

CATEGORY 4b – A REGULATORY ALTERNATIVE TO TMDLs

Eric Monschein^{1*} and Laurie Mann²

(USEPA at ¹: Office of Water, Washington DC, and ²: Region 10, Seattle WA)

*US Environmental Protection Agency, Office of Water (4503T)

1200 Pennsylvania Ave NW

Washington DC 20460

ABSTRACT

Section 303(d) of the Clean Water Act and the US Environmental Protection Agency's (USEPA's) supporting regulations in 40 CFR Part 130.7 require states to develop lists of waterbodies impaired by a pollutant and needing a Total Maximum Daily Load (TMDL) (i.e., the Section 303(d) list) and to prepare a TMDL for each waterbody/pollutant combination. USEPA's regulations also recognize that other pollution control requirements may obviate the need for a TMDL. These alternatives to TMDLs are commonly referred to as Category 4b waters as described in USEPA's Integrated Reporting Guidance for Sections 303(d), 305(b), and 314 of the Clean Water Act. A survey was conducted in July 2006 to assess the extent to which states have successfully employed TMDL alternatives to address impaired waters and assigned these waters to Category 4b. This paper presents the results of the survey and summarizes several examples of impaired waters assigned to Category 4b in the State of Washington based on alternatives to TMDLs.

KEYWORDS

TMDL, alternative, Category 4b, impairment

INTRODUCTION

Section 303(d) of the Clean Water Act (CWA) and USEPA's supporting regulations (see 40 CFR 130.7) requires states, territories, and authorized tribes (herein referred to as states) to develop lists of waters impaired or threatened by pollutants (i.e., Section 303(d) list) and to develop Total Maximum Daily Loads (TMDLs) for these waters. Over the past 10 years, states and USEPA have produced more than 24,000 TMDLs. And, based on the current status of states' Section 303(d) lists, more than 60,000 TMDLs remain to be completed (USEPA 2007).

USEPA's supporting regulations recognize that alternative pollution control requirements may obviate the need for a TMDL. Specifically, impaired waters are not required to be included on a state's Section 303(d) list if technology-based effluent limitations required by the CWA, more stringent effluent limitations required by state, local, or federal authority, or "[o]ther pollution control requirements (e.g., best management practices) required by local, [s]tate or [f]ederal

Monschein, E. and L. Mann. 2007. *Category 4b – a regulatory alternative to TMDLs*. Proceedings: Water Environment Federation TMDL 2007 Conference, Bellevue, Washington, pp. 454-463.

authority” are stringent enough to implement applicable water quality standards (see 40 CFR 130.7(b)(1)) within a reasonable period of time (USEPA 2005a, 2006). These alternatives to TMDLs are commonly referred to as “Category 4b” waters, as described in USEPA’s Integrated Reporting Guidance (IRG) for Sections 303(d), 305(b), and 314 of the CWA (USEPA 2005a, 2006).

Beginning with the 2002 Section 303(d) list reporting cycle, USEPA’s IRG recommends that states use the following five categories to report on the water quality status of all waters in their state:

- Category 1: All designated uses (DU) are supported, no use is threatened;
- Category 2: Available data and/or information indicate that some, but not all of the DUs are supported;
- Category 3: There is insufficient available data and/or information to make a DU support determination;
- Category 4: Available data and/or information indicate that at least one DU is not being supported or is threatened, but a TMDL is not needed;
- Category 5: Available data and/or information indicate that at least one DU is not being supported or is threatened, and a TMDL is needed.

As the above categories show, waters assigned to Category 4 and 5 are impaired or threatened. A state’s Section 303(d) list comprises the waters assigned to Category 5. When conditions exist that no longer require impaired or threatened waters to be included on a state’s Section 303(d) list, those waters are placed in Category 4. Subcategories of Category 4 are described below:

- Category 4a: TMDL has been completed;
- Category 4b: TMDL is not needed because other pollution control requirements are expected to result in the attainment of an applicable water quality standard (WQS) in a reasonable period of time;
- Category 4c: The non-attainment of any applicable WQS for the waterbody is the result of pollution and is not caused by a pollutant. Examples of circumstances where an impaired segment may be placed in Category 4c include waterbodies impaired solely by lack of adequate flow or by stream channelization.

