

CHAPTER 7 THE WATER QUALITY-BASED APPROACH TO POLLUTION CONTROL

This chapter briefly describes the overall water quality-based approach and its relationship to the water quality standards program. The water quality-based approach emphasizes the overall quality of water within a water body and provides a mechanism through which the amount of pollution entering a water body is controlled based on the intrinsic conditions of that body of water and the standards set to protect it.

As shown in Figure 7.1, the water quality-based approach contains eight stages. These stages each represent a major Clean Water Act program with specific regulatory requirements and guidance. The presentations in this chapter summarize how the different programs fit into the overall water quality control scheme and are not intended as implementation guidance. Implementation of these programs should be consistent with the specific programmatic regulations and guidance documents provided by the appropriate program office, many of which are cited herein.

The first stage, "Determining Protection Level," involves State development of water quality standards, the subject of the preceding chapters of this Handbook.

In the second stage, "Monitoring and Assessing Water Quality," States identify impaired waters, determine if water quality standards are being met, and detect pollution trends. Sections of the Clean Water Act require States to compile data, assess, and report on the status of their water bodies. States generally use existing information and new data collected from ongoing monitoring programs to assess their waters. This stage is discussed in section 7.2. of this Handbook.

In the third stage, "Establishing Priorities," States rank water bodies according to the severity of the pollution, the uses to be made of the waters, and other social-economic considerations, and determine how best to utilize available resources to solve problems. Section 7.3 of this Handbook discusses the ranking and targeting of water bodies.

In the fourth stage, "Evaluating WQS for Targeted Waters," the appropriateness of the water quality standards for specific waters is evaluated. States may revise or reaffirm their water quality standards. A State may choose, for example, to develop site-specific criteria for a particular stream because a particular species needs to be protected. This stage is discussed in section 7.4 of this Handbook.

In the fifth stage "Defining and Allocating Control Responsibilities," the level of control needed to meet water quality standards is established, and control responsibilities are defined and allocated. States use mathematical models and/or monitoring to determine total maximum daily loads (TMDLs) for water bodies; the TMDLs include waste load allocations (WLAs) for point sources, load allocations (LAs) for nonpoint sources, and a margin of safety. The TMDL is the amount of a pollutant that may be discharged into a water body and still maintain water quality standards. Pollutant loadings above this amount generally will result in waters exceeding the standards. Allocations for pollution limits for point and nonpoint sources are calculated to ensure that water quality standards are not exceeded. Section 7.5 discusses the TMDL process in greater detail.

