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July 26, 2004

Ref: 8EPR-EP

Chris J. Wiant, Chair
Water Quality Control Commission
Colorado Department of Public Health and Environment
OED-OPPI-A5
4300 Cherry Creek Drive South
Denver, CO 80246-1530

Re: Section 303(d) Total Maximum Daily Load (TMDL)
Waterbody List (Regulation #93)

Dear Mr. Wiant:

Thank you for your submittal of Colorado's Year 2002 and 2004 Clean Water Act Section 303(d) waterbody lists. At the time our office received the State's 2004 list, we were still in the process of reviewing the 2002 list which had been received from the Commission on March 3, 2004. Because Colorado has now submitted its 2004 list (received on March 18, 2004) a separate action by EPA to approve or disapprove the 2002 list is unnecessary. Therefore, EPA's action today encompasses the 2002 and the 2004 list.

The State's §303(d) list is found in 2004 Section 303(d) List Water Quality-Limited Segment Requiring TMDLs, Regulation #93 (5 CCR 1002-93) ("Regulation #93") adopted by the Commission on March 17, 2004. The State described its public participation process for development of the Section 303(d) list in the section of Regulation #93 entitled Statement of Basis, Specific Statutory Authority and Purpose; March 2004 Rulemaking. The public participation process included a public rulemaking hearing conducted by the Commission on March 9 and 10, 2004. The steps taken by the State to develop its §303(d) list were outlined in its Section 303(d) Listing Methodology; 2004 Listing Cycle (September 9, 2003).

Based on our review of the State's submittal, EPA has determined that Colorado's 2004 list of water quality limited segments (WQLSs) still requiring TMDLs partially meets the requirements of Section 303(d) of the Clean Water Act ("CWA" or "the Act") and EPA's implementing regulations. Therefore, by this order, EPA hereby partially APPROVES and partially DISAPPROVES Colorado's Section 303(d) list. Specifically, EPA approves the State's decisions to list all the waterbodies and associated pollutants identified in Regulation #93 of the State's listing submission and associated priority rankings. EPA disapproves the State's decisions not to list 1) six waters and associated pollutants and 2) one pollutant for a water already listed by the State. These additional waters and pollutants are identified in the table found in Enclosure 1. EPA is further assigning these additional waterbodies and pollutants with priority rankings for inclusion on the State's 2004 Section 303(d) list.

Regarding the year 2002 list submittal, if waters that should have been included on the 2002 list are now included on the 2004 list, EPA is not disapproving Colorado's failure to include those waters in

2002 since the State has corrected the deficiency. Rather, the exclusion of waters from the 2004 list is the focus of today's partial disapproval action.

It is current Agency policy that a state has up to 13 years from the time a waterbody/pollutant combination is added to its list to address the need for a TMDL. We have assigned a low priority to each of the seven waters we are adding to the State's list. The low priority provides the State flexibility in how and when these waters will be addressed. We acknowledge the State already is working in some manner in all of these watersheds. Our office is ready to begin working collaboratively with the State as it addresses these waters through the water quality standards process (e.g., Middle South Platte River, West Fork Clear Creek) and through such means as habitat improvement projects (e.g., Dolores River.)

Our office will open a public comment period on the additions to the State's list and will, if necessary, revise the list of added waters, pollutants and/or priorities after we consider comments received. The statutory and regulatory requirements, and a summary of EPA's review of Colorado's compliance with each requirement, are described in Enclosure 2.

EPA's partial approval of Colorado's Section 303(d) list extends to all waterbodies on the list with the exception of those waters that are within Indian Country, as defined in 18 U.S.C. Section 1151. EPA is taking no action to approve or disapprove the State's list with respect to those waters at this time. EPA, or eligible Indian Tribes, as appropriate, will retain responsibilities under Section 303(d) for those waters.

EPA has been in contact with the United States Fish and Wildlife Service (FWS) regarding whether and, if so, how EPA's approval of Colorado's year 2004 Section 303(d) list may affect the continued existence of any endangered or threatened species listed under the Endangered Species Act (ESA) or the designated critical habitat of any such species. EPA has not determined that today's approval may have such an effect. Therefore, EPA has decided to approve the list contingent upon the outcome of consultation with the FWS.

We appreciate the time and care the Commission has given to the 2004 §303(d) listing process. We would like to also acknowledge the hard work of many members of the Water Quality Control Division staff in this effort.

We will continue to coordinate with you during the upcoming comment period on our action. If you have questions on any of the above information, feel free to give me (303/312-6598) or Kathryn Hernandez (303/312-6101) of my staff a call.

Sincerely,

Max H. Dodson,
Assistant Regional Administrator
Office of Ecosystems Protection and Remediation

Enclosures

cc: Mark Pifher, Director, Colorado Water Quality Control Division

Enclosure 1 **Waterbodies, Pollutants, and Priority Rankings to be added to Colorado's Section 303(d) Waterbody List.**

Waterbody	Pollutant(s)	Water Quality Standard Not Met	Priority Ranking
Red Mountain Creek (Red Mountain Creek from East Fork of Red Mountain Creek to Uncompahgre River) Segment COGUUN06b	copper, lead, zinc	aquatic life use	low
West Fork of Clear Creek (West Fork of Clear Creek from Woods Creek to Clear Creek mainstem) Segment COSPCL05	zinc	zinc numeric standard (acute) for aquatic life use	low
Middle South Platte River (South Platte River from Big Dry Creek to Highway 60) Segment COSPMS01	dissolved oxygen	dissolved oxygen numeric standard for aquatic life use	low
Blue River Tributaries (Camp Creek, Jones Gulch) Segment COUCBL06	pH	pH numeric standard for aquatic life use	low
Blue River Tributaries (Keystone Gulch, Mozart Creek) Segment COUCBL08	pH	pH numeric standard for aquatic life use	low
Bear Creek (Bear Creek from Evergreen Lake to Harriman Ditch) Segment COSPBE01	temperature*	aquatic life use	low
Dolores River (Dolores River below McPhee Reservoir to Bradfield Ranch Bridge) Segment COSJDO04	unknown	aquatic life use	low

* Ammonia has also been identified as a pollutant contributing to the impairment of aquatic life use. Although there is a reasonable potential that exists for exceedences of the ammonia standard, that reasonable potential is addressed in a TMDL for ammonia in Bear Creek that has already been approved by EPA.

Enclosure 2

Review of Colorado's 2004 Section 303(d) Waterbody List

Attachment to letter from Max H. Dodson, Assistant Regional Administrator, Office of Ecosystems Protection and Remediation, US EPA, Region VIII to Chris J. Wiant, Chair Water Quality Control Commission

Date of Transmittal Letter from State: March 17, 2004
Date of Receipt by EPA: March 18, 2004

Purpose

The purpose of this review document is to describe the rationale for EPA's approval of Colorado's 2004 Section 303(d) waterbody list as submitted on March 17, 2004 ("submittal"). The following sections identify those key elements to be included in the list submittal based on the Clean Water Act ("Act") and EPA regulations (See 40 C.F.R. 130.7). EPA reviewed the methodology used by the State in developing the §303(d) list and the State's description of the data and information it considered. EPA's review of Colorado's §303(d) list is based on EPA's analysis of whether the State reasonably considered existing and readily available water quality-related data and information and reasonably identified waters required to be listed.

EPA has concluded that the State developed its Section 303(d) list in partial compliance with Section 303(d) of the Act and 40 C.F.R. Part 130.7. Because Colorado's submission does not include all waters that meet Section 303(d) listing requirements, EPA is partially approving and partially disapproving Colorado's list submission and adding the additional waters, pollutants, and corresponding priorities to the final 2004 list. In its review of whether the State reasonably considered existing and readily available water quality-related data and information to identify listed waters, EPA relied upon, in part, the prehearing, rebuttal, and supplemental statements as well as testimony provided to the Water Quality Control Commission ("Commission") as part of the Section 303(d) list hearing conducted by the Commission. A more extensive list of references EPA relied upon in its review are included in the last section of this document.

Statutory and Regulatory Background

Section 303(d)(1) of the Act directs States to identify those waters within their jurisdiction for which effluent limitations required by Section 301(b)(1)(A) and (B) are not stringent enough to implement any applicable water quality standard, and to establish a priority ranking for such waters, taking into account the severity of the pollution and the uses to be made of such waters. The Section 303(d) listing requirement applies to waters impaired by point and/or nonpoint sources, pursuant to EPA's long-standing interpretation of Section 303(d).

