

BUREAU OF WATER

Antidegradation Implementation for Water Quality Protection in South Carolina



July 1998



South Carolina Department of Health
and Environmental Control

Table of Contents

I. Purpose 1

II. Background 1

III. Implementation 2

A. Tier 1 Level of Protection 2

B. Tier 2 Level of Protection 4

C. Tier 2½ Level of Protection 6

D. Tier 3 Level of Protection 6

Antidegradation Rules 7

Tier 1 Implementation Flowchart 8

Tier 2 Implementation Flowchart 9

Tier 2½ Implementation Flowchart 10

Example of Public Notice 11

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I. Purpose

This document describes how the South Carolina Department of Health and Environmental Control (Department) will implement the State's Antidegradation Policy included as Antidegradation Rules in Section D of S.C. Regulation 61-68, Water Classifications and Standards. It also informs the public of the Department's approach when issuing discharge permits which allow a lowering of water quality in certain waters of the State while providing for protection of classified and existing uses. This approach will be implemented by the Department's Bureau of Water.

Note: A copy of the Antidegradation Rules from Section D of R.61-68 is provided at the end of the text.

II. Background

The Federal Antidegradation Policy was established by the Secretary of the Interior in February 1968 and incorporated into the Federal Water Quality Standards Regulation issued by the Environmental Protection Agency (EPA) in November 1975. That policy was clarified and included in the Federal Water Quality Standards Regulation published on November 8, 1983 (48 FR 51400) and codified as 40 CFR 131.12(a)(1)-(3). These regulations require all states, tribes, and territories of the United States to have an antidegradation policy in their water quality standards consistent with the Federal policy and to identify the methods for implementing the policy. In the preamble to 40 CFR 131, the regulation states: "In its entirety, the antidegradation policy represents a three-tiered approach to maintaining and protecting various levels of water quality and uses." This statement has given the antidegradation policy its common name of a "tiered" approach when referring to the levels of protection outlined in the regulation. The following is an explanation of how this "tiered" approach is defined and how the Department views these levels of protection for existing and classified uses.

The EPA Water Quality Standards Handbook states that an antidegradation policy should consist of at least three tiers or levels of water quality protection. These are summarized as follows:

Tier 1 antidegradation policies apply to all waters of the State and require that existing uses (those attained in the waterbody on or after November 28, 1975) and the minimum level of water quality for those uses be maintained and protected.

Tier 2 antidegradation policies apply to high quality waters where the water quality exceeds the mandatory minimum levels to support Section 101(a)(2) of the Clean Water Act's (CWA) goals of propagation of fish, shellfish and wildlife, and recreation in and on the water. The Department considers all the waters of the State as high quality waters.

Tier 3 antidegradation policies apply to the maintenance of water quality in waters which constitute an Outstanding National Resource Water (ONRW) and do not allow for any permanent permitted discharges.

South Carolina has incorporated these three levels of protection into its water quality standards contained in Section D, Antidegradation Rules of R.61-68 and it reflects the current requirements of Federal Regulation, 40 CFR 131.12. The State's Antidegradation Rules also contain specific language precluding any discharge which would:

- 1) exclude an existing shellfish harvesting or culture use,
- 2) affect stream flows necessary to protect classified and existing uses consistent with riparian rights to reasonable use of water,
- 3) not allow groundwater uses to be maintained and protected, or
- 4) allow a dissolved oxygen depression in naturally low dissolved oxygen waterbodies other than as prescribed.

A fourth level of protection has been added to R.61-68 which incorporates waters which do not meet the requirements of Tier 3 for ONRWs, but provides for a higher level of protection than Tier 2. The State's Antidegradation Rules contain a level of protection for the maintenance of water quality in waters which constitute and are classified as an Outstanding Resource Water (ORW) of the State and will be known in this document as Tier 2½.

The following describes how the State's Antidegradation Rules are implemented through a tiered approach.

