

**North Carolina's Division of Water Quality Category 4b Demonstration Guidance**  
**Draft**  
**December 2011**

**Section I**

**Introduction**

The North Carolina Division of Water Quality (DWQ) has prepared this guidance for participants that are considering a 4b demonstration for an impaired waterbody. Local entities are encouraged to review these policies and procedures and discuss a potential 4b demonstration with DWQ's Modeling and TMDL Unit (MTU) prior to development.

**Background on Category 4b**

Section 303(d) of the Clean Water Act and supporting regulations require States to develop lists of "impaired waters" which are not meeting water quality standards. These 303(d) listed waters require States to develop Total Maximum Daily Loads (TMDLs) which establish pollution reduction goals and load allocations for impaired waterbodies to attain water quality standards. The U.S. Environmental Protection Agency (EPA) regulations also acknowledge other pollution control requirements that may obviate the need for a TMDL, including technology-based effluent limitations, more stringent effluent limitations, or other pollution control requirements (e.g. best management practices) that are stringent enough to achieve water quality standards within a reasonable period of time. These impaired waters where a TMDL is not required because they are expected to meet standards due to other pollution control requirements are commonly referred to as "Category 4b" waters, as described in EPA Integrated Reporting (IR) guidance, [http://water.epa.gov/lawsregs/lawsguidance/cwa/tmdl/2008\\_ir\\_memorandum.cfm](http://water.epa.gov/lawsregs/lawsguidance/cwa/tmdl/2008_ir_memorandum.cfm).

**Process and timeline to request Category 4b**

As the authorized implementer of the Clean Water Act in North Carolina, DWQ is responsible for assessing waters to learn if standards are being met. Participants may request that DWQ consider an impaired water for Category 4b. Participants may be local governments, non-profit organizations and other state agencies. The following is the process and timeline for these requests:

1. Requests can be submitted at any time to DWQ.
2. Participants must address the six elements set forth in EPA/DWQ requirements (see Section II).
3. DWQ must make the final decision on submitting a 4b demonstration to EPA.
4. EPA will evaluate on a case-specific basis a State's decision to move an impaired water from Category 5 to Category 4b and thereby not require a TMDL. Final designation of a waterbody for Category 4b is contingent upon approval of the 4b demonstration by EPA. In the case where there is no EPA approval, the waterbody will remain in Category 5 and a TMDL is required.
5. After a 4b demonstration has been approved by EPA, DWQ may request a progress report from the participant for tracking purposes.

## **Section II**

### **EPA and DWQ Requirements for 4b Demonstrations**

The following information on what must be included in a 4b demonstration is largely based on EPA guidance. Because EPA's 4b guidance is intended for States, rather than third party "participants", DWQ has added information to further clarify expectations and the necessary information and review process. Participants are also encouraged to contact DWQ to discuss specific cases. Participants requesting the placement of an impaired waterbody into Category 4b are responsible for the development of the demonstration that a Category 4b designation is appropriate for the impaired waterbody. The structure for a Category 4b demonstration is shown below.

A Category 4b demonstration must provide the following information:

1. Identification of waterbody assessment unit number(s) and statement of the problem causing the impairment;
2. Description of pollution controls and how they will achieve water quality standards (WQS);
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.

The required components for each element of a 4b demonstration are as follows:

#### **1. Identification of impaired waterbody and statement of problem causing the impairment**

Segment description: The demonstration should identify the impaired waterbody name, assessment unit number (AU), and description.

Impairment and pollutant causing impairment: The demonstration should identify the applicable water quality standard(s) not supported for each AU 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), which is 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., hydrograph to interpret acceptable turbidity 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 (and 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. A 4b demonstration must include calculations showing how proposed practices for point and nonpoint sources will meet standards. In other words, what is the loading capacity of the waterbody in order to meet water quality standards, what is the needed load reduction for sources contributing to the impairment to achieve standards, what is the corresponding reduction achieved by implementing pollution controls with regard to the contributing sources and over what time period? Models and other analysis tools must be rigorous enough to make this assessment. The level of rigor necessary will vary depending on the complexity of the impairments and corresponding implementation strategies.

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 water quality standard. The demonstration should also describe the basis upon which the participant concludes that the controls will result in the necessary reductions.

Existing wastewater permit limitations, conditions and compliance schedules, as well as stormwater management practices and stormwater pollution prevention programs should be used to demonstrate attainment of water quality standards. If any changes, revisions or modifications to these existing limitations, conditions, compliance schedules or stormwater management practices are needed to demonstrate attainment of water quality standards, then a 4b is not appropriate until those revisions have been made. In addition, in impaired watersheds where there are expectations of new or expanded permitted point source discharges, DWQ will review 4b proposals to assure that they will meet federal requirements that protect waters from discharges that may cause or contribute to an impairment.

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 2008 Integrated Report (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 water quality standards will be met**

EPA expects that segments impaired but not listed under Section 303(d) (Category 5) 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. A 4b demonstration should provide interim milestones if phased implementation and adaptive management is expected to be used to attain water quality standards, and an explanation of how the milestones move the water towards attaining standards.

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. 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), 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 the inclusion of a description of these efforts as well. The demonstration should identify how and when assessment results from the monitoring will be reported.

## **6. Commitment to Revise Pollution Controls, as Necessary**

The demonstration should provide a statement that the participant 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 DWQ. If progress milestones remain unmet, the impaired water is moved back to Category 5 and a TMDL is required.

## **Section III**

### **Submission**

The Category 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, 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 Category 4b demonstration.

### **Other DWQ Resources**

Use Restoration Waters Program <http://portal.ncdenr.org/web/wq/ps/bpu/urw>