EPA regulations provide that States do not need to list waters where the following controls are adequate to implement applicable standards: (1) technology-based effluent limitations required by the Act, (2) more stringent effluent limitations required by State or local authority, and (3) other pollution control requirements required by State, local, or federal authority. (See 40 C.F.R. 130.7(b)(1).)

In developing Section 303(d) lists, States are required to assemble and evaluate all existing and readily available water quality-related data and information, including, at a minimum, consideration of existing and readily available data and information about the following categories of waters: (1) waters identified as partially meeting or not meeting designated uses, or as threatened, in the State's most recent Section 305(b) report; (2) waters for which dilution calculations or predictive modeling indicate nonattainment of applicable standards; (3) waters for which water quality problems have been reported by governmental agencies, members of the public, or academic institutions; and (4) waters identified as impaired or threatened in any Section 319 nonpoint assessment submitted to EPA. (See 40 C.F.R. 130.7(b)(5).) In addition to these minimum categories, States are required to consider any other data and information that is existing and readily available. EPA's 1991 Guidance for Water Quality-Based Decisions describes categories of water quality-related data and information that may be existing and readily available. (See Guidance for Water Quality-Based Decisions: The TMDL Process, EPA Office of Water, 1991, Appendix C) ("EPA's 1991 Guidance"). In addition, EPA's guidance on submittal of reports pursuant to Section §303(d) identified categories of information that may constitute existing and readily available data and information (See Guidance for 2004 Assessment, Listing and Reporting Requirements Pursuant to Sections 303(d) and 305(b) of the Clean Water Act, TMDL -01-03 - July 21, 2003)("EPA 2004 Listing Guidance"). While States are required to evaluate all existing and readily available water quality-related data and information, States may decide to rely or not rely on particular data or information in determining whether to list particular waters.

In addition to the EPA 2004 Listing Guidance, EPA has published guidance documents that provide approaches for assessing water quality data and information. The documents include Guidelines for Preparation of the Comprehensive State Water Quality Assessments (305(b) Reports) and Electronic Updates: Supplement, Office of Water, EPA-841-B-97-002B, September 1997 ("EPA 305(b) Guidance") and Consolidated Assessment and Listing Methodology, Office of Wetlands, Oceans, and Watersheds, July 2002 ("EPA's CALM Guidance"). The guidance in these documents was also used by EPA in evaluating the manner in which Colorado assessed its data to determine impairment status of waterbodies.

In addition to requiring States to assemble and evaluate all existing and readily available water quality-related data and information, EPA regulations at 40 C.F.R. 130.7(b)(6) require States to include as part of their submissions to EPA documentation to support decisions to rely or not rely on particular data and information and decisions to list or not list waters. Such documentation needs to include, at a minimum, the following information: (1) a description of the methodology used to develop the list; (2) a description of the data and information used to identify waters; and (3) any other reasonable information requested by the Region.

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Review of Colorado's Submission

A. *Description of the methodology used to develop the list.* (§130.7(b)(6)(i))

A description of the listing process, the criteria for listing, and the criteria for determination of TMDL priority is found in the State's "Section 303(d) Listing Methodology - 2004 Listing Cycle" (September 9, 2003)("Listing Methodology"). The Listing Methodology was developed through a public process and finalized as a policy at a Water Quality Control Commission administrative action hearing on September 9, 2003. The provisions in Section III. of the Listing Methodology set forth criteria that generally were used to make decisions regarding which waters to include on the 2004 Section 303(d) List (Regulation #93) and the 2004 monitoring and evaluation ("M&E List"; Regulation #94).

With the exception of those waters discussed in section G. below, Colorado properly listed waters with nonpoint sources causing or expected to cause impairment, consistent with Section 303(d) and EPA guidance. Section 303(d) lists are to include all water quality-limited segments ("WQLSs") still needing TMDLs, regardless of whether the source of the impairment is a point and/or nonpoint source. EPA's long-standing interpretation is that Section 303(d) applies to waters impacted by point and/or nonpoint sources. This interpretation has been described in EPA guidance in a 1997 memorandum clarifying certain requirements for 1998 Section 303(d) lists. (See EPA's 1991 Guidance and the August 27, 1997, EPA guidance listed below.) In addition, this interpretation of Section 303(d) is described in detail in a May 23, 1997, memorandum from Geoffrey Grubbs, Director of the Assessment and Watershed Protection Division, EPA Office of Water, to the FACA Workgroup on Section 303(d) Listing Criteria. (See May 23, 1997 and August 8, 1997 references listed below.)

Except for those reasons discussed below in Section G. Basis for Decision to Add Waters to Colorado's 2004 §303(d) List , EPA finds the methodology reasonable and sufficient for purposes of Section 303(d).

B. *Description of the data and information used to identify waters, including a description of the data and information used by the state as required by section 130.7(b)(5).* (§130.7(b)(6)(ii))

Colorado provides a description of the data and information used to develop its list in the Statement of Basis, Specific Statutory Authority and Purpose; March 2004 Rulemaking section of Regulation #93. Information and databases consulted included the State water quality standards, discharge permit system files, and STORET (EPA's national water quality database). Further, the State actively solicited various entities for data and information that could be used in the list development process. The Colorado Water Quality Control Division ("Division") also continues to independently collect and analyze new data on a rotating basin basis and utilizes such data in making listing determinations.

The data and information requirements mentioned in 40 C.F.R. 130.7(b)(5) include, but are not limited to, all the existing and readily available data and information about the following four categories of waters:

. *Waters identified by the State in its most recent section 305(b) report as "partially meeting" or "not meeting" designated uses or as "threatened"* (§130.7(b)(5)(i))

The waters included in the most recent Colorado §305(b) report (See April 2004 document listed below) that were identified as "not supporting," "partially supporting," or "threatened" were included on the §303(d) list if the supporting data and information conformed with the credible evidence criteria given in the §303(d) methodology (See Appendix C-1 of submittal). The State's 2004 §303(d) list and the list of waters in the 2004 §305(b) report identified as "not supporting," "partially supporting," or "threatened" are identical.

. *Waters for which dilution calculations or predictive models indicate nonattainment of applicable water quality standards* (§130.7(b)(5)(ii))

The State also listed waters where the results of dilution calculations or predictive models indicated the water was threatened or impaired. One example of this is the South Platte River segment through Denver (COSPUS14) which was included on the list, in part, because mathematical modeling of nitrate concentrations demonstrated a concern regarding maintaining water quality numeric standards for nitrate.

. *Waters for which water quality problems have been reported by local, state, or federal agencies; members of the public; or academic institutions* (§130.7(b)(5)(iii))

The State actively solicited various entities for data and information that could be used in the list development process. The State accepted credible data and information that was submitted in accordance with the listing process schedule, whether submitted by the EPA or any other interested party.

In addition, the State used biological assessments from the Colorado Division of Wildlife as a basis for listing waters. This includes fish population data, trend data, and information on Species of Critical Concern including native fish species.

The State also relied upon watershed assessment results from US Forest Service hydrologists to list waters. Information from the USFS included physical, chemical, and biological data and information.

. *Waters identified by the State as impaired or threatened in a nonpoint assessment submitted to EPA under section 319 of the CWA or in any updates of the assessment* (§130.7(b)(5)(iv))

The State evaluated the nonpoint source ("NPS") data and information that had been obtained through its historical NPS assessments. If the data or information met the State's §303(d) credible evidence criteria defined in its Listing Methodology, then the data or information was considered by the State during the development of the §303(d) list. Further, there is general consistency between the §319 NPS projects in the State and the waterbodies on the 2004 §303(d) list.

EPA has reviewed Colorado's description of the water quality-related data and information it considered for identifying waters on the §303(d) list. EPA concludes that the State properly assembled and, except for those reasons discussed below in Section G. Basis for Decision to Add Waters to Colorado's 2004 §303(d) List, evaluated all existing and readily available data and information, including data and information relating to the categories of waters specified in 40 C.F.R. 130.7(b)(5).

C. *A rationale for any decision to not use any existing and readily available data and information for any one of the categories of waters as described in §130.7(b)(5)* (§130.7(b)(6)(iii))

For purposes of developing a technically sound waterbody list, the State developed credible evidence criteria for data and information used in the 2004 listing process as described in its Listing Methodology. The credible evidence criteria included both monitored as well as evaluated data and information. An example of monitored data being used as a basis for listing is Coal Creek (segment COGUUG11), listed for metals impairment as evidenced by numeric ambient water quality data. An example of evaluated data being used as a basis for listing is Trout Creek and tributaries (segment COSPUS03), listed for impairment due to sediment based on qualitative observational data.