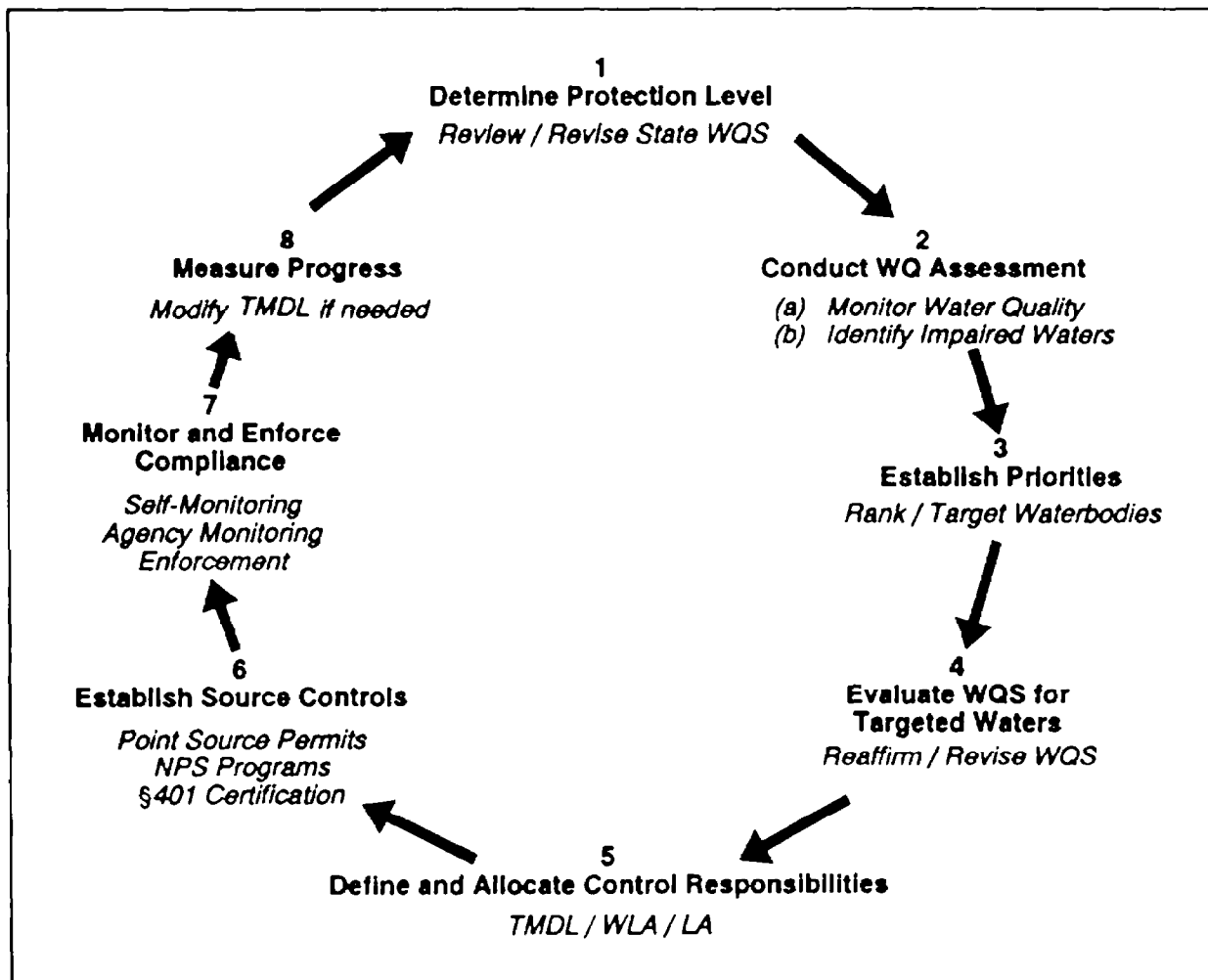


Figure 7-1. Water Quality-Based Approach to Pollution Control

In the sixth stage, "Establishing Source Control," States and EPA implement point source controls through NPDES permits, State and local governments implement nonpoint source management programs through State laws and local ordinances, and States assure attainment of water quality standards through the CWA section 401 certification process. Control actions are discussed in Section 7.6.

In the seventh stage, "Monitoring and Enforcing Compliance," States (or EPA) evaluate self-monitoring data reported by dischargers to see that the conditions of the NPDES permit are being met and take actions against any violators. Dischargers are monitored to determine whether or not they meet permit conditions and to ensure that expected water quality improvements are achieved. State

nonpoint source programs are monitored and enforced under State law and to the extent provided by State law.

In the final stage, "Measuring Progress," the States (and EPA) assess the effectiveness of the controls and determine whether water quality standards have been attained, water quality standards need to be revised, or more stringent controls should be applied.

7.1 Determine Protection Level

The water quality-based approach to pollution control begins with the identification of problem water bodies. State water quality standards form the basis and "yardstick" by which States can assess the water body status

and implement needed pollution controls. A water quality standard defines the water quality goals of a water body, or portion thereof, by designating the use or uses to be made of the water, by setting criteria necessary to protect the uses, and by preventing degradation of water quality through antidegradation provisions. States adopt water quality standards to protect public health or welfare, enhance the quality of water, and serve the purposes of the Clean Water Act. "Serve the purposes of the Act" (as defined in sections 101(a), 101(a)(2), and 303(d) of the Act) means that water quality standards should (1) include provisions for restoring and maintaining chemical, physical, and biological integrity of State waters; (2) provide, wherever attainable, water quality for the protection and propagation of fish, shellfish, and wildlife, and recreation in and on the water ("fishable/swimmable"); and (3) consider the use and value of State waters for public water supplies, propagation of fish and wildlife, recreation, agricultural and industrial purposes, and navigation. The preceding chapters of this Handbook provide EPA's guidance on the water quality standards program.