According to USEPA’s IRG, USEPA will evaluate on a case-by-case basis a state’s decision to exclude certain segment/pollutant combinations from Category 5 (the Section 303(d) list) based on the Category 4b alternative. The IRG indicates that states should provide in their Section 303(d) list submission a rationale that supports their conclusion that there are “other pollution control requirements” stringent enough to achieve applicable WQS within a reasonable period of time. And, the rationale should address each of following six elements:

1. Identification of segment and statement of problem causing the impairment
2. Description of the pollution controls and how they will achieve WQS, including a description of the pollutant loads needed to meet WQS and a description of the requirements under which the controls will be implemented
3. An estimate or projection of the time when WQS will be met
4. Schedule for implementing pollution controls

5. Monitoring plan to track effectiveness of pollution controls
6. Commitment to revise pollution controls, as necessary

USEPA's recommended format and content for a Category 4b submittal is provided in the Attachment. The Attachment also provides USEPA's guidance for addressing each of the six Category 4b elements, including what constitutes "other pollution control requirements" and a "reasonable period of time" to achieve applicable WQS.

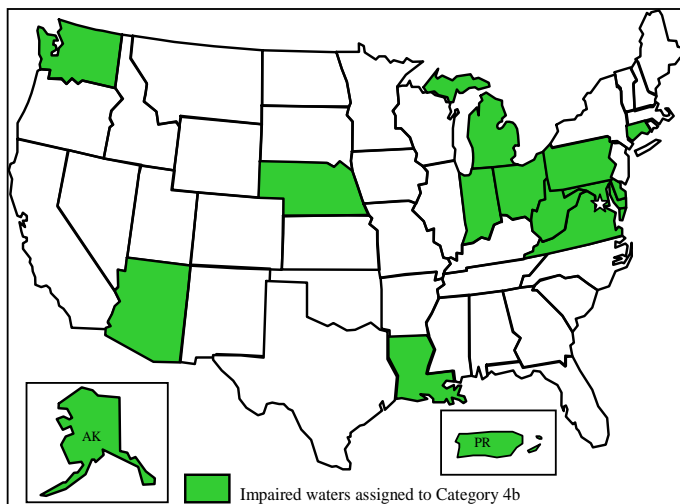
The purpose of this study was to assess the extent to which states currently relying on TMDL alternatives to address impaired waters and assign them to Category 4b of their Integrated Reports. Information about state's use of Category 4b was obtained by surveying Section 303(d) program staff in each of USEPA's regions in July 2006. Results of the survey showed that 15 states had over 250 impaired waters assigned to Category 4b. Two examples of TMDL alternatives assigned to Category 4b in the State of Washington are described below.

METHODOLOGY

In July 2006, Section 303(d) program staff from each USEPA region were surveyed to identify the extent to which states in their region have used TMDL alternatives to assign waters to Category 4b of their Integrated Reports. Program staff completed the survey based on the most recently submitted Integrated Report (and approved Section 303(d) list) for each state. Collecting detailed information about the types of "other pollution control requirements" relied on to assign these waters to Category 4b was not within the scope of the survey. However, in some instances, such information was provided by the survey respondents. Information to summarize two examples of TMDL alternatives assigned to Category 4b in the State of Washington was retrieved from USEPA's administrative record for the Washington Department of Ecology 2004 Integrated Report.

RESULTS

Figure 1. States with Category 4b waters (July 2006)



Results from the survey show that 267 impaired waters have been assigned to Category 4b in 15 states (see Figure 1). Over 100 of the 267 segments are point-source only impaired waters where the effluent limitations in National Pollutant Discharge Elimination System (NPDES) permits were determined to be stringent enough to implement the applicable WQS. Other types of "other pollution control requirements" used by states to justify assigning these waters to Category 4b included remediation under the Comprehensive Environmental Response,

Compensation, and Liability Act (CERCLA) and the following two examples (*Kitsap County* and *Yellowjacket Creek*) from the State of Washington (USEPA 2005b).

Kitsap County

Failing on-site septic systems and livestock waste have contaminated seven creeks that flow through the semi-urbanized areas of western Kitsap County into the marine waters of Puget Sound. The resulting persistent shellfish bed closures in Puget Sound have focused local resources on the remediation of these bacteria sources.

The Surface and Stormwater Management Program in Kitsap County is an interagency organization dedicated to protecting public health and natural resources, with permanent funding from property assessments; annual revenue in 2003 was almost \$4.5 million. The County Health District uses a portion of those funds to run their Pollution Identification and Correction (PIC) program. The PIC program monitors, identifies and controls non-point sources of pollution, focusing on failing septic systems and non-point source animal wastes. The Health District regularly enforces local ordinances regulating septic systems and animal wastes.

