

2008 ACTION: None

Rio Grande (non-pueblo Santa Clara to Embudo Creek)
WQS: 20.6.4.114 AU: NM-2111_10

2004 ACTION: The previous assessment unit was split at Embudo Creek based on the results of the 2000 URG 1 and 2001 URG 2 surveys. This AU includes a one mile stretch between the northern Santa Clara boundary and southern San Juan boundary and additional miles between the northern San Juan Pueblo boundary and Embudo Creek. There were 17 of 24 exceedences of the turbidity criterion of 50 NTU. **Therefore, turbidity will be added as a cause of non support**. Benthic macroinvertebrates were collected downstream of the confluence with Embudo Creek and compared to Taos Junction Bridge. The biological score was 68% of reference. A pebble count was not performed, although the surveyor suspects the large input of sediment from Embudo Creek, roads in Dixon, and the Embudo Station

parking lot are contributing to the degradation of the biological community.

2006 ACTION: A TMDL was prepared for turbidity. In January 2006, a fish consumption advisory based on the presence of PCBs in fish tissue was put into effect. The advisory covers Abiquiu Reservoir, Cochiti Reservoir, and the Rio Grande from Rito de los Frijoles to Pojoaque Creek.

2008 ACTION: None

Rio Grande del Rancho (Rio Pueblo de Taos to HWY 518)
WQS: 20.6.4.123 AU: NM-2120.A_501

New listing for conductivity turbidity, and stream bottom deposits. There are no ten-year data for turbidity or conductivity. Going back to 1986 there are four data points for conductivity. There are no exceedences of the criteria. Conductivity is fully supporting. There are three data points for turbidity from 1986-87. All values are less than the criteria, the maximum value is 6.2 and the mean value is 2.3 NTU.

1998 ACTION: Turbidity and conductivity are removed from the 1998 303(d) list as causes of non-support. This reach is listed as Partially Supported on the 303(d) list with stream bottom deposits as the cause.

2000 ACTION: None

2002 ACTION: This reach was sampled during the 2000 Upper Rio Grande 1 intensive water quality survey. The conductivity criterion (400 mS/cm) was exceeded every time it was sampled at Station 21 (maximum = 710 mS/cm). **Thus, this water body is in Non Support for the conductivity standard.**

One exceedence (210/100 mL) of the fecal coliform criterion (200/100 mL) was detected on 01 August at Station 21. **Thus this reach will be listed as Full Support Impacts Observed for the fecal coliform standard.**

Benthic macroinvertebrates and pebble count data were collected to assess attainment of the narrative stream bottom deposit standard. The sampling station at the USGS gage was 71% of biological reference condition using Rio Hondo at the USGS gage as the reference station. There were 7% fines measured at the reference station and there were 33% fines documented at the sampling station. During the analyses, SWQB also compared percent fines at the C4 sampling station to the average percent fines of 16.5 at this Rosgen classification of stream. Therefore, **stream bottom deposits will be removed as a cause of Non Support.**

2004 ACTION: None

2006 ACTION: None

2008 ACTION: None

Rio Hondo (Rio Grande to USFS bnd)
WQS: 20.6.4.129 AU: NM-2120.A_600

Previously listed for temperature, pH, total ammonia, and stream bottom deposits. The cumulative ratio of temperature over the last ten years is 0/74. The cumulative ratio of pH measurements over the last ten years is 0/73. The cumulative ratio of measurements for total ammonia over the past ten years is 0/78. The streambottom deposits listing was for runoff from the ski area parking lot. BMPs have been put into place and the biological scor e for the station located im mediately below the parking lot in a 1992 survey was 83% of the refe rence score. Stream bottom deposits should be removed as a cause of nonsupport. The nutrient listing is limited to one station, HON8, which is immediately below the W WTP. The biological a ssessment shows a high nutrient index at this station.

1998 ACTION: All previously listed parameters have been removed as causes of non-support. This reach has been removed from the 1998 303(d) list.

2000 ACTION: None

2002ACTION: One value for pH (8.92) on 19 October at Station 28 was outside the allowable range (6.6-8.8). However, the proportion of exceedences was such that this reach is listed as **Full Support Impacts Observed for pH.**

The temperature criterion (20°C) was exceeded twice at Station 28 (21.7°C on 31 July; 21.9°C on 01 August). Thus, this water body is in **Partial Support of the temperature standard.** A thermograph will need to be deployed to verify this listing and to generate data for temperature TMDLs if needed.

2004 ACTION: None.

2006 ACTION: A TMDL was developed for temperature. WQS was changed to 20.6.4.129.

2008 ACTION: None

Rio Hondo (South Fork Rio Hondo to Lake Fork Creek)
WQS: 20.6.4.129 AU: NM-2120.A_602

2006 ACTION: The W QS was changed from 20.6.4.123 to 20.6.4.129. A waste load allocation for nutrients was previously completed for the Rio Hondo in 1981. Recent stream surveys (2000-2004) have found that the Rio Hondo near the Village of Taos Ski Valley fully supportsits designated uses. The Village of

Taos Ski Valley has plans to increase their capacity and effluent discharge into the river so the SWQ developed a revised nutrient TMDL for this reach that defines a waste load allocation for the Village of Taos Ski Valley such that increased discharge from the waste water treatment plant will not cause violations of the water quality standards protecting the Rio Hondo.

Rio Quemado (Santa Cruz River to Rio Arriba Cnty bnd)
WQS: 20.6.4.121 AU: NM-2118.A_52

2004 ACTION: This reach was sampled seasonally only during the 2001 URGII survey. There were 2 of 3 turbidity exceedences. **Therefore, turbidity will be added as a cause of non support.** This reach will be placed in 5C because the turbidity exceedences were likely due to natural causes (i.e., snowmelt runoff and summer thunderstorms) and additional data are needed.

2006 ACTION: None

2008 ACTION: The 2004 turbidity listing was based on very limited 2001 grab data. A sonde was deployed for one week in November of 2004. There were 6 of 216 exceedences of hourly readings. These exceedences were likely due to the fact that there was a private driveway that crossed the stream immediately upstream of the sonde deployment location. The sonde exceedence rate was 2.8%. The combined 2001 grab and 2004 sonde exceedence rate was 3.6%. **Therefore, turbidity was removed as a cause of non support.**

Rio Pueblo (Picuris Pueblo bnd to headwaters)
WQS: 20.6.4.123 AU: NM-2120.A_410

Previously listed for turbidity, nutrients and streambottom deposits. This station was monitored as part of a 1994 Intensive Stream Survey. The aggregated ratio of exceedences for turbidity within the last five years is 1/44 and 0/12 in the 5-10 year interval. A biological assessment was conducted on this reach in 1994. The biological assessment found one station (RP050) to be Full Support, Impacts Observed (78% of reference), while another station (RP25) was partial support (68% of reference) for the fishery use. The Hilsenhoff Biotic Index, which is a measure of organic pollution (i.e. nutrients) for both of these sites indicated that nutrient enrichment was not a problem, (2.56 for RP050 and 2.17 for RP25). The ROD will be revised to reflect this information. This reach will continue to be listed as Partially Supporting with stream bottom deposits as the cause of non-support.

1998 ACTION: Turbidity and nutrients have been removed as a source of non-support for this reach. The reach is included as Partially Supported in the 1998 303(d) report with stream bottom deposits as the cause. **Rename this reach from *Rio Pueblo from the confluence with the Rio Santa Barbara to headwaters* to the above name**.

2000 ACTION: None

2002 ACTION: None

2004 ACTION: This stream reach was intensively surveyed during the URGII 2001 survey. Benthic macroinvertebrates bioassessments and concurrent pebble counts were performed at three locations and compared against the Rio Santa Barbara at the Santa Barbara Campground: Rio Pueblo @ HWY 75 near the confl (62% of ref bio score with 12% fines), Rio Pueblo @ HWY 75/518 near gage (68% of ref bio score with 8% fines), and Rio Pueblo near Flechado Campground (90% of ref bio score with no fines data – all cobble). **Therefore, stream bottom deposits will be removed as a cause of non support and benthic macroinvertebrate bioassessments will be added as a cause of non support.**

2006 ACTION: None

2008 ACTION: None

Rio Pueblo de Taos (Arroyo del Alamo to Rio Grande del Rancho)
WQS: 20.6.4.122 AU: NM-2119_30

Previously listed under "Rio Pueblo de Taos from the mouth on the Rio Grande to Rio Grande del Rancho" and previously listed for temperature, total ammonia, chlorine, and fecal coliform. Temperature is partially supporting at station URG119.023505 with a ratio of 2/10. All other stations show no exceedences of the criteria. For total ammonia, all stations are fully supporting with the exception of station URG119.23515 (5/11) which is not supporting. For fecal coliform, station URG119.023510 (1/1) is full supporting, impacts observed. Station URG119.023525 (2/2) is partially supporting for fecal coliform. Aluminum should be added as Full Support, Impacts Observed at stations URG119.023505 (1/1) and URG119.23525 (1/1) for the chronic screening criteria. Chlorine was removed because the only identified source of chlorine on the reach was the Taos WWTP. SWQB has no ambient chlorine data. The Taos plant has gone to UV disinfection and no longer uses chlorine.

1998 ACTION: Chlorine has been removed as a cause of non-support. The 1998 303(d) list continues to show this reach as Partially Supported with temperature, total ammonia, and fecal coliform as causes of non-support.

2000 ACTION: None

2002 ACTION: This reach was sampled during the 2000 Upper Rio Grande 1 intensive water quality survey. The previously listed reach was split into two assessment units. Thermograph data from Station 15 indicate non-support of the temperature standard for this water body, as instantaneous temperature readings exceeded 23°C (maximum = 28.26°C) and temperature exceeded

20°C for more than six consecutive hours in a 24-hour cycle for more than three (maximum interval = 48) consecutive days. Therefore, this reach will be listed **Non Support for temperature.**

The fecal coliform criterion (200/100 mL) was exceeded (310/100 mL) on 30 October at Station 15. Six total fecal coliform samples were taken during the 2000 study. Because there were fewer than seven samples, the number of exceedences was such that this reach is **Full Support Impacts Observed for fecal coliform.**

There were 0 of 16 ammonia exceedences. Therefore, **total ammonia will be removed as a cause of Non Support.**

Benthic macroinvertebrates and pebble count data were collected to assess attainment of the narrative stream bottom deposit standard. The sampling station below the Taos WWTP was 43% of biological reference condition using Rio Hondo as the reference station. There were 85% fines documented at the sampling station. Combined geomorphologic and benthic macroinvertebrate data from this reach indicate **Partial Support for stream bottom deposits** due to sediment inputs observed from 1998 through 2000.

2004 ACTION: None. TMDL drafted for SBD and temperature.

2006 ACTION: TMDLs for sedimentation/siltation (SBD) and temperature.

2008 ACTION: None

Rio Pueblo de Taos (R Grande del Rancho to Taos pueblo bnd)
WQS: 20.6.4.123 AU: 2120.A_511

2002 ACTION: This reach was sampled during the 2000 Upper Rio Grande 1 intensive water quality survey. The conductivity criterion (400 m S/cm) was exceeded for seven of eight samples (maximum = 490.3 mS/cm) at Station 22. Thus, this reach is listed as **Non Support for conductivity**.

Thermograph data from Station 27 indicate non-support of the temperature standard for this water body, as instantaneous temperature readings exceeded 23°C (maximum = 27.23°C) and temperature exceeded 20°C for more than six consecutive hours in a 24-hour cycle for more than three (maximum interval = 11) consecutive days. Therefore, this reach is listed as **Non Support for temperature**.

The fecal coliform criterion (200/100 mL) was exceeded (270/100 mL) on 30 October at Station 22. Two total fecal coliform samples were taken during the 2000 study. Because there were fewer than seven samples, the number of

exceedences was such that this reach is in **Full Support Impacts Observed for fecal coliform.**

2004 ACTION: None

2006 ACTION: The name was changed to indicate tribal jurisdiction. A TMDL was prepared for temperature.

2008 ACTION: None

Rio Pueblo de Taos (Rio Grande to Arroyo del Alamo)
WQS: 20.6.4.122 AU: NM-2119_20

Previously listed under "Rio Pueblo de Taos from the mouth on the Rio Grande to Rio Grande del Rancho" and previously listed for temperature, total ammonia, chlorine, and fecal coliform. Temperature is partially supporting at station URG119.023505 with a ratio of 2/10. All other stations show no exceedences of the criteria. For total ammonia, all stations are fully supporting with the exception of station URG119.23515 (5/11) which is not supporting. For fecal coliform, station URG119.023510 (1/1) is full supporting, impacts observed. Station URG119.023525 (2/2) is partially supporting for fecal coliform. Aluminum should be added as Full Support, Impacts Observed at stations URG119.023505 (1/1) and URG119.23525 (1/1) for the chronic screening criteria. Chlorine was removed because the only identified source of chlorine on the reach was the Taos WWTP. SWQB have no ambient chlorine data. The Taos plant has gone to UV disinfection and no longer uses chlorine.

1998 ACTION: Chlorine has been removed as a cause of non-support. The 1998 303(d) list continues to show this reach as Partially Supported with temperature, total ammonia, and fecal coliform as causes of non-support.

2000 ACTION: None

2002 ACTION: This reach was sampled during the 2000 Upper Rio Grande 1 intensive water quality survey. The previously listed reach was split into two. Thermograph data from Station 14 indicate non-support of the temperature standard for this water body, as instantaneous temperature readings exceeded 23°C (maximum = 25.06°C) and temperature exceeded 20°C for more than six consecutive hours in a 24-hour cycle for more than three (maximum interval = 38) consecutive days. Therefore, this reach will be **listed as Non Support for temperature**.

The turbidity criterion (50 NTU) was exceeded (55.8 NTU) on 18 October at Station 14. The proportion of exceedences was such that this water body is in full support of the turbidity standard, but impacts have been observed that warrant close attention during future surveys.

Combined geomorphologic and benthic macroinvertebrate data from this water body indicate full support for stream bottom deposits. Biological condition was 100% of the reference condition at Red River below the Fish Hatchery. There were 17% fines at the reference station and 16% fines at the sampling station, resulting in a 0% increase in fines.

There were 0 of 3 fecal coliform exceedences leading to a listing of **Full Support**.

There were 0 of 14 total ammonia exceedences. Therefore, **total ammonia will be removed as a cause to Non Support.**

2004 ACTION: None

2006 ACTION: A TMDL was prepared for temperature.

2008 ACTION: None

Rio Santa Barbara (Picuris Pueblo bnd to USFS bnd)
WQS: 20.6.4.123 AU: NM-2120.A_419

Listed for stream bottom deposits and metals (Al). At station URG120.022025 there was 1/3 exceedences of the chronic screening criteria for aluminum within the last five years.

1998 ACTION: Aluminum has been removed as a cause of non-support for this reach but will be listed on the 1998 (305) list as Full Support, Impacts Observed. This reach is listed as Partially Supported on the 303(d) list with stream bottom deposits as the cause.

2000 ACTION: None

2002 ACTION: None

2004 ACTION: This reach was sampled during the 2001 URGII survey. There were 2 of 7 turbidity exceedences. Benthic macroinvertebrate sampling and pebble counts were completed at the station above the Rio del Pueblo and compared to a reference station (Rio Santa Barbara @ gage @ campground). The biological score was 71% of reference with 5% fines. **Therefore, stream bottom deposits will be removed, and turbidity and benthic macroinvertebrate bioassessment will be added as a cause of non support.** Both of the turbidity exceedences were minor (36 and 37 NTUs compared to the criterion on 25 NTUs) and occurred following a summer storm. Additional data are needed to determine if turbidity exceedences were due to natural causes.

2006 ACTION: A TMDL for turbidity was developed. All numeric segment-specific turbidity criteria were removed during the 2005 triennial review, and replaced with General Criteria 20.6.4.13.J. New assessment methods to determine turbidity impairment based on this new language are not yet available. SW QB will retain historic turbidity listings in the interim.

2008 ACTION: None

Rio Tesuque (Tesuque Pueblo to Tesuque Creek)
WQS: 20.6.4.114 AU: NM-2111_31

Previously named Tesuque Creek (Tesuque Pueblo to Little Tesuque Creek) listed for turbidity, temperature, dissolved oxygen and fecal coliform. There is only one sample station on this segment, URG111.003305. All data are from a 1994 survey. For turbidity, 0/9 samples exceeded the criteria. For temperature, 1/9 (11%) exceeded the criteria. For dissolved oxygen, 0/9 samples exceeded the criteria. For fecal coliform, 0/3 samples exceeded the criteria.

1998 ACTION: Turbidity, dissolved oxygen, and fecal coliform will be upgraded to Full Support and removed as causes of non-support. The reach will be listed as Full Support, Impacts Observed on the 1998 305(b) list for temperature.

2000 ACTION: None

2002 ACTION: None

2004 ACTION: None

2006 ACTION: None

2008 ACTION: None

Santa Cruz River (San Clara Pueblo bnd to Santa Cruz Dam)
WQS: 20.6.4.114 AU: NM-2111_50

Previously listed for stream bottom deposits and turbidity.

1998 ACTION: The reach will continue to be listed as Not Supported for Stream bottom deposits, turbidity and total phosphorus.

2000 ACTION: The Santa Cruz River from the mouth on the Rio Grande to Santa Cruz Dam was removed from the draft 303(d) list believing that the entire reach was on Santa Clara Pueblo land. New information shows that all but the lower two miles are on private or BLM land. The Santa Cruz River will be put back on the list with all but the lower two miles as the impaired reach. **The mileage**

will be adjusted on this reach of the Santa Cruz River to reflect the change.

There is no longer a water quality standard for total phosphorus for the designated use of high quality coldwater fishery. Therefore, total phosphorus was removed as a cause of impairment. Total phosphorus concentrations will be measured during the Upper Rio Grande Part 2 (2001) intensive study to verify the de-listing.

2002 ACTION: None. The name was revised to remove tribal portions. Ten total phosphorus measurements were taken during the 2001 intensive study. Six of these were below the detection limit. Detected concentrations ranged from 0.038 to 0.087 mg/L.

2004 ACTION: Name was revised with correct pueblo boundary. This reach was intensively sampled during the 2001 URGII survey. There were 0 of 8 turbidity exceedences. Benthic macroinvertebrates and concurrent pebble count was not collected during the 2001 survey, so there is insufficient data to determine stream bottom impairment according to our current protocol. **Therefore, turbidity will be removed, and stream bottom deposits will remain as causes of non support.** This AU will be categorized as 5C because biological data are needed to verify impairment due to sedimentation.

2006 ACTION: None

2008 ACTION: None

Tesuque Creek (Rio Tesuque Creek to confl of forks)
WQS: 20.6.4.121 AU: NM-2118.A_31

This reach was not listed on the 1996 list. Station URG118.003405 is not supported, 3/9 (33%) for turbidity. Station URG118.003441 is full support.

1998 ACTION: The reach will be listed on the 1998 303(d) list as Not Supporting for turbidity. **Rename this reach from *Tesuque Creek at its confluence with Little Tesuque Creek* to the above reach**

2000 ACTION: None

2002 ACTION: None

2004 ACTION: Previously named Tesuque Creek (Little Tesuque Creek to confl of forks). This reach was surveyed as part of the 2001 URG II survey. There were 3 of 8 exceedences of the turbidity criterion (10 NTU) and 5 of 8 exceedences of

the specific conductance criterion (300 umhmos) at the station across from the Tesuque Post office, and 2 of 8 turbidity exceedences and 0 of 8 specific conductance exceedences at the station near Bishop's Lodge. Therefore, **turbidity will be remain a cause of non support and specific conductance will be added as a cause of non support.** This assessment unit will be listed in category 5b because the tubidity exceedences were minor in magnitude and likely due to natural causes (ie., spring snowmelt).

2006 ACTION: None

2008 ACTION: This AU was assessed incorrectly for the 2004 list. The station across from the Tesuque Post office is not in this assessment unit. There were 0 of 8 specific conductance exceedences at the station near Bishop's Lodge. The original turbidity listing was based on limited 2001 grab data. A sonde was deployed for one week in November of 2004. There were 2 of 212 exceedences of hourly readings. The sonde exceedence rate was 0.9%. The combined 2001 grab and 2004 sonde exceedence rate was 1.8%**Therefore, both the specific conductance and turbidity listings were removed.**

South Fork Tesuque Creek (Tesuque Creek to headwaters)
WQS: 20.6.4.121 AU: NM-2118.A_33

Listed for metals (Al) and total phosphorus. The ratio of total phosphorus samples greater than the criteria is 1/10 (10%) for 5-10 year data. 1/3 samples collected in the last five years exceeded the chronic screening criteria for dissolved aluminum. In this reach 1/3 samples collected at various times in 1994 exceeded he chronic screening level for aluminum. A biological assessment was conducted on this reach in 1994. The assessment found the station to be 100% of the reference condition.

1998 ACTION: This reach will be listed on the 1998 305(b) list as Full Support, Impacts Observed for total phosphorous and dissolved aluminum.

2000 ACTION: None

2002 ACTION: None

2004 ACTION: None

2006 ACTION: None

2008 ACTION: Name changed from Tesuque Creek (South Fork) to South Fork Tesuque Creek (Tesuque Creek to headwaters).

Ute Creek (Costilla Creek to headwaters)
WQS: 20.6.4.123 AU: NM-2120.A_821

Not previously listed. Sam ples collected in 1987 s how a 1/4 ratio of exceedences of the total phosphorus criteria.

1998 ACTION: This stream reach will be listed as Full Support, Impacts Observed for total phosphorus on the 1998 305(b) list.

2000 ACTION: None

2002 ACTION: None

2004 ACTION: None

2006 ACTION: None

2008 ACTION: None

HUC 13020102 Rio Chama

Abiquiu Creek (Rio Chama to headwaters)
WQS: 20.6.4.116 AU: NM-2113_50

New listing for stream bottom deposits and plant nutrients. SWQB were unable to find documentation to support these listings.

1998 ACTION: The reach will continue to be listed on the 303(d) list as Partial Support for Stream Bottom Deposits and plant nutrients.

2000 ACTION:

Stream Bottom Deposits: One station was evaluated along this reach. The reach had 87% fines <2mm (NS). According to the Assessment Protocol, this reach is considered not supporting its designated use.

Stream bottom deposits will be retained as a cause of non-support for this reach

Plant Nutrients: Plant nutrients will remain listed as a cause of non-support.

Plant nutrients will be retained as a cause of non-support

DO: The exceedence ratio for this reach was as follows: spring 0/4, summer 2/2 and fall 0/2. The cumulative exceedence ratio is 2/8 on this reach. The standard is 6.0mg/l. This reach is partially supporting.

DO will be added to this reach as a cause of non-support

Fecal Coliform: The exceedence ratio for this reach is as follows: spring 1/1, summer 0/1 and fall 0/1. The cumulative exceedence ratio on this reach is 1/3. The standard is 2000/100 ml. This reach is full support, impacts observed.

Add to the 305(b) report as FSIO.

2002 ACTION: None

2004 ACTION: In order to provide more information for the nutrient assessment protocol, SWQB staff attempted to assess Abiquiu Creek for nutrient impairment in June 2002, but the creek was dry. Staff revisited Abiquiu Creek on July 24th 2002 when there was water flowing in the stream. Level I and Level II

assessments were done on this reach of Abiquiu Creek. This survey was conducted during a fairly high flow event, which may have been caused from recent rainstorm events. On July 24, 2002 a data-collecting sonde multi-parameter water analysis probe was also deployed in Abiquiu Creek and programmed to record temperature, DO, conductivity, and pH every fifteen minutes for one full day. Samples for nutrients and major ions, including TDS were also collected, as well as water samples for an algal bioassay. Photodocumentation was also utilized to document visual observations such as riparian condition. Macroinvertebrates using EPA's Rapid Bioassessment Protocols. Results There were no exceedances of nutrient related criteria such as total phosphorus, nitrogen, and pH during this sampling survey on July 24, 2002. Lower than standard levels (< 6.0 mg/L) of dissolved oxygen were found in Abiquiu Creek during summer 1999 and 2002 sampling. High levels of DO were not recorded, and do not indicate high plant productivity levels. The algal bioassay determined that algal productivity on this reach is moderate. The reach was determined to be nitrogen limited. It appeared that productivity is not a problem on Abiquiu Creek. Results from the macroinvertebrate bioassessment survey in July 2002 indicate good water quality conditions. The HBI (Hilsenhoff biotic index) from the July 2002 samples at the Hwy 84 Bridge indicated good water quality conditions. The value of 5.3 indicated good water quality conditions as it relates to nutrients, with some organic pollution. In 1999, during the REMAP survey at the same site, the HBI value of 4.987 indicated good water quality conditions. At the same location in 1988, the HBI was 4.3625, which indicated very good water quality conditions with possible slight organic pollution. The # of taxa in 2002 (singe count of # of unique taxa) indicated higher taxa richness (33) than from 1988 and 1999 from this site. This metric is an indication of biodiversity, and it generally decreases with degraded habitat or diminished water quality. Based on the above, nutrient overenrichment is determined not to be a cause of nonsupport for this reach.

The Protocol for the Assessment for Stream Bottom Deposits was utilized in this assessment. Data collected in 1999 as part of the Regional Environmental Monitoring and Assistant Program (REMAP) study indicated that Abiquiu Creek is a reference site. Therefore, biological score as a % of reference was 100%. Even though the sediment (as % fines) was somewhat high (87%), the biology was not impaired.

Therefore, plant nutrients and SBD/sedimentation/siltation were removed as a cause of non support. A TMDL was drafted to address dissolved oxygen.

2006 ACTION: None

2008 ACTION: None

Abiquiu Reservoir
WQS: 20.6.4.117 AU: NM-2114_00

2000 ACTION: This lake is listed for mercury in fish tissue because there are fish consumption guidelines due to mercury contamination.

2002 ACTION: None

2004 ACTION: None

2006 ACTION: In January 2006, a fish consumption advisory based on the presence of PCBs in fish tissue was put into effect for this reservoir.

2008 ACTION: None

Canjilon Ck (Perennial portions Abiquiu Rsrv to headwaters)
WQS: 20.6.4.119 AU: NM-2116.A_030

Previously listed for metals (aluminum), conductivity, turbidity, total phosphorus and stream bottom deposits. All data are from sampling at four stations in 1990. (Stations URG116.010505, 515, 520, 525, 530, and 535). Ratios for aluminum are 0/1, 0/1, 0/0, 0/2, 0/2 and 0/0. Ratios for conductivity are 3/3, 1/3, 0/2, 0/4, 0/4, 0/3 respectively. Ratios for turbidity are 2/3, 0/3, 0/2, 0/4, 0/4, and 0/3. Ratios for total phosphorus are 2/3, 0/3, 0/2, 0/4, 1/3, and 1/3.

1998 ACTION: Aluminum will be removed as a cause of non-support for this reach. Conductivity, turbidity and total phosphorus will be retained as a cause of non-support at the two lower stations. The reach will continue to be listed on the 303(d) list as Not Supporting for Stream Bottom Deposits.

2000 ACTION:

Conductivity: This reach is characterized by two stations. The exceedence ratios are as follows: spring 4/8, summer 4/4 and fall 4/4. The cumulative exceedence ratio for this reach is 12/16. The standard is 500umhos. This reach is not supporting.

Conductivity will remain as a cause of non-support for this reach

Turbidity: This reach is characterized by two stations. The exceedence ratio is as follows: spring 4/8, summer 2/4 and fall 0/4. The cumulative exceedence ratio for this reach is 6/16. The standard is 25NTU. This reach is not supported.

Turbidity will remain as a cause of non-support for this reach

Stream Bottom Deposits: One station was evaluated along this reach. The reach had 21% fines <2mm (FS). According to the Assessment Protocol, this reach is considered fully supporting its designated use.

Water quality standards, as assessed using the 1998 Assessment Protocol, are currently being met for stream bottom deposits on Canjilon Creek.

Temperature: This reach is characterized by two stations. Two thermographs were deployed and lost on this reach. The exceedence ratio for this reach is as follows: spring 0/8, summer 4/4 and fall 0/4. The cumulative exceedence ratio for this reach is 4/16. This reach is partially supported.

Temperature will be added to this reach as a cause of non-support

DO: This reach is characterized by two stations. The exceedence ratio for this reach is as follows: spring 0/8, summer 2/4 and fall 0/4. The cumulative exceedence ratio for this reach is 2/16. This reach is partially supported. The standard is 6.0mg/l.

DO will be added to this reach as a cause of non-support

Total Organic Carbon (TOC): This reach is characterized by two stations. The exceedence ratio is as follows: spring 1/8, summer 3/4 and fall 3/3. The cumulative exceedence ratio for this reach is 7/15. The standard is 7mg/L. This reach is not supported.

TOC will be added to this reach as a cause of non-support

Total Phosphorus: Total phosphorus no longer has a standard associated with it. The Nutrient Assessment Protocol will be used to assess nutrient loading on this reach.

2002 ACTION: According to SWQB staff comments, USFS correspondence, and data from the REMAP study, this reach goes dry. Therefore, the only designated uses that apply are livestock watering and wildlife habitat. The above causes of non-support are related to high quality coldwater fishery, so they do not apply to this reach.

2004 ACTION: None

2006 ACTION: The name was modified to Canjilon Ck (Perennial portions Abiquiu Rsrv to headwaters). The data used for the 2004 de-listing action, as well as comments from the USFS and the perennial nature of Canjilon Creek, were reconsidered. As a result, **specific conductance** (12 of 17 measurements above 500umhos, or 70%), **turbidity** (7 of 16 measurements above 25 NTU, or 44%), and **temperature** (4 of 18 instantaneous readings above 20 degrees C, or 22%) **were added back to the list as impairments**. Dissolved oxygen was not added back as an impairment because only 2 of 18 (11%) dissolved oxygen values were below 6.0 mg/L (both 5.95 mg/L). SWQB plans to intensively sample the Rio Chama watershed in 2007 to check these listings and propose any necessary changes to existing water quality standards. For example, it is unlikely that the perennial portions of Canjilon Creek meet the definition of a high quality cold water fishery since the entire assessment unit is not perennial.

2008 ACTION: None

Cañones Creek (Abiquiu Reservoir to the headwaters)
WQS: 20.6.4.119 AU: NM-2116.A_010

Listed for metals (aluminum), total phosphorus and turbidity. The ratio for aluminum data are 1/1 for acute levels of aluminum. Total phosphorus and turbidity data both have ratios of 5/5. This reach was included in a 1991 biological survey and was rated as only 36% of the reference site. The site had a degraded habitat as a result of loss of riparian habitat, irrigation return flows, and impacts from the community of Cañones.

1998 ACTION: This reach is listed as Not Supporting designated uses with aluminum, total phosphorus, and turbidity as the cause.

2000 ACTION:

Temperature: Two thermographs were deployed on this reach. The upper thermograph exceeded the HQCWF criterion 19/3,984 times with a maximum temperature of 26.19°C. This site exceeded the Temperature Protocol for the one-time maximum exceedence of 23°C. The thermograph at the lower station at HWY 64 did not exceed the Temperature Protocol.

Temperature will be added as a cause of non-support for this reach

Turbidity: This reach is characterized by two stations. Exceedence ratios are as follows: spring 0/8, summer

2/4 and fall1/4. The cumulative exceedence ratio for this reach is 3/16. The standard is 25NTU.

Turbidity will be retained as a cause of non-support

Total Phosphorus: Total phosphorus no longer has a standard associated with it. The Nutrient A ssessment Protocol will be used to assess nutrient loading on this reach.

Total Organic Carbon (TOC): This reach is characterized by two stations. The exceedence ratio is as follows: spring 2/8, summer 0/4 and fall 3/4. The cumulative exceedence ratio for this reach is 5/16. The standard is 7m g/L. This reach is not supported.

TOC will be added as a cause of non-support on this reach

Fecal Coliform: The exceedence ratio for this reach is as follows: spring 1/1, summer 1/1 and fall 0/1. The cumulative exceedence ratio for this reach is 2/3. The standard is 200/100ml.

Fecal coliform will be added as a cause of non-support on this reach

Metals (Al chronic): For the spring run, the 4-day average was 167.5ug/l of dissolved aluminum. The chronic criterion is 87ug/l.

Metals (Al chronic) will be retained as a cause of non-support

2002 ACTION: In 2002, The WQCC deleted the total organic carbon criterion (20.6.4.900C of NMAC) for the high quality coldwater fishery designated use. The TOC criterion was adopted in 1973. Before then, the water quality standards contained an am bient narrative criterion for com bined COD/BOD. This criterion, adopted originally in 1967, statedthat "materials in solution and in suspension which exert an oxygen dem and, shall not be present in concentrations sufficient to reduce the dissolved oxygen in the streamto 50 percent of the saturation concentrationor to 6.0 mg/l" for trout-producing and warm-water fish producing waters. In 1973, the Commission replaced this narrative criterion with the current numeric criterion for TOC, applicable to the high quality coldwater fishery designated use. Since then, this criterion has been rendered unnecessary. Over the years, the Commission has adopted use-specific and segm ent-specific dissolved oxygen criteria that offer a higher degree of protection than theTOC criterion. EPA considers the TOC criterion to be an artifact froman earlier time. Indeed, only one other state—Louisiana—still maintains a TOC criterion, and that number is used only as a

discharge limitation for effluents and storm water discharges. **TOC was removed as a cause of Non Support.**

The thermograph data collected at the upper station during the 1999 study was re-assessed. Closer inspection of the exceedences indicates that the thermograph was out of the water during the period of exceedence because the there was a steep spike in the recorded temperature up the ambient air temperature, then a steep decrease in temperature at the end of the brief period. Benthic macroinvertebrate data collected at this site does not indicate impairment. The thermograph at the lower station did not indicate impairment and did not exceed the Temperature Protocol. Therefore, **temperature was removed as a cause of Non Support.**

2004 ACTION: TMDLs were drafted for turbidity, aluminum, and fecal coliform.

2006 ACTION: None

2008 ACTION: None

Cecilia Canyon Creek (Rio Capulin to USFS bnd)
WQS: 20.6.4.119 AU: NM-2116.A_042

Previously listed for stream bottom deposits, turbidity, reduction of riparian vegetation and streambank destabilization. No associated physical/chemical data are available.

1998 ACTION: The reach was retained on the 303(d) with stream bottom deposits and turbidity as the cause of non-support.

2000 ACTION:

Turbidity: Field data show an exceedence ratio of 0/6 for turbidity on this reach.

Water quality standards, as assessed using the 1998 Assessment Protocol, are currently being met for turbidity on Cecilia Canyon Creek.

Stream Bottom Deposits: One station was evaluated along this reach. The reach had 40% fines <2mm (PS) and an embeddedness of 30%(FS). According to the Assessment Protocol, this reach is considered partially supporting its designated use.

Stream bottom deposits will be retained as a cause of non-support

2002 ACTION: None

2004 ACTION: None

2006 ACTION: None

2008 ACTION: None

Chavez Creek (Rio Brazos to the headwaters)
WQS: 20.6.4.119 AU: NM-2116.A_081

2000 ACTION:

Temperature: One thermograph was deployed on this reach The thermograph was deployed on Chavez Creek at the Hwy 512 bridge and exceeded the HQCW F criterion 160/864 times with a maximum temperature of 26°C.

Temperature will be added as a cause of non-support for this reach of Chavez Creek

Stream Bottom Deposits: Non-permitted stream modifications were carried out on this reach of Chavez Creek and stream bottom deposits have been documented. This reach will be listed in the 305(b) Report as Full Support, Impacts Observed until more data can be collected.

Add to the 305(b) report as FSIO.

Turbidity: Non-permitted stream modifications were carried out on this reach of Chavez Creek. This reach will be listed in the 305(b) Report as Full Support, Impacts Observed until more data can be collected. The exceedence ratio was 1/8.

Add to the 305(b) report as FSIO.

Total Phosphorus: Non-permitted stream modifications were carried out on this reach of Chavez Creek. This reach will be listed in the 305(b) Report as Full Support, Impacts Observed until more data can be collected. The exceedence ratio was 1/3.

There is no longer a standard associated with total phosphorus. The Nutrient Assessment Protocol will be used to assess nutrient loading on this reach.

2002 ACTION: The Nutrient Assessment protocol was performed June 2000. This reach was determined to be nutrient enriched following the level one nutrient assessment analysis. A level two analyses is in process at the time of this writing. A summary of the nutrient assessment is in the administrative record. **Plant Nutrients was added as a cause of non-support.**

2004 ACTION: Plant nutrients was prematurely listed in 2002 based on only a level one analysis. Subsequent level two analysis did not indicate plant nutrient impairment (the algal level was moderately productive). Therefore, **plant nutrients was removed as a cause of impairment. A TMDL was written for temperature.**

2006 ACTION: None

2008 ACTION: None

Chihuahuenos Creek (Cañones Creek to the headwaters)
WQS: 20.6.4.119 AU: NM-2116.A_016

Previously listed for stream bottom deposits, turbidity, reduction of riparian vegetation and streambank destabilization. No associated physical/chemical data are available.

1998 ACTION: The reach was retained on the 303(d) with stream bottom deposits and turbidity as the cause of non-support.

2000 ACTION:

Turbidity: Field data show an exceedence ratio of 0/6 for turbidity on this reach.

Water quality standards, as assessed using the 1998 Assessment Protocol, are currently being met for turbidity on Chihuahuenos Creek.

Stream Bottom Deposits: One station was evaluated along this reach. The reach had 54% fines <2mm (NS). According to the Assessment Protocol, this reach is considered not supporting its designated use.

Stream bottom deposits will be retained as a cause of non-support for this reach

Total Organic Carbon (TOC): The exceedence ratios are as follows: spring 0/4, summer 0/2 and fall 1/2. The cumulative exceedence

ratio for this reach is 1/8. This reach is full support, impacts observed.

Add to the 305(b) report as FSIO.

2002 ACTION: None

2004 ACTION: The original SBD/sedimentation assessment of the 1999 data was performed incorrectly. Because the biological score was 93% of reference, the determination is full support according to the Stream Bottom Deposit Assessment Protocol even thought the percent fines are somewhat high (57%). **Therefore, SBD/sedimentation was removed.**

2006 ACTION: None

2008 ACTION: None

Clear Creek (Rio Gallina to headwaters)
WQS: 20.6.4.119 AU: NM-2116.A_043

Previously listed for streambottom deposits and turbidity. No associated physical/chemical data are available.

1998 ACTION: The reach was retained on the 303(d) with stream bottom deposits and turbidity as the cause of non-support.

2000 ACTION:

Turbidity: Field data show an exceedence ratio of 0/6 for turbidity on this reach.

Water quality standards, as assessed using the 1998 Assessment Protocol, are currently being met for turbidity on Clear Creek.

Stream Bottom Deposits: One station was evaluated along this reach. The reach had 51% fines <2mm (NS). According to the Assessment Protocol, this reach is considered not supporting its designated use do to the high level of fines

Stream bottom deposits will be retained as a cause of non-support

2002 ACTION: None

2004 ACTION: None

2006 ACTION: None

2008 ACTION: None

Coyote Creek (Rio Puerco de Chama to the headwaters)
WQS: 20.6.4.119 AU: NM-2116.A_022

Listing based on 5/5 exceedences for total phosphorus and turbidity. A biological assessment was conducted on Coyote Creek in 1991. The station was found to be NS (56%) as compared to the reference station.

1998 ACTION: This reach will be listed as Not Supported with total phosphorus and turbidity as causes.

2000 ACTION:

Stream Bottom Deposits: One station was evaluated along this reach. The reach had 39% fines <2mm (PS). According to the Assessment Protocol, this reach is considered partially supporting its designated use.

Stream bottom deposits will be added as a cause of non-support

Total Phosphorus: Total phosphorus no longer has a standard associated with it. The Nutrient Assessment Protocol will be used to assess nutrient loading on this reach.

Turbidity: Field data show an exceedence ratio of 0/6 for turbidity on this reach.

Water quality standards, as assessed using the 1998 Assessment Protocol, are currently being met for turbidity on Coyote Creek.

Temperature: The exceedence for this reach is as follows: spring 0/4, summer 1/2, and fall 0/2. The cumulative exceedence ratio on this reach is 1/8. The standard for this reach is 20°C. This reach is full support, impacts observed.

Add to the 305(b) report as FSIO.

Total Organic Carbon (TOC): The exceedence ratio for this reach is as follows: spring 4/4, summer 0/2 and fall 2/2. The cumulative

exceedence ratio for this reach is 6/8. The standard is 7mg/L. This reach is not supported.

TOC will be added as a cause of non-support on this reach

2002 ACTION: In 2002, The WQCC deleted the total organic carbon criterion (20.6.4.900C of NMAC) for the high quality coldwater fishery designated use. The TOC criterion was adopted in 1973. Before then, the water quality standards contained an ambient narrative criterion for combined COD/BOD. This criterion, adopted originally in 1967, stated that "materials in solution and in suspension which exert an oxygen demand, shall not be present in concentrations sufficient to reduce the dissolved oxygen in the stream to 50 percent of the saturation concentration or to 6.0 mg/l" for trout-producing and warm-water fish producing waters. In 1973, the Commission replaced this narrative criterion with the current numeric criterion for TOC, applicable to the high quality coldwater fishery designated use. Since then, this criterion has been rendered unnecessary. Over the years, the Commission has adopted use-specific and segment-specific dissolved oxygen criteria that offer a higher degree of protection than the TOC criterion. EPA considers the TOC criterion to be an artifact from an earlier time. Indeed, only one other state—Louisiana—still maintains a TOC criterion, and that number is used only as a discharge limitation for effluents and storm water discharges. **TOC will be removed as a cause of Non Support.**

2004 ACTION: The original SBD/sedimentation assessment of the 1999 data was performed incorrectly. Because the biological score was 100% of reference (the site on this creek is considered to be reference condition), the determination is full support according to the Stream Bottom Deposit Assessment Protocol even thought the percent fines are somewhat high (39%). **Therefore, SBD/sedimentation was removed.**

2006 ACTION: None

2008 ACTION: None

El Rito Creek (Perennial reaches above HWY 554)
WQS: 20.6.4.115 AU: NM-2112.A_20

Previously listed for turbidity, stream bottom deposits and nutrients. Turbidity data from a 1990 survey is the only available data. Ratios for turbidity were 1/1, 1/1, and 0/1. No specific data are available for the causes stream bottom deposits and nutrients.

1998 ACTION: Turbidity will be listed as Full Support, Impacts Observed on the 1998 305(b) list. The reach will continue to be listed on the 303(d) list as Partial Support for Stream Bottom Deposits and plant nutrients.

2000 ACTION:

Plant Nutrients: Plant nutrients will remain listed as a cause of non-support.

Plant nutrients will be retained as a cause of non-support

Turbidity: Field data show an exceedence ratio of 2/8 for turbidity on this reach. The standard is 10NTU.

Turbidity will be added to this reach as a cause of non-support

Stream Bottom Deposits: Two stations were used to evaluate this reach. The upper station, near the headwaters, had 18% fines <2mm (FS). The lower station, above the Town of El Rito, had 7% fines <2mm (FS). According to the Assessment Protocol, this reach is considered fully supporting its designated use.

Water quality standards, as assessed using the 1998 Assessment Protocol, are currently being met for stream bottom deposits on El Rito Creek.

Total Organic Carbon (TOC): The exceedence ratios are as follows: spring 0/2, summer 0/2 and fall 1/2. The cumulative exceedence ratio for this reach is 1/6. This reach is full support, impacts observed.

Add to the 305(b) report as FSIO.

2002 ACTION: **Turbidity was removed as a cause of Non Support** after re-evaluation of the data and collection of additional sonde data. The two exceedences from the 1999 survey were within the analytical error of the instrumentation, the narrative turbidity standard was not exceeded, and a qualitatative assessment of the benthic macroinvertebrate population indicated no impairment. Quantitative benthic macroinvertebrate samples were taken during 2002. Identification, enumeration, and analyses are in progress. An YSI multi-parameter sonde was deployed between 06/10/02 17:00 to 06/12/02 08:45. Turbidity samples were logged every 15 minutes. The mean value was 5.7 NTUs. The turbidity standard of 10 NTU was exceeded 4 times out of 172 readings (2.3%).

For the spring 1999 run, the 4-day average was 363 ug/l of dissolved aluminum. The chronic criterion is 87ug/l. The criterion was not exceeded

during the summer or fall runs. Therefore, this AU is Full Support for aluminum. This data was erroneous apply to the reach El Rito below El Rito during the 2000 assessment cycle.

2004 ACTION: A level 2 Plant Nutrient Assessment was performed June 2002. Results indicated no impairment. **Therefore, plant nutrients was removed as a cause of impairment.**

2006 ACTION: None

2008 ACTION: None

El Rito Creek (Perennial reaches below HWY554)
WQS: 20.6.4.116 AU: NM-2113_40

2000 ACTION:

Metals (Al chronic): For the spring run, the 4-day average was 536.25ug/l of dissolved aluminum. The chronic criterion is 87ug/l.

A new listing will be added for metals (Al chronic) for this reach

2002 ACTION: According to SWQB staff comments and data from the REMAP study, this reach goes dry. Therefore, the only designated uses that apply are livestock watering and wildlife habitat. The above causes of non-support are related to high quality coldwater fishery, so they do not apply to this reach. Also, the above listing for aluminum was erroneous anyway because the data pertained to the upper reach, and assessment of the data indicated full support (see above).

2004 ACTION: None

2006 ACTION: None

2008 ACTION: None. This AU is likely not perennial. It went dry during the last intensive survey.

El Vado Reservoir
WQS: 20.6.4.120 AU: NM-2117_00

1998 ACTION: **Not listed**

2000 ACTION: This lake is listed for mercury in fish tissue because there are fish

consumption guidelines due to mercury contamination.

2002 ACTION: None

2004 ACTION: None

2006 ACTION: None

2008 ACTION: None

Heron Reservoir
WQS: 20.6.4.120 AU: NM-2117_10

2000 ACTION: This lake is listed for mercury in fish tissue because there are fish consumption guidelines due to mercury contamination.

2002 ACTION: None

2004 ACTION: None

2006 ACTION: None

2008 ACTION: None

Hopewell Lake
WQS: 20.6.4.115 AU: NM-2112.B_00

1998 ACTION: Not listed

2000 ACTION:

Hopewell Lake was characterized (in a report titled, ***New Mexico Clean Lakes Program, Classification Phase I, Final Report, September 1982)*** by high pH (>9.0 in the summer photic zone) moderate temperature stratification and hypolimnetic dissolved oxygen depletion during the summer. Phosphorus concentrations increased during the fall as chlorophyll a concentrations declined. Macrophytes covered approximately 25% of the lake bottom during the summer and fall. The algal population was dominated by a blue-green algae. Phosphorous was limiting or co-limiting.

Although the data for this reservoir is dated, it is still listed in the State's 305(b) Report as impaired for pH, dissolved oxygen, turbidity, nuisance algae and siltation and therefore will be listed on the 303(d) List until new data are collected to either verify or refute the listing.

2002 ACTION: Hopewell Lake was intensively surveyed in 1999. **Data indicate Full**

Support for pH (0/1), dissolved oxygen (0/8), and turbidity (0/1). Hopewell Lake will continue to be listed for plant nutrients and bottom deposits until further study.

2004 ACTION: None

2006 ACTION: None

2008 ACTION: The sedimentation/siltation listing was removed because there were no data or applicable assessment protocols available to make this determination.

Nabor Creek (Rio Chamita to CO border)
WQS: 20.6.4.119 AU: NM-2116.A_111

Previously listed for total phosphorus and total ammonia. One station is on the reach (URG116.020040). Total phosphorus data indicate Full Support, Impacts Observed for the fishery use (1/4). Total ammonia data indicate full support for the fishery use (0/4).

1998 ACTION: Total ammonia will be removed as a cause of non-support for this reach. Total phosphorus will be upgraded to Full Support, Impacts Observed and will be listed on the 1998 305(b) report.

2000 ACTION:

Total Phosphorus: There is no longer a standard associated with total phosphorus. The Nutrient Assessment Protocol will be used to assess nutrient loading on this reach.

Water quality standards, as assessed using the 1998 Assessment Protocol, are currently being met for all parameters on Nabor Creek.

2002 ACTION: None

2004 ACTION: None

2006 ACTION: None

2008 ACTION: None

Poleo Creek (Rio Puerco de Chama to the headwaters)
WQS: 20.6.4.119 AU: NM-2116.A_023

Listing based on one station at Forest Road 103 (URG116.010050, 1991 data). Total phosphorus and turbidity data, 4/5 and 5/5, exceed the criteria values. All other parameters are below criteria

values.

1998 ACTION: This reach will be listed as Not Supported with total phosphorus and turbidity as causes.

2000 ACTION:

Total Phosphorus: Total phosphorus no longer has a standard associated with it. The Nutrient Assessment Protocol will be used to assess nutrient loading on this reach.

Turbidity: The exceedence ratio on this reach is as follows: spring 4/4, summer 1/2 and fall 0/2. The cumulative exceedence ratio on this reach is 5/8. The standard is 25 NTU. This reach is not supported.

Turbidity will be retained as a cause of non-support

Total Organic Carbon (TOC): The exceedence ratios are as follows: spring 0/4, summer 1/2 and fall 2/2. The cumulative exceedence ratio for this reach is 3/8. This reach is not supporting.

TOC will be added as a cause of non-support

2002 ACTION: In 2002, The WQCC deleted the total organic carbon criterion (20.6.4.900C of NMAC) for the high quality coldwater fishery designated use. The TOC criterion was adopted in 1973. Before then, the water quality standards contained an ambient narrative criterion for combined COD/BOD. This criterion, adopted originally in 1967, stated that "materials in solution and in suspension which exert an oxygen demand, shall not be present in concentrations sufficient to reduce the dissolved oxygen in the stream to 50 percent of the saturation concentration or to 6.0 mg/l" for trout-producing and warm-water fish producing waters. In 1973, the Commission replaced this narrative criterion with the current numeric criterion for TOC, applicable to the high quality coldwater fishery designated use. Since then, this criterion has been rendered unnecessary. Over the years, the Commission has adopted use-specific and segment-specific dissolved oxygen criteria that offer a higher degree of protection than the TOC criterion. EPA considers the TOC criterion to be an artifact from an earlier time. Indeed, only one other state—Louisiana—still maintains a TOC criterion, and that number is used only as a discharge limitation for effluents and storm water discharges. **TOC was removed as a cause of Non Support.**

2004 ACTION: None

2006 ACTION: None

2008 ACTION: None

Polvadera Creek (Cañones Creek to the headwaters)
WQS: 20.6.4.119 AU: NM-2116.A_011

Previously listed for stream bottom deposits, turbidity, reduction of riparian vegetation and streambank destabilization. No associated physical/chemical data are available.

1998 ACTION: The reach was retained on the 303(d) with stream bottom deposits and turbidity as the cause of non-support.

2000 ACTION:

Turbidity: Field data show an exceedence ratio of 0/6 for turbidity on this reach.

Water quality standards, as assessed using the 1998 Assessment Protocol, are currently being met for turbidity on Polvadera Creek.

Stream Bottom Deposits: One station was evaluated along this reach. The reach had 71% fines <2m m (NS). According to the Assessment Protocol, this reach is considered not supporting its designated use.

Stream bottom deposits will be retained as a cause of non-support for this reach

Temperature: The exceedence ratio on this reach is as follows: spring 0/4, sum mer 2/2 and fall 0/2. The cumulative exceedence ratio on this reach is 2/8. This reach is partially supported.