7.2 Conduct Water Quality Assessment

Once State water quality standards have determined the appropriate levels of protection to be afforded to State water bodies, States conduct water quality monitoring and identify those waters that are "water quality limited," or not meeting the standards.

7.2.1 Monitor Water Quality

Monitoring is an important element throughout the water quality-based decision making process. In this step, monitoring provides data for identifying impaired waters. The Clean Water Act specifies that States and Interstate Agencies, in cooperation with EPA, establish water quality monitoring systems necessary to review and revise water quality standards, assess designated use attainment, calculate TMDLs,

assess compliance with permits, and report on conditions and trends in ambient waters. EPA issued guidance in 1985 for *State Water Monitoring and Waste load Allocation* (USEPA, 1985d). Guidance for preparing CWA section 305(b) reports is contained in the *Guidelines for the Preparation of the 1994 State Water Quality Assessments (305(b) Reports)* (USEPA, 1993a). Both of these documents discuss monitoring as an information collection tool for many program needs. The Intergovernmental Task Force on Monitoring Water Quality report (ITFM, 1992) proposes actions to improve ambient water quality monitoring in the United States to allow better management of water resources.

Sections 208(b)(2)(F) through (K) of the CWA require the development of a State process to identify, if appropriate, agricultural, silvicultural, and other nonpoint sources of pollution. NPS monitoring concerns are discussed in several NPS guidance documents along with methods to monitor and evaluate nonpoint sources (*Watershed Monitoring and Reporting Requirements for Section 319 National Monitoring Program Projects* (USEPA, 1991g) and *Guidance Specifying Management Measures for Sources of Nonpoint Pollution in Coastal Waters* (USEPA, 1993b).

7.2.2 Identify Impaired (Water Quality-Limited) Waters

EPA's Water Quality Planning and Management Regulation (40 CFR Part 130) establishes the process for identifying water quality-limited water still requiring total maximum daily loads (TMDLs). Waters require TMDLs when certain pollution control requirements (see Exhibit 7.1) are not stringent enough to maintain water quality standards for such waters.

The most widely applied water pollution controls are the technology-based effluent limitations required by sections 301(b) and 306 of the Clean Water Act. In some cases, a State

(b)(1) Each State shall identify those water quality segments still requiring WLAs/LAs and TMDLs within its boundaries for which:

- (i) Technology-based effluent limitations required by sections 301(b), 306, 307, or other section of the Act;
- (ii) More stringent effluent limitations (including prohibitions) required by either State or local authority preserved by section 510 of the Act, of Federal authority (*e.g.*, law, regulation, or treaty); and
- (iii) Other pollution control requirements (*e.g.*, best management practices) required by local, State, or Federal authority

are not stringent enough to implement any water quality standard applicable to such waters.

Exhibit 7-1. Identifying Waters Still Requiring TMDLs: 40 CFR 130.7(b)

or local authority may establish enforceable requirements beyond technology-based controls. Examples of such requirements may be those that (1) provide more stringent NPDES permit limitations to protect a valuable water resource, or (2) provide for the management of certain types of nonpoint source pollution.

Identification of good quality waters that are threatened is an important part of this approach. Adequate control of new discharges from either point or nonpoint sources should be a high priority for States to maintain the existing use or uses of these water bodies. In the identification of threatened waters, it is important that the 303(d) process consider all parts of the State water quality standards program to ensure that a State's antidegradation policy and narrative provisions, as well as parameter-specific criteria, are maintained.

Section 303(d) requires States to identify those water quality-limited waters needing TMDLs. States must regularly update their lists of waters as assessments are made and report these lists to EPA once every 2 years. In their biennial submission, States should identify the water quality-limited waters targeted for TMDL development in the next 2 years, and the pollutants or stressors for which the water is water quality-limited.

Each State may have different methods for identifying and compiling information on the status of its water bodies, depending on its specific programmatic or cross-programmatic needs and organizational arrangements. Typically, States utilize both existing information and new data collected from ongoing monitoring programs to assess whether water quality standards are being met, and to detect trends.

States assess their waters for a variety of purposes, including targeting cleanup activities, assessing the extent of contamination at potential Superfund sites, and meeting federally mandated reporting requirements. While the identification of water quality-limited waters may appear to be a major task for the States, a significant amount of this work has already begun or has been completed under sections 305(b), 304(l), 314(a), and 319(a) of the Clean Water Act as amended in 1987.

