

# **WATER QUALITY LIMITED SEGMENTS STILL REQUIRING TMDLs**

**Colorado's 1998 303(d) List and  
Related Water Quality Management Lists**



Colorado Department  
of Public Health  
and Environment

**Water Quality Control Division  
Final - March 24, 1998**

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## **I. INTRODUCTION**

The 303(d) List identifies water quality limited segments still requiring Total Maximum Daily Loads (“TMDLs”) within Colorado. This list was prepared to fulfill section 303(d) of the federal Clean Water Act (“Act”) which requires that states submit to the U.S. Environmental Protection Agency (“EPA”) a list of those waters for which technology-based effluent limitations and other required controls are not stringent enough to implement water quality standards.

Once listed, the State is required to prioritize these water bodies or segments (rivers, streams, lakes reservoirs) based on the severity of pollution, and then to determine the causes of the water quality problem and to allocate the responsibility for controlling the pollution. This analysis is called the TMDL Process, and results in the determination of: 1) the amount of a specific pollutant that a segment can receive without exceeding a water quality standard (the TMDL), and 2) the apportionment to the different contributing sources of the pollutant loading (the allocation). The TMDL must include a margin of safety, waste load allocation (for point sources) and a load allocation (for non-point sources and natural background). The TMDL must include upstream loads in the assessment and apportionment.

The Water Quality Control Division (“Division”) has overall responsibility to complete TMDLs for all segments on the 303(d) List. However, the Division will rely heavily upon local watershed groups and entities to participate and even conduct TMDLs for their segments. TMDLs must ultimately be submitted to EPA for review and approval.

As well as the actual 303(d) List, this report presents the information sources and methodology used by the Division to develop the List. It also includes the prioritization of the listed segments for TMDL work, a schedule for completion of the TMDLs, and the TMDLs targeted for completion in the next two years. A final section of the report presents the Monitoring and Evaluation List; this includes segments for which uncertainty exists regarding their status.

## **II. PUBLIC PARTICIPATION**

Through public participation, Colorado’s 303(d) List will more accurately identify water quality limited segments within the State. Public participation requirements for the TMDL program, which includes 303(d) List development, is described in the Act as well as in federal regulations. The State is directed to solicit information from other agencies, the public and academic institutions. In addition,

public notice is required when a proposed list has been submitted.

The Division has solicited public participation to develop the 1998 303(d) List through several means. Beginning in June of 1997, monthly briefings were held at the Water Quality Control Commission (“Commission”) public meetings, and at the Colorado Water Quality Forum monthly meetings. Periodically, news items were published in the monthly Water Quality Bulletin. Specific mailings were made to over 120 individuals and entities throughout the state distributing drafts of criteria for listing and delisting segments, criteria for credible evidences, determining use support categories, and protocols for setting priorities. Letters of comment responding to these mailings are on file at the Division office.

#### **A. TMDL Advisory Committee**

Late in the fall of 1996, Colorado’s Water Quality Forum (“Forum”) formed a broad-based TMDL Subcommittee to begin a monthly dialogue on TMDLs in Colorado and provide thoughtful public input to the 1998 303(d) List. During the summer of 1997, the Commission widened the participation and asked TMDL Subcommittee to act as a formal Advisory Committee to the Division and renamed the group as the “TMDL Advisory Committee” (“TAC”). The TAC has met approximately 12 times between June 1, 1997 and January 8, 1998, to discuss such issues as criteria for listing and delisting segments; criteria for determining credible evidence; determination of the degree of designated use support; protocols for prioritization of TMDL development; and targeting and scheduling. There are currently 35 members on the TAC mailing list; generally, 12 to 17 members attend the meetings.

The Colorado Water Quality Forum is an informal advisory organization that plays an important role in the water quality management process in Colorado. Created in 1992, the Forum provides an opportunity for ongoing informal dialogue among diverse parties representing a broad spectrum of stakeholder interests in water quality management. Participants include water suppliers; industrial and municipal dischargers; environmental groups; and federal, state, and local governmental agencies.

#### **B. Public Notice**

Notice of the Commission’s intent to hold an informational hearing on March 10, 1998, regarding the 1998 303(d) List was published in the January Water Quality Bulletin and a separate mailing was made to additional entities who have expressed interest in the List development process. The draft was prepared on January 16, 1998 and widely distributed. Written comments were accepted by the Division through February 17, 1998. These comments were considered when the Division

prepared the Proposed List which is part of this document (dated February 26, 1998). The Division's response to these comments can be found at Section VII at the end of this report. Written comments directly to the Commission were accepted through February 26, 1998. Oral testimony was presented by the Division and the public on March 10, 1998 at the Commission hearing. Minor changes were made as a result of the Commission hearing.

### **III. LIST DEVELOPMENT**

The Division, in conjunction with the TAC, discussed the List development process and determined that there was need for an ancillary list in addition to the 303(d) List. The Monitoring and Evaluation List was devised to identify segments where there is reason to suspect water quality problems on stream segments, but uncertainty exists regarding one or more factors. The Monitoring and Evaluation List is discussed and presented in Appendix C.

To develop the 303(d) List, criteria regarding listing, de-listing, and what constitutes credible evidence were established.

#### **A. Listing Criteria**

Segments are *included* on the 1998 303 (d) List if they meet one of the following listing criteria.

1. Segments which have temporary modifications of standards.
2. Segments which are shown to have designated use impairment (Not Supporting, Partially Supporting, or Potentially Impaired, [see Appendix A]) based on review of Credible Evidence (see below).