Temperature will be added to this reach as a cause of non-support

Total Organic Carbon (TOC): The exceedence ratios are as follows: spring 0/4, summer 0/2 and fall 1/2. The cumulative exceedence ratio for this reach is 1/8. This reach is full support, impacts observed.

Add to the 305(b) report as FSIO.

2002 ACTION: None

2004 ACTION: The original SBD/sedimentation assessment of the 1999 data was performed incorrectly. Because the biological score was 67% of reference, the determination is full support according to the Stream Bottom Deposit Assessment Protocol even thought the percent fines are somewhat high (71%). **Therefore, SBD/sedimentation was removed.** 2002 thermograph confirmed temperature listing and a TMDL was drafted. Temperature is assumed to be the cause of benthic macroinvertebrate impairment.

2006 ACTION: Sedimentation/siltation impairment was re-assessed using the current Assessment Protocols. The biological condition at Polvadera Creek was 67% of reference. As a result, **sedimentation/siltation was added back as a cause of non support**.

2008 ACTION: None

Rio Brazos (Rio Chama to Chavez Creek)
WQS: 20.6.4.119 AU: NM-2116.A_080

Previously listed for temperature, turbidity, chlorine, nutrients and stream bottom deposits. One sampling station is on the reach (URG116.008005). Data for temperature and turbidity are 0/2. Total residual chlorine data are 1/1 exceedences from 1986 data however there are no known sources of chlorine on this reach. A review of data related to the nutrients listing show that total phosphorus values at this station are well below the criteria of 0.1 mg/l and nitrate levels are also low with levels reported as less than 0.04 mg/l. No specific reason for the previous listing can be found.

1998 ACTION: Temperature, turbidity, chlorine, and nutrients will be removed as causes of non-support for this reach. Chlorine will be listed as Full Support, Impacts Observed on the 1998 305(b) list. The reach will continue to be listed on the 303(d) list as Partial Support for Stream Bottom Deposits.

2000 ACTION:

Temperature: Two thermographs were deployed on this reach. The upper thermograph was deployed above Corkins Lodge and did not exceed the HQCWF criterion. The lower thermograph was deployed at the Rio Brazos and Hwy 84 bridge and exceeded the HQCWF criterion 463/1,752 times with a maximum temperature of 27°C.

Temperature will be added as a cause of non-support for the lower section (Rio Brazos at Highway 84 bridge) of the Rio Brazos

Stream Bottom Deposits: This reach has been highly modified by highway construction. The natural substrate has been replaced

with rounded stones of an alm ost homogenous size. Although this substrate has been highly m odified, it does not have signs of heavy sediment load.

Water quality standards, as assessed using the 1998 Assessment Protocol, are currently being met for stream bottom deposits on the lower Rio Brazos.

2002 ACTION: None

2004 ACTION: A TMDL was prepared for temperature.

2006 ACTION: None

2008 ACTION: None

Rio Cebolla (Rio Chama to the headwaters)
WQS: 20.6.4.119 AU: NM-2116.A_050

2000 ACTION:

Conductivity: The exceedence ratio on this reach is as follows: spring 0/1, summer 1/1 and fall 1/1. The cumulative exceedence ratio on this reach is 2/3. The standard is 500 umhos. This reach is not supporting.

Conductivity will be added to this reach as a cause of non-support.

Temperature: The exceedence ratio for this reach is as follows: spring 0/4, sum mer 1/2 and fall 0/2. The cumulative exceedence ratio on this reach is 1/8. The standard is 20°C. This reach is full support, impacts observed.

Add to the 305(b) report as FSIO.

2002 ACTION: According to SWQB staff comments, USFS correspondence, and data from the REMAP study, this reach goes dry. Therefore, the only designated uses that apply are livestock watering and wildlife habitat. The above causes of non-support are related to high quality coldwater fishery, so they do not apply to this reach.

2004 ACTION: None

2006 ACTION: None

2008 ACTION: None. This AU is likely not perennial. It went dry during the last intensive survey.

Rio Chama (Rio Brazos to Little Willow Creek)
WQS: 20.6.4.119 AU: NM-2116.A_002

Previously listed for total phosphorus, total ammonia, turbidity, chlorine and streambottom deposits. Data ratios for total phosphorus are 0/10 from a 1988 survey. No more current data are available. Data ratios for total ammonia are 0/10 from the same survey. Data ratios for turbidity are also 0/10 from the same survey. Total residual chlorine data from 1986 was 1/1 at stations URG116.019550 and URG116.020505. There are no sources of chlorine on this segment although it would receive impacts from the Rio Chamita that did have chlorine impacts from this time period.

The Chama WWTP has however begun dechlorination since this time and no exceedences have been reported within the last 5 years.

1998 ACTION: The total phosphorus, total ammonia and turbidity will be removed as causes of non-support for this reach. As per the assessment protocol the reach will be listed as Full Support- Im pacts Observed on the 1998 305(b) list with chlorine as a cause. The reach will continue to be listed on the 303(d) list as Partial Support for Stream Bottom Deposits.

2000 ACTION:

Stream Bottom Deposits: This reach is characterized by one station below the Village of Chama. The % fines <2mm was measured at <1%. This reach is assessed as having a fully supporting substrate. An additional station just outside of this reach had a % fines <2mm at 5%.

Water quality standards, as assessed using the 1998 Assessment Protocol, are currently being met for stream bottom deposits on the Rio Chama.

Metals (Al Chronic): A 4-day average of 113ug/l was observed during spring. No detectable alum inum was seen during summer and fall sam pling. The value is within the error range for aluminum analyses. This will not be listed as not supporting but will be listed as Full Support, Impacts observed in the 305(b) Report.

Add to the 305(b) report as FSIO.

Temperature: Two therm ographs were deployed on this reach. The upper therm ograph was deployed under

the HWY 17 bridge and did not exceed the HQCWF criterion. The lower thermograph was deployed at the Rio Chama and Hwy 84 fishing access and exceeded the HQCWF criterion 363/1,704 times with a maximum temperature of 26°C.

Temperature will be added as a cause of non-support for the lower section (Highway 84 fishing access) of the Rio Chama

2002 ACTION: None

2004 ACTION: A TMDL was prepared for temperature.

2006 ACTION: None

2008 ACTION: None

Rio Chama (San Juan Pueblo to Abiquiu Dam)
WQS: 20.6.4.116 AU: NM-2113_00

Previously listed for turbidity, pH, dissolved oxygen, unionized ammonia, nutrients and stream bottom deposits. There are no numeric turbidity criteria for this reach. pH data are available at two stations in the 0-5 year interval ratios at these stations are 0/70 and 0/9. Data in the 5-10 year interval is available from six stations with ratios of 0/20, 0/6, 2/6, 2/6, 2/8, and 0/7. Data for dissolved oxygen from two stations within the last 5 years has a cumulative ratio of 0/79. Data from 5-10 years has a cumulative ratio of 0/50. Total ammonia data are available from one station in the last five years with a ratio of 0/9. Five stations have data for total ammonia in the 5-10 year time frame.

The ratios at these stations are 0/6, 1/6, 0/7, 0/8, and 0/7. In the only station with a criteria exceedence, a three day average was calculated. This 3-day average did not exceed the chronic criteria. During the data review for this reach it was noted that there had been 1/10 (10%) acute exceedence of the dissolved aluminum criteria.

1998 ACTION: Turbidity, dissolved oxygen, and unionized ammonia have been removed as causes of non-support. This reach will be listed as Full Support, Impacts Observed for aluminum on the 1998 305(b) list. No data either to support listing or de-listing can be found for nutrients. There is no numeric turbidity criteria for this reach therefore turbidity will be removed. pH data are available at two stations in the 0-5 year interval ratios at these stations are 0/70 and 0/9. Data in the 5-10 year interval is available from six stations with ratios of 0/20, 0/6, 2/6, 2/6, 2/8, and 0/7. This reach is Partially Supporting for pH. Data for dissolved oxygen from two stations within the last 5 years has a cumulative ratio of 0/79. Data from 5-10 years has a cumulative ratio of 0/50. This reach is fully supporting for dissolved oxygen.

Total ammonia data are available from one station in the last five years with a ratio of 0/9. Five stations have data for total ammonia in the 5-10 year time frame. The ratios at these stations are 0/6, 1/6, 0/7, 0/8, and 0/7. In the only station with a criteria exceedence, a three day average was calculated. This 3-day average did not exceed the chronic criteria. This reach is Full Support for total ammonia. During the review for this reach it was found that there had been 1/10 (10%) acute exceedence of the dissolved aluminum criteria. This reach will be listed as Full Support, Impacts Observed for aluminum on the 1998 305(b) list. No data either to support listing or de-listing can be found for nutrients. The reach will continue to be listed on the 303(d) list as Partial Support for nutrients and pH.

2000 ACTION:

Plant Nutrients: There were no exceedences of the plant nutrient criteria on this reach.

Water quality standards, as assessed using the 1998 Assessment Protocol, are currently being met for plant nutrients on this reach of the Rio Chama.

pH: This reach is characterized by three stations. Exceedence ratios are as follows: spring 0/12, summer 1/6 and fall 0/6. The cumulative exceedence ratio is 1/24. This reach is fully supporting.

Water quality standards, as assessed using the 1998 Assessment Protocol, are currently being met for pH on this reach of the Rio Chama.

DO: This reach is characterized by three stations. The exceedence ratios on this reach are as follows: spring 0/12, summer 1/6 and fall 2/6. The cumulative exceedence ratio on this reach is 3/24. The standard is 6.0mg/l. This reach is full support, impacts observed.

Add to the 305(b) report as FSIO

Metals (Al chronic): For the summer run, the 4-day average was 410ug/l of dissolved aluminum. The chronic criterion is 87ug/l.

Metals (al chronic) will be added as a cause of non-support for this reach of the Rio Chama

Unknown: No unknown constituents were detected in this survey.

Unknown will be removed as a cause of non-support

2002 ACTION: None. The name was revised to remove sections of the reach that are under tribal jurisdiction.

2004 ACTION: None

2006 ACTION: None

2008 ACTION: None

Rio Chamita (Rio Chama to CO border)
WQS: 20.6.4.119 AU: NM-2116.A_110

Listed for temperature, turbidity, total phosphorus, total ammonia, chlorine, fecal coliform and stream bottom deposits. There are five stations on this reach with data within the last 12 years: URG116.020005, URG116.020015, URG116.020035, URG116.020045 and URG116.020055. Ratios for temperature at these stations are 5/13, 3/12, 2/10, 1/1, and 1/4 respectively. Ratios for turbidity are 0/5, 0/5, 0/5, 0/1, and 3/3 respectively. Ratios for total phosphorus are 14/14, 5/14, 1/11, 1/3, and 1/1. Ratios for total ammonia are 11/11, 3/11, 5/10, 0/3, and 0/1 respectively. Chlorine data are available at stations 0005, 0015 and 0035, 1/1, 1/1, and 1/1 for the 5-10 year period. Ratios are 0/1 and 0/1 for the last 5 years. The Chama WWTP has begun dechlorination prior to discharge. Fecal coliform data are also available only from these three stations. Ten year ratios are 0/2, 0/2, and 2/2 for these stations.

1998 ACTION: Station 0005 will be listed as Not Supported with temperature as the cause. Turbidity data indicate that the fishery use is not supported at station URG116.020055 and full support at stations URG116.020005, URG116.020015, and URG116.020035. Total phosphorus data indicate the fishery use is not supported at stations URG116.020005 and URG116.020015, Full Support, Impacts Observed for station URG116.020055, and full support at station URG116.020035. Total ammonia data indicate that the fishery use is not supported at stations URG116.020005, URG116.020015 and URG116.020035, while it is full support at station URG116.020055. Fecal coliform data indicate full support of the contact recreation use at stations URG116.020005 and URG116.020015 and will be listed as Full Support, Impacts Observed at station URG116.020035 on the 1998 305(b) list. The reach will continue to be listed on the 303(d) list as Partial Support for Stream Bottom Deposits.

2000 ACTION

Temperature: Thermographs on this reach were deployed from July 20 through October 1, 1998. HQCWF temperature criteria were exceeded at all three thermograph sites. The upper site exceedence ratio was 71/1,752. This site exceeded the draft

Temperature Protocol for hours of exceedence duration > 4hours, but no more than six hours in a 24-hour cycle, and for no more than three consecutive days at 20°C. The middle site 173/1,751 with a one-time maximum temperature exceedence of 23.5°C and the lower site 254/1,750 with a one-time maximum temperature exceedence of 24.5°C.

A TMDL was developed for the Rio Chamita to address temperature.

Turbidity: Turbidity samples at all three stations on this reach were 0/9, 1/9 and 0/9 respectively. There is not impairment by turbidity on this reach.

Water quality standards, as assessed using the 1998 Assessment Protocol, are currently being met for turbidity on the Rio Chamita.

Stream Bottom Deposits: Two stations were evaluated along this reach. The station above the WWTP in Chama has 16% fines <2mm. The station below Sexto Creek had 24% fines <2mm. Each of these stations would be considered as having supportive bottom substrate.

Water quality standards, as assessed using the 1998 Assessment Protocol, are currently being met for stream bottom deposits on the Rio Chamita.

Total Phosphorus: There were four stations on this reach. The uppermost station above Sexto Creek was 4/4 for TP but data are not representative due to no flow coming from the Colorado side of the border. The middle two stations were both 0/4 and the station below the WWTP was 6/6 for TP. Nonpoint source impacts are considered minimal but a load allocation of 1.1 lbs./day in the upper watershed has been calculated due to the documented exceedences.

The TMDL was developed for the reach below the WWTP to the confluence with the Rio Chama on the Rio Chamita to address total phosphorus.

Total Ammonia: There were four stations on this reach. The stations above the WWTP were 0/7, 0/8 and 0/8. The station below the WWTP was 4/8 for total ammonia. Exceedences were of the 4-day chronic criteria during Fall low flow conditions. No acute exceedences were documented.

A TMDL was developed for the reach below the WWTP on the Rio Chamita to address total ammonia.

Fecal Coliform: Two fecal coliform samples from this reach below the WWTP were both above the criterion. Fecal coliform will be added and listed as not supporting the designated use on this reach. The Village of Chama has fecal coliform limits in their current NPDES permit.

A TMDL was developed for the reach below the WWTP on the Rio Chamita to address fecal coliform.

Chlorine: Because of significant interference under ambient conditions, no in-stream chlorine measures were collected. The Village of Chama has dechlorination requirements in their current NPDES permit with a daily monitoring provision. A review of the submitted Discharge Monitoring Report (DMR) data shows full compliance at this time.

Pursuant to 40 CFR 130.7(b)(1)(ii), a TMDL is not required if other pollution control requirements required by State or federal authority are stringent enough to implement the appropriate water quality standards for such waters. The Village of Chama has dechlorination requirements in their current NPDES permit with a daily monitoring provision. A review of the submitted Discharge Monitoring Report (DMR) data shows full compliance at this time.

Metals (Al chronic): Samples at the station just above and below the WWTP exceeded the 4-day chronic values for aluminum during spring sampling. The 4-day average for the upstream station was 93 ug/l and below the WWTP the 4-day average was 145ug/l of dissolved aluminum. The chronic criterion is 87ug/l. Aluminum was not detected in samples collected during the summer and fall seasons. The measured value for the upstream station is within sampling and analytical error range (+/- 23 with maximum exceedence value being 110ug/l).

A new listing will be added for metals (Al chronic) below the WWTP

Total Organic Carbon (TOC): TOC greater than the criterion (7mg.l) was found in 4/8 samples from the station above Sexto Creek (large wetland). During the summer and fall months, irrigation withdrawals in Colorado are such that there is no flow in this reach. The area becomes a stagnant pool and decaying detritus causes the TOC to increase. The impact to the fishery is from flow regulation and natural biological functions

2002 ACTION: The 303(d) list was corrected to include total ammonia and fecal coliform as

causes of impairment. In 2002, The WQCC deleted the total organic carbon criterion (20.6.4.900C of NMAC) for the high quality coldwater fishery designated use. The TOC criterion was adopted in 1973. Before then, the water quality standards contained an ambient narrative criterion for combined COD/BOD. This criterion, adopted originally in 1967, stated that "materials in solution and in suspension which exert an oxygen demand, shall not be present in concentrations sufficient to reduce the dissolved oxygen in the stream to 50 percent of the saturation concentration or to 6.0 mg/l" for trout-producing and warm-water fish producing waters. In 1973, the Commission replaced this narrative criterion with the current numeric criterion for TOC, applicable to the high quality coldwater fishery designated use. Since then, this criterion has been rendered unnecessary. Over the years, the Commission has adopted use-specific and segment-specific dissolved oxygen criteria that offer a higher degree of protection than the TOC criterion. EPA considers the TOC criterion to be an artifact from an earlier time. Indeed, only one other state—Louisiana—still maintains a TOC criterion, and that number is used only as a discharge limitation for effluents and storm water discharges. **TOC was removed as a cause of Non Support.**

In 2000, the total phosphorus standard for HQCWF was removed. Subsequently, total phosphorus listings were changed to the narrative "plant nutrient" listing and these waters were assessed based on the Nutrient Assessment Protocol. SWQB conducted field assessments on the Rio Chamita on July 18, 2000. The Rio Chamita was determined not to be nutrient enriched following the level one nutrient assessment analysis. Additional information can be found in the administrative record.

2004 ACTION: TMDL was approved for aluminum.

2006 ACTION: A Level II nutrient assessment was performed based on data collected in 2006. Both the nitrogen and phosphorus levels exceeded the ecoregion criteria in 2 of 2 samples. The DO concentration fell below the criterion for > 1 hour on 8 consecutive days of deployment, with a low of 3.94 mg/L. The chlorophyll a concentration (11.36 ug/cm2) exceeded the threshold of 10 ug/cm2. Since four indicators were present, this **AU will be listed for Nutrient/Eutrophication Biological Indicators.**

2008 ACTION: None

Rio del Oso (Rio Chama to headwaters)
WQS: 20.6.4.115 AU: NM-2112.A_10

Previously listed for stream bottom deposits, turbidity, reduction of riparian vegetation and streambank destabilization. No associated physical/chemical data are available.

1998 ACTION: The reach was retained on the 303(d) with stream bottom deposits and turbidity as the cause of non-support.

2000 ACTION:

Turbidity: The exceedence ratio for this reach is as follows: spring 1/4, summer 2/2 and fall 0/2. The cumulative exceedence ratio on this reach is 3/8. The standard is 10NTU. This reach is not supported.

Turbidity will be retained as a cause of non-support

Stream Bottom Deposits: One station was evaluated along this reach. The reach had 95% fines <2m m (NS). According to the Assessment Protocol, this reach is considered not supporting its designated use.

Stream bottom deposits will beretained as a cause of non-support for this reach

Temperature: The exceedence ratio on this reach is as follows: spring 0/4, summer 2/2 and fall 0/2. The cumulative exceedence ratio on this reach is 2/8. This reach is partially supporting.

Temperature will be added to this reach as a cause of non-support

Total Organic Carbon (TOC): The exceedence ratios are as follows: spring 0/4, summer 0/2 and fall 2/2. The cumulative exceedence ratio for this reach is 2/8. This reach is partially supporting.

TOC will be added as a cause of non-support

DO: The exceedence ratio for this reach is as follows: spring 0/4, summer 1/2 and fall 0/2. The cumulative exceedence ratio for this reach is 1/8. The standard is 6.0mg/l. This reach is full support, impacts observed.

Add to the 305(b) report as FSIO.

2002 ACTION : According to SWQB staff comments and data from the REMAP study, this reach goes dry. Therefore, the only designated uses that apply are livestock watering and wildlife habitat. The above causes of non-support are not effect these two uses, so they do not apply to this reach. Also, the TOC standard was removed from the New Mexico Water Quality Standards in 2002.

2004 ACTION: None

2006 ACTION: None

2008 ACTION: None. This AU is likely not perennial. It went dry during the last intensive survey.

Rio Gallina (Rio Capulin to headwaters)
WQS: 20.6.4.119 AU: NM-2116.A_040

Previously listed for turbidity, nutrients and stream bottom deposits. Turbidity data indicate full support of the criteria with a 0/5 ratio. Total phosphorus data have a ratio of 2/5.

1998 ACTION: Turbidity is removed as a cause of non support for this reach. Total phosphorus is added as a cause of non-support. Because it is likely that the nutrients listing is related to the total phosphorus listing, nutrients will no longer be listed as a cause of non-support. The reach will continue to be listed on the 303(d) list as Not Supporting for stream bottom deposits.

2000 ACTION:

Stream Bottom Deposits: Two stations were used to evaluate this reach. The upper station, at the headwaters, had 44% fines <2mm (NS). The lower station, at Skull Ranch, had 88% fines <2mm (NS). According to the Assessment Protocol, this reach is considered not supporting its designated use.

Stream bottom deposits will be retained as a cause of non-support for this reach

2002 ACTION : None

2004 ACTION : None

2006 ACTION: None

2008 ACTION: None

Rio Nutrias (Rio Chama to the headwaters)
WQS: 20.6.4.119 AU: NM-2116.A_060

2000 ACTION:

Turbidity: The exceedence ratio for this reach is as follows: spring 1/4, summer 1/2 and fall 1/2. The cumulative exceedence ratio for this reach is 3/8. The standard is 25 NTU. This reach is not supported.

Turbidity will be added to this reach as a cause of non-support

Temperature: The exceedence ratio for this reach is as follows: spring 0/4, summer 1/2 and fall 0/2. The cumulative exceedence ratio on this reach is 1/8. The standard is 20°C. The reach is full support, impacts observed.

Add to the 305(b) report as FSIO.

2002 ACTION : None

2004 ACTION: TMDL was drafted for turbidity.

2006 ACTION: None

2008 ACTION: None

Rio Ojo Caliente (Rio Chama to Rio Vallecitos)
WQS: 20.6.4.116 AU: NM-2113_10

Previously listed for turbidity and stream bottom deposits. There are no numeric turbidity criteria for this warmwater fishery.

1998 ACTION: Turbidity will be removed as a cause of non-support. The reach will continue to be listed on the 303(d) list as Partial Support for Stream Bottom Deposits.

2000 ACTION:

Stream Bottom Deposits: One station was evaluated along this reach. The reach had 42% fines <2mm (NS) and an embeddedness of 54%(NS). According to the Assessment Protocol, this reach is considered not supporting its designated use.

STREAM BOTTOM DEPOSITS WILL BE RETAINED AS A CAUSE OF NON-SUPPORT FOR THIS REACH

Temperature: The exceedence ratio for this reach is as follows: spring 0/4, summer 1/2 and fall 0/2. The

cumulative exceedence ratio for this reach is 1/8. The standard is 31°C.

Add to the 305(b) report as FSIO.

pH: The exceedence ratio for this reach is as follows: spring 1/4, summer 0/2 and fall 0/2. The cumulative exceedence ratio for this reach is 1/8. The standard is 6.6 to 8.8. The one exceedence was 9.65. This reach is full support, impacts observed.

Add to the 305(b) report as FSIO.

Metals (Al chronic): For the spring run, the 4-day average was 362.5ug/l of dissolved aluminum. The chronic criterion is 87ug/l.

Metals (al chronic) will be added as a cause of non-support for this reach

2002 ACTION : None

2004 ACTION: Rio Ojo Caliente is not perennial at the point where the samples used to make a prior determination of impairments were collected. This finding removes Rio Ojo Caliente from the criteria of 20.6.4.116 NMAC, which apply to perennial reaches. It is the determination by NMED that applicable standards for these non-perennial portions are subject to criteria protecting the uses of livestock watering and wildlife habitat, which the Water Quality Control Commission (WQCC) applies to all waters. The metals standards for the livestock watering and wildlife habitat designated uses were not violated on this reach. The Rio Ojo Caliente data does not violate water quality standards for metals (Al) and should be removed from the 2002-2004 303(d) list. **Therefore, aluminum was removed as a cause of non support**. NMED reiterates that standards applicable to 20.6.4.116 NMAC do apply to all perennial reaches of the Rio Ojo Caliente.

The original SBD/sedimentation assessment of the 1999 data was performed incorrectly. Because the biological score was 100% of reference (the site on this creek is considered to be reference condition), the determination is full support according to the Stream Bottom Deposit Assessment Protocol even thought the percent fines were somewhat high (42%). **Therefore, SBD/sedimentation was removed as a cause of non support.**

2006 ACTION: None

2008 ACTION: None

Rio Puerco de Chama (Abiquiu Reservoir to Poleo Creek)
WQS: 20.6.4.119 AU: NM-2115_20

2000 ACTION:

Temperature: The therm ograph that was deployed at Youngsville was lost. The exceedence ratio for this reach is as follows: spring 0/4 sum mer 2/2 and fall 0/2. The cumulative exceedence ratio for this reach is 2/8. This reach is partially supported.

A new listing will be added for temperature on this reach of the Rio Puerco de Chama

Fecal Coliform: The exceedence ratio for this reach is as follows: spring 1/1, summer 1/1 and fall 0/1. The cumulative exceedence ratio for this reach is 2/3. The standard is 400/100ml.

Fecal coliform will be added as a cause of non-support on this reach of the Rio Puerco de Chama

DO: The exceedence ratio for this reach is as follows: spring 0/4, summer 0/2 and fall 1/2. The cum ulative exceedence ratio for this reach is 1/8.

Add to the 305(b) report as FSIO.

2002 ACTION : None

2004 ACTION : None

2006 ACTION: None

2008 ACTION: None

Rio Puerco de Chama (Poleo Creek to the headwaters)
WQS: 20.6.4.119 AU: NM-2116.A_020

Listed for total ammonia, total phosphorus and stream bottom deposits. Total ammonia and total phosphorus data from one station (URG116.010040) in 1991 indicate the fishery use is full support as there were no exceedences of criteria.

1998 ACTION: Total am monia and total phosphorus w ill be rem oved as a cause of non-support. The reach will continue to be listed on the 303(d) list as Partial

Support for stream bottom deposits.

2000 ACTION:

Stream Bottom Deposits: No data was collected to either verify or remove this listing.

Stream bottom deposits will be retained as a cause of non-support

Total Organic Carbon (TOC): The exceedence ratios are as follows: spring 0/1, summer 1/1 and fall 1/1. The cumulative exceedence ratio for this reach is 2/3. This reach is not supporting.

TOC will be added as a cause of non-support

2002 ACTION: In 2002, The WQCC deleted the total organic carbon criterion (20.6.4.900C of NMAC) for the high quality coldwater fishery designated use. The TOC criterion was adopted in 1973. Before then, the water quality standards contained an ambient narrative criterion for combined COD/BOD. This criterion, adopted originally in 1967, stated that "materials in solution and in suspension which exert an oxygen demand, shall not be present in concentrations sufficient to reduce the dissolved oxygen in the stream to 50 percent of the saturation concentration or to 6.0 mg/l" for trout-producing and warm-water fish producing waters. In 1973, the Commission replaced this narrative criterion with the current numeric criterion for TOC, applicable to the high quality coldwater fishery designated use. Since then, this criterion has been rendered unnecessary. Over the years, the Commission has adopted use-specific and segment-specific dissolved oxygen criteria that offer a higher degree of protection than the TOC criterion. EPA considers the TOC criterion to be an artifact from an earlier time. Indeed, only one other state—Louisiana—still maintains a TOC criterion, and that number is used only as a discharge limitation for effluents and storm water discharges. **TOC was removed as a cause of Non Support.**

2004 ACTION : None

2006 ACTION: None

2008 ACTION: None

Rio Tusas (Rio Vallecitos to the headwaters)
WQS: 20.6.4.116 AU: NM-2113_20

Listed for turbidity and stream bottom deposits. There are no numeric turbidity criteria for this

warmwater fishery.

1998 ACTION: Turbidity will be removed as a cause of non-support for this reach. The reach will continue to be listed on the 303(d) list as Partial Support for Stream Bottom Deposits.

2000 ACTION:

Stream Bottom Deposits: Two stations were used to evaluate this reach. The upper station, above Las Tablas, had 39% fines <2mm (PS). The lower station, at Madera, had a biological score of 71% of reference, and had 67% fines <2mm (NS). According to the Assessment Protocol, this reach is considered not supporting its designated use.

Stream bottom deposits willbe retained as a cause of non-support for this reach

2002 ACTION: None.

2004 ACTION: None.

2006 ACTION: None. An incorrect Assessment Unit note referring to a de-list letter for sedimentation was removed from the list.

2008 ACTION: None

Rio Vallecitos (Rio Tusas to headwaters)
WQS: 20.6.4.115 AU: NM-2112.A_00

Listed for metals (copper and zinc acute, aluminum chronic), temperature, total phosphorus, turbidity and stream bottom deposits. Data are available from six stations on this reach. For copper, zinc, and aluminum 1/1 exceedence is noted at station 6029 that is identified as being immediately below a gypsum mine drain. All other stations have a cumulative ratio of 0/10 for each parameter. Temperature at the stations is 1/3 for both downstream stations and 0/10 at the upstream stations. For total phosphorus the ratios are 1/1 and 1/3 at the two stations immediately below the mine and 0/12 for all others. Turbidity is variable throughout with ratios of 0/1, 0/1, 1/1, 1/1, 1/1, and 0/1.

1998 ACTION: Because the impacts noted were attributable to a point source these minimal data sets will be considered sufficient to cause Partially Supporting listing of aluminum, copper, and zinc. The reach will be listed as Full Support, Impacts Observed for temperature, total phosphorus, and turbidity on the 1998 305(b) list. The reach will continue to be listed on the 303(d) list as Partial Support for stream bottom deposits.

2000 ACTION:

Temperature: Two thermographs were deployed on this reach. The upper thermograph exceeded the HQCWF criterion 80/3,030 times with a maximum temperature of 22.46°C. This site exceeded the Temperature Protocol for hours of exceedence duration > 4hours, but no more than six hours in a 24-hour cycle, and for no more than three consecutive days. The lower thermograph exceeded the HQCWF criterion 413/3,031 times with a maximum temperature of 24.53°C. This site exceeded the Temperature Protocol for the one-time maximum exceedence of 23°C.

Previously listed in the 305(b) report as full support, impacts observed, temperature will be added as a cause of non-support for this reach

Metals (Al chronic): There are two stations on this reach. For the spring run, the 4-day average at the upper station was 750ug/l of dissolved aluminum while the lower station had a 4-day average of 555ug/l. The chronic criterion is 87ug/l.

Metals (Al chronic) will be retained as a cause of non-support

Metals (Al acute): In the spring run, the upper station on this reach had an exceedence ratio of 2/4 (900ug/l) of the acute criteria for dissolved Al. The summer run had an exceedence ratio of 0/4 and the fall run also had an exceedence ratio of 0/4. The acute criterion for this reach is 750ug/l. The cumulative exceedence ratio for this reach is 2/12 that makes it partially supporting.

Metals (Al acute) will be retained as a cause of non-support

Turbidity: This reach is characterized by two stations. The exceedence ratio for this reach is as follows: spring 8/8, summer 0/4 and fall 0/4. The cumulative exceedence ratio for this reach is 8/16. The standard for this reach is 10NTU. This reach is not supported.

Turbidity will be added as a cause of non-support for this reach

Stream Bottom Deposits: One station was evaluated along this reach. The reach had 10% fines <2mm (FS) and an embeddedness of 33% (FS). According to the Assessment Protocol, this reach is considered fully supporting its designated

use.

Water quality standards, as assessed using the 1998 Assessment Protocol, are currently being met for stream bottom deposits on the Rio Vallecitos.

Total Phosphorus: Listed as FSIO in the 1998 assessment, there is no longer a standard associated with total phosphorus. The Nutrient Assessment Protocol will be used to assess nutrient loading on this reach.

Total Organic Carbon (TOC): This reach is characterized by two stations. Exceedence ratios are as follows: spring 0/8, summer 0/4 and fall 2/3. The cumulative exceedence ratio for this reach is 2/15. This reach is partially supporting.

TOC will be added as a cause of non-support

2002 ACTION: In 2002, The WQCC deleted the total organic carbon criterion (20.6.4.900C of NMAC) for the high quality coldwater fishery designated use. The TOC criterion was adopted in 1973. Before then, the water quality standards contained an ambient narrative criterion for combined COD/BOD. This criterion, adopted originally in 1967, stated that "materials in solution and in suspension which exert an oxygen demand, shall not be present in concentrations sufficient to reduce the dissolved oxygen in the stream to 50 percent of the saturation concentration or to 6.0 mg/l" for trout-producing and warm-water fish producing waters. In 1973, the Commission replaced this narrative criterion with the current numeric criterion for TOC, applicable to the high quality coldwater fishery designated use. Since then, this criterion has been rendered unnecessary. Over the years, the Commission has adopted use-specific and segment-specific dissolved oxygen criteria that offer a higher degree of protection than the TOC criterion. EPA considers the TOC criterion to be an artifact from an earlier time. Indeed, only one other state—Louisiana—still maintains a TOC criterion, and that number is used only as a discharge limitation for effluents and storm water discharges. **TOC was removed as a cause of Non Support.**

2004 ACTION: TMDLs were drafted for temperature, turbidity, and aluminum.

2006 ACTION: None

2008 ACTION: None

Rito de Tierra Amarilla (HWY 64 to headwaters)
WQS: 20.6.4.119 AU: NM-2116.A_072

New listing based on 1988 data at station URG116.017020.The total phosphorus ratio at this station is 2/2.

1998 ACTION: This reach is listed as Not Supported with total phosphorus as the cause of non-support.

2000 ACTION: This river has been divided into upper and lower segments. Two sample stations were established this reach. The upper station at the bridge was 0/4 for Total phosphorus exceedences. The lower station at the Hwy 112 culvert was 0/4 for total phosphorus exceedences.

Water quality standards, as assessed using the 1998 Assessment Protocol, are currently being met for total phosphorus on the Upper Rito de Tierra Amarilla.

2002 ACTION: None. Previously named Rito de Tierra Amarilla at US Highway 84 Bridge.

2004 ACTION: None

2006 ACTION: None

2008 ACTION: None

Rito de Tierra Amarilla (Rio Chama to US Highway 64)
WQS: 20.6.4.119 AU: NM-2116.A_070

2000 ACTION:

Stream Bottom Deposits: From the point the road intercepts the stream, the stream is 100% embedded with silt runoff from land activities associated with the upper drainage area.

A new listing will be added for stream bottom deposits at the lower sampling station

Turbidity: Two sample stations were established on this reach. The upper station at HWY 64 bridge was 0/8 for turbidity exceedences. The lower station at the Hwy 112 culvert was 4/8 exceedences for turbidity.

A new listing will be added for turbidity at the lower sampling station

Temperature: One thermograph were deployed on the lower

reach The thermograph was deployed on the Lower Rito de Tierra Amarilla at the Hwy 112 bridge and exceeded the HQCWF criterion 194/864 times with a maximum temperature of 29.5°C.

A new listing will be added for temperature at the lower sampling station

2002 ACTION: None. Previous named Lower Rito de Tierra Amarilla at US Highway 112 culvert.

2004 ACTION: TMDLs were written for temperature, turbidity, and SBD/sedimentation.

2006 ACTION: None

2008 ACTION: None

Rito Encino (Rio Puerco de Chama to the headwaters)
WQS: 20.6.4.119 AU: NM-2116.A_021

Listing based on 5/5 exceedences for total phosphorus and turbidity.

1998 ACTION: This reach will be listed as Not Supported with total phosphorus and turbidity as causes.

2000 ACTION:

Total Phosphorus: Total phosphorus no longer has a standard associated with it. The Nutrient Assessment Protocol will be used to assess nutrient loading on this reach.

Turbidity: The exceedence ratio for this reach is as follows: spring 1/4, summer 0/2 and fall 0/2. The cumulative exceedence ratio for this reach is 1/8. The standard is 25 NTU. This reach is full support, impacts observed.

Add to the 305(b) report as FSIO.

Conductivity: The exceedence ratio on this reach is as follows: spring 0/4, summer 0/2 and fall 1/2. The cumulative exceedence ratio on this reach is 1/8. The standard is 500 um hos. This reach is full support, impacts observed,

Add to the 305(b) report as FSIO.

Total Organic Carbon (TOC): The exceedence ratios are as follows: spring 0/4, summer 0/2 and fall 2/2. The cumulative exceedence ratio for this reach is 2/8. This reach is partially supporting.

TOC will be added as a cause of non-support

2002 ACTION: In 2002, The WQCC deleted the total organic carbon criterion (20.6.4.900C of NMAC) for the high quality coldwater fishery designated use. The TOC criterion was adopted in 1973. Before then, the water quality standards contained an ambient narrative criterion for combined COD/BOD. This criterion, adopted originally in 1967, stated that "materials in solution and in suspension which exert an oxygen demand, shall not be present in concentrations sufficient to reduce the dissolved oxygen in the stream to 50 percent of the saturation concentration or to 6.0 mg/l" for trout-producing and warm-water fish producing waters. In 1973, the Commission replaced this narrative criterion with the current numeric criterion for TOC, applicable to the high quality coldwater fishery designated use. Since then, this criterion has been rendered unnecessary. Over the years, the Commission has adopted use-specific and segment-specific dissolved oxygen criteria that offer a higher degree of protection than the TOC criterion. EPA considers the TOC criterion to be an artifact from an earlier time. Indeed, only one other state—Louisiana—still maintains a TOC criterion, and that number is used only as a discharge limitation for effluents and storm water discharges. **TOC was removed as a cause of Non Support.**

2004 ACTION: None

2006 ACTION: None

2008 ACTION: None

Rito Redondo (Rito Resumidero to headwaters)
WQS: 20.6.4.119 AU: NM-2116.A_026

Previously listed for total organic carbon and stream bottom deposits. Ratios for total organic carbon are 2/5 and 1/5 from a 1986 survey.

1998 ACTION: The reach is listed as Partially Supporting with total organic carbon and stream bottom deposits as the cause of non-support.

2000 ACTION:

Stream Bottom Deposits: One station was evaluated along this reach. The reach had 19% fines <2mm (FS) and an embeddedness of 25%(FS). According to the Assessment Protocol, this

reach is considered fully supporting its designated use.

Water quality standards, as assessed using the 1998 Assessment Protocol, are currently being met for stream bottom deposits on Rito Redondo.

Total Organic Carbon (TOC): The exceedence ratio on this reach is as follows: spring 0/4, summer 2/2 and fall 2/2. The cumulative exceedence ratio for this reach is 4/8. The standard is 7mg/L. This reach is not supported.

TOC will be retained as a cause of non-support

2002 ACTION: In 2002, The WQCC deleted the total organic carbon criterion (20.6.4.900C of NMAC) for the high quality coldwater fishery designated use. The TOC criterion was adopted in 1973. Before then, the water quality standards contained an ambient narrative criterion for combined COD/BOD. This criterion, adopted originally in 1967, stated that "materials in solution and in suspension which exert an oxygen demand, shall not be present in concentrations sufficient to reduce the dissolved oxygen in the stream to 50 percent of the saturation concentration or to 6.0 mg/l" for trout-producing and warm-water fish producing waters. In 1973, the Commission replaced this narrative criterion with the current numeric criterion for TOC, applicable to the high quality coldwater fishery designated use. Since then, this criterion has been rendered unnecessary. Over the years, the Commission has adopted use-specific and segment-specific dissolved oxygen criteria that offer a higher degree of protection than the TOC criterion. EPA considers the TOC criterion to be an artifact from an earlier time. Indeed, only one other state—Louisiana—still maintains a TOC criterion, and that number is used only as a discharge limitation for effluents and storm water discharges. **TOC was removed as a cause of Non Support.**

2004 ACTION: None

2006 ACTION: None

2008 ACTION: None

Rito Resumidero (Rio Puerco de Chama to the headwaters)
WQS: 20.6.4.119 AU: NM-2116.A_025

Previously listed for total ammonia, total organic carbon and stream bottom deposits. Ammonia data from 1986 have ratios of 0/6 and 0/6. Total organic carbon data from the same event are 1/5 and 1/5.

1998 ACTION: Total ammonia will be removed as a cause of non-support for this reach. The reach will be listed on the 1998 305(b) list as Full Support, Impacts Observed

with total organic carbon as the cause. The reach will continue to be listed on the 303(d) list as Not Supporting for stream bottom deposits.

2000 ACTION:

Stream Bottom Deposits: One station was evaluated along this reach. The reach had 30% fines <2m m (PS). According to the Assessment Protocol, this reach is considered partially supporting its designated use do to the moderate level of fines.

Stream bottom deposits willbe retained as a cause of non-support for this reach

Total Organic Carbon (TOC): The exceedence ratios are as follows: spring 0/4, summer 0/2 and fall 2/2. The cumulative exceedence ratio for this reach is 2/8. This reach is partially supporting.

TOC will be added as a cause of non-support

2002 ACTION: In 2002, The WQCC deleted the total organic carbon criterion (20.6.4.900C of NMAC) for the high quality coldwater fishery designated use. The TOC criterion was adopted in 1973. Before then, the water quality standards contained an ambient narrative criterion for combined COD/BOD. This criterion, adopted originally in 1967, statedthat "materials in solution and in suspension which exert an oxygen demand, shall not be present in concentrations sufficient to reduce the dissolved oxygen in the streamto 50 percent of the saturation concentrationor to 6.0 mg/l" for trout-producing and warm-water fish producing waters. In 1973, the Commission replaced this narrative criterion with the current numeric criterion for TOC, applicable to the high quality coldwater fishery designated use. Since then, this criterion has been rendered unnecessary. Over the years, the Commission has adopted use-specific and segment-specific dissolved oxygen criteria that offer a higher degree of protection than theTOC criterion. EPA considers the TOC criterion to be an artifact froman earlier time. Indeed, only one other state—Louisiana—still maintains a TOC criterion, and that number is used only as a discharge limitation for effluents and storm water discharges. **TOC was removed as a cause of Non Support.**

2004 ACTION: None

2006 ACTION: None

2008 ACTION: None

MIDDLE RIO GRANDE (Elephant Butte to Cochiti Reservoir)

HUC 13020201 Rio Grande - Santa Fe

Alamo Creek (Cienega Creek to headwaters)
WQS: 20.6.4.113 AU: NM-2110_20

Previously listed for metals (unknown). There are no data, historical or otherwise, for this reach.

1998 ACTION: This reach will continue to be listed as partially supporting for metals (unknown) and will be sampled as part of the 1998-1999 for the Santa Fe River TMDL Project.

2000 ACTION:

Metals: Access was limited to the portion of the reach that flows under I-25. On several occasions, across all seasons, SWQB staff went to sample the reach and found that it was not flowing. The portion of Alamo Creek that enters into the Santa Fe River was inaccessible through private lands. Communications with SWQB staff indicate that the listing for metals may have been based on a historic smelter along Alamo Creek. The existence of this smelter is not documented anywhere. Historic data, for 1984, show no exceedences of metals. Also, there were no metals criterion in 1984, they were not promulgated until 1991. However, using today's standards and a hardness of 318, the following calculations can be made. Boron is reported as 160 micrograms or .160 milligrams. Today's standard is 5000 micrograms or 5 milligrams. Cadmium is reported as 4 micrograms/liter (total) and the standard is 3.4 micrograms/liter dissolved. Using the partitioning coeficient, the dissolved concentration is 1.4 micrograms/liter. Chromium is reported as 16 micrograms/liter (total) and the standard is 100 micrograms/liter dissolved. Using the partitioning coefficient, the dissolved concentration is 2.655 micrograms/liter. If there were flow in Alamo Creek, any contributions of metals from Alamo Creek would flow to the Santa Fe River. Downstream from the confluence of Alamo Creek with the Santa Fe River there were no exceedences for any metals in any samples during Fall 1999.

Water quality standards, as assessed using the 1998 Assessment Protocol, are currently being met for metals on Alamo Creek.

2002 ACTION: None

2004 ACTION: None

2006 ACTION: None

2008 ACTION: None

Canada del Buey (within LANL)
WQS: 20.6.4.128 AU: NM-128.A_00

2006 ACTION: Available LANL, DOE, and NMED DOE Oversite Bureau data from 2001 to 2005 were queried from the RACER database in late 2005 and assessed. The Livestock Watering criterion of 15 pCi/L Adjust Gross Alpha was exceeded 6 of 6 (exceedences included 4/4 at CDB abv SR-4; and 1/1 at CDB near TA-46 and CDB-2.0). The uranium-corrected gross alpha minus plutonium and americium exceedences were used in this determination. The acute aluminum criterion (0.75 mg/L) for Limited Aquatic Life was exceeded 5 of 13 times (exceedences included 3/7 at CDB abv SR-4 and 2/6 at CDB near TA-46). The Radium 226+228 criterion for livestock watering (30 pCi/L) was exceeded 2 of 2 times (2/2 at CDB abv SR-4). **Therefore, gross alpha, aluminum, and radium 226+228 were added as causes of non support.**

2008 ACTION: None

Canon de Valle (below LANL gage E256)
WQS: 20.6.4.128 AU: NM-128.A_01

2006 ACTION: Available LANL, DOE, and NMED DOE Oversite Bureau data from 2001 to 2005 were queried from the RACER database in late 2005 and assessed. The Livestock Watering criterion of 15 pCi/L Adjust Gross Alpha was exceeded 2 of 2 times at CDV abv Water. The uranium-corrected gross alpha minus plutonium and americium exceedences were used in this determination. The acute aluminum criterion (0.75 mg/L) for Limited Aquatic Life was exceeded 8 of 11 times (exceedences included 5/5 at CDV abv Water, 2/5 at CDV blw MDA P, and 1/1 at CDV @ Water). **Therefore, gross alpha and aluminum were added as a causes of non support.**

2008 ACTION: None

Canon de Valle (LANL bnd to headwaters)
WQS: 20.6.4.98 AU: NM-9000.A_051

2006 ACTION: Available LANL, DOE, and NMED DOE Oversite Bureau data from 2001 to 2005 were queried from the RACER database in late 2005 and assessed. The chronic dissolved aluminum criterion screening value (87 ug/L x 1.5 =

130.5 ug/L) for Aquatic Life was exceeded 6 of 8 times (exceedences included 6/7 at CDV abv SR-501). The hardness-dependent dissolved lead criterion (3.75 ug/L) for Aquatic Life was exceeded 2 of 8 times (exceedences included 2/4 at CDV abv SR-501). The total selenium criterion (5.0 ug/L) for Wildlife Habitat was exceeded 2 of 8 times (exceedences included 2/4 at CDV abv SR-501). **Therefore, aluminum, selenium, and lead were added as a causes of non support.**

2008 ACTION: None

Capulin Creek (Rio Grande to headwaters)
WQS: 20.6.4.121 AU: NM-2118.A_72

Previously listed for streambottom deposits and turbidity. No associated physical/chemical data are available.

1998 ACTION: The reach was retained on the 303(d) with stream bottom deposits and turbidity as the cause of non-support.

2000 ACTION: None

2002 ACTION: None

2004 ACTION: This assessment unit was intensively sampled as part of the URG II survey in 2001. This creek is located in Bandelier National Monument and must be hiked into to access. The creek was only visited during the fall sampling run. There were 0 of 1 turbidity exceedences. **Therefore, turbidity will be removed as a cause of non support.** A biological survey indicated biological impairment (70% of reference) using Rio Nambe as a reference site. A concurrent pebble count was not conducted, so there is insufficient data to determine stream bottom impairment according to our current protocol. **Therefore, SBD/sedimentation/siltation and benthic macroinvertebrate bioassessments will remain as a cause of non support.**

2006 ACTION: This AU was re-assessed. The 1996 Dome Fire extensively burned this watershed, leading to increased erosion of the already erosive natural geology in the area (Bandelier Tuff). There are no land uses in the watershed that are impacting the stream. Because the sedimentation impacts (and hence the impacts to the benthic macroinvertebrate community) are due to natural causes – NMAC 220.6.4.13.A(2) --, these causes of impairment were removed.

2008 ACTION: None

Cienega Creek (Santa Fe River to headwaters)
WQS: 20.6.4.113 AU: NM-2110_10

Previously listed for fecal coliform and chlorine. There is one sampling station on this reach. All data are from a 1986 survey. For chlorine, the ratio of exceedences was 1/1, full support, impacts observed. For fecal coliform, the ratio of exceedences was 1/1, full support, impacts observed. For ammonia, chronic, the ratio of exceedences was 1/5, full support, impacts observed.

1998 ACTION: This reach will sampled in 1998-1999 for the Santa Fe River TMDL Project and thus will remain on the 303(d) list partially supporting for fecal coliform, total ammonia and chlorine.

2000 ACTION:

Fecal Coliform: No exceedences of the fecal coliform criterion were observed during the Fall sampling. A hog pen in the floodplain of Cienega Creek continues to be a concern. City of Santa Fe sampling from 1995 shows high levels of fecal coliform during high flow events.

This reach will continue to be listed for fecal coliform until data becomes available to allow for de-listing.

Total Residual Chlorine: The SWQB is obtaining an amperiometric titration instrument to evaluate chlorine in the stream.

This reach will continue to be listed for total residual chlorine until data becomes available to allow for de-listing.

Total Ammonia: No exceedences of the ammonia criteria were observed during sampling.

Water quality standards, as assessed using the 1998 Assessment Protocol, are currently being met for total ammonia on Cienega Creek.

2002 ACTION: One station was sampled in August and September of 2001 to assess various listed criteria. Based on field and equipment notes, total residual chlorine data from earlier studies is suspect because it is uncertain whether the second phase of the field measurement necessary to remove interferences was completed at the time of sampling. During the 2001 study, there were 0 of 8 exceedences at the station below La Cienega. Therefore, **total residual chlorine will be removed as a cause of Non Support**.

There were 0 of 5 fecal coliform exceedences. Therefore, **fecal coliform will be removed as a cause of Non Support.**

2004 ACTION: None.

2006 ACTION: The AU was extended to include the portion from La Cienega to headwaters (previously NM-2110_15) because there was no reason for the AU split.

2008 ACTION: None

Cochiti Reservoir
WQS: 20.6.4.112 (state standards do not apply within tribal boundaries)
AU: not in database (tribal land)

1998 ACTION: **Not listed**

2000 ACTION:

Cochiti Reservoir was characterized (in a report titled, ***Cooperative Lake Water Quality Assessment Surveys for Selected New Mexico Tribal and Pueblo Lakes 1994-1995)*** as mesoeutrophic to eutrophic according to Carlson's (1977) indices and Likens' (1975) phytoplankton community composition (Tables 4.3 and 4.4). Secchi depth results for three stations during three seasons all indicated eutrophic conditions. Chlorophyll*a* results indicated oligotrophy for the majority of samples while phosphorus concentrations consistently indicated enriched eutrophic conditions. Total-nitrogen-to-phosphorus ratios indicate that nitrogen was the limiting nutrient in Cochiti Lake during all sampling visits. Phytoplankton community composition consisted primarily of the Bacillariophyceae, Chlorophyceae, Cyanophyceae and Euglenophyceae, which Likens associates with eutrophic conditions. However, a substantial portion of the phytoplankton community consisted of Cryptophyceae, typically associated with less enriched conditions (Table 4.4). The Shannon-Wiener diversity indices suggest that phytoplankton diversity was generally moderate to high during the sampling trips. Qualitative diatom analysis of sediment collected by Eckmann Dredge resulted in 36 species per 215 cells. Eight additional species were observed though not during the formal count. Shannon-Wiener diversity indices showed that diatom diversity was very high (Table 4.5).