Section 305(b) requires States to prepare a water quality inventory every 2 years to document the status of water bodies that have been assessed. Under section 304(l), States identified all surface waters adversely affected by toxic (65 classes of compounds), conventional (such as BOD, total suspended solids, fecal coliform, and oil and grease), and nonconventional (such as ammonia, chlorine, and iron) pollutants from both point and nonpoint sources. Under section 314(a), States identify publicly owned lakes for which uses are known to be impaired by point and nonpoint sources, and report those identified in their

305(b) reports. Section 319 of the CWA requires each State to develop an NPS assessment report. Guidance on the submission and approval process for Section 319 reports is contained in *Nonpoint Source Guidance* (USEPA, 1987c).

Lists prepared to satisfy requirements under section 305(b), 304(l), 314(a) and 319 should be very useful in preparing 303(d) lists. Appendix B of *Guidance for Water Quality-based Decisions: The TMDL Process* (USEPA, 1991c) provides a summary of these supporting CWA programs.

7.3 Establish Priorities

Once waters needing additional controls have been identified, a State prioritizes its list of waters using established ranking processes that should consider all water pollution control activities within the State. Priority ranking has traditionally been a process defined by the State and may vary in complexity and design. A priority ranking should enable the State to make efficient use of its available resources and meet the objectives of the Clean Water Act.

The Clean Water Act states that the priority ranking for such waters must take into account the severity of the pollution and the uses to be made of such waters. Several documents (USEPA, 1987e, 1988c,d, 1989d, 1990c, 1993c) are available from EPA to assist States in priority setting.

According to EPA's State Clean Water Strategy document: "Where all water quality problems cannot be addressed immediately, EPA and the States will, using multi-year approaches, set priorities and direct efforts and resources to maximize environmental benefits by dealing with the most serious water quality problems and the most valuable and threatened resources first."

Targeting high-priority waters for TMDL development should reflect an evaluation of the relative value and benefit of water bodies within the State and take into consideration the following:

- risk to human health, aquatic life, and wildlife;
- degree of public interest and support;
- recreational, economic, and aesthetic importance of a particular water body;
- vulnerability or fragility of a particular water body as an aquatic habitat;
- immediate programmatic needs such as waste load allocations needed for permits that are coming up for revisions or for new or expanding discharges, or load allocations for needed BMPs;
- waters and pollution problems identified during the development of the section 304(l) "long list";
- court orders and decisions relating to water quality; and
- national policies and priorities such as those identified in EPA's Annual Operating Guidance.

States are required to submit their priority rankings to EPA for review. EPA expects all waters needing TMDLs to be ranked, with "high" priority waters — targeted for initiation



of TMDL development within 2 years following the listing process — identified. (See USEPA (1991c) for further details on submission of priorities to EPA.)

To effectively develop and implement TMDLs for all waters identified, States should establish multi-year schedules that take into consideration the immediate TMDL development for targeted water bodies and the long-range planning for addressing all water quality-limited waters still requiring TMDLs.

While the CWA section 319 NPS assessment report identifies the overall dimensions of the State's NPS water quality problems and States are to develop statewide program approaches for specific categories of pollution to address NPS problems, States are also encouraged to target subsets of waters for concerted action on a watershed-by-watershed basis. EPA has issued guidance on NPS targeting (USEPA, 1987e).

7.4 Evaluate Water Quality Standards for Targeted Waters

At this point in the water quality management process, States have identified and targeted priority water quality-limited water bodies. It is often appropriate, to re-evaluate the appropriateness of the water quality standards for the targeted waters for several reasons including, but not limited to, the following.

