

SECTION 303(d) LISTING METHODOLOGY 2006 Listing Cycle

I. INTRODUCTION

Section 303(d) of the federal Clean Water Act requires states to identify waters where effluent limitations mandated by Section 301(b)(1)(A) and Section 301(b)(1)(B) are not stringent enough to attain water quality standards. This may include waters where the standards are being exceeded partially or totally as a consequence of nonpoint sources of pollution, including natural sources. These waters are compiled into the Section 303(d) list of impaired waters. The Colorado Section 303(d) List identifies those water bodies, which are impaired by one or more pollutants. Total Maximum Daily Loads ("TMDLs") are required for each listed water body. The 2006 Section 303(d) List is roughly equivalent to Category 5 waters in EPA's March 9, 2004 *Working Draft Guidance for the 2006 Integrated Assessment and Reporting on the Quality of States' Waters* ("Integrated Reporting Guidance").

The 2006 Monitoring and Evaluation List ("M&E List") will identify water bodies where there is reason to suspect water quality problems, but there is also uncertainty regarding one or more factors, such as the representative nature of the data. Water bodies that are impaired for which it is unclear whether the cause of impairment is attributable to pollutants as opposed to pollution will also be placed on the M&E List. The M&E List will contain water bodies that would be reflected in Category 2 or 3 of EPA's Integrated Reporting Guidance.

Waters that are on neither the Section 303(d) List nor the M&E List are either:

- Attaining their uses and standards (EPA's Category 1)
- Have not been fully assessed (EPA's Category 2 or 3)
- Impaired, but do not require a TMDL (EPA's Category 4)

EPA's Category 4 includes impaired waterbodies for which TMDLs have been completed, but uses are not yet attained; impaired waterbodies for which other required control mechanisms are expected to address all waterbody-pollutant combinations and will attain water quality standards in a reasonable period of time.

Section II of this document identifies the process that the Water Quality Control Division ("Division") and Water Quality Control Commission ("Commission") intend to follow in establishing the Section 303(d) and M&E Lists. Section III contains the Listing Criteria and Section IV contains the Prioritization Criteria.

This document is intended to provide a framework for the determination of attainment or non-attainment of assigned numeric water quality standards and designated uses. However, there may be site-specific considerations not identified in the Listing Methodology that are appropriately factored into the final listing decision. Generally, the Division's recommendation to list or not list a water will be based upon stringent

application of the Listing Methodology criteria. Parties will have the opportunity to present mitigating evidence for the Commission's consideration as part of the rulemaking hearing process.

II. LISTING PROCESS

A. Development of the Methodology

The Division has solicited public participation to develop the 2006 Section 303(d) Listing Methodology through several means. The methodology for development of the 2004 Lists was used as a starting point. This earlier version was developed in a public process. Work group meetings were held on October 24, 2004, November 29, 2004, January 10, 2005, and February 23, 2005 to address the needs of the 2006 listing cycle.

B. Process for Adopting the Methodology

The process for formal consideration and acceptance of the Listing Methodology was discussed at an April 2003 Commission meeting. The Commission at that time decided to convene an Administrative Action Hearing process for adoption of the listing Methodology. The following schedule is anticipated for development and finalization of the 2006 Section 303(d) Listing Methodology:

- The Division proposal will be available for public review by about March 1, 2005 as an attachment to the notice of the May 9, 2005 public hearing on the Listing Methodology. It will also be available on the Commission's website, emailed to participants in the Workgroup, and the notice will be published in the Monthly Water Quality Information Bulletin.
- The notice will establish a deadline of March 31, 2005 for written comments on the proposed Listing Methodology, including any recommendations for alternative language in the document. The comments received will be posted on the Commission's web site and copies will be available in the Commission Office.
- The notice will also establish a deadline of April 21, 2005 for any written rebuttal comments in response to the March 31 comments. These rebuttal comments will be posted on the Commission's web site and copies will be available in the Commission Office.
- If the Division believes that the initial written comments and/or the rebuttal comments warrant revisions to the proposed Listing Methodology, it will submit a revised proposal by April 27, 2005. This revised proposal will be emailed to this work group and other distribution lists, posted on the Commission's web site and copies will be available in the Commission Office.
- No other written materials will be accepted for this hearing except by leave of the Commission, upon written explanation as to why such materials could not have been submitted in accordance with the above deadlines.

- An opportunity will be provided at the May hearing for any interested persons to provide oral comments regarding the proposed Listing Methodology.
- At the conclusion of the May Administrative Action Hearing, the Commission will modify, as necessary, and approve the final 2006 Section 303(d) Listing Methodology.