EPA reviewed the State's criteria developed for the 2004 listing process, and determined that the rationales for not using certain existing and readily available water quality-related data and information were reasonable except for those situations discussed in Section G. Basis for Decision to Add Waters to Colorado's 2004 §303(d) List below. The State considered the age of the data, quantity of the data, evidence of quality control on the data, and the qualifications of personnel that collected biological or physical data on waterbodies as factors in determining whether particular data and information was sufficiently reliable to use as a basis for listing waters. Consideration of these factors in evaluating water quality-related data and information is consistent with EPA's 305(b) Guidance and EPA's 2004 Listing Guidance, and EPA believes these factors are similarly appropriate for Colorado to consider in evaluating information to determine whether waters should be included on the State's Section 303(d) list. Unless data or information existed for a waterbody that met these criteria, the data and information was generally not used and the waterbody was not listed on the §303(d) list. Colorado developed its credible evidence criteria in the §303(d) Listing Methodology through a state Task Force consisting of representatives from a wide range of stakeholder groups.

EPA notes that for many of those waters that do not have data or information that meet

the credible evidence criteria, the State has indicated its intent to conduct an aggressive monitoring program to collect reliable data to use as a basis for determining the quality of these waters. The State intends to add or remove waters from subsequent §303(d) lists as warranted by results of its monitoring efforts within 10 years after a water is first added to the State's M&E List. Although a state is not required by the Clean Water Act to develop such a monitoring list, EPA applauds Colorado's commitment to identifying and assessing an increasing number of waters for purposes of §303(d) listing.

EPA has reviewed the State's rationale for not using certain data and information and has found, except for those reasons discussed below in Section G. Basis for Decision to Add Waters to Colorado's 2004 §303(d) List, such rationale reasonable and sufficient for purposes of Section 303(d).

D. *Any other reasonable information requested by Regional Administrator.* (§130.7(b)(6)(iv)

Except for those situations mentioned in Section G. Basis for Decision to Add Waters to Colorado's 2004 §303(d) List below, EPA concludes that the State has provided good cause for removing previously-listed waters from its Section 303(d) list and for excluding other waters. Since EPA regulations require only those WQLSs still requiring TMDLs to be listed, where certain other controls are not sufficient to attain water quality standards, waters for which TMDLs have been developed and approved need not be included on the Section 303(d) list. Waters for which the State has information showing that applicable standards are being met also are not required to be listed.

E. *Prioritization of waters on the list taking into account the severity of the pollution and the uses to be made of such waters; the prioritization shall specifically include the identification of waters targeted for TMDL development in the next two years* (§130.7(b)(4))

EPA regulations interpret the requirement in Section 303(d)(1)(A) of the Clean Water Act that States establish a priority ranking for listed waters. The regulations at 40 C.F.R. 130.7(b)(4) require States to prioritize waters on their Section 303(d) lists for TMDL development, and also to identify those WQLSs targeted for TMDL development in the next two years. In prioritizing and targeting waters, States must, at a minimum, take into account the severity of the pollution and the uses to be made of such waters. (See Section 303(d)(1)(A).) As long as these factors are taken into account, the Act provides that it is the States that establish priorities rather than EPA. States may consider other factors relevant to prioritizing waters for TMDL development, including immediate programmatic needs, vulnerability of particular waters as aquatic habitats, recreational, economic, and aesthetic importance of particular waters, degree of public interest and support, and state or national policies and priorities. (See 57 Fed. Reg. at 33040, 33045 (July 24, 1992), and EPA's April 1991 Guidance listed below.)

The State provided a discussion regarding its prioritization method starting in Section IV of the 2004 Listing Methodology. The method resulted in assigning a "High," "Medium," or

"Low" priority to each of the waters on the list. The prioritization method included consideration of primary factors such as the severity of the problem and the use classification of the waterbody, and secondary factors such as stakeholder readiness, ecological importance of the waterbody and resident aquatic species, programmatic needs, and court orders. The State acknowledges that there are some TMDLs that are a high priority based on these factors, but are also complex TMDLs. In such cases, the development of TMDLs may take longer than that of simple, lower priority TMDLs that are begun after the high priority TMDL.

EPA reviewed the State's priority ranking of listed waters for TMDL development, and concludes that the State properly took into account the severity of pollution and the uses to be made of such waters, as well as other relevant factors.

EPA has found the waterbody prioritization used by Colorado as reasonable and sufficient for purposes of Section 303(d).

F. *Identification of the pollutants causing or expected to cause violation of the applicable water quality standards* (§130.7(b)(4))

The State identified the pollutants causing or expected to cause violation of the applicable water quality standards, including those pollutants that have no corresponding numeric standard in the State standards (e.g. sediment). The State's identification of the relevant pollutants is found on the §303(d) list.

EPA concludes that the State has appropriately identified pollutants causing or expected to cause exceedences of applicable water quality standards.

G. *Basis for Decision to Add Waters to Colorado's 2004 §303(d) List*

The following provides the basis for EPA's disapproval of Colorado's decision to not list several waterbody/pollutant combinations on its year 2004 §303(d) list and identifies those waterbody/pollutant combinations with accompanying priority rankings for inclusion on the State's list.

Based on its initial review of the final list submission, EPA determined several waters were improperly excluded from the State's list which were not meeting applicable water quality standards. The definition of "applicable water quality standards" for purposes of §303(d) listing includes numeric criteria, narrative criteria, waterbody uses (e.g., designated uses), and antidegradation requirements. (See 40 CFR 130.7(b)(3).) The waters identified by EPA for addition to the State's list are given in Table 1 below. The table also identifies which of the applicable water quality standards (i.e., numeric criteria, narrative criteria, waterbody uses, and/or antidegradation requirements) are not being met as well as the pollutants that are most likely contributing to standards impairment, and the priority ranking for each of the waters.

Table 1. Waterbodies, Pollutants, and Priority Rankings to be added to Colorado's Section

303(d) Waterbody List.

Waterbody	Pollutant(s)	Water Quality Standard Not Met	Priority Ranking
Red Mountain Creek (Red Mountain Creek from East Fork of Red Mountain Creek to Uncompahgre River) Segment COGUUN06b	copper, lead, zinc	aquatic life use	low
West Fork of Clear Creek (West Fork of Clear Creek from Woods Creek to Clear Creek mainstem) Segment COSPCL05	zinc	zinc numeric standard (acute) for aquatic life use	low
Middle South Platte River (South Platte River from Big Dry Creek to Highway 60) Segment COSPMS01	dissolved oxygen	dissolved oxygen numeric standard for aquatic life use	low
Blue River Tributaries (Camp Creek, Jones Gulch) Segment COUCBL06	pH	pH numeric standard for aquatic life use	low
Blue River Tributaries (Keystone Gulch, Mozart Creek) Segment COUCBL08	pH	pH numeric standard for aquatic life use	low
Bear Creek (Bear Creek from Evergreen Lake to Harriman Ditch) Segment COSPBE01	temperature*	aquatic life use	low
Dolores River (Dolores River below McPhee Reservoir to Bradfield Ranch Bridge) Segment COSJDO04	unknown	aquatic life use	low

* Ammonia has also been identified as a pollutant contributing to the impairment of aquatic life use. Although there is a reasonable potential that exists for exceedences of the ammonia standard, that reasonable potential is addressed in a TMDL for ammonia in Bear Creek that has already been approved by EPA.

EPA believes the waterbodies listed in Table 1 qualify as water quality-limited segments ("WQLSs") where it is known that water quality does not meet applicable water quality

standards or is not expected to meet applicable water quality standards, even after the application of the technology-based effluent limitations required by sections 301(b)(1)(A) and (B) of the Clean Water Act. As such, these waters should be included on the State's year 2004 list of WQLSs in need of TMDLs.

EPA will solicit public comments on these additions to Colorado's list and, following consideration of any comments received, will transmit the final list to the State for incorporation in its §303(d) list. The basis for adding individual waters and pollutants and the basis for assigning the corresponding priority rankings are discussed below for each water to be added to the list.