First, many States have not conducted in-depth analyses of appropriate uses and criteria for all water bodies but have designated general fishable/swimmable use classifications and statewide criteria on a "best professional judgment" basis to many waters. In addition, many States make general assumptions about the antidegradation status of State waters (e.g., all waters not specifically assigned to an antidegradation category will be considered tier 2 or high-quality waters). It is possible that these generally applied standards, although meeting the minimum requirements of the

CWA and WQS regulation, may be inappropriate (either over- or under-protective) for a specific water body that has not had an in-depth standards analysis. For example, if a water body was classified as a coldwater fishery based solely on its proximity to other coldwater fisheries, a water body-specific analysis may show that only a warmwater fishery use is existing or attainable. If the listing of the water body was based on exceedences of criteria that are more stringent for coldwater fish (such as ammonia or dissolved oxygen), changing the designated use through a use attainability analysis and applying appropriate criteria may allow standards to be met without further water quality controls.

Second, even if an in-depth analysis has been done in the past, changes in the uses of the water body since that time may have made different standards more appropriate or generated an additional "existing use" which must be protected. For example, a water body designated for fish, aquatic life, and recreation in the past may now be used as a public water supply, without that use and protective criteria ever being formally adopted in the standards. Another example might be a designated warmwater fishery that, due to the removal of a thermal discharge, now supports a coldwater fishery as the existing use.

Third, monitoring data used to identify the water body as impaired may be historical, and subsequent water quality improvements have allowed standards to be met. And fourth, site-specific criteria may be appropriate because of specific local environmental conditions. For example, the species capable of living at the site are more or less sensitive than those included in the national criteria data set, or physical and/or chemical characteristics of the site alter the biological availability and/or toxicity of the chemical.

7.5 Define and Allocate Control Responsibilities

For a water quality-limited water that still requires a TMDL, a State must establish a TMDL that quantifies pollutant sources, and a margin of safety, and allocates allowable loads to the contributing point and nonpoint source discharges so that the water quality standards are attained. The development of TMDLs should be accomplished by setting priorities, considering the geographic area impacted by the pollution problem, and in some cases where there are uncertainties from lack of adequate data, using a *phased approach to establishing control measures* based on the TMDL.

Many water pollution concerns are areawide phenomena caused by multiple dischargers, multiple pollutants (with potential synergistic and additive effects), or nonpoint sources. Atmospheric deposition and ground water discharge may also result in significant pollutant loadings to surface waters. As a result, EPA recommends that States develop TMDLs on a watershed basis to efficiently and effectively manage the quality of surface waters.

The TMDL process is a rational method for weighing the competing pollution concerns and developing an integrated pollution reduction strategy for point and nonpoint sources. The TMDL process allows States to take a holistic view of their water quality problems from the

perspective of instream conditions. Although States may define a water body to correspond with their current programs, it is expected that States will consider the extent of pollution problems and sources when defining the geographic area for developing TMDLs. In general, the geographical approach for TMDL development supports sound environmental management and efficient use of limited water quality program resources. In cases where TMDLs are developed on watershed levels, States should consider organizing permitting cycles so that all permits in a given watershed expire at the same time.

Mathematical modeling is a valuable tool for assessment of all types of water pollution problems. Dissolved oxygen depletion and nutrient enrichment from point sources are the traditional modeling problems of the past. They continue to be problems and are joined by such new challenges as nonpoint source loadings, urban stormwater runoff, toxics, and pollutants involving sediment and bioaccumulative pathways. These new pollutants and pathways require the use of new models.

All models are simplifications of reality that express our scientific understanding of the important processes. Where we don't fully understand the process(es), or cannot collect the data that would be required to set parameters in a model that would simulate the process(es), we make simplifying assumptions. All of these



simplifications increase the uncertainty of our ability to predict responses of already highly-variable systems. While the use of conservative assumptions does reduce the possibility of underestimating pollutants effects on the waterbody, the use of conservative assumptions does not reduce the uncertainty. Calibration of a model to given waterbody does more to reduce uncertainty surrounding the system's response to reduced pollutant loadings. Sensitivity analyses can further this process.

For TMDLs involving both traditional and nontraditional problems, the margins of safety can be increased and additional monitoring required to verify attainment of water quality standards, and provide data needed to recalculate the TMDL if necessary (the phased approach).

EPA regulations provide that load allocations for nonpoint sources and natural background "are best estimates of the loading which may range from reasonably accurate estimates to gross allotments . . ." (40 CFR 130.2(g)). A phased approach to developing TMDLs may be appropriate where nonpoint sources are involved and where estimates are based on limited information. Under the phased approach, TMDL includes monitoring requirements and a schedule for reassessing TMDL allocations to ensure attainment of water quality standards. Uncertainties that cannot be quantified may also exist for certain pollutants discharged primarily by point sources. In such situations a large margin of safety and follow-up monitoring are appropriate.