C. Process for Adopting the Section 303(d) and Monitoring & Evaluation Lists

The process for formal consideration and adoption of the Section 303(d) and M&E Lists was also discussed at the April 2003 Commission meeting. The Commission decided that the Lists would be adopted through a public rulemaking process, with the following steps:

- Any person that has data or other information that it wishes the Division to consider in determining which water segments and parameters to propose for listing or delisting (for either the Section 303(d) List or the M&E List) must provide that information to the Division by August 1, 2005. The Division will formally notice its solicitation of data for consideration in development of the 2006 Section 303(d) List in May 2005.
- By September 1, 2005, the Division will release a list of water segments and parameters that it definitely intends to propose for inclusion on the 2006 Section 303(d) List.
- Any person who wishes to propose the listing of water segments/parameters that may not be proposed by the Division must submit any such proposal, with accompanying proposed statement of basis and purpose language, by September 19, 2005.
- A draft rulemaking hearing notice, with the Division's and any external proposals attached, will be prepared by the Commission Office, for inclusion in the Commission's October meeting packets. The draft notice and proposals will also be posted on the Commission's web site by about October 3, 2005, and will be emailed to the work group and other distribution lists.
- The Commission will review the draft notice and proposals at its October 11, 2005 regular meeting, and approve them for filing.
- The rulemaking hearing notice and proposals will be filed with the Secretary of State by October 14, 2005. The final notice and proposals will also be posted on the Commission's web site by about this date, and will be emailed to the work group and other distribution lists.
- The rulemaking notice will include contact information for persons wishing to get more detailed information regarding the data or other information supporting the listing proposals advanced by the Division or other persons.
- The rulemaking hearing notice and proposal will be published in the November 10, 2005 Colorado Register.
- The notice will establish a party status deadline of about November 29, 2005.
- Written proponent's prehearing statements will be due by December 6, 2005.

- Responsive Prehearing Statements and any evidence (data and any other relevant information) regarding the appropriateness of listing the segments noticed for potential listing will be due by January 4, 2006.
- This January 4, 2006 deadline for the submission of evidence (data and any other relevant information) will apply to any information from any interested persons, not just those with party status.
- A prehearing conference will be held on January 11, 2006.
- The notice will provide an opportunity for the submission of written rebuttal statements, in response to the January 4 submissions, by February 1, 2006. No new data or other new factual information will be accepted after January 4 but the rebuttal statements may contain different analyses and perspectives regarding what the submitted information show regarding attainment and the appropriateness of listing.
- Any data or other information that is not submitted in accordance with the above deadlines will be considered in the next listing cycle.
- The Commission's rulemaking hearing will be held on February 13 and/or 14, 2006. At the conclusion of the hearing, the Commission will approve the 2006 Section 303(d) List and the Monitoring and Evaluation List as rules (Regulation Nos. 93 and 94, respectively).

D. Process for Revising the Lists

In general, removal of waterbodies/pollutants from the Section 303(d) List is subject to the same requirements as those utilized for addition to the List. Removal from the List is considered appropriate where new information is developed which indicates that water quality standards are being met and/or designated uses are being attained. Considerations include more recent or more accurate data (for instance, chemical data generated using clean sampling/analytical methodologies), more sophisticated analysis using a calibrated model, identification of deficiencies in the original assessment or changes in standards, guidance or policy.

Sampling frequency and number of sampling events should be similar to, or greater than, that which was used as a basis to list the segment (an exception would be in the instance where data collected utilizing conventional methods is supplanted by clean-methods data). Assessments demonstrating attainment of designated uses should provide documentation of a nature similar to that used to support the listing decision. Attainment of water quality standards and uses will result in removal of the waterbody, or one or more listed parameters, from the list.

As described in EPA's 2004 draft Integrated Reporting Guidance, "good cause" for removing a water body (or water body pollutant combination) from the List includes:

- The assessment and interpretation of more recent or more accurate data demonstrate that the applicable classified uses and criteria are being met
- The adoption of revised water quality standards and/or uses such that the water is now in attainment of the revised standards and/or uses.
- The results of more sophisticated water quality modeling demonstrate that the applicable classified uses and criteria are being met.
- Demonstration that flaws in the original analysis of data and information led to the water body pollutant combination being incorrectly listed.
- Development of a new listing methodology consistent with the State water quality standards and classifications and federal listing requirements, and a reassessment of the data that led to the prior listing, concluding that the water body is no longer impaired.
- Demonstration that there are effluent limitations required by state or local authorities that are more stringent than technology-based effluent limitations that will result in attainment of classified uses and criteria.
- Demonstration that there are other pollution control requirements required by State, local, or federal authorities that will result in attainment of classified uses and criteria within a reasonable time.
- Documentation that the State included on a previous Section 303(d) List an impaired water that was not required to be listed by EPA regulation, e.g. waters where there is no pollutant associated with the impairment.
- Approval or establishment by EPA of a TMDL since the last Section 303(d) List.