III. Implementation

Antidegradation Implementation is initiated by an application to the Department for a new or expanded discharge for a National Pollutant Discharge Elimination System (NPDES) permit. Other activities requiring nonpoint source controls through permits or certifications, such as stormwater permits, are also subject to the State's Antidegradation Implementation. The Department uses a parameter-by-parameter approach for implementation of the State's antidegradation rules and will review each parameter separately as it evaluates an application for a new or expanded discharge. All waters of the State will be provided a minimum of at least one of four levels of antidegradation protection as contained in R.61-68.D as described herein. All waters of the State are considered high quality waters where the water quality exceeds levels necessary to support classified and existing uses or have available assimilative capacity for some constituents. Most of the waterbodies that have impaired water quality are limited for only one parameter.

All waters in South Carolina are classified. The classifications of the waters consist of two parts: the best uses to be made of a waterbody and instream water quality standards which are stringent enough to protect the classified and existing uses. Existing uses are defined in R.61-68 as those uses actually being attained in or on the water, on or after November 28, 1975, regardless of the classified uses. Existing uses also apply to those waterbodies with water quality suitable to allow the uses to be attained in and on the water in accordance with Section 303(a) of the CWA. This Section of the Act established existing State water quality standards for uses that were in effect prior to the enactment of the CWA as a "starting point" for water quality standards.

Note: Flowcharts of Antidegradation Implementation are provided at the end of the text.

A. Implementation of Tier 1 Level of Protection

Section D.1 of R.61-68 requires the protection of existing uses and the level of water quality to protect those uses for **all** waters of the State. Tier 1 applies a minimum level of protection to **all** waters.

1. To implement Tier 1 antidegradation, the Department must determine if a planned discharge would lower water quality to the extent that it would no longer be sufficient to protect and maintain the existing uses of that waterbody. Any discharge which would remove an existing use is inconsistent

with the State's Antidegradation Rules which states that existing uses are to be maintained and protected. In such a circumstance, the planned discharge must be avoided or adequate mitigation or preventive measures must be taken to ensure that the existing uses and the water quality to protect them will be maintained.

2. The Department has initiated water quality assessment and protection on a watershed basis in order to emphasize a coordinated approach to basin management and water quality maintenance or improvements, to better address congressional and legislative mandates, to better utilize current resources, and to better inform the public and the regulated community of existing and future water quality issues. This watershed management process focuses the Department's resources and enables staff to target work efforts in order to maximize useful results. Development of the watershed strategies includes wasteload allocations and Total Maximum Daily Loads (TMDLs) for specific waterbodies that may not be fully supporting all the uses of the waterbody. For the purposes of this document, the Department defines total load allocations as a wasteload(s) for point source discharges and load(s) for nonpoint sources. Hereafter in this document the phrase total load allocation will incorporate both point and nonpoint sources where applicable.

In anticipation of the development of a TMDL for a specific waterbody, the Department may conclude that a proposed discharge will not cause or contribute to an impairment of the waterbody based upon the specifics of a total load reallocation that has been agreed to by the project applicant(s) in accordance with areawide planning agencies pursuant to Section 208 of the CWA. The reallocation is allowed as an interim measure until a TMDL pursuant to Section 303 of the CWA can be developed. The Department will ensure that the public health and welfare will not be endangered if a reallocation is allowed. Since all waters of the State are considered high quality in that they possess assimilative capacity for some constituents, any proposed discharge will be subject to an alternatives analysis as required by R.61-67.200.D.1.k (for description, see Section B.2 of this document) and Section 208 of the CWA.