Qualitative macroinvertebrate sampling from sediments collected by Eckmann Dredge resulted in one species of Chironomidae from the Bland Canyon station, and six genera of macroinvertebrates from the dam station. Dam station members consisted of Chironomidae and one genera of Ephemeropterian insects and also an amphipode, Naididae Oligochaete, Tubificidae worms and a large number of Pelecypoda or seed clams (Table 4.6). Macroinvertebrate diversity according to Shannon-Wiener was high.

Nutrient and hydrologic budgeting for Cochiti Reservoir during the 1995 study was not practical due to the limited number of sampling runs. Though three seasons of water quality data produce information useful in predicting nutrient enrichment and trophic conditions, greater numbers of samples are needed to adequately calculate nutrient loading as was done in the earlier study by Potter (1985). However, it is reasonable to compare the earlier results with results during this

study to determine major water quality conditions and changes that may be noteworthy.

In general, pool size appeared to be larger during the 1995 survey and phosphorus and nitrogen concentrations appeared lower. This may be a function of dilution due to the increased reservoir- volume during sampling runs. However, phytoplankton community composition and other trophic state indicators also suggest a possible decrease in nutrient concentration, at least during the sampling visits. A primary finding of the 1985 report was that nonpoint sources in the 11,960 square miles of watershed draining to Cochiti Lake are the major contributors of nutrient enrichment. It was determined that the elimination of point source discharges would have little effect on Cochiti Reservoir nutrient concentrations and consequent trophic status.

The New Mexico water quality standards do not apply to water bodies on tribal lands. The comparison of water data collected from stations located within the external borders of the Pueblo of Cochiti to the New Mexico *Standards for Interstate and Intrastate Streams* is meant for discussion purposes only. The chronic water quality standard for dissolved aluminum (87 µg/L) applicable to the cold and warm water fisheries uses was exceeded at the dam station during the spring and summer sampling visits and at the Bland Canyon station during the spring run. Values at the dam station were 200 µg/L and 100 µg/L for spring and summer runs respectively and 100 µg/L at the Bland Canyon station in the spring.

However, none of these three exceedences constituted a violation of the New Mexico chronic water quality standard for aluminum, since this standard is applicable only to the arithmetic mean of four samples collected on each of four consecutive days. One temperature reading taken from Cochiti Lake at Bland Canyon exceeded the segment-specific numeric standard of 25ºC. Seasonal exceedences for temperature are not uncommon, especially in the upper portions of the water column. A single exceedence of the numeric standard for turbidity was noted in the spring at Cochiti Lake at Bland Canyon. This portion of the upper lake is actually more riverine and serves as a settling area for sediments transported down-river. No turbidity or temperature exceedences were noted in the main body of the lake. At the station near the dam there were 19 violations of the numeric standard for dissolved oxygen applicable to the coldwater fishery use. Only one of these measurements was also below the numeric standard applicable to the warmwater fishery use. There was also a single violation of the numeric standards for total ammonia at the dam station during the summer sampling effort. The exceedences of numeric standards for aluminum, total ammonia and temperature indicate a partial impairment of the coldwater and warmwater fishery uses. The exceedence of the turbidity standard indicates a slight impairment of the primary contact use at the Bland Canyon station in the spring. All other designated uses were attained.

No metals other than aluminum were detected in the water at levels of concern. However, a State fish-consumption advisory has been issued which included selected fish species in Cochiti Lake. Mercury existing in the water column at levels well below the minimum quantification levels of the EPA-approved methods can still actively bioaccumulate through the natural food web. Resultant levels in fish can readily reach the analytical detection limits and even pose a health risk to fish consumers. Channel Catfish, Black Crappie and Walleye were all listed in this advisory and placed by size into categories with increasing recommended restrictions on consumption.

Water samples were also analyzed for the presence of pesticides, herbicides and radiochemicals to provide added baseline information for the Pueblo of Cochiti. No levels of concern were noted in the results from these analyses. Samples for the determination of sediment metals and sediment radiochemicals were collected during the summer at the stations near the dam and at Bland Canyon as baseline information. The State has not adopted numeric standards for sediments and there are no current guidelines for reference. Several radiochemicals were detected in sediment samples collected at Bland Canyon, including plutonium-239. Since the upper canyon area of the lake serves as a settling area, the highest concentrations of contaminants of concern would likely be found in the sediments there. The Surface Water Quality Bureau recommends that the Pueblo of Cochiti continue sampling for sediment metals and that EPA and DOE supply information concerning the appropriate levels of radiochemicals to the Pueblo.

Although the data for this lake is dated, it is still listed in the State's 305(b) Report as impaired for nuisance algae, pesticides and siltation and therefore will be listed on the 303(d) List until new data are collected to either verify or refute the listing.

2002 ACTION: Removed from the 303(d) list because 100% on tribal land. There are fish consumption guidelines for Cochiti Reservoir.

2004 ACTION: At high water, the reservoir may in fact go upstream outside the pueblo boundary. This state standard's applicable to the river upstream of the reservoir would apply in this non-tribal portion, when it exists (according to EPA Region 6). The reservoir is managed by the Bureau of Reclamation (BOR). Per EPA Region 6, BOR's management does not affect the fact that state standards do not apply within tribal boundaries.

2006 ACTION: In January 2006, a fish consumption advisory based on the presence of PCBs in fish tissue was put into effect. The advisory covers Abiquiu Reservoir, Cochiti Reservoir, and the Rio Grande from Rito de los Frijoles to Pojoaque Creek.

2008 ACTION: None

Galisteo Creek (Perennial reaches abv Santo Domingo bnd)
WQS: 20.6.4.121 AU: NM-2118.A_10

Previously listed for stream bottom deposits, reduction of riparian vegetation and stream bank destabilization. No associated physical/chemical data are available.

1998 ACTION: The reach was retained on the 303(d) with stream bottom deposits as the cause of non-support.

2000 ACTION: None

2002 ACTION: None. As determined by SWQB fish surveys, this assessment unit does not contain a coldwater fishery and likely did not in 1975. The system is intermittent with perennial reaches.

2004 ACTION: This assessment unit was intensively sampled as part of the URG II survey in 2001. Galisteo Ck at Galisteo (59% fines) was used as a reference to determine potential stream bottom deposit impairment. Galisteo Ck at Cerrillos had 76% fines and the benthics were non-impaired. **Therefore, stream bottom deposits will be removed as a cause of non-support.** The specific conductance criterion of 300 umhos was exceeded in 14 of 14 measurements. **Therefore, specific conductance will be added as a cause of non-support.** 5 of 14 instanteous temperature readings taken during site visits were greater than 20 degrees C. A thermograph was deployed at Galisteo Ck at Galisteo summer 2003. The temperature exceeded 23 degrees C and exceeded 20 degrees C for greater than four hours. **Therefore, temperature will be added as a cause of non-support.** This reach is misclassified as a HQCWF according to fisheries data. A UAA will be prepared instead of a TMDL, thus this AU will be catergorized under 5B.

2006 ACTION: None

2008 ACTION: None

Las Huertas Ck (perennial portion R Grande to headwaters)
WQS: 20.6.4.111 AU: NM-2108.5_00

Previously listed for stream bottom deposits, reduction of riparian vegetation and stream bank destabilization. No associated physical/chemical data are available.

1998 ACTION: The reach was retained on the 303(d) with stream bottom deposits as the cause of non-support.

2000 ACTION: None

2002 ACTION: None

2004 ACTION: None.

2006 ACTION: Name was changed to incorporate to extend the reach and cover all perennial portions.

2008 ACTION: This AU was intensively surveyed as part of the Middle Rio Grande Tributaries (2005) survey. The AU was determined to be Full Support for sedimentation/siltation, but Non Support for unidentified biological

impairment according to the 2008 Assessment Protocols because the M-SCI score was 47.07 but the measured percent fines was only 8. A Level 2 nutrient assessment indicated nutrient impairment due to total nitrogen, total phosphorus, and chlorophyll *a* values above applicable numeric thresholds. **Therefore, sedimentation/siltation was removed, and Benthic-Macroinvertebrate Bioassessments (Streams) and nutrients were added as causes of non support.** A sonde should be deployed to confirm the nutrient impairment.

Mortandad Canyon (within LANL)
WQS: 20.6.4.128 AU: NM-9000.A_42

2002 ACTION: **Gross Alpha was listed as cause of Partial Support** because the Livestock Watering criterion of 15 pCi/L was exceeded two times in time-weighted composite samples in 2001. The uranium-corrected gross alpha minus plutonium and americium exceedences were as follows (pCi/L): 27.08 and 30.93. **Selenium was listed as Full Support Impacts Observed** because the Wildlife Habitat chronic screening criterion of 7.5 mg/L (5.0 mg/L x 1.5) was exceeded one time in 2001 at 7.76 ug/L. Los Alamos National Laboratory collected all data used in these assessments during storm events in 2000 and 2001.

2004 ACTION: Gross Alpha will remain listed as Non Support. There was additional exceedences of the Livestock Watering criterion of 15 pCi/L (647.24 pCi/L) in 2002. This datum was collected by the NMED DOE Oversite Bureau. In the time-weighted composite LANL 2003 storm event data set, there were two additional exceedences at the station below Effluent Canyon (209.54 and 351.58 pCi/L). All these data were calculated as uranium-corrected gross alpha minus plutonium and americium.

Selenium will be added as Non Support because there was an additional exceedence of the Wildlife Habitat chronic screening criterion of 7.5 ug/L (5.0 ug/L x 1.5) on 9/3/2003 of 7.88 ug/L in stormwater collected by LANL.

2006 ACTION: Available LANL, DOE, and NMED DOE Oversite Bureau data from 2001 to 2005 were queried from the RACER database in late 2005 and assessed. The Livestock Watering criterion of 15 pCi/L Adjust Gross Alpha was exceeded 7 of 7 at Mortandad blw Effluent Canyon (E200). The uranium-corrected gross alpha minus plutonium and americium exceedences were used in this determination. The acute aluminum criterion (0.75 mg/L) for Limited Aquatic Life was exceeded 9 of 14 times at Mortandad blw Effluent Canyon (E200). The selenium criterion (5.0 mg/L) for Wildlife Habitat was exceeded 3 of 18 times at Mortandad blw Effluent Canyon (E200). **Therefore, selenium and gross alpha remain, and aluminum was added as a cause of non support.**

2008 ACTION: None

Pajarito Canyon (Rio Grande to headwaters)
WQS: 20.6.4.98 AU: NM-9000.A_40

NOTE: As a result of changes to NMAC 20.6.4, this Pajarito Canyon AU has been replaced with the below five separate AUs. Impaired AUs are detailed in the entries following this one. The 2002 and 2004 ACTION for the old AU definition is retained for historical reference to previous lists.

2002 ACTION: ***Gross Alpha was listed as Non Support*** *because the Livestock Watering criterion of 15 pCi/L was exceeded six times in time-weighted composite samples in 2001. The uranium-corrected gross alpha minus plutonium and americium exceedences were as follows (pCi/L): 124.72, 136.86, 133.72, 23.75, 56.86, and 313.32.* ***Selenium was listed as Non Support*** *because the Wildlife Habitat chronic screening criterion of 7.5 mg/L (5.0 mg/L x 1.5) was exceeded three times in time-weighted composite samples in 2001. Selenium exceedences were as follows (ug/L): 29.0, 8.98, 8.89, 11.1, and 16.9. Los Alamos National Laboratory collected all data used in these assessments during storm events in 2000 and 2001.*

2004 ACTION: *Gross Alpha will remain listed as Non Support. There were two additional exceedences of the Livestock Watering criterion of 15 pCi/L (370.48 and 102.93 pCi/L) in 2002. These data were collected by the NMED DOE Oversite Bureau. In the time-weighted composite LANL 2003 storm event data set, there were two additional exceedences at the station above Threemile (257.63 and 911.38 pCi/L), and one additional exceedence at the station above Starmers (1478.23 pCi/L). All these data were calculated as uranium-corrected gross alpha minus plutonium and americium.*

Selenium will also remain listed. A time-weighed composite sample collected by LANL on 5/26/2003 (7.91 ug/L) also exceeded the selenium screening level of 7.5 ug/L.

Pajarito Canyon (within LANL below Arroyo de La Delfe)
WQS: 20.6.4.128 AU: NM-128.A_08

2006 ACTION: Available LANL, DOE, and NMED DOE Oversite Bureau data from 2001 to 2005 were queried from the RACER database in late 2005 and assessed. The Livestock Watering criterion of 15 pCi/L Adjust Gross Alpha was exceeded 11 of 11 times (exceedences included 1/1 at PA-4.54, 4/4 Abv SR-4, 2/2 Abv TA-18, and 4/4 Abv 3-mile). The uranium-corrected gross alpha minus plutonium and americium exceedences were used in this determination. The

acute aluminum criterion (0.75 mg/L) for Limited Aquatic Life was exceeded 21 of 35 times (exceedences included 1/1 at 1.0 mi above 2-mile, 4/10 Abv SR-4, 6/9 Abv TA-18, 7/11 Abv 3-mile, and 3/4 above 2-mile). The selenium criterion (5.0 mg/L) for Wildlife Habitat was exceeded 5 of 42 times (exceedences included 0/1 at 1.0 mi above 2-mile, 2/15 Abv SR-4, 1/10 Abv TA-18, 1/12 Abv 3-mile, and 1/5 above 2-mile). The radium 226+228 criterion (30 pCi/L) for Livestock Watering was exceeded 2 of 15 times (exceedences included 2/3 above 3-mile). **Therefore, selenium, gross alpha, radium 226+228, and aluminum were added as a causes of non support.**

2008 ACTION: None

Rio Grande (Cochiti Reservoir to San Ildefonso bnd)
WQS: 20.6.4.114 AU: NM-2111_00

2004 ACTION: There were 3 of 6 exceedences of the turbidity criterion on 50 NTU at the USGS gage in White Rock. **Therefore, turbidity was listed as Non Support.**

2006 ACTION: In January 2006, a fish consumption advisory based on the presence of PCBs in fish tissue was put into effect. The advisory covers Abiquiu Reservoir, Cochiti Reservoir, and the Rio Grande from Rito de los Frijoles to Pojoaque Creek. Therefore, PCBs in Fish Tissue was added as a cause of non support. All numeric segment-specific turbidity criteria were removed during the 2005 triennial review, and replaced with General Criteria 20.6.4.13.J. New assessment methods to determine turbidity impairment based on this new language are not yet available. SWQB will retain historic turbidity listings in the interim.

2008 ACTION: None

Rito de los Frijoles (Rio Grande to Upper Crossing)
WQS: 20.6.4.121 AU: NM-2118.A_70

The segment was originally listed due to the levels of DDT in fish that led the National Park Service to issue a fishing closure. A 1996 consultant report stated that remediation of DDT contaminated soil and sediment was not warranted on the basis of ecological risk, potential human health impacts, or direct risk to cultural resources.

1998 ACTION: Because the fishing closure is still in effect, the stream was retained on the list.

2000 ACTION: None

2002 ACTION: None

2004 ACTION: This reach was intensively during the 2001 URGII survey. There were no exceedences of 4,4'-DDT or derivatives in water during the survey. The USGS sampled this area extensively as part of the NAWQA program in the early 90s. According to NPS staff, the fishing ban is still in effect in part due to potential DDT levels still remaining in fish, and in part due to conflicting recreational uses (this is a bosque picnic area). In 1996, a consultant prepared the report noted above which identified "hotspots." Sediments in these areas were remediated. Other potential areas of low level contamination were identified, but with no discernable pattern. The assumption is that DDT contamination was the result of both inappropriate washing of containers used to mix DDT-based pesticides into a grease pit that drained to the creek, as well as spraying of individual trees for pest management. The later source would explain the patchy nature of the contamination. As noted above, the report concluded additional remediation would not warranted based on ecological risk and other factors. Also, the NPS needed to consider the impacts of removing several acres of healthy riparian bosque in order to access and remove any remaining contaminated sediments in an area where the exact location of contamination could not be determined. The NPS plans to leave the fishing ban in effect indefinitely. **Therefore, the DDT listing remains**.
There were 5 of 16 turbidity exceedences and 2 of 5 fecal coliform exceedences. A thermograph was deployed near the visitor center. The temperature criterion of 20 degrees C was exceeded for more than four consecutive hours for more than three consecutive days. **Therefore, fecal coliform, turbidity, and temperature will be added as causes of non support.** This AU will be categorized as 5C because biological data are needed to verify impairment due to turbidity. Exceedences were marginal (11.1, 12.7, 10.7, 10.8, and 13.5 NTUs compared to the criterion of 10 NTUs).

2006 ACTION: Rito de los Frijoles (Rio Grande to headwaters) was split at Upper Crossing. Fish tissue data was collected September 2001. The values warrant a continued fishing ban, DDT listing, and a state fish consumption advisory.

Available LANL, DOE, and NMED DOE Oversite Bureau data from 2001 to 2005 were queried from the RACER database in late 2005 and assessed. The chronic screening value for aluminum (87 ug/L x 10.5 = 130.5 ug/L) for High Quality Cold Water Aquatic Life was exceeded 5 of 14 times (exceedences included 2/6 At Rio Grande and 3/7 At Bandelier). The Radium 226+228 criterion for domestic water supply (5 pCi/L) was exceeded 7 of 10 times (exceedences included 2/4 At Rio Grande, 4/5 At Bandelier, and 1/1 At Headquarters). **Therefore, aluminum and radium 226+228 were added as causes of non support.**

2008 ACTION: None

Sandia Canyon (Sigma Canyon to NPDES outfall 001)
WQS: 20.6.4.128 AU: NM-9000.A_47

2002 ACTION: **PCBs were listed as Non Support** because the because the Wildlife Habitat chronic screening criterion of 0.021 ug/L (0.014 ug/L x 1.5) was exceeded on, 7/14/2002, and 8/7/2003 with values of 0.11* and 0.078* ug/L on 7/4/2002, 0.11 ug/L on 7/14/2002, and 0.23 and 0.14 ug/L on 8/7/2003. These data were collected by LANL, analyzed using the 40 CFR Part 136 AROCLOR method, and compiled by the DOE Oversite Bureau.

> NOTES: * = These data were J-flagged. According to the Assessment Protocol (section 2.1.1), "… *Concentrations detected below minimum quantification limit (ML) but above the method detection limit (MDL) are typically flagged with a "J" qualifier that indicates the reported concentration is estimated. The concentration is reported as estimated because the concentration being detected is below the lowest concentration on the calibration curve. There is certainty as to the identification of the chemical but uncertainty as to the reported concentration. These values may be used in an assessment.*

2004 ACTION: None.

2006 ACTION: Originally listed under AU **Sandia Canyon (San Ildefonso Pueblo bnd to headwaters)**, AU was split due to 2005 WQS triennial review. Available LANL, DOE, and NMED DOE Oversite Bureau data from 2001 to 2005 were queried from the RACER database in late 2005 and assessed. The Livestock Watering criterion of 15 pCi/L Adjust Gross Alpha was exceeded 2 of 4 (exceedences included 2/2 at station Below the Wetlands). The uranium-corrected gross alpha minus plutonium and americium exceedences were used in this determination. The chronic aluminum screening value (87 ug/L x 1.5 = 130.5 ug/L) for Coldwater Aquatic Life was exceeded 13 of 20 times at station Below the Wetlands. The total mercury criterion (0.77 ug/L) for Wildlife Habitat was exceeded 7 of 20 times at station Below the Wetlands. The total PCB criterion of 0.64 ng/L for Human Health associated with Aquatic Life Use was exceeded 10 of 21 times at station Below the Wetlands. **Therefore, PCBs in Water remains, and aluminum, mercury, and gross alpha were added as causes of non support.**

2008 ACTION: None

Sandia Canyon (within LANL below Sigma Canyon)
WQS: 20.6.4.128 AU: NM-128.A_11

2006 ACTION: Available LANL, DOE, and NMED DOE Oversite Bureau data from 2001 to 2005 were queried from the RACER database in late 2005 and assessed. The Livestock Watering criterion of 15 pCi/L Adjust Gross Alpha was exceeded 3 of 3 at station Above the Firing Range. The uranium-corrected gross alpha minus plutonium and americium exceedences were used in this determination. The acute aluminum criterion (750 ug/L) for Limited Aquatic Life was exceeded 2 of 9 times at station Above the Firing Range. The total mercury criterion (0.77 ug/L) for Wildlife Habitat was exceeded 2 of 10 times at station Above the Firing Range. The total PCB criterion of 0.64 ng/L for Human Health associated with Limited Aquatic Life Use as well as the criterion of 0.014 ug/L was exceeded 4 of 8 times (exceedences included 2/2 at SA-6.0 and 2/6 at Above the Firing Range). **Therefore, PCBs in Water, aluminum, mercury, and gross alpha were added as causes of non support.**

2008 ACTION: None

San Pedro Creek (San Felipe bnd to headwaters)
WQS: 20.6.4.111 AU: NM-9000.A_004

2008 ACTION: This AU was intensively surveyed as part of the Middle Rio Grande Tributaries (2005) survey. The AU was determined to be Full Support for sedimentation/siltation, but Non Support for unidentified biological impairment according to the 2008 Assessment Protocols because the M-SCI score was 47.07 but the measured percent fines was only 8. **Therefore, Benthic-Macroinvertebrate Bioassessments (Streams) was added as a cause of non support.**

Santa Fe River (Cochiti Pueblo bnd to the Santa Fe WWTP)
WQS: 20.6.4.113 AU: NM-2110_00

Listed for metals (Ag, Al, Fe and Cd), turbidity, chlorine, pH, total ammonia, radioactivity, and stream bottom deposits,. Surveys were conducted in 1994, 1995, and 1996. Most data are from the 1995 survey. For Ag, the ratio for chronic screening for grab samples at 6 monitored sites is 0/19. For Al, the ratio for chronic screens at 6 sites is 0/20. For Cd, the ratio for chronic screens at 6 sites is 0/25. Fe is listed but there is no standard for iron. This parameter was evaluated against the EPA criteria of 1.0 mg/l. There were no recent exceedences of this criteria. Data within the last 5 years has a cumulative ratio of 0/58. This data includes a USGS site which is monitored quarterly. For the 3 components that make up radioactivity only one had values greater than the criteria. The ratios for gross alpha at two sites were 1/4 and 1/3. 0/13 samples at the other sites were greater than the criteria. The listing will be modified to show an entry for gross alpha not radioactivity. For

turbidity, in the 0-5 year data ratios were 0/11,0/11, 0/18, 0/ 9, and 0/10. For total ammonia, there were 5 stations with 0-5 year data. The aggregated ratio of these stations is 5/55. 2 stations had ratios that are considered partially supported. For pH, 2 stations had ratios in the Partial to Not Supporting range. Although the chlorine data available are old, there are not more recent data to support a change in the listing. Biological assessments were conducted at four stations on this reach in 1995. Three of the four assessments were NS (36%, 36%, 36%). One station near the confluence with the Rio Grande was Full Support, Impacts Observed. The report cites changes due to hydromodification as the most probable cause of non-support.

1998 ACTION: Silver, aluminum, cadmium, iron, and turbidity have been removed as causes of non-support for this reach. The reach continues to be included on the 1998 303(d) list with total ammonia, pH, gross alpha, chlorine, and streambottom deposits as causes of non-support.

For fecal coliform, the ratio of exceedences was 1/1, full support, impacts observed. For ammonia, chronic, the ratio of exceedences was 1/5, full support, impacts observed. This reach will sampled in 1998-1999 for the Santa Fe River TMDL Project and thus will remain on the 303(d) list **partially supporting for fecal coliform, total ammonia and chlorine**.

2000 ACTION:

Turbidity: There were no exceedences of the criterion during the 1998-1999 sampling.

Water quality standards, as assessed using the 1998 Assessment Protocol, are currently being met for turbidity on the Santa Fe River.

Metals: There were no exceedences of acute levels or of the 4-day chronic criterion for metals during the 1998-1999 sampling.

Water quality standards, as assessed using the 1998 Assessment Protocol, are currently being met for metals on the Santa Fe River.

Total Residual Chlorine: EPA has developed a TMDL **for total residual chlorine**

Total Ammonia: No acute or chronic exceedences of the ammonia criteria were observed during sampling.

Water quality standards, as assessed using the 1998 Assessment Protocol, are currently being met for total ammonia on the Santa Fe River.

Gross Alpha: No exceedences of the criterion were observed during the 1998-1999 sampling. Remediation has been completed at the La Bajada Mine Site.

Water quality standards, as assessed using the 1998 Assessment Protocol, are currently being met for gross alpha on the Santa Fe River.

Stream Bottom Deposits: This river is characterized by two stations. The upper station, below the WWTP, is a Rosgen F4 stream type with a % fines <2mm of 7% indicating full support. The lower station, at the river preserve, is a Rosgen C4 stream type with a % fines <2mm of 27% indicating a moderate level of impairment.

A TMDL was developed for the Santa Fe River to address stream bottom deposits.

pH: A temporal and spatial pattern has been observed for pH in the stream. pH increases from 7.5 to as high as 9.0 SU approximately 2.5 miles downstream of the WWTP.

Algal growth from nutrient enrichment is the most probable cause of the pH fluctuations. A TMDL will be developed by EPA for pH.

The TMDL document for pH was developed by EPA.

Fecal Coliform: Fecal coliform was removed from the 1998-2000 303(d) list but remained listed in the 1998 305(b) Report as full support, impacts observed (FSIO). No exceedences (0/4) of the fecal coliform criteria were observed during the 1998-1999 Fall sampling.

Add to the 305(b) report as FSIO.

DO: Problems with DO fluctuations were documented during sampling over several seasons in 1999.

The TMDL document for DO was developed by EPA.

2002 ACTION: The plant nutrient assessment was performed. This reach was determined not to be impaired by plant nutrients. A de-list letter was prepared.

Two stations were sampled in August and September of 2001 to assess various listed criteria. Based on field and equipment notes, total residual chlorine data from earlier studies is suspect because it is uncertain whether the second phase of the field measurement necessary to remove interferences was completed at the time of sampling. During the 2001 study, there were 0 of 8 exceedences at the USGS gage station and 0 of 8 exceedences as the

station immediately below the WWTP for total residual chlorine. Therefore, **total residual chlorine will be removed as a cause of Non Support**.

There were 2 of 16 (12.5%) pH measurements that were above the 6.6 to 9.0 criteria range. Therefore, **pH will be changed from Partial Support to Full Support Impacts Observed** based on the most recent assessment protocols.

There were 0 of 16 DO values below the criterion of 5.0 mg/L. Therefore, **DO will be removed as a cause of Non Support.**

There were 0 of 5 fecal coliform exceedences. Therefore, **fecal coliform will be elevated from Full Support Impacts Observed to Full Support.**

2004 ACTION: pH and DO were added back as impairments because these listings were based on sonde data (they should not have been removed based on grab sample data when sonde data were available).

2006 ACTION: None

2008 ACTION: This AU was intensively surveyed as part of the Middle Rio Grande Tributaries (2005) survey. The sedimentation/siltation impairment was confirmed according to the 2008 Assessment Protocols because the M-SCI score was 32 with a percent fines increase over reference >28%. A Level 2 nutrient assessment indicated nutrient impairment due to total nitrogen, total phosphorus, and chlorophyll *a* values above applicable numeric thresholds, as well as low DO. Sondes deployed at both the station immediately below the Santa Fe WWTP (July 2005) and at the USGS gage above Cochiti (October 2007) indicated full support for pH (minimum to maximum recorded pH values were 7.37 to 8.68 and 7.25 to 8.78, respectively). **Therefore, pH was removed, sedimentation/siltation and DO remain, and nutrients was added as a cause of non support.** Identified nutrient impairment may be the cause of low DO. Santa Fe River below the WWTP is effluent-dominated.

Santa Fe River (Santa Fe WWTP to Nichols Reservoir)
WQS: 20.6.4.98 AU: NM-9000.A_061

2006 ACTION: There were 4 of 5 exceedences of the Wildlife Habitat criterion, and 5 of 5 exceedences of the Human Health criterion for PCBs based on data SWQB collected in 2005 and data NMED/LANL collected in 2002-2003. **Therefore, PCBs in Water Column was added as a cause of non support.**

2008 ACTION: This AU was surveyed as part of the Middle Rio Grande Tributaries (2005) survey when water was available to sample (two municipal drinking water reservoirs are above this AU). There were 3 of 3 exceedences of the chronic

aluminum criterion, based on non stormwater data. **Therefore, aluminum was added as a cause of non support.**

Water Canyon (Rio Grande to headwaters)
WQS: 20.6.4.98 AU: NM-9000.A_44

NOTE: As a result of changes to NMAC 20.6.4, this Water Canyon AU has been replaced with the below four separate AUs. Impaired AUs are detailed in the entries following this one. The 2002 and 2004 ACTION for the old AU definition is retained for historical reference to previous lists.

2002 ACTION: **Gross Alpha was listed as Non Support** because the Livestock Watering criterion of 15 pCi/L was exceeded 12 times in time-weighted composite samples in 2001. The uranium-corrected gross alpha minus plutonium and americium exceedences were as follows (pCi/L): 464.99, 365.49, 474.59, 94.69, 49.86, 1587.38, 210.34, 847.15, 21.16, 418.19, 223.70, and 442.07. **Selenium was listed as Non Support** because the Wildlife Habitat chronic screening criterion of 7.5 mg/L (5.0 mg/L x 1.5) was exceeded 17 times in in time-weighted composite samples 2000 and 2001. Selenium exceedences were as follows (ug/L): 17.3, 23.3, 7.77, 11.1, 17.6, 9.55, 8.52, 8.43, 27.1, 11.5, 14.7, 9.1, 16, 28.8, 10.6, 14.9, and 24.4. Los Alamos National Laboratory collected all data used in these assessments during storm events in 2000 and 2001

2004 ACTION: Gross Alpha will remain listed as NonSupport. There were seven additional exceedences of the Livestock Watering criterion of 15 pCi/L (370.48 and 102.93 pCi/L) in the time-weighted composite LANL 2003 storm event data set. There were five additional exceedences at the station above Threemile (26.46, 69.24, 310.86, 253.62, and 365.09 pCi/L), one additional exceedence at the station Water at SR-4 (611.58 pCi/L), and one additional exceedence at the station Canyon de Valle trib at Burn Grounds (204.19 pCi/L). All these data were calculated as uranium-corrected gross alpha minus plutonium and americium.

2006 ACTION: None

2008 ACTION: This AU is likely ephemeral, but EPA has not yet approved 20.6.4.97 and UAAs have not been prepared at the time of this writing (6/4/08). Therefore, this AU will be noted as WQS Reference 20.6.4.98 for now and UAAs are planned.

Water Canyon (LANL bnd to headwaters)
WQS: 20.6.4.98 AU: 9000.A_052

2006 ACTION: Available LANL, DOE, and NMED DOE Oversite Bureau data from 2001 to 2005 were queried from the RACER database in late 2005 and assessed. The chronic screening value for aluminum (87 ug/L x 10.5 = 130.5 ug/L) for Aquatic Life was exceeded 9 of 10 times Above SR-501. **Therefore, aluminum was added as a cause of non support.**

2008 ACTION: None

Water Canyon (within LANL below Area-A Canyon)
WQS: 20.6.4.128 AU: 128.A_13

2006 ACTION: Available LANL, DOE, and NMED DOE Oversite Bureau data from 2001 to 2005 were queried from the RACER database in late 2005 and assessed. The Livestock Watering criterion of 15 pCi/L Adjust Gross Alpha was exceeded 10 of 12 times (exceedences included 4/4 At SR-4, 4/4 Below MDA AB, and 2/4 Below SR-4). The uranium-corrected gross alpha minus plutonium and americium exceedences were used in this determination. The acute aluminum criterion (0.75 mg/L) for Limited Aquatic Life was exceeded 16 of 33 times (exceedences included 2/3 Above S Site Canyon, 6/8 At SR-4, 3/10 Below MDA AB, and 5/10 Below SR-4). The selenium criterion (5.0 mg/L) for Wildlife Habitat was exceeded 13 of 42 times (exceedences included 5/10 At SR-4, 5/13 Below MDA AB, and 3/13 Below SR-4). The hardness-dependent acute cadmium criterion of 2.0 ug/L for Limited Aquatic Life Use was exceeded 2 of 33 times (exceedences included 2/8 At SR-4). The hardness-dependent acute copper criterion of 13.4 ug/L for Limited Aquatic Life Use was exceeded 2 of 33 times (exceedences included 2/8 At SR-4). The hardness-dependent acute zinc criterion of 117 ug/L for Limited Aquatic Life Use was exceeded 2 of 33 times (exceedences included 2/8 At SR-4). The human health criterion of 9.0 ug/L arsenic related to Limited Aquatic Life Use was exceeded 2 of 33 times (exceedences included 2/8 At SR-4). The vanadium criterion of 100 ug/L related to Livestock Watering Uses was exceeded 2 of 33 times (exceedences included 2/8 At SR-4). **Therefore, selenium, gross alpha, arsenic, cadmium, copper, vanadium, zinc, and aluminum were added as a causes of non support.**

2008 ACTION: None

HUC 13020202 Jemez

American Creek (Rito de las Palomas to headwaters)
WQS: 20.6.4.98 AU: NM-2106.A_44

Previously listed for temperature, stream bottom deposits and turbidity. No associated physical/chemical data are available.

1998 ACTION: The reach was retained on the 303(d) with temperature, stream bottom deposits and turbidity as the cause of non-support.

2000 ACTION: None

2002 ACTION: This stream was removed from the 303(d) list because it is not perennial and, therefore, does not fall under WQS 20.6.4.108. **During seven sampling visits in 1998, there was no flow in the channel. Therefore, no water quality data could be collected**. Designated uses that apply to this ephemeral water are livestock watering and wildlife habitat. Water quality standards for stream bottom deposits, turbidity, and temperature do not apply. A de-list letter was prepared.

2004 ACTION: None

2006 ACTION: The WQS was changed due to the 2005 triennial review.

2008 ACTION: This AU was originally part of the Jemez (2005) intensive survey. The station was removed as a full intensive rotation during initial planning meetings because of logistical concerns. It was re-added at the request of the USFS because of their concerns about potential nutrient impairment. Limited sampling (n=2) for nutrients was performed by USFS Jemez SO staff. There was insufficient data to determine whether or not there is any nutrient impairment.

Calaveras Creek (Rio Cebolla to headwaters)
WQS: 20.6.4.108 AU: NM-2106.A_53

2000 ACTION:

Stream Bottom Deposits: From the point that the road intercepts the stream, the stream is 100% embedded with silt runoff from the road and associated drainage ditches.

Stream bottom deposits will be listed as a cause of non-support for Calaveras Creek

2002 ACTION: None

2004 ACTION: None

2006 ACTION: None

2008 ACTION: This AU was intensively surveyed during the Jem ez (2005) watershed survey. The AU was determined to be full support for sedimentation/siltation according to the 2008 Assessment Protocols because the M-SCI score was 71. **Therefore, sedimentation/siltation was removed as a cause of non support.**

Clear Creek (Rio de las Vacas to San Gregorio Lake)
WQS: 20.6.4.108 AU: NM-2106.A_54

2000 ACTION:

Total Organic Carbon (TOC): One sampling station was established on this reach. Monitoring at the station documented 11/11 exceedences for TOC.

TOC will be listed as a cause of non-support for Clear Creek

Turbidity: One sampling station was established on this reach. Monitoring at the station documented 3/7 exceedences for turbidity.

Turbidity will be listed as a cause of non-support for Clear Creek

2002 ACTION: None. TMDLs for turbidity and TOC were developed.

In 2002, The WQCC deleted the total organic carbon criterion (20.6.4.900C of NMAC) for the high quality coldwater fishery designated use. The TOC criterion was adopted in 1973. Before then, the water quality standards contained an am bient narrative criterion for com bined COD/BOD. This criterion, adopted originally in 1967, stated that "materials in solution and in suspension which exert an oxygen dem and, shall not be present in concentrations sufficient to reduce the dissolved oxygen in the stream to 50 percent of the saturation concentration or to 6.0 mg/l" for trout-producing and warm-water fish producing waters. In 1973, the Commission replaced this narrative criterion with the current numeric criterion for TOC, applicable to the high quality coldwater fishery designated use. Since then, this criterion has been rendered unnecessary. Over the years, the Commission has adopted

use-specific and segment-specific dissolved oxygen criteria that offer a higher degree of protection than the TOC criterion. EPA considers the TOC criterion to be an artifact from an earlier time. Indeed, only one other state—Louisiana—still maintains a TOC criterion, and that number is used only as a discharge limitation for effluents and storm water discharges. **TOC was removed as a cause of Non Support.**

2004 ACTION: None

2006 ACTION: None

2008 ACTION: This AU was intensively surveyed during the Jemez (2005) watershed survey. The AU was determined to be non support for unidentified biological impairment according to the 2008 Assessment Protocols because the M-SCI score was 56 but the measured percent fines was only 17. All numeric segment-specific turbidity criteria were removed during the 2005 triennial review, and replaced with General Criteria 20.6.4.13.J. New assessment methods to determine turbidity impairment based on this new language are not yet available. SWQB will retain historic turbidity listings in the interim **Therefore, turbidity remains, and Benthic-Macroinvertebrate Bioassessments (Streams) was added as a cause of non support.**

East Fork Jemez (San Antonio Creek to VCNP bnd)
WQS: 20.6.4.108 AU: NM-2106.A_13

Previously named "Jemez River (East Fork)," this AU was split after the 2001 Valle Caldera survey. The entire AU was originally listed for nutrients, chlorine, and stream bottom deposits. There are two stations on this reach that were last sampled in 1987. For nutrients, no exceedences were found, thus indicating full support. For chlorine, station MRG106.011001 had an exceedence ratio of 1/1, full support, impacts observed.

1998 ACTION: Nutrients will be dropped from the list while chlorine will be added to the 305(b) report as full support, impacts observed. Stream bottom deposits were retained as causes of non-support.

2000 ACTION:

Stream Bottom Deposits: The East Fork is characterized by a station located above the confluence with San Antonio Creek. Classified as a C4 stream, this station has a % fines <2mm of fewer than 2%. This segment is assessed as having excellent stream bottom substrate.

Water quality standards, as assessed using the 1998 Assessment Protocol, are

currently being met for stream bottom deposits on the East Fork of the Jemez River.

Turbidity: The exceedence ratio on this reach for turbidity was 2/7.

A new listing will be added for turbidity

Total Organic Carbon (TOC): There is an abbreviated dataset for this parameter that shows both stations with a 1/3 exceedence ratio of the criterion. Additional analyses will be collected.

Add to the 305(b) report as FSIO.

2002 ACTION: None

2004 ACTION: A TMDL was prepared for turbidity as part of the 2003 Jemez bundle TMDLs.

2006 ACTION: Name change to VCNP boundary. All numeric segment-specific turbidity criteria were removed during the 2005 triennial review, and replaced with General Criteria 20.6.4.13.J. New assessment methods to determine turbidity impairment based on this new language are not yet available. SWQB will retain historic turbidity listings in the interim.

2008 ACTION: This AU was intensively surveyed during the Jemez (2005) watershed survey. The aluminum acute criterion was exceeded 3 of 9 times, and the chronic criterion was exceeded 9 of 9 times. The arsenic criterion was excceded 6 of 9 times. The temperature criterion was exceeded for >4 consecutive hours for >3 consecutive days. All numeric segment-specific turbidity criteria were removed during the 2005 triennial review, and replaced with General Criteria 20.6.4.13.J. New assessment methods to determine turbidity impairment based on this new language are not yet available. SWQB will retain historic turbidity listings in the interim. **Therefore, turbidity remains, and aluminum, arsenic, and temperature were added as causes of non support.**

East Fork Jemez (VCNP to headwaters)
WQS: 20.6.4.108 AU: NM-2106.A_10

Previously named "Jemez River (East Fork)," this AU was split after the 2001 Valle Caldera survey.

2004 ACTION: This reach was intensively surveyed during the Valle Caldera 2001-2002 special study. Sonde and grab data indicate pH impairment. There were 0 of 17 exceedences of the dissolved oxygen criterion of 6.0 mg/L using grab

data. Percentages applied to sonde data indicate impairment, while the draft large DO dataset protocol indicates no impairment. Thermograph data from the USGS indicated 10 exceedences of the 23 degrees C. SWQB thermograph data indicated a max temperature of 28.3 degress C. Sonde data indicated 15% exceedence rate of turbidity. There were 17 of 19 exceedences of the chronic aluminum criterion of 0.087 mg/L. **Therefore, turbidity will remain and temperature, dissolved oxygen, pH, and aluminum will be added as causes of non support.** This reach will be listed as Category 5B because aluminum is naturally high in this watershed, and the sonde and grab DO data gave conflicting results. Also, these may indicate nutrient impairment. A TMDL was prepared for turbidity as part of the 2003 Jemez bundle TMDLs.

2006 ACTION: A TMDL was prepared for temperature. All numeric segment-specific turbidity criteria were removed during the 2005 triennial review, and replaced with General Criteria 20.6.4.13.J. New assessment methods to determine turbidity impairment based on this new language are not yet available. SWQB will retain historic turbidity listings in the interim.

2008 ACTION: None

Fenton Lake
WQS: 20.6.4.108 AU: NM-2106.B_00

1998 ACTION: Not listed

2000 ACTION:

Fenton Lake was characterized (in a report titled, ***New Mexico Clean Lakes Program, Classification Phase I, Final Report, September 1982)*** as having dissolved phosphorous and kjeldahl-N concentrations that were high during the summer relative to other lakes. Moderate temperature and dissolved oxygen stratification was observed. The algal population was dominated by blue-green algae. Chlorophyll concentrations declined dramatically by the time of fall sampling, as turnover was nearly complete. Phosphorus was the sole limiting nutrient for phytoplankton during all seasons.

Although the data for this reservoir is dated, it is still listed in the State's 305(b) Report as impaired for total phosphorus, nuisance algae and siltation and therefore will be listed on the 303(d) List until new data are collected to either verify or refute the listing.

2002 ACTION: There is no longer a standard for total phosphorus for high quality coldwater fishery. Nusiance algae was replaced with Plant nutrients and Siltation was replaced with Bottom deposits to be consistent with the language in our narrative standards.

2004 ACTION: None

2006 ACTION: This reservoir was sampled in one time during summer 2005. Although there were no exceedences of any numeric criteria, one data point is not enough to determine designated use attainment. Therefore, this assessment unit is labeled "not assessed." Nutrient and sediment assessment protocols for lakes and reservoirs to determine impairment of NM's narrative water quality standards for these two parameters are under development. Therefore, there were no changes may to the listings as a result of the survey.

2008 ACTION: The sedimentation/siltation listing was removed because there were no data or applicable assessment protocols available to make this determination.

Jaramillo Creek (East Fork Jemez to headwaters)
WQS: 20.6.4.108 AU: NM-2106.A_12

2004 ACTION: This reach was intensively surveyed during the Valle Caldera 2001-2002 special study. Thermograph data indicated a max temperature of 26.09 degress C. Sonde data (20%) and grab dat (23%) indicated turbidity impairment. There were 17 of 17 exceedences of the chronic aluminum criterion and 3 of 17 exceedences of the acute aluminum criterion. **Therefore, turbidity, temperature, and aluminum will be added as causes of non support.** This reach will be listed as Category 5B because aluminum is naturally high in this watershed.

2006 ACTION: TMDLs were written for temperature and turbidity. All numeric segment-specific turbidity criteria were removed during the 2005 triennial review, and replaced with General Criteria 20.6.4.13.J. New assessment methods to determine turbidity impairment based on this new language are not yet available. SWQB will retain historic turbidity listings in the interim.

2008 ACTION: None

Jemez River (Jemez Pueblo bnd to Rio Guadalupe)
WQS: 20.6.4.107 AU: NM-2105_71

Previously listed for metals (As) and fecal coliform In the aggregated 10 year data set for arsenic at three stations, the ratio of exceedences to samples is 0/20. Additional data from the recently completed USGS study of the middle Rio Grande also support this change to full support. For fecal coliform, the data set is limited. Ratios for three stations are 1/2, 0/3, and 0/2. Station MRG105.006050 will be listed as Full Support, Impacts Observed while stations MRG105.006010

and MRG105.007015 will be changed to full support.

1998 ACTION: Arsenic was removed as a cause of non-support. Per the assessment protocol, the reach was removed from the 303(d) list and will be listed on the 305(b) list as Full Support, Impacts Observed for fecal coliform.

2002 ACTION: None. Revised name to remove portion under tribal jurisdiction.

2004 ACTION: None

2006 ACTION: None

2008 ACTION: This AU was intensively surveyed during the Jemez (2005) watershed survey. The aluminum chronic criterion was exceeded 5 of 22 times. The arsenic criterion for human health (9.0 ug/L) was exceeded 21 of 23 times. The boron criterion for irrigation (750 ug/L) was exceeded 6 of 24 times. A Level 2 nutrient assessment indicated nutrient impairment due to total nitrogen, and total phosphorus values above applicable numeric thresholds, as well as low dissolved oxygen. The AU was determined to be non support for unidentified biological impairment according to the 2008 Assessment Protocols because the M-SCI score was 43 but the measured percent fines was only 13. **Therefore, aluminum, arsenic, boron, nutrients, and Benthic-Macroinvertebrate Bioassessments (Streams) were added as causes of non support.** Arsenic occurs naturally in ground water in the Jemez watershed. A sonde should be deployed to confirm nutrient impairment (DO data was compromised during survey).

Jemez River (Rio Guadalupe to Soda Dam near Jemez Springs)
WQS: 20.6.4.107 AU: NM-2105.5_10

Previously listed under "Jemez River from Rio Guadalupe to the confluence of the East Fork of the Jemez River and San Antonio Creek" and listed for turbidity, conductivity, plant nutrients, stream bottom deposits and chlorine. Data from four stations were used in the turbidity assessment. Station MRG105.009035 (3/6) was determined to be partially supported. All other stations were full support with 0/12 exceedences. Data for conductivity were available from only two stations. Station MRG106.009505 was partially supported with a 2/5 ratio. Station MRG106.009510 was 0/11 or full support for conductivity. Per the assessment protocol, two stations, MRG105.009035 and MRG105.009510, were 1/1 or Full Support, Impacts Observed for chlorine.

1998 ACTION: Chlorine was removed a cause of non-support. Turbidity, conductivity, plant nutrients and stream bottom deposits were retained as causes of non-support.

2000 ACTION:

Turbidity: Four sampling stations on thisreach have an exceedence ratio of 3/7, 6/10, /2/7 and 3/4 respectively.

A TMDL was developed for the Jemez River to address turbidity.

Plant Nutrients: Field assessments were conducted using the draft Nutrient Assessment Protocol and draft Source Documentation Protocol. Since there is no numeric standard for plant nutrients in New Mexico, the narrative standard for plant nutrients is evaluated using this protocol. No plant nutrient impairments were found along this reach. There were no exceedences of nutrient related criteria such as total phosphorus, nitrogen, pH and dissolved oxygen during any sampling season. As well, there were no observations of nutrient over-enrichment noted on field sheets during any sampling season. In addition, there was a biological assessment conducted on Jemez River in November of 1998. The Hilsenhoff Biotic Index (HBI)that is used as an indicator of nutrient enrichment showed a calculated value of 4.84. This number falls in the HBI range of 4.51-5.50 meaning water quality is good with some organic pollution present.

Water quality standards, as assessed using the 1998 Assessment Protocol and 1999 draft Nutrient Assessment Protocol are currently being met for plant nutrients on the Jemez River.

Stream Bottom Deposits: There is one station on this reach that was used to characterize the Jemez River. This reach of the Jemez River is a Rosgen C3 stream type with a % fines <2mm of 26% indicating a moderate level of impairment.

A TMDL was developed for the JemezRiver to address stream bottom deposits.

Conductivity: Four stations on this segment have exceedence ratios of 0/7, 0/10, 0/7 and 0/4 for conductivity.

Water quality standards, as assessed using the 1998 Assessment Protocol, are currently being met for conductivity on the Jemez River.

Metals (Al Acute): One metals station on this reach provided an exceedence of the aluminum criterion with a 4-day average of 947ug/l. Of these four samples, two exceeded the acute criterion for aluminum.

A new listing will be added for metals (Al acute)

2002 ACTION: None. **A TMDL was prepared for acute aluminum.** The original assessment unit "Jemez River from Rio Guadalupe to the confluence of the East Fork of the Jemez River and San Antonio Creek" was split into two because they fall under two different water quality standard segments.

2004 ACTION: None

2006 ACTION: Name was changed during 2005 Jemez survey due to change in WQS 20.6.4.107.

2008 ACTION: This AU was intensively surveyed during the Jemez (2005) watershed survey. The aluminum chronic criterion was exceeded 5 of 9 times. The arsenic criterion for human health (9.0 ug/L) was exceeded 8 of 9 times, and the criterion for irrigation (100 ug/L) was exceeded 2 of 9 times. The boron criterion for irrigation (750 ug/L) was exceeded 4 of 9 times. A Level 2 nutrient assessment indicated nutrient impairment due to total nitrogen, total phosphorus, and chlorophyll *a* values above applicable numeric thresholds, as well as low dissolved oxygen. The AU was determined to be full support for sedimentation/siltation and non support for unidentified biological impairment according to the 2008 Assessment Protocols because the M-SCI score was 37 but the measured percent fines was only 17. The temperature criterion was exceeded for >6 consecutive hours for >3 consecutive days, with a maximum recorded temperature of 29.1 degrees C. All numeric segment-specific turbidity criteria were removed during the 2005 triennial review, and replaced with General Criteria 20.6.4.13.J. New assessment methods to determine turbidity impairment based on this new language are not yet available. SWQB will retain historic turbidity listings in the interim **Therefore, turbidity and aluminum remain, sedimentation/siltation was removed, and arsenic, boron, nutrients, temperature, and Benthic-Macroinvertebrate Bioassessments (Streams) were added as causes of non support.** Arsenic occurs naturally in ground water in the Jemez watershed.

Jemez River (Soda Dam nr Jemez Springs to East Fork)
WQS: 20.6.4.108 AU: NM-2106.A_00

Previously listed under "Jemez River from Rio Guadalupe to the confluence of the East Fork of the Jemez River and San Antonio Creek" and listed for turbidity, conductivity, plant nutrients, stream bottom deposits and chlorine. Data from four stations were used in the turbidity assessment. Station MRG105.009035 (3/6) was determined to be partially supported. All other stations were full support with 0/12 exceedences. Data for conductivity were available from only two stations. Station MRG106.009505 was partially supported with a 2/5 ratio. Station MRG106.009510 was 0/11 or full support for conductivity. Per the assessment protocol, two stations, MRG105.009035

and MRG105.009510, were 1/1 or Full Support, Impacts Observed for chlorine.

1998 ACTION: Chlorine was removed a cause of non-support. Turbidity, conductivity, plant nutrients and stream bottom deposits were retained as causes of non-support.

2000 ACTION:

Turbidity: Four sampling stations on thisreach have an exceedence ratio of 3/7, 6/10, /2/7 and 3/4 respectively.

A TMDL was developed for the Jemez River to address turbidity.

Plant Nutrients: Field assessments were conducted using the draft Nutrient Assessment Protocol and draft Source Documentation Protocol. Since there is no numeric standard for plant nutrients in New Mexico, the narrative standard for plant nutrients is evaluated using this protocol. No plant nutrient impairments were found along this reach. There were no exceedences of nutrient related criteria such as total phosphorus, nitrogen, pH and dissolved oxygen during any sampling season. As well, there were no observations of nutrient over-enrichment noted on field sheets during any sampling season. In addition, there was a biological assessment conducted on Jemez River in November of 1998. The Hilsenhoff Biotic Index (HBI)that is used as an indicator of nutrient enrichment showed a calculated value of 4.84. This number falls in the HBI range of 4.51-5.50 meaning water quality is good with some organic pollution present.