Barring unforeseen circumstances, the Division will only propose to revise the Lists during the regularly scheduled reviews (currently biennially). Other interested persons may petition the Commission at any time to request a rulemaking hearing to revise the Lists (either additions or deletions). However, such hearing will be held only upon a showing that failing to either add a segment to the list or delete a segment from the list prior to the next scheduled review will result in a substantial hardship.

III. LISTING CRITERIA

This Listing Methodology sets forth the criteria that generally will be used to make decisions regarding which waters to include on the 2006 Section 303(d) List and the 2006 M&E List. However, this methodology is not being adopted by the Commission as a rule. The Commission will not be bound by the criteria set forth in the Listing Methodology in making individual listing decisions if it determines on a site-specific basis that an alternative approach provides a more appropriate method for assessing attainment of water quality classifications and standards in a particular circumstance.

A. Existing and Readily Available Data

In determining whether data and information is existing and readily available, the Division will take into account such data and information as it has utilized in the preparation of those identification processes, calculations and models referenced in 40 CFR §130.7(a)(5)(i), (ii) and (iv) and that credible data and information presented in a readily usable format and submitted in reports provided to the Division as referenced in 40 CFR §130.7(a)(5)(iii). In addition, the Division will accept and take into consideration credible data and information that is timely submitted to the Division as part of the listing process, whether submitted by EPA or any other interested party. The Division will also continue to independently collect and analyze new data on a rotating basin basis as part of its triennial review efforts and will utilize such data and information in making Listing determinations. Existing data, which is not brought forward through one of the above mechanisms or otherwise presented to the Division in accordance with the schedule, set out in Section II. C, above, will not be treated as "readily available" for purposes of making listing decisions. Such information will be considered in the next listing cycle.

Due to Division resource limitations, it is important that data submitted for consideration in the 303(d) List development process be in a form that is amenable to existing Division data management capabilities. Chemical data that is submitted for consideration in the List development process should be submitted in an electronic, STORET compatible format. Physical and biological data should be submitted in a common electronic format that is amenable to statistical manipulation. Recommended data reporting templates may be found in Attachment A of this document. The Division should be consulted regarding alternate formats. Data that is submitted in hard copy or alternate electronic format will be considered subject to resource limitations imposed upon Division staff.

The assessment process described is intended to provide continuity with similar assessments done to support the standards review process as well as to efficiently utilize Division resources. The Division uses a "rotating basin" approach, approved by EPA, for periodic standards review and coordinates water quality monitoring and assessment to support the review. The following schedule sets out the relationship between the basin reviews and when assessments generated by those reviews will be incorporated in the 303(d) Listing process.

COORDINATION BETWEEN THE STANDARDS REVIEW SCHEDULE AND SECTION 303(d) LIST CYCLE			
River Basins (Regulation Number)	Data Collection Effort	Standards Rulemaking Hearing	Assessments Incorporated into 303(d) List Cycle
South Platte (#38)	fall 2002 - fall 2003	July 2004	2006
San Juan, Dolores & Gunnison (#34 & #35)	fall 2004 - fall 2005	June 2006	2008
Arkansas & Rio Grande (#32 & #36)	fall 2005 - fall 2006	June 2007	2008
Colorado Basin (#33 & #37)	fall 2006 - fall 2007	June 2008	2010

B. Credible Evidence

The water quality assessment process depends on sufficient and reliable data. Listing decisions not supported by adequate data are potentially flawed. The listing criteria are intended to assure that only those waterbodies for which adequate documentation of non-attainment is available are included on the Section 303(d) List. Waterbodies for which there is evidence to suggest impairment, but for which such documentation does not meet the standards for credible evidence, will be assigned to the M&E List unless good cause is shown.

Water bodies may be included on the Section 303(d) List based on an evaluation of biological, chemical or physical data. The Division will consider proposing to list a water body based upon consideration of all chemical, physical, and biological information that meets established sampling, analytical, and interpretive protocols. Considerations include a review of the sampling and analytical methods employed. Factors to be considered include analytical detection limits, sample size (see section D.2.i), spatial and temporal distribution (C.5), variability within the data set, and the use of clean methodologies. Listing is often based upon chemical data alone, subject to the data interpretation criteria identified within this document. Listing based upon biological or physical data in the absence of accompanying chemical data requires that such information clearly demonstrate use impairment. Representative data of each type will be sought and utilized whenever possible, especially where use impairment is the potential basis for the listing decision.