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Red Mountain Creek/copper, lead, zinc/low priority
(Segment COGUUN06b; Red Mountain Creek mainstem from East Fork of Red Mountain Creek to Uncompahgre River)

Water Quality Standard Exceeded

This segment of Red Mountain Creek is classified for cold water aquatic life, recreation, and agriculture uses. This segment suffers from the impacts of historical mining in the watershed with toxic levels of metals entering the Creek. Although this segment has applicable use classifications and narrative standards assigned to it, it has numeric standards only for pathogens. The State is working on establishing site-specific numeric standards for other pollutants. As such, there are no EPA-approved numeric metals standards in place to use as a basis for determining compliance with numeric standards. Compliance with standards can be made, however, by evaluating whether the designated use is being met.

In evaluating a waterbody's compliance with its designated aquatic life use the Division generally considers impairment of uses to be demonstrated when either the physical/habitat data or biological community metrics reflect a condition that is significantly less than the "expected"[1] or reference conditions. The State has not

[1] In determining impairment of aquatic life uses, the State Listing Methodology states that "*For aquatic life uses, as previously referenced, the Division will generally consider impairment of narrative standards and classified uses to be demonstrated when either the physical/habitat data or biological community metrics reflect a condition that is significantly less than the expected or reference conditions*." The concepts of "expected condition" and "reference condition" are used to describe and assess the condition of aquatic life. The "reference condition" of a waterbody is usually determined by observing the conditions in a similar waterbody that is pristine or minimally impacted by anthropogenic effects. The "expected condition" would be established using conditions that may be less than pristine conditions that could reflect legacy conditions within a watershed or dominant land and water use activities reasonably preventing the attainment of pristine conditions. The State uses the "expected condition" to describe a waterbody's full potential with respect to aquatic life use. As such, the "expected condition"

established the expected biological condition for Red Mountain Creek to describe acceptable levels of aquatic life. In its final determination, the Commission concluded the "expected condition" could not be determined for Red Mountain Creek at this time, therefore there was no basis to conclude standards were not being achieved and thus no basis for listing the waterbody.

Although the expected condition for Red Mountain Creek has not been established by the State, EPA believes it can reasonably be concluded that the Creek is not currently fully attaining its aquatic life designated use. EPA notes that Red Mountain Creek has most likely not achieved is full designated use since there are ongoing and future restoration efforts in the watershed. After reviewing the restoration progress made to date on Red Mountain Creek and reviewing the restoration efforts planned in the future (some of which are linked to consent decree provisions), EPA concluded that it is reasonable to believe the water quality and likewise, to some degree, the biological condition will improve over present conditions.

The biological, physical, and chemical condition of Red Mountain Creek has been part of studies conducted by the State. These data demonstrate the degree of poor water quality and poor biology found in this stream. In particular, the conditions in segment 6b can be contrasted with those found in the upstream segment 6a. In particular, data have been presented to the Commission in previous testimony from the Water Quality Control Division that characterize conditions in both segments of Red Mountain Creek. Macroinvertebrate data and information presented by the Water Quality Control Division in Exhibits 5, 8, and 12 of the May 31, 2001 Rebuttal Statement of the Water Quality Control Division for the Revisions to the Classifications and Numeric Standards for the Gunnison and Lower Dolores River Basins (Regulation No.35) in preparation for the July 2001 water quality standards hearing were used, in part, to understand the degree of impact in segment 6b. These exhibits characterize this segment as limited in its support of aquatic life due to influences from past mining activities (Page 8, Exhibit 8).

Comparing the macroinvertebrate community data presented by the Division for the upstream segment (mainstem of Red Mountain Creek from the source to immediately above the confluence with the East Fork of Red Mountain Creek; segment COGUUN06a) with the data in the downstream segment shows a dramatic loss in the number of macroinvertebrates (greater than 90%) as well as a near complete loss of all metal-intolerant species. (See the macroinvertebrate data in the Division's Exhibit 5 of the attached Exhibit B.) The biological data provided in the Division's Exhibit 5 clearly show that the condition in the mainstem of Red Mountain Creek, from immediately above the confluence with the East Fork of Red Mountain Creek to the confluence with the Uncompahgre River, is significantly less than the upstream segment using multiple biological metrics.

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was used by the State, in part, to determine whether an aquatic life use is impaired for a particular waterbody.

The biological information provided in the Division's Exhibits 5 and 8 not only demonstrate poor biological health of segment 6b, but it reveals the major cause as well. The loss of metal-intolerant species shows that the poor condition is due, in part, to excess metals as pollutants. The water chemistry data for copper, lead, and zinc very strongly support this conclusion. As reported in the Division's Exhibit 8 used in the July 2001 hearing, the 85th percentile concentrations of dissolved concentrations found in data collected by the Division were reported as 1,700 ug/l (zinc), 1,300 ug/l (copper), and 72 ug/l lead. This is in contrast with the data reported by the Division in the same exhibit for the upstream segment of Red Mountain Creek showing 12 ug/l, 0 ug/l, and 0 ug/l of zinc, copper, and lead, respectively. To put the high metals concentrations in segment 6b in perspective, acutely toxic threshold criteria for zinc, copper and lead are 117 ug/l, 13 ug/l, and 65 ug/l, respectively, at a hardness of 100 mg/l $CaCO_3$.

Although much has been done to remediate water quality impacts from mining in the impaired segment 6b, there are additional cleanup activities planned for the watershed that have the likelihood of improving conditions. As such, EPA believes the current condition does not reflect the best attainable condition and there is a convincing argument that improvements are feasible.

■ There are more remediation projects planned for the watershed that are designed to improve water quality in Red Mountain Creek. These activities include:

Idarado Mining Company Activities

. The initial attempt to control a draining adit in the Genessee area (on Baumgartner Oil Company land) was not successful so the Company has submitted a proposal for additional remediation of this discharge.

. A recent plan was submitted to the Hazardous Materials and Waste Management Division (Colorado Department of Public Health and Environment) which included proposed controls on seeps from Red Mountain Pile #2 and Red Mountain Buried Tailings which flow directly into Red Mountain Creek.

. Additional stabilization of tailings has started on Idarado land as part of background remediation.

US Forest Service Activities

. Plans to stabilize mine wastes near Ironton Park alongside Red Mountain Creek.

. Controls on draining adit being considered in preliminary assessment of Silver Mountain area.

. Controls are being implemented in Lower McAntire Gulch addressing a draining adit and mine waste piles.

■ The water quality performance standards included in a 1992 consent decree (See State of Colorado *v.* Idarado Mining Company, *et. al.*, *v.* Baumgartner Oil Company, *et. al.*, Civil Action No. 83-C-2385 (D. Colo.)) have yet to be achieved, and the parties to that decree are still working to meet those standards.

Consent Decree Performance Objectives

. Water quality performance objectives as outlined in a 1992 consent decree in the Red Mountain watershed have not been met to date. One of the objectives is to decrease the average dissolved zinc concentration to 1500 mg/l[2]. Current quality is at 1760 mg/l with an 85 percentile concentration of 2430 mg/l. According to the consent decree, if the water quality does not show a trend in improvement during a 5-year compliance period or the performance objectives are not met, Idarado must submit proposals for additional remedial activities to meet the objectives.

Pollutant(s) Contributing to Impairment

The pollutants contributing to the impairment include copper, lead, and zinc.

Priority

It would be appropriate to assign this water a low priority for TMDL development to allow the remediation and standard-setting processes that are currently underway to come to fruition.

West Fork of Clear Creek/zinc/low priority

(Segment COSPCL05; West Fork of Clear Creek from Woods Creek to Clear Creek)

Water Quality Standard Exceeded

This segment of the West Fork of Clear Creek is classified for cold water aquatic life, recreation, and agriculture uses. Standards for the segment include numeric standards for zinc for the protection of aquatic life use.

In Exhibit 3 of the Water Quality Control Division's prehearing statement, it states that the acute zinc standard was exceeded 16 of 151 sampling events. ("Sampling events" were considered as individual grab samples. The State considers it appropriate to compare each of the separate 151 samples against its acute standard which is a one hour average value with a 1-in-3 year frequency provision.) As such, it was concluded the segment was not meeting standards and should be listed. (See Prehearing Statement of the Water Quality Control Division in the Matter of the 2004 List of Water-Quality-Limited Segments Requiring Total Maximum Daily Loads (Regulation No. 93), and 2004 Monitoring and Evaluation List (Regulation No. 94). (February 3, 2004)("Division's Prehearing Statement."))

[2] The consent decree defines a performance objective of dissolved zinc concentration to be met at a certain stream station in Red Mountain Creek. The objective is 1.25 ppm multiplied by a factor of 1.2 or, 1.5 ppm. This objective is an average value based on six samples to be collected between August 15 and October 15 on six separate days. Further, the samples need to be collected under certain flow conditions.