Water quality standards, as assessed using the 1998 Assessment Protocol and 1999 draft Nutrient Assessment Protocol are currently being met for plant nutrients on the Jemez River.

Stream Bottom Deposits: There is one station on this reach that was used to characterize the Jemez River. This reach of the Jemez River is a Rosgen C3 stream type with a % fines <2mm of 26% indicating a moderate level of impairment.

A TMDL was developed for the JemezRiver to address stream bottom deposits.

Conductivity: Four stations on this segment have exceedence ratios of 0/7, 0/10, 0/7 and 0/4 for conductivity.

Water quality standards, as assessed using the 1998 Assessment Protocol, are

currently being met for conductivity on the Jemez River.

Metals (Al Acute): One metals station on this reach provided an exceedence of the aluminum criterion with a 4-day average of 947ug/l. Of these four samples, two exceeded the acute criterion for aluminum.

A new listing will be added for metals (Al acute)

2002 ACTION: None**. A TMDL was prepared for acute aluminum.** The original assessment unit "Jemez River from Rio Guadalupe to the confluence of the East Fork of the Jemez River and San Antonio Creek" was split into two because they fall under two different water quality standard segments.

2004 ACTION: None

2006 ACTION: Name was changed during 2005 Jemez survey due to change in WQS 20.6.4.108.

2008 ACTION: This AU was intensively surveyed during the Jemez (2005) watershed survey. The aluminum chronic criterion was exceeded 4 of 8 times. The arsenic criterion for human health (9.0 ug/L) was exceeded 3 of 8 times, and the criterion for domestic water supply (2.3 ug/L) was exceeded 7 of 8 times. The AU was determined to be full support for sedimentation/siltation and non support for unidentified biological impairment according to the 2008 Assessment Protocols because the M-SCI score was 55 but the measured percent fines was only 19. The temperature criterion was exceeded for >4 consecutive hours for >3 consecutive days, with a maximum recorded temperature of 27.0 degrees C. Values of pH below the criterion range of 6.6-8.8 were measured via sonde 98.6 percent of the time, with a minimum pH of 6.32. All numeric segment-specific turbidity criteria were removed during the 2005 triennial review, and replaced with General Criteria 20.6.4.13.J. New assessment methods to determine turbidity impairment based on this new language are not yet available. SWQB will retain historic turbidity listings in the interim. **Therefore, turbidity and aluminum remain, sedimentation/siltation was removed, and arsenic, temperature, and Benthic-Macroinvertebrate Bioassessments (Streams) were added as causes of non support.** Arsenic occurs naturally in ground water in the Jemez watershed. Based on data from stations above and below and other field observations, low pH appears to be the result of geothermal groundwater inputs. Only 1 of 22 grabsample pH values were below the 6.6 – 8.8 range.

Jemez River (Zia Pueblo bnd to Jemez Pueblo bnd)
WQS: 20.6.4.106 AU: NM-2105.5_10

2008 ACTION: This AU was seasonally surveyed (n=3) during the Jemez (2005) watershed survey. The arsenic criterion for human health (9.0 ug/L) was exceeded 3 of 3 times. The boron criterion for irrigation (750 ug/L) was exceeded 2 of 3 times. **Therefore, arsenic and boron were added as causes of non support.** Arsenic occurs naturally in ground water in the Jemez watershed.

La Jara Creek (East Fork Jemez to headwaters)
WQS: 20.6.4.108 AU: NM-2106.A_11

2004 ACTION: This reach was intensively surveyed during the Valle Caldera 2001-2002 special study. There were 3 of 3 exceedences of the chronic aluminum criterion. **Therefore, aluminum will be added as a cause of non support.** This reach will be listed as Category 5B because aluminum is naturally high in this watershed.

2006 ACTION: None

2008 ACTION: None

Redondo Creek (Sulphur Creek to VCNP bnd)
WQS: 20.6.4.108 AU: NM-2106.A_21

Previously named "Redondo Creek (Sulphur Creek to headwaters)," this AU was split after the 2001 Valle Caldera survey. The entire AU was originally listed for partially supported for total phosphorus and fecal coliform. Data on this segment are very limited. Ten-year data are limited to one station (USGS 355223106371710) this station has two sampling events (1996 and 1997). For total phosphorus, this station shows 0/2 samples greater than the criterion that indicates full support. For fecal coliform, there have been only two samples collected. The exceedences ratio of 1/2 will result in a listing of Full Support, Impacts Observed for fecal coliform.

1998 ACTION: Phosphorus was removed as a cause of non-support. As per the assessment protocol, the reach was upgraded to Full Support, Impacts Observed for fecal coliform and will be placed on the 305(b) list.

2000 ACTION:

Total Phosphorus: Two sampling station were established on this reach. Monitoring at the stations documented 7/10 exceedences for total phosphorus.

A TMDL was developed for Redondo Creek to address total phosphorus.

Fecal Coliform: Fecal coliform was removed from the 1998-2000 303(d) list but remained listed in the 1998 305(b) Report as full support, impacts observed (FSIO).

Add to the 305(b) report as FSIO.

Turbidity: One sampling station was established on this reach. Monitoring at the station documented 2/7 exceedences for turbidity.

A new listing will be added for turbidity at the lower sampling station

Temperature: One thermograph was deployed on this reach. The thermograph was deployed above the confluence with Sulphur Creek. The thermograph exceeded the HQCWF criterion 82/1,796 times with a maximum temperature of 24°C. This site exceeded the draft Temperature Protocol for a one-time maximum temperature (23°C).

A new listing will be added for temperature

2002 ACTION: None. The Nutrient Assessment protocol was performed June 2000. This reach was determined not be nutrient enriched following the level one nutrient assessment analysis. A summary of the nutrient assessment is in the administrative record.

2004 ACTION: TMDLs were developed for turbidity and temperature as part of the 2003 Jemez bundle TMDLs.

2006 ACTION: Name change at VCNP boundary. All numeric segment-specific turbidity criteria were removed during the 2005 triennial review, and replaced with General Criteria 20.6.4.13.J. New assessment methods to determine turbidity impairment based on this new language are not yet available. SWQB will retain historic turbidity listings in the interim.

2008 ACTION: Basic field parameters were collected in this AU during the Jemez (2005) intensive survey. A thermograph was also deployed at the station above Sulphur Creek. The maximum recorded temperature was 22.6 degrees Celsius, and the criterion of 20 degrees Celsius was not exceeded for more than 4 consecutive hours. No new aluminum data were collected. **Therefore, aluminum remains, and temperature was removed as a cause of impairment.**

Redondo Creek (VCNP to headwaters)
WQS: 20.6.4.108 AU: NM-2106.A_25

2004 ACTION: This reach was intensively surveyed during the Valle Caldera 2001-2002 special study. There were 5 of 17 exceedences of the turbidity criterion of 25 NTU using grab data, and 10 of 284 using sonde data. There were 0 of 284 measurements of pH outside of the criterion range of 6.6 to 8.8 using sonde data. A thermograph in this AU recorded a max temp of 23.01 degrees C. There were 0 of 16 exceedences using grab data. There were 14 of 22 exceedences of the chronic aluminum criterion. **Therefore, turbidity and temperature will remain, and aluminum will be added as a cause of non support.** This reach will be listed as Category 5B because aluminum is naturally high in this watershed. TMDLs were developed for turbidity and temperature as part of the 2003 Jemez bundle TMDLs.

2006 ACTION: All numeric segment-specific turbidity criteria were removed during the 2005 triennial review, and replaced with General Criteria 20.6.4.13.J. New assessment methods to determine turbidity impairment based on this new language are not yet available. SWQB will retain historic turbidity listings in the interim.

2008 ACTION: None

Rio Cebolla (Fenton Lake to headwaters)
WQS: 20.6.4.108 AU: NM-2106.A_52

Previously listed for temperature, stream bottom deposits and total phosphorus. For temperature, two of three stations have an exceedences ratio of 1/5. The other station has a ratio of 0/5. These stations will be given a Full Support, Impacts Observed. For total phosphorus, the ranking is based on station ratios of 0/6, 0/5, and 1/5. Station MRG106.008045 will be given a Full Support, Impacts Observed while the others are listed as full support.

1998 ACTION: Temperature and phosphorus were removed as causes of non-support. Stream bottom deposits were retained as a cause of non-support.

2000 ACTION:

Temperature: One thermograph was deployed on this reach. The thermograph was deployed above the Seven Springs Campground. The thermograph exceeded the HQCWF criterion 54/1,587 times with a maximum temperature of 22.5°C. This site exceeded the Temperature Protocol for hours of exceedence duration > 4hours, but no more than six hours in a 24-hour cycle, and for no more than three consecutive days.

Temperature will be added as a cause of non-support for this reach of the Rio

Cebolla

Stream Bottom Deposits: This stream is classified and an F5 stream type. The % fines <2mm is 42% and the mean embeddedness is 75%. This is a severely impacted stream substrate.

Stream bottom deposits will remain on the list as a cause on non-support

2002 ACTION: None

2004 ACTION: TMDLs were prepared for temperature and SBD (i.e., sedimentation/siltaion).

2006 ACTION: None

2008 ACTION: This AU was intensively surveyed during the Jemez (2005) watershed survey. The aluminum chronic criterion was exceeded 2 of 5 times. The sedimentation/siltation impairment was confirmed according to the 2008 Assessment Protocols. The maximum recorded temperature via a thermograph deployed 6/15/05 to 8/30/05 was 20.1 degrees C, and the criterion was never exceeded for > 4 consecutive hourse for > 3 consecutive days. **Therefore, sedimentation/siltation remains, temperature was removed, and aluminum was added as a cause of non support.**

Rio Cebolla (Rio de las Vacas to Fenton Lake)
WQS: 20.6.4.108 AU: NM-2106.A_50

Previously listed for pH, stream bottom deposits and total ammonia. The listing for pH is supported as 3/5 pH samples collected in a 1989 survey were outside the allowable range. This reach will be listed as not supported for pH. For total ammonia, 0/5 samples collected as part of the same survey exceeded the chronic criteria. This segment is fully supporting for total ammonia.

1998 ACTION: Ammonia was removed as a cause of non-support. Stream bottom deposits and pH were retained as causes of non-support.

2000 ACTION:

Stream Bottom Deposits: This E4b stream is characterized by a single station above the confluence with the Rio de las Vacas. The % fines >2mm is 28% and the mean embeddedness is 53%. This would suggest a moderately impaired stream.

Stream bottom deposits will remain on the list as a cause on non-support

pH: There was an exceedence ratio of 0/7 for pH.

Water quality standards, as assessed using the 1998 Assessment Protocol, are currently being met for pH on this reach of the Rio Cebolla.

2002 ACTION: None

2004 ACTION: A TMDL was prepared for stream bottom deposits (i.e., sedimentation/siltation).

2006 ACTION: None

2008 ACTION: This AU was intensively surveyed during the Jemez (2005) watershed survey. The AU was determined to be full support for sedimentation/siltation according to the 2008 Assessment Protocols because although there was a >28% increase over reference in percent fines, the M-SCI score was 65. **Therefore, sedimentation/siltation was removed as a cause of non support.**

Rio de las Vacas (Rio Cebolla to Clear Creek)
WQS: 20.6.4.108 AU: NM-2106.A_46

2008 ACTION: This AU was intensively surveyed during the Jemez (2005) watershed survey. The aluminum chronic criterion was exceeded 2 of 4 times. **Therefore, aluminum was added as a cause of non support.**

Rio de las Vacas (Rio Cebolla to Clear Creek)
WQS: 20.6.4.108 AU: NM-2106.A_40

Previously listed for temperature, stream bottom deposits and total ammonia. For total ammonia, 0/9 samples from two stations collected in 1989 exceeded the criteria. Temperature exceedences (3/5) were reported at station MRG106.008535. This reach is not supported for temperature. Station MRG106.008515 was full support for temperature.

1998 ACTION: Ammonia was removed as a cause of non-support. Temperature and stream bottom deposits were retained as causes of non-support.

2000 ACTION:

Temperature: Three thermographs were deployed on this reach. The upper thermograph was deployed above

the Rio de las Vacas Campground and had an exceedence ration of 3/1,792 with a maximum temperature if 21.0°C. This reach is in accordance with the Temperature Protocol. The middle thermograph exceedence ratio was 375/1,793 with a maximum temperature of 27°C. This reach is not in accordance with the Temperature Protocol. The lower thermograph was deployed above the confluence with the Rio Cebolla. The exceedence ratio at this site was 218/1,795 with a maximum temperature of 24.5°C. This reach is not in accordance with the Temperature Protocol.

Water quality standards, as assessed using the 1998 Assessment Protocol, are currently being met for temperature on the upper reach of the Rio de las Vacas.

Temperature will remain listed as a cause of non-support for the lower site
A temperature TMDL was written for the middle site.

Stream Bottom Deposits: Three stations characterized this reach. At the upper station, this stream is classified as a C3 stream type with a % fines of 6 and a mean embeddedness of 42%. Station 2 located above the Girl Scout Camp is classified as a C4 stream type with a % fines of 16 and an embeddedness value of 38. Station 3 located above the confluence with the Rio Cebolla is a B3 stream type with a % fines of <2mm of 12 and an embeddedness value of 32%. This classifies as good stream bottom substrate.

Water quality standards, as assessed using the 1998 Assessment Protocol, are currently being met for stream bottom deposits on this reach.

Total Organic Carbon (TOC): There are three water quality monitoring stations on this reach. The exceedence ratios for TOC were 4/8, 3/7 and 4/7.

TOC will be added to this reach a cause of non-support for this reach

2002 ACTION: In 2002, The WQCC deleted the total organic carbon criterion (20.6.4.900C of NMAC) for the high quality coldwater fishery designated use. The TOC criterion was adopted in 1973. Before then, the water quality standards contained an ambient narrative criterion for combined COD/BOD. This criterion, adopted originally in 1967, stated that "materials in solution and in suspension which exert an oxygen demand, shall not be present in

concentrations sufficient to reduce the dissolved oxygen in the stream to 50 percent of the saturation concentration or to 6.0 mg/l" for trout-producing and warm-water fish producing waters. In 1973, the Commission replaced this narrative criterion with the current numeric criterion for TOC, applicable to the high quality coldwater fishery designated use. Since then, this criterion has been rendered unnecessary. Over the years, the Commission has adopted use-specific and segment-specific dissolved oxygen criteria that offer a higher degree of protection than the TOC criterion. EPA considers the TOC criterion to be an artifact from an earlier time. Indeed, only one other state—Louisiana—still maintains a TOC criterion, and that number is used only as a discharge limitation for effluents and storm water discharges. **TOC was removed as a cause of Non Support.**

2004 ACTION: None

2006 ACTION: Name was changed during 2005 Jemez survey.

2008 ACTION: This AU was intensively surveyed during the Jemez (2005) watershed survey. A Level 2 nutrient assessment indicated nutrient impairment due to total nitrogen, total phosphorus, and chlorophyll *a* values above applicable numeric thresholds. The existing temperature impairment was confirmed (maximum temperature 27.2 degrees C). **Therefore, temperature remains, and nutrients was added as a cause of non support.**

Rio Guadalupe (Jemez River to confl with Rio Cebolla)
WQS: 20.6.4.108 AU: NM-2106.A_30

Previously listed for conductivity, turbidity, stream bottom deposits and fecal coliform. Two stations from a 1987 survey were used in the assessment for conductivity. Station 08323000 was 1/1 for conductivity exceedences making it Full Support, Impacts Observed. Station MRG106.007501 was 2/11 or partially supported for conductivity. Turbidity measurements are available from one station. Station MRG106.007501 is Full Support, Impacts Observed (1/6) for turbidity. Fecal coliform data are also available from one station. Station MRG 106.007501 has a 1/2 ratio of exceedences. Per the assessment protocol, this reach is Full Support, Impacts Observed for fecal coliform and turbidity.

1998 ACTION: Turbidity and fecal coliform were removed as causes of non-support. Conductivity and stream bottom deposits were retained as causes of non-support.

2000 ACTION:

Conductivity: Exceedence ratios for conductivity on this reach were 1/7. As per the Assessment Protocol, the exceedence percentage of 14 indicates a fully supporting reach.

Water quality standards, as assessed using the 1998 Assessment Protocol, are currently being met for conductivity on the Rio Guadalupe.

Turbidity: Turbidity exceedences at the station just above the confluence with the Jemez River had a ratio of 2/7. On the same days as the high turbidity at this station, turbidity measurements were taken just below the Gillman Tunnels. Turbidity here was well below the criterion at 14 NTU. As a result, turbidity will be listed as a cause of non-support from the confluence with the Jemez River up to the box.

A TMDL was developed for the Rio Guadalupe to address turbidity.

Stream Bottom Deposits: This stream is typified by two stations. The station Rio de las Vacas above the Rio Cebolla, a Rosgen B3c stream type with a % fines <2mm of 11%, is typical of the stream in the upper box area. Below the Gillman Tunnels, the stream leaves the hard rock canyon to a sandstone environment. A cross section below this developed area and above the confluence with the Jemez River is a Rosgen B4c stream type with a % fines <2mm of 28% indicating a moderate level of impairment.

A TMDL was developed for the Rio Guadalupe to address stream bottom deposits from the Gillman Tunnels down to the confluence with the Jemez River only.

Fecal Coliform: Fecal coliform was removed from the 1998-2000 303(d) list but remained listed in the 1998 305(b) Report as full support, impacts observed (FSIO).

Add to the 305(b) report as FSIO.

Total Phosphorus: The exceedence ratio of TP for this reach was 2/6. Both exceedences were linked to higher sediment loads from this reach.

The Nutrient Assessment Protocol indicates no impairment due to nutrient loading on this reach.

Metals (Al chronic): The 4-day average concentration at this site was 262ug/l. There were no exceedences of the acute criterion for aluminum on this reach.

Aluminum (chronic) will be added to this reach as a cause of non-support

2002 ACTION: None. **A TMDL was prepared for chronic aluminum.**

2004 ACTION: None

2006 ACTION: None

2008 ACTION: This AU was intensively surveyed during the Jemez (2005) watershed survey. The aluminum listing was confirmed (5 of 9 exceedences). A thermograph at the station above the Jemez River recorded a maximum temperature of 25.7 degrees C, while a thermograph at Porter Landing exceeded the criterion >4 consecutive hours for >3 consecutive days. The AU was determined to be full support for sedimentation/siltation impairment according to the 2008 Assessment Protocols because there was only 15% fines and the M-SCI score was 64. All numeric segment-specific turbidity criteria were removed during the 2005 triennial review, and replaced with General Criteria 20.6.4.13.J. New assessment methods to determine turbidity impairment based on this new language are not yet available. SWQB will retain historic turbidity listings in the interim. **Therefore, aluminum and turbidity remain, temperature was added, and sedimentation/siltation was removed as a cause of non support.**

Rito de los Indios (San Antonio Creek to headwaters)
WQS: 20.6.4.108 AU: NM-2106.A_24

2004 ACTION: This reach was intensively surveyed during the Valle Caldera 2001-2002 special study. There were 1 of 17 exceedences of the chronic lead criterion and 7 of 17 exceedences of the chronic aluminum criterion. **Therefore, aluminum will be added as a cause of non support.** This reach will be listed as Category 5B because aluminum is naturally high in this watershed.

2006 ACTION: None

2008 ACTION: None

Rito de los Palomas (Rio de las Vacas to headwaters)
WQS: 20.6.4.108 AU: NM-2106.A_43

2008 ACTION: This AU was intensively surveyed during the Jemez (2005) watershed survey. The AU was determined to be impaired for temperature

(maximum recorded temperature at NM 126 was 27.4 degrees C). The AU was determined to be impaired for sedimentation/siltation impairment according to the 2008 Assessment Protocols because the M-SCI score was 52 and there > 28% increase over reference in percent fines. **Therefore, temperature and sedimentation/siltation were added as causes of non support.**

Rito Peñas Negras (Rio de las Vacas to headwaters)
WQS: 20.6.4.108 AU: NM-2106.A_42

Previously listed for temperature, turbidity and streambottom deposits. There are no data, historical or otherwise, for this reach. Data collection began in Spring of 1998 on this reach under existing 104(b)(3) and 319(h) grant monies.

1998 ACTION: This reach will continue to be listed as partially supporting for temperature, turbidity and stream bottom deposits.

2000 ACTION:

Stream Bottom Deposits: This site on the lower RPN is an E4 streamtype with a % fines <2mm of 27% and a mean embeddedness of 58%. This would suggest a moderately impaired stream substrate.

Stream bottom deposits will be retained as a cause of non-support.

Temperature: Three thermographs were deployed on this reach. The upper thermograph was deployed just below Pipeline Road and had an exceedence ratio of 9/1,847 with a maximum temperature if 21.5°C. This reach is in accordance with the Temperature Protocol. The middle thermograph exceedence ratio was 80/1,791 with a maximum temperature of 24°C. This reach is not in accordance with the Temperature Protocol. The lower thermograph had an exceedence ratio of 117/1,793 with a maximum temperature of 23.5°C. This reach is not in accordance with the Temperature Protocol.

Water quality standards, as assessed using the 1998 Assessment Protocol, are currently being met for temperature on the upper reach of the Rito Peñas Negras.

Temperature will remain listed as a cause of non-support for the middle and

lower sites

Turbidity: Turbidity at this station had an exceedence ratio of 0/7 samples.

Water quality standards, as assessed using the 1998 Assessment Protocol, are currently being met for turbidity on the Rito Peñas Negras.

Total Organic Carbon(TOC): The ratio of exceedences for TOC on this reach is 3/7.

TOC will be added as a cause of non-support for this reach

2002 ACTION: **TMDLs were developed for stream bottom deposits, temperature, and TOC**. In 2002, The WQCC deleted the total organic carbon criterion (20.6.4.900C of NMAC) for the high quality coldwater fishery designated use. The TOC criterion was adopted in 1973. Before then, the water quality standards contained an ambient narrative criterion for combined COD/BOD. This criterion, adopted originally in 1967, stated that "materials in solution and in suspension which exert an oxygen demand, shall not be present in concentrations sufficient to reduce the dissolved oxygen in the stream to 50 percent of the saturation concentration or to 6.0 mg/l" for trout-producing and warm-water fish producing waters. In 1973, the Commission replaced this narrative criterion with the current numeric criterion for TOC, applicable to the high quality coldwater fishery designated use. Since then, this criterion has been rendered unnecessary. Over the years, the Commission has adopted use-specific and segment-specific dissolved oxygen criteria that offer a higher degree of protection than the TOC criterion. EPA considers the TOC criterion to be an artifact from an earlier time. Indeed, only one other state—Louisiana—still maintains a TOC criterion, and that number is used only as a discharge limitation for effluents and storm water discharges. **TOC was removed as a cause of Non Support.**

2004 ACTION: None

2006 ACTION: None

2008 ACTION: This AU was intensively surveyed during the Jemez (2005) watershed survey. The temperature impairment was confirmed (maximum recorded temperature at NM 126 was 25.6 degrees C). There are no new data regarding the sedimentation/siltation listing. A Level 2 nutrient assessment indicated nutrient impairment due to total nitrogen, total phosphorus, and chlorophyll *a* values above applicable numeric thresholds, as well as low dissolved oxygen (grab data). **Therefore, temperature and sedimentation/siltation remain, and nutrients was added as a cause of non support.**

San Antonio Creek (East Fork Jemez to VCNP bnd)
WQS: 20.6.4.108 AU: NM-2106.A_20

Previously named "San Antonio Creek (East Fork Jemez to headwaters)," this AU was split based on the 2001 Valle Caldera study. Originally listed for total phosphorus, temperature, turbidity, chlorine, stream bottom deposits and fecal coliform. There are two stations on this reach that were last sampled in 1987. For turbidity, the ratio of exceedences at the two stations was 0/11 or full support. The total phosphorus ratio at station MRG106.010010 is 2/12 (17%) or partially supported and 1/6 or Full Support, Impacts Observed at station MRG106.100001. The exceedence ratio for temperature at station MRG106.010010 was 3/12 or partially supported and 0/6 or full support at station MRG106.100001. Fecal coliform data are available at station MRG106.010010 only. Two samples were collected in 1987 both of which were well under the criteria. Fecal coliform is full support for this reach. 1/1 sample for chlorine at station MRG106.010010 was above the criteria. As per the assessment, the reach is Full Support, Impacts Observed for chlorine.

1998 ACTION: Turbidity, chlorine and fecal coliform were removed from the list as causes of non-support. Phosphorus, temperature and stream bottom deposits were retained as causes of non-support.

2000 ACTION:

Temperature: Two thermograph sites were established on this reach. The SA Creek@Battleship Rock Picnic Areas site had an exceedence ratio of 84/1,797 with a maximum temperature of 22.5°C. This site exceeded the Temperature Protocol for hours of exceedence duration > 6 hours. The SA Creek above SA Campground site had an exceedence ratio of 117/1,795 with a maximum temperature of 24.5°C. The site exceeded the Temperature Protocol maximum 1-time exceedence of 23°C.

Temperature will be retained as a cause of non-support

Total Phosphorus: Two sampling stations on this reach had a combined exceedence ratio of 0/15 for total phosphorus.

Water quality standards, as assessed using the 1998 Assessment Protocol, are currently being met for total phosphorus on San Antonio Creek.

Stream Bottom Deposits: San Antonio Creek is characterized by two stations. The upper station is a C4 type stream . The % fines <2mm is 12% and the mean embeddedness was 44% making it a good bottom substrate. The second

station is located above the confluence with the East Fork of the Jemez River. The % fines at this station were 5%. This is assessed as being an excellent substrate.

Water quality standards, as assessed using the 1998 Assessment Protocol, are currently being met for stream bottom deposits on San Antonio Creek.

Total Organic Carbon (TOC): There is an abbreviated dataset for this parameter that shows both stations with a 1/3 exceedence ratio of the criterion. Additional analyses will be collected.

Add to the 305(b) report as FSIO.

Turbidity: Two sample stations were established on this reach. The station at Battleship Rock was 3/7 for turbidity exceedences. The station at SA Campground was also 3/7 exceedences for turbidity.

A new listing will be added for turbidity

2002 ACTION: None

2004 ACTION: TMDLs were written for turbidity and temperature as part of the 2003 Jemez TMDL bundle.

2006 ACTION: Name change at VCNP boundary.

2008 ACTION: This AU was intensively surveyed during the Jemez (2005) watershed survey. The aluminum chronic criterion was exceeded 5 of 9 times. The arsenic criterion for domestic water supply (2.3 ug/L) was exceeded 5 of 9 times. The AU was determined to be non support for unidentified biological impairment according to the 2008 Assessment Protocols because the M-SCI score was 54 but the measured percent fines was only 16. The temperature criterion was exceeded for >4 consecutive hours for >3 consecutive days, with a maximum recorded temperature of 23.5 degrees C. All numeric segment-specific turbidity criteria were removed during the 2005 triennial review, and replaced with General Criteria 20.6.4.13.J. New assessment methods to determine turbidity impairment based on this new language are not yet available. SWQB will retain historic turbidity listings in the interim **Therefore, turbidity and temperature remain, and arsenic, aluminum, and Benthic-Macroinvertebrate Bioassessments (Streams) were added as causes of non support.** Arsenic occurs naturally in ground water in the Jemez watershed.

San Antonio Creek (VCNP to headwaters)
WQS: 20.6.4.108 AU: NM-2106.A_26

2004 ACTION: This reach was intensively surveyed during the Valle Caldera 2001-2002 special study. There were 0 of 16 exceedences of the turbidity criterion of 25 NTU using grab data, and 8 of 570 using sonde data. **Therefore, turbidity will be removed and temperature will remain as causes of non support.** There were 282 of 570 measurements of pH outside of the criterion range of 6.6 to 8.8, and 182 of 570 exceedences of the DO criterion using sonde data. Grab DO data did not indicate impairment. A thermograph at the station below Warm Springs recorded a max temp of 29.09 degrees C. There were 0 of 17 exceedences using grab data. There were 10 of 19 exceedences of the chronic aluminum criterion. **Therefore, aluminum, dissolved oxygen, and pH will be added as causes of non support.** This reach will be listed as Category 5B because aluminum is naturally high in this watershed and the DO sonde and grab data conflict. TMDLs were written for temperature as part of the 2003 Jemez TMDL bundle.

2006 ACTION: None

2008 ACTION: None

Sulphur Creek (Redondo Creek to VCNP bnd)
WQS: 20.6.4.124 AU: NM-2106.A_22

Previously named "Sulphur Creek (Redondo Creek to headwaters)," this AU was split based on the 2001 Valle Caldera study. This reach has extreme pH violations. At two stations on this reach the exceedences ratio is 2/2 and 6/6 for pH. The cause of this is unknown but is most likely from natural causes. The exceedences ratio for temperature is 1/6 which will be listed as Full Support, Impacts Observed. No other concerns were noted on this reach.

1998 ACTION: The reach will be listed with pH as the cause of non-support.

2000 ACTION:

pH: One sampling station was established on this reach. Monitoring at the station documented 6/7 exceedences for pH.

pH will remain listed as a cause of non-support

Conductivity: One sampling station was established on this reach. Monitoring at the station documented 3/8 exceedences for conductivity.

Conductivity will be added as a cause of non-support for this reach

Turbidity: One sampling station was established on this reach. Monitoring at the station documented 1/7 exceedences for Turbidity.

Add to the 305(b) report as FSIO.

2002 ACTION: None

2004 ACTION: None. TMDLs were written for pH and conductivity as part of the 2003 Jemez TMDL bundle. A Use Attainability Analysis was submitted to EPA because the low pH valuesin this spring fed tributary are naturally occurring.

2006 ACTION: Sulphur Creek above Redondo Creek was broken out as a separate water quality standard segment (NMAC 20.6.4.124) as a result ofunique, naturally low pH conditions, with a segment specific pH range of 2.0 to 9.0. The Sulphur Creek AU was split into two AUs at the VCNP boundary. The aquatic life use was changed from high quality coldwater to limited aquatic life, thus removing the specific conductance criterion. Therefore, **pH and specific conductivity were removed as causes on non support and the associated TMDLs will be withdrawn**.

2008 ACTION: None

Sulphur Creek (San Antonio Creek to Redondo Creek)
WQS: 20.6.4.108 AU: NM-2106.A_23

2008 ACTION: This AU was intensively surveyed during the Jemez (2005) watershed survey. The aluminum chronic criterion was exceeded 7 of 8 times, acute criterion 2 of 8 times, and irrigation criterion 2 of 8 times. pH was below the range of 6.6-8.8 5 of 12 times during grab sampling, and 59.1% of the time during sonde deployment. Specific conductance was exceeded 2 of 12 times. **Therefore, aluminum, pH, and specificconductance were listed as causes of non support.** This AU may be moved under 20.6.4.124 during the 2009 WQS triennial so TMDLs for pH and specific conductance are not warranted at this time. The impacts of naturally-occurring low pH on dissolved aluminum levels should also be explored to determine if metals criteria also need to be revisited in this AU.

Sulphur Creek (VCNP Creek to headwaters)
WQS: 20.6.4.124 AU: NM-2106.A_23

2004 ACTION: This reach was intensively surveyed during the Valle Caldera 2001-2002

special study. There were 19 of 19 exceedences of the chronic and acute aluminum criteria. **Therefore, aluminum will be added as a cause of non support.** There were 18 of 18 measurements of pH below the lower limit of 6.6 and 17 of 17 exceedences of the specific conductance criterion of 400 umhos/cm. **Specific conductance and pH will remain as causes of non support**. A UAA was prepared for pH. The conclusion is that "high quality coldwater fishery" is not an attainable use because of the pH. The conductivity criteria generally apply only to high quality coldwater, and so the conductivity criterion dropped out automatically with removal of the use. This change is expected during the 2005 triennial review. This reach will be listed as Category 5B because aluminum is naturally high in this watershed, likely exacerbated by low pH.

2006 ACTION: Sulphur Creek above Redondo Creek was broken out as a separate water quality standard segment (NMAC 20.6.4.124) as a result of unique, naturally low pH conditions, with a segment specific pH range of 2.0 to 9.0. The Sulphur Creek AU was split into two AUs to account at the VCNP boundary. The aquatic life use was changed from high quality coldwater to limited aquatic life, thus removing the specific conductance criterion. Therefore **pH and specific conductivity were removed as causes on non support and the associated TMDLs will be withdrawn**.

2008 ACTION: None

Vallecito Ck (Perennial Prt Div abv Ponderosa to headwaters)
WQS: 20.6.4.107 AU: NM-2105.5_21

2000 ACTION:

Temperature: One thermograph was deployed on this reach. The thermograph was deployed at Paliza Campground. The thermograph exceeded the HQCWF criterion 38/1,797 times with a maximum temperature of 21.5°C. This site exceeded the Temperature Protocol for hours of exceedence duration > 6 hours (7/21/98).

Temperature will be listed on this reach as a cause of non-support

2002 ACTION: There is a site-specific criterion of 25ºC. This temperature was never exceeded during thermograph deployment. Therefore, **temperature was removed as a cause of Non Support**. Also, the name was revised from "Paliza Creek from Paliza Campground to the headwaters."

2004 ACTION: None

2006 ACTION: Name was changed to during 2005 Jemez survey and to more accurately reflect NMAC 20.6.4.107. This portion of Vallecito Creek that flows through Paliza Canyon is sometimes referred to as Paliza Creek.

2008 ACTION: This AU was intensively surveyed during the Jemez (2005) watershed survey. The aluminum chronic criterion was exceeded 3 of 8 times, acute criterion 2 of 8 times. **Therefore, aluminum was added as a cause of non support.**

Vallecito Creek (Jemez Pueblo bnd to Div abv Ponderosa)
WQS: 20.6.4.98 AU: NM-2105.5_20

Previously listed for temperature, total ammonia, pH, stream bottom deposits and fecal coliform. 2/11 (18%) of the samples from surveys conducted in 1986-1987 were above the criteria for temperature. This listing will remain with a partially supporting status. For total ammonia 1/11 samples were above the chronic criteria value. This listing for nonsupport will be changed to Full Support, Impacts Observed. For pH, 6/11 samples were above the criteria. The not supporting listing for pH will remain. For fecal coliform, 1/1 samples exceeded the criteria. Per the assessment protocol, fecal coliform and ammonia are Full Support, Impacts Observed.

1998 ACTION: Fecal coliform and ammonia were removed as a cause of non-support. Temperature, stream bottom deposits and pH were retained as causes of non-support.

2000 ACTION:

Temperature: The exceedence ratio for temperature on this reach was 3/7.

Temperature will continue to be listed as a cause of non-support on this reach

pH: The exceedence ratio for pH on this reach was 0/7.

Water quality standards, as assessed using the 1998 Assessment Protocol, are currently being met for pH on Vallecito Creek.

Turbidity: The exceedence ratio for temperature on this reach was 5/7.

Turbidity will be added as a cause of non-support on this reach

Stream Bottom Deposits: Steam bottom deposits will continue to be listed as a cause of non-support on this reach.

2002 ACTION: According to SWQB staff survey notes, this reach goes dry. Therefore, the only designated uses that apply are livestock watering and wildlife habitat.

The above causes of non-support are related to coldwater fishery use, so they do not apply to this reach. Also, the name was revised from "Vallecito Creek from the eastern Jemez Pueblo boundary to the Village of Ponderosa."

2004 ACTION: None

2006 ACTION: Name was changed during 2005 Jemez survey.

2008 ACTION: None

HUC 13020203 Rio Grande - Albuquerque

Rio Grande (non-pueblo Alameda Bridge to Angostura Diversion)
WQS: 20.6.4.106 AU: NM-2105.1_00

Previously listed as "Rio Grande from the northern boundary of Isleta Pueblo to the southern boundary of Santa Ana Pueblo" and listed for metals (Al), total ammonia, chlorine, stream bottom deposits and fecal coliform. For aluminum, there are four stations for making the assessment. These stations have ratios of 2/7, 3/6, 2/8, and 2/8 for exceedences of the chronic screening criteria and no exceedences of the acute criteria. All of these data are from a 1991 SWQB survey. Additional information considered to be of greater confidence has recently been issued from the USGS 1994-1996 surveys of the Rio Grande from Isleta Pueblo to the Jemez River. In this database 0/57 Rio Grande samples were found to have dissolved aluminum levels greater than the chronic screening criteria. This reach will be listed as full support for aluminum. For total ammonia there are six stations that may be used for the assessment. Generally, in a time frame prior to 1988, there were numerous exceedences of the chronic screening criteria for ammonia. In WQS 2105 there are two stations MRG105.005730 and 5740. At station 5730 there were 11/21 samples that exceeded the chronic screening criteria for ammonia from 1988 through 1992. From 1993 through 1997 there has been only one exceedence of the criteria (1/10). A similar pattern is seen at station 5740 where 5/20 1988-1992 samples exceeded the criteria but 0/13 within the last five years have exceeded the criteria. One four-day sampling event in 1988 documented a four-day chronic exceedence at station 5740 in 1988. There have been no four-day sampling events since then. In segment 2105.1 there are no six to ten year data. All data are from 1988 to 1992. Ratios at these stations are 3/19, 0/12, 4/16, and 2/21. Ammonia will continue to be listed as partially supporting until additional sampling information is available. For fecal coliform, in segment 2105, there have been 0/28 samples with values greater than the criteria value. In segment 2105.1, which has a more restrictive criterion, the ratios are 3/9, 1/7, 3/9, and 0/3.

1998 ACTION: Aluminum and stream bottom deposits were removed as causes of non-support. The reach continued to be listed as partially supported with ammonia, chlorine and fecal coliform listed as causes of non-support.

2000 ACTION:

Total Ammonia: The exceedence ratio for total ammonia on this reach was 0/58.

Water quality standards, as assessed using the 1998 Assessment Protocol, are currently being met for total ammonia on the Middle Rio Grande.

Fecal Coliform: There are 12 sampling stations on this reach. Station 1, Rio Grande below Angostura Diversion (FS) exceedence ratio was 0/5, **Station 2, Rio Grande at Highway 44 Bridge (NS)** exceedence ratio was 2/5, Station 3, Bernalillo WWTF effluent discharge (FS) exceedence ratio was 0/5, **Station 4, Rio Grande**

above RRUC #3 (NS) exceedence ratio was 2/5, **Station 5, RRUC #3 effluent discharge (FSIO)** exceedence ratio was 1/5, **Station 6, Rio Grande above RRUC #2 (NS)** exceedence ratio was 3/7, **Station 7, RRUC #2 effluent discharge (NS)** exceedence ratio was 7/7, **Station 8, Rio Grande above Alameda Bridge (FSIO)** exceedence ratio was 1/7, **Station 9, Rio Grande above Rio Bravo Bridge (NS)** exceedence ratio was 2/7, Station 10, Albuquerque WWTF effluent discharge (FS) exceedence ratio was 0/7, **Station 11, Rio Grande above I-25 Bridge (NS)** exceedence ratio was 2/7 **and Station 12, Rio Grandeabove Isleta Diversion (FSIO)** exceedence ratio was 1/7.

Fecal coliform will be retained as a cause of non-support for this reach

2002 ACTION: None**.** The original assessment unit "Rio Grande from the northern boundary of Isleta Pueblo to the southern boundary of Santa Ana Pueblo" was split into two because they fall under two different water quality standard segments. A TMDL was prepared for fecal coliform.

2004 ACTION: None

2006 ACTION: The name was modified during 2005 MRG survey. The associated water quality criteria for contact use support was changed from fecal coliform to E. coli during the 2005 triennial review. These historic fecal coliform listings will be retained until E. coli data are collected to determine whether there is any impairment of contact uses.

There were also three acute and two chronic water toxicity tests with significant effect noted at station "Rio Grande Below BernalilloWWTP" between 2002 and 2004 as compared to controls or reference conditions (see http://www.epa.gov/earth1r6/6wq/ecopro/watershd/monitrng/toxnet/nm.pdf). According to the Assessment Protocol, since significant effects were noted in more than one acute test, **Water Bioassay – Acute and Water Bioassay-Chronic will be added as a causes of non support.**The NPDES permit for the Bernalillo WWTP was renewed in January, 2004, and contained compliance schedules for both chlorine and ammonia

2008 ACTION: This AU was part of the SWQB Middle Rio Grande (2005)intensive survey, as well as additional water quality survey work (2006 – 2007) funded by the US Bureau of Reclamation. There is also a significant amount of available USGS data in this AU. The data from eight stations were collated and assessed according to the 2008 Assessment Protocols and associated addendum. There were 6 of 17 exceedences of the 410 cfu/100 ml single

sample E. coli criterion for secondary contact use. A sonde deployed by a UNM graduate student (Van Horn) from 6/2/06 through 10/20/07 recorded minimum saturation values below 75% for more than three consecutive hours. Significant effects to primary endpoints were noted in 3 acute ambient water and 0 chronic ambient water toxicity tests taken between 2003 and 2007. During the 2005 triennial, all fecal coliform criteria were replaced with E. coli criteria. Therefore, **Water Bioassay – Acute remains, Water Bioassay-Chronic and fecal coliform were removed, and E. coli and dissolved oxygen were added as causes of non support.**

Click on 'sticky note' balloon for important Feb. 13, 2009 changes

and click here to see EPA's Record of Decision

Rio Grande (Isleta Pueblo bnd to Alameda Street Bridge)
WQS: 20.6.4.105 AU: NM-2105_50

Previously listed as "Rio Grande from the northern boundary of Isleta Pueblo to the southern boundary of Santa Ana Pueblo" and listed for metals (Al), total ammonia, chlorine, stream bottom deposits and fecal coliform For aluminum, there are four stations for making the assessment. These stations have ratios of 2/7, 3/6, 2/8, and 2/8 for exceedences of the chronic screening criteria and no exceedences of the acute criteria. All of these data are from a 1991 SWQB survey. Additional information considered to be of greater confidence has recently been issued from the USGS 1994-1996 surveys of the Rio Grande from Isleta Pueblo to the Jemez River. In this database 0/57 Rio Grande samples were found to have dissolved aluminum levels greater than the chronic screening criteria. This reach will be listed as full support for aluminum. For total ammonia there are six stations that may be used for the assessment. Generally, in a time frame prior to 1988, there were numerous exceedences of the chronic screening criteria for ammonia. In WQS 2105 there are two stations MRG105.005730 and 5740. At station 5730 there were 11/21 samples that exceeded the chronic screening criteria for ammonia from 1988 through 1992. From 1993 through 1997 there has been only one exceedence of the criteria (1/10). A similar pattern is seen at station 5740 where 5/20 1988-1992 samples exceeded the criteria but 0/13 within the last five years have exceeded the criteria. One four-day sampling event in 1988 documented a four-day chronic exceedence at station 5740 in 1988. There have been no four-day sampling events since then. In segment 2105.1 there are no six to ten year data. All data are from 1988 to 1992. Ratios at these stations are 3/19, 0/12, 4/16, and 2/21. Ammonia will continue to be listed as partially supporting until additional sampling information is available. For fecal coliform, in segment 2105, there have been 0/28 samples with values greater than the criteria value. In segment 2105.1, which has a more restrictive criterion, the ratios are 3/9, 1/7, 3/9, and 0/3.

1998 ACTION: Aluminum and stream bottom deposits were removed as causes of non-support. The reach continued to be listed as partially supported with ammonia, chlorine and fecal coliform listed as causes of non-support.

2000 ACTION:

Total Ammonia: The exceedence ratio for total ammonia on this reach was 0/58.

Water quality standards, as assessed using the 1998 Assessment Protocol, are

currently being met for total ammonia on the Middle Rio Grande.

Fecal Coliform: There are 12 sampling stations on this reach. Station 1, Rio Grande below Angostura Diversion (FS) exceedence ratio was 0/5, **Station 2, Rio Grande at Highway 44 Bridge (NS)** exceedence ratio was 2/5, Station 3, Bernalillo WWTF effluent discharge (FS) exceedence ratio was 0/5, **Station 4, Rio Grande above RRUC #3 (NS)** exceedence ratio was 2/5, **Station 5, RRUC #3 effluent discharge (FSIO)** exceedence ratio was 1/5, **Station 6, Rio Grande above RRUC #2 (NS)** exceedence ratio was 3/7, **Station 7, RRUC #2 effluent discharge (NS)** exceedence ratio was 7/7, **Station 8, Rio Grande above Alameda Bridge (FSIO)** exceedence ratio was 1/7, **Station 9, Rio Grande above Rio Bravo Bridge (NS)** exceedence ratio was 2/7, Station 10, Albuquerque WWTF effluent discharge (FS) exceedence ratio was 0/7, **Station 11, Rio Grande above I-25 Bridge (NS)** exceedence ratio was 2/7 **and Station 12, Rio Grandeabove Isleta Diversion (FSIO)** exceedence ratio was 1/7.

Fecal coliform will be retained as a cause of non-support for this reach

2002 ACTION: None**.** The original assessment unit "Rio Grande from the northern boundary of Isleta Pueblo to the southern boundary of Santa Ana Pueblo" was split into two because they fall under two different water quality standard segments. A TMDL was prepared for fecal coliform.

2004 ACTION: None

2006 ACTION: None

2008 ACTION: This AU was part of the SWQB Middle Rio Grande (2005)intensive survey, as well as additional water quality survey work (2006 – 2007) funded by the US Bureau of Reclamation. The data from five stations were collated and assessed according to the 2008 Assessment Protocols and associated addendum. There were 4 of 16 exceedences of the 410 cfu/100 ml single sample E. coli criterion for secondary contact use. A sonde deployed by a UNM graduate student (Van Horn) from 6/2/06 through 10/15/07 recorded minimum saturation values below 75% for more than three consecutive hours. During the 2005 triennial, all fecal coliform criteria were replaced with E. coli criteria. **Therefore, fecal coliform was removed, and E. coli and dissolved oxygen were added as causes of non support.**

Rio Grande (Rio Puerco to Isleta Pueblo bnd)
WQS: 20.6.4.105 AU: NM-2105_40

Previous listed for metals (Hg) and stream bottom deposits. There are three stations for making the assessment. In 1994, these stations had a combined ratio of 0/9 for mercury upgrading the reach to full support. In a January 9, 1998 letter to NMED, Jim Brooks of the U.S. Fish & Wildlife Service, New Mexico Fishery Resources Office stated that "... a total maximum daily load for siltation in the middle and lower Rio Grande in New Mexico would not improve habitat conditions for the native fish fauna".

1998 ACTION: Metals (mercury) and stream bottom deposits were removed as causes of non-support, therefore the reach was removed from the 303(d) list.

2000 ACTION: None

2002 ACTION: None

2004 ACTION: None

2006 ACTION: None

2008 ACTION: This AU was part of the SWQB Middle Rio Grande (2005)intensive survey, as well as additional water quality survey work (2006 – 2007) funded by the US Bureau of Reclamation. The data from six stations were collated and assessed according to the 2008 Assessment Protocols and associated addendum. There were 2 of 7 exceedences of the 410 cfu/100 ml single sample E. coli criterion for secondary contact use. During the 2005 triennial, all fecal coliform criteria were replaced with E. coli criteria. **Therefore, fecal coliform was removed, and E. coli was added as a cause of non support.** Click on 'sticky note' balloon below for Feb. 13, 2009 changes and click here to see EPA's Record of Decision

Rio Grande (San Marcial at USGS gage to Rio Puerco)
WQS: 20.6.4.105 AU: NM-2105_10

Previously listed for pesticides, stream bottom deposits and total ammonia. There have been 0/18 exceedences of the total ammonia chronic screening criteria in the past ten years. This reach should be upgraded to full support for total ammonia. In 1987 there was a 1/1 hit for chlordane at station MRG105.000125. There has been no follow-up sampling at this station. This station will be listed as Full Support, Impacts Observed. Two other stations on this reach have ratios of 0/1 and 0/8 for chlordane. These stations will be listed as full support. In a January 9, 1998 letter to NMED, Jim Brooks of the U.S. Fish & Wildlife Service, New Mexico Fishery Resources Office stated that "... a total maximum daily load for siltation in the middle and lower Rio Grande in New Mexico would not improve habitat conditions for the native fish fauna".

1998 ACTION: Stream bottom deposits and ammonia were removed as causes of non-support. The reach was upgraded to Full Support, Impacts Observed and therefore removed from the 303(d) list. It will be listed as Full Support, Impacts Observed on the 305(b) list for chlordane.

2000 ACTION: None

2002 ACTION: None

2004 ACTION: None

2006 ACTION: None

2008 ACTION: Name changed to "Rio Grande (San Marcial at USGS gage to Rio Puerco)." This AU was part of the SWQB Middle Rio Grande (2005) intensive survey, as well as additional water quality survey work (2006 – 2007) funded by the US Bureau of Reclamation. The data from ten stations were collated and assessed according to the 2008 Assessment Protocols and associated addendum. There were 4 of 8 exceedences of the aluminum 87 ug/L aluminum criterion for aquatic life (chronic). There were 14 of 35 exceedences of the 410 cfu/100 ml single sample E. coli criterion for secondary contact use. During the 2005 triennial, all fecal coliform criteria were replaced with E. coli criteria. **Therefore, fecal coliform was removed, and aluminum and E. coli were added as causes of non support.**

Tijeras Arroyo (Rio Grande to headwaters)
WQS: 20.6.4.99 AU: NM-9000.A_001

Previously listed as partially supported for metals (Cd, Hg chronic) and nutrients. In 1984, there was a sewer break at Montessa Park that flowed into lower Tijeras Arroyo and made it into the Rio Grande. There are no STORET data available, but a report from ***Potter, D.U. 1984, titled, Rio Grande Water Quality Survey (August 28-September 4, 1984) in Response to a Sewer Line Break at Tijeras Arroyo on August 25, 1984. EID/SWQ-85/2. 52 p.,*** documents the spill and 1998 Actions taken to abate the pollution.

1998 ACTION: This arroyo will be removed from the 303(d) list as fixing the sewer line solved the problem.

2000 ACTION: None

2002 ACTION: None

2004 ACTION: None

2006 ACTION: None

2008 ACTION: This AU was intensively surveyed as part of the Middle Rio Grande Tributaries (2005) survey. The AU was determined to be Full Support for sedimentation/siltation, but Non Support for unidentified biological impairment according to the 2008 Assessment Protocols because the M-SCI score was 34.97 but the measured percent fines was only 12. A Level 2 nutrient assessment indicated nutrient impairment due to total nitrogen, total phosphorus, and chlorophyll *a* values above applicable numeric thresholds as well as low DO (low DO may be due to groundwater input vs. nutrient enrichment based on the pattern of exceedences). **Therefore, Benthic-Macroinvertebrate Bioassessments (Streams) and nutrients were added as causes of non support.** This entire AU may not be perennial.

HUC 13020204 Rio Puerco

La Jara Creek (Perennial reaches abv Arroyo San Jose)
WQS: 20.6.4.109 AU: NM-2107.A_46

2006 ACTION: This AU was intensively studied in 2004. There were 3 of 7 exceedences of the chronic alum inum criterion. **Therefore, aluminum w as added as a cause of non support.**

2008 ACTION: None

Nacimiento Creek (HWY 126 to San Gregorio Reservoir)
WQS: 20.6.4.109 AU: NM-2107.A_42

Previously listed for stream bottom deposits, nutrients, reduction of riparian vegetation and streambank destabilization. No associated physical/chemical data are available.