The following guidelines are used to evaluate the adequacy of water quality information as a basis to support listing a waterbody.

1. Information must be available to describe the methods used for sample collection, field and laboratory analysis. Persons submitting data during the public comment period must either provide the relevant quality assurance

documentation with the submittal or assure that the documentation is available for the Division to review.

2. Chemical data should be supported by a Sampling and Analysis Plan (SAP), which identifies sampling locations, contains analytical method references, and incorporates Quality Assurance/Quality Control (QA/QC) provisions. QA/QC documentation may include references to a standard QA/QC protocol. Division QA/QC protocols may be obtained via the Division's website or as hard copy. During review of chemical data submitted for evaluation, the Division may require submittal of the SAP, QA/QC protocols and the results of QA/QC efforts. The Division will provide any such information to other parties upon request.

3. In-situ bioassay test results, or other ambient toxicity test results, must demonstrate adverse effects as measured by a statistically significant response relative to a representative reference or control. Inherent variability in toxicity testing results must be adequately taken into account. Listing decisions based upon toxicity test results require that any such results be corroborated by biological information clearly demonstrating impacts to aquatic community health, composition, or productivity. In general, interpretation of toxicity test results will conform to applicable portions of the Division documents Laboratory Guidelines for Conducting Whole Effluent Toxicity Tests (1998) and the Biomonitoring Guidance Document (updated 2002). Both documents may be obtained from the Division in hard copy or electronically on the Division web site.

4. Physical and biological assessments must be performed in accordance with scientifically sound methodologies. All such assessments should be performed by an observer who has training and experience in performing such evaluations. Assessment reports should include a statement of the observer's qualifications and should reference the protocols utilized. Any departures from referenced protocols and methodologies should be documented and the basis for any such departure addressed.

Though currently under review and subject to future revision, a specific method has been developed for use in demonstrating attainment or non-attainment of assigned aquatic life uses due to sediment deposition. The document titled "Implementation Guidance for Determining Sediment Deposition Impacts to Aquatic Life in Streams and Rivers"; WQCC Policy 98-1 is available either in hard copy or electronically on the Colorado Water Quality Control Commission web site.

The Division will generally accept methodologies and protocols in use by the US Geological Survey, US Forest Service, US Bureau of Land Management, US Environmental Protection Agency, Colorado Division of Wildlife, or others, when well-documented, widely available and suitable for their intended purpose. The Division's determination of the acceptability or unacceptability of any such

protocol will be included in the Division's discussion of data sources that the Division includes in the Section 303(d) List.

5. In general, information and data should be no older than 5 years. Readily available older data will be used on a case-by-case basis if such data is representative of current conditions and reflects adherence to acceptable protocols, or if the older data is used with newer data to demonstrate water quality trends. Parties submitting older data they wish considered should include an explanation of why such data continues to reflect current water quality conditions.

6. Anecdotal information, in the absence of chemical, physical, or biological data, will not in and of itself be adequate to support a listing decision unless such information provides clear and convincing evidence demonstrating non-attainment. Anecdotal information includes, but is not limited to fishing logs, field logs, and historical or archival documents.

7. Data collected during or immediately after temporary events influencing the waterbody that are not representative of normal conditions shall typically be discounted in making the listing decision. For example, low frequency storm events (e.g. 100 year events) which scour the stream, leading to diminished aquatic life use, or accidental spills of toxic chemicals would not be a basis upon which to list the affected segment. However, such events may be considered as a basis for listing in instances where non-attainment of standards arises from a reversible source of pollutants.

C. Data Interpretation

The water quality assessment process considers the numeric and narrative standards assigned to a segment, as well as the assigned use classifications. Numeric standards are identified for a given pollutant and are expressed as a threshold value or as an acceptable range of values. Determination of attainment/non-attainment of pollutant specific numeric standards is a relatively straightforward statistical process.

Narrative standards describe threshold conditions that, if exceeded, result in unacceptable water quality conditions. Narrative standards that are applied to all surface waters in Colorado address sediment, floatables, film, odor, taste, color, toxins, and excessive nutrients. Exceedance of narrative standards is more difficult to ascertain, as there are typically no quantifiable expressions of parameter concentration or loading that result in non-attainment. It is often the impact of pollution or of a pollutant, and not the pollutant itself, which is observed.