In the Division's subsequent rebuttal statement, the conclusion is still made that the acute zinc numeric standard is not attained. (See Rebuttal Statement of the Water Quality Control Division in the Matter of the 2004 List of Water-Quality-Limited Segments Requiring Total Maximum Daily Loads (Regulation No. 93), and 2004 Monitoring and Evaluation List (Regulation No. 94). (February 25, 2004)("Division's Rebuttal Statement.") However, the Division also notes that the chronic zinc numeric standard (which is a higher value than the acute standard) is being met and that there is evidence that the aquatic life use is supported. As such, the Division changed its recommendation to not include West Fork on the State's list for zinc.

In its review of the West Fork, the Commission also concluded that the acute zinc standard was exceeded, but declined to include the segment on the list because the chronic zinc standard was being met and there was credible evidence that aquatic life use is being supported.

Colorado's water quality standards do not allow an exceedence of an acute numeric standard to be ignored based on biological data and/or compliance with chronic numeric standards. As such, the exceedence of the acute zinc numeric standard by itself qualifies this waterbody/zinc combination for listing.

Pollutant(s) Contributing to Impairment
This segment is identified as not meeting aquatic life zinc (acute) numeric standard. It should also be noted that the Commission included this segment on State's list for exceedences of the aquatic life copper numeric standard.

Priority
The State has conducted preliminary deliberations over changes to the West Fork's zinc numeric standards. These changes may remove the need to list this water on future §303(d) lists. As such, a low priority was assigned to this waterbody to allow time for this standards-setting process to come to completion.

Middle South Platte River/dissolved oxygen/low priority
(Segment COSPMS01; South Platte River from Big Dry Creek to Highway 60**)**

Water Quality Standard Exceeded
This segment is classified for warm water aquatic life, recreation, and agriculture uses. Standards for the segment include numeric standards for dissolved oxygen ("DO") for the protection of aquatic life use.

In Exhibit 3 of the Division's Prehearing Statement, it states that the dissolved oxygen numeric standard was exceeded during the months of August and September and, as such, should be included on the State's list. The 15th percentile DO readings in August and September for the period of record were 4.9 mg/l and 4.4 mg/l, respectively. These

values are compared to the State numeric standard of 5.0 mg/l.

In the Division's Rebuttal Statement, the Division again recommended that this waterbody be included on the §303(d) list. The Division points out that the DO numeric standard is a standard to be met over the short term (i.e., a "1-day minima") and that even short periods of below the standard are detrimental. As such, the Division concludes, and EPA agrees, that assessing the DO data by aggregating them over all months of the year and aggregating the data over the entire segment would not be appropriate. By performing such an aggregation, short term and potentially harmful excursions below the numeric standard would not be detected. Inspecting data for specific locations within a waterbody segment *vs*. aggregating data over the entire segment is not inconsistent with the State's §303(d) Listing Methodology. This methodology allows data for a waterbody segment to be assessed as an aggregated data set or assessed on a station-by-station basis if the aggregation does not represent the entire waterbody. Using that same principle, data could be aggregated or disaggregated on a season-by-season basis, depending upon whether the aggregated data set represents the full year. (See III.C.4. Assessment of "All Tributary" segments in the State's Methodology.)

The Commission disagreed with the Division's assessment of DO in the Middle Platte. Rather, the Commission believed there was not a clear method of interpreting the DO data for the segment, leaving in question whether there was a true excursion below numeric standards. As such, the Commission did not include the water on the State's list for further assessment of DO conditions.

EPA finds the manner in which the Division assessed DO data for this waterbody reasonable. It seems prudent to assess data for pollutants that can have an effect on aquatic life over the short term by looking at data for specific locations within the waterbody and by evaluating data for specific times of the year. Further, if the State water quality standards define the numeric standard as a 1-day instantaneous minima, it is most appropriate to assess waters in a manner that detects excursions below the DO numeric standard in the short term. When the DO data for the Middle South Platte River are reviewed keeping this in mind, it is concluded that the numeric standards for the river are not being attained.

Pollutant(s) Contributing to Impairment
This segment is listed for excursions below the State's dissolved oxygen numeric standard. The pollutants or pollutant properties that contribute to the low DO can be biochemical oxygen demand, ammonia, sediment oxygen demand, and organic enrichment.

Priority
The State is currently evaluating the possible change to the dissolved oxygen standards to this segment. As such, a low priority is assigned to this segment to allow time for the State's water quality standards process to come to completion.

Blue River Tributaries (2 segments)/pH/low priority
(Segment COUCBL06; Camp Creek, Jones Gulch and Segment COUCBL08; Keystone Gulch, Mozart Creek)

Water Quality Standard Exceeded
These segments are classified for cold water aquatic life, recreation, water supply, and agriculture uses. Standards for the segments include numeric standards for pH for the protection of aquatic life use.

In Exhibit 3 of the Division's Prehearing Statement, it states that the pH numeric standards for both Segment 6 and 8 were being exceeded. In particular, data show that there were excursions below the State pH numeric standard of 6.5 standard units ("S.U."). Values were as low as 6.1 S.U. As such, it was concluded the segment was not meeting standards and should be listed.

In the Division's Rebuttal Statement, the conclusion is still made that the pH numeric standard for these segments was not being attained. The Division notes that the pH standards for the State are instantaneous minima and maxima and, as such, should be met at all times. Aggregation of pH data over all seasons would be inappropriate for such a standard.

In contrast, the Commission concluded that the pH data for these segments may not be representative of all years and all seasons and as such, excluded the waterbody from the State's list.

EPA agrees with the Division's assessment that, not unlike DO in the Middle South Platte River, pollutants that can have an effect on aquatic life over the short term should be evaluated looking at specific locations and specific times of the year. Further, if the State rules define the standard as an instantaneous minimum/maximum, it is most appropriate to assess waters in a manner that detects excursions below the pH numeric standard in the short term. Furthermore, Colorado's's water quality numeric standards for pH do not provide for a seasonal exemption from the standard. As such, the pH standards are meant to be met at all times, year round. When the pH data for the Blue River segments are reviewed keeping this in mind, it is concluded that the numeric standards for the river are not being attained.

Pollutant(s) Contributing to Impairment
This segment is identified as not meeting pH numeric standards.

Priority
A low priority was assigned to this segment to allow for the completion of a use attainability analysis and investigation of potential changes to the State standards.

Other Factors

Evidence was presented to the Commission that suggested that the pH excursions below State standards may be totally a result of natural phenomena. If this is the case, the State could evaluate possible changes to its standards to accommodate assessments of such phenomena.

Bear Creek/temperature/low priority

(Segment COSPBE01; Evergreen Lake to Harriman Ditch)

Water Quality Standard Exceeded

This segment is classified for cold water aquatic life, recreation, water supply, and agriculture uses. EPA believes this waterbody does not currently meet all applicable water quality standards. In particular, the Creek's aquatic life use classification is not being fully met. The Division reports that biological data from Bear Creek reveal overwhelming evidence of aquatic life use impairment (*"departure from the expected condition*.") Further, the State Division of Wildlife agreed with the proposal to list Bear Creek based on the fishery data and the interpretation of the expected condition for the Creek. (See Rebuttal Statement of the Colorado Division of Wildlife in the Matter of the 2004 List of Water Quality Limited Segments Requireing (sic) Total Maximum Daily Loads (Regulation No.93) and 2004 Moniotoirng (sic) and Evaluation List (Regulation No. 94)(February 25, 2004) ("CDOW's Rebuttal Statement").) In addition, multiple fish kills in this segment have been observed or have been more formally documented.

Biological data, including fisheries data, were used to determine that the aquatic life use standard was not being met. This data included length-frequency, presence-absence, and population estimates and were used by the Division to conclude that there exists a depressed aquatic life community in this segment even after the conclusion of a drought period[3]. (See Exhibit 3 in the Division's Prehearing Statement.) Although post-drought flows rebounded to normal levels throughout the watershed, aquatic life in the segment being listed did not show signs of substantial recovery in its upper reaches according to the Water Quality Control Division and the State Division of Wildlife. This is in contrast to downstream locations where aquatic life showed signs of substantial recovery. In particular, the length-frequency information reveals a near complete absence of adult trout in the impaired segment compared to the downstream segment and compared to previous years.