By pursuing the phased approach where applicable, a State can move forward to implement water quality-based control measures and adopt an explicit schedule for implementation and assessment. States can also use the phased approach to address a greater number of water bodies including threatened waters or watersheds that would otherwise not be managed. Specific requirements relating to the phased approach are discussed in *Guidance for Water Quality-based Decisions: The TMDL Process* (USEPA 1991c).

7.6 Establish Source Controls

Once a TMDL has been established for a water body (or watershed) and the appropriate source loads developed, implementation of control actions should proceed. The State or EPA is responsible for implementation, the first step being to update the water quality management plan. Next, point and nonpoint source controls should be implemented to meet waste load allocations and load allocations, respectively. Various pollution allocation schemes (i.e., determination of allowable loading from different pollution sources in the same water body) can be employed by States to optimize alternative point and nonpoint source management strategies.

The NPDES permitting process is used to limit effluent from point sources. Section 7.6.1 provides a more complete description of the NPDES process and how it fits into the water quality-based approach to permitting. Construction decisions regarding publicly owned treatment works (POTWs), including advanced treatment facilities, must also be based on the more stringent of technology-based or water quality-based limitations. These decisions should be coordinated so that the facility plan for the discharge is consistent with the limitations in the permit.

In the case of nonpoint sources, both State and local laws may authorize the implementation of nonpoint source controls such as the installation of best management practices (BMPs) or other management measures. CWA section 319 and Coastal Zone Act Reauthorization Amendments of 1990 (CZARA) section 6217 State management programs may also be utilized to implement nonpoint source control measures and practices to ensure improved water quality. Many BMPs may be implemented through section 319 programs even where State regulatory programs do not exist. In such cases, a State needs to document the coordination that may be necessary among State and local agencies, landowners, operators, and managers and then evaluate BMP

implementation, maintenance, and overall effectiveness to ensure that load allocations are achieved. Section 7.6.2 discusses some of the programs associated with implementation of nonpoint source control measures.

States may also grant, condition, or deny "certification" for a federally permitted or licensed activity that may result in a discharge to the waters of the United States, if it is the State where the discharge will originate. The State decision is based on a State's determination of whether the proposed activity will comply with the requirements of certain sections of the Clean Water Act, including water quality standards under section 303. Section 7.6.3 of this Handbook contains further discussion of section 401 certification.

7.6.1 Point Source Control - the NPDES Process

Both technology-based and water quality-based controls are implemented through the National Pollutant Discharge Elimination System (NPDES) permitting process. Permit limits based on TMDLs are called water quality-based limits.

Waste load allocations establish the level of effluent quality necessary to protect water quality in the receiving water and to ensure attainment of water quality standards. Once allowable loadings have been developed through WLAs for specific pollution sources, limits are incorporated into NPDES permits. It is important to ensure that the WLA accounts for the fact that effluent quality is often highly variable. The WLA and permit limit should be calculated to prevent water quality standards impairment at all times. The reader is referred to the *Technical Support Document for Water Quality-based Toxics Control* (USEPA, 1991a) for additional information on deriving permit limits.

As a result of the 1987 Amendments to the Act, Individual Control Strategies (ICSs) were established under section 304(l)(1) for certain point source discharges of priority toxic

pollutants. ICSs consist of NPDES permit limits and schedules for achieving such limits, along with documentation showing that the control measures selected are appropriate and adequate (e.g., fact sheets including information on how water quality-based limits were developed, such as total maximum daily loads and waste load allocations). Point sources with approved ICSs are to be in compliance with those ICSs as soon as possible or in no case later than 3 years from the establishment of the ICS (typically by 1992 or 1993).

When establishing WLAs for point sources in a watershed, the TMDL record should show that, in the case of any credit for future nonpoint source reductions (1) there is reasonable assurance that nonpoint source controls will be implemented and maintained, or (2) that nonpoint source reductions are demonstrated through an effective monitoring program. Assurances may include the application or utilization of local ordinances, grant conditions, or other enforcement authorities. For example, it may be appropriate to provide that a permit may be reopened when a WLA requiring more stringent limits is necessary because attainment of a nonpoint source load allocation was not demonstrated.