1998 ACTION: The reach was retained on the 303(d) with stream bottom deposits and nutrients as the cause of non-support.

2000 ACTION: None

2002 ACTION: None

2004 ACTION: None

2006 ACTION: Benthic macroinvertebrates and pebble count data collected at the station @ Eureka Road were compared to reference station La Hara above Irrigation Diversion. The bio score was 86 % of reference even though there was a 143% increase in percent fines. A ccording to our SBD protocol, the conclusion is full support. **Therefore, stream bottom deposits (sedimentation) was removed as a cause of non support.**

2008 ACTION: None

Rio Puerco (non-pueblo Rio Grande to Arroyo Chijuilla)
WQS: 20.6.4.105 AU: NM-2105_20

Previously listed for stream bottom deposits. The Rio Puerco from the mouth on the Rio Grande to Rito Olguin (Rio Grande, 2105), E, was listed for not fully supporting the use of limited warmwater fishery (LWWF) and the cause of not m eeting this use was listed as stream bottom deposits. The definition of a LWWF on page 41, of the ***State of New Mexico Standards for Interstate and Intrastate Streams,*** is as follows:

LWWF a stream reach where **intermittent** flow may severely limit the ability of the reach to sustain a natural fish population on a continuous annual basis; or a stream where historical data indicate that water temperature may routinely exceed 32.2EC (90EF)

NMED/SWQB solicited input from New Mexico Department of Game & Fish, U.S. Fish & Wildlife Service, University of New Mexico, Department of Biology and New Mexico State University, Department of Fishery and Wildlife Sciences concerning the stream bottom deposits (siltation) issues. The following questions were asked of all of the above mentioned entities. Only the U.S. Fish & Wildlife Service responded in writing:

Question from NMED/SWQB to the U.S. Fish & Wildlife Service in a letter dated January 12, 1998:

> The questions being asked are: Does siltation, in and of itself, cause impairment to the fisheries of the lower and middle Rio Grande? Alternatively, have the native fish(es) adapted to a silty aquatic habitat, leaving other factors such as flows, nutrient loading, toxics etc., which may contribute more to the cause(s) of impairment to the fishery designated use?

Response, from Jennifer Fowler-Propst, Field Supervisor, in summation, page 5 of the letter:

> "The dilemma is that siltation is needed to provide the sandy substrate habitat required by the native fishes; and conversely, high levels of suspended sediments may be harmful to some fish and other aquatic species. There is almost no scientific information to demonstrate that concentrations of suspended sediment and amounts of siltation are harmful to New Mexico fishes; and to arbitrarily set TMDLs may not be very useful for protection of the lower and middle Rio Grande fisheries resources".

Question from NMED/SWQB to the U.S. Fish & Wildlife Service in a letter dated February 2, 1998:

> Our question, in general, is: Does siltation in-and-of itself, with all other things being equal, contribute to or directly cause impairment to the fishery use for LWWF and WWF?

Response, from Jennifer Fowler-Propst, Field Supervisor, in summation, page 2, paragraph 3, of the letter:

> "There are many intermittent streams in New Mexico including, for example, the Rio Puerco and Rio Salado. These streams are dry most of the year with the exception of high runoff events generally during the summer thunderstorms. These streams have very high suspended sediments and transport high sediment loads to the Rio Grande. The degree of siltation within intermittent streams and rivers, and its effect on limited warmwater fisheries is irrelevant, since perennial waters are required for fish

survival".

1998 ACTION: Stream bottom deposits was removed as a cause of non-support and the reach was removed from the 303(d) list.

2000 ACTION: None

2002 ACTION: None. Name was revised to acknowledge tribal lands.

2004 ACTION: None

2006 ACTION: Upper limit of reach was changed to Arroyo Chijuilla. This AU was intensively surveyed in 2004. No impairments were identified.

2008 ACTION: None

Rio Puerco (Arroyo Chijuilla to northern bnd Cuba)
WQS: 20.6.4.99 AU: NM-2107.A_40

Previously listed for temperature and stream bottom deposits. The exceedence ratios at two stations on this reach are 4/6 and 4/5.

1998 ACTION: The listing was not changed.

2000 ACTION: None

2002 ACTION: None

2004 ACTION: None

2006 ACTION: This AU was intensively surveyed in2004, and split into two. The "northern boundary of Cuba" is approximately one mile upstream of the HWY 550 bridge where there are a series of springs. There were 6 of 26 exceedences (23%) for chronic total ammonia criteria in tables NMAC 20.6.4.900. L and M. A nutrient assessment was performed at . TN, TP, DO concentration and saturation, and pH indicators all lead to a conclusion of impairment due to excessive nutrients. A thermograph was deployed @ HWY 550. The max temperature was 28.4 degrees C. There were 5 of 19 exceedences of the chronic aluminum criteria. Benthic macroinvertebrates and pebble count data collected at the station @ 550 were compared to reference station Rio Hondo above the Rio Grande. The bio score was 41 % of reference and there was a 134% increase in percent fines. **Therefore, temperature was removed; ammonia, nutrients, and aluminum were added, and sedimentation remains as causes of non support.** A TMDL was developed

for sedimentation.

2008 ACTION: TMDLs were completed for chronic aluminum, nutrients, and sedimentation/siltation.

Rio Puerco (northern bnd Cuba to headwaters)
WQS: 20.6.4.98 AU: NM-2107.A_44

2006 ACTION: Previously part of Rio Puerco (Rito Olguin to headwaters) AU that was split. The "northern boundary of Cuba" is approximately one mile upstream of the HWY 550 bridge where there are a series of springs. This AU was intensively surveyed in 2004. No impairments were identified during the survey based on chemical/physical data collected @ CR13. Marginal Warmwater Aquatic Life is an existing use. This AU is Category 3 (no reliable monitored data and/or information available) with respect to Sedimentation/Siltation. This impairment was de-listed in 2006 based on the following arguments: (1) The original listing was based on best professional judgment, i.e., there were no actual data and thus flaws in the original analysis that led to the AU being listed; and (2) there are currently no data or information available to evaluate the general criteria for Sedimentation/Siltation in this AU.

2008 ACTION: None

Rito Leche (Perennial reaches above HWY 126)
WQS: 20.6.4.109 AU: NM-2107.A_43

Previously listed for stream bottom deposits, reduction of riparian vegetation and stream bank destabilization. No associated physical/chemical data are available.

1998 ACTION: The reach was retained on the 303(d) with stream bottom deposits as the cause of non-support.

2000 ACTION: None

2002 ACTION: None

2004 ACTION: None

2006 ACTION: This AU was intensively sampled 2004. There was only flow in during Mar, April, and May sampling events, then the channel was dry due to diversion. **Therefore, impairment due to sedimentation was removed, and impairment due to Low Flow Alteration was added (IR Category 4C).**

2008 ACTION: None

San Pablo Canyon (Rio Puerco to headwaters)
WQS: 20.6.4.98 AU: NM-2107.A_41

Previously listed for turbidity, plant nutrients and stream bottom deposits. There is only one data point in the STORET data base for turbidity on this reach. A ratio of 1/1 will be listed as Full Support, Impacts Observed until additional information can be collected for a more complete assessment.

1998 ACTION: Per the assessment protocol, turbidity was removed as a cause of non-support. Plant nutrients and stream bottom deposits were retained as causes of non-support.

2000 ACTION: None

2002 ACTION: None

2004 ACTION: None

2006 ACTION: WQS changed to 20.6.4.98 because this reach only flows intermittently, flowing only April and May during our 2004 survey year. Warmwater Aquatic Life is an existing use. This AU is Category 3 (no reliable monitored data and/or information available) with respect to Sedimentation/Siltation and Nutrient/Eutrophication Biological Indicators. These impairments were de-listed in 2006 based on the following arguments: (1) The original listing was based on best professional judgment, i.e., there were no actual data and thus flaws in the original analysis that led to the AU being listed; and (2) there are currently no data or information available to evaluate the general criteria for Sedimentation/Siltation and Nutrient/Eutrophication Biological Indicators in this AU. Therefore, this AU was de-listed for these two impairments.

2008 ACTION: None

HUC 13020207 Rio San Jose

Bluewater Creek (Bluewater Rsrv to headwaters)
WQS: 20.6.4.109 AU: NM-2107.A_01

Previously listed for metals (Al, Cd, Pb), temperature, turbidity, total phosphorus, and streambottom deposits. There are five stations that provide assessment data for this reach. For aluminum, there were multiple exceedences of acute criteria at four outof five stations within five years. There were no exceedences of the acute levels for lead. Ther e were limited exceedences of the lead chronic screening criteria. Two stations, MRG106.005010 and MRG106.005030, had exceedence ratios of 1/7 and 1/5 respectively. One exceedence of these cr iteria is allowable within a 5 year period. Therefore these reaches will be listed as Full Support, Impacts Observed for lead. There were no exceedences of the acute criteria or chronic screening criteria for cadmium at any of the five stations. Temperature is available for four stations At station MRG106.005045, the exceedences ratio was 3/7 (43%) or not supporting. At stations 5040, 5035, and 5020 the ratios were 1/10, 2/20 and 2/6 respectively. Turbidity is similar. Turbidity will be listed as not supporting. Total phosphorus is partially supporting at six out of nine stations.

1998 ACTION: Lead and cadmium will be removed as causes of non-support on the 1998 303(d) list. The reach will be listed on the 1998 305(b) list as Full Support, Impacts Observed for lead. The reach continues to be included on the 1998 303(d) list for **aluminum, temperature, turbidity, and stream bottom deposits.**

2000 ACTION: None

2002 ACTION: The nam e was changed to Blue water Creek (Navajo Nation bnd to headwaters) to correct the assessment unit definition for tribal jurisdiction. The size was also corrected.

2004 ACTION: None.

2006 ACTION: Name changed based on survey. This AU was intensively m onitoring in 2004. A nutrient assessment was performed. TN, TP, DO saturation, and chlorophyll a indicators lead to the conclusion of non support for nutrients. The maximum temperature recorded by thermograph was 27.9 degrees C (criterion of 20 degrees C), and the criterion was exceeded for > 6 hours for > 3 consecutive days. There were 1 of 4 exceedences of the chronic aluminum criterion. **Therefore, temperature remains, nutrients w as added, and aluminum was removed as causes of non support.** All numeric segment-specific turbidity criteria were removed during the 2005 triennial review, and replaced with General Criteria 20.6.4.13.J. New assessm ent methods to determine turbidity im pairment based on this new language are not yet available. SW QB will retain historic turbidity listings in the interim . Additional data are needed to conf irm the historic sedim entation/siltation

listing.

2008 ACTION: TMDLS were completed for temperature and nutrients.

Bluewater Creek (non-tribal Rio San Jose to Bluewater Rsvr)
WQS: 20.6.4.109 AU: NM-2107.A_00

Previously listed for total phosphorus due to exceedences at six out of nine stations.

2000 ACTION: There is no longer a phosphorus standard so the reach will be listed for plant nutrients until further information is collected.

2002 ACTION: The name was changed to Bluewater Creek (Rio San Jose to Navajo Nation bnd) to correct the assessment unit definition for tribal jurisdiction.

2004 ACTION: None

2006 ACTION: Name changed based on survey. This AU was intensively monitoring in 2004. A nutrient assessment was performed. TN, DO saturation, DO concentration, and chlorophyll a indicators lead to the conclusion of non support for nutrients. The maximum temperature recorded by thermograph was 26.3 degrees C (criterion of 20 degrees C), and the criterion was exceeded for > 6 hours for > 3 consecutive days. There were 1 of 4 exceedences of the chronic aluminum criterion. **Therefore, nutrient remains, and temperature was added as causes of non support.**

2008 ACTION: TMDLS were completed for temperature and nutrients.

Rio Moquino (Laguna Pueblo to Seboyeta Creek)
WQS: 20.6.4.109 AU: NM-2107.A_10

Previously listed for temperature and stream bottom deposits. There are no ten-year temperature data. Using 1978 to 1980 data the temperature exceedences ratio is 3/10 or not supporting for temperature.

1998 ACTION: Temperature and stream bottom deposits were retained on the list as causes of non-support.

2000 ACTION: None

2002 ACTION: None. Name was revised to remove tribal portion.

2004 ACTION: None

2006 ACTION: This AU was intensively sampled in 2004. There were 3 of 6 temperature exceedences based on grab data (no thermograph data available). TN, TP, and DO saturation indicators lead to a conclusion of nutrient impairment. **Therefore, temperature was retained, and nutrients was added as a cause of non support.** Data are not available to confirm sedimentation (SBD) listing.

2008 ACTION: TMDLs were completed for temperature and nutrients.

Rio Paguate (Laguna Pueblo bnd to headwaters)
WQS: 20.6.4.109 AU: NM-2107.A_30

New listing for metals (Se, Hg), stream bottom deposits and temperature. For selenium 0/16 samples were greater than the acute criteria, but 16/21 within the last ten years exceeded the chronic screening level. This reach is Not Supporting for selenium. For mercury there have been no exceedences of the acute criteria within the last ten years. The exceedences ratio for mercury in the last five years is 0/4 and 1/21 within the last ten years. This reach will be upgraded to Full Support for mercury. Temperature data are limited at several of the stations. USGS station 08349800 is the only station with data within the last ten years. This station is 2/5 within five years and 5/13 within six to ten years. This segment will be listed as Partial Support for temperature.

1998 ACTION: Mercury was removed as a cause of non-support. The reach will be listed as partially supported with selenium, temperature and stream bottom deposits.

2000 ACTION: None

2002 ACTION: None. Name revised from "Rio Paguate from inflow to Paguate Reservoir to headwaters" to removed tribal portions.

2004 ACTION: None

2006 ACTION: This AU was planned to be part of the 2004 survey, but cannot be assessed because no samples were taken. The downstream terminus of this AU is a reservoir, just inside the boundary of Laguna Pueblo. Above the pueblo boundary, the river was not accessible due to private land ownership, locked gates, and road washouts. The reservoir supports a trout fishery managed by Laguna Pueblo, suggesting water quality upstream of the reservoir is good and that temperature is not an impairment. Downstream of the dam that creates the reservoir, flow is ephemeral and probably leaves the pueblo land only during non-irrigation season or storm events. Also, the USGS gage used to make the original impairment determinations is downstream of Jackpile Mine, which is on pueblo land and not in the AU. **Therefore, the listings were removed, and this AU was changed to Not Assessed.**

2008 ACTION: None

Rio San Jose (Horace Springs to Grants WWTP)
WQS: 20.6.4.98 AU: NM-9000.A_003

Listed for metals (Hg, Cd) and total phosphorus. This stream segment is listed as unclassified. The total phosphorus criterion applies only to high quality coldwater fisheries so the total phosphorus listing should be removed. Within the last five years 0/7 samples for mercury exceeded the detection level of 0.1 Φg/l. For cadmium the ratios are 0/7 within five years and 0/9 from 5-10 years.

1998 ACTION: Total phosphorus, mercury and cadmium have been removed as causes of non-support for this reach. This reach is not included in the 1998 303(d) list.

2000 ACTION: None

2002 ACTION: None

2004 ACTION: None

2006 ACTION: None

2008 ACTION: This AU is likely ephemeral, but EPA has not yet approved 20.6.4.97 and UAAs have not been prepared at the time of this writing (6/4/08). Therefore, this AU will be noted as WQS Reference 20.6.4.98 for now and UAAs are planned.

Rio San Jose (USGS gage at Correo to Horace Springs)
WQS: Unclassified (state standards do not apply) AU: not in database (tribal lands)

NOTE: The below is retained for historical reference to previous lists

New listing for metals (Hg), temperature, dissolved oxygen, turbidity, total phosphorus, stream bottom deposits and pH. There are very limited data sets for this reach within ten years. Because of this, data from 1986 to present were used for the assessment. The mercury ratios at two stations are 0/2 and 0/1. The temperature ratio at station MRG107.002505 is 0/1, station 2510 is 2/6, and station 2515 is 3/10. Temperature will be assigned an assessment of partial support at stations 2505 and 2510 and not supporting at station 2515. Dissolved oxygen ratios at the three stations are 0/1 at station 2505, 1/6 at station 2510, and 1/10 at station 2515. Dissolved oxygen will be listed as full support at station 2505 and Full Support, Impacts Observed at stations 2510 and 2515. Turbidity data are available only at station 2515. Here the exceedence ratio was 0/9. Total phosphorus ratios are 0/1 at station 2505, 3/4 at station 2510, and 8/8 at station 2515. Station 2505 will be listed as full support and stations 2510 and 2515 will be listed as not supporting. For pH, the ratios are 0/1 at station 2505, 0/5 at station 2510, and 3/10 at station 2515. Stations 2505 and 2510 will be

listed as full support for pH while station 2515 will be listed as not supporting.

1998 ACTION: *Mercury, dissolved oxygen and turbidity were removed as causes of non-support. Temperature, phosphorus, pH and stream bottom deposits were retained as causes of non-support.*

2000 ACTION: *None*

2002 ACTION: *This reach is 100% on tribal land. Deleted from NM list.*

2004 ACTION: *None*

HUC 13020211 Elephant Butte Reservoir

Alamosa Creek (Perennial reaches abv Monticello diversion)
WQS: 20.6.4.103 AU: NM-2103.A_30

Listed for reduction of riparian vegetation and streambank destabilization.

1998 ACTION: The reach continues to be listed as Partially Supporting on the 1998 303(d) list with stream bottom deposits as the cause.

2000 ACTION: None

2002 ACTION: None

2004 ACTION: None

2006 ACTION: This AU was intensively sampled during the Lower Rio Grande Tribs (2004) survey. There are no changes as a result of the survey. Additional data are needed to confirm the historic sedimentation/siltation listing.

2008 ACTION: None

Elephant Butte Reservoir
WQS: 20.6.4.104 AU: NM-2104_00

1998 ACTION: This lake is listed for m ercury in fish tissue because there are fish consumption guidelines due to mercury contamination.

2000 ACTION: None

2002 ACTION: None

2004 ACTION: None

2006 ACTION: Elephant Butte was studied by SWQB in 2003 and 2004 as part of a Clean Water Act 104b3 grant. The results of the study indicate that the reservoir may be subject to eutrophication from nutrient input and as a result of periodic reservoir draw down. Nutrient assessment protocols for lakes and reservoirs to determine impairment of NM's narrative plant nutrient water quality standard are under development.

2008 ACTION: None

HUC 13030101 Caballo

Caballo Reservoir
WQS: 20.6.4.102 AU: NM-2102.B_00

1998 ACTION: This lake is listed for m ercury in fish tissue because there are fish consumption guidelines due to mercury contamination.

2000 ACTION: None

2002 ACTION: None

2004 ACTION: None

2006 ACTION: This reservoir was intensively sampled in 2004. There 1 of 6 exceedences of aluminum criterion. There were no other exceedences noted during the survey.

2008 ACTION: None

Percha Creek (Perennial reaches Caballo R to M Fork)
WQS: 20.6.4.103 AU: NM-2103.A_20

Previously listed for nutrients and streambottom deposits. There are two sampling stations on this reach. There are no supporting data tojustify the nutrients listing per the document titled, ***AIndices of Aquatic Community Integrity of Percha and Tierra Blanca Creeks in Perennial Segments Administered by the US Bureau of Land Management, Sierra County, New Mexico≅***. E.D. Weber and R.A. Cole, Department of Fishery and Wildlife Sciences, New Mexico State University, Las Cruces, New Mexico, January 20, 1996.

1998 ACTION: Nutrients will be removed as a cause of non-support for this reach. The reach continues to be listed as Partially Supporting on the 1998 303(d) list with stream bottom deposits as the cause.

2000 ACTION: None

2002 ACTION: None

2004 ACTION: None

2006 ACTION: This AU was intensively sampled during the Lower Rio Grande Tribs (2004) survey. There are no changes as a result of the survey. Additional data are needed to confirm the historic sedimentation/siltation listing.

2008 ACTION: None

LOWER RIO GRANDE (TX border to Elephant Butte)

HUC 13030102 El Paso-Las Cruces

Rio Grande (Leesburg Dam to one mile below Percha Dam)
WQS: 20.6.4.101 AU: NM-2101_10

Previously listed under "Rio Grande from Leesburg Dam to Caballo Reservoir" and listed for pH. There are two stations in this reach with pH data. All data are from a 1989 survey. The station designated as LRG101.000185 has an exceedence ratio of 2/5. Station LRG1.000180 has an exceedences ratio of 0/5. This reach will be listed as partially supporting for pH from station LRG101.000185 to the Caballo Reservoir dam.

1998 ACTION: The reach was retained with pH listed as the cause of non-support.

2000 ACTION: Rio Grande from Leasburg Dam to Caballo Dam (Rio Grande, 2101, 2102), E, Partially Supported, (LRG1-20000). Removed from the list due to incorrect listing (by USGS) of a pH value of 9.3. See letter from USGS.

Water quality standards, as assessed using the 1998 Assessment Protocol, are currently being met for pH on the Lower Rio Grande.

2002 ACTION: None. The original assessment unit "Rio Grande from Leesburg Dam to Caballo Reservoir" was split into two because they fall under two different water quality standard segments.

2004 ACTION: None

2006 ACTION: This reach was intensively sampled as part of the Lower Rio Grande (2004) survey. There were 4 of 23 exceedences (17.4%) of the E. coli criterion of 410 cfu/100ml. The WQS also changed from fecal coliform to E. coli. **Therefore, E. coli will be added as a cause of non support.**

2008 ACTION: None

Rio Grande (one mile below Percha Dam to Caballo Reservoir)
WQS: 20.6.4.102 AU: NM-2102.A_00

2004 ACTION: Previously listed under "Rio Grande from Leesburg Dam to Caballo Reservoir" and listed for pH. The original assessment unit was split into two because they fall under two different water quality standard segments. This

AU is only 1 mile long.

2006 ACTION: This reach was intensively sampled as part of the Lower Rio Grande (2004) survey. There were no changes as a result of the survey.

2008 ACTION: None

Rio Grande (International Mexico boundary to Leesburg Dam)
WQS: 20.6.4.101 AU: NM-2101_00

NOTE: This AU has been replaced with the below three separate AUs. The 2002 and 2004 ACTION for the old AU definitionis retained for historical reference to previous lists.

Previously listed for total ammonia, chlorine, pH and stream bottom deposits. The data set for total ammonia includes data collected from 14 stations during sampling events in 1988, 1991, 1993, 1994, 1995, 1996, and 1997. Several stations show various levels of impacts in the data greater than five years old. For data collected within the last five years the aggregate ratio of exceedences to samples is 0/152. These data support removal of total ammonia as a cause of nonsupport. Chlorine data in STORET is very limited there are no stations with greater than one chlorine exceedence recorded. Additional data was collected in January, 1998. All values were below the field quantification levels of the instrument and only 1/53 exceeded the criteria. The reach should be listed as fully supporting chlorine. There are eleven stations with pH data. The aggregated ratio of criteria exceedences to samples for pH is 1/138. In a January 9, 1998 letter to NMED, Jim Brooks of the U.S. Fish & Wildlife Service, New Mexico Fishery Resources Office stated that "... a total maximum daily load for siltation in the middle and lower Rio Grande in New Mexico would not improve habitat conditions for the native fish fauna".

1998 ACTION: *The reach will be listed for 1.7 miles of unknown toxicity.*

2000 ACTION:

Rio Grande from NM-TX border to Leasburg Dam, (Rio Grande, 2101), E, Partially Supported. Removed from the list due to findings from Tetra Tech (Jerry Diamond) that unknown toxicity in this reach is not a source of impairment and a TMDL is not necessary at this time. See accompanying letter from Tetra Tech.

Water quality standards, as assessed using the 1998 Assessment Protocol, are currently being met for unknown toxicity on the Lower Rio Grande.

2002 ACTION: *None*

2004 ACTION: *The current WQS segment states "…The main stem...from the international boundary and water commission [IBWC] sampling station above American Dam upstream to one mile below Percha Dam." It is SWQB's current understanding that the IBWC station at Courchesne Bridge (station #13272)*

is the one referred to in this definition. This station and point on the Rio Grande is actually located in Texas. There is also a second International Boundary and Water Commission (IBWC) station above American Dam (station #13276). SWQB has proposed in the 2004 triennial review to change the end point to the international border with Mexico, which should clarify things, and will include a few small reaches of the Rio Grande below Courchesne Bridge which are in New Mexico or form a shared border with Texas that are currently unclassified. The common point shared by the borders of New Mexico, Texas and Mexico is at the center of the Rio Grande just below American Dam.

The IBWC submitted data for consideration during the development of the 2004-2006 list. This data meets QA requirements noted in the Assessment Protocol. The single sample fecal coliform criterion of 400 cfu/100mL was exceeded 144 of 272 (53%) times at station IBWC 13272 (Rio Grande 1.7 miles upstream of American Dam near El Paso, TX) and 0 of 29 (0%) times at station IBWC 13276 (Rio Grande upstream of East Drain near Anthony, NM). The City of Las Cruces data indicates 17 of 108 exceedences above the Las Cruces WWTP and 6 of 108 exceedences downstream of the WWTP. El Paso Community College data indicates 31 of 38 exceedences at Sunland Park. NMSU data indicates 6 of 23 exceedences. Therefore, this AU will be listed for fecal coliform.

This difference in exceedence rates at various locations within the current assessment unit indicates that it may be appropriate to split the assessment unit at some point between Anthony and El Paso. SWQB is in the process (2004) of conducting an intensive water quality survey of the Lower Rio Grande from Elephant Butte to the Texas border. The results of this study, along with IBWC data and data collected by other entities that meets QA requirements, will be used to refine this assessment unit into two or more assessment units as appropriate for the 2006-2008 listing cycle.

2006 ACTION: *This reach was intensively sampled as part of the Lower Rio Grande (2004) survey. There were 18 of 58 exceedences (31%) of the E. coli criterion of 410 cfu/100ml. The WQS also changed from fecal coliform to E. coli.* ***Therefore, the listing will be changed from fecal coliform to E. coli.***

Rio Grande (International Mexico bnd to Anthony Bridge)
WQS: 20.6.4.101 AU: NM-2101_00

2006 ACTION: This reach was intensively sampled as part of the Lower Rio Grande (2004) survey. There were 7 of 20 exceedences (35%) of the E. coli criterion of 410 cfu/100ml. The WQS also changed from fecal coliform to E. coli. **Therefore, this AU will be listed for E. coli.**

2008 ACTION: A TMDL was completed for E. coli. The IBWC submitted data for IBWC station 13272 (Rio Grande upstream of American Dam. From Sept 2001 through May 2007, there were 42 of 81 exceedences of the E. coli criterion, confirming the existing E. coli impairment.

Rio Grande (Anthony Bridge to Picacho Bridge)
WQS: 20.6.4.101 AU: NM-2101_01

2006 ACTION: This reach was intensively sampled as part of the Lower Rio Grande (2004) survey. There were 5 of 18 exceedences (28%) of the E. coli criterion of 410 cfu/100ml. The WQS also changed from fecal coliform to E. coli. **Therefore, this AU will be listed for E. coli.**

2008 ACTION: A TMDL was completed for E. coli.

Rio Grande (Picacho Bridge to Leasburg Dam)
WQS: 20.6.4.101 AU: NM-2101_02

2006 ACTION: This reach was intensively sampled as part of the Lower Rio Grande (2004) survey. There were 5 of 18 exceedences (28%) of the E. coli criterion of 410 cfu/100ml. The WQS also changed from fecal coliform to E. coli. **Therefore, this AU will be listed for E. coli.**

2008 ACTION: A TMDL was completed for E. coli.

SOUTHWEST CLOSED BASIN

HUC 13030202 Mimbres

Bear Canyon Reservoir
WQS: 20.6.4.504 AU: NM-2504_30

1998 ACTION: This lake is listed for mercury in fish tissue because there are fish consumption guidelines due to mercury contamination.

2000 ACTION:

Bear Canyon Reservoir was characterized (in a report titled, ***New Mexico Clean Lakes Program, Classification Phase I, Final Report, September 1982*** and a report titled***, Lake Water Quality Assessment Surveys for Selected New Mexico Lakes, 1996)*** by hypolimnetic dissolved oxygen depletion and blue-green algal blooms during the summer. Chlorophyll a concentrations were exceedingly high during the summer, 128ug/l at the dam. Nitrogen concentrations exceeded 2 mgN/l in the photic zone, representing the highest observed nitrogen concentration. During the fall both the nutrient and chlorophyll concentrations and pH decreased considerably, while moderate stratification remained. Phosphorous was limiting or co-limiting in all seasons.

Although the data for this reservoir is dated, it is still listed in the State's 305(b) Report as impaired for dissolved oxygen, nutrients and siltation and therefore will be listed on the 303(d) List until new data are collected to either verify or refute the listing.

2002 ACTION: None

2004 ACTION: None

2006 ACTION: None

2008 ACTION: This lake was scheduled to be surveyed during 2003. The reservoir was dry at that time because it was being dredged. The reservoir now maintains water and a put-and-take fishery (as of 2/5/08). The sedimentation/siltation listing was removed because there were no data or applicable assessment protocols available to make this determination.

Cold Springs Creek (Hot Springs Creek to headwaters)
WQS: 20.6.4.803 AU: NM-2803_11

Listed for undetermined metals. Water samples were collected upstream of Cold Springs Creek and downstream of a sediment retention basin in November 1992 and February 1993 and analyzed for metals. Concentrations of dissolved copper (1.20 and 0.60 mg/L) and zinc (0.20 mg/L) exceeded acute criteria that indicate that the acute criteria would be exceeded in the receiving stream.

1998 ACTION: This reach is included in the 1998 303(d) list as not supported for copper and zinc.

2000 ACTION: None

2002 ACTION: None

2004 ACTION: This reach was to be surveyed as part of the 2002 Mimbres intensive survey. There was no flow during the entire survey. Only livestock watering and wildlife habitat uses apply. 1993 values did not exceed the zinc livestock watering criteria 25 mg/L. The copper criterion of 0.5 was exceeded in 1993. Neither criterion were exceeded ina 1998 sample event (<0.01 mg/L copper and 0.02 mg/L zinc). **Therefore, copper and zinc were removed as causes of non support.**

2006 ACTION: None

2008 ACTION: None. This AU is likely not perennial. It went dry during the last intensive survey.

Gallinas Creek (Mimbres River to headwaters)
WQS: 20.6.4.98 AU: NM-2803_20

Previously listed for temperature, fecal coliform, and total ammonia. There is only one sample station on this reach. All data are from a 1990 and 1995 surveys. For temperature, 1/2 of the samples taken in the 1990 survey exceeded the criteria, while 4/6 of the samples taken in the 1995 survey exceeded the criteria. For fecal coliform, 0/1 of the samples taken in the 1995 survey exceeded the criteria. For total ammonia, 0/6 of the samples taken in the 1995 survey exceeded the criteria.

1998 ACTION: Total ammonia will be removed as a cause of non-support for this reach. Fecal coliform will be dropped as a cause of non-support on the 303(d) list and will be added to the 305(b) list as Full Support, Impacts Observed. The reach will continue to be listed on the 1998 303(d) report as Partially Supported for temperature.

2000 ACTION: None

2002 ACTION: None

2004 ACTION: This reach was to be surveyed as part of the 2002 Mimbres intensive survey. The station "Gallinas Creek above Mimbres" was dry during the entire survey and the stations "Gallinas Creek @ lower CG near 152" was dry during 6 of 8 sampling events. Only livestock watering and wildlife habitat uses apply (no impairments were determined for these uses based on the two sampling events with flow), **therefore temperature was removed as a cause of non support.** This AU will be listed as category 4C because irrigation diversions are altering the flow.

2006 ACTION: None

2008 ACTION: None

Hanover Creek (Whitewater Creek to headwaters)
WQS: 20.6.4.98 AU: NM-2803_31

After consultation with staff from the NMED Silver City Office, Nonpoint Source Pollution Section of the SWQB, comments from the New Mexico Mining Association and Phelps Dodge Mining Company, it has been determined that this reach of Hanover Creek (Hanover Creek from the headwaters to Highway 152 Bridge) is ephemeral and should be removed from the 1998-2000 303(d) List as an impaired waterbody.

1998 ACTION: It has been dropped from the 1998 303(d) list.

2000 ACTION: None

2002 ACTION: None

2004 ACTION: None

2006 ACTION: None

2008 ACTION: This AU is likely ephemeral, but EPA has not yet approved 20.6.4.97 and UAAs have not been prepared at the time of this writing (6/4/08). Therefore, this AU will be noted as WQS Reference 20.6.4.98 for now and UAAs are planned.

Hot Springs Creek (Mimbres River to the headwaters)
WQS: 20.6.4.803 AU: NM-2803_10

Listed for reduction of riparian vegetation and streambank destabilization. There is no applicable data to support any listing on this reach. This is also an intermittent stream that flows only during rain events.

1998 ACTION: This reach will be retained on the 303(d) list with a cause of unknown.

2000 ACTION: None

2002 ACTION: None

2004 ACTION: This reach was to be surveyed as part of the 2002 Mimbres intensive survey. There was no flow during the entire survey. Only livestock watering and wildlife habitat uses apply. **Unknown was removed as a cause of non support.**

2006 ACTION: None

2008 ACTION: None. This AU is likely not perennial. It went dry during the last intensive survey.

Mimbres R (Perennial reaches downstream of Willow Springs)
WQS: 20.6.4.803 AU: NM-2803_00

Previously listed for metals (Al), temperature, fecal coliform and stream bottom deposits. There are three sampling stations on this reach. All data are from 1990 and 1995 surveys. For metals, at station SWC803.000105, 0/1, of the samples exceeded the criteria in the 1990 survey, while 1/2 of the samples taken in the 1995 survey exceeded the criteria. At station SWC803.002501, 0/7 of the samples taken in 1990 exceeded the criteria, while 0/3 of the samples taken in 1995 exceeded the chronic screening level indicating Full Support,Impacts Observed. At station SWC803.002530, 0/1 of the samples taken in 1990 exceeded the criteria,while 0/3 of the samples taken in 1995 exceeded criteria. For temperature, at station SWC803.000105, 1/1 of the samples exceeded the criteria in the 1990 survey, while 2/3 of the samples taken in 1995 exceeded criteria. At station SWC803.002501, 3/4 of the samples taken in 1990 exceeded the criteria, while 5/9 of the samples taken in 1995 exceeded criteria. At station SWC803.002530, 3/5 of the samples taken in 1990 exceeded the criteria, while 1/9 of the samples taken in 1995 exceeded criteria. For fecal coliform, at station SWC803.000105, 0/0 of the samples exceeded the criteria in the 1990 survey, while 0/1 (0%) of the samples taken in 1995 exceeded criteria. At station SWC803.002501, 1/1 of the samples taken in 1990 exceeded the criteria, while 0/2 of the samples taken in 1995 exceeded criteria. At station SWC803.002530, 2/2 of the samples taken in 1990 exceeded the criteria, while 0/2 of the samples taken in 1995 exceeded criteria. There are three 1995 biological stations on this reach. One below San Lorenzo was 75%, another at Mimbres was 68% and another above the Gallinas River confluence was FS 81%. It is believed that these data may be more influenced by low flow conditions than water quality.

1998 ACTION: Fecal coliform and aluminum will be removed as causes of non-support for this reach, but will be added to the 305(b) list as Full Support, Impacts Observed for these parameters. The reach will continue to be included in the 303(d) list as Not Supported for temperature and stream bottom deposits.

2000 ACTION: None

2002 ACTION: None

2004 ACTION: Previously called "Mimbres River (Perennial reaches downstream of Sheppard Canyon)," the name was changed to match the WQS break and use a hydrologic break. This reach was intensively surveyed as part of the 2002 Mimbres study. A pebble count and benthic macroinvertebrate survey was performed at the Mimbres @ USGS gage site and at station Dwyer near Rancho del Rio. There were 10% fines and 17% fines, respectively. The benthic macroinvertebrate data are not available at the time of this writing, but is irrelevant to the SBD listing decision (according to the Stream Bottom Deposit Assessment Protocol) because the fines are 20% or less. **Therefore, stream bottom deposits will be removed as a cause of non support.** There were 9 of 23 exceedences of the fecal coliform criterion. Thermographs at the USGS gage site and Gallinas site recorded 296 of 2862 and 296 of 2861 hourly readings greater than 24 degrees C, respectively. **Therefore, temperature will remain and fecal coliform will be added as a cause of non support.** This reach will be listed as Category 5B because CWF with WQS of 20 degrees C may not be appropriate.

2006 ACTION: None

2008 ACTION: A Level 2 nutrient assessment indicated nutrient impairment due to total nitrogen, total phosphorus, and chlorophyll *a* values above applicable numeric thresholds. **Therefore, nutrients were added as a cause of impairment.**

Mimbres R (Perennial reaches Willow Springs to Cooney Cny)
WQS: 20.6.4.804 AU: NM-2804_00

Listed for metals (Al), dissolved oxygen and stream bottom deposits. There are three sampling stations on this reach. All data are from 1986, 1990 and 1995 surveys. For aluminum, at station 08477110, 0/2 of the samples exceeded the criteria in the 1986 survey. At station SWC804.003035, 0/1, of the samples exceeded the criteria in the 1990 survey, while 0/4 of the samples taken in the 1995 survey exceeded the criteria. At station SWC804.006048, 0/1 of the samples taken in 1990 exceeded the criteria, while 1/4 of the samples taken in 1995 exceeded criteria. For dissolved oxygen, at station 08477110, 0/4 of the samples exceeded the criteria in the 1986 survey. At station SWC804.003035, 0/5, of the samples exceeded the criteria in the 1990 survey, while 0/9 of the samples taken in the 1995 survey exceeded the criteria. At station SWC804.006048, 0/3 of the samples taken in 1990 exceeded the criteria, while 2/5 of the samples taken in 1995 exceeded criteria. For temperature (not previously listed), at station 08477110, 1/5 of the samples exceeded the criteria in the 1986 survey. At station SWC804.003035, 4/5, of the samples exceeded the criteria in the 1990 survey, while 4/9 of the samples taken in the 1995 survey exceeded the criteria. At station SWC804.006048, 0/3 of the samples taken in 1990 exceeded the criteria, while 0/9 of the

samples taken in 1995 exceeded criteria. There is one 1995 biological assessment on this reach. The station at Cooney Campground was 56% of the reference site.

1998 ACTION: Aluminum will be removed as a cause of non-support for this reach and will be placed on the 305(b) list as Full Support, Impacts Observed. Dissolved oxygen will be kept as a cause of non-support for station 6048. Temperature will be added as a cause of non-support at station 3035. Stream bottom deposits will be retained as a cause of non-support.

2000 ACTION: None

2002 ACTION: None

2004 ACTION: Previously called "Mimbres River (Sheppard Canyon to Cooney Campground)," the name was changed to match the WQS break and use a hydrologic break. This reach was intensively surveyed as part of the 2002 Mimbres study. A pebble count and benthic macroinvertebrate survey was performed at the Nature Conservancy. This station was used as a reference for the lower AU. There were 20% fines. The benthic macroinvertebrate data are not available at the time of this writing, but is irrelevant to the SBD listing decision (according to the Stream Bottom Deposit Assessment Protocol) because the fines are 20% or less. **Therefore, stream bottom deposits will be removed as a cause of non support.** There were 2 of 10 dissolved oxygen measurements lower than the 6.0 mg/L criterion. Thermographs at the upper Nature Conservancy site and lower Nature Conservancy site recorded 0 of 2839 and 280 of 2835 hourly readings greater than 23 degrees C, respectively. The maximum temperature at the upper stie was 18.57 degree C. **Therefore, dissolved oxygen and temperature will remain and as causes of non support.** This reach will be listed as Category 5B because HQCWF with WQS of 20 degrees C may not be appropriate.

2006 ACTION: None

2008 ACTION: A Level 2 nutrient assessment indicated nutrient impairment due to total nitrogen, total phosphorus, and chlorophyll *a* values above applicable numeric thresholds, as well as low DO (grab data). **Therefore, nutrients were added as a cause of impairment.**

CENTRAL CLOSED BASIN

HUC 13050003 Tularosa Valley

Dog Canyon (Tularosa to headwaters)
WQS: 20.6.4.801 AU: NM2801_20

2006 ACTION: This AU was intensively surveyed as part of the Tularosa (2004) survey. There were 2 of 6 exceedences of the 20 degree C temperature criterion. **Therefore, temperature was added as a cause of non support**. Thermograph data are needed.

2008 ACTION: None

Three Rivers (Perennial HWY 54 to USFS except Mescalero)
WQS: 20.6.4.802 AU: NM-2802_00

Previously listed for temperature, conductivity, salinity and total phosphorus based on data at two stations during a 1987 survey. Temperature data from 1987 at station CCB802.002025 shows a 4/5 exceedence ratio and a 5/5 exceedence ratio at station CCB802.002015. Conductivity data from 1987 at station CCB802.002025 shows a 5/5 exceedence ratio and a 4/4 exceedence ratio at station CCB802.002015.

1998 ACTION: Salinity (no standard) and total phosphorus will be removed as a cause of non-support for this reach. Temperature and conductivity will be listed as causes of non-support at stations CCB802.002025 and CCB802.002015.

2000 ACTION: None

2002 ACTION: None

2004 ACTION: None

2006 ACTION: This AU was intensively surveyed as part of the Tularosa (2004) survey. There were 0 of 5 exceedences of the specific conductance criterion of 500 umhos/cm. There were 1 of 5 exceedences of the 20 degree C temperature criterion. There were 2 of 4 exceedences of the 235 cfu/100mL E. coli criterion. **Therefore, temperature and specific conductance were removed, and E. coli was added as a cause of non support**.

2008 ACTION: The station used for the 2006 ACTION above (THREE RIVERS AT FOREST SERVICE CAMPGROUND - 48ThreeR022.8) is actually indicative of water quality conditions in the upper assessment unit ["Three Rivers (USFS bnd to headwaters)"] . SWQB does not have any recent water quality sampling data in the reach from HWY 54 to the USFS boundary. There is extensive irrigation in the reach from surface water diversion as well as ground water pumping in the lower portion of the assessment unit. Therefore, this AU is listed under Category 4C with an impairment of Low Flow Alteration diversion (flow modification) "pollution" is de-watering this reach.

Three Rivers (USFS bnd to headwaters)
WQS: 20.6.4.802 AU: NM-2802_01

2008 ACTION: This AU was intensively surveyed as part of the Tularosa (2004) survey. At station THREE RIVERS AT FOREST SERVICE CAMPGROUND - 48ThreeR022.8, there were 0 of 5 exceedences of the specific conductance criterion of 500 umhos/cm. There were 1 of 5 exceedences of the 20 degree C temperature criterion. There were 2 of 4 exceedences of the 235 cfu/100mL E. coli criterion. **Therefore, E. coli was added as a cause of non support**. A TMDL was prepared in 2008.

Tularosa Creek (Old US70 crossing to Mescalero Apache bnd)
WQS: 20.6.4.801 AU: NM-2801_01

Listed as a LWWF (priority 7 reach) and for metals (Al, Hg). The Bureau received three letters from concerned groups in the area pertaining to this particular waterbody. Questions about the designated use prompted the Bureau to look into the applicability of the LWWF designation. A fish hatchery located on the river in Mescalero and operated by the U.S. Fish and Wildlife Service as well as other information contained in the letters led to a change in the designated use from a LWWF to a CWF. There is one sampling station (08481500) on this reach. All data are from 1989, 1990, 1991, 1992 and 1993 surveys. For aluminum (Al), 2/17 samples taken from 1989 to 1992 exceeded the criteria while 0/3 sample in the 1993 survey exceeded the criteria. For mercury (Hg), 1/10 samples taken from 1989 to 1991 exceeded the criteria. The designated use is fully supported for aluminum (Al) while it is fully supported, impacts observed for mercury (Hg).

1998 ACTION: This reach will be restored to the 303(d) list as a result of our decision to list all reaches where Riparian Habitat was moved as a Cause of non-support.

2000 ACTION: None

2002 ACTION: None. Revised name to acknowledge tribal jurisdiction.

2004 ACTION: None

2006 ACTION: The name was revised to match the language in the WQS segment. This AU was intensively surveyed as part of the Tularosa (2004) survey. The reach was sampled seven times for a variety of chemical/physical parameters. – there were no exceedences of any parameters. There were 0 of 3 exceedences for E. coli. A sonde was deployed to assessed DO and pH. The nutrient assessment was performed, with a conclusion of full support. **Therefore, Unknown was removed as a cause of non support.**

2008 ACTION: None

PECOS RIVER BASIN

UPPER PECOS (Ft. Sumner to headwaters)

HUC 13060001 Pecos Headwaters

Beaver Creek (Porvenir Creek to the headwaters)
WQS: 20.6.4.215 AU: NM-2212_04

Previously listed as Beaver Creek for streambottom deposits, reduction of riparian vegetation and streambank destabilization. No associated physical/chemical data are available.

1998 ACTION: The reach was retained on the 303(d) with stream bottom deposits as the cause of non-support.

2000 ACTION: None

2004 ACTION: This assessment unit was intensively sampled during the 2001 Upper Pecos Part 2 survey. There were no exceedences of any water quality standards. There is no new information available at this time (4/8/04) regarding the SBD/sedimentation/siltation listing.

2006 ACTION: The Protocol for the Assessment for Stream Bottom Deposits was utilized to assess the historic SBD listing. There was a 1450% increase in percent fines (2% vs. 31%), and biological score of 96% of reference, using Hollinger as the reference site. **Therefore, sedimentation/siltation was removed as a cause of non support**.

2008 ACTION: Sedimentation/siltation was inadvertently left on the 2006-2006 Integrated List even though the above de-list rationale was noted in the ROD. The impairment was removed from the list.

Bull Creek (Cow Creek to headwaters)
WQS: 20.6.4.217 AU: NM-2214.A_091

2004 ACTION: This assessment unit was intensively sampled during the 2001 Upper Pecos Part 2 survey. A thermograph recorded a maximum temperature of 26.6 degrees C. **Therefore, temperature will be added as a cause of non support.**

2006 ACTION: A temperature TMDL was prepared.

2008 ACTION: None

Cow Creek (Pecos River to Bull Creek)
WQS: 20.6.4.217 AU: NM-2214.A_090

Previously listed for stream bottom deposits, reduction of riparian vegetation and stream bank destabilization. No associated physical/chemical data are available.

1998 ACTION: The reach was retained on the 303(d) with stream bottom deposits as the cause of non-support.

2000 ACTION: None

2002 ACTION: None

2004 ACTION: Previously called "Cow Creek (Pecos River to headwaters)", this assessment unit was split after it was intensively sampled during the 2001 Upper Pecos Part 2 survey. A thermograph deployed below the confluence with Bull Creek recorded a maximum temperature of 27.15 degrees C. A second thermograph was deployed in 2003 to verify the listing. There were also 8 of 8 turbidity exceedences, likely due to a high intensity wildfire in the upper reaches of this watershed in 2000. **Therefore, temperature and turbidity will be added as causes of non support.**

2006 ACTION: TMDLs were prepared for temperature and turbidity. All numeric segment-specific turbidity criteria were removed during the 2005 triennial review, and replaced with General Criteria 20.6.4.13.J. New assessment methods to determine turbidity impairment based on this new language are not yet available. SWQB will retain historic turbidity listings in the interim.

The Protocol for the Assessment for Stream Bottom Deposits was utilized to assess the historic SBD listing. Cow Creek at the campground was deemed a reference site. Therefore, biological score as a % of reference was 100%. There were 8% fines at this site. **Therefore, sedimentation/siltation was removed as a cause of non support**.

2008 ACTION: None

Cow Creek (Bull Creek to headwaters)
WQS: 20.6.4.217 AU: NM-2214.A_102

2004 ACTION: Previously called "Cow Creek (Pecos River to headwaters)", this assessment unit was split after it was intensively sampled during the 2001 Upper Pecos

Part 2 survey. A thermograph deployed below the confluence with Bull Creek recorded a maximum temperature of 26.31 degrees C. A second thermograph was deployed in 2003 to verify the listing. There were also 9 of 9 turbidity exceedences, likely due to a high intensity wildfire in the upper reaches of this watershed in 2000. **Therefore, temperature and turbidity will be added as causes of non support.**

2006 ACTION: TMDLs were prepared for temperature and turbidity. All numeric segment-specific turbidity criteria were removed during the 2005 triennial review, and replaced with General Criteria 20.6.4.13.J. New assessment methods to determine turbidity impairment based on this new language are not yet available. SWQB will retain historic turbidity listings in the interim.

The Protocol for the Assessment for Stream Bottom Deposits was utilized to assess the historic SBD listing. There was a 25% increase in percent fines (8% vs. 10%), and biological score was 86% of reference, using Cow Creek at the campground as the reference site. **Therefore, sedimentation/siltation was removed as a cause of non support**.

2008 ACTION: None

Gallinas River (Las Vegas reservoir to headwaters)
WQS: 20.6.4.215 AU: NM-2212_00

Previously listed for turbidity, stream bottom deposits and temperature. Turbidity information is available from three stations. Station 08380000 has an exceedences ratio of 2/11 while stations 08379940 and UPR212.002530 are 0/18 and 0/3 respectively. The listing for turbidity should be partially supported at station 08380000 and full support at the other two stations. Temperature data are available from six stations. SWQB station HP32 the exceedences ratio is 2/23 for a Full Support, Impacts Observed assessment. At station 08380500, the ratio is 3/18 or partially supported. All other stations are full support. Aluminum should be added to the listing due to acute exceedences 3/17 at station HP32 during the last 5 years. This station is not supported for acute aluminum exceedences. Station UPR212.002530 also has shown one exceedence in the past five years and should be listed as Full Support, Impacts Observed. Three stations were selected for biological assessments on the Gallinas River above the diversion in 1993. The upper most station was selected as the reference site for this survey. The next down stream site was located just above the confluence with Porvenir Creek was FS (96%). The next down stream site at the USGS gage near the diversion was Full Support, Impacts Observed (75%). The cited cause of reduced biological community at the lower site was impacts from sediment in the river.

1998 ACTION: Turbidity, stream bottom deposits and temperature were retained as causes of non-support. Aluminum was added as a cause of non-support.

2000 ACTION: None

2002 ACTION: None

2004 ACTION: This assessment unit was split after it was intensively sampled during the 2001 Upper Pecos Part 2 survey. Grab data at three stations indicated 2 or 24 temperature exceedences. Thermographs were deployed in 2003 at both the USFS boundary and near the USGS gage above the Las Vegas diversion. Both showed exceedences of 23 degrees C. **Therefore, temperature shall remain a cause of non support.** According to the survey lead, there are breeding populations of brown trout and rainbow trout all through this AU. At the forest service boundary location, water is warmed by slow passage through the beaver ponds above the campground – these ponds are full of trout. At the lower site, the water passing through the Las Vegas watershed is warmed significantly because of the nature of the canyon – much bedrock, little or no shade. There were 0 of 24 exceedences of the chonic aluminum criterion of 0.087 mg/L. There were 3 of 24 exceedences of the turbidity criterion of 10 NTU. **Therefore, aluminum and turbidity will be removed as a cause of non support.** There is no new information available at this time (4/8/04) regarding the SBD/sedimentation/siltation listing.