The State's methodology for listing waters on its §303(d) list provides for the listing of waters based on biological assessment data. According to the Listing Methodology, biological assessments will typically consider measurable conditions or features within

[3] Drought conditions mentioned in this document are considered to result in in-stream flows that are less than the 1-in-3 year recurrence flows.

an affected segment in comparison to an "expected condition." For aquatic life uses, impairment is demonstrated when the biological community metrics reflect a condition that is significantly less than the expected or reference condition.

The Commission was unconvinced that the aquatic life use impairment in this segment would not have occurred except for the drought experienced in recent years. In particular, the Commission believed that any harmful levels of ammonia or elevated temperatures would not have been present expect for the antecedent drought conditions.

EPA concludes that there is sufficient evidence to show, even under post drought conditions, there are portions of Bear Creek that should have recovered from the effects of the drought and is not fully supporting its aquatic life use as evidenced by fisheries data. As such, Bear Creek should be included on the State's list for aquatic life use impairment.

Pollutant(s) Contributing to Impairment

In EPA's 2004 Listing Guidance, the Agency indicates States should list a water when it is impaired or threatened in relation to biological assessments used to evaluate aquatic life uses, even if the specific pollutant contributing to the impairment or threat is not known. These waters should be listed unless the State can demonstrate that nonpollutant stressors are the entire cause of the impairment, or that no pollutant causes or contributes to the impairment. Prior to establishing a TMDL for such waters, the pollutant causing or contributing to the impairment would need to be identified.

In the case of Bear Creek, there is evidence that pollutants caused or contributed to the impaired condition. Data indicate that the aquatic life impairment has been caused, in part, by high in-stream temperatures and ammonia concentrations that were at levels that could cause or contribute to the impairment. (High in-stream temperatures, or heat, caused by solar radiation is considered a "pollutant.") Although observations of temperature and ammonia in Bear Creek were made during drought years, it is possible that such high temperatures and ammonia concentrations contribute to the aquatic life impairments during non-drought years. (See discussion below under "Other Factors".) As such, the pollutants most likely contributing to the impairment are identified as temperature and ammonia.

Modeled and observed ambient ammonia concentrations were compared to EPA-approved numeric standards established by the State to conclude there were exceedences of numeric standards (although the observed values were during a time of drought). Temperature values were compared against numeric standards adopted by the State and approved by EPA, although the standards have yet to be specifically applied through rulemaking to Bear Creek and neither has the State adopted an implementation procedure for the temperature standard. (See The Basic Standards and Methodologies for Surface Water (5 CCR 1002-31; Regulation No. 31); Colorado Department of Health and Environment; Water Quality Control Commission; effective September 30, 2001.)

Ambient data supplied by Trout Unlimited indicate hourly, daily, and weekly temperature values exceeding the 20ºC criteria for cold water fish (See Prehearing Statement of Trout Unlimited in the Matter of Rulemaking Hearing to Establish Colorado's 2004 List of Water Quality Limited Segments Still Requiring TMDL's, 5 CCR-1002-93, and the Monitoring and Evaluation List, 5 CCR 1002-94 (February 3, 2004).) The temperatures exceeded 26ºC at times, although these were values collected during drought flows.

Exceedences above the State acute ammonia numeric standard have occurred in the past. According to a State investigative report on the July 1, 2002 fish kill in the Creek, the ambient concentrations of ammonia were over twice the acute numeric standard. (See August 21, 2002 Colorado Department of Public Health and Environment Water memorandum cited below in section H.) The report concludes that ammonia toxicity was the most likely cause of the fish kill below the wastewater treatment facility servicing the Evergreen Metropolitan District. It should be noted that the fish kill and high ammonia concentrations were observed during a period of drought.

EPA has already approved a TMDL that addresses ammonia toxicity in Bear Creek. As such, Bear Creek will not be identified as a water quality-limited segment in need of an ammonia TMDL at this time. EPA does recommend, however, that due to the apparent role of ammonia toxicity in the Bear Creek impairment, the State assures the ammonia TMDL is being fully implemented in all discharge permits and the State consider updating the TMDL with more recent data.

Priority

A low priority has been assigned to this listing to allow field monitoring to further document the causative nature of the impaired biology, investigate the cause of high ambient temperatures, and allow time to gather any other relevant information (e.g., pH, ammonia decay rates, seasonal amplitudes of daily pH and temperature) to support any refinement needed in the analyses of acceptable pollutant loads. Further monitoring could include an analysis of the cumulative effect of point source discharges, nonpoint source discharges, and physical condition of the stream as well as the biological health to further determine the extent and persistency of non-drought impairments. EPA further recommends a low priority to allow additional ambient data to be collected to support further refinement, if needed, of the TMDL currently in place for ammonia in Bear Creek.

Dolores River/sediment, temperature, nutrients/low priority

(Segment COSJDO04; Dolores River below McPhee Reservoir to Bradfield Ranch Bridge)

Water Quality Standard Exceeded

This segment is classified for cold water aquatic life, recreation, water supply, and agriculture uses. The primary basis for adding this waterbody to the State's §303(d) list

is Dolores River is not fully meeting its aquatic life use. In particular, there are data and information that indicate continuing impairment of the designated aquatic life use. Biological data have been presented that show a depressed aquatic life community during year 2001 when the in-stream low flows below McPhee Reservoir were commensurate with non-drought year low flows.

EPA's 2004 Listing Guidance indicates States should list a water when it is shown to be impaired or threatened in relation to biological assessments used to evaluate aquatic life uses, even if the specific pollutant causing or contributing to the impairment or threat is not known. These waters should be listed unless the State can demonstrate that nonpollutant stressors cause the impairment, or that no pollutant causes or contributes to the impairment. Prior to establishing a TMDL for such waters, the pollutant causing or contributing to the impairment would need to be identified. In the case of the Dolores River, biological assessment data show that the aquatic life use is impaired and that other information show that pollutants likely contribute to that impairment.

The quality of aquatic life in the Dolores River below McPhee Reservoir is dependent upon several factors, including the amount of flow released from the reservoir. The amount of flow affects the physical habitat and water quality in the River, thus having an effect on the fisheries. Biological data indicate that aquatic life use in the Dolores River is impaired, including during non-drought in-stream flow conditions. This is based on a significant drop in the trout populations.

According to the CDOW's Rebuttal Statement, current flow agreements for release of flow from McPhee Reservoir set a goal of up to 36,500 acre-feet of water on an annual basis to support a cold water fishery as well as other beneficial uses in the Dolores River. In its Rebuttal Statement, the CDOW suggests that this level of release be used as the benchmark for what constitutes full support of the expected aquatic life use. The flow agreement went into place in 1996. The release for 1996 was 36,287 acre-feet, close to the goal to support the fisheries. During this reference year of 1996, CDOW reports the number of brown trout were 47 per acre and the number of total trout were 63 per acre[4].

The CDOW agrees with the Division and Trout Unlimited that the fisheries data show a decline in the fishery leading up to year 2003. Likewise, the Commission agree with this observed impaired condition of aquatic life in the Dolores River. (See Statement of Basis, Specific Statutory Authority and Purpose; March, 2004 Rulemaking Part 93.10 in Regulation No. 93, approved March 17, 2004.) Based on CDOW fisheries data, the most dramatic decline in aquatic life occurred during drought flow releases in 2002 and 2003.

[4] Fisheries data were collected by CDOW in three stations in the Dolores River below McPhee Reservoir. The values cited are average values from these three stations. The number of brown trout are significant since brown trout are naturally reproducing in the Dolores River whereas rainbow and cutthroat trout are stocked by CDOW.

There is evidence that the impairment of the fisheries was also experienced when the flows were at near-reference flow conditions. In particular, the flow release for year 2001 was 33,200 acre-feet, near the 36,500 acre-feet condition. Further, as indicated in Figures 1and 2, the minimum average monthly flow in years 1996 - 2001 were similar compared with the lower minimum average monthly flows for the drought years of 2002 and 2003. Even with the favorable flow release in year 2001, the trout numbers were significantly below those found in previous years, including the reference year of 1996.

Figures 1 and 2 show the annual decrease in fisheries starting with the benchmark year of 1996 running through 2003. As indicated in Figure 1, the number of brown trout dropped from 47/acre in 1996 to 14/acre in 2001, a non-drought flow year. This corresponds to a drop in brown trout biomass of 24 lb/acre in 1996 to 7.7 lb/acre in 2001 as indicated in Figure 2. Likewise, the number of total trout dropped from a reference condition of 63/acre to 18/acre with a corresponding drop of 32 lb/acre to 9.4 lb/acre in biomass.