Some compliance implementation time may, in certain situations, be necessary and appropriate for permittees to meet new permit limits based on new standards. Under the Administrator's April 16, 1990 decision in an NPDES appeal (Star-Kist Caribe Inc., NPDES Appeal No. 88-5), the Administrator stated that the only basis in which a permittee may delay compliance after July 1, 1977 (for a post July 1977 standard), is pursuant to a schedule of compliance established in the permit which is authorized by the State in the water quality standard itself or in other State implementing regulations. Standards are made applicable to individual dischargers through NPDES permits which reflects the applicable Federal or State water quality standards. When a permit is issued, a schedule of compliance for water quality-based limitations may be included, as necessary.

7.6.2 Nonpoint Source Controls

In addition to permits for point sources, nonpoint sources controls such as management measures or best management practices (BMPs) are also to be implemented so that surface water quality objectives are met. To fully address water bodies impaired or threatened by nonpoint source pollution, States should implement their nonpoint source management programs and ensure adoption of control measures or practices by all contributors of nonpoint source pollution to the targeted watersheds.

Best management practices are the primary mechanism in section 319 of the CWA to enable achievement of water quality standards. Section 319 requires each State, in addition to developing the assessment reports discussed in section 7.2.1 of this Handbook, to adopt NPS management programs to control NPS pollution.

Sections 208(b)(2)(F) through (K) of the CWA also require States to set forth procedures and methods including land use requirements, to control to the extent feasible nonpoint sources of pollution reports.

Section 6217 of the Coastal Zone Reauthorization Amendments of 1990 (CZARA) requires that States with federally approved coastal zone management programs develop Coastal Nonpoint Pollution Control Programs to be approved by EPA and NOAA. EPA and NOAA have issued *Coastal Nonpoint Pollution Control Program; Program Development and Approval Guidance* (NOAA/EPA, 1993), which describes the program development and approval process and



requirements. State programs are to employ an initial technology-based approach generally throughout the coastal management area, to be followed by a more stringent water quality-based approach to address known water quality problems. The Management Measures generally implemented throughout the coastal management area are described in *Guidance Specifying Management Measures for Sources of Nonpoint Pollution in Coastal Waters* (USEPA, 1993b).

7.6.3 CWA Section 401 Certification

States may grant, condition, or deny "certification" for a federally permitted or licensed activity that may result in a discharge to the waters of the United States, if it is the State where the discharge will originate. The language of section 401(a)(1) is very broad with respect to the activities it covers:

[A]ny activity, including, but not limited to, the construction or operation of facilities, which may result in any discharge . . .

requires water quality certification.

EPA has identified five Federal permits and/or licenses that authorize activities that may result in a discharge to the waters: permits for point source discharge under section 402 and discharge of dredged and fill material under section 404 of the Clean Water Act; permits for activities in navigable waters that may affect navigation under sections 9 and 10 of the Rivers and Harbors Act (RHA); and licenses required for hydroelectric projects issued under the Federal Power Act. There are likely other Federal permits and licenses, such as permits for activities on public lands, and Nuclear Regulatory Commission licenses, which may result in a discharge and thus require 401 certification. Each State should work with EPA and the Federal agencies active in its State to determine whether 401 certification is in fact applicable.

Congress intended for the States to use the water quality certification process to ensure that no Federal license or permits would be issued that would violate State standards or become a source of pollution in the future. Also, because the States' certification of a construction permit or license also operates as certification for an operating permit (except in certain instances specified in section 401(a)(3)), it is imperative for a State review to consider all potential water quality impacts of the project, both direct and indirect, over the life of the project.

In addition, when an activity requiring 401 certification in one State (i.e. the State in which the discharge originates) will have an impact on the water quality of another State, the statute provides that after receiving notice of application from a Federal permitting or licensing agency, EPA will notify any States whose water quality may be affected. Such States have the right to submit their objections and request a hearing. EPA may also submit its evaluation and recommendations. If the use of conditions cannot ensure compliance with the affected State's water quality requirements, the Federal permitting or licensing agency shall not issue such permit or license.