#### **B. Delisting Criteria**

Segments which met the above criteria have been *removed* from the 303(d) List if the following conditions apply:

1. Segments where federal, State, or local requirements are stringent enough to attain water quality standards.
2. Segments where approved TMDLs address all the pollutants of concern.

#### **C. Information Considered**

The Division has attempted to use all the existing and readily available water quality-related information. Both administrative records and water quality data were reviewed. The major sources of information are described below:

**Water Quality Classifications and Numeric Standards** - This source contains the information regarding standards for specific segments within river basins which acts as the bench mark against which a segment's water quality data is compared. This is also the source of information regarding temporary modifications to standards. Water quality standards hearing files, which contain data from numerous sources, were also consulted.

**Colorado Discharge Permit System (CDPS) discharge permits** - Information regarding permits, expiration dates, and permit effluent limits were obtained through review of both hard copy permit files and records in PCS (the EPA national permit database).

**STORET** - This EPA national water quality database is used by the Division for storage and retrieval of stream water quality data generated by Division monitoring. This database also contains data from other agencies (e.g., USGS) water quality monitoring sites.

Beyond these three major sources of information, the Division reviewed information from the following entities:

- Bureau of Land Management
- CDPHE HMWMD Remedial Programs
- Cyprus Climax
- Colorado Division of Wildlife River Watch Program
- Colorado Division of Wildlife
- Colorado Natural Heritage Foundation
- Coors Brewing Company
- Denver Environmental Health Department
- Denver Regional Council of Governments
- Denver Water Board
- EPA CERCLA Program
- Littleton-Englewood Joint Sewerage Agency
- Metro Reclamation District
- Natural Resources Conservation Service
- Non-Point Source Project Files
- U.S. Fish and Wildlife Service
- U.S. Forest Service
- U.S. Geological Survey Special Studies

#### **D. Assessment Methodology**

The determination of the degree of use support for a given segment is based on several types of assessments. The most common method is based upon a comparison of the segment's water quality data with the appropriate stream standards for that segment. Where the data shows evidence of no numeric standard exceedance (e.g. the 85th percentile data point is below the applicable chronic stream standard and there are no exceedances of the acute water quality standard) the segment is said to be "fully supporting" its designated uses. The Designated Use Support Matrix, which describes this and other criteria and support categories is presented in Appendix A. A comparison of the physical and/or biological assessments of a water body with the narrative standards may be used to determine degrees of impairment.

Biological assessments by the Colorado Division of Wildlife (CDOW) were utilized in developing the List. These consist of fish surveys performed by CDOW staff using both seining and electrofishing. The results of these assessments were compared with the Standards and Classification System in the following manner. For segments that are designated as Aquatic Life Class 1, evidence of a decline over time from a healthy and diverse fish community or the absence of a Species of Critical Concern<sup>1</sup> (SCC) constitutes an impairment of the use. For segments that are designated as Aquatic Life Class 2, evidence of significant reduction of the species composition of a fish community over time constitutes an impairment of the use. The Division limited the time frame for comparison of fish communities as shown by fish surveys, to only the late 1970's (when aquatic life classes were established) through more recent conditions.

Assessments conducted by US Forest Service Hydrologists were also utilized in developing the List. The assessment methodologies used included Tarzwell's Substrate Ratio, macroinvertebrate surveys, Pfankuch stability rating, USFS Stream Health Assessment protocols, T-walk, recording temperature sensors, fish surveys, and water chemistry information.

Where determinations were made regarding the degree of attainment of narrative and temperature standards, it is important to note that there is a two-tiered test implicit in these standards. A determination of impairment requires that the adverse condition is present, but also that there is an adverse effect on the beneficial use. For example, the sediment standard states specifically that state waters shall be free from "...bottom deposits detrimental to beneficial use." [Basic Standards and

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<sup>1</sup> Species of Critical Concern includes native fish species observed to be in decline and rare in abundance or limited in distribution (as identified by CDOW in the Inventory and Status of South Platte River Native Fishes in Colorado, CDOW, 1997).

Methodologies for Surface Waters (5CCR 1002-8) at 31.11]. The Division has only listed segments where both the harmful condition is present, and there is evidence that the aquatic life use is adversely effected.

#### **E. Credible Evidence**

Segments are included on the 303(d) List based on an evaluation of biological, chemical or physical data demonstrating numeric or narrative standards violations, use impairment or a declining trend in water quality or biotic community such that standards could be exceeded prior to the next listing cycle. However, it is important that the decision to list a water body be based on “credible evidence,” rather than anecdotal information. The following guidelines were developed to assist during evaluation of water quality information.

- Information is available to describe the methods used for sample collection and field or laboratory analysis.
- Sufficient information and data are available to indicate that the measurements represent existing conditions.
- In general, information and data should be no older than 5 years. Older data may be used on a case-by-case basis if the Division believes conditions have not changed and this older data is still representative or the older data is used with newer data to determine trends.
- Physical and biological assessments are performed by an observer who has training and experience in performing such observations, and recorded observations adequately account for seasonal variation.

### **IV. PRIORITIZATION FOR TMDL DEVELOPMENT**

The Water Quality Control Division (“Division”) must ensure that TMDLs are developed for all water bodies and pollutants on the 303(d) List. Recognizing that all TMDLs cannot be completed at once, the Clean Water Act (CWA) directs the Division to prioritize the waters on the 303(d) List. The Division will use the prioritized 303(d) List to focus resources to support the development of TMDLs.