2006 ACTION: A TMDL was prepared for temperature. The Protocol for the Assessment for Stream Bottom Deposits was utilized to assess the historic SBD listing. Gallinas at FR 263 was deemed a reference site. Therefore, biological score as a % of reference was 100%. There were 23% fines at this site. **Therefore, sedimentation/siltation was removed as a cause of non support**.

2008 ACTION: None

Gallinas River (San Augustin to Las Vegas diversion)
WQS: 20.6.4.216 AU: NM-2213_21

Previously listed for unknown toxicity, dissolved oxygen, turbidity, total ammonia, stream bottom deposits and temperature. Intensive surveys were conducted by the SWQB in 1990 and 1993. The listing for unknown toxicity is from toxicity testing conducted at stations near the WWTP in Las Vegas during the 1990 survey. Toxicity was noted in waters immediately upstream from the WWTP and in the effluent itself. This listing is valid in a distance from above the WWTP to the first station below the WWTP. Dissolved oxygen data are available from seven stations along this reach. All stations are full support for dissolved oxygen (1/60). The turbidity listing is erroneous because there is no turbidity standard for this segment. Total ammonia data show 15/15 exceedences at station UPR211.001525 that is immediately downstream from the Las Vegas WWTP. No exceedences are recorded at other stations above and below this station. This station should be listed as not supported for total ammonia. Temperature information is available from both surveys. The cumulative temperature exceedences for both surveys were 0/123. This entire reach should be upgraded to full support for temperature. An additional listing will be made for biological assessment based on information from the 1993 survey. All stations from the biological assessment

were full support with the exception of station UPR211.001525 that is the station immediately downstream from the WWTP. This station was 42% of the reference condition with a nutrient enrichment index (Hilsenhoff Biotic Index) of 7.24 that places it as fairly poor with significant organic pollution present.

1998 ACTION: Dissolved oxygen, turbidity and temperature were removed as causes of non-support. Unknown toxicity, ammonia and stream bottom deposits were retained as causes of non-support.

2000 ACTION: None

2002 ACTION: None

2004 ACTION: This assessment unit was intensively sampled during the 2001 Upper Pecos Part 2 survey. There was one exceedence of the chronic aluminum criteria of 0.087 mg/L using the summer consecutive day mean. **Therefore, aluminum will be removed as a cause of non support.** Benthic macroinvertebrates were sampled at the station @ San Augustin and compared to the reference station Gallinas River 01. The bio score was 78% of reference. There were 37% fines at the study station compared to 32% fines at the reference station. **Therefore, SBD will be removed and benthic macroinvertebrates will be added as a cause of non support** Additional data will need to be collected to determine the cause.

During the time of the 2001 survey, there was a major problem with the WWTP in this AU due to improper installation of the chlorination/de-chlorination system. The fecal coliform criterion was exceeded 4 of 9 times (44%) and the chronic ammonia criterion was exceeded three times (more than one leads to a listing according to the Assessment Protocol). There were also three chronic sediment toxicity tests (all on 11/13/01) with significant effect noted as compared to controls or reference conditions (see http://www.epa.gov/earth1r6/6wq/ecopro/watershd/monitrng/toxnet/nm.pdf). **Therefore, total ammonia remains, unknown toxicity was changed to sediment bioassay – chronic toxicity, and fecal coliform was added as causes of non support.** The improper installation has since been repaired, which is expected to have corrected the fecal coliform problem (80cfu/100mL measured on 8/28/2002. SWQB NPDES staff note there is still a concern regarding the WWTP's ability to reduce both ammonia and total nitrogen. This AU will be listed as category 5C until additional data are gathered to 1) determine whether exceedences of the fecal coliform and total ammonia criteria are still occurring, 2) determine any potential plant nutrient impairment, and 3) determine the cause of sediment toxicity (if it is still occurring).

2006 ACTION: None

2008 ACTION: The above 2001 chronic sediment toxicity tests were repeated in this assessment unit to help determine whether or not improvements at the WWTP were effective. Repeat chronic sediment toxicity tests were performed on sediment samples collected 9/18/07 at Gallinas @ St. Augustine at the bottom of the assessment unit. There were significant effects to Ceriodaphnia dubia after 7 days of exposure (secondary endpoint of reproduction). There were no significant effects to Pimephales promelas after 7 days of exposure. Also, during revisions to the 2008 Assessment Protocols, significant effects in acute or chronic sediment toxicity test results were removed as potential causes for listing. Therefore, **Sediment Bioassay – Chronic was removed as a cause of non support.**

Glorieta Creek (Pecos River to headwaters)
WQS: 20.6.4.217 AU: NM-2214.A_081

2004 ACTION: This AU was intensively sampled during the 2001 Upper Pecos survey. There were 3 of 16 exceedences of the dissolved nitrate criterion, 16 of 16 exceedences of the specific conductance criterion, 3 of 14 exceedences of the dissolved oxygen criterion, 2 of 16 exceedences of the acute ammonia criterion, and 3 of 15 exceedences of the turbidity criterion. A thermograph deployed at the station Glorieta above Pecos @ Pecos NHP recorded a maximum temperature of 29.38 degrees C. **Therefore, these parameters were all listed as causes of non support**. Results from the station immediately below the Glorieta Conference Center WWTP contributed to these impairment listings. Flow at this station is 100% effluent-dominated, therefore HQCWF is likely not an existing or attainable use in this entire AU. Accordingly, the Impairment Category for this AU is 5B.

2006 ACTION: None

2008 ACTION: None

Holy Ghost Creek (Pecos River to headwaters)
WQS: 20.6.4.217 AU: NM-2214.A_020

Previously listed for metals (aluminum) and reduction of riparian vegetation. The data are from 1991 and 1992. The exceedence ratio of the 1.5 times the chronic screening criteria is 2/7. The chronic screening criterion is 130.5ug/l. The exceedences were 300ug/l and 200ug/l respectively.

1998 ACTION: The reach was retained on the 303(d) with metals (aluminum) as the cause of non-support.

2000 ACTION: None

2002 ACTION: None

2004 ACTION: This assessment unit was intensively sampled during the 2001 Upper Pecos Part 1 survey. There were 0 of 8 exceedences of the chronic aluminum criteria of 0.087 mg/L. **Therefore, aluminum will be removed as a cause of non support.**

2006 ACTION: None

2008 ACTION: None

McAllister Lake
WQS: 20.6.4.213 AU: NM-2211.3_00

2006 ACTION: This is a nutrient rich fishing lake. The human health criterion for arsenic (9.0 ug/L) was exceeded during 4of 6 sampling events in 2001. **Therefore, arsenic was added as a cause of impairment to aquatic life uses.** NMED has collected fish tissue to be analyzed for arsenic to determine if a fish consumption advisory is warranted.

2008 ACTION: None

Pecos River (Alamitos Canyon to Willow Creek)
WQS: 20.6.4.217 AU: NM-2214.A_002

Previously listed for turbidity and metals (Zn, Pb, and Al). Turbidity data fromthree stations show exceedence ratios of 1/12 at UPR214.006020, 3/18 at station CON08, and 3/19 at UPR080. This reach should have a listing of partially supported for turbidity. For chronic aluminum ratios at the three stations are 5/12, 5/10, and 4/9. This reach should be listed as not supported for chronic aluminum. For chronic lead, the ratios at four stations are 0/12, 0/2, 0/10, and 0/9 with all values reported as <5 ug/l. Lead should be removed as a cause of nonsupport for this reach. Dissolved zinc data shows several exceedences of the acute criteria. Stations UPR080 have a ratio of 5/10 and UPR214.006020 has a ratio of 2/9. Station Pecos CON08 has 0/10 with all values reported as less than detection. Stations UPR080 and UPR214.006020 should be listed as not supported for zinc. However, there are pollution control requirements for metals in the decision document issued by NMED pursuant to an Administrative Order and Consent for the Terrero mine. The Surface Water Quality Bureau has reviewed the remediation document and believes that these requirements are stringent enough to implement all applicable water quality standards. The draft decision document was reviewed by EPA Region 6, (Superfund Division), and found to be acceptable. Because of these requirements, a TMDL for metals is not necessary.

1998 ACTION: Metals were removed from the 303(d) list and will be placed on the 305(b) Report as a cause of non-support. Turbidity was retained as a cause of non-support.

NOTE: ***Pursuant to 40 CFR 130.7(b)(1)(iii), a waterbody is not required to be listed if other pollution control requirements required by State or federal authority are stringent enough to implement the appropriate water quality standards for such waters. Pollution control requirements for the old Terrero Mine are stringent enough to implement metals criteria applicable to Willow Creek and the Pecos River downstream of Willow Creek. Standards are anticipated to be met within the next two years.***

2000 ACTION: None

2002 ACTION: None

2004 ACTION: This assessment unit was intensively sampled during the 2001 Upper Pecos Part 1 survey. There was one exceedence of the chronic aluminum standard of 0.087 mg/L in the spring using seasonal means. There were 7 of 23 exceedences (30.4%) of the turbidity criteria of 10 NTUs. **Therefore, turbidity will be remain as a cause of non support.** This reach will be placed in 5B because the turbidity exceedences only occurred in the spring and were likely due to snowmelt runoff.

2006 ACTION: A TMDL was prepared for turbidity. All numeric segment-specific turbidity criteria were removed during the 2005 triennial review, and replaced with General Criteria 20.6.4.13.J. New assessment methods to determine turbidity impairment based on this new language are not yet available. SW QB will retain historic turbidity listings in the interim.

2008 ACTION: None

Pecos River (Canon de Manzanita to Alamitos Canyon
WQS: 20.6.4.217 AU: NM-2214.A_003

2006 ACTION: TMDLs were prepared for temperature and turbidity. All numeric segment-specific turbidity criteria were removed during the 2005 triennial review, and replaced with General Criteria 20.6.4.13.J. New assessment methods to determine turbidity impairment based on this new language are not yet available. SWQB will retain historic turbidity listings in the interim.

2008 ACTION: None

Pecos River (Tecolote Creek to Cañon de Manzanita)
WQS: 20.6.4.216 AU: NM-2213_00

Previously listed for stream bottom deposits, nutrients, reduction of riparian vegetation and

streambank destabilization. A 1991 intensive survey found nutrients were not impairing the fishery use.

1998 ACTION: The reach was retained on the 303(d) with stream bottom deposits as the cause of non-support.

2000 ACTION: None

2002 ACTION: None

2004 ACTION: Previously called "Pecos River (Cañon del Oso to Alamitos Canyon), this AU was intensively surveyed during the 2001 UPR 1 survey. As a result, the AU was split and end points were slightly revised. Upper boundary of assessment unit was lowered to Cañon de Manzanita (southern boundary of Pecos National Historical Park) to match Water Quality Standards. Lower boundary changed to Tecolote Creek near Anton Chico. There is no new information available at this time (4/8/04) regarding the SBD/sedimentation/siltation listing.

2006 ACTION: None

2008 ACTION: None

Pecos River (Cañon de Manzanita to Alamitos)
WQS: 20.6.4.217 AU: 2214.A_003

2004 ACTION: Previously called "Pecos River (Cañon del Oso to Alamitos Canyon)", this AU was intensively surveyed during the 2001 UPR 1 survey. There were 7 of 15 turbidity exceedences of the 10 NTU criterion. Thermographs were deployed in 2001 and 2003. The maximum temperature exceeded 23 degrees C both years. **Therefore, temperature and turbidity will be listed as a cause of non support.** This reach will be placed in 5B because the turbidity exceedences only occurred in the spring and were likely due to snowmelt runoff. Pecos National Historic Park staff are in the process of developing a plan to open the park for high quality recreational fishing. Although it is not a native trout fishery, there is an exceptional population of brown trout. This is a joint effort of the Pecos NHP, NMDGF, and NMED, and others.

2006 ACTION: None

2008 ACTION: None

Pecos River (Sumner Reservoir to Santa Rosa Reservoir)
WQS: 20.6.4.211 AU: NM-2211.A_00

Previously listed for metals (Al), stream bottom deposits and fecal coliform. Assessments on this river reach are made using five stations. Two are USGS stations and three are NMED SWQB stations. For aluminum, there has been one exceedences of all stations within the last five years. This was an acute (1/4) exceedence at USGS station 08382650. The assessment protocols allow one exceedence within five years to be classified as full, support impacts observed. However, there have been more (2/4) exceedences of the chronic screening criteria at this station that would classify the reach as partial support for chronic exceedences of the Al screening criteria. All other stations are fully supporting for this criteria. For fecal coliform there have been 0/14 exceedences of the criteria within the last ten years. This reach is fully supporting for fecal coliform.

1998 ACTION: Fecal coliform was removed as cause of non-support. Metals (aluminum) and stream bottom deposits were retained as causes of non-support.

2000 ACTION: None

2002 ACTION: None

2004 ACTION: Previously listed as "Pecos River (Summer Reservoir to Cañon del Oso)", this AU was split and renamed. This AU was intensively sampled during the 2001 UPR III survey. There were 0 of 27 exceedences of the chronic aluminum standard of 0.087 mg/L. **Therefore, aluminum will be removed as a cause of non support.** There is no new information available at this time (4/8/04) regarding the SBD/sedimentation/siltation listing.

2006 ACTION: None

2008 ACTION: None

Pecos River (Santa Rosa Reservoir to Tecolote Creek)
WQS: 20.6.4.211 AU: NM-2211.A_10

2004 ACTION: Previously listed as "Pecos River (Summer Reservoir to Cañon del Oso)", this AU was split and renamed. This AU was intensively sampled during the 2001 UPR III survey. There were 0 of 15 exceedences of the chronic aluminum standard of 0.087 mg/L. **Therefore, aluminum will be removed as a cause of non support.** There is no new information available at this time (4/8/04) regarding the SBD/sedimentation/siltation listing.

2006 ACTION: None

2008 ACTION: None

Porvenir Creek (Gallinas River to Hollinger Canyon)

WQS: 20.6.4.215 AU: NM-2212_01

Previously listed for turbidity, stream bottom deposits and temperature. Turbidity data are available from one station. Station UPR212.002520 shows exceedences of 14/33. This reach should be listed as not supported for turbidity. The temperature data are from two stations. The cumulative ten year exceedences ratio for both stations is 0/42. Temperature will be upgraded to full support. A biological assessment was conducted on Porvenir creek in 1993. The biological assessment was found to be FS (81%). In addition to the NMED biological data the USGS conducted intensive surveys for physical/chemical and biological data that is published in "Water Quality and Benthic Macroinvertebrate Bioassessment of Gallinas Creek, San Miguel County, New Mexico, 1987-90" (Water-Resources Investigations Report 96-4011). In this survey 6 separate assessment events were conducted over a 4 year period. The procedure used was equivalent to rapid bioassessment protocol III. The Porvenir Creek results in the seasonal surveys were 90, 95, 100, 90, 95, and 100% of the reference site. The report also states, "Turbidities were 10 or more units during runoff events at all sites except site 1 (the references site, watershed size 4.6 square miles). Turbidities at site 3 (Porvenir Creek) exceeding this water-quality standard are most probably due to natural causes". Descriptions within parentheses have been added for reference. Of 18 data points, the highest turbidity reported was 25 NTU during a runoff event. The weight of evidence is in support of removal of the turbidity listing.

1998 ACTION: The reach was removed from the 303(d) list.

2000 ACTION: None

2002 ACTION: None

2004 ACTION: This assessment unit was intensively sampled during the 2001 Upper Pecos Part 2 survey. There were no exceedences of any water quality standards.

2006 ACTION: None

2008 ACTION: None

Rio Mora (Pecos River to the headwaters)
WQS: 20.6.4.217 AU: NM-2214.A_040

1998 ACTION: Listed for stream bottom deposits. Change listing description to read as above.

2000 ACTION: None

2002 ACTION: None

2004 ACTION: This assessment unit was intensively sampled during the 2001 Upper Pecos Part 1 survey. Benthic scores were 84% of reference and percent fines were

lower at the study station than reference station (4 vs.7). **Therefore, SBD will be removed as a cause of non support.**

2006 ACTION: None

2008 ACTION: None

Santa Rosa Reservoir
WQS: 20.6.4.211 AU: NM-2211.B_00

1998 ACTION: Listed for siltation and nutrients. This lake is also listed for mercury in fish tissue because there are fish consumption guidelines due to mercury contamination.

2000 ACTION: None

2002 ACTION: None

2004 ACTION: None

2006 ACTION: None. This reservoir was intensively sampled in 2001. There were no exceedences of any numeric criteria. There is no documentation or justification for the historic sedimentation or nutrient listings as protocols have not been developed to determine these impairments for lakes, so these impairment listings were removed.

2008 ACTION: None

Storrie Lake
WQS: 20.6.4.214 AU: NM-2211.5_00

2006 ACTION: This lake was intensively sampled in 2001. There were no impairments identified as a result of this survey.

This lake is listed because there are fish consumption guidelines due to mercury contamination.

2008 ACTION: None

Sumner Reservoir
WQS: 20.6.4.210 AU: NM-2210_00

1998 ACTION: Listed for siltation, nutrients, and nuisancealgae. This lake is also listed for

mercury in fish tissue because there are fish consumption guidelines due to mercury contamination.

2000 ACTION: None

2002 ACTION: None

2004 ACTION: None

2006 ACTION: This reservoir was intensively sampled in 2003. There were no exceedences of chemical WQ parameters. There is no documentation or justification for the historic sedimentation or nutrient listings as protocols have not been developed to determine these impairments for lakes, so these impairment listings were removed.

2008 ACTION: None

Tecolote Creek (Village of Tecolote to Blue Creek)
WQS: 20.6.4.215 AU: NM-2212_10

There were two Tecolote Creek listings in the 1996-1998 ∂303(d) List, Tecolote Creek from Blue Creek to the headwaters (5.6 miles) and Tecolote Creek from the Village of Tecolote to Blue Creek (20.8 miles). The uppermost reach was listed for turbidity, siltation, reduction of riparian vegetation and streambank destabilization. The lower reach was not included in the 1998-2000 ∂303(d) List. STORET data for this reach was assessed along with the lower reach (UPR212.004040, 0/4 exceedences for turbidity).

Previously listed for temperature, conductivity, turbidity, stream bottom deposits and total phosphorus. Three stations were used to assess temperature. The cumulative ratio of exceedences at these three stations was 0/87. There was a SWQB survey conducted in 1987 which shows 3/5 temperature exceedences at station UPR212.004010. This reach should be listed as partially supporting for this station only. The remainder of the reach is full support. Intensive survey information for conductivity was collected between 1988 and 1992 at several USGS stations. At station 08379187 0/347 samples exceeded the conductivity criteria of 300Φmhos. Again at station UPR212.004010 3/5 samples exceeded the conductivity criteria. This station should be listed as partially supporting for conductivity. All others are fully supporting.

Turbidity is another parameter for which there is extensive information. At USGS station 08379187 turbidity information was collected intensively over a day approximately every two months from 1988 to 1992. During this period 22/52 samples at this station exceeded the turbidity criteria. At USGS station 08379175, similar sampling was conducted. Here only 1/28 samples exceeded the criteria. At USGS station 08389178 only 1/11 samples exceeded the criteria. During a 1987 SWQB survey turbidity at stations UPR212.004020 and 4010 were 2/5 and 4/5 respectively. Therefore, station 08379187 is not supporting for turbidity, and stations UPR212.004020 and 4010 are partially supporting for turbidity. Total phosphorus should be listed as Full Support, Impacts Observed at

stations 08379187 and 08379178 and fully supporting at all other stations.

1998 ACTION: **This 1998 ACTION is for both reaches 107 and 108.** Phosphorus was removed from the list as a cause of non-support. Temperature, conductivity, turbidity and stream bottom deposits were retained as causes of non-support. **Combine and rename this reach Tecolote Creek from the Village of Tecolote to the headwaters 26.4 miles affected.**

2000 ACTION: None

2002 ACTION: None. Name changed from "Tecolote Creek from the Village of Tecolote to the headwaters" because the village of Tecolote is at the confluence with the Pecos.

2004 ACTION: This assessment unit was intensively surveyed during the 2001 Upper Pecos River Part 2 study. The assessment unit was split back into two units -- Tecolote Creek (Blue Creek to headwaters) and Tecolote Creek (Village of Tecolote to Blue Creek) – because the stream changes from a wooded canyon to a broad valley at this point. There were no exceedence of any water quality standards in the upper assessment unit. A thermograph deployed above Blue Haven did not record any exceedences of the 20 degree criterion. A thermograph deployed in the lower unit near San Geronimo recorded 224 exceedences of 23 degrees C. There were 2 of 15 turbidity exceedences and 16 of 16 specific conductance exceedences in this lower unit. **Therefore, specific conductance and temperature will remain while turbidity will be removed as cause of non support.** This lower assessment unit will be placed in Category 5B because the change in stream character may warrant a change in water quality standards. Also, Wright Canyon Creek which flows into Tecolote has a specific conductance criterion of 450 uhmos. Benthic score was 87% of reference. **Therefore, SBD will be removed as a cause of non support.**

2006 ACTION: None

2008 ACTION: None

Willow Creek (Fish barrier above reclamation to headwaters)
WQS: 20.6.4.217 AU: NM-2214.A_030

2006 ACTION: Based on reclamation activities in the area and the availability of more recent WQ data, original AU names "Willow Creek (Pecos River to headwaters)" was split at the fish barrier in the reclaimed section of Willow Creek. As part of the on-going clean up efforts at Terrero Mine, Cyprus Amax Minerals Company performed quarterly compliance monitoring at both groundwater and surface water sites in 2005. They established one surface water quality

compliance monitoring station on Willow Creek above the fish barrier (WCU). There were 0 of 4 exceedences of any dissolved metals criteria at this station. There appear to be no impacts from the mining activities upstream of the fish barrier. **Therefore, this AU is listed as full support.**

2008 ACTION: As part of the on-going clean up efforts at Terrero Mine, Cyprus Amax Minerals Company performed quarterly compliance monitoring at both groundwater and surface water sites in the project area. They established a surface water quality compliance monitoring station on Willow Creek above the fish barrier (WCU). From 2005 through 2007, there were 0 of 12 exceedences of any dissolved metals criteria at this station. There continues to appear to be no impacts from the mining activities upstream of the fish barrier. **Therefore, this AU is listed as full support.**

Willow Creek (Pecos River to fish barrier above reclamation)
WQS: 20.6.4.217 AU: NM-2214.A_030

Originally listed as two segments. One segment was listed as the Terrero Mine drainage and the other listing was for the streamabove the mine. These listings were combined into one listing with limitations on the affected mileage. The combined listings were metals (Cu, Zn, Cd, and Hg), conductivity, turbidity and streambottom deposits. The turbidity listing ofnot supported appears to be valid for the entire reach. Exceedences ratios at three stations are 4/15, 8/12, and 5/17. The mercury listing should be upgraded to full support.The exceedence ratios forthree stations are 0/10, 0/10, and 0/10. For copper, the listing is supported at station UPR214.00710 with an exceedences ratio of 8/10 for the chronic criteria. Two other stations UPR214.00716 and PECOSCON07 have exceedence ratios of 0/10. Cadmium follows the same pattern as copper. Station UPR214.00710 has 9/10 samples exceeding theacute criteria with stations UPR214.00716 and PECOSCON07 both with 0/10 ratios. Zinc has exceedence ratios of 9/10 and 3/15 (not supported) at stations UPR214.00710 and PECOSCON07 respectively. Station UPR214.007016 is full support. However, there are pollution control requirements for metals in the decision document issued by NMED pursuant to an Administrative Order and Consent for the Terrero mine. The Surface Water Quality Bureau has reviewed the remediation document and believes that these requirements are stringent enough to implement all applicable water quality standards. The draft decision document was reviewed by EPA Region 6, (Superfund Division), and found to be acceptable. Because of these requirements, a TMDL for metals is not necessary. All three stations show high ratios of exceedences for conductivity. These ratios 8/18, 14/14, and 10/12 at stations 7016, 7010, and PECOSCON07 respectively are not supported for conductivity.

1998 ACTION: Metals were removed from the 303(d) list and will be placed on the 305(b) list as a cause of non-support. Turbidity, conductivity and stream bottom deposits were retained as a cause of non-support.

NOTE: ***Pursuant to 40 CFR 130.7(b)(1)(iii), a waterbody is not required to be listed if other pollution control requirements required by State or federal authority are stringent enough to implement the appropriate water quality standards for such***

waters. Pollution control requirements for the old Terrero Mine are stringent enough to implement metals criteria applicable to Willow Creek and the Pecos River downstream of Willow Creek. Standards are anticipated to be met within the next two years.

2000 ACTION:

Pursuant to 40 CFR 130.7(b)(1)(iii), a TMDL is not required if other pollution control requirements required by State or federal authority are stringent enough to implement the appropriate water quality standards for such waters. Pollution control requirements for the old Terrero Mine are stringent enough to implement standards criteria applicable to Willow Creek and the Pecos River downstream of Willow Creek

The upper Pecos Watershed is scheduled for an intensive watershed study in 2001 that will include Willow Creek and determine if water quality standards are being met on this reach. Remediation efforts continue to be implemented under the plan cited below.

See document titled, "Final Decision Document Pecos Mine Operable Unit Upper Pecos Site Terrero, New Mexico, New Mexico Environment Department, April 9, 1998"

2002 ACTION: Water quality data taken during the above-mentioned 2001 Upper Pecos intensive watershed study at Willow Creek below White Drain indicate the designated use of high quality coldwater fishery is not being attained due to continued standards exceedences of chronic cadmium, acute zinc, and chronic zinc. The hardness-dependent chronic cadmium criteria of 3.62 ug/L and 5.3 ug/L during the summer and fall sampling runs, respectively, was exceeded due to arithmetic means of 7.0 ug/L and 13.3 ug/L during summer and fall sampling runs, respectively. The hardness-dependent acute zinc criteria of 195.32 ug/L, 202.30 ug/L, and 314.98 ug/L during spring, summer, and fall sampling runs, respectively, was exceeded due to arithmetic means of 1273.3 ug/L, 2400.0 ug/L, and 9533.3 ug/L during spring, summer, and fall sampling runs, respectively. The hardness-dependent chronic zinc criteria of 196.91 ug/L, 203.95 ug/L, and 317.54 ug/L during spring, summer, and fall sampling runs, respectively, was exceeded due to arithmetic means of 1273.3 ug/L, 2400.0 ug/L, and 9533.3 ug/L during spring, summer, and fall sampling runs, respectively. Additionally, there were 3 of 8 exceedences of the irrigation use dissolved zinc criterion of 2.0 mg/L and 4 of 8 exceedences of the domestic water supply use dissolved cadmium criteria. Therefore, **chronic cadmium, acute zinc, and chronic zinc will be added as causes of Non Support.**

NOTE: Probable errors in the acute and/or chronic Zn hardness-dependent formulas have been identified in the current version of the WQS and will be corrected during the upcoming triennial review.

Even so, the measured values are an order of magnitude above the calculated criteria. Minor corrections to the formulas will likely still lead to the conclusion of Non Support.

Remediation efforts appear to have reduced copper concentrations to levels that do not exceed surface water quality standards. Total mercury levels taken during the 2001 survey were all non-detect with a detection limit of 0.2 ug/L. The acute total mercury criterion of 2.4 ug/L was not exceeded during the 2001 study. The chronic total mercury standard of 0.012 ug/L is below the detection limit of SLD, so it is not possible to determine whether the chronic standard is being exceeded unless ultra clean sampling methods and analysis methods are utilized. Therefore, **chronic total mercury will be listed as FSIO** until further study can be initiated to determine use attainment for this parameter.

2004 ACTION: During the 2001 survey, there were also 6 of 8 exceedences of the specific conductance criteria of 300 umhos/cm. **Therefore, specific conductance was retained as a cause of non support.** There was one exceedence of the turbidity criterion of 10 NTU. **Therefore, turbidity will be removed as a cause of non support.** Although benthic macroinvertebrate and pebble count data are available, they were collected in two different areas. The benthic data are not from a representative reach. Therefore, the SBD/sedimentation list will remain until additional data are collected.

There were also twelve chronic water and ten chronic sediment toxicity tests (between four locations on Willow Creek) with significant effect noted as compared to controls or reference conditions between 1999-2003 (see http://www.epa.gov/earth1r6/6wq/ecopro/watershd/monitrng/toxnet/nm.pdf). According to the Assessment Protocol, since significant effects were noted in more than one chronic test, both **Sediment and Water Bioassay – Chronic will be added as a cause of non support.**

SWQB will meet with the Groundwater Quality Bureau to determine the status of the reclamation and to determine whether proposed reclamation efforts are stringent enough to meet existing water quality standards. The data are not currently available to determine the effects of the reclamation efforts on all impaired surface water quality parameters.

2006 ACTION: Reclamation activities in the area included excavation/consolidation of all associated waste(s), capping the waste pile with an impermeable liner, restoring Willow Creek and associated wetlands/riparian habitats, revegetation the operable unit, and diversion of both subsurface and surface water flows around the capped waste pile. Based on reclamation activities in the area and the availability of more recent WQ data, this AU was split at the fish barrier in the reclaimed section of Willow Creek.

As part of the on-going clean up efforts at Terrero Mine, Cyprus Amax Minerals Company performed quarterly compliance monitoring at both groundwater and surface water sites in 2005. They established two surface water quality compliance monitoring stations on Willow Creek below the fish barrier (WCD, and WSBDT which is a mix of surface water and seepage from the mine waste rock pile). There were 0/4 exceedences of any metals at station WCD. There were 1/8 cadmium exceedences and 2/8 zinc exceedences at station WSBDT. **Therefore, cadmium was delisted, and zinc remains as a cause of non support.** SWQB will continue to review the compliance monitoring data from the reclamation project in progress.

2008 ACTION: The above chronic water and sediment toxicity tests were repeated in this assessment unit to help determine whether or not on-going reclamation efforts are effective. Repeat chronic water toxicity tests were performed on water and sediment samples collected 9/24/07 at White Drain near the bottom of the assessment unit. There were significant effects to Ceriodaphnia dubia after 7 days of exposure to both water and sediment (secondary endpoint of reproduction in both). There were no significant effects to Pimephales promelas after 7 days of exposure to both water and sediment. Regarding the water toxicity testing, since significant effects were noted in no more than one water test and the endpoint was also secondary, **Water Bioassay – Chronic was removed as a cause of non support.** Regarding the sediment toxicity testing, during revisions to the 2008 Assessment Protocols, significant effects in acute or chronic sediment toxicity test results were removed as potential causes for listing. Therefore, **Sediment Bioassay – Chronic was removed as a cause of non support.**

As part of the on-going clean up efforts at Tererro Mine, Cyprus Amax Minerals Company performed quarterly compliance monitoring at both groundwater and surface water sites in the project area. They established three surface water quality compliance monitoring stations on Willow Creek below the fish barrier (WCD, ESS, and WSBDT). Stations ESS and WSBDT are both seeps, which are a mix of surface water and seepage from the mine waste rock pile. Data from 2005 through 2007 were assessed. Based on the 2008 Assessment Protocol addendum, the maximum value from these three stations were used to determine attainment with the acute aquatic life criterion, and the average value was used to determine attainment with the other WQ criterion for each quarter. Hardness data were not collected at the seep stations during 2005 and 2006, so the hardness data for station WCD were used to determine the applicable surface WQ criterion for all stations. There were more than one exceedence of the applicable chronic criteria in three years for both cadmium and zinc (5/12 and 6/12, respectively). Both cadmium and zinc concentrations and exceedences are trending downward from 2005 to 2007. There were 0/4 exceedences of the applicable acute chromium criteria, and 1/4 of the applicable acute zinc criteria during the 2007 sampling year. Specific conductance and sedimentation are not part of

the mine reclamation sampling so there is no new information regarding these impairments. **Therefore, specific conductance, sedimentation/siltation, and chronic zinc remain, and chronic cadmium was added back as a cause of non support.**

Seep stations ESS and WSBDT have were dry during some sampling quarters in 2006 and 2007 because seepage from the waste rock pile has been reduced as part of the reclamation. The station of greatest concern continues to be WSBDT in the most downstream seep location nearest the Pecos River. The NMED Groundwater Bureau, mine, and consultants continue to work on solutions to this impacted surface water area. SWQB will continue to review the compliance monitoring data from the reclamation project in progress to re-evaluated impairment status each listing cycle.

Wright Canyon Creek (Tecolote Creek to headwaters)
WQS: 20.6.4.215 AU: NM-2212_18

Previously listed for turbidity and total phosphorus. Data for turbidity comes from two USGS stations 08379185 and 08379182. Both of these stations, 8/31 and 33/107 respectively, indicate the fishery use is not supported. For total phosphorus, these stations have ratios of 1/23 and 3/22 respectively. Both stations are fully supporting for total phosphorus (1/23 and 3/22).

1998 ACTION: Total phosphorus was removed as a cause of non-support. Turbidity and stream bottom deposits were retained on the list as causes of non-support.

2000 ACTION: None

2002 ACTION: None

2004 Action: This assessment unit was intensively sampled during the 2001 Upper Pecos survey. There were 0 of 7 turbidity exceedences. **Therefore, turbidity will be removed as a cause of non support.** There is no new information available at this time (4/8/04) regarding the SBD/sedimentation/siltation listing.

2006 ACTION: None

2008 ACTION: None

HUC 13060003 Upper Pecos

Pecos River (Salt Creek to Sumner Reservoir)
WQS: 20.6.4.207 AU: NM-2207_00

Previously listed for streambottom deposits. A July 18, 1997 letter fromU.S. Fish & Wildlife stated that siltation and sedimentation are not an issue for this reach of the Pecos River. Additional information is available in the report "***Record of Decision Concerning the Development of Total Maximum Daily Loads for Segments 2206 and 2207 of the Pecos River".***

1998 ACTION: The reach was removed from the 303(d) list.

2000 ACTION: None

2002 ACTION: None

2004 ACTION: None

2006 ACTION: This reach was intensively surveyed during the Lower Pecos (2003) survey. Sonde data indicate that the minimum % saturation exceeded for >3 hours contiguously. **Therefore, this reach will be listed as non support for dissolved oxygen.** The dissolved oxygen impairment may indicate excessive nutrients. Protocols for nutrients in large rivers are under development.

2008 ACTION: None

HUC 13060007 Upper Pecos -Long Arroyo

Pecos River (Rio Peñasco to Salt Creek)
WQS: 20.6.4.206 AU: NM-2206.A_00

Previously listed for metals (Hg), dissolved oxygen, total ammonia, total dissolved solids and stream bottom deposits. A review of historical data and an intensive seasonal survey conducted by NMED in April, July and November of 1997 produced no supporting data for listing this reach of the Pecos River. A July 18, 1997 letter from U.S. Fish & Wildlife stated that siltation and sedimentation are not an issue for this reach of the Pecos River. Additional information is available in the report "***Record of Decision Concerning the Development of Total Maximum Daily Loads for Segments 2206 and 2207 of the Pecos River".***

1998 ACTION: The reach was removed from the 303(d) list.

2000 ACTION: None

2002 ACTION: None

2004 ACTION: None

2006 ACTION: This reach was intensively sampled as part of the Lower Pecos (2003) survey. There were no changes as a result of the survey.

2008 ACTION: None

LOWER PECOS (TX border to Ft. Sumner)

HUC 13060008 Rio Hondo

Alto Lake
WQS: 20.6.4.98 **AU: NM-2209.B_30**

1998 ACTION: Listed for turbidity, siltation, nutrients nuisance algae, and dissolved oxygen.

2000 ACTION: None

2002 ACTION: **Turbidity, siltation, nutrients nuisance algae, and dissolved oxygen were removed.** The 1997 Clean Lakes report indicated both chronic and acute exceedences of the copper criteria. **Copper was added as a cause of Non Support** due to application of copper sulfate**.**

2004 ACTION: None

2006 ACTION: None

2008 ACTION: None

Rio Bonito (NM 48 near Angus to headwaters)
WQS: 20.6.4.209 **AU: NM-2209.A_10**

2006 ACTION: This AU was intensively surveyed as part of the Rio Penasco (2003) survey. Benthic macroinvertebrates and pebble count data collected at the station Rio Bonito above Bonito Lake were compared to reference station Rio Bonito @ Mescalero Apache boundary. The bio score was 55 % of reference. The fines at the station were 8%. **Therefore, Benthic Macroinvertebrate Bioassessments (Streams) will be added as a cause of non support.**

There were 2 of 13 exceedences of the old fecal coliform criterion of 200 cfu/100 mL, so a **fecal coliform TMDL was developed**. The associated water quality criteria for contact use support was changed from fecal coliform to E. coli during the 2005 triennial review. These historic fecal coliform listings will be retained until E.coli data are collected to determine whether there is any impairment of contact uses.

2008 ACTION: None

Rio Bonito (Rio Ruidoso to NM 48 near Angus)
WQS: 20.6.4.208 AU: NM-2208_10

Previously listed for fecal coliform and stream bottom deposits. Samples collected at two stations within five years have a cumulative ratio of 0/6 exceedences. This reach is fully supporting for fecal coliform.

1998 ACTION: Fecal coliform was removed as a cause of non-support. Stream bottom deposits was retained as a cause of non-support.

2000 ACTION: None

2002 ACTION: None

2004 ACTION: None

2006 ACTION: This AU was sampled during the SWQB 2003 Rio Ruidoso/Rio Hondo intensive water quality survey. Name was changed to match WQS segment description. The Protocol for the Assessment for Stream Bottom Deposits was utilized to assess the historic SBD listing. Rio Bonito at the BLM Apple Orchard was deemed a reference site. Therefore, biological score as a % of reference was 100%. There were 21% fines at this site. **Therefore, sedimentation/siltation was removed as a cause of non support.** This AU was listed for Low Flow Alteration (Category 4C non pollutant) because diversions result in very low water during certain times of the year.

2008 ACTION: None

Rio Hondo (Perennial reaches Pecos R to Rio Ruidoso)
WQS: 20.6.4.208 AU: NM-2208_30

Previously listed for fecal coliform, reduction of riparian vegetation and streambank destabilization. Two stations have been sampled for fecal coliform within the last five years. Each station was 0/2 for fecal coliform exceedences. This reach is in full support for fecal coliform. No associated physical/chemical data are available for the reduction of riparian vegetation and stream bank destabilization listings.

1998 ACTION: The reach will be listed with unknown as a cause on the 303(d) list.

2000 ACTION: None

2002 ACTION: None

2004 ACTION: None

2006 ACTION: This AU was intensively surveyed during the Rio Ruidoso/Rio Hondo (2003) survey. The only impairment determined as a result of the survey was fecal coliform. Therefore, Cause Unknown was removed. A TMDL was developed for fecal coliform All numeric segment-specific turbidity criteria were removed during the 2005 triennial review, and replaced with General Criteria 20.6.4.13.J. New assessment methods to determine turbidity impairment based on this new language are not yet available. SWQB will retain historic turbidity listings in the interim.

2008 ACTION: None

Rio Ruidoso (Rio Bonito to US Hwy 70 Bridge)
WQS: 20.6.4.208 AU: NM-2208_20

Previously listed for turbidity, stream bottom deposits, plant nutrients and temperature. Turbidity should be removed from the listing as there are no numeric criteria for turbidity in a coldwater fishery. Temperature data are available from four stations on the Rio Ruidoso. The cumulative ratio of temperature exceedences for these stations is 0/64. This reach is fully supporting for temperature. Fecal coliform with a ratio of 1/5 since 1993 will be added as Full Support, Impacts Observed.

1998 ACTION: Turbidity and temperature were removed as a cause of non-support. Stream bottom deposits, and plant nutrients were retained as causes of non-support. Fecal coliform will be added to the 305(b) list as Full Support, Impacts Observed.

2000 ACTION: None

2002 ACTION: None. Plant nutrient assessments completed in 2002 confirm the listing.

2004 ACTION: None

2006 ACTION: This AU was intensively surveyed as part of the Rio Penasco (2003) survey. Reference in name to "Seeping Springs Lakes" changed to US Hwy 70 Bridge because Seeping Springs Lakes is not a definitely location (several lakes in a series). **A TMDL was prepared for Plant Nutrients (TN and TP).** Benthic macroinvertebrates and pebble count data collected at the station @ CR16 bridge near Hondo were compared to reference station Rio Ruidoso @ Mescalero bnd. The bio score was 86 % of reference even though there was a 238% increase in % fines. **Therefore, sedimentation/siltation (SBD) was removed as a cause of non support.**

2008 ACTION: None

Rio Ruidoso (US Hwy 70 Bridge to the Mescalero Apache Reservation)
WQS: 20.6.4.209 AU: NM-2209.A_20

Previously listed for temperature, stream bottom deposits and turbidity. Temperature data are available from six stations along the reach. Stations LPR209.012035 and 12040 are Full Support, Impacts Observed with 1/4 ratios. Station RUD12 is partially supporting with a 2/12 (17%) ratio. Stations RUD4 and RUD2 are fully supporting with 1/12 and 0/12 ratios respectively. Station 08387000 is Full Support, Impacts Observed with a 2/17 (12%) ratio. Turbidity data are available from five stations. Two stations LPR209.012035 and 12040 were samples within five to ten years. Station LPR209.012035 is not supported with 4/4 samples exceeding the criteria. Station 12040 is Full Support with a 0/4 ratio. Stations RUD12, RUD4, and RUD2 are not supported with 5/12, 8/12, and 5/12 ratios. There are five biological assessment stations on this reach. The Rio Ruidoso at the reservation boundary was used as the reference site for this survey. The next downstream site in the town of Rio Ruidoso was PS with a 67% score. The next station was at the USGS gage near the race track. The score here was also 67% of the reference. The site immediately above the WWTP was FSIO with a 74% score. The site below the WWTP was PS at 58%. These scores reflect a general loss of habitat indicating only partial support of the aquatic life use. Both biological assessment stations on this reach were rated at 58% of the reference condition. This supports the listing as partially supported.

1998 ACTION: Temperature, stream bottom deposits and turbidity were retained as causes of non-support.

2000 ACTION: None

2002 ACTION: Plant nutrients was added as a cause of Partial Support based on plant nutrient assessments completed in 2002.

2004 ACTION: None

2006 ACTION: This AU was intensively surveyed as part of the Rio Penasco (2003) survey. Reference in name to "Seeping Springs Lakes" changed to US Hwy 70 Bridge because Seeping Springs Lakes is not a definitely location (several lakes in a series). SWQB assessed the presence of excessive nutrients in the summer of 2002 following the 2002 Nutrient Assessment Protocol. Zero of the 42 recorded pH measurements were outside the acceptable range of 6.6 to 8.8 indicating full support for pH. Both continuous data from the YSI sonde and grab data from the SWQB survey indicated non-support for DO saturation. Both continuous data from the YSI sonde and grab data from SWQB indicated full support for DO concentration. Grab data from SWQB indicated full support for TP and TN. The chlorophyll a concentration for this assessment unit was 3.77 µg/cm2. This value is well below the threshold value of 10 µg/cm2 indicating full support for chlorophyll a. The HBI scores from the three sampling locations along this assessment unit ranged from 3.42 to 4.86, indicating full support for macroinvertebrates. Since less that

three indicators of nutrientimpairment were present, **nutrients was removed as a cause of non support.**

The Protocol for the Assessment for Stream Bottom Deposits was utilized to assess the historic SBD listing. RioRuidoso at the Mescalero Boundary was deemed a reference site. Therefore, biological score as a % of reference was 100%. There were 5% fines at this site. **Therefore, sedimentation/siltation was removed as a cause of non support.**TMDLs were prepared for temperature and turbidity.

2008 ACTION: None

HUC 13060010 Rio Peñasco

Agua Chiquita (perennial portions Rio Penasco to headwaters)
WQS: 20.6.4.208 AU: NM-2208_01

2006 ACTION: This AU was intensively surveyed as part of the Rio Penasco (2003) survey. Benthic macroinvertebrates and pebble count data collected at the station Below Barrel Springs were compared to reference station Karr Canyon above Raven Road. The bio score was 62 % of reference, and the fines at the study site were lower than the fines at the reference site. **Therefore, Benthic Macroinvertebrate Bioassessments (Streams) will be added as a cause of non support.**

2008 ACTION: None

Rio Peñasco (HWY 24 to headwaters)
WQS: 20.6.4.208 AU: NM-2208_00

Previously listed as "Rio Peñasco, perennial portion" and listed for turbidity and stream bottom deposits. Turbidity should be removed from the listing as there are no numeric criteria for turbidity in a coldwater fishery. Five turbidity readings were collected during a 1990 survey the greatest reading was 2.0 NTU and the mean was 1.4 NTU.

1998 ACTION: Turbidity was removed as a source of non-support. Streambottom deposits was retained as a source of non-support.

2000 ACTION: None

2002 ACTION: None. Previous listing was split into two because it spanned two water quality standard segments.

2004 ACTION: None

2006 ACTION: This AU was intensively surveyed as part of the Rio Penasco (2003) survey. Benthic macroinvertebrates and pebble count data collected at the station on USFS land below Mayhill were compared to reference station Karr Canyon above Raven Road. The bio score was 62% of reference, and the % increase in fines was 52%. **Therefore, Sedimentation/Siltation (SBD) was retained as a cause of non support.**

2008 ACTION: None

Rio Peñasco (HWY 24 to headwaters)
WQS: 20.6.4.206 AU: NM-2206.A_10

Previously listed as "Rio Peñasco, perennial portion" and listed for turbidity and stream bottom deposits. Turbidity should be removed from the listing as there are no numeric criteria for turbidity in a coldwater fishery. Five turbidity readings were collected during a 1990 survey the greatest reading was 2.0 NTU and the mean was 1.4 NTU.

1998 ACTION: Turbidity was removed as a source of non-support. Streambottom deposits was retained as a source of non-support.

2000 ACTION: None

2002 ACTION: None. Previous listing was split into two because it spanned two water quality standard segments.

2004 ACTION: None

2006 ACTION: This AU was intensively surveyed as part of the Rio Penasco (2003) survey. Benthic macroinvertebrates and pebble count data collected at the station on USFS land below Mayhill were compared to reference station Karr Canyon above Raven Road. The bio score was 62% of reference, and the % increase in fines 52%. **Therefore, Sedimentation/Siltation (SBD) was retained as a cause of non support.**

2008 ACTION: None

HUC 13060011 Upper Pecos-Black

Avalon Lake
WQS: 20.6.4.204 AU: NM-2204.B_00

1998 ACTION: This lake is listed for mercury in fish tissue because there are fish consumption guidelines due to mercury contamination.

2000 ACTION: None

2002 ACTION: None

2004 ACTION: None

2006 ACTION: None

2008 ACTION: None

Black River (Perennial reaches Pecos River to headwaters)
WQS: 20.6.4.202 AU: NM-2202.A_10

Previously listed for metals (Al), reduction of riparian vegetation, stream bank destabilization, unknown and salinity. There is no standard for salinity for this segment. Salinity will be removed as a cause of non-support. Two stations were sampled for aluminum. Station LPR202.001020 was 0/1 for exceedences and will be listed as full support. Station LPR202.001010 was 1/1 and will be listed as Full Support, Impacts Observed

1998 ACTION: The reach will remain on the 303(d) list with a cause of unknown. It will also be listed in the 305(b) report as Full Support, Impacts Observed for aluminum.

2000 ACTION: None

2002 ACTION: None

2004 ACTION: None

2006 ACTION: This reach was sampled as part of the Lower Pecos (2003) survey. There were also two acute water toxicity tests with significant effect noted as compared to controls or reference conditions (see http://www.epa.gov/earth1r6/6wq/ecopro/watershd/monitrng/toxnet/nm.pdf). According to the Assessment Protocol, since significant effects were noted in more than one acute test, **Water Bioassay – Acute will be added as a cause of non support.**

2008 ACTION: The above 2003 test results were susp ected to be false positive in part because there was no inform ation indicating any potential cause of impairment in the chemical data that were concurrently collected during the 2003 survey. Therefore, repeat ambient toxicity testing was performed on water collected 8/13/07. After 96 hour s of exposure to both Ceriodaphnia dubia and Pimephales promelas, there were no significant effects in either test organisms exposed to water collected at Higby Hole. Therefore,**Water Bioassay – Acute was removed as a cause of non support.**

Brantley Reservoir
WQS: 20.6.4.205 **AU: NM-2205_00**

1998 ACTION: This lake is listed for mercury in fish tissue because there are fish consumption guidelines due to mercury contamination.

2000 ACTION: None

2002 ACTION: None

2004 ACTION: None

2006 ACTION: This reservoir was intensively sampled in 2003. There were no exceedences of chemical WQ parameters. DDT was added as a cause of non support because of the May 2006 fish consumption advisory.

2008 ACTION: None

Laguna Gatuna
WQS: 20.6.4.98 **AU: NM-9000.B_055**

1998 ACTION: Not listed

2000 ACTION:

Toxic Substances: Lake Water Quality Assessment Surveys, Playa Lakes 1992, NMED/SWQB, pages 1-20. Wildlife habitat designated use section 3100 L. Threatened by historic discharge from produced water f acility. Narrative section on toxic substances in section 1105, paragraph F. "...from any substances at concentrations that are toxic to or will adversely affect plants and anim als that use these environm ents for feeding, drinking, habitat or propagation..." Boron and Ra226 + Ra228 exist in concentration questionable in terms

of toxicity though current truth to this unknown and probably premature to speculate about.

This playa will be listed on the 303(d) list for not meeting the designated use of wildlife habitat with the cause being the narrative standard of toxic substances.

2002 ACTION: None

2004 ACTION: None

2006 ACTION: None

2008 ACTION: None

Laguna Quatro
WQS: 20.6.4.98 AU: NM-9000.B_059

1998 ACTION: Not listed

2000 ACTION:

Toxic Substances: Lake Water Quality Assessment Surveys, Playa Lakes 1992, NMED/SWQB, pages 1-20. Wildlife habitat designated use section 3100 L. Threatened by historic discharge from produced water facility. Narrative section on toxic substances in section 1105, paragraph F. "...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..." Boron and Ra226 + Ra228 exist in concentration questionable in terms of toxicity though current truth to this unknown and probably premature to speculate about.

This playa will be listed on the 303(d) list for not meeting the designated use of wildlife habitat with the cause being the narrative standard of toxic substances.

2002 ACTION: None

2004 ACTION: None

2006 ACTION: None

2008 ACTION: None

Laguna Tres
WQS: 20.6.4.98 AU: NM-9000.B_061

1998 ACTION: Not listed

2000 ACTION:

Toxic Substances: Lake Water Quality Assessment Surveys, Playa Lakes 1992, NMED/SWQB, pages 1-20. Wildlife habitat designated use section 3100 L. Threatened by historic discharge from produced water facility. Narrative section on toxic substances in section 1105, paragraph F. "...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..." Boron and Ra226 + Ra228 exist in concentration questionable in terms of toxicity though current truth to this unknown and probably premature to speculate about.

This playa will be listed on the 303(d) list for not meeting the designated use of wildlife habitat with the cause being the narrative standard of toxic substances.

2002 ACTION: None

2004 ACTION: None

2006 ACTION: None

2008 ACTION: None

Laguna Uno
WQS: 20.6.4.98 AU: NM-9000.B_066

1998 ACTION: Not listed

2000 ACTION:

Toxic Substances: Lake Water Quality Assessment Surveys, Playa Lakes 1992, NMED/SWQB, pages 81-98. Wildlife habitat designated use section 3100 L. Threatened by historic discharge from potash refining discharge to playa basin. Narrative section on toxic substances in section 1105, paragraph F. "...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..."

This playa will be listed on the 303(d) list for not meeting the designated use of wildlife habitat with the cause being the narrative standard of toxic substances.