The following examples (not inclusive) describe how the Antidegradation Rules will be implemented for Tier 1 protection:

- i) When the available assimilative capacity of a waterbody is not sufficient to ensure maintenance of water quality standards for a parameter of concern with an additional load to the waterbody, then the Department will not allow a permitted net increase of loading for the parameter of concern or pollutants affecting the parameter of concern. This no net increase will be achieved by the reallocation of existing total load(s) or by meeting the applicable water quality standard(s) at the end-of-pipe. Until such time that a TMDL is developed for the parameter of concern for the waterbody, no discharge will be allowed to cause or contribute to further degradation of the waterbody.
- ii) When applying narrative standards included in R.61-68, if nutrient loadings caused a waterbody to be on the impaired waters list in accordance with Section 303(d) of the CWA, then the Department will not allow a permitted net increase of loading for the appropriate nutrient(s) until such time as a TMDL is developed for the parameter of concern for the waterbody. No discharge will be allowed to cause or contribute to further degradation of the waterbody.
- iii) When applying numeric standards included in R.61-68 for human health, aquatic life, and organoleptic protection, if a waterbody has been affected by a parameter of concern causing it to be on the impaired waters list in accordance with Section 303(d) of the CWA, then the Department will not allow a permitted net increase of loading for the parameter of concern unless the concentration of the parameter of concern will not cause a violation of water quality

standard(s). This no net increase will be achieved by reallocation of existing total load(s) or by meeting applicable water quality standard(s) at the end-of-pipe. Until such time as a TMDL is developed for the parameter of concern, no discharge will be allowed to cause or contribute to further degradation of the waterbody.

3. Any allowed permit would proceed through the permitting process and allow for public participation through those mechanisms described in Section B.6 of this document.
4. Once the Tier 1 antidegradation review is completed by the Department, documentation of its final decision will be included in the rationale for the permit. The Bureau of Water will maintain a database that will include the Department's evaluation and final decision of all permits that have been reviewed under these conditions.

B. Implementation of Tier 2 Level of Protection

High quality waters are waters where the quality exceeds levels necessary to support classified and existing uses or have available assimilative capacity for some constituents. If an application for a new or expanded discharge for an NPDES permit is submitted to the Department, and if verification is made by the Department through the wasteload allocation, watershed strategy development, or NPDES permitting process that the waterbody has water quality sufficiently greater than that defined by the standards such that available assimilative capacity for the parameter(s) of concern does exist; then the following additional antidegradation review would be initiated.

1. To verify that a waterbody is a high quality water for a parameter of concern which initiates a Tier 2 antidegradation review, the Department must evaluate:
 - a) if and to what degree water quality exceeds that necessary to protect existing uses,
 - b) if and to what degree water quality will be lowered, and
 - c) if classified and existing uses will be maintained and protected by applying the standards set forth in R.61-68.

In multiple discharge situations, the aggregate predicted lowering of water quality must be allocated among the dischargers.

This initial step of the review is presently practiced in the current watershed strategy development, wasteload allocation, and NPDES permitting process and is a necessary evaluation for determination of the level of protection applicable to a waterbody.

2. Section D.2 of R.61-68 requires that in order for the State to allow the lowering of water quality in a waterbody, the need for it must be shown. An alternatives analysis will determine that the lowering of water quality is unavoidable. In accordance with R.61-67.200.D.1.k, the applicant must demonstrate to the Department that none of the following applicable alternatives that would minimize or eliminate the lowering of water quality are economically or technologically reasonable:
 - a) water recycle or reuse,
 - b) use of other discharge locations,
 - c) connection to other wastewater treatment facilities,
 - d) use of land application,*
 - e) product or raw material substitution,
 - f) any other treatment option or alternative.

3. The Department will evaluate whether a proposed discharge that will result in the lowering of water quality of a waterbody, and for which there are no economically or technologically reasonable alternatives, is necessary for important economic or social development. For this to be accomplished, several economic and social factors must be considered. These include, but are not necessarily limited to, the following:

- a) employment (increases, maintenance, or avoidance of reduction),
- b) increased industrial production,
- c) improved community tax base,
- d) improved housing, and/or
- e) correction of an environmental or public health problem.