## A. Prioritization Objective

The segments on the 303(d) List will be at different stages on the path to an approved TMDL: some will need to have more data collected, some will need outreach to increase stakeholder involvement, some will need scoping, additional data and problem identification. Some TMDLs are complex, multi-task problems, some are simpler effluent limits. The development of these TMDLs may proceed at different rates. *Implementation* of approved TMDLs is a separate process with separate authorities and time frames.

The objective of the prioritization is to identify where the Division should concentrate its resources. It will also provide useful information to other stakeholders when deciding how to focus their resources. The identification of a high priority segment does not necessarily mean that the TMDL will be developed before any lower priority segments. For some high priority TMDLs, the development may have to await data collection or stakeholder outreach.

## B. Assigning Priorities

Priorities are initially based on consideration of the severity of impairment to the use classifications for the segment<sup>2</sup>. Secondary factors can be used to modify the initial prioritization to an overall or final prioritization. Secondary factors may either elevate a water body into a higher priority group (e.g., endangered or declining native species, public interest, administrative needs) or reduce the priority ranking (e.g., pace of stakeholder group development, CERCLA cleanup action in progress).

### 1. Severity of Water Quality Impairment

**High Priority:** Non-supporting or partially supporting for primary drinking water standards; non-supporting for Class I aquatic life, cold or warm; non-supporting for Class I recreation or agriculture.

**Medium Priority:** Potentially impaired for primary drinking water standards; non-supporting for secondary drinking water standards; partially supporting or potentially impaired for Class I aquatic life cold or warm; partially supporting for Class I recreation or agriculture.

**Low Priority:** Partially supporting or potentially impaired for secondary drinking water standards; partially supporting or potentially impaired for Class II aquatic life cold or

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<sup>2</sup> Use Classifications are described in "Basic Standards and Methodologies for Surface Water" 31 (5 CCR 1002-8, sec. 31.13).

warm, or Class II recreation; or potentially impaired for Class I recreation or agriculture; for all uses: fully supporting or fully supporting, allocated.

## 2. Secondary Considerations

- Division action can support a local, regional or federal stakeholder group that is ready to move on to the next step of TMDL development, or there is substantial public interest and support.
- The water body is vulnerable or fragile as an aquatic habitat, or there are aquatic species of special concern present.
- The water body is of particular importance for recreational, economic and aesthetic uses.
- The Division can realize efficiency savings (for example: synchronizing permits, linking segments within a watershed).
- There are immediate programmatic needs such as waste load allocations for permits that are due to expire or for new or expanding discharges.
- There is a court ordered cleanup or CERCLA action in progress which will change the contribution of pollutants (this consideration could reduce priority ranking).

## V. The 1998 303(d) List

The 1998 303(d) List is presented in Table 1. Segments are presented in Water Body Identification number order. Segments are frequently listed more than once, especially if there are multiple dischargers on the segment. The following paragraphs describe the columns in the List.

**WBID** is the Water Body Identification number. This number is assigned by the Division and is used to group and identify water bodies with the same classifications and standards. Appendix B describes the WBID system in more detail.

**Segment Name** describes the location and the extent of the segment. This is an abbreviated version of the official segment name that can be found in the Classification and Numeric Standards for each basin

**Portion** describes the portion of the segment that is impaired or impacted.

**Status** describes the Designated Use Support Status, as discussed in Appendix A. FS = Fully Supporting, FS,A = Fully Supporting, Allocated, PI = Potentially Impaired, PS = Partially Supporting, NS = Not Supporting. When more than one parameter is listed as impairment, the status represents the most limiting of these parameters.

**Basis** indicates the reason the segment was included in the List. For example “Water Qual Data” indicates that it was included based on an assessment of the water quality data; “Temp Mods” indicates that it was included because of the existence of temporary modifications to standards.

**Impairment** contains a listing of the parameters for which assessments have shown that standards are not attained in some manner or where beneficial uses have some degree of impairment. (Also see Appendix A)

**Additional Information** is included to convey more information about the segment, the stressors, the pollution, or the temporary modifications. If CDPS permit discharge to the segment, expire before April 1, 2000, and have discharge limitations for parameters included in the impairment column, they are listed in this column. The term “mining activities” is use to indicate active, inactive or abandoned mines in the area. These categories were not differentiated. This column only reflects relevant information currently available to the Division, and is only intended to supply background information to the reader. It is not intended to identify all sources that may contribute pollutants of concern into the segment, nor does it assign relative contributions between sources.

**Div Res** indicates the final priority (High, Medium, or Low) assigned to the segment according to the prioritization criteria discussed above for the expenditure of Division resources. The priority listed is based on the highest priority constituent in the stream; other constituents may have a lower priority based on applying the criteria.

**TAR** indicates TMDLs targeted for completion. As requested by EPA, the Division has identified the TMDLs it has targeted for completion in the 1998-2000 biennium. Targeting decisions were based on a combination of the severity of the water quality problem, the availability of sufficient data and the administrative needs for the TMDL (e.g. WLA for expiring permits).