2002 ACTION: None

2004 ACTION: None

2006 ACTION: None

2008 ACTION: None

Pecos River (Black River to Lower Tansil Dam)
WQS: 20.6.4.202 AU: NM-2202.A_00

Previously listed for metals (Al), salinity, stream bottom deposits and total ammonia. Salinity should be upgraded to full support as there have been no exceedences of total dissolved solids, sulfate and chloride criteria in the last ten years. All total ammonia data are from the five to ten year interval. The cumulative ratio of samples from three stations is 0/15. Total ammonia should be upgraded to full support. The cumulative ratio of samples from three stations for aluminum is 0/7 over the last ten years. Aluminum should be upgraded to full support.

1998 ACTION: Salinity, ammonia and aluminum were removed as causes of non-support. Stream bottom deposits was retained as a cause of non-support.

2000 ACTION: None

2002 ACTION: None

2004 ACTION: None

2006 ACTION: This reach was intensively sampled as part of the Lower Pecos (2003) survey. There were no changes as a result of the survey.

2008 ACTION: None

Pecos River (TX border to Black River)
WQS: 20.6.4.201 AU: NM-2201_00

Previously listed for temperature, metals (Al), stream bottom deposits and salinity. Extensive temperature data are available from the last two years. One station, LPR201.000505, had 1/5 exceedences that will be listed as Full Support, Impacts Observed. The cumulative ratio at all other stations was 0/154. Salinity should be removed as a cause of nonsupport as there have been no

exceedences of the criteria for total dissolved solids, sulfate and chloride. Aluminum was monitored at two stations. Station LPR201.000505 was 1/1, or Full Support, Impacts Observed, for exceedences of the chronic screening ratio. Station 08407500 (USGS) was 1/7 within the last five years and 3/20 for the five to ten year interval.This station is also Full Support, Impacts Observed. There is one 1991 biological assessment on this reach. One station, LPR201.000505, was not supporting at 21% of the reference site. The assessment notes that it was probably due to poor substrate.

1998 ACTION: Temperature, metals and salinity were removed as causes of non-support. Stream bottom deposits was retained and biological criteria was added to causes of non-support.

2000 ACTION: None

2002 ACTION: Biological criteria was removed as a probable cause of impairment because the reduced benthic macroinvertebrate score was likely due to poor substrate conditions (see above comments). Stream bottom deposits will be retained to indicate that both benthic macroinvertebrate communities and substrate characteristics need to be studied further and addressed. Listing both stream bottom deposits and biological criteria was redundant.

2004 ACTION: None

2006 ACTION: This reach was intensively surveyed in 2003. Sonde data indicate that the minimum % saturation exceeded for >3hours contiguously. There were 8 of 23 exceedences of the boron criterion for irrigation use. **Therefore, this reach will be listed as non support for dissolved oxygen and boron.** The dissolved oxygen impairment may indicate excessive nutrients. Protocols for nutrients in large rivers are under development. All exceedences of boron occurred at stations below the brine springs at Malaga Bend.

2008 ACTION: None

Sitting Bull Creek (Lost Chance Canyon to Sitting Bull Springs)
WQS: 20.6.4.99 AU: NM-9000.A_007

1998 ACTION: The reach was listed with plant nutrients, stream bottom deposits, fecal coliform, temperature and total phosphorus listed as causes of impairment.

2000 ACTION:

Total Phosphorus: Total phosphorus will be removed as a cause of non-support due to the lack of a total phosphorus standard for the warmwater fishery use. The Nutrient Assessment Protocol will be used to assess nutrient loading on this reach.

2002 ACTION: None

2004 ACTION: None

2006 ACTION: WQS was changed to 20.6.4.99. This AU was intensively surveyed during the Lower Pecos (2003) survey. Significant improvements in land management have been made since this creek was last monitored, including erosion control, restriction of grazing, and improvement to sanitation facilities. There were 0 of 4 exceedences of the 32.2 degree C temperature criterion. Thermograph data are not available. There were 0 of 6 exceedence of the previous fecal coliform criterion. The nutrient assessment protocol was performed 7/12/2006. Exceedence ratios for ecoregion TN and TP criteria were both 0/5. pH and chlorophyll a values were all within exceptable ranges. The DO saturation ratio was 1/5. Because three or more indicator did not exceed acceptable ranges, the conclusion is full support for nutrients. Benthic macroinvertebrates and pebble count data collected at the base of the falls were compared to reference station Rio Bonito at the Apple Orchard. Although the % ofReference Bio Score falls below the 79% cut off for full support using the EPA RBP III, there is only a 10% difference in these sites using the proposed NM M-SCI scoring criteria. The main reason for the low score is that the metric value for "Ratio of Shredder/Total No. of Ind." was zero. The low number of observed Shredders and the low %fines count is probably due to the sample station being below the falls in a relatively scoured location. Sitting Bull Creek is in Ecoregion 23 according to Omernik however, after visiting the site it should probably be placed in Ecoregion 24. Currently, SWQB does not have a comparable site in Ecoregion 24 to compare with. Also, the percent fines at the study site was only 8%. Per the assessment protocol, raw percent values of < 20% fines at the study site should be evaluated as fully supporting regardless of the percent attained at the reference site. **Therefore, temperature, nutrients, sedimentation/siltation, and fecal coliform were removed as a causes of non support.**

2008 ACTION: None

Upper and Lower Tansil LakeWQS: 20.6.4.203 AU: NM-2203.B_00

1998 ACTION: This lake is listed for mercury in fish tissue because there are fish consumption guidelines due to mercury contamination.

2000 ACTION: None

2002 ACTION: None

2004 ACTION: None

2006 ACTION: Previously named Tansil Lake (Carlsbad Municipal Lake)

2008 ACTION: None

SAN JUAN RIVER BASIN

HUC 14080101 Upper San Juan

Gallegos Canyon (San Juan River to Navajo Nation bnd)
WQS: 20.6.4.99 AU: NM-9000.A_060

2004 Action: This AU was sampled during the 2002 SJR study. SJRIP also provided data from 1994-2003. There were 23 of 30 exceedences of the total recoverable selenium wildlife habitat chronic screening criteria of 7.5 ug/l (5.0 ug/L x 1.5). **Therefore, selenium was added as a cause of non support.**

2006 ACTION: The WQS citation was changed from "unclassified" to 20.6.4.99.

2008 ACTION: For the 2006 listing cycle, there were no presumed uses for this AU that would have resulted in application of a pH criterion – Aquatic Life was added but it had no associated pH criteria. Per EPA Region 6 instruction on the 2008 Integrated List, WWAL was added as a presumed use to all waters falling under 20.6.4.99 NMAC. There were 0 of 60 recorded pH values taken by SJRIP outside of the criteria range of 6.6 to 9.0. Therefore, WWAL was noted as "fully supporting" on the 2008 Integrated List.

Navajo Reservoir
WQS: 20.6.4.406 AU: NM-2406_00

1998 ACTION: This lake is listed for mercury in fish tissue because there are fish consumption guidelines due to mercury contamination.

2000 ACTION: None

2002 ACTION: None

2004 ACTION: This AU was intensively sampled during the 2002 SJR study. No new impairments were identified during this survey. This AU remains on the fish consumption guidelines for Mercury in Fish Tissue as these guidelines have not been updated since the last listing cycle.

2006 ACTION: None

2008 ACTION: None

San Juan River (Animas River to Cañon Largo)

WQS: 20.6.4.408 AU: NM-2401_00

Previously listed for metals (Hg), stream bottom deposits, salinity, and fecal coliform. Mercury data indicated full support of the fishery use as there were no exceedences of criteria (0/8) within the last 23 years. While there are no salinity (total dissolved solids) criteria for the reach, there were no exceedences of the total dissolved solids criteria for the Colorado River at Hoover Dam (723 mg/l). Fecal coliform data indicated that the contact recreation use was not supported at two stations (SJR 106 and SJR401.004020). Station SJR401.004010 indicated Full Support, Impacts Observed (1/2).

1998 ACTION: Mercury and salinity will be removed as a cause of non-support for this reach. The reach will continue to be listed as Not Supported with stream bottom deposits and fecal coliform (SJR106 and 4020).

2000 ACTION: None

2002 ACTION: Mercury in Fish Tissue (downstream of Hammond Diversion) was added as a Probable Cause because there are fish consumption guidelines from Hammond Diversion to the Hogback.

2004 ACTION: This AU was intensively sampled during the 2002 SJR study. The USBOR also provided fecal coliform data from 2000 and 2001. There were 11 of 41 (27%) exceedences of the single sample fecal coliform criterion of 400 cfu/100 mL. **Therefore, fecal coliform will be retained as a cause of non support.** In addition, the USBOR in conjunction with the San Juan Watershed Group provided E.coli data collected in 2003. E. coli data were also collected during the 2002 SWQB intensive survey. There were 12 of 54 (22%) exceedences of the proposed E. coli criterion of 410/100 mL in this combined E. coli data set.

This AU has a historic listing for stream bottom deposits. SWQB and the USDA National Sedimentation Lab (NSL) implemented a special study to determine whether or not the AU is impaired due to excessive sedimentation (i.e., stream bottom deposits). Percent (%) fines data was the primary dataset used to determine whether or not the narrative SBD standard was being attained. In this study, the distribution of the % fines was determined to be log-normal, so medians and quartiles were used to define the central tendencies of the data. The fine sediment benchmark used to determine impairment was the 75th percentile of the % fines measured at reference sites in the San Juan and Animas Rivers (29.5 percent fines). The median value for % fines was determined for each reach (i.e., assessment unit) of concern. If the value (point or median depending on data availability) for % fines for the study reach was below the fine sediment benchmark (i.e., the 75th percentile of the reference condition), the reach was listed as Fully Supporting for Sedimentation/Siltation (SBD). If the median value for % fines for the reach is above the 75th percentile of the reference condition, the reach was listed as Non Supporting for Sedimentation/Siltation (SBD). The

median percent fines for this reach was 52 percent. **Therefore, Sedimentation/Siltation (Stream Bottom Deposits) will be retained as a cause of non support.** See the SWQB website for additional details on the NSL study.

The bed material and fluvial geomorphology data indicate potential impairment due to sedimentation (stream bottom deposits) as a result of large episodic sediment inputs from Cañon Largo and other ephemeral drainages possibly combined with the loss of spring flows adequate to move the sediment through the system as a result of Navajo Dam operations. This problem is noted in the results of the San Juan Recovery Implementation Plan and is incorporated into the "preferred alternative" in the preliminary final environmental impact statement (June 2003) to modify dam operations. Following the recommendations of the San Juan - River Basin Recovery Implementation Program's Biology Committee, Navajo Dam was operated from 1992 - 2001 to mimic the natural streamflow hydrograph to provide high spring releases at or near the maximum channel capacity below Navajo Dam for the purpose of providing flows toflush sediment for the purpose of cleaning cobble bars and secondary channels in the San Juan River. Spring releases were timed to occur with the high spring flows of the Animas River to provide the maximum flushing effect in the San Juan River below its confluence with the Animas River. According to the decision matrix, there were no high spring releases in during 2002 and 2003. Fieldwork for the USDA National Sedimentation Study occurred October and November 2003. Bed material characteristics measured in this time period may have been impacted by drought conditions and the fact that there were no high spring releases for two prior springs.

This AU remains on the fish consumption guidelines for Mercury in Fish Tissue as these guidelines have not been updated since the last listing cycle.

There were also three acute water and one acute sediment toxicity tests (on 4/18/02, 5/22/02, and 9/23/02) with significant effect noted as compared to controls or reference conditions (see http://www.epa.gov/earth1r6/6wq/ecopro/watershd/monitrng/toxnet/nm.pdf). According to the Assessment Protocol, since significant effects were noted in more than one acute test,**Water Bioassay – Acute will be added as a cause of non support.**

2006 ACTION: A TMDL was prepared for fecal coliform and sedimentation/siltation. The associated water quality criteria for contact use support was changed from fecal coliform to E. coli during the 2005 triennial review. Historic fecal coliform listings will be retained until E.coli data are collected to determine whether there is any impairment of contact uses. Available E.coli data from 2002 – 2006 were assessed. There were 49 of 133 exceedences of the single sample criterion of 410 cfu/100 mL. **Therefore, the fecal coliform listing**

was replaced with E. coli.

2008 ACTION: The above 2002 toxicity test results were suspected to be false positive in part because there was no information indicating any potential cause of impairment in the chemical data that were concurrently collected during the 2002 survey. Therefore, repeat acute toxicity testing was performed on water collected 9/10/07 @ Blagg Property near the bottom of the assessment unit. There were significant effects to Ceriodaphnia dubia after 96 hours of exposure (primary endpoint of mortality). There were no significant effects to Pimephales promelas after 96 hours of exposure. Since significant effects were noted in no more than one water test, **Water Bioassay – Acute was removed as a cause of non support.**

San Juan River (Cañon Largo to Navajo Dam)
WQS: 20.6.4.405 AU: NM-2405_10

Previously listed for metals (Hg, Se), turbidity, and stream bottom deposits. Mercury (0/15) and selenium (0/6) data indicated full support of the fishery use as there were no exceedences of criteria within 14 years. Turbidity data indicated the fishery use was not supported at station SJR104 (3/12), while there was Full Support, Impacts Observed for stations SJR405.005015 (1/8), SJR405.005035 (1/8) and SJR405.005045 (1/8).

1998 ACTION: Mercury and selenium will be removed as sources of non-support for this reach. The reach continues to be listed as Not Supported for turbidity (1 sta.) and stream bottom deposits. The reach will be listed as Full Support, Impacts Observed for turbidity at two stations.

2000 ACTION: None

2002 ACTION: Mercury in Fish Tissue (downstream of Hammond Diversion) was added as a Probable Cause because there are fish consumption guidelines from Hammond Diversion to the Hogback.

2004 ACTION: This assessment unit was intensively sampled as part of the 2002 SJR survey. The USBOR provided thermograph data for 2000-2002 for the Texas Hole. In 1992, a thermograph was deployed in the SJR near the Archuleta USGS gage as part of the SJRIP study. In 1999, a second thermograph was deployed near the dam. The maximum temperature for the available period of record was 22.81 degrees C on 7/12/01 at the Archuleta site. A thermograph was deployed by SWQB at Soaring Eagle Lodge 5/22/02 – 9/26/02. The maximum recorded temperature was 21.17 degrees C. According to the Temperature Protocol, this AU is full support for temperature. Turbidity was erroneously included as a cause of non-support on previous lists based on the information in the opening paragraph of this

AU. When all stations are combined, there were a total of 3 out of 36 (8.3%) turbidity measurements in this AU when it was previously assessed. According to the Assessment Protocol, the entire AU should have been listed as Full Support Impacts Observed, not Partial Support. To verify this correction, a total of 143 turbidity measurements collected between 1994 and 2003 by the SWQB, USBOR, SJRIP, and USGS were collated and assessed against the criterion of 10 NTU. There were 21 out of 143 exceedences in this data set (14.7%). The mean of the measurements was 6.8 NTU, while the median was 4.8 NTU. According to the Assessment Protocol, this AU is Full Support for turbidity. **Therefore, turbidity will be removed as a cause of non support**. The USBOR also provided fecal coliform data from 2000 and 2001. The USBOR in conjunction with the San Juan Watershed Group provided E.coli data from 2003. There were 2 of 18 (11%) exceedences of the single sample fecal coliform criterion of 100 CFU/100mL.

This AU has a historic listing for stream bottom deposits. SWQB and the USDA National Sedimentation Lab (NSL) implemented a special study to determine whether or not the AU is impaired due to excessive sedimentation (i.e., stream bottom deposits). Percent (%) fines data was the primary dataset used to determine whether or not the narrative SBD standard was being attained. In this study, the distribution of the % fines was determined to be log-normal, so medians and quartiles were used to define the central tendencies of the data. The fine sediment benchmark used to determine impairment was the 75th percentile of the % fines measured at reference sites in the San Juan and Animas Rivers (29.5 percent fines). The median value for % fines was determined for each reach (i.e., assessment unit) of concern. If the value (point or median depending on data availability) for % fines for the study reach was below the fine sediment benchmark (i.e., the 75th percentile of the reference condition), the reach was listed as Fully Supporting for Sedimentation/Siltation (SBD). If the median value for % fines for the reach is above the 75th percentile of the reference condition, the reach was listed as Non Supporting for Sedimentation/Siltation (SBD). The median percent fines for this reach was 12 percent. **Therefore, Sedimentation/Siltation (Stream Bottom Deposits) will be removed as a cause of non support.** See the SWQB website for additional details on the NSL study.

This AU remains on the fish consumption guidelines for Mercury in Fish Tissue (downstream of Hammond Ditch) as these guidelines have not been updated since the last listing cycle.

2006 ACTION: The associated water quality criteria for contact use support was changed from fecal coliform to E.coli during the 2005 triennial review. Historic fecal coliform listings will be retained until E.coli data are collected to determine whether there is any impairment of contact uses. Available E.coli data from 2002 – 2006 were assessed. There were 3 of 23 exceedences of the single

sample criterion of 410 cfu/100 mL.

2008 ACTION: None

HUC 14080104 Animas

Animas River (Estes Arroyo to CO border)
WQS: 20.6.4.404 AU: NM-2404_00

Previously listed for stream bottom deposits and plant nutrients. Total phosphorus data from two stations, SJR404.00345 and SJR404.003001 indicate full support of the fishery use (0/10).There is no additional data to substantiate the listing for plant nutrients.

1998 ACTION: Plant nutrients have been removed as a cause of non-support for this reach. The reach continues to be listed as Partially Supported for stream bottom deposits.

2000 ACTION: None

2002 ACTION: None

2004 ACTION: This reach was intensively sampled during the 2002 SJR study. A thermograph deployed at Cedar Hill in 2003 recorded several temperatures greater than 23 degrees C (maximum temperature of 27.0 on 7/11/03). An additional thermograph deployed at Aztec had a max temp of 29.79 degrees on 7/19/03. **Therefore, temperature will be added as causes of non support.**

This AU has a historic listing for stream bottom deposits. SWQB and the USDA National Sedimentation Lab (NSL) implemented a special study to determine whether or not the AU is impaired due to excessive sedimentation (i.e., stream bottom deposits). Percent (%) fines data was the primary dataset used to determine whether or not the narrative SBD standard was being attained. In this study, the distribution of the % fines was determined to be log-normal, so medians and quartiles were used to define the central tendencies of the data. The fine sediment benchmark used to determine impairment was the 75th percentile of the % fines measured at reference sites in the San Juan and Animas Rivers (29.5 percent fines). The median value for % fines was determined for each reach (i.e., assessment unit) of concern. If the value (point or median depending on data availability) for % fines for the study reach was below the fine sediment benchmark (i.e., the 75th percentile of the reference condition), the reach was listed as Fully Supporting for Sedimentation/Siltation (SBD). If the median value for % fines for the reach is above the 75th percentile of the reference condition, the reach was listed as Non Supporting for Sedimentation/Siltation (SBD). The median percent fines for this reach was 23 percent. **Therefore, Sedimentation/Siltation (Stream Bottom Deposits) will be removed as a cause of non support.** See the SWQB website for additional details on the NSL study.

The potential for excessive nutrients in the Animas were noted through visual observation during the 2002 study. To address this concern, a workgroup was formed comprised of state and tribal environmental specialists and concerned citizens. The nutrient assessment protocol was performed on 8/26/03 at the site on the CO/NM border. Total phosphorus values were above the ecoregion criteria of 0.07 mg/L in >15% of the samples, and the percent DO saturation was greater than 120%. The results of the benthic macroinvertebrate study are not available at this time, but are not expected to indicate nutrient impairment. The nutrient assessment protocol was performed on 10/07/03 at the site in Aztec just above the HWY 516 bridge. The percent DO saturation was greater than 120%. Since three or more indicators were not present at either site, this AU was determined to be full support for nutrients.

2006 ACTION: The associated water quality criteria for contact use support was changed from fecal coliform to E.coli during the 2005 triennial review. Historic fecal coliform listings will be retained until E.coli data are collected to determine whether there is any impairment of contact uses. Available E.coli data from 2002 – 2006 were assessed. There were 0 of 20 exceedences of the single sample criterion of 410 cfu/100 mL.

2008 ACTION: None

Animas River (San Juan River to Estes Arroyo)
WQS: 20.6.4.403 AU: NM-2403.A_00

Previously listed for metals (Hg, Se) and streambottom deposits. Mercury (0/15) and selenium (0/8) data indicated full support of the fishery use as there were no exceedences of criteria.

1998 ACTION: Mercury and selenium will be removed as sources of non-support for this reach. The reach continues to be listed as Partially Supported for stream bottom deposits.

2000 ACTION: None

2002 ACTION: None

2004 ACTION: This reach was intensively sampled during the 2002 SJR study. In 1992, a thermograph was deployed near the "Animas at Farmington" USGS gage as part of the SJRIP study. The daily maximum temperature exceeded the criterion of 27 degrees C 154 of 3384 (4.6%) total records during the full period of record and 111 of 1364 (8.1%) between 7/8/99 and 4/1/03. According to the Assessment Protocol, this AU is in full support of temperature because the exceedence rate is < 15%. There were 2 of 13 (15%)

exceedences of the single sample fecal coliform criterion of 400 cfu/100 mL based on 2002 SWQB data and 2002-2003 USGS data. **Therefore, fecal coliform will be listed as a cause of non support.** This AU may be listed as 5B because the proposed single sample E.coli criterion of 126/100mL was not exceeded (0 of 8).

This AU has a historic listing for stream bottom deposits. SWQB and the USDA National Sedimentation Lab (NSL) implemented a special study to determine whether or not the AU is impaired due to excessive sedimentation (i.e., stream bottom deposits). Percent (%) fines data was the primary dataset used to determine whether or not the narrative SBD standard was being attained. In this study, the distribution of the % fines was determined to be log-normal, so medians and quartiles were used to define the central tendencies of the data. The fine sediment benchmark used to determine impairment was the 75th percentile of the % fines measured at reference sites in the San Juan and Animas Rivers (29.5 percent fines). The median value for % fines was determined for each reach (i.e., assessment unit) of concern. If the value (point or median depending on data availability) for % fines for the study reach was below the fine sediment benchmark (i.e., the 75th percentile of the reference condition), the reach was listed as Fully Supporting for Sedimentation/Siltation (SBD). If the median value for % fines for the reach is above the 75th percentile of the reference condition, the reach was listed as Non Supporting for Sedimentation/Siltation (SBD). The median percent fines for this reach was 26 percent. **Therefore, Sedimentation/Siltation (Stream Bottom Deposits) will be removed as a cause of non support.** See the SWQB website for additional details on the NSL study.

The potential for excessive nutrients in the Animas were noted through visual observation during the 2002 study. To address this concern, a workgroup was formed comprised of state and tribal environmental specialist, as well as concerned citizens. The nutrient assessment protocol was performed on 8/25/03 at the site approx one mile above the SJR at Boyd Park. Total nitrogen values were above the ecoregion criteria of 0.42 mg/L in >15% of the samples, the percent DO saturation was greater than 120%, and the ash free dry mass of algal sampling was greater than 5 mg/cm2. The nutrient assessment protocol was also performed on 8/25/03 at the Flora Vista site. The chlorophyll a concentration was greater than 10ug/cm2, the percent DO saturation was greater than 120%, and the ash free dry mass of algal sampling was greater than 5 mg/cm2. Since three or more indicators were present at both sites, **nutrients will be added as a cause of non support.**

There were also two acute sediment toxicity tests (on 4/18/02) with significant effect noted as compared to controls or reference conditions (see http://www.epa.gov/earth1r6/6wq/ecopro/watershd/monitrng/toxnet/nm.pdf). According to the Assessment Protocol, since significant effects were noted in

more than one acute test, **Sediment Bioassay – Acute will be added as a cause of non support.**

2006 ACTION: A TMDL was prepared for nutrients and fecal coliform. The associated water quality criteria for contact use support was changed from fecal coliform to E. coli during the 2005 triennial review. Historic fecal coliform listings will be retained until E. coli data are collected to determine whether there is any impairment of contact uses. Available E.coli data from 2002 – 2006 were assessed. There were 1 of 19 exceedences of the single sample criterion of 410 cfu/100 mL. **Therefore, the fecal coliform listing was removed. The TMDL for fecal coliform will be withdrawn.**

2008 ACTION: The above 2002 toxicity test results were suspected to be false positive in part because there was no information indicating any potential cause of impairment in the chemical data that were concurrently collected during the 2002 survey. Therefore, repeat acute toxicity testing was performed on sediment collected 9/10/07 @ Farmington at the bottom of the assessment unit. After 96 hours of exposure to both Ceriodaphnia dubia & Pimephales promelas, there were no significant effects in either test organisms exposed to sediment collected @ Farmington. Also, during revisions to the 2008 Assessment Protocols, significant effects in acute or chronic sediment toxicity test results were removed as potential causes for listing. Therefore, **Sediment Bioassay – Acute was removed as a cause of non support.**

Lake Farmington (Beeline Reservoir)
WQS: 20.6.4.99 AU: NM-9000.B_006

1998 ACTION: This lake is listed for mercury in fish tissue because there are fish consumption guidelines due to mercury contamination.

2000 ACTION: None

2002 ACTION: None

2004 ACTION: This AU was intensively sampled during the 2002 SJR study. There were no new impairments identified.

2006 ACTION: None. Coldwater and Warmwater Aquatic Life, and Municipal Water Supply are existing uses. This is the City of Farmington's drinking water supply reservoir. Although currently designated by default for livestock watering and wildlife habitat, City of Farmington maintenance staff patrol the shores to discourage or prevent livestock use. This lake is also stocked for fishing. This reservoir needs its own Water Quality Standard segment.

2008 ACTION: None

HUC 14080105 Middle San Juan

La Plata River (McDermott Arroyo to CO border)
WQS: 20.6.4.402 AU: NM-2402.A_01

Previously listed for metals (Hg, Se), salinity, plant nutrients and streambottom deposits. Mercury (0/1) and selenium (0/6) data indicated full support of the fishery use as there were no exceedences of criteria. There have been some old data reports, from 1981 and earlier, of mercury above detection levels. This data are highly questionable. There are no applicable salinity or total dissolved solids criteria for this reach. There are no data to support the listing of stream bottom deposits.

1998 ACTION: Mercury, selenium, and salinity will be removed as causes of non-support for this reach. The reach continues to be listed as Partially Supported for plant nutrients.

2000 ACTION: None

2002 ACTION: None

2004 ACTION: Previously named La Plata River (San Juan River to CO border), this AU was split. This AU was intensively sampled during the 2002 SJR study. The Nutrient Assessment protocol was performed July 2002. This reach was determined to not be nutrient enriched following the level two nutrient assessment analysis. A summary of the nutrient assessment is in the administrative record. **Plant nutrients were removed as a cause of non-support.** The dissolved oxygen criterion of 6.0 mg/L was not achieved 62% of the time based on a sonde deployed under the bridge near LaPlata. **Therefore, dissolved oxygen will be added as a cause of non support.** This AU may be placed in Category 5B because sonde data indicates NS for DO using percentages, the grab data indicates FS for DO using percentages, and the sonde data applied to the draft large dataset DO protocol indicates NS for the LaPlata site.

There were 2 of 7 exceedences of the single sample fecal coliform criterion of 400 cfu/100 mL. **Therefore, fecal coliform will be added as a cause of non support**. Benthic macroinvertebrates were collected and pebble counts were performed at two stations along the LaPlata according to our current Stream Bottom Deposit (Sedimentation/siltation) assessment protocol: immediately above the bridge at LaPlata (reference) and at the CO state line. There were 3% fines at the reference site and 2 % fines at the study site. The biological score at the CO border station was 53% of reference due large amount of simulidae in the sample. **Therefore, Benthic Macroinvertebrate Bioassessments (Streams) will be added as a cause of non support.**

2006 ACTION: A TMDL was prepared for dissolved oxygen and fecal coliform. The associated water quality criteria for contact use support was changed from fecal coliform to E. coli during the 2005 triennial review. Historic fecal coliform listings will be retained until E.coli data are collected to determine whether there is any impairment of contact uses. Available E.coli data from 2002 – 2006 were assessed. There were 3 of 5 exceedences of the single sample criterion of 410 cfu/100 mL. **Therefore, the fecal coliform listing was replaced with E. coli.**

2008 ACTION: None

La Plata River (San Juan River to McDermott Arroyo)
WQS: 20.6.4.402 AU: NM-2402.A_00

Previously listed for metals (Hg, Se), salinity, plant nutrients and streambottom deposits. Mercury (0/1) and selenium (0/6) data indicated full support of the fishery use as there were no exceedences of criteria. There have been some old data reports, from 1981 and earlier, of mercury above detection levels. This data are highly questionable. There are no applicable salinity or total dissolved solids criteria for this reach. There are no data to support the listing of stream bottom deposits. This is a flow limited river reach.

1998 ACTION: Mercury, selenium, and salinity will be removed as causes of non-support for this reach. The reach continues to be listed as Partially Supported for plant nutrients.

2000 ACTION: None

2002 ACTION: None

2004 ACTION: Previously named La Plata River (San Juan River to CO border), this AU was split. This AU was intensively sampled during the 2002 SJR study. The Nutrient Assessment protocol was performed July 2002. This reach was determined to not be nutrient enriched following the level two nutrient assessment analysis. A summary of the nutrient assessment is in the administrative record. **Plant nutrients were removed as a cause of non-support.** There were 3 of 4 exceedences of the single sample fecal coliform criterion of 400 cfu/100 mL. **Therefore, fecal coliform will be added as a cause of non support**. The dissolved oxygen criterion of 6.0 mg/L was not achieved 22% of the time based on a sonde deployed near the USGS gage near Farmington. **Therefore, dissolved oxygen will be added as a cause of non support.** This AU may be placed in Category 5B because sonde data indicates NS for DO using percentages, the grab data indicates FS for DO using percentages, and the sonde data applied to the draft large dataset DO protocol indicates FS for the Farmington site. Also, this lower portion of the LaPlata is likely misclassified as a marginal coldwater fishery. Benthic

macroinvertebrates were collected andpebble counts were performed at three stations along the LaPlata according to our current Stream Bottom Deposit (Sedimentation/siltation) assessment protocol: immediately above the bridge at LaPlata (reference) and near the USGS gage near Farmington. There was a 1000% change in percent fines (3% at the reference site vs. 30% at the study site). The biological score was 46% of reference. **Therefore, Sedimentation/Siltation will be added as a cause of non support.**

2006 ACTION: TMDLs were prepared for sedimentation/siltation and fecal coliform. The associated water quality criteria for contact use support was changed from fecal coliform to E. coli during the 2005 triennial review. Historic fecal coliform listings will be retained until E.coli data are collected to determine whether there is any impairment of contact uses. Available E.coli data from 2002 – 2006 were assessed. There were 1 of 7 exceedences of the single sample criterion of 410 cfu/100 mL. **Therefore, the fecal coliform listing was removed. The TMDL for fecal coliform will be removed.**

2008 ACTION: None

San Juan River (Navajo bnd at the Hogback to Animas River)
WQS: 20.6.4.401 AU: NM-2401_10

Previously listed for metals (Hg, Se), salinity and stream bottom deposits. Mercury (0/9) and selenium (0/13, within 22 years) data indicated full support of the fishery use as there were no exceedences of criteria. While there are no salinity (total dissolved solids) criteria for the reach, there were no exceedences of the total dissolved solids criteria for the Colorado River at Hoover Dam (723 mg/l).

1998 ACTION: Mercury, selenium, and salinity will be removed as causes of non-support for this reach. The reach continues to belisted as Partially Supported for stream bottom deposits.

2000 ACTION: None

2002 ACTION: Mercury in Fish Tissue (downstreamof Hammond Diversion) was added as a Probable Cause because there are fish consumption guidelines from Hammond Diversion to the Hogback.

2004 ACTION: This AU was intensively sampled during the 2002 SJR study. In 1992, a thermograph has deployed near the "SJRat Farmington" USGS gage as part of the SJRIP study. The maximum temperature for the available period of record did not exceed the criterion of32.2 degrees C. The USBOR provided fecal coliform data from 2000 and 2001. USGS fecal coliform data were also available from 2002 and 2003. There were 9 of 26 (35%) exceedences of the single sample fecal coliform criterion of 400 cfu/100 mL. **Therefore,**

fecal coliform will be listed as a cause of non support. In addition, the USBOR in conjunction with the SanJuan Watershed Group provided E.coli data collected in 2003. E. coli data were also collected during the 2002 SWQB intensive survey. There were 13 of 40 (33%) exceedences of the proposed E. coli criterion of 410/100 mL in this combined E. coli data set.

This AU has a historic listing for stream bottom deposits. SWQB and the USDA National Sedimentation Lab (NSL) implemented a special study to determine whether or not the AU is impaired due to excessive sedimentation (i.e., stream bottom deposits). Percent (%) fines data was the primary dataset used to determine whether or not the narrative SBD standard was being attained. In this study, the distribution of the % fines was determined to be log-normal, so medians and quartiles were used to define the central tendencies of the data. The fine sediment benchmark used to determine impairment was the 75th percentile of the %fines measured at reference sites in the San Juan and Animas Rivers (29.5 percent fines). The median value for % fines was determined for each reach (i.e., assessment unit) of concern. If the value (point or median depending on data availability) for % fines for the study reach was below the fine sediment benchmark (i.e., the 75th percentile of the reference condition), the reach was listed as Fully Supporting for Sedimentation/Siltation (SBD). If the median value for % fines for the reach is above the 75th percentile of the reference condition, the reach was listed as Non Supporting for Sedimentation/Siltation (SBD). The median percent fines for this reach was 23 percent. **Therefore, Sedimentation/Siltation (Stream Bottom Deposits) will be removed as a cause of non support.** See the SWQB website for additional details on the NSL study.

This AU remains on the fish consumption guidelines for Mercury in Fish Tissue as these guidelines have not been updated since the last listing cycle.

2006 ACTION: A TMDL was prepared for fecal coliform. The associated water quality criteria for contact use support was changed from fecal coliform to E. coli during the 2005 triennial review. Historic fecal coliform listings will be retained until E. coli data are collected to determine whether there is any impairment of contact uses. Available E.coli data from 2002 – 2006 were assessed. There were 13 of 59 exceedences of the single sample criterion of 410 cfu/100 mL. **Therefore, the fecal coliform listing was replaced with E. coli.**

2008 ACTION: None

LITTLE COLORADO RIVER BASIN

HUC 15020003 Carrizo Wash

Quemado Lake
WQS: 20.6.4.99 **AU: NM-9000.B_096**

1998 ACTION: **Not listed**

2000 ACTION:

Quemado Lake was characterized (in a report titled, ***New Mexico Clean Lakes Program, Classification Phase I, Final Report, September 1982)*** by stratification and hypolimnetic dissolved oxygen depletion during the summer. Nitrogen was solely limiting. Though the blue-green algae were present, they didnot dominate the phytoplankton. Total phosphorus concentration peaked at .230 mgP/l. Quemado Lake gives the most overwhelming aesthetic indication of impaired water quality due to obnoxious odors and unsightly stagnant masses produced by the death of surface films of algae, phytoplankton and macrophytes.

Although the data for this lake is dated, it is still listed in the State's 305(b) Report as impaired for nuisance algae, nutrients and siltation and therefore willbe listed on the 303(d) List until new data are collected to either verify or refute the listing.

2002 ACTION: None

2004 ACTION: None

2006 ACTION: This reservoir was intensively sampled in 2004. There were no exceedences of chemical WQ parameters. There is no documentation or justification for the historic sedim entation or nutrient listings as protocols have not been developed to determ ine these im pairments for lakes, so these im pairment listings were removed.

2008 ACTION: None

HUC 15020004 Zuni

McGaffey Lake
WQS: 20.6.4.98 AU: NM-9000.B_08.

1998 ACTION: Not listed

2000 ACTION:

McGaffey Lake was characterized from April 11, 1990 to April 4, 1991 (in a report titled, ***New Mexico Clean Lakes Program, Phase I: Diagnostic – Feasibility Study for the Restoration and Watershed Management of McGaffey Lake, McKinley County, New Mexico, October 1994).*** McGaffey Lake is highly productive as evidenced by extensive macrophyte beds, high phytoplanktondensity and occasional fish die-offs. McGaffey Lake's ephemeral tributary system is an inadequate, unreliable and unpredictable water source. Prolonged drought during the period when the fieldwork was conducted precluded making the direct measurements necessary to construct nutrient and hydrologic budgets. Analyses of sediment, however, revealed that high concentrations of nutrients arepresent in lake bottom deposits. Thus internal nutrientloading, i.e. intermittent recycling of nutrients into the water column from the sediments, probably accounts for much of the lake's extreme eutrophic condition. The investigators obtained samples during a snowmelt runoff event in which a large amount of soil was washed into the lake from the adjacent road and parking area. These data indicate that direct overland runoff may also contribute importantly to McGaffey Lake's annual nutrient supply.

Although the data for this lake is dated, it is still listed in the State's 305(b) Report as impaired for pH, nutrients, nuisance algae and siltation and therefore will be listed on the 303(d) List until new data are collected to either verify or refute the listing.

2002 ACTION: None

2004 ACTION: None

2006 ACTION: None

2008 ACTION: The sedimentation/siltation listing was removed because there were no data or applicable assessment protocols available to make this determination.

Rio Nutria (Zuni Pueblo bnd to Tampico Draw)
WQS: 20.6.4.99 AU: NM-9000.A_029

Listed for mercury chronic (Hg). Water quality data from USGS 09386900 (Rio Nutria Near Ramah, NM) collected from 1988 to 1992 was assessed. There were 4 of 22 exceedences of the total mercury chronic screening criterion of 0.018 ug/L (=1.5 x 0.012 ug/L). The rest were non detects

with a detection limit of 0.1 ug/L.

1998 ACTION: This reach will remain on the list as Partially Supporting its use until this metals listing can be verified.

2000 ACTION: None

2002 ACTION: None. Name was revised to remove portion under tribal jurisdiction.

2004 ACTION: None

2006 ACTION: This AU was intensively sampled in 2004, and split at Tampico Draw because the stream is ephemeral above Tampico Draw. There were no exceedences of any WQS criteria monitored (including 0 of 8 for mercury). SWQB contracted with the USGS for mercury low level mercury monitoring (MDL 0.02 ug/L). There were 0 of 2 mercury exceedences using USGS data. **Therefore, mercury was removed as a cause of non support.** Warmwater Aquatic Life is an existing use. This reach contains Zuni Bluehead Suckers.

2008 ACTION: None

GILA RIVER BASIN

HUC 15040001 Upper Gila

Black Canyon Creek (East Fork Gila River to headwaters)
WQS: 20.6.4.503 AU: NM-2503_21

Previously listed for metals (Al, chronic), temperature, and total phosphorus. Limited temperature data are available but do support a listing of not supported at stations GRB503.007523 and 7525. Stations 09565, 07543, and 09563 are Full Support, Impacts Observed. For total phosphorus, 1992 data indicated Full Support, Impacts Observed (1/1 at two stations). More recent data indicated full support (0/9 at two stations). For Al, a 0/6 ratio of exceedences to samples at two sites indicates full support.

1998 ACTION: Aluminum and phosphorus were removed as causes of non-support. Temperature was retained as a cause of non-support.

2000 ACTION: None

2002 ACTION: This assessment unit was intensively survey in 2000. There were 1 of 8 pH exceedences and 1 of 8 turbidity exceedences detected during this survey. A thermograph was deployed from 4/28/00 until 10/3/00 to determine the level of temperature impairment and to generate data for the SSTEMP model. The temperature criterion was exceeded 37% of the time. **Temperature was retained as a cause of Non Support.** A TMDL was prepared for temperature.

There were 3 of 6 TOC exceedences. In 2002, The WQCC deleted the total organic carbon criterion (20.6.4.900C of NMAC) for the high quality coldwater fishery designated use. The TOC criterion was adopted in 1973. Before then, the water quality standards contained an ambient narrative criterion for combined COD/BOD. This criterion, adopted originally in 1967, stated that "materials in solution and in suspension which exert an oxygen demand, shall not be present in concentrations sufficient to reduce the dissolved oxygen in the stream to 50 percent of the saturation concentration or to 6.0 mg/l" for trout-producing and warm-water fish producing waters. In 1973, the Commission replaced this narrative criterion with the current numeric criterion for TOC, applicable to the high quality coldwater fishery designated use. Since then, this criterion has been rendered unnecessary. Over the years, the Commission has adopted use-specific and segment-specific dissolved oxygen criteria that offer a higher degree of protection than the TOC criterion. EPA considers the TOC criterion to be an artifact from an earlier time. Indeed, only one other state—Louisiana—still maintains

a TOC criterion, and that number is used only as a discharge limitation for effluents and stormwater discharges. **TOC was removed as a cause of Non Support.**

2004 ACTION: None

2006 ACTION: None

2008 ACTION: None

Canyon Creek (Middle Fork Gila River to headwaters)
WQS: 20.6.4.503 AU: NM-2503_43

Previously listed for plant nutrients. The phosphorus criteria was exceeded in on sample from 1992, (1/1, station GRB503.009571), indicating Full Support,Impacts Observed. Total phosphorus will be listed in the 1998 305(b) Report as FSIO.

1998 ACTION: Plant nutrients and unknown were retained as causes of non-support.

2000 ACTION: None

2002 ACTION: This assessment unit was intensively survey in 2000 and 2001. There were exceedences of 0.6%, 13.6%, 3%, and 53.3% of the temperature, dissolved oxygen, pH, and turbidity criteria, respectively, measured by YSI sondes. **Turbidity was added as a cause of Non Support.** A TMDL was prepared turbidity.

A level two nutrient assessment was performed in 2001. The results of the assessment are in the administrative record. **Plant Nutrients was retained as a cause of Non Support.** A TMDL was prepared for plant nutrients.

2004 ACTION: None

2006 ACTION: None

2008 ACTION: The WQS reference was erroneously noted as 20.6.4.97 on the 2006-2008 Integrated List, even thought the AU was assessed against the correct WQS reference of 20.6.4.503. The WQS reference on the 2008-2010 Integrated List was corrected and is now noted as 20.6.4.503.

Diamond Creek (East Fork Gila River to headwaters)
WQS: 20.6.4.98 AU: NM-2503_43

Previously listed for temperature and total phosphorus. Values for both parameters are limited to one sample. Because of this limited data set the listing will be changed to Full Support, Impacts Observed based on 1/1 ratios at the stations.

1998 ACTION: The reach was removed from the 303(d) list and will be listed as Full Support, Impacts Observed on the 305(b) list.

2000 ACTION: None

2002 ACTION: None. According to SWQB staff comments, this reach goes dry. Therefore, the only designated uses that apply are livestock watering and wildlife habitat.

2004 ACTION: None

2006 ACTION: WQS was changed to 20.6.4.98.

2008 ACTION: None

East Fork Gila River (Gila River to headwaters)
WQS: 20.6.4.503 AU: NM-2503_20

Previously listed as "East Fork of the Gila River from the confluence with West Fork to the confluence of Beaver and Taylor Creek" and listed for metals (Al), total ammonia, pH, total phosphorus, and total organic carbon. While aluminum exceeded the chronic screening level at station GRB503.007540 (2/3), there were no acute or chronic criteria exceedences. For total ammonia, the entire reach should be upgraded tofull support based on 0/24 exceedences fromfour stations over ten years. The pH listing should be limited to station GRB503.007547 with 2/9 exceedences within the last five years. All other stations are fully supporting for pH. The total phosphorus listing of not supporting is verified atstation 7540 (5/9). Station 7541 is Full Support, Impacts Observed and all other stations are full support. Total organic carbon is not supported at station 7540, but is full support at station 7547.A biological assessment was conducted in 1996 by NMED. The biological assessment of two stations (GRB503.007540 and GRB 503.007547) found that the fishery use was fully supported (100% and 96% of reference).

1998 ACTION: Ammonia was removed as a cause of non-support. Based on the biological data pH, phosphorus and total organic carbon were removed as causes of non-support. Aluminum was retained as a cause of non-support.

2000 ACTION: None

2002 ACTION: This assessment unit was intensively survey in 1999 and 2000. There were 1 of 8 turbidity exceedences and 2 of 8 aluminum exceedences. **Aluminum was retained as a cause of Non Support.** A TMDL was written for chronic aluminum.

2004 ACTION: None

2006 ACTION: None

2008 ACTION: Name was changed from Gila River (East Fork) to East Fork Gila River (Gila River to headwaters).

Gila River (Mogollon Creek to Gila Hot Springs)
WQS: 20.6.4.502 AU: NM-2502.A_30

Previously listed as "Gila River from Mogollon Creek to the East and West Fork of the Gila River." Additional data indicated turbidity (4/9) should be added to this reach for station GRB502.008055.

1998 ACTION: Turbidity was added as a cause of non-support.

2000 ACTION: None

2002 ACTION: There were 4 of 9 turbidity exceedences of the 25 NTU criterion for primary contact recreation during a 1996 survey. Effective February 23, 2000, the criterion of 25 NTU for primary contact recreation was removed. Since the narrative standard for turbidity still applies, SWQB examined benthic macroinvertebrate communities on the reach to determine whether turbidity impairment was occurring. **Turbidity was removed as a cause of Non Support**. A de-list letter was prepared.

2004 ACTION: None

2006 ACTION: None

2008 ACTION: None

Gilita Creek (Middle Fork to Willow Creek)
WQS: 20.6.4.503 AU: NM-2503_45

Previously listed as "Gilita Creek from the confluence with Snow Canyon Creek to Willow Creek" and listed for metals (Al), temperature, and total phosphorus. Two stations GRB503.007545 and 9587 define this reach. There was one exceedence the chronic screening level for aluminum at station GRB503.007545, but no exceedences of the acute or chronic criteria, indicating Full Support, Impacts Observed. The temperature listing should be changed to full support for station 7547 (0/6)

and not supported at station 9587 (2/6). Total phosphorus should be upgraded to Full Support, Impacts Observed at station 7545 and full support (0/9) at station 9587. A biological assessment was conducted in 1996 by NMED. The assessment found full support of the fishery use (100% of reference at station GRB503.007545).

1998 ACTION: Based on the biological assessment the reach was removed from the 303(d) list. The reach will be placed on the 305(b) list as Full Support, Impacts Observed for aluminum.

2000 ACTION: None

2002 ACTION: This assessment unit was intensively survey in 2000. The temperature criterion was exceeded 17.8% of the time according to the thermograph data. **Temperature was added as a cause of Non Support.** Chronic aluminum was exceeded 3 of 8 times during the survey. **Chronic aluminum was added as a cause of Non Support. pH measurements were outside of the water quality standard range of 6.6-9.0 during 1 of 8 measurements.** Turbidity exceeded the 10 NTU water quality standard during 1 of 8 measuremetns. These exceedences led to a conclusion of Full Support, Impacts Observed for both.

2004 ACTION: None

2006 ACTION: None

2008 ACTION: None

Iron Creek (Middle Fork Gila R to headwaters)
WQS: 20.6.4.503 AU: NM-2503_44

Previously listed for total phosphorus and temperature. Two stations, GRB503.009577 and 9578, define the assessment for this reach. For total phosphorus, these stations have exceedence ratios of 0/8 and 0/9 respectively. Total phosphorus is full supported for this reach. For temperature, the exceedence ratios are 0/6 and 0/6 within five years. This reach is full support for temperature. A 1996 biological assessment found full support of the fishery use (96% of reference at station GRB503.009577).

1998 ACTION: The reach was removed from the 303(d) list.

2000 ACTION: None

2002 ACTION: None

2004 ACTION: None

2006 ACTION: None

2008 ACTION: None

Lake Roberts
WQS: 20.6.4.504 AU: NM-2504_20

2002 ACTION: Listed for temperature, pH, and nutrients based on the 1996 lakes study.

2004 ACTION: None

2006 ACTION: None

2008 ACTION: None

Middle Fork Gila River (Gila River to headwaters)
WQS: 20.6.4.503 AU: NM-2503_40

Previously listed as "Middle Fork of the Gila River from the mouth on the West Fork of the Gila River to the USFS Ranger Station" and listed for metals (Al), temperature, turbidity, and total phosphorus. There were no exceedences of acute or chronic criteria for aluminum though the chronic screening level was exceeded one time (1/3) at station GRB503.009560, indicating Full Support, Impacts Observed. For temperature, exceedence ratios at stations 9580 (1/6) and 9575 (0/6) support changing the listings to Full Support,Impacts Observed and full support respectively. Station 9560 has an exceedences ratio of 4/9 that would make it not supporting for temperature. Turbidity is Full Support, Impacts Observed at station 9560 and full support at stations 9575 and 9580. Total phosphorus is full support at all stations with a cumulative five year ratio of 0/27 at three stations. A biological assessment was conducted in 1996 by NMED. The biological assessment of three stations (GRB503.009580, GRB503.009575 and GRB503.009560) found full support of the fishery use (100% of reference at all sites).

1998 ACTION: Based on the biological information the reach was removed from the 303(d) list. The reach will go to the 305(b) list as Full Support, Impacts Observed for aluminum.

2000 ACTION: None

2002 ACTION: This assessment unit was intensively survey in 2000. The temperature criterion was exceeded 67% and 22.8% of the time according to thermographs at two stations. **Temperature was added as a cause on Non Support.**

2004 ACTION: None

2006 ACTION: None

2008 ACTION: Name was changed from Gila River (Middle Fork) to Middle Fork Gila River (Gila River to headwaters).

Mogollon Creek (Perennial reaches abv USGS gage)
WQS: 20.6.4.503 AU: NM-2503_02

Previously listed for metals (Pb, Al) and stream bottom deposits. This reach is defined by USGS station 09430600. Aluminum at this station has a chronic screening level ratio of 5/14 making it not supporting for aluminum. At a hardness of 40 mg/l the chronic screening level was exceeded 2/16 with no exceedences of the acute level.

1998 ACTION: Aluminum, lead and stream bottom deposits were retained as causes of non-support.

2000 ACTION: None

2002 ACTION: This assessment unit was surveyed in 2001. Access to historic sampling sites was limited. **A TMDL was written for chronic aluminum using historic STORET data.** The sample station was dry on several occasions. Historic data indicated 0 of 7 lead exceedences while flowing. **Lead was removed as a cause of Non Support.** Historic and current water quality data do not indicate impairment due to streambottom deposits narrative criteria. **Stream bottom deposits was removed as a cause of Non Support.**

2004 ACTION: None

2006 ACTION: None

2008 ACTION: None

Sapillo Creek (Gila River to Lake Roberts)
WQS: 20.6.4.503 AU: NM-2503_04

Previously listed for nuisance algae. Three stations, GRB503.006530, 006520 and 006540 define the assessment of this reach. Total phosphorus data indicated full support (0/3, and 0/9) at stations 006520 and 006540 and Full Support, Impacts Observed (1/9) at station GRB503.006530. A 1996 biological assessment found that nutrients and nuisance algae were not a problem (Hilsenhoff Biotic Index of 4.55), but also found partial support of the fishery use (65% of reference at station GRB503.006530).

1998 ACTION: Nuisance algae were removed as causes of non-support. Biological impairment and unknown were added as causes of non-support.