The Department will use the 208 Planning Process for evaluating these factors. South Carolina prepares areawide wastewater management plans pursuant to Section 208 of the CWA. The 208 plans are administered by five (5) Councils of Government (COGs) and the Department, depending on the applicable area of the State. The development, update, or amendment of a 208 Plan includes economic and social considerations for siting of any discharge point. Since no NPDES permit can be issued unless it is in conformance with the applicable 208 Plan, economic and social considerations are inherent in the 208 review and permit issuance process.

4. The Department will review the pollution prevention and alternatives analysis to determine if the lowering of water quality can be minimized or eliminated. If the analysis identifies affordable treatment options that, combined with any alternatives, would prevent the need for the lowering of water quality, the Department will deny the request to lower water quality. Should the Department find that the pollution prevention and alternative treatments are unable to minimize or eliminate the need for lowering of water quality in the affected area, it will also find whether the proposed discharge will support important social and economic development. If the proposed discharge does support important social and economic development, then the Department may decide to grant the request for lowering of water quality provided water quality sufficient to protect existing and classified uses is maintained and provided the decision is subject to public participation and comment.

5. The Department will provide for intergovernmental cooperation and public participation through the State's ongoing planning process and NPDES public noticing process. This will be accomplished through the development and/or revisions of 208 Plans. In this process, designated COGs are given notification of the NPDES permitting process with the opportunity to seek additional information or provide comment regarding the NPDES permit, whether new or reissued. This allows for public participation at the local level.

The Department further fulfills its requirements for intergovernmental coordination in this process by including notification to the EPA Region IV Office and other governmental agencies on its mailing list which includes the following: the South Carolina Department of Natural Resources; the United States Forest Service; the South Carolina Wildlife Federation; the South Carolina Department of Commerce; the United States Fish and Wildlife Service; the South Carolina Department of Parks, Recreation, and Tourism; the National Marine Fisheries Service; and the Department of Transportation.

6. The Department fulfills its remaining requirements of public participation by notifying individuals who have expressed concern about the proposed conditions of the specific permit. A Public Notice containing a statement that the proposed NPDES permit will address antidegradation concerns is issued and comments are requested from the public on the matter (**see the attached example**). Further, the Department complies with requirements in its permitting regulations that require public

notices of permitting actions and uses many methods for addressing the posting of notices such as displaying the notice in prominent locations.

Other activities requiring nonpoint source controls through permits or certifications, such as stormwater permits, are also subject to the same public participation process as NPDES permits.

7. Once the Tier 2 antidegradation review is completed by the Department, documentation of its final decision will be included in the rationale for the permit. The Bureau of Water will maintain a database that will include the Department's evaluation and final decision of all permits that have been reviewed under these conditions.

C. Implementation of Tier 2½ Level of Protection

When the Department has determined through its water use classification process that a waterbody is of significant ecological or recreational value, then it is classified as an Outstanding Resource Water (ORW) of the State. Tier 2½ level of protection applies to these waterbodies. This level allows no discharges from domestic, industrial, and agricultural waste treatment facilities or open water dredged spoil disposal and requires the maintenance of existing water quality. Stormwater and other nonpoint source runoff including that from agricultural or permitted discharge from aquaculture facilities are allowed in these waters provided no significant adverse effect to water quality will occur.

1. The Department will review applications for a proposed discharge to ORW waters to ensure that the discharge can be considered in accordance with R.61-68.G.5.b.

2. Once the Department has concluded that the discharge can be considered, it must be determined whether the discharge will result in a discernable change in water quality. If the proposed discharge would cause degradation, then the discharge must be denied. Since only discharges that would result in the maintenance and protection of existing water quality are permitted, no further antidegradation review is necessary. Any allowed permit would then proceed through the permitting process and allow for public participation through those mechanisms described in Section B.6 of this document.

3. Once the Tier 2½ antidegradation review is completed by the Department, documentation of its final decision will be included in the rationale for the permit. The Bureau of Water will maintain a database that will include the Department's evaluation and final decision of all permits that have been reviewed under these conditions.