Insert Table 1 Colorado 1998 303(d) List



## VII. SCHEDULE FOR COMPLETION OF TMDLs

As requested by EPA, the Division has developed the following schedule for completion of TMDLs for the segments and parameters on the 1998 303(d) List. The following table (Table 2) presents the anticipated schedule of TMDL completion. "Percentage" indicates the cumulative percentage of total TMDLs from the 1998 List. As indicated, the 1998 TMDLs are to be completed in 12 years. (The State fiscal year runs from July 1 to June 30; fiscal year 1999 runs from July 1, 1998 to June 30, 1999) There are approximately 200 (total) TMDLs that will need to be developed for stream segments on the 1998 303(d) List. While TMDLs will generally be segment and parameter specific, stream segments listed in the 1998 303(d) List may be part of a larger watershed level TMDL effort. Development of these TMDLs will be very complex and time consuming requiring such things as data collection, stakeholder group development and consensus building.

The following table presents only the schedule for completing the TMDLs which relate to the 1998 303(d) List. The Division anticipates that other TMDLs will be done in order to develop waste load allocations for CDPS permits. Appendix D presents a list of stream segments with CDPS permits which may need waste load allocations.

This schedule was developed under current federal regulation and EPA guidance. In the event that regulations or guidance are changed to require TMDL implementation plans, this schedule will be revised.

<b>Table 2 Schedule of TMDL Completion</b>					
State Fiscal Year	Cumulative Percentage	State Fiscal Year	Cumulative Percentage	State Fiscal Year	Cumulative Percentage
1999	3	2003	39	2007	85
2000	8	2004	51	2008	92
2001	17	2005	63	2009	97
2002	28	2006	75	2010	100

## VII. SUMMARY OF RESPONSE TO PUBLIC COMMENT

The Water Quality Control Division (Division) published its draft 303(d) List on January 16th 1998. Interested parties were encouraged to provide comments to the Division on the draft by February

13th 1998 for consideration in the preparation of a final proposed list for the Water Quality Control Commission (Commission) informational hearing on March 10th 1998. Twenty- five letters of comments were received by the Division. The following is a list of the parties submitting comments.

Colorado Trout Unlimited  
Vranesh and Raisch, LLC  
City and County of Denver  
US Department of Energy Rocky Flats Field Office  
Petrock & Fendel  
Metro Wastewater Reclamation District  
Coors Brewing Company  
Pike and San Isabel National Forest  
US Forest Service, Rocky Mountain Region  
Northwest Colorado Council of Governments  
Earthjustice Legal Defense Fund  
City of Thornton  
City of Boulder  
Climax Molybdenum Company  
City of Colorado Springs Utility Department  
Cherry Creek Basin Water Quality Authority  
City of Broomfield  
Cyprus Yampa Valley Coal Mine  
Kodak Colorado  
Hendricks Mining Company  
Cripple Creek and Victor Gold Mining Company  
City of Ft. Collins  
City of Sterling  
City of Louisville  
Breckenridge Sanitation District

The comments received were varied and ranged from philosophical and legal issues involved in the preparation of the draft list, to very specific comments about individual listings of stream segments, and impairments to waters in Colorado. This summary will be in two sections and will first, present what the Division understands to be the major philosophical and legal concerns raised by the commentors, and second, will provide a list of the types of concerns raised by commentors about specific listings. This second group of comments will not include every individual comment, but will reflect categories of concern and the Division's approach to responding to these categories. Each summarized comment is numbered and followed by a Division response.

## A. Major Issues

**Issue 1:** Many commentors stated that it is inappropriate to list segments which receive point source discharges solely because the permits for such discharges contain water quality-based effluent limits and the permits have either expired or will expire within the next two years.

**Response 1:** Many of the commentors expressed concerns about this proposed basis for listing. Such concerns included legal analyses which purported that such listings were unwarranted and improper under the Clean Water Act (CWA), existing federal regulations and published guidance. There was a view, shared by many, that such listings result in an unnecessarily lengthy 303(d) List which would have the effect of diverting the resources of the Division away from truly impaired waters, especially those impacted predominantly by non-point sources. Permittees also expressed concern about potential increased costs and delays due to being included on the 303(d) List and the unwarranted implication that their existing permits were not adequately protective.

On the other side, early in the 303(d) List development process, the Division received verbal and written guidance from Region VIII EPA (also based upon the CWA, regulations and guidance), that listing of such segments is proper and appropriate. The basic rationale for the Region's position is that if the assimilative capacity of a water body has been allocated through one or more water quality-based permits and any of the assumptions included in the rationale or basis for such permits have changed (e.g. discharge flow or load, background quality or flow, stream standards, modeling assumptions, etc.) then a new or renewed TMDL would be needed and the segment should be included on the 303(d) List.

A key legal issue revolves around whether segments should be listed in all cases where water quality standards will be met only if controls beyond technology based limits are imposed, or just in cases where *TMDLs are still needed* to meet water quality standards even after water quality-based effluent limits and other legally-based pollution control mechanisms have been imposed. Upon further review, the Division has concluded that while new or renewed TMDLs are needed prior to issuing permits with water quality based effluent limits, a water body need not be included on the 303(d) List if it currently meets and is expected to continue to meet its water quality standards.