Use classifications identify existing or potential uses of the surface water segment. These include aquatic life, water supply, recreation and agricultural uses. Specific numeric standards are attached to a given use classification.

Assignment of an aquatic life use classification to a segment typically results in assignment of a related suite of numeric standards. Attainment of numeric standards has served as a surrogate measure indicating attainment of the assigned use classification. However, non-attainment of an assigned use classification, as with narrative standards, may result from causes or parameters other than those assigned numeric standards.

1. Chemical Data - General

The Division document *Guidance on Data Requirements and Data Interpretation Methods Used in Stream Standards and Classification Proceedings (1993)* will be used for data assessment for list development. This document is available in hard copy or electronically on the Division's website. Additional criteria utilized in assessment of data developed for lakes and reservoirs are also noted.

- a. Attainment of chronic chemical standards, in both streams and rivers, and lakes and reservoir systems, is based upon the 85th percentile of the ranked data, except as otherwise noted below. Percentile values are calculated by ranking individual data points in order of magnitude. Hardness-based metal standards are evaluated by comparing the 85th percentile against the assigned hardness-based equation using either the mean hardness or when available, paired hardness and concentration data. Total recoverable metals are evaluated against the median value, or the 50th percentile. Dissolved metals are evaluated against the 85th percentile. Dissolved oxygen ("DO") is evaluated at the 15th percentile. Minima pH is evaluated against the 15th percentile, maxima at the 85th.
- b. Acute standards are evaluated by comparison of single sample values to the assigned standard.
- c. Sample data that are below detection limits will, in general (except coliform data), be treated as zeroes for assessment of attainment.
- d. Attainment of coliform standards is assessed using the geometric mean. Notwithstanding the criterion at item c. above, coliform data that is reported as less than detect will be treated as a value of one to allow calculation of a geometric mean. For evaluation of ambient water quality data, in the event of a conflict between attainment status based upon fecal coliform and E. coli data, the E. coli data shall determine attainment.
- e. Assessment techniques will be used that seek to reduce the effects of biased sampling. For example, the median of multiple samples taken within a seven-day period will be used to represent that time period, and information gathered during synoptic (sampling at many locations at the

same time) sampling events may be considered in a separate assessment so as not to bias the conclusions.

2. Chemical Data - Lakes and Reservoirs

Data submitted to support listing decisions for lakes and reservoirs must be representative of the waterbody and account for seasonal and diel variation. The Division may require submittal of a Sampling and Analysis Plan, or other documentation, to assure sample results are representative for these conditions.

a. Assessment of DO will generally require that vertical profile data be developed for DO and temperature. Vertical profile data for temperature will be used to determine thermal stratification. DO criteria are applied to the epilimnion and metalimnion strata in lakes and reservoirs, unless otherwise stated in applicable control regulations. (DO in the hypolimnion may, due to natural conditions, be less than specified criteria). Only one exceedance is counted where more than one DO measurement in the profile (epilimnion and metalimnion) does not meet the criterion.

b. DO measurements from the entire water column (except for the bottom measurement, generally, the lowermost meter of the profile) will be used in a mixed lake or reservoir. Individual DO measurements are compared to the criterion.

c. Individual pH measurements are compared to minimum and maximum criteria.

d. Individual measurements for all other chemical parameters are compared to the appropriate numeric standards. When available, volumetrically weighted measurements will be utilized.

3. Biological and Physical Data

Biological and/or physical assessment protocols may support a determination of non-attainment of numeric standards or, alternately, non-attainment of narrative standards and classified uses. The Division, in interpreting physical and biological information, will give site-specific consideration to the applicability of the protocols in use and available metadata gathered to validate the information generated, the extent and nature of expertise of the observer, and the relative weight of the evidence presented.

Physical and biological assessments will typically consider measurable conditions or features within an affected segment in comparison to an "expected condition". The expected condition generally will be based upon

a selected reference condition. Identification of reference conditions requires consideration of the level of disturbance (minimal), location (upstream, downstream, or within a separate drainage), historical condition, expected condition based on modeling or general expectations for highly managed systems, or other fair and reasonable comparison. Determination of reference conditions based upon sampling/assessment of multiple reference sites, when possible, is preferable but not required. Impairment of aquatic life use classifications or narrative toxicity standards will be demonstrated, for the limited purpose of listing, when either the physical/habitat data or biological community metrics reflect a condition that is significantly less than reference condition.

In instances where aquatic life use impairment is the result of excessive sediment deposition, the interpretation of such data will be as outlined in the Implementation Guidance for Determining Sediment Deposition Impacts to Aquatic Life in Streams and Rivers, Commission Policy 98-1.