D. Implementation of Tier 3 Level of Protection

The State's Antidegradation Rules included in R.61-68 allow that the Department may determine through the classification process that some Outstanding Resource Waters of the State are nationally significant and may be classified as Outstanding National Resource Waters (ONRWs). ONRW waters are protected by applying the standards of the Class ORW which require maintenance of existing water quality and additionally would not allow any point source discharges. No permanent permitted discharges of any kind would be allowed and the exceptions listed for the State's ORW waters would not apply to those waterbodies classified as nationally significant.

**Antidegradation Rules as contained in Section D. of S.C. Regulation 61-68,
Water Classifications and Standards**

1. Existing water uses and the level of water quality necessary to protect these existing uses shall be maintained and protected regardless of the water classification and consistent with the policies below.

a. A new activity or expansion of an existing activity shall not be allowed in Class ORW or Shellfish Harvesting Waters if it would exclude, through establishment of a prohibited area, an existing shellfish harvesting or culture use. A new activity or expansion of an existing activity which will result in a prohibited area may be allowed in Class SA or Class SB waters when determined to be appropriate by the Department.

b. Existing uses and water quality necessary to protect these uses are presently affected or may be affected by instream modifications or water withdrawals. The streamflows necessary to protect classified and existing uses and the water quality supporting these uses shall be maintained consistent with riparian rights to reasonable use of water.

c. Existing or classified ground water uses and the conditions necessary to protect those uses shall be maintained and protected.

2. Where surface water quality exceeds levels necessary to support propagation of fish, shellfish, and wildlife, and recreation in and on the water, that quality shall be maintained and protected unless the Department finds, after intergovernmental coordination and public participation, that allowing lower water quality is necessary to important economic or social development in the areas where the waters are located. In allowing such lower water quality, water quality adequate to fully protect existing and classified uses shall be maintained. The highest statutory and regulatory requirements for all new and existing point sources shall be achieved and all cost-effective and reasonable best management practices for nonpoint source control shall be achieved within the State's statutory authority and otherwise encouraged.

3. The water quality of outstanding resource surface waters designated as Class ORW shall be maintained and protected through application of the standards for Class ORW as described in Section G.4 and 5. The Department may determine, through the classification process, that some Class ORW waters are nationally significant. Upon such determination, all activities described in Section G.4 and 5 shall be prohibited.