The two way regulatory test for determining whether a water body must be listed is: (1) there is existing and readily available ambient data or information indicating the water body is impaired (i.e. not meeting or partially meeting one or more water quality standards) or threatened; and (2) there is information, again readily available, derived from dilution calculations or predictive models indicating non-attainment of applicable water quality standards. This interpretation (based upon 40 CFR 130.7(b)(5) and EPA's Guidance for Water Quality-based Decisions: The TMDL Process 440/4-91



p.11) means that only a *subset* of the state's water quality limited water bodies must be listed pursuant to section 303(d). The gist of this guidance is that segments must be listed only in cases *where it is known* that water quality standards are not being attained or are not expected to be maintained (e.g. threatened waters) even after water quality-based effluent limits and other legally-based pollution control mechanisms have been imposed. It is possible that during the permit reissuance process, when dilution calculations are performed and predictive models are utilized, it may be determined, i.e. *become known*, that current water quality based limits are no longer adequate to implement water quality standards on a particular water quality limited segment. Then a renewed TMDL would be necessary.

Therefore, segments which receive point source discharges will not be listed *solely* because the permits for such discharges contain water quality-based effluent limits and the permits have either expired or will expire within the next two years. The 303(d) List will include all impaired water bodies as well as water quality limited segments which still need TMDLs even though water quality-based effluent limits and other legally-based pollution control mechanisms have been imposed in the past. The permits for discharges of pollutants of concern to such water quality limited segments which have either expired or will expire within the next two years, will be noted as additional information relevant to the listed segment. Also, it should be noted that other permits for discharges to such segments may be reopened at the conclusion of the TMDL process in order to address water quality impairments in the most timely and equitable manner using a watershed approach to permitting.

A separate list of water quality limited segments with expiring water quality-based permits will be added as an appendix to the 303(d) List (see Appendix D). It is commonly the case that when permits are renewed TMDLs, waste load allocations and effluent limits must be adjusted in order to provide adequate water quality protection. These segments are classified as water quality limited because they would not attain the applicable water quality standards if only technology-based effluent limitations were required. TMDLs will be developed as a separate but integral part of the CDPS permit reissuance process for the segments on this list. It should be noted that the need to reissue expiring permits may raise the priority of proximate segments on the 303(d) List for TMDL development.

**Issue 2.** The 303(d) List is a list of streams which require implementation activities in order to attain standards, what will the Division do to insure that standards are attained? A number of commentors raised questions about what the Division will do about the impairments recognized by the 303(d) List, and in particular how certain difficult water quality problems, i.e. historic mining problems, or atmospheric deposition of pollutants will be solved.

**Response 2:** The Division realizes that implementation of TMDL's is a big challenge, but

implementation is not the focus of the 303(d) listing process. The List identifies those stream segments which are not or are not expected to attain water quality standards even after the application of technology based and other controls [40CFR130.7(b)(1)], and still require new or updated TMDLs. The process involved in preparing a TMDL will lead to the formulation of an acceptable load for a given pollutant, the identification of specific pollution sources, and the need for reduction in pollutant loadings. Once a TMDL, is approved the process for implementing necessary controls will begin.

**Issue 3:** Relocation of previously listed waters to the “Monitoring and Evaluation List” (Appendix C) will create delays in developing needed TMDLs and cannot be justified because the state should use existing and readily available data and compensate for any lack of information by incorporating a margin of safety in translating standards into effluent limits .

**Response 3:** In the course of developing the 1998 303(d), the Division actively solicited water quality information from a broad array of sources including local, state and federal agencies and individuals involved in water quality monitoring activities. This effort was productive and helpful in the list development process. We also carefully reviewed the information and data supporting the listing of segments on the 1996 303(d) List and the 1996 305(b) Report. Although the 1996 303(d) and 305(b) submissions are “existing and readily available”, after consideration of the information it was determined that in some cases the supporting information is not appropriate to rely upon for listing in the 1998 effort. Specifically, information did not meet the Credible Evidence criteria developed by the Division and the TMDL Advisory Committee.

Due to the major commitment of financial and human resources that will be needed from the Division and many other parties to develop TMDLs for listed waters, we have concluded that the evidence of impairment must meet the criteria outlined in section III.E above. The criteria for credible evidence are by no means so restrictive as to require “perfect water quality information”. Rather, the criteria presented in the discussion of credible evidence in the proposed 1998 303 (d) list submittal, are fairly minimal informational qualifications intended to enable people with potentially different interests to establish a shared, albeit preliminary, understanding of a water quality problem. This will often be needed in order make further progress delineating loading sources and identifying types of impacts in specific terms as well as ultimately determining waste load and load allocations.

While it is important to move expeditiously to restore impaired water bodies, imposing potentially costly pollution control requirements based on old or anecdotal information with arbitrarily large margins of safety will only lead to delays because of inevitable conflict and litigation. It is our intent to prioritize the segments we have moved to the Monitoring and Evaluation list and to develop an

aggressive schedule for accomplishing the necessary monitoring work.

**Issue 4:** Water quality based permits are not the same as TMDLs.

**Response 4:** We agree. However, practically speaking TMDLs must be done on a parameter by parameter basis prior to issuance of any water quality-based permit and TMDLs frequently must be renewed at the time permits are being processed for reissuance. The appropriate way to develop legitimate water quality-based effluent limits, is through the TMDL process. Standards are the basis of TMDLs, which include waste load allocations. These become the basis for specific effluent limitations. Where it is determined water quality standards can continue to be met through relatively minor adjustments to existing waste load allocations, such TMDLs are generally not time consuming or very complicated to develop. The TMDL for the water quality-based permit must go through a public notice process independently from the related permit. TMDLs developed for all water quality limited waters are submitted to EPA for approval (See EPA Guidance 440/4-91 April 1991 p.9 and p.23).