There is an indication from CDOW that pollutants contribute to the observed decline in aquatic life, including ambient temperatures lethal to trout, algae mats that cover substrate, increased sedimentation, and a sediment bedload imbalance. (See CDOW's Rebuttal Statement.) Although observations of high temperature, algae, and sedimentation were made during drought years, it is probable that such high temperatures, excessive algae, and sedimentation problems contribute to the aquatic life impairments during non-drought years. During 2001 near-reference flow releases, temperatures continued to be above a cold water fishery threshold of 20^{o}C on a daily basis (20 of 31 readings of daily maximum temperatures at Bradfield Bridge on the Dolores River exceeded 20^{o}C during July of 2001 including readings up to 22.8^{o}C; one 7-day average reading during that same time period exceeded 20^{o}C). During the subsequent years of drought-related flows, ambient temperatures rose to daily maximum values of over 28^{o}C. (High in-stream temperatures, or heat, caused by solar radiation is considered a "pollutant.")

Pollutant(s) Contributing to Impairment

There is testimony provided to the Commission that would include the following stressors contributing to the aquatic life impairment: nutrients, temperature, benthic sediment, flow, and whirling disease. For example, the data show periods of values

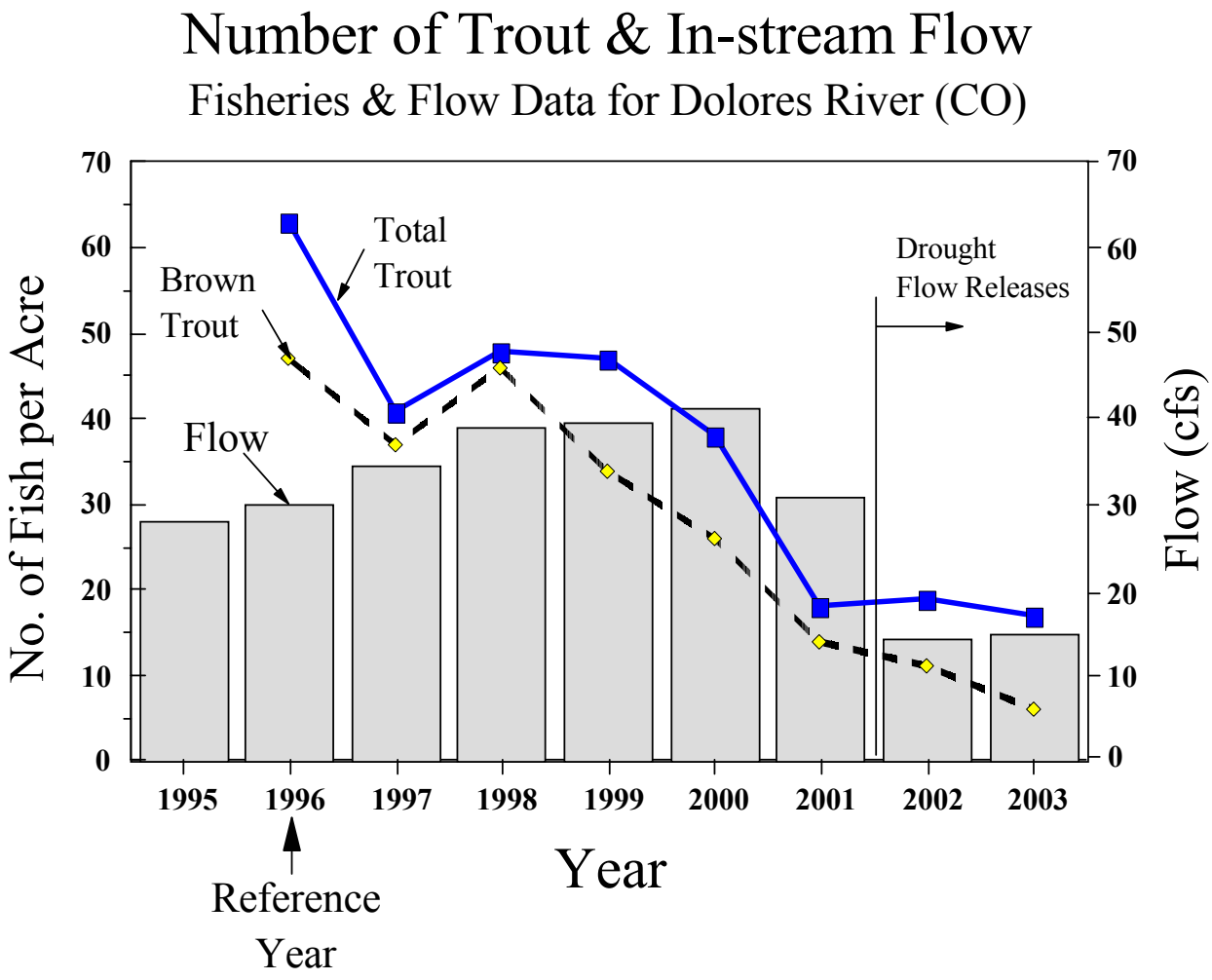

Figure 1. Graph showing trend of trout numbers for the Dolores River. Trout data are average values from three stations using two-pass Seber-Le Cren estimates for trout ≥ 6 inches (Colorado Division of Wildlife, unpublished data.) Flow data are the lowest average monthly flows for the given calendar year as reported for station DOLBMCCO below McPhee Reservoir (Colorado Division of Water Resources.)

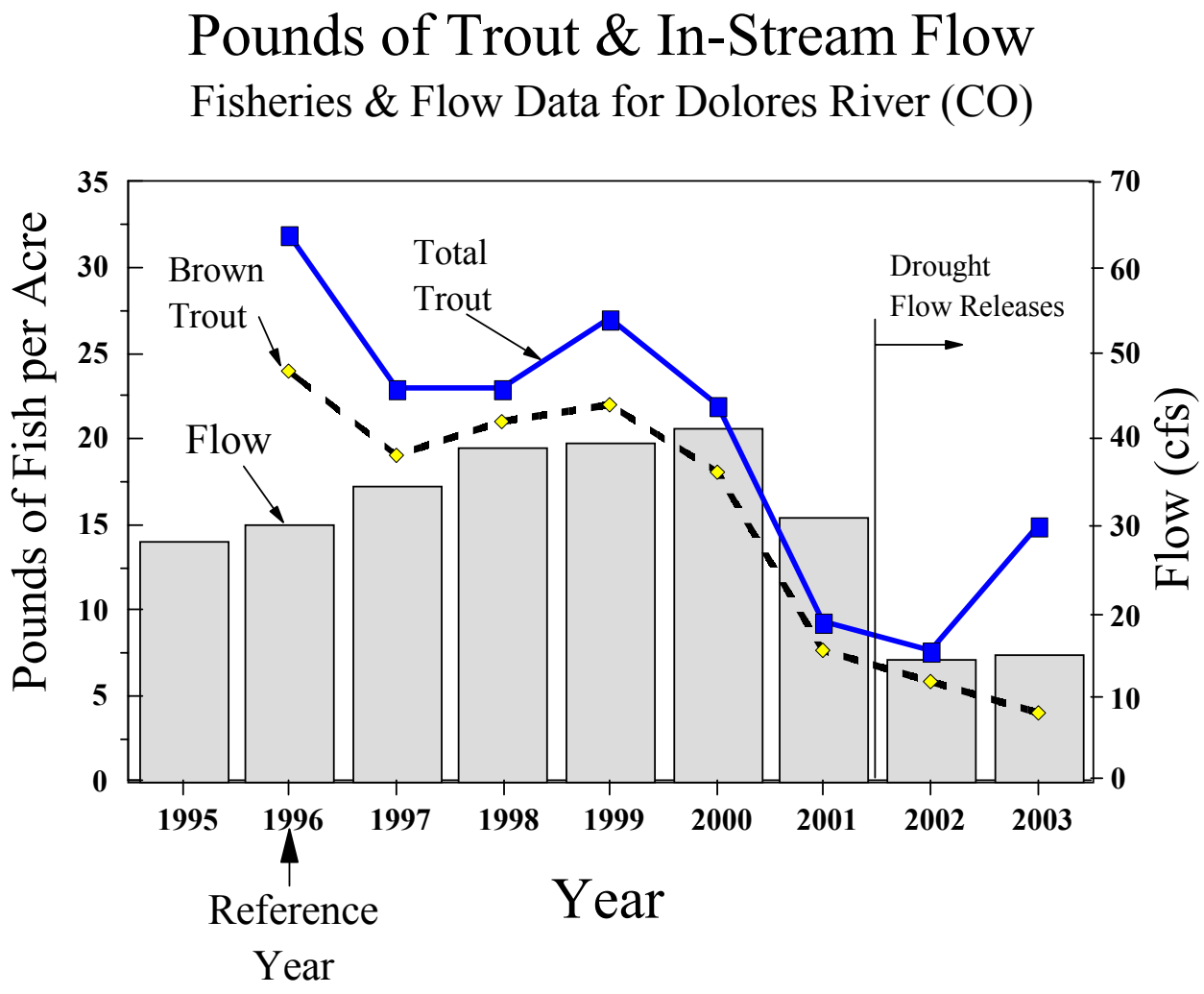

Figure 2. Graph showing trend of trout biomass (pounds of trout) for the Dolores River. Trout data are average values from three stations using two-pass Seber-Le Cren estimates for trout ≥ 6 inches (Colorado Division of Wildlife, unpublished data.) Flow data are the lowest average monthly flows for the given calendar year as reported for station DOLBMCCO below McPhee Reservoir (Colorado Division of Water Resources.)