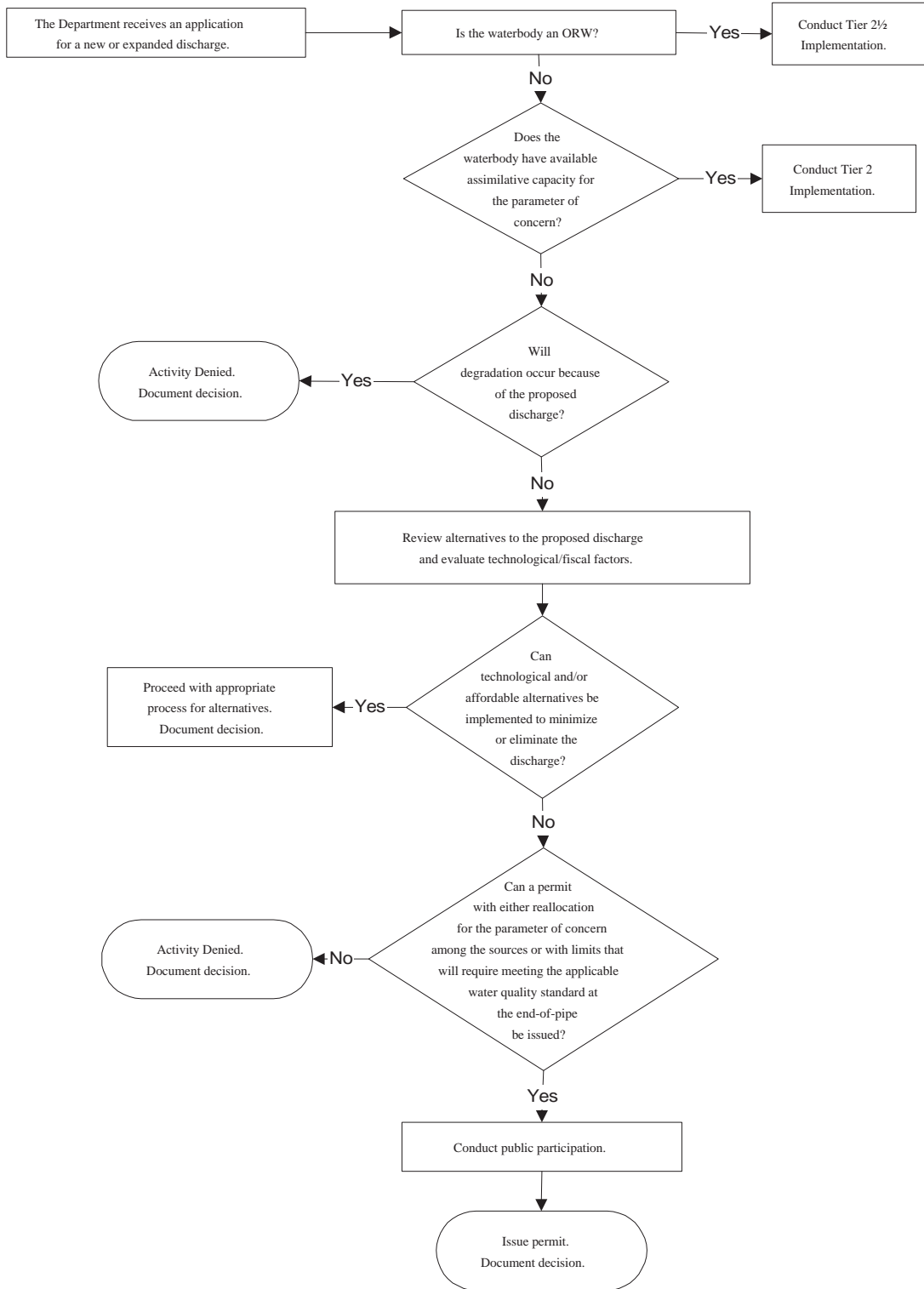
4. Certain natural conditions may cause a depression of dissolved oxygen in surface waters while existing and classified uses are still maintained. The Department shall allow a dissolved oxygen depression in these naturally low dissolved oxygen waterbodies as prescribed below:

a. Under these conditions the quality of the surface waters shall not be cumulatively lowered more than 0.1 mg/l for dissolved oxygen from point sources and other activities, or