**Issue 5:** Several comments were received which questioned whether or not it was appropriate to list stream segments which are not attaining standards, but the impairment is caused by “naturally-occurring” sources. In these cases some commentors have suggested that the problems are best handled through adjusting water quality standards rather than doing a TMDL.

**Response 5:** The regulations promulgated under Section 303(d) require listing when water quality standards are not met or are not expected to be met even after the implementation of technology based and other controls, included where “naturally-occurring” sources impair water quality. As a result, some segments on the List, may be failing to attain standards due to “naturally-occurring” sources of pollution.

The Division recognizes that “naturally-occurring” impairments may best be resolved through the standards setting process. However, a use attainability study would be necessary for such a change in standards to be considered by the WQCC. A use attainability analysis has some similarity to a TMDL in that such a study would consider the sources of loading, and the ability to attain adopted standards. The Division recommends that in cases where specific information suggests that “naturally occurring” pollution prevents the attainment of the standards for listed segments, that such information be brought forward for consideration during the triennial review of standards. The WQCC can then consider if it is appropriate to consider such a change.

**Issue 6.** One commentor questioned the appropriateness of listing the impairment of the aquatic life use under Section 303(d). The commentor noted that the 303(d) List is intended to identify pollutants which lead to exceedances of standards, and to allocate acceptable loads of such pollutants through a TMDL.

**Response 6:** Section 303(d) requires that States identify waters that do not, or are not expected, to meet applicable water quality standards with technology-based controls alone. The standards are not defined narrowly by Federal Regulations as including only the numerical limits for pollutants, but instead are much broader and include numeric and narrative criteria, the use classifications (which include aquatic life), and antidegradation requirements [see 40 CFR 130.7(b)(3)]. The Division has chosen to list segments where the aquatic life use is impaired as determined through biological assessments made by the Colorado Division of Wildlife. The assessment methodology for such listing is discussed in Part III of the 1998 Proposed List.

**Issue 7.** Several commentors requested that the Division explicitly identify those waters that have been delisted, and the basis for such a delisting. Such an identification would avoid any potential confusion regarding the status of previously listed waters, and would provide a public record of delisted waters.

**Response 7:** The 303(d) List identifies segments which still require TMDL's. The Division believes that the 303(d) List is not the right place to account for streams which have been delisted. However, the Division does believe that it is important to have a process which identifies delisted streams which are removed from the list for any reason. The Division will supply the basis for removing segments in a letter of submittal to EPA for the 1998 list. The Division also believes that such a list is an appropriate item to be included in the 305(b) Status of Water Quality Report.

**Issue 8.** One commentor expressed many concerns about the protection of drinking water supplies through the TMDL program. The commentor criticized the lack of timeliness of TMDL efforts which has resulted in the delay of implementation of controls to improve water quality, and drinking water supplies, specifically in the Denver metropolitan area. The commentor further questioned the priority accorded to segments with exceedances of the Drinking Water Supply Classification. Additionally, the commentor stated that nonpoint sources as well as point sources must be examined in any true TMDL effort. Finally, the commentor stressed the need for additional permit limitations for constituents which are found in discharges to waters that are used for drinking water supplies.

**Response 8:** The Division agrees with many of the points expressed by this commentor, and supports the establishment of TMDL's which will protect drinking water supplies. Prioritization of TMDL's is described in, Part IV of the 1998 List and assigns high priority to segments with non-support or partial support for primary drinking water standards. The South Platte segment 14 TMDL effort is a targeted high priority, which means it is to be completed in the next two years. This is the highest priority accorded to segments for completion of a TMDL. Segments 13, 14, and 15 in the Clear Creek Basin have been listed as medium and low priorities. These priorities are due to the clean-up efforts that are already underway with CERCLA projects in the Upper Clear Creek basin. The objective of prioritization is to identify where the Division should concentrate its resources. Since clean up efforts are already underway in the Clear Creek Basin, and should result in improved water quality conditions, a medium or low priority is appropriate.

Please refer to comment Response 2 for a discussion about implementation of TMDL's to achieve standards.. The Division agrees that TMDL's must account for nonpoint source loads, and recognizes the importance of the load allocation portion of TMDL's. Finally, this commentor recommended that the Division include Total Organic Carbon (TOC) limits in discharge permits. The commentor stated that TOC serves as an indicator of unmeasured, and unregulated organic compounds, and to a lesser extent as an indicator of disinfection byproduct compounds (DBP). The Division notes that the WQCC currently has no standard for TOC. Therefore, if the commentor is interested in having the WQCD develop permit limitations for TOC it would be appropriate to petition the WQCC to consider adopting a standard for TOC.

**Issue 9:** The Division has included segments on the 1998 303(d) List based on recommendations of the US Forest Service.

**Response:** The Division was gratified to receive the extensive submission of identified segments from the US Forest Service. Clearly, the District and Regional Offices did a great deal of work to assemble the information on short notice. This information, which for most segments was highly summarized, was received only a matter of days before the Division's proposed 303(d) submission was due to the Commission for inclusion in its March Hearing Packet. The Division has placed most of these segments on the Monitoring and Evaluation List, as recommended by the Forest Service. Of the 25 segments recommended by the Forest Service to be placed on the 303(d) List, the Division, at least for purposes of the proposed list, has only included 4 segments. This is because detailed technical assessment information was provided as a basis for listing those segments. The Division is actively engaged in further discussions with the Forest Service to elicit additional assessment information, where

it is available. Therefore, several additional segments may be proposed for listing before the Commission adopts the 1998 303(d) List and it is possible that the list may be amended following its submission and approval by EPA.