One of the seven creeks, Burley Creek, flows into a 110 acre lagoon which was downgraded from Approved to Restricted for shellfish harvesting in 1999 due to high fecal coliform levels. A PIC project, initiated in 2000, identified 37 on-site system failures and 8 animal waste management violations; 36 of the 37 septic failures and all animal waste violations were rectified by 2003. Portions of the lagoon were upgraded in 2005, and WQS are expected to be met in all seven creeks by 2008.

Yellowjacket Creek

Yellowjacket Creek is located in the Gifford Pinchot National Forest in Washington State. Timber harvest activities in the vicinity of the creek have reduced riparian shade and degraded channel conditions through increased sediment loads, causing temperature impairments. A Water Quality Restoration Plan (WQRP) prepared by the US Forest Service (USFS) assesses the problems in the watershed and describes the specific pollution controls necessary to increase riparian shade and reduce sediment loading. Those controls include shade improvements, instream channel restorations, road decommissions, and road improvements.

Much of the restoration activity specified by the WQRP has already been initiated. Riparian reserves have been treated in order to accelerate shade conditions; some streambank stabilization and revegetation projects have been completed; National Environmental Policy Act (NEPA) documents are being completed for one mile of channel restoration; and NEPA documentation is complete and funding is secured for 1.8 miles of road decommissioning. The controls specified in the WQRP are required under the Gifford Pinchot National Forest Plan and a Memorandum of Agreement (MOA) between the USFS and the Washington State Department of Ecology, and are enforceable under Washington state law. Each of the projects identified in the WQRP has a detailed monitoring and adaptive management plan. Passive restoration enables shade producing trees to attain their full site potential, a process that can take up to 100 years or more. Active restoration projects will accelerate the attainment of WQS in a limited number of areas.

DISCUSSION

Results of the survey demonstrate that the Category 4b approach is not a widely used alternative to developing TMDLs for impaired waters. Only 15 (27%) of the 56 states responsible for developing Section 303(d) lists have impaired waters assigned to Category 4b after the list has been approved by USEPA. And, the use of the TMDL approach to address impaired waters (over 25,000 TMDLs nationally) far exceeds the number of impaired waters addressed through the Category 4b approach.

Factors that contribute to the limited use of the Category 4b approach may include the following:

- Although USEPA's current program regulations for CWA Section 303(d) were established in 1992, USEPA's IRG, which includes USEPA's expectations for Category 4b, was first introduced only six years ago (i.e., for the 2002 Section 303(d) reporting cycle).
- States may find it less resource intensive to complete TMDLs for waters on their Section 303(d) lists. TMDLs are not self implementing under Section 303(d), whereas assigning an impaired water to Category 4b requires that other "other pollution control requirements" exist to implement measures needed to meet applicable WQS. Furthermore, additional state resources may be needed to assess the level of implementation and effectiveness of the pollution controls with each 303(d) list submission.
- Litigation has played a significant role in shaping the production of states' Section 303(d) lists and the pace and quality of TMDLs. However, states and USEPA have not been litigated on waters assigned to Category 4b. Hence, some states may be averse to potential litigation on waters assigned to Category 4b.
- As evidenced by this study, relatively few examples of Category 4b waters exist nationally. Identification and sharing of "good examples" from the 267 Category 4b waters may help promote the use of Category 4b in the future.

CONCLUSIONS

Although not widely used by states, results of this study show that states are employing alternatives to TMDLs that qualify for Category 4b. And, in some cases, states are relying on "other pollution control requirements" outside of the traditional framework of the CWA, including remediation under CERCLA, local Health District ordinances (e.g., Kitsap), and a USFS Forest Plan and state MOA (e.g., Yellowjacket Creek). Given the emphasis on implementation for waters in Category 4b, tracking the water quality response of these waters should provide valuable information about the effectiveness of the controls being implemented, which in turn will assist with the design of implementation measures for impaired waters addressed in the future through a Category 4b or TMDL approach.

ACKNOWLEDGMENTS

The US Environmental Protection Agency Office of Water funded the work described in this paper. Opinions expressed in this paper are those of the authors. Publication does not signify that the contents necessarily reflect the views and policies of the Environmental Protection

Agency or of any other organization represented in this document. Mention of trade names or commercial products does not constitute endorsement or recommendation for use.

REFERENCES

USEPA (2005a) *Guidance for 2006 Assessment, Listing and Reporting Requirements Pursuant to Sections 303(d), 305(b) and 314 of the Clean Water Act*. July 29, 2005. URL: <http://www.epa.gov/owow/tmdl>.