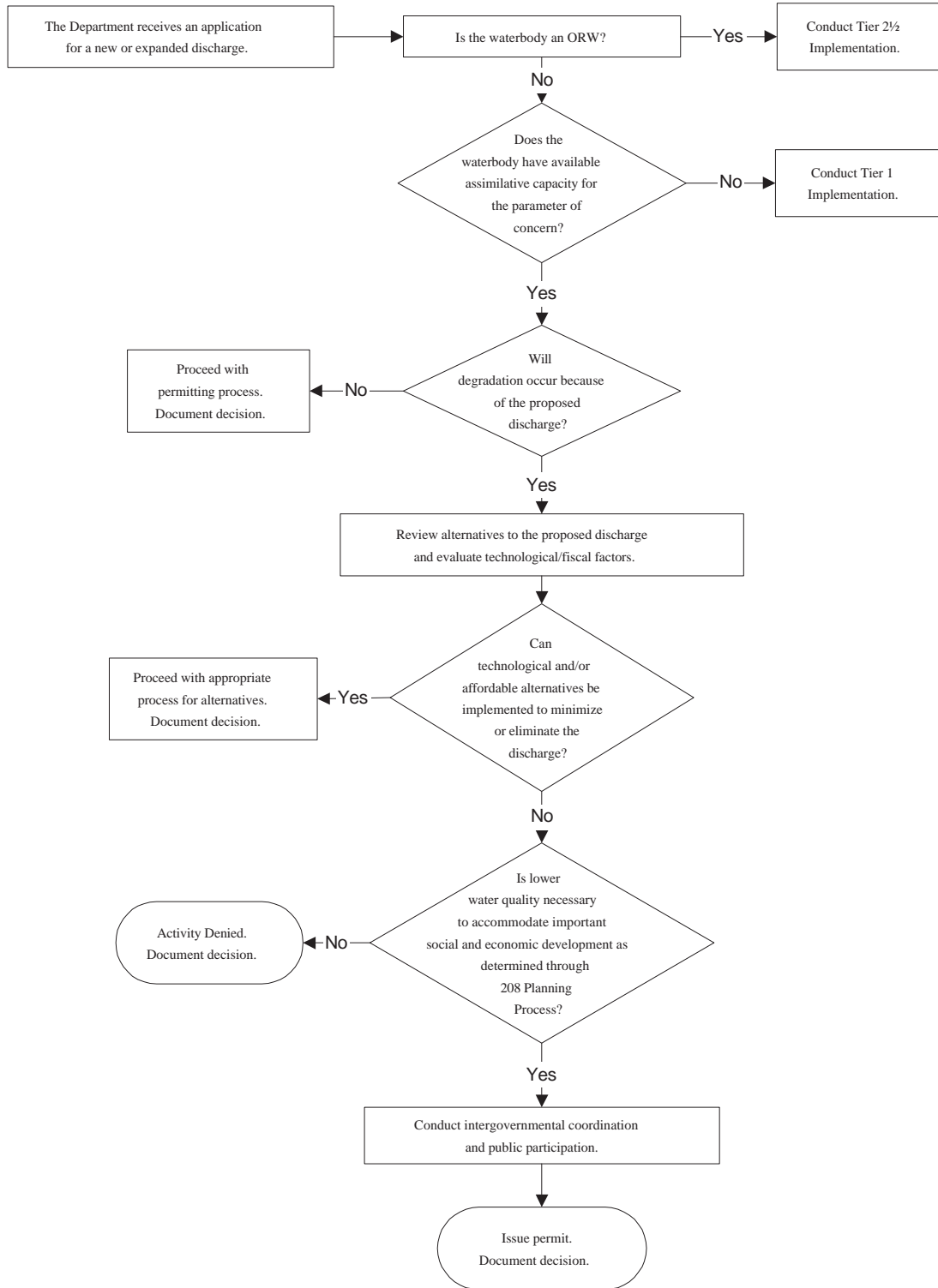
b. Where natural conditions alone create dissolved oxygen concentrations less than 110 percent of the applicable water quality standard established for that waterbody, the minimum acceptable concentration is 90 percent of the natural condition. Under these circumstances, an anthropogenic dissolved oxygen depression greater than 0.1 mg/l shall not be allowed unless it is demonstrated that resident aquatic species shall not be adversely affected. The Department may modify permit conditions to require appropriate instream biological monitoring.

c. The dissolved oxygen concentrations shall not be cumulatively lowered more than the deficit described above utilizing a daily average unless it can be demonstrated that resident aquatic species shall not be adversely affected by an alternate averaging period.