4. Assessment of Temperature Data

Attainment of the temperature standard is based on a Maximum Weekly Average Temperature (MWAT). The MWAT is defined as “the mathematical mean of multiple, equally spaced, daily temperatures over a 7-day consecutive period.” MWAT are not to be overlapped, i.e. temperature data used in the calculation of one exceedance of an MWAT will not be used in any other exceedance calculation.

The temperature standard is evaluated against representative instream data. Temperature varies within a reach both spatially and temporally, e.g. summer and winter. Data should be taken from a location in the stream that is representative of the reach at the time the data are collected. For example, data should not be taken in locations that may be substantially warmer or cooler than the rest of the segment – e.g. backwater habitats, eddies, deep pools, or refugia.

5. Assessment of "All Tributary " segments

Generally, water quality data from multiple data sources and sampling sites is aggregated by segment for assessment of the segment as a whole. If there is some reason to believe that the impairment may not be representative of the entire segment, the Division will investigate further to determine whether the impairment is widespread or limited to individual portions of the segment such as specific tributaries or reaches. Typically, if all of the data from multiple tributaries within a segment indicate non-attainment, the Division will recommend that the entire segment be listed. Alternately, if data from one or more tributaries indicates attainment, the Division will propose listing of only those tributaries for which data

indicates non-attainment. Based upon this assessment, either an entire segment or only a portion thereof may be proposed for listing.

D. Determination of Impairment

Application of chemical, physical and biological information in listing determinations requires consideration of the scientific rigor of the methodologies utilized to develop any such information, and the strength of that information. Rigor refers to the demonstrated validity of sampling, analytical, and assessment protocols and the availability of meta-data in support of those protocols. Strength refers to the quantity of data and the extent to which such data demonstrates clear and convincing evidence of attainment or non-attainment of standards.

Availability of physical or biological data indicating use impairment may also be used to support listing when chemical data is otherwise insufficient in and of itself. Greater weight is given to data that provides direct, quantifiable documentation of impairment as opposed to data developed using surrogate indicators or parameters.

1. Impairment Where the Pollutant is Unknown

The federal Clean Water Act defines *pollution* as “the man-made or man-induced alteration of the chemical, physical, biological, and radiological integrity of water”, CWA §502(19). Pollution may result from the introduction of pollutants or from causative factors other than pollutants. *Pollutants* are defined in the federal Clean Water Act at §502(6) to include “dredged spoil, solid waste, incinerator residue, sewage, garbage, sewage sludge, munitions, chemical wastes, biological materials, radioactive materials (except those regulated under Atomic Energy Act of 1954, as amended), heat, wrecked or discarded equipment, rock, sand, cellar dirt, and industrial, municipal, and agricultural waste discharged into water”. Notwithstanding the federal definition cited above, certain radiological constituents are also regulated under the State’s Water Quality Control Act and are considered to be pollutants.

TMDL development is required in those instances where one or more pollutants are the cause of non-attainment. TMDLs are not required where the impairment is the result of pollution that is not a pollutant. Water bodies that are impaired but it is unclear whether the cause of impairment is attributable to pollutants as opposed to pollution will be placed on the M&E List.

To the extent it is known that a “pollutant” is the cause of the impairment, but the identity of the specific pollutant is not yet known, the water body segment will be listed. However, the fact that the water body is so listed will not result in a prohibition of new or expanded discharges into the

segment until the pollutant is identified. Permits may be affected once the pollutant is identified.

2. Impairment of Numeric Standards

Attainment of numeric chemical standards is assessed by comparison of ambient water quality against assigned standards. Assessment of chemical data considers attainment of both chronic and acute aquatic life use-based chemical standards, where both chronic and acute standards have been assigned to a given waterbody.

a. Chronic Standards: Values that fall outside of the percentile ranges described in Section III.C.1.a. Chemical Data - General, indicate non-attainment of chronic standards.

b. Acute Standards: Acute standards are assessed by comparison of individual sample values against the standard. In general, data indicates non-attainment of an acute standard if the standard is exceeded more frequently than once in three years.

c. Agriculture and Domestic Water Supply Use-based Standards: These standards are expressed in terms of either 1-day or 30-day averaging periods (comparable to acute and chronic-based standards, respectively) and are assessed by comparison of the percentile ranges described in Section III.C.1.a. Chemical Data - General against the standard. Because total species data is often not available for many metals, an assessment comparing the 50th percentile value of the dissolved metals fraction against the standard may be used to determine attainment for standards expressed as 30-day averages. Attainment of standards expressed as 1-day averages may be assessed by comparison of the dissolved metals fraction against the standard.