The Division is particularly concerned about listing for sediment impairment. We believe that segments that are included on the list because of sediment impacts, must actually have been shown to be *not* in attainment of the narrative “free from settleable solids” standard which is inherently a two tiered test. The standard requires that (tier 1) state waters must be free from settleable solids that are (tier 2) harmful to aquatic life. The first tier of the test involves direct measurements of sediment for purposes of comparison between identified segments and appropriate reference segments. Similarly, the second tier of the test involves direct measurements of aquatic life for purposes of comparisons. While the Division (with a great deal of external assistance) has prepared specific guidance for assessing whether the “sediment narrative standard” is being attained, there are alternative methods presently in use by agencies like the Forest Service which are also valid, provided both tiers of the test are addressed. It is clear that the first tier of the test has been performed by the Forest Service for all segments which have been recommended for inclusion on the 303(d) List. It is not clear, but early indications are, that biological information is not available for most of these segments. If, indeed, this is the case, it is appropriate that they be included on the Monitoring and Evaluation List with a high priority for further assessment. Finally, several segments have been recommended for listing because of temperature impacts. The Division is also seeking clarifying information about the data pertaining to these segments.

## **B. Other Concerns**

Several commentors questioned specific segments or listings. As a result of their questions and internal review, many discharge permit listings were corrected to reflect current segmentation. Several listings were deleted due to such things as discharges being to ground water and not surface water or where only technology limits apply to the discharges. The Rocky Flats site segments were deleted since the federally enforceable cleanup agreement establishes the state water quality standards as the goal. In addition, where additional information became available, segments were re-assessed. In some cases, parameters were added and in other cases deleted from the “Impairment” column.

The List of Segments with CDPS Permits Which Expire in the Next Two Years was modified. Several of the parameters (e.g. Flow, Oil & Gas, Turbidity) listed in the “Additional Information” column in the Draft List were removed from the listings since these will not receive TMDLs. This is now Appendix D. The Division also made other minor changes to the Lists and text to improve the clarity and to correct typographical errors.

## APPENDIX A

Designated Use Support Matrix		
Degree of Designated Use Support	Water Chemistry Information	Physical and Biological Information
<b>FULLY SUPPORTING:</b> Designated uses have been attained and are supported.	The 85th percentile <sup>1</sup> data point is below the applicable chronic stream standard <sup>2</sup> . No exceedances of the acute water quality standard.	Results of physical and biological assessments indicate the use is not impaired.
<b>FULLY SUPPORTING, ALLOCATED:</b> Designated uses have been attained and are supported but the assimilative capacity of the segment has been allocated. <sup>3</sup>	The 85th percentile data point is below the applicable chronic stream standard <sup>2</sup> . No exceedances of the acute water quality standard.	Results of physical and biological assessments indicate the use is not impaired.
<b>POTENTIALLY IMPAIRED:</b> Designated uses are not materially impaired, but assessment information or segment specified water quality-based controls indicate the potential for impairment within two years.	The 85th percentile data point equals or approaches the chronic water quality standard <sup>2</sup> and data indicate a trend of deteriorating water quality which could impair uses within two years. No exceedances of the acute water quality standard.	Results of physical and biological assessments indicate the use is not impaired, but also indicate a trend of deteriorating water quality which could impair uses within two years.
<b>PARTIAL SUPPORT:</b> At least one designated use exhibits some interference, but use is not precluded.	The 85th percentile data point exceeds the chronic water quality standard <sup>2</sup> . No more than one exceedance of the acute water quality standard.	Results of physical and biological assessments indicate partial use impairment.
<b>NOT SUPPORTING:</b> At least one designated use is materially impaired. Use may be present but at significantly reduced levels from full support in all or some portions of the segment.	The 75th percentile data point exceeds the chronic water quality standard <sup>4</sup> . Occasional or frequent exceedances of the acute water quality standard.	Results of physical and biological assessments indicate use impairment.

Notes: <sup>1</sup> “Percentile ” The values obtained by  $(m \div n) \times 100$ , where m = the rank of observation in the data set ordered from high (m=n) to low (m=1); and n = the number of data points.

<sup>2</sup> The 50th percentile point is used for metals in the total recoverable form (eg Iron).

<sup>3</sup> For segments which have domestic WWTP discharges, this full allocation may occur some time in the 20-yr planning horizon. Current discharges may not reach their full allocation.

<sup>4</sup> The 45th percentile point is used for metals in the total recoverable form (eg Iron).

## APPENDIX B

### Explanation and Key to the Water Body Identification (WBID) System

The WBID system is the primary way the WQCD identifies and segregates differing water bodies (streams, lakes, and wetlands) from each other in the State of Colorado. Within the 8-10 character alphanumeric WBID are included the state, major river basin, minor river basin, and segment number. In the state of Colorado all WBIDs start out with the letters CO signifying Colorado. The third and fourth letters signify the major stream basin (i.e. Arkansas, Rio Grande, Colorado, South Platte, etc.). The fifth and sixth letters signify the minor stream basin (i.e. Upper, Middle or Lower part, Clear Ck., Cherry Ck., Boulder Ck., etc.). The seventh through tenth numbers, and sometimes letters (L = lakes, S = streams, or A, B, and C), designate the specific segment number. These segment numbers are the same as those found in the Classifications and Numeric Standards for each basin.