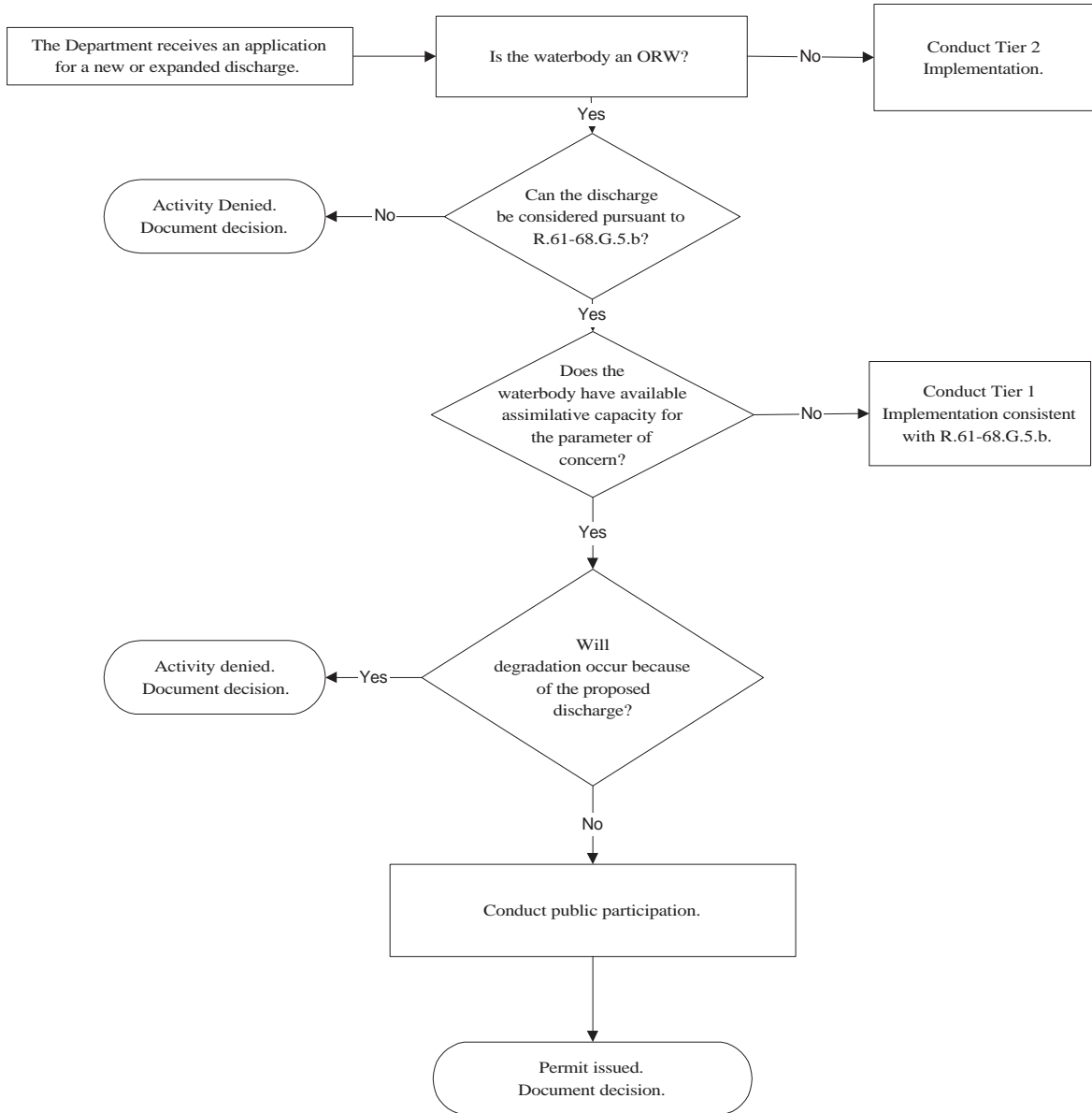
Tier 1 Implementation



Tier 2 Implementation



Tier 2½ Implementation



Example of Public Notice Language for Antidegradation

The Department has conducted a review of the proposed discharge in accordance with the Antidegradation Rules of S.C. Regulation 61-68. The Department has made a preliminary decision that the discharge may be allowed. This Notice provides for public participation and intergovernmental coordination. Documentation of the antidegradation decision is available in the permit rationale.