USEPA (2005b) *Administrative Record for EPA Region 10 Approval of Washington State Final Integrated Report 2002/2004 303(d) list and 305(b) Report submitted for approval June 2, 2004*. November 4, 2005.

USEPA (2006) *Information Concerning 2008 Clean Water Act Sections 303(d), 305(b), and 314 Integrated Reporting and Listing Decisions*. October 12, 2006. URL: <http://www.epa.gov/owow/tmdl>.

USEPA (2007) *National Section 303(d) List Fact Sheet*. URL: http://www.epa.gov/national_rpt.control. Last updated on April 9, 2007. Accessed on April 9, 2007.

ATTACHMENT

RECOMMENDED STRUCTURE FOR CATEGORY 4B DEMONSTRATIONS

Source: USEPA (2006) *Information Concerning 2008 Clean Water Act Sections 303(d), 305(b), and 314 Integrated Reporting and Listing Decisions*. October 12, 2006. URL: <http://www.epa.gov/owow/tmdl>.

The purpose of this Attachment is to provide States a recommended structure for addressing EPA's expectations in the 2006 IRG for Category 4b demonstrations. Specifically, States should address the following six elements in their Category 4b demonstrations:

1. Identification of segment and statement of problem causing the impairment;
2. Description of pollution controls and how they will achieve water quality standards;
3. An estimate or projection of the time when WQS will be met;
4. Schedule for implementing pollution controls;
5. Monitoring plan to track effectiveness of pollution controls; and
6. Commitment to revise pollution controls, as necessary.

Additional details for each of the six elements are provided below.

States should submit their Category 4b demonstrations that address each of the six elements with their Section 303(d) list or Integrated Report submission. In general, the State's 4b demonstration should be submitted as a stand-alone document. In situations where data and information for a Category 4b demonstration are contained in existing documents developed under separate programs (e.g., NPDES permit, Superfund Record of Decision), the State should summarize relevant information in the Category 4b demonstration and reference the appropriate supporting documentation that provides that information. The supporting documentation should be included as part of the State's administrative record supporting the Category 4b determination.

1. Identification of Segment and Statement of Problem Causing Impairment

Segment Description

The demonstration should identify the impaired segment, including name, general location in the State, and State-specific location identifier. Also, the segment should be identified/georeferenced using the National Hydrography Dataset (NHD). The assessment information should be transmitted electronically through the Assessment Database (ADB).

Impairment and pollutant causing impairment

The demonstration should identify the applicable water quality standard(s) not supported for each segment and associated pollutant causing the impairment.

Sources of pollutant causing impairment

The demonstration should include a description of the known and likely point, nonpoint, and background (upstream inputs) sources of the pollutant causing the impairment, including the

magnitude and locations of the sources. In cases where some portion of the impairment may result from naturally occurring sources (natural background), the demonstration should include a description of the naturally occurring sources of the pollutant to the impaired segment.

2. Description of Pollution Controls and How They Will Achieve Water Quality Standards

Water quality target

The demonstration should identify a numeric water quality target(s) – a quantitative value used to measure whether or not the applicable water quality standard is attained. Generally, the pollutant of concern and the numeric water quality target are, respectively, the chemical causing the impairment and the numeric criteria for that chemical contained in the water quality standard. The demonstration should express the relationship between any necessary reduction of the pollutant of concern and the attainment of the numeric water quality target.

Occasionally, the pollutant of concern is different from the pollutant that is the subject of the numeric water quality target (e.g., when the pollutant of concern is phosphorous and the numeric water quality target is expressed as dissolved oxygen (DO) criteria). In such cases, the Category 4b demonstration should explain the linkage between the pollutant of concern and the chosen numeric water quality target. In other cases, multiple indicators and associated numeric target values may be needed to interpret an individual water quality standard (e.g., multiple fish habitat indicators to interpret acceptable sediment levels).

In cases where the impairment is based on non-attainment of a narrative (non-numeric) water quality criterion, the Category 4b demonstration should identify one or more appropriate numeric water quality target levels that will be used to evaluate attainment of the narrative water quality criteria. The Category 4b demonstration should also describe the basis for selecting the numeric target levels.