Example: COARUA01A = Colorado, Arkansas Basin, Upper Arkansas River Basin  
Segment # 1A

The names of the tributaries of the minor stream basins do not utilize their water body names in the WBID, and the segment number is used to delineate these water bodies. The description of the water bodies identified by each WBID are also the same as the Segment Descriptions in the Classifications and Numeric Standards. Below is a key to the WBIDs used by the WQCD.

A) Letters one and two

B) Letters two and three

C) Letters four and five

A) **CO** = Colorado Basin

B) **SP** = South Platte Basin

C) **US** = Upper South Platte River Basin

**BE** = Bear Creek Basin

**CL** = Clear Creek Basin

**BD** = Big Dry Creek Basin

**BO** = Boulder Creek Basin

**SV** = St Vrain Creek Basin

**MS** = Middle South Platte River Basin

**BT** = Big Thompson River Basin

**CP** = Cache La Poudre River Basin

**LA** = Laramie River Basin

**LS** = Lower South Platte River Basin

**RE** = Republican River Basin



- B) UC = Upper Colorado and North Platte Basin**
  - C) UC = Upper Colorado River Basin**
  - BL = Blue River Basin**
  - EA = Eagle River Basin**
  - RF = Roaring Fork River Basin**
  - NP = North Platte River Basin**
  - YA = Yampa River Basin**
- B) LC = Lower Colorado Basin**
  - C) LY = Lower Yampa/Green River Basin**
  - WH = White River Basin**
  - LC = Lower Colorado river Basin**
- B) AR = Arkansas Basin**
  - C) UA = Upper Arkansas River Basin**
  - MA = Middle Arkansas River Basin**
  - FO = Fountain Creek Basin**
  - LA = Lower Arkansas River Basin**
  - CI = Cimarron River Basin**
- B) RG = Rio Grande Basin**
  - C) RG = RioGrande River Basin**
  - AL = Alamosa River/LaJara Creek/Conejos Creek Basin**
  - CB = Closed Basin - San Luis Valley Basin**
- B) GU = Gunnison and Lower Dolores River Basins**
  - C) UG = Upper Gunnison River Basin**
  - NF = North Fork of the Gunnison River Basin**
  - UN = Uncompahgre River Basin**
  - LG = Lower Gunnison River Basin**
  - SM = San Miguel River Basin**
  - LD = Lower Dolores River Basin**
- B) SJ = San Juan River and Dolores River Basins**
  - C) SJ = San Juan River Basin**
  - PI = Piedra River Basin**
  - PN = Los Pinos River Basin**
  - AF = Animas and Florida Rivers Basin**
  - LP = La Plata River, Mancos River, McElmo Creek and San Juan River Basins in Montezuma and Dolores Counties**
  - DO = Dolores River Basin**

## Appendix C

### MONITORING AND EVALUATION LIST

During the development of the 1998 303(d) List, the Division found that there numerous cases where there is reason to suspect water quality problems on stream segments, but uncertainty exists regarding one or more factors. In some cases, segments identified in the 1996 303(d) List lacked information to support the reason for requiring a TMDL. In other situations, reports of water quality problems did not meet the credible data criteria for the 1998 List. A Monitoring and Evaluation List was developed as an administrative tool to keep track of these segments; preserve and acknowledge the suspicions; and over time, address the uncertainty.

The Monitoring and Evaluation List includes segments with a number of kinds of uncertainty. The first situation is where there is a need to evaluate the effectiveness of control measures to determine if water quality standards will be met in the future (this is particularly the case for CERCLA sites).

The second situation is where there is a need to evaluate data or current conditions to determine whether standards are exceeded or uses are not supported. For example, in the So. Platte basin, a number of class 2 aquatic life segments no longer support one or two sensitive native fish species which were present in the past when these segments were classified. However, the division does not interpret this situation as use impairment. This is because of the manner in which the "class 2" classification is defined in the Basic Standards regulations. Class 2 streams are not expected to support a wide variety of biota, including sensitive species. However, it has become a matter of state interest to focus attention and resources on areas where native species are known to be in decline.

The Division will enlist the help of other agencies and entities to collect information and work towards resolving the uncertainty about the listed segments as resources allow. The Colorado Division of Wildlife, U. S. Forest Service, Denver Regional Council of Governments and Bureau of Land Management have all indicated some willingness to participate in this effort. The Monitoring and Evaluation List is presented as Appendix C. The column headings are described in the text preceding the 303(d) List (Table 1) in the body of the text

## Appendix D

### SEGMENTS WITH CDPS PERMITS WHICH EXPIRE IN THE NEXT TWO YEARS

The following list contains water segments with expiring water quality-based permits which are expected to be reissued in the next two years. The segments contained in this Appendix are *not* part of the 1998 303(d) List of segments still requiring TMDLs (Table 1). This Appendix D is intended for informational purposes only and does not trigger any federal or state requirements. For some of the segments listed, it is possible that when the Division renews a permit associated with a particular segment, the Division will find that the segment is not impaired or that an adequate, approved TMDL is already in place, and therefore, that a WLA/TMDL analysis is *not* required to recalculate permit limits. For other segments, information may become available, such as through dilution calculations or predictive modeling, that standards for a segment may be exceeded *and* that no adequate, approved TMDL exists. In these cases of non-attainment coupled with no existing TMDL, waste load allocations and effluent limits must be established or modified in order to provide adequate water quality protection. These TMDLs will be submitted to EPA for review and approval.