higher than 20ºC which is a critical threshold for cold water fisheries[5]. For July 2001, 22 of the 31 daily readings of maximum temperature exceeded 20ºC. It is not clear to what extent each of the stressors including temperature contribute to the impairment, but it is most likely that a pollutant or pollutants contribute to the impairment. EPA's 2004 Listing Guidance allows for the listing of an impaired water even if the specific pollutant is not known. For now, EPA is listing the pollutant for this segment as "unknown."

Priority
A low priority has been assigned to this listing to allow further field monitoring and analysis to clarify the extent to which all the suggested stressors (flow, temperature, algae, whirling disease, sediment) cause or contribute to the observed impairments.

EPA supports the continued efforts to address aquatic life impairment issues through the TMDL process leading to further habitat restoration. It is believed such habitat improvements can address aquatic life impairments while keeping in tact the current agreements of flow management from McPhee Reservoir.

Other Factors
In making its decision to exclude the Dolores River, the Commission found 1) it was not possible to determine an "exected condition" for aquatic life, 2) that there exist no aquatic life impairment other than that associated with the long term drought, and 3) there was not a convincing link between the decline in fish populations and a "pollutant."

EPA found that, even though an "expected condition" could not be quantified at this time, there still remained compelling evidence that the Dolores River currently is not fully supporting its designated aquatic life use. Further, it is evident that the impaired aquatic life condition preceded drought flows as experienced in 2002 and 2004. Finally, based on the testimony provided, there is a likelihood that a pollutant or pollutants contribute to this impaired condition.

H. *Documents used in review of Colorado's §303(d) waterbody submittal*

The following list of documents were used directly or indirectly as a basis for EPA's review of the State's §303(d) waterbody list. This list is not meant to be an exhaustive list of all records reviewed, but to provide the primary documents the Region relied upon in making its decisions to approve the State's list. EPA consulted all the prehearing and rebuttal statements submitted to the Commission in reference to its deliberations in the matter of the 2004 List of Water-Quality-Limited Segments Requiring Total Maximum Daily Loads (Regulation No. 93,)

[5] A criteria of 20ºC is presented in the State water quality standards as a maximum threshold for cold water fisheries. (See The Basic Standards and Methodologies for Surface Water (5 CCR 1002-31; Regulation No. 31; Colorado Department of Health and Environment; Water Quality Control Commission; effective September 30, 2001.)

and 2004 Monitoring and Evaluation List (Regulation No. 94.)

December 28, 1978 Federal Register Notice, *Total Maximum Daily Loads Under Clean Water Act,* finalizing EPA's identification of pollutants suitable for TMDL calculations, 43 Fed. Reg. 60662

January 11, 1985 Federal Register Notice, *40 C.F.R. Parts 35 and 130, Water Quality Planning and Management: Final Rule*, 50 Fed. Reg. 1774

April 1991, "Guidance for Water Quality-Based Decisions: The TMDL Process," EPA 440/4-91-001.

July 24, 1992 Federal Register Notice, *40 C.F.R. Parts 122, 123, 130,* revision of regulation, 57 Fed. Reg. 33040

August 8, 1997 memorandum from Robert Perciasepe, Assistant Administrator, Office of Water, to Regional Administrators and Regional Water Division Directors entitled "New Policies for Establishing and Implementing TMDLs."

40 C.F.R. Part 130 Water Quality Planning and Management

May 23, 1997 memorandum from Geoffrey H. Grubbs, Director, Assessment and Watershed Protection Division, Headquarters, US EPA to FACA Workgroup on Section 303(d) Listing Criteria, regarding "Nonpoint Sources and Section 303(d) Listing Requirements."

September, 1997 guidance from Office of Water, Headquarters, US EPA regarding Guidelines for Preparation of the Comprehensive State Water Quality Assessments (305(b) Reports) and Electronic Updates: Supplement, EPA-841-B-97-002B.

May 31, 2001 exhibits 5,8, and 12 of the Rebuttal Statement of the Water Quality Control Division for the Revisions to the Classifications and Numeric Standards for the Gunnison and Lower Dolores River Basins (Regulation No.35).

September 30, 2001 (last amended) The Basic Standards and Methodologies for Surface Water 3.1.0 (5CCR 1002-31); Colorado Department of Public Health and Environment, Water Quality Control Commission.

August 21, 2002 memorandum from Bob McConnell and Joni R. Nuttle (Colorado Water Quality Control Division) to Scott Klarich, Cary Pilon, and Ron Falco (Colorado Water Quality Control Division, regarding “Bear Creek.”

July 21, 2003 guidance from the Office of Water entitled Guidance for 2004 Assessment, Listing and Reporting Requirements Pursuant to Sections 303(d) and 305(b) of the Clean Water Act,

Watershed Branch, Assessment and Watershed Protection Division, Office of Wetlands, Oceans, and Watersheds, US EPA.

September 9, 2003 report entitled Colorado's Section 303 (d) Listing Methodology published by the Colorado Department of Public Health and Environment.

April 2004 305(b) report entitled Status of Water Quality in Colorado - 2004 published by the Colorado Department of Public Health and Environment.

February 3, 2004 Prehearing Statement of the Water Quality Control Division in the Matter of the 2004 List of Water-Quality-Limited Segments Requiring Total Maximum Daily Loads (Regulation No. 93, and 2004 Monitoring and Evaluation List (Regulation No. 94).

February 3, 2004 Prehearing Statement of Trout Unlimited in the Matter of Rulemaking Hearing to Establish Colorado's 2004 List of Water Quality Limited Segments Still Requiring TMDL's, 5 CCR-1002-93, and the Monitoring and Evaluation List, 5 CCR 1002-94.

February 25, 2004 Rebuttal Statement of the Colorado Division of Wildlife in the Matter of the 2004 List of Water Quality Limited Segments Requiring (sic) Total Maximum Daily Loads (Regulation No.93) and 2004 Moniotoirng (sic) and Evaluation List (Regulation No. 94).

February 25, 2004 Rebuttal Statement of the Water Quality Control Division in the Matter of the 2004 List of Water-Quality-Limited Segments Requiring Total Maximum Daily Loads (Regulation No. 93, and 2004 Monitoring and Evaluation List (Regulation No. 94).

March 1, 2004 letter from Paul D. Frohardt, Administrator, Colorado Water Quality Control Commission to Max Dodson, Assistant Regional Administrator for the Office of Ecosystems Protection and Remediation, US EPA Region VIII transmitting Colorado's 2002 Section 303(d) List and Colorado's 2002 Monitoring and Evaluation List.

March 17, 2004 letter from Chris J. Wiant, Chair, Colorado Water Quality Control Commission to Max Dodson, Assistant Regional Administrator for the Office of Ecosystems Protection and Remediation, US EPA Region VIII transmitting Colorado's 2004 Section 303(d) List.

March 17, 2004 regulation entitled "Regulation #93 2004 Section 303(d) List Water-Quality-Limited Segments Requiring TMDLs" adopted March 17, 2004, Effective May 31, 2004; Colorado Department of Public Health and Environment; Water Quality Control Commission.

March 17, 2004 regulation entitled "Regulation #94 Colorado's Monitoring and Evaluation List" adopted March 17, 2004, Effective May 31, 2004; Colorado Department of Public Health and Environment; Water Quality Control Commission.