d. Nitrate/Nitrite: Assessment of nitrate and/or nitrite Drinking Water Supply Use-based standards will consider the combined total or individual ambient concentrations at the point of intake to a domestic water supply. Exceedences of nitrite or nitrate standard, if at locations other than the point of intake in a segment, may lead to inclusion of the segment on the M&E List.

e. Temperature: In cold water streams and lakes the MWAT is not to exceed the applicable numeric standard more than 1 time in a three-year period. In warm water streams and lakes the MWAT is not to exceed the MWAT of 30°C more than 1 time in a three-year period.

f. Vertical Profiles: When attainment of lakes and reservoirs is assessed using vertical profile data, as for DO, each sampling event, i.e.

all profiles sampled during a single day, will be treated as a single sample. If vertical profile data are not provided, the data from individual samples will be pooled. Regardless of the number of individual DO or pH measurements exceeding numeric criteria, a sampling event will be counted as a single exceedance.

g. Site-specific Standards: Some lakes and reservoirs have been assigned site-specific standards for nutrients (total phosphorus), dissolved oxygen, and chlorophyll a. These presently include Dillon Reservoir, Cherry Creek Reservoir, Chatfield Reservoir, and Bear Creek Reservoir. Lakes and reservoirs are evaluated on an annual basis for compliance with site-specific standards. The period for application of site-specific standards usually is defined as the growing season, and is described in the statement of basis and purpose for that standard. For example, growing season data are used to determine compliance with standards for phosphorus. Any determination of site-specific standards attainment must be based upon application of such standards in a manner consistent with the applicable control regulation.

h. Portions of segments: If evaluation of a data set for an entire segment does not indicate impairment, but specific location(s) within the segment consistently exceed acute or chronic standards, the specific portion of the segment may be listed.

i. Temporary Modifications: When temporary modifications of numeric standards have been adopted, attainment is assessed against the underlying standard, including those instances where the decision to assign a temporary modification is based specifically upon significant uncertainty as to the appropriate underlying standard (see section 31.7(3)(a)(iii) of the Basic Standards).

j. Sample size: Data sets comprised of three or fewer samples that indicate impairment of the chronic standard will result in placement on the M&E List. Data sets comprised of four to ten samples where there is overwhelming evidence of non-attainment or data is supported by biological or physical evidence indicating non-attainment, or data sets of more than ten samples indicating any degree of non-attainment, will result in inclusion on the 303(d) List unless it is determined that the data is not representative (see paragraph below).

k. Overwhelming Evidence: Overwhelming evidence consists of sufficient and credible data that clearly demonstrate that a water body's designated beneficial uses are impaired. Overwhelming evidence is demonstrated when representative data (data that accounts for temporal and spatial variation) indicates an exceedance of numeric water quality standards by more than 50 percent in magnitude or frequency.

l. Sample size - Lakes and Reservoirs: Data demonstrating impairment of numeric standards in lakes and reservoirs must typically include at least two years of sample results (12 sampling events minimum) representative of seasonal and diel variation. Impairment may be demonstrated with a lesser data set in instances where acute conditions result in overwhelming evidence of non-attainment (major fish kills, etc.). Lacking such overwhelming evidence, evidence of non-attainment of standards when demonstrated by fewer data will generally result in placement on the M&E List.

m. Representative Data: Factors to consider when determining whether or not data is representative include: spatial distribution of sampling locations within the water body/segment, temporal variability of the data, changes in the watershed (i.e. changes in predominant land use, presence of new discharges, source removal or remediation projects), age of the data, method detection limits, bias inherent in sampling design, etc.

3. Impairment of Narrative Standards and Classified Uses

Impairment of narrative standards and classified uses may be supported by chemical data and/or information generated by biological and/or physical assessments. In instances where a determination of impairment is based solely upon biological and/or physical assessments, such assessments must provide clear and convincing evidence of non-attainment. 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 condition. When such data do not indicate specific pollutant(s) causing non-attainment, the Division will recommend placing the segment on the M&E List for further study.

For water supply uses, the Division will consider chemical data, biological and/or physical assessments that provide clear and convincing evidence of non-attainment. Such impairment may be demonstrated by chemical data documented at levels toxic to humans. The Division will utilize Commission Policy 96-2, Human Health-Based Water Quality Criteria and Standards, in any determination of impairment based upon such information. Impairment decisions may also be supported by biological and physical data presenting overwhelming evidence of impairment due to color, taste and odor.