Point and nonpoint source loadings that when implemented will achieve WQS

The demonstration should describe the cause-and-effect relationship between the water quality standard (or numeric water quality target as discussed above) and the identified pollutant sources and, based on this linkage, identify what loadings are acceptable to achieve the water quality standard. The cause-and-effect relationship may be used to determine the loading capacity of the waterbody for the pollutant of concern. However, a loading capacity may not be relevant in all circumstances. For example, a loading capacity would not be relevant in situations where the pollutant source will be completely removed. The demonstration should identify the loading capacity of the segment for the applicable pollutant or describe why determination of the loading capacity is not relevant to ensure that the controls are sufficient to meet applicable water quality standards.

The demonstration should also contain or reference documentation supporting the analysis, including the basis for any assumptions; a discussion of strengths and weaknesses in the analytical process; and results from any water quality modeling or data analysis.

Controls that will achieve WQS

The demonstration should describe the controls already in place, or scheduled for implementation, that will result in reductions of pollutant loadings to a level that achieves the numeric water quality standard. The demonstration should also describe the basis upon which the State concludes that the controls will result in the necessary reductions.

Description of requirements under which pollution controls will be implemented

The demonstration should describe the basis for concluding that the pollution controls are requirements or why other types of controls already in place may be sufficient, as discussed below.

As discussed in the 2006 IR guidance, EPA will consider a number of factors in evaluating whether a particular set of pollution controls are in fact “requirements” as specified in EPA’s regulations, including: (1) authority (local, State, Federal) under which the controls are required and will be implemented with respect to sources contributing to the water quality impairment (examples may include: self-executing State or local regulations, permits, and contracts and grant/funding agreements that require implementation of necessary controls); (2) existing commitments made by the sources to implement the controls (including an analysis of the amount of actual implementation that has already occurred); (3) availability of dedicated funding for the implementation of the controls; and (4) other relevant factors as determined by EPA depending on case-specific circumstances.

Since the overriding objective of the 4b alternative is to promote implementation activities designed to achieve water quality standards in a reasonable period of time, for all of the factors listed above, EPA will evaluate each 4b alternative on a case-by-case basis, including in particular the existence of identifiable consequences for the failure to implement the proposed pollution controls. Depending on the specific situation, “other pollution control requirements” may be requirements other than those based on statutory or regulatory provisions, as long as some combination of the factors listed above are present and will lead to achievement of WQS within a reasonable period of time. For example, established plans of government agencies that require attainment of WQS within a reasonable period of time may qualify even when their components include incentive-based actions by private parties. States may also choose to rely on controls that have already been implemented where there is sufficient certainty that implementation will continue until WQS are achieved and will not be reversed. Because the controls are already in place and achieving progress, EPA may consider such controls to be requirements even if their implementation did not occur pursuant to binding legal authority.

3. Estimate or Projection of Time When WQS Will Be Met

EPA expects that segments impaired by a pollutant but not listed under Section 303(d) based on the implementation of existing control requirements will attain WQS within a reasonable period of time. The demonstration should provide a time estimate by which the controls will result in WQS attainment, including an explanation of the basis for the conclusion.

The demonstration should also describe why the time estimate for the controls to achieve WQS is reasonable. EPA will evaluate on a case-specific basis whether the estimated time for WQS

attainment is reasonable. What constitutes a “reasonable time” will vary depending on factors such as the initial severity of the impairment, the cause of the impairment (e.g., point source discharges, in place sediment fluxes, atmospheric deposition, nonpoint source runoff), riparian condition, channel condition, the nature and behavior of the specific pollutant (e.g., conservative, reactive), the size and complexity of the segment (e.g., a simple first-order stream, a large thermally stratified lake, a density-stratified estuary, and tidally influenced coastal segment), the nature of the control action, cost, public interest, etc.

4. Schedule for Implementing Pollution Controls

The demonstration should describe, as appropriate, the schedule by which the pollution controls will be implemented and/or which controls are already in place.

5. Monitoring Plan to Track Effectiveness of Pollution Controls

The demonstration should include a description of, and schedule for, monitoring milestones to track effectiveness of the pollution controls. The demonstration should describe water quality monitoring that will be performed to determine the combined effectiveness of the pollution controls on ambient water quality. If additional monitoring will be conducted to evaluate the effectiveness of individual pollution controls, EPA encourages States to include a description of these efforts as well. The demonstration should identify how and when assessment results from the monitoring will be reported to the public and EPA.

6. Commitment to Revise Pollution Controls, as Necessary

The demonstration should provide a statement that the State commits to revising the pollution controls, as necessary, if progress towards meeting water quality standards is not being shown. Also, the demonstration should identify how any changes to the pollution controls, and any other element of the original demonstration, will be reported to the public and EPA.