2000 ACTION: None

2002 ACTION: This assessment unit was surveyed in 2001. Unknown was removed as a cause and replaced with the following results. There were 4 of 8 TOC exceedences of the criterion, so a TMDL was prepared. In 2002, The WQCC deleted the total organic carbon criterion (20.6.4.900C of NMAC) for the high quality coldwater fishery designated use. The TOC criterion was adopted in 1973. Before then, the water quality standards contained an ambient narrative criterion for combined COD/BOD. This criterion, adopted originally in 1967, stated that "materials in solution and in suspension which exert an oxygen demand, shall not be present in concentrations sufficient to reduce the dissolved oxygen in the stream to 50 percent of the saturation concentration or to 6.0 mg/l" for trout-producing and warm-water fish producing waters. In 1973, the Commission replaced this narrative criterion with the current numeric criterion for TOC, applicable to the high quality coldwater fishery designated use. Since then, this criterion has been rendered unnecessary. Over the years, the Commission has adopted use-specific and segment-specific dissolved oxygen criteria that offer a higher degree of protection than the TOC criterion. EPA considers the TOC criterion to be an artifact from an earlier time. Indeed, only one other state—Louisiana—still maintains a TOC criterion, and that number is used only as a discharge limitation for effluents and storm water discharges. **TOC was removed as a cause of Non Support.**

Examination of benthic macroinvertebrate data collected in 2001 did not indicate any biological impairment. **Biological impairment was removed as a cause of Non Support**.

Sonde data collected in 2001 indicated impairment for turbidity. **Turbidity was added as a cause of Non Support**. A TMDL for turbidity was prepared.

2004 ACTION: None

2006 ACTION: None

2008 ACTION: None

Snow Canyon Creek (Gilita Creek to Snow Lake)
WQS: 20.6.4.98 AU: NM-2503_46

Previously listed for metals (Al), temperature, dissolved oxygen, total phosphorus, stream bottom deposits and turbidity. All assessments were based on single data points. Because of the limited data available this listing will be changed to Full Support, Impacts Observed for all parameters, except stream bottom deposits.

1998 ACTION: Aluminum, temperature, dissolved oxygen, total phosphorus and turbidity were removed as causes of non-support. Stream bottom deposits was retained as a cause of non-support.

2000 ACTION: None

2002 ACTION: This assessment unit was surveyed in 2001. There were 1 of 8 aluminum and 1 of 8 lead exceedences recorded. The channel was often on 05/31/01 and 06/18/01. Historic and current water quality data do not indicate impairment due to stream bottom deposits narrative criteria. **Stream bottom deposits was removed as a cause of Non Support.**

2004 ACTION: Due to the above comment, the applicable water quality standards were reduced to Livestock Watering and Wildlife Habitat because the channel is ephemeral.

2006 ACTION: WQS were changed to 20.6.4.97.

2008 ACTION: This AU is likely ephemeral, but EPA has not yet approved 20.6.4.97 and UAAs have not been prepared at the time of this writing (6/4/08). Therefore, this AU will be noted as WQS Reference 20.6.4.98 for now and UAAs are planned.

Taylor Creek (Beaver Creek to Wall Lake)
WQS: 20.6.4.503 AU: NM-2503_23

Previously listed for turbidity, temperature and metals (Al, chronic). For turbidity, a 0/18 ratio of exceedences to samples within the last five years supports upgrading the nonsupport listing for turbidity to full support. Temperature data over the last the years indicates non-support (6/11 and 9/15). Aluminum data also indicates non-support (2/3 and 1/3). Biological criteria at station GRB503.007550, FSIO 68% of the reference site.

1998 ACTION: Turbidity was removed as a cause of non-support. Temperature and metals were retained as causes of non-support. Biological criteria at station GRB503.007550, FSIO 68% of the reference site will be listed in the 1998 305(b) Report.

2000 ACTION: None

2002 ACTION: This assessment unit was surveyed in 2001. The temperature criterion was exceeded 51.6% of the time according to the thermograph data. **Temperature was retained as a cause of Non Support.** Chronic aluminum was exceeded 3 of 8 times during the survey. **Chronic aluminum was retained as a cause of Non Support.** TMDLs were written for temperature and chronic aluminum. The turbidity criterion was exceeded 3 of 8 times during the survey. **Turbidity was added as a cause of Non Support.**

2004 ACTION: None

2006 ACTION: None

2008 ACTION: None

Taylor Creek (Perennial reach above Wall Lake)
WQS: 20.6.4.503 AU: NM-2503_24

2002 ACTION: This assessment unit was surveyed in 2001. The temperature criterion was exceeded 53.4% of the time according to the thermograph data. **Temperature was added as a cause of Non Support.** Chronic aluminum was exceeded 4 of 8 times during the survey. **Chronic aluminum was added as a cause of Non Support.** Acute aluminum was exceeded 2 of 8 times during the survey. **Acute aluminum was added as a cause of Partial Support.** Chronic lead was exceeded 1 of 8 times during the survey. **Chronic lead was added as Full Support Impact Observed.** Acute aluminum was exceeded 2 of 8 times during the survey. **Acute aluminum was added as a cause of Partial Support.** The turbidity criterion was exceeded 2 of 8 times during the survey. **Turbidity was added as a cause of Partial Support.**

2004 ACTION: None

2006 ACTION: None

2008 ACTION: None

Turkey Creek (Gila River to headwaters)
WQS: 20.6.4.503 AU: NM-2503_03

Previously listed for temperature. Data are from 1992 and 1975. The exceedence ratio was 1/1 in 1992 and 0/1 in 1975. The reach is Full Support, Impacts Observed. Turkey creek was sampled for biological assessment in 1992. It was selected as the reference site for its high quality habitat.

1998 ACTION: The reach was removed the 303(d) list. It will be added to the 305(b) list as Full Support, Impacts Observed for temperature.

2000 ACTION: None

2002 ACTION: This assessment unit was surveyed in 2000. The temperature criterion was exceeded 45% of the time according to the thermograph data. **Temperature was added as a cause of Non Support.** The dissolved oxygen criterion was exceeded 2 of 8 times during the survey. **Dissolved oxygen was added as a cause of Non Support.**

2004 ACTION: None

2006 ACTION: None

2008 ACTION: None

Wall Lake
WQS: 20.6.4.504 AU: NM-2504_10

1998 ACTION: **Not listed**

2000 ACTION:

Wall Lake was characterized (in a report titled, ***New Mexico Clean Lakes Program, Classification Phase I, Final Report, September 1982*** and a report titled ***, Lake Water Quality Assessment Surveys for Selected New Mexico Lakes, 1996)*** as having temperature and dissolved oxygen stratification despitea shallow depth of2.6 m. Euglena sp. dominated the phytoplankton population and phosphorus wa s the sole lim iting nutrient during all seasons. Macrophyte coverage was considerable virtually covering the bottom during the summer and with 45% remaining in the fall. As macrophyte concentrations declined during the fall, chlorophyll concentrations increased. Use of the lake is impaired due to excessive aquatic macrophyte coverage and sediment accumulation.

Although the data for this lake is dated, it is still listed in the State's 305(b) Report as impaired for dissolved oxygen, nutrients, nuisance algae and siltation and therefore will be listed on the 303(d) List until new data are collected to either verify or refute the listing.

2002 ACTION: None

2004 ACTION: None

2006 ACTION: None

2008 ACTION: During a large storm event in 2000, Wall Lake was completely filled with sediment. Since this event, NM Game and Fish has given up their lease. The filled-in lake bed is now privately-owned, and there are no plans for dredging or maintenance. This feature is no longer a viable waterbody, and is not a significant or publicly-owned. Therefore, it was removed from the Integrated List.

West Fork Gila R (East Fork to Middle Fork)
WQS: 20.6.4.503 AU: NM-2503_10

Previously listed as "West Fork of the Gila River from the confluence with the East Fork of the Gila River to above the Gila Cliff Dwellings" and listed for turbidity. The turbidity listings should be downgraded to not supported based on 6/9 ratios at two stations. A biological assessment was conducted in 1996 by NMED.
The assessment found full support of the fishery use (90% of reference at station GRB503.008055).

1998 ACTION: Based on the biological data, the reach was removed from the 303(d) list.

2000 ACTION: None

2002 ACTION: This assessment unit was intensively survey in 2000. The temperature criterion was exceeded 33.5% of the time according to the thermograph data. **Temperature was added as a cause on Non Support.**

2004 ACTION: None

2006 ACTION: None

2008 ACTION: AU Name was changed from **Gila River (West Fork below Gila Cliff Dwellings)** to **West Fork Gila R (East Fork to Middle Fork)** to clarify the location and acknowledge the entrance of a major tributary. This AU contains the confluence with Cliff Dweller Canyon.

Willow Creek (Gilita Creek to headwaters)
WQS: 20.6.4.503 AU: NM-2503_47

Previously listed for plant nutrients. In 1992 NMED conducted an intensive survey of the upper Gila River watershed and found that nitrogen and phosphorus levels were low. During a 1996 survey, the creek was revisited and visually found to be free from excessive plant nutrients. Based on the professional judgement of NMED staff, plant nutrients are not impairing designated uses.

1998 ACTION: The reach was removed from the 303(d) list.

2000 ACTION: None

2002 ACTION: None

2004 ACTION: None

2006 ACTION: None

2008 ACTION: None

HUC 15040002 Upper Gila - Mangas

Bear Creek (Gila River nr Cliff to headwaters)
WQS: 20.6.4.98 AU: NM-2503_01

Previously listed for metals (Al, Cu, and Zn). There are no dissolved metals data available for this reach.

1998 ACTION: Aluminum, copper and zinc were retained as causes of non-support.

2000 ACTION: None

2002 ACTION: According to SWQB staff comments, this reach goes dry. Therefore, the only designated uses that apply are livestock watering and wildlife habitat. The above causes of non-support are related to other designated uses, so they do not apply to this reach. A de-list letter was prepared for metals.

2004 ACTION: None

2006 ACTION: WQS was changed to 20.6.4.98. According to SWQB Silver City staff, the Cypress Mine contributed to this stream reach previously going dry. This mine is now closed. SWQB is intensively studying Bear Creek in 2006. The results of this survey are not yet available, and therefore will be reported on the 2008 Integrated List.

2008 ACTION: None

Carlisle Creek (Gila River to headwaters)
WQS: 20.6.4.98 AU: NM-2502.A_02

Previously listed as "Carlisle Creek , perennial portions in New Mexico" and listed for metals (Al, Cu, Zn, Cd). There are no metals data, historical or otherwise, to support this listing.

1998 ACTION: Aluminum, cadmium, copper and zinc were retained as causes of non-support.

2000 ACTION: None

2002 ACTION: According to SWQB staff comments, this reach goes dry. Therefore, the only designated uses that apply are livestock watering and wildlife habitat. The above causes of non-support are related to other designated uses, so they do not apply to this reach. A de-list letter was prepared for metals.

2004 ACTION: None

2006 ACTION: WQS was changed to 20.6.4.97

2008 ACTION: This AU is likely ephemeral, but EPA has not yet approved 20.6.4.97 and UAAs have not been prepared at the time of this writing (6/4/08). Therefore, this AU will be noted as WQS Reference 20.6.4.98 for now and UAAs are planned.

Gila River (AZ border to Red Rock)
WQS: 20.6.4.501 AU: NM-2501_00

Previously listed as "Gila River from the NM-AZ border to Mangas Creek" and listed for turbidity and stream bottom deposits. Turbidity data are from two stations both with an exceedence ratios of 2/3. This reach will be listed as not supported for turbidity.

1998 ACTION: Turbidity and stream bottom deposits were retained as causes of non-support.

2000 ACTION: None

2002 ACTION: The original reach was split into two because it spans two different water quality standard segments. **Benthic macroinvertebrate sampling at the station Gila at Lower Box indicated Full Support Impacts Observed for stream bottom deposits** (81% of reference biological score). A de-list letter was prepared under the original reach name.

Effective February 23, 2000, the criterion of 25 NTU for primary contact recreation was removed. Since the narrative standard for turbidity still applies, SWQB examined benthic macroinvertebrate communities on the reach to determine whether turbidity impairment was occurring. **Turbidity was removed as a cause of Non Support**. A de-list letter was prepared under the original reach name.

2004 ACTION: None

2006 ACTION: None

2008 ACTION: None

Gila River (Mangas Creek to Mogollon Creek)
WQS: 20.6.4.502 AU: NM-2502.A_10

Previously listed for turbidity and stream bottom deposits. There are again very limited data on this reach. There is one station which has been monitored only once in 1992. An exceedence ratio of 3/3 for turbidity will result in a listing of not supported.

1998 ACTION: Stream bottom deposits and turbidity were retained as causes of non-support.

2000 ACTION: None

2002 ACTION: The original reach was split into two because it spans two different water quality standard segments. **Benthic macroinvertebrate sampling at the station Gila below Mogollon Creek indicated Full Support Impacts Observed for stream bottom deposits**(81% of reference biological score). A de-list letter was prepared.

Effective February 23, 2000, the criterion of 25 NTU for primary contact recreation was removed. Since the narrative standard for turbidity still applies, SWQB examined benthic macroinvertebrate communities on the reach to determine whether turbidity impairment was occurring. **Turbidity was removed as a cause of Non Support**. A de-list letter was prepared.

2004 ACTION: None

2006 ACTION: None

2008 ACTION: None

Gila River (Red Rock to Mangas Creek)
WQS: 20.6.4.502 AU: NM-2502.A_00

Previously listed as "Gila River from the NM-AZ border to Mangas Creek" and listed for turbidity and stream bottom deposits. Turbidity data are from two stations both with an exceedence ratios of 2/3. This reach will be listed as not supported for turbidity.

1998 ACTION: Turbidity and stream bottom deposits were retained as causes of non-support.

2000 ACTION: None

2002 ACTION: The original reach was split into two because it spans two different water quality standard segments. **Benthic macroinvertebrate sampling at the station Gila below Mangus Creek indicated Full Support Impacts Observed for stream bottom deposits**(71% of reference biological score). A de-list letter was prepared under the original reach name.

Effective February 23, 2000, the criterion of 25 NTU for primary contact recreation was removed. Since the narrative standard for turbidity still applies, SWQB examined benthic macroinvertebrate communities on the reach to determine whether turbidity impairment was occurring. **Turbidity was removed as a cause of Non Support**. A de-list letter was prepared

under the original reach name.

2004 ACTION: None

2006 ACTION: None

2008 ACTION: None

Mangas Creek (Gila River to Mangas Springs)
WQS: 20.6.4.502 AU: NM-2502.A_21

Previously listed for turbidity, stream bottom deposits and plant nutrients. Limited turbidity data 1/3 will result in a change in the listing to Full Support, Impacts Observed for turbidity.

1998 ACTION: Turbidity was removed as a cause of non-support. Stream bottom deposits and plant nutrients were retained as causes of non-support.

2000 ACTION: None

2002 ACTION: **Benthic macroinvertebrate sampling at the station Gila below Mangus Creek indicated Full Support Impacts Observed for stream bottom deposits** (59% and 64% of reference biological score depending which reference station was used for comparison). A de-list letter was prepared.

A level two nutrient assessment was performed in 2001. The results of the assessment are in the administrative record. **Plant Nutrients was retained as a cause of Non Support.** A TMDL was prepared for plant nutrients.

2004 ACTION: None

2006 ACTION: None

2008 ACTION: None

HUC 15040003 Animas Valley

North Lordsburg Playa
WQS: 20.6.4.98 AU: NM-9000.B_091

1998 ACTION: Not listed

2000 ACTION:

Lake Water Quality Assessment Surveys, Playa Lakes 1993, NMED/SWQB, pages 25-36. Wildlife habitat and livestock watering uses do exist. Numeric standards, general standards and antidegradation policy do not place this playa on the list.

This playa is currently meeting surface water quality standards and will not be listed on the 303(d) list.

2002 ACTION: None

2004 ACTION: None

2006 ACTION: WQS was changed to 20.6.4.98.

2008 ACTION: None

South Lordsburg Playa
WQS: 20.6.4.98 AU: 9000.B_099

1998 ACTION: Not listed

2000 ACTION:

Lake Water Quality Assessment Surveys, Playa Lakes 1993, NMED/SWQB, pages 25-36. Wildlife habitat and livestock watering uses do exist. Numeric standards, general standards and antidegradation policy do not place this playa on the list.

This playa is currently meeting surface water quality standards and will not be listed on the 303(d) list.

2002 ACTION: None

2004 ACTION: None

2006 ACTION: WQS was changed to 20.6.4.98.

2008 ACTION: None

SAN FRANCISCO RIVER BASIN

HUC 15040004 San Francisco

Apache Creek (Tularosa River to Hardcastle Canyon)
WQS: 20.6.4.98 AU: NM-2603.A_44

Previously listed for temperature, conductivity, total phosphorus and fecal coliform. There is only one sampling station on this reach. All data are from a 1990 survey. For temperature, 5/5 (100%) of the samples exceeded the criteria. For conductivity, 5/5 (100%) of the samples exceeded the criteria. For total phosphorus 4/5 (80%) of the samples exceeded the criteria. For fecal coliform, 1/1 (100%) of the samples exceeded criteria. The criteria for temperature, conductivity, and total phosphorus are not supporting the designated use. Fecal coliform is Full Support, Impacts Observed.

1998 ACTION: Fecal coliform was removed as a cause of non-support. Temperature, conductivity and total phosphorus were retained as causes of non-support.

2000 ACTION:

Temperature: Apache Creek was sampled a total of 11 times. Of these, the channel was dry three times and 1/8 exceeded the 25.0°C HQCWF standard. (12.5% exceedence)

Add to the 305(b) Report as FSIO.

Conductivity: Apache Creek was sampled a total of 11 times. Of these, the channel was dry three times and 7/8 exceeded the conductivity standard. (87.5% exceedence)

Conductivity will be retained as a cause of non-support

Total Phosphorus: Apache Creek was sampled a total of 11 times. Of these, the channel was dry three times and 8/8 exceeded the standard for total phosphorous. (100% exceedence)

There is no longer a standard associated with total phosphorus. The Nutrient Assessment Protocol will be used to assess nutrient loading on this reach.

Dissolved Oxygen (DO): Apache Creek was monitored a total of 11 times. Of these, the channel was dry three times and 1/8 exceeded the DO standard (12.5% exceedence).

Add to the 305(b) Report as FSIO.

2002 ACTION: According to SWQB Silver City staff comment, this is a non-perennial reach in an intermittent channel. Therefore, the only designated uses that apply are livestock watering and wildlife habitat. The above causes of non-support are related to other designated uses, so theydo not apply to this reach. A de-list letter was prepared for conductivity.

2004 ACTION: None

2006 ACTION: WQS changed to 20.6.4.98.

2008 ACTION: None

Centerfire Creek (San Francisco R to headwaters)
WQS: 20.6.4.603 AU: NM-2603.A_50

Previously listed for temperature, conductivity and plant nutrients. There is only one sample station on this reach. All data are from a 1992 survey. For temperature, 1/3 (33%) of the samples exceeded the criteria. For conductivity, 3/3 (100%) of the samples exceeded the criteria. Temperature is Full Support, Impacts Observed. Conductivity is partially supported.

1998 ACTION: Temperature was removed as a cause of non-support and will be listed in the 1998 305(b) Report as full support, im pacts observed. Conductivity and plant nutrients were retained as causes of non-support.

2000 ACTION: None

2002 ACTION: A level two nutrient assessment was performed in 2001. The results of the assessment are in the administrative record. **Plant Nutrients was retained as a cause of Non Support.** A TMDL was prepared for plant nutrients. This assessment unit was intensively surveyed in 2001. The conductivity criterion was exceeded 15.7% of th e tim e according to sonde data. **Conductivity was retained as a cause of Partial Support.** A TMDL was prepared for conductivity.

The tem perature criterion was exceeded 32.8% of the tim e according to sonde data. **Temperature was added as a cause of Non Support.** The pH criterion was out of the acceptable ra nge of 6.6 to 8.8 46.9% of the tim e according to sonde data. **pH was added as a cause of Non Support.**

2004 ACTION: None

2006 ACTION: None

2008 ACTION: None

Mineral Creek (San Francisco R to the headwaters)
WQS: 20.6.4.98 AU: NM-2603.A_20

Previously listed for metals (Al), temperature and turbidity. There are no data for this reach since 1975. This information is considered to be inadequate to make a listing. The stream will be sampled during the next intensive survey and reassessed to determine the appropriate listing.

1998 ACTION: The reach was removed from the 303(d) list.

2000 ACTION:

Metals (Al chronic): Mineral Creek was sampled a total of 7 time for metals. Of these, one day the channel was dry and 4/6 (66.6%) of the remaining days Aluminum was at Chronic toxicity levels.

Metals (Al chronic) will be added as a cause of non-support for this reach

Temperature: Mineral Creek was monitored a total of 11 times for temperature. Of these, one day the channel was dry and 5/10 (50.%) exceeded the temperature standard.

Temperature will be added as a cause of non-support for this reach

2002 ACTION: According to SWQB Silver City staff comment, this is a non-perennial reach. Therefore, the only designated uses that apply are livestock watering and wildlife habitat. The above causes of non-support are related to other designated uses, so they do not apply to this reach. A de-list letter was prepared for temperature.

2004 ACTION: None

2006 ACTION: WQS changed to 20.6.4.98.

2008 ACTION: None

Mule Creek (San Francisco R to Mule Springs)
WQS: 20.6.4.603 AU: NM-2601_01

Previously listed for reduction of riparian vegetation and stream bank destabilization. A 1985 NMED survey of Mule Creek found that water quality standards were met in Mule Creek.

1998 ACTION: The reach was removed from the 303(d) list.

2000 ACTION: Field surveys confirmed that all applicable water quality standards for this reach are being met.

2002 ACTION: None

2004 ACTION: None

2006 ACTION: None

2008 ACTION: None

South Fork Negrito Creek (Negrito Creek to headwaters)
WQS: 20.6.4.603 AU: NM-2603.A_43

Previously listed for reduction of riparian vegetation and streambank destabilization. No associated physical/chemical data are available.

1998 ACTION: The reach was retained on the 303(d) with unknown as the cause of non-support.

2000 ACTION:

Temperature: One thermograph was deployed on South Negrito Creek approximately 300 feet above the confluence with Fork Negrito Creek. A 17.2% exceedence (914/5330) of the temperature standard was recorded.

Temperature will be added as a cause of non-support for this reach

2002 ACTION: None. A TMDL was written for temperature. **Copper, lead, and zinc were added as Full Support Impacts Observed** There were 1 of 7 exceedences of the criteria during the 1998 survey. Staff believes the samples were contaminated at the time of sample due to backwashing of HCl rinse into a metal valve.

2004 ACTION: None

2006 ACTION: None

2008 ACTION: The name was changed from Negrito Creek (South Fork) to South Fork Negrito Creek (Negrito Creek to headwaters).

Negrito Creek (Tularosa River to confl of N and S Forks)
WQS: 20.6.4.603 AU: NM-2603.A_42

Previously listed for temperature and plant nutrients. There is only one sampling station on this reach. All data are from a 1990 survey. For temperature, 1/5 samples exceeded the criteria making this reach Full Support, Impacts Observed. The assessment review also found that for total phosphorus, 3/5 samples exceeded the criteria. Data for total phosphorus are partially supporting the designated use. A biological assessment was conducted at one station (SFR603.004030) in 1990. This assessment indicated Full Support, Impacts Observed (76% of reference). The Hilsenhoff Biotic Index was 4.53 indicating plant nutrients were not a problem.

1998 ACTION: Temperature and plant nutrients were removed as causes of non-support with unknown listed as a cause of non-support.

2000 ACTION:

Stream Bottom Deposits: Two monitoring sites were located on the Negrito Creek Segment 2603. They include: Negrito Creek below South Fork & Negrito Above Tularosa.
Based on data gathered during the 1998-99 survey and attainment matrix Table 4 contained within the Draft Protocol for the Assessment of Stream Bottom Deposits, these sites rank as Fully Supporting Impacts Observed (FSIO) and Partially Supporting (PS). Scores were as follows: Negrito Below South Fork 78% bio, 54.13 embeddedness, and 7% fines (Table 4 FSIO). Negrito Above Tularosa 57% bio.; 37.8 embeddedness.; and 5% fines (Table 4 PS) The low percentage of fine sediments (7 and 5% respectively) implies that the macroinvertebrate communities at the Negrito Above Tularosa site are likely adversely effected by something other than stream bottom deposits. Morphological data collected at each site further supports the conclusion that this reach is NOT physically impaired.

Add to the 305(b) Report as FSIO.

Temperature: One thermograph was deployed on the Negrito Creek approximately 300 feet below the confluence with South Fork Negrito Creek. A 14.3% exceedence (690/4829) of the temperature standard was recorded.

Add to the 305(b) Report as FSIO.

pH: Negrito Creek was monitored a total of 11 times in 1998-99. Of these, a total of 1/11 (9.1%) exceeded the pH standard.

Add to the 305(b) Report as FSIO.

2002 ACTION: The 1998 thermograph data was re-evaluated using the Temperature Assessment Protocol. The temperature exceeded 23 degrees Celsius, so the reach was **listed as Non Support for temperature.**

2004 ACTION: None

2006 ACTION: None

2008 ACTION: None

San Francisco River (AZ border to Dry Creek)
WQS: 20.6.4.601 AU: NM-2601_00

Previously listed as two segments (Dry Creek to Whitewater Creek and Border to Dry Creek), then joined as "San Francisco River fom the AZ-NM Border to Whitewater Creek," then split back into two in 2002. Previously listed for stream bottom deposits and nutrients this reach should have an additional listing of Full Support, Impacts Observed for aluminum (chronic). This listing is because of 1/2 exceedences of the chronic toxic screening criteria for aluminum in the past 5 years. There are two (1992 and 1996) biological assessments on this reach at one station. The 1996 biological assessment showed the reach FS (81%) of the reference while the 1992 biological assessment was FSIO (72%) of the reference.

1998 ACTION: The reach was removed from the 303(d) list.

2000 ACTION: None

2002 ACTION: None. Split back into the two as described above.

2004 ACTION: None

2006 ACTION: None

2008 ACTION: None

San Francisco River (Centerfire Creek to AZ border)
WQS: 20.6.4.602 AU: NM-2602_20

Previously listed as "San Francisco River from Largo Canyon to the New Mexico-Arizona border" and listed for temperature, pH, total ammonia and plant nutrients. There are two sampling stations on this reach (SFR602.006035 and SFR602.006040). All data are from 1992 and 1995 surveys. For temperature, at station SFR602.006040, 0/9 of the samples exceeded the criteria in the 1995 survey, while 1/3 of the samples taken in 1992 exceeded the criteria. At station SFR602.005035, temperature 2/9 (22%) of the samples exceeded the criteria in the 1995 survey, while 0/3 of the samples taken in 1992 exceeded the criteria. For pH, at station SFR602.006040, 1/9 (11%) of the

samples exceeded the criteria in the 1995 survey, while 1/3 of the samples taken in 1992 exceeded the criteria. At station SFR602.005035, pH 2/9 (22%) of the samples exceeded the criteria in the 1995 survey, while 0/3 of the samples taken in 1992 exceeded the criteria. For total ammonia, at station SFR602.006040, 1/9 (11%) of the samples exceeded the criteria in the 1995 survey, while 3/3 (100%) of the samples taken in 1992 exceeded the criteria. At station SFR602.005035, total ammonia 0/9 of the samples exceeded the criteria in the 1995 survey, while 0/4 (0%) of the samples taken in 1992 exceeded the criteria. For total phosphorus, at station SFR602.006040, 1/10 (10%) of the samples exceeded the criteria in the 1995 survey, while 3/3 of the samples taken in 1992 exceeded the criteria. At station SFR602.005035, total phosphorus 0/9 of the samples exceeded the criteria in the 1995 survey, while 2/4 of the samples taken in 1992 exceeded the criteria. For temperature, station SFR602.006040 is fully supporting its designated use, while station SFR602.005035 is partially supporting its designated use. For pH, station SFR602.006040 is fully supporting impacts observed, its designated use, while station SFR602.005035 is partially supporting its designated use. For total ammonia, station SFR602.006040 is fully supporting impacts observed, for its designated use, while station SFR602.005035 is fully supporting its designated use. For total phosphorus, station SFR602.006040 is fully supporting impacts observed, its designated use, while station SFR602.005035 is fully supporting its designated use. There are two biological assessments on this reach at one station (1992 and 1995) that indicate full support of the fishery use. In 1992 station 6040 was 100% of the reference while station 6035 was 81% of the reference. (Data from 1987 collected from station 6040 was the reference). In 1996 station 6035 was 90% of the reference (station 6040 was the reference).

1998 ACTION: A portion of this reach, the San Francisco River from Centerfire Creek to the New Mexico Arizona border (15 miles) was retained on the 303(d) list with temperature, pH, ammonia and plant nutrients listed as causes of non-support.

2000 ACTION:

Stream Bottom Deposits: Three monitoring sites were located on the San Francisco River Segment 2302. They include: SFR at above Reserve; SFR Below the Box; and SFR above Luna. Based on data gathered during the 1998-99 survey and attainment matrix Tables 2 &4 contained within the Draft Protocol for the Assessment of Stream Bottom Deposits, this reach ranks as Fully Supporting and/or Full Support Impacts Observed. Scores were as follows: SFR Above Reserve 83% bio, n/a embeddedness, and 36% fines (Table 2 FS).
SFR Below the Box 78% bio.; 56.7 embeddedness.; and 59% fines (Table 4 FSIO) SFR Above Luna (Ref.) 100% bio.; 52.7 embeddedness.; and 11% fines (Table 4 FS).

Add to the 305(b) Report as FSIO.

Turbidity: A 1998-99 survey indicated an 18% exceedence, whereby 2/11 samples exceeded the 25 NTU standard for primary

contact recreation.

Turbidity will be added as a cause of non-support for this reach

Temperature: One thermograph was deployed in this segment (2602). The thermograph was deployed at Head-of-the-ditch campground above the town of Luna. Temperatures exceeded the 25.0°C segment-specific water quality standard 52/1725 times (3% exceedence), between 7/15/98 and 9/25/98 with a maximum temperature of 28.5°C recorded.

Temperature will be retained as a cause of non-support

pH: The 1998-99 survey indicated no exceedences in 11 samples.

Water quality standards, as assessed using the 1998 Assessment Protocol, are currently being met for pH on this reach of the San Francisco River.

Total Ammonia: The 1998-99 survey indicated no exceedences in 11 samples.

Water quality standards, as assessed using the 1998 Assessment Protocol, are currently being met for total ammonia on this reach of the San Francisco River.

Plant Nutrients: Plant nutrients will remain listed as a cause of non-support.

Plant nutrients will be retained as a cause of non-support

2002 ACTION: **Temperature and plant nutrients remain on the list**. A level two nutrient assessment was performed in 2001. The results are in the administrative record. TMDLs were written for temperature and plant nutrients.

Effective February 23, 2000, the criterion of 25 NTU for primary contact recreation was removed. Since the narrative standard for turbidity still applies, SWQB examined benthic macroinvertebrate communities on the reach to determine whether turbidity impairment was occurring. **Turbidity was removed as a cause of Non Support**. A de-list letter was prepared.

2004 ACTION: None

2006 ACTION: None

2008 ACTION: None

San Francisco River (Dry Creek to Whitewater Creek)
WQS: 20.6.4.601 AU: NM-2601_10

Previously listed as two segments (Dry Creek to Whitewater Creek and Border to Dry Creek), then joined as "San Francisco River fom the AZ-NM Border to Whitewater Creek," then split back into two in 2002. Previously listed for stream bottom deposits and nutrients this reach should have an additional listing of Full Support, Impacts Observed for aluminum (chronic). This listing is because of 1/2 exceedences of the chronic toxic screening criteria for aluminum in the past 5 years. There are two (1992 and 1996) biological assessments on this reach at one station. The 1996 biological assessment showed the reach FS (81%) of the reference while the 1992 biological assessment was FSIO (72%) of the reference.

1998 ACTION: The reach was removed from the 303(d) list.

2000 ACTION: None

2002 ACTION: None. Split back into the two as described above. Chronic lead was added as FSIO.

2004 ACTION: None

2006 ACTION: None

2008 ACTION: None

San Francisco River (NM 12 at Reserve to Centerfire Creek)
WQS: 20.6.4.602 AU: NM-2602_10

Previously listed as "San Francisco River from Largo Canyon to the New Mexico-Arizona border" and listed for temperature, pH, total ammonia and plant nutrients. There are two sampling stations on this reach (SFR602.006035 and SFR602.006040). All data are from 1992 and 1995 surveys. For temperature, at station SFR602.006040, 0/9 of the samples exceeded the criteria in the 1995 survey, while 1/3 of the samples taken in 1992 exceeded the criteria. At station SFR602.005035, temperature 2/9 (22%) of the samples exceeded the criteria in the 1995 survey, while 0/3 of the samples taken in 1992 exceeded the criteria. For pH, at station SFR602.006040, 1/9 (11%) of the samples exceeded the criteria in the 1995 survey, while 1/3 of the samples taken in 1992 exceeded the criteria. At station SFR602.005035, pH 2/9 (22%) of the samples exceeded the criteria in the 1995 survey, while 0/3 of the samples taken in 1992 exceeded the criteria. For total ammonia, at station SFR602.006040, 1/9 (11%) of the samples exceeded the criteria in the 1995 survey, while 3/3 (100%) of the samples taken in 1992 exceeded the criteria. At station SFR602.005035, total ammonia 0/9 of the samples exceeded the criteria in the 1995 survey, while 0/4 (0%) of the samples taken in 1992 exceeded the criteria. For total phosphorus, at station SFR602.006040, 1/10 (10%) of the samples exceeded the criteria in the 1995 survey, while 3/3 of the samples taken in 1992 exceeded the criteria. At station SFR602.005035, total phosphorus 0/9 of the samples exceeded the criteria in the 1995 survey, while 2/4 of the samples taken in 1992 exceeded the criteria. For temperature, station SFR602.006040 is fully supporting its designated use, while station SFR602.005035 is partially supporting its designated use. For pH, station SFR602.006040 is fully

supporting impacts observed, its designated use, while station SFR602.005035 is partially supporting its designated use. For total ammonia, station SFR602.006040 is fully supporting impacts observed, for its designated use, while station SFR602.005035 is fully supporting its designated use. For total phosphorus, station SFR602.006040 is fully supporting impacts observed, its designated use, while station SFR602.005035 is fully supporting its designated use. There are two biological assessments on this reach at one station (1992 and 1995) that indicate full support of the fishery use. In 1992 station 6040 was 100% of the reference while station 6035 was 81% of the reference. (Data from 1987 collected from station 6040 was the reference). In 1996 station 6035 was 90% of the reference (station 6040 was the reference).

1998 ACTION: This reach was split into two. This portion was de-listed because the impairments occurred in the portion between Centerfire and the AZ border. A portion of this reach, the San Francisco River from Centerfire Creek to the New Mexico Arizona border (15 miles) was retained on the 303(d) list with temperature, pH, ammonia and plant nutrients listed as causes of non-support.

2000 ACTION: None

2002 ACTION: None. Stream bottom deposits were noted as Full Support Impacts Observed based on benthic macroinvertebrates collected at two stations: below Upper Box and above Reserve.

2004 ACTION: None

2006 ACTION: None

2008 ACTION: The name was changed to "San Francisco River (NM12 at Reserve to Centerfire Creek)" to match the naming convention at 20.6.4.602 NMAC.

San Francisco River (Whitewater Creek to NM 12 at Reserve)
WQS: 20.6.4.601 AU: NM-2601_20

Previously listed for metals (Al) and stream bottom deposits. There are two sampling stations used to assess this reach. The ratio of exceedences to samples for chronic aluminum is 0/4. This reach is Fully Supporting for Aluminum. There is one 1996 biological assessment on this reach at two stations. The biological assessment showed the reach FS (90% and 84%) of the reference.

1998 ACTION: The reach was removed from the 303(d) list.

2000 ACTION:

Metals: Three monitoring sites were located on the San Francisco River Segment 2301. They include: SFR at the Glenwood Gage; and SFR below Reserve. Based on data gathered

during the 1998-99 survey each site was monitored a total of seven times. Due to contamination detected in a one set of QA samples, metals data collected on 6/3/98 was eliminated. Otherwise, no exceedences were documented (0/18 exceedences for the segment).
SFR at the Glenwood 0/6 exceedences
SFR at Pueblo Creek 0/6 exceedences
SFR Below Reserve 0/6 exceedences

Stream Bottom Deposits: Two monitoring sites were located on the San Francisco River Segment 2301. They include: SFR at the Glenwood Gage; and SFR below Reserve. Based on data gathered during the 1998-99 survey and attainment matrix Tables 2 & 4 contained within the Draft Protocol for the Assessment of Stream Bottom Deposits, this reach ranks Not Supporting below the town of Reserve and Full Support Impacts Observed below the town of Glenwood. Scores were as follows:
SFR at the Glenwood Gage 78% bio, 61.3 emb, and 38% fines (Table 4 FSIO).
SFR Below Reserve 61% bio.; 82.3emb.; and 50% fines (Table 4 NS)

Stream bottom deposits will be added as a cause of non-support

2002 ACTION: Using the updated Stream Bottom Deposit protocol, the reach was determined to be Full Support Impacts Observed. Stream bottom deposits was removed as a cause of Non Support. A de-list letter was prepared.

2004 ACTION: None

2006 ACTION: None

2008 ACTION: The name was changed to "San Francisco River (Whitewater Creek to NM 12 at Reserve)" to match the naming convention at 20.6.4.601 NMAC.

Silver Creek (Mineral Creek to headwaters)
WQS: 20.6.4.98 AU: NM-2603.A_21

Previously listed for cyanide and aluminum. No associated physical/chemical data are available.

1998 ACTION: The reach was retained on the 303(d) with cyanide and aluminum as the causes of non-support.

2000 ACTION:

Metals (Al chronic): Silver Creek was monitored a total of 11 times. Of these, 5 days the channel was dry. No exceedences of any heavy metal standard were recorded during the rem aining 6 sampling times.

Water quality standards, as assessed using the 1998 Assessment Protocol, are currently being met for metals on Silver Creek.

Cyanide: Silver Creek was monitored a total of 11 times. Of these, 5 days the channel was dry.
No exceedences of cyanide were recorded during the remaining 6 sampling times.

Water quality standards, as assessed using the 1998 Assessment Protocol, are currently being met for cyanide on Silver Creek.

Temperature: Silver Creek was monitored a total of 11 times. Of these, 5 days the channel was dry and 1/6 (16.6%) exceeded the temperature standard.

Add to the 305(b) Report as FSIO.

Turbidity: Silver Creek was monitored a total of 11 times. Of these, 5 days the channel was dry and 2/6 (16.6%) exceeded the 10 NTU Turbidity Standard.

Turbidity will be added as a cause of non-support for this reach

Conductivity: Silver Creek was monitored a total of 11 times. Of these, 5 days the channel was dry and 2/6 (33.3%) exceeded the conductivity standard.

Conductivity will be added as a cause of non-support for this reach

2002 ACTION: According to SWQB Silver City staff comment, this is a non-perennial reach. Therefore, the only designated uses that apply are livestock watering and wildlife habitat. The above causes of non-support are related to other designated uses, so they do not apply to this reach. A de-list letter was prepared for turbidity and conductivity.

2004 ACTION: None

2006 ACTION: WQS changed to 20.6.4.98.

2008 ACTION: None

Trout Creek (San Francisco R to headwaters)
WQS: 20.6.4.98 AU: NM-2603.A_60

Previously listed for total phosphorus. There is only one sample station on this reach. All data are from a 1992 survey. For total phosphorus, 1/1 (100%) of the sam ples exceeded the criteria. Through application of the assessment protocol total phosphorus is Full Support, Impacts Observed.

1998 ACTION: The reach was removed from the 303(d) list and will be added to the 305(b) list as Full Support, Impacts Observed for phosphorus.

2000 ACTION:

Total Phosphorus: Trout Creek was monitored 8 times for nutrients. Of these, 8/8 (100%) exceeded the Total Phosphorous standard with an average value of 0.145 mg/l

There is no longer a standard associated with total phosphorus. The Nutrient Assessment Protocol will be used to assess nutrient loading on this reach.

Metals (Pb chronic): Trout Creek was monitored 6 times for metals. Of these, 1/6 exceeded the Chronic Standard for lead.

Add to the 305(b) Report as FSIO.

2002 ACTION: None. According to SWQB Silver City staff comment, this is an ephemeral reach. Therefore, the only designated uses that apply are livestock watering and wildlife habitat.

2004 ACTION: None

2006 ACTION: WQS was changed to 20.6.4.97.

2008 ACTION: This AU is likely ephem eral, but EPA has not yet approved 20.6.4.97 and UAAs have not been prepared at the time of this writing (6/4/08). Therefore, this AU will be noted as WQS Reference 20.6.4.98 for now and UAAs are planned.

Tularosa River (San Francisco R to Apache Creek)
WQS: 20.6.4.603 AU: NM-2603.A_10

Previously listed for temperature, pH, fecal coliform, total ammonia, total phosphorus and turbidity. There are two sampling stations on this reach. All data are from 1990, 1992 and 1995 surveys. For temperature, at station SFR603.004035, 1/5 of the samples exceeded the criteria in the 1990

survey this station was not resurveyed in the past 5 years. At station SFR603.004025 3/5 (60%) of the samples taken in 1990 exceeded the criteria, while 1/3 (33%) of the samples taken in 1992 exceeded criteria and 2/9 (22%) of the samples taken in 1995 exceeded the criteria. For pH, at station SFR603.004035, 0/5 (0%) of the samples exceeded the criteria in the 1990 survey. At station SFR603.004025 0/5 (0%) of the samples taken in 1990 exceeded the criteria, while 2/3 (66%) of the samples taken in the 1992 survey exceeded the criteria and 5/9 (55%) of the samples taken in 1995 exceeded the criteria. For fecal coliform, at station SFR603.004035, 1/1 (100%) of the samples exceeded the criteria in the 1990 survey. At station SFR603.004025, 0/1 (0%) of the samples taken in 1990 exceeded the criteria, while 1/1 (100%) of the samples taken in the 1992 survey exceeded the criteria and 0/3 (0%) of the samples taken in 1995 exceeded the criteria, indicating full support for the last five years. For total ammonia, at station SFR603.004035, 1/5 (20%) of the samples taken in the 1990 survey exceeded the criteria. At station SFR603.004025, 1/5 (20%) of the samples taken in the 1990 survey exceeded the criteria, while 0/3 (0%) of the samples taken in 1992 exceeded the criteria and 1/9 (11%) of the samples taken in 1995 exceeded the criteria, indicating full support in the last five years. For total phosphorus, at station SFR603.004035, 1/5 of the samples taken in the 1990 survey exceeded the criteria. At station SFR603.004025, 4/5 (80%) of the samples taken in the 1990 survey exceeded the criteria, while 1/3 (33%) of the samples taken in 1992 exceeded the criteria and 0/9 (0%) of the samples taken in 1995 exceeded the criteria, indicating full support for the last five years. For turbidity, at station SFR603.004035, 2/5 (40%) of the samples taken in the 1990 survey exceeded the criteria. At station SFR603.004025, 1/8 (12%) of the samples taken within 5-10 years exceeded the criteria, while 0/9 (0%) of the samples taken in the past 5 years exceeded the criteria. For temperature, stations SFR603.004035 and SFR603.004025 are partially supported their designated use. For pH, station SFR603.004035 is fully supporting its designated use, while station SFR603.004025 is Not Supporting its designated use. For fecal coliform, station SFR603.004035 is full supporting, impacts observed, while station SFR603.004025 is fully supporting its designated use. For total ammonia, stations SFR603.004035 and SFR603.004025 are fully support, impacts observed. For total phosphorus, station SFR603.004035 is Full Support, Impacts Observed, while station SFR603.004025 is fully supporting its designated use. For turbidity, station SFR603.004035 is partially supported, while station SFR603.004025 is fully supporting its designated use.

1998 ACTION: Fecal coliform, ammonia and phosphorus were removed as causes of non-support. Temperature, pH and turbidity were retained as causes of non-support.

2000 ACTION:

Temperature: Two thermographs were deployed on the Tularosa River segment (2603), one approximately 1 mile upstream of the confluence with the San Francisco River (Tularosa above SFR) and the other at Forest Road 233 crossing (Tularosa at Forest Road 233). No exceedences of the segment- specific 25.0°C temperature were recorded at the Tularosa above SFR site (0/1832). However, exceedences were recorded at the Tularosa at Forest Road 233 (17/5432).

Water quality standards, as assessed using the 1998 Assessment Protocol, are currently being met for temperature on the Tularosa River.

pH: Three sampling sites were located on the Tularosa River segment 2603. Tularosa above SFR, Tularosa at Forest Road 233, and Tularosa above Aragon. No exceedences of the pH Standard were recorded at any site 0/33.

Water quality standards, as assessed using the 1998 Assessment Protocol, are currently being met for pH on the Tularosa River.

Turbidity: Three sampling sites were located on the Tularosa River segment 2603. Tularosa above SFR, Tularosa at Forest Road 233, and Tularosa above Aragon. No exceedences of the 10 NTU Turbidity Standard were recorded at any site 0/33.

Water quality standards, as assessed using the 1998 Assessment Protocol, are currently being met for turbidity on the Tularosa River.

Stream Bottom Deposits: Three monitoring sites were located on the Tularosa River Segment 2603. They include: Tularosa Above SFR; Tularosa at FR 233; and Tularosa above Aragon. Based on data gathered during the 1998-99 survey and attainment matrix Tables 2 &4 contained within the Draft Protocol for the Assessment of Stream Bottom Deposits, this reach ranks as Fully Supporting and/or Full Support Impacts Observed. Scores were as follows:
Tularosa Above SFR 78% bio, 58.8 embeddedness, and 28.6% fines (Table 4 FSIO). Tularosa at FR 233 83% bio. n/a embeddedness.; and 9% fines (Table 2 & 4 FS)
Tularosa above Aragon 70% bio.; n/a embeddedness.; and 14% fines (Table 2 & 4 FS)

Add to the 305(b) Report as FSIO.

Conductivity: Three sampling sites were located on the Tularosa River segment 2603. Tularosa above SFR, Tularosa at Forest Road 233, and Tularosa above Aragon. The 1998-99 survey documented a 36.4% exceedence (4/11) for Conductivity at one site (Tularosa River at Forest Road 233). However, no exceedences (0/22) were documented at the other two locations (Tularosa River above SFR and Tularosa above Aragon)

Conductivity will be added as a cause of non-support for this reach

2002 ACTION: None. A TMDL was written for conductivity.

2004 ACTION: None

2006 ACTION: None

2008 ACTION: None

Whitewater Creek (San Francisco R to Whitewater Campground)
WQS: 20.6.4.603 AU: NM-2603.A_10

Previously listed for metals (Al), turbidity, streambottom deposits and fecal coliform There is one sampling station on this reach. The data support the turbidity and metals listings. For fecal coliform, 0/4 samples collected in the past ten years exceed the designated criteria. This reach is fully supporting for fecal coliform.

1998 ACTION: Fecal coliform was removed as a cause of non-support. Aluminum, turbidity, and stream bottom deposits were retained as causes of non-support.

2000 ACTION:

Metals (Al chronic): Two sampling sites were located on Whitewater Creek. (Whitewater Creek at the Catwalk and Whitewater Creek at Glenwood). The 1998-99 survey documented a 28.5 % exceedence (2/7) for Aluminum (NS Chronic Toxicity Level) at the Catwalk Site and a 14.3% exceedence (1/7) for Zinc (FSIO Acute Toxicity Level) at the Glenwood site.

Metals (Al chronic) will be retained as a cause of non-support

Metals (Zn acute): Two sampling sites were located on Whitewater Creek. (Whitewater Creek at the Catwalk and Whitewater Creek at Glenwood). The 1998-99 survey documented a 14.3% exceedence (1/7) for Zinc (FSIO Acute Toxicity Level) at the Glenwood site.

Add metals (Zn acute) to the 305(b) report as FSIO.

Stream Bottom Deposits: Two sampling sites were located on Whitewater Creek. (Whitewater Creek at the Catwalk and Whitewater Creek at Glenwood). Whitewater Creek at the Catwalk was ranked as Fully Supporting based on the "Combined Biological Integrity and Condition of Aquatic Habitat Attainment Matrix", (Table 4) in the Draft Protocol for the Assessment of

Stream Bottom Deposits. Scores were as follows: 77% bio, 37.3% emb, and 5.4% fines. Whitewater Creek at Glenwood was ranked as not supporting based on the same criteria. Its score were as follows: 68% bio, 69.5% emb, and 44% fines.

Stream bottom deposits will retained as a cause of non-support

Turbidity: Two sam pling sites were located on W hitewater Creek. (Whitewater Creek at the Catwalk and Whitewater Creek at Glenwood). The 1998-99 surveydocumented no exceedences (0/12) of the 10 NTU turbidity standard at the Catwalk site (FS). However, 4/12 (33.3%) exceedences were documented at the Glenwood Site (NS). SW QB has assessed this as partially supporting the use

Turbidity will be retained as a cause of non-support

2002 ACTION: A TMDL was written for turbidity. A de-list letter was written for chronic aluminum because the exceedences were all at the station above the campground. Chronic aluminum was added as a cause ofnon support for the upper reach (see below).

Using the updated Stream Botto m Deposit protocol, the reach was determined to be Full Support Impacts Observed. 9.2% fines were measured at the reference station of W hitewater Creek at W hitewater Campground. The sample station, Whitewater at Glennwood, had a biological score of 59% reference with 51.5% fines. **Stream bottom deposits w as removed as a cause of Non Support**. A de-list letter was prepared.

2004 ACTION: None

2006 ACTION: None

2008 ACTION: None

Whitewater Creek (Whitewater Campground to headwaters)
WQS: 20.6.4.603 AU: NM-2603.A_12

2000 ACTION:

Metals (Al chronic): Two sam pling sites were located on W hitewater Creek. (Whitewater Creek at the Catwalk and Whitewater Creek at Glenwood). The 1998-99 survey docum ented a 28.5 % exceedence (2/7) for Aluminum (NS Chronic Toxicity Level) at the Catwalk Site and a 14.3% exceedence (1/7) for Zinc (FSIO Acute Toxicity Level) at the Glenwood site.

Metals (Al chronic) was inadvertently added as a cause of non-support to the lower reach when it should have been added to this upper reach.

Stream Bottom Deposits: Two sam pling sites were located on W hitewater Creek. (Whitewater Creek at the Catwalk and Whitewater Creek at Glenwood). Whitewater Creek at the Catwalk was ranked as Fully Supporting based on the "Com bined Biological Integrity and Condition of A quatic Habitat Attainm ent Matrix", (Table 4) in the Draft Protocol for the Assessment of Stream Bottom Deposits. Scores were as follows: 77% bio, 37.3% embeddedness, and 5.4% fines. Whitewater Creek at Glenwood was ranked as not supporting based on the sam e criteria. Its score were as follows: 68% bio, 69.5% embeddedness, and 44% fines.

Stream bottom deposits will retained as a cause of non-support.

Turbidity: Two sam pling sites were located on W hitewater Creek. (Whitewater Creek at the Catwalk and Whitewater Creek at Glenwood). The 1998-99 surveydocumented no exceedences (0/12) of the 10 NTU turbidity standard at the Catwalk site (FS).

2002 ACTION: **Chronic aluminum was added as a cause of Non Support** . Whitewater Creek at W hitewater Campground is a refe rence station with 9.2% fines. Using the updated Stream Bottom Deposit protocol, the reach was determined to be Full Support Impacts Observed.

2004 ACTION: None

2006 ACTION: None

2008 ACTION: None