In-situ bioassay, or other ambient toxicity test results which demonstrate statistically significant lethal or sub-lethal adverse effects and which are supported by biological information demonstrating adverse impacts to

aquatic community health, composition, or productivity, in comparison to an appropriate reference condition, will result in a decision of impairment. In general, interpretation of toxicity test results will conform to applicable portions of the Laboratory Guidelines for Conducting Whole Effluent Toxicity Tests (WQCD, 1998) and the Biomonitoring Guidance Document (WQCD, 2002).

For lakes and reservoirs, impairment may be demonstrated where acute conditions (typically low DO levels) result in significant fish kills. Fish kills associated with accidental spills or isolated unauthorized discharges of toxics will not typically be considered a basis for listing.

4. Listing Based on Fish Consumption Advisories (FCA)

Relative to the use of fish consumption advisories as a basis for listing, the Division is currently in the process of re-examining both the technical bases for, and procedural processes associated with, the issuance of such advisories.

Re-examination of the Fish Consumption Advisory Process will be a cooperative undertaking with the Colorado Division of Wildlife, the Epidemiology Section of the Colorado Department of Public Health and Environment, and other stakeholders. At the present time, the issuance of such advisories is generally the responsibility of Colorado Department of Public Health and Environment, under the same authority as health advisories on Chronic Wasting Disease, Hanta Virus and West Nile Virus. These advisories can be issued without any opportunity for public comment.

Hence, until such time as the aforementioned re-examination is complete, new listing decisions based upon fish consumption advisories shall be made on a case-by-case basis taking into account such factors as: (1) the scientific basis for the advisory, including the adopted action level and the nature and extent of any fish tissue information; (2) the existence of any associated relevant water column and/or sediment data; (3) the risk level associated with the advisory; (4) such other relevant technical information as may be presented to the Division, and (5) consideration of EPA guidance on fish and shellfish consumption advisories (memo, October 24, 2000, signed by Geoffrey Grubbs and Robert Wayland).

Division actions in the interim:

- The Division will continue any current listings of segments/pollutants based on existing FCA.
- Work on new CDPHE FCA Procedures will be initiated.

- Until the new FCA Procedures are final, new waterbodies with FCA will be listed on case-by-case basis only.
- No new TMDLs for FCA-listed waterbodies will be initiated until the new FCA Procedures are finalized.
- Once the new FCA Procedures are finalized, all FCAs will be reviewed for consistency with the new procedures.

IV. PRIORITIZATION FOR TMDL DEVELOPMENT

The Division must ensure that TMDLs are developed for all water bodies and pollutants on the Section 303(d) List. Recognizing that all TMDLs cannot be completed at once and that certain risks may be greater than others, the Clean Water Act section directs the Division to prioritize the waters on the Section 303(d) List. The Division will use the prioritized Section 303(d) List to focus resources to support the development of TMDLs.

A. Prioritization Objective

The objective of the prioritization is to identify where the Division and the public should concentrate their 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. Use Classifications are described in “Basic Standards and Methodologies for Surface Water” 31 (5 CCR 1002-8, sec. 31.13). 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 for primary drinking water standards, Aquatic Life class 1 cold or warm, or Recreation class 1a.

Medium Priority: Non-supporting for Aquatic Life class 2 cold or warm, or Agriculture

Low Priority: Non-supporting for secondary drinking water standards or Recreation class 1b or 2, or non-supporting for underlying standard where

a temporary modification based specifically upon significant uncertainty as to the appropriate underlying standard has been adopted and the Commission has determined that there is an appropriate plan in place to resolve the uncertainty.

2. Secondary Considerations

- The Division is obligated under the terms of the 1999 Settlement Agreement to complete the TMDL by June 30, 2008.
- 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 (e.g., 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).

3. Targeted TMDLs

It is the Division's intent that TMDLs that are designated as "Targeted TMDLs" will be completed prior to the next listing cycle, or within two years of promulgation of the 303(d) List by the Commission. Targeted TMDLs will most likely be those designated as "high priority" waters for TMDL development. However, not all "high priority" listings are suitable for TMDL development within a two-year window. For example, adequate data to support TMDL development is not available for all "high priority" listings. Conversely, waters designated as "medium" or "low priority" may be amenable to TMDL development within the next two years and may therefore be "targeted" for TMDL development at this point.

TMDL development is subject to a variety of factors that are both within and beyond the Division's control. These may include availability of adequate data, local or broader political concerns, new information that affects the listing decision, coordination with remedial programs such as CERCLA or Superfund, or availability of Division resources. Designation of a TMDL as "targeted" should be considered for planning purposes, but should not be treated as a definitive Division workplan commitment.