The decision to grant, condition, or deny certification is based on a State's determination from data submitted by an applicant (and any other information available to the State) whether the proposed activity will comply with the requirements of certain sections of the Clean Water Act enumerated in section 401(a)(1).



These requirements address effluent limitations for conventional and nonconventional pollutants, water quality standards, new source performance standards, and toxic pollutants (sections 301, 302, 303, 306, and 307). Also included are requirements of State law or regulation more stringent than those sections or their Federal implementing regulations.

States adopt surface water quality standards pursuant to section 303 of the Clean Water Act and have broad authority to base those standards on the waters' use and value for ". . . public water supplies, propagation of fish and wildlife, recreational purposes, and . . . other purposes" (33 U.S.C. section 1313 (c)(2)(A)). All permits must include effluent limitations at least as stringent as needed to maintain established beneficial uses and to attain the quality of water designated by States for their waters. Thus, the States' water quality standards are a critical concern of the 401 certification process.

If a State grants water quality certification to an applicant for a Federal license or permit, it is in effect saying that the proposed activity will comply with State water quality standards (and the other CWA and State law provisions enumerated above). The State may thus deny certification because the applicant has not demonstrated that the project will comply with those requirements. Or it may place whatever limitations or conditions on the certification it determines are necessary to ensure compliance with those provisions, and with any other "appropriate" requirements of State law.

If a State denies certification, the Federal permitting or licensing agency is prohibited from issuing a permit or license. While the procedure varies from State to State, a State's decision to grant or deny certification is ordinarily subject to an administrative appeal, with review in the State courts designated for appeals of agency decisions. Court review is typically limited to the question of whether the State agency's decision is supported by the record and is not arbitrary or capricious. The courts generally presume regularity in agency procedures and defer to agency expertise in their

review. (If the applicant is a Federal agency, however, at least one Federal court has ruled that the State's certification decision may be reviewed by the Federal courts.)

States may also waive water quality certification, either affirmatively or involuntarily. Under section 401(a)(1), if the State fails to act on a certification request "within a reasonable time (which shall not exceed one year)" after the receipt of an application, it forfeits its authority to grant conditionally or to deny certification.

The most important regulatory tools for the implementation of 401 certification are the States' water quality standards regulations and their 401 certification implementing regulations and guidelines. Most Tribes do not yet have water quality standards, and developing them would be a first step prior to having the authority to conduct water quality certification. Also, many States have not adopted regulations implementing their authority to grant, deny, and condition water quality certification. *Wetland and 401 Certification: Opportunities and Guidelines for States and Eligible Indian Tribes* (USEPA, 1989a) discusses specific approaches, and elements of water quality standards and 401 certification regulations that EPA views as effective to implement the States' water quality certification authority.

7.7 Monitor and Enforce Compliance

As noted throughout the previous sections, monitoring is a crucial element of water quality-based decision making. Monitoring provides data for assessing compliance with water quality-based controls and for evaluating whether the TMDL and control actions that are based on the TMDL protect water quality standards.

With point sources, dischargers are required to provide reports on compliance with NPDES permit limits. Their discharge monitoring reports (DMR) provide a key source of effluent quality data. In some instances, dischargers may also be

required in the permit to assess the impact of their discharge on the receiving water. A monitoring requirement can be put into the permit as a special condition as long as the information is collected for purposes of writing a permit limit.

States should also ensure that effective monitoring programs are in place for evaluating nonpoint source control measures. EPA recognizes monitoring as a high-priority activity in a State's nonpoint source management program (55 F.R. 35262, August 28, 1990). To facilitate the implementation and evaluation of NPS controls, States should consult current guidance (USEPA, 1991g); (USEPA, 1993b). States are also encouraged to use innovative monitoring programs (e.g., rapid bioassessments (USEPA, 1989e), and volunteer monitoring (USEPA, 1990b) to provide for adequate point and nonpoint source monitoring coverage.

Dischargers are monitored to determine whether or not they are meeting their permit conditions and to ensure that expected water quality improvements are achieved. If a State has not been delegated authority for the NPDES permit program, compliance reviews of all permittees in that State are the responsibility of EPA. EPA retains oversight responsibility for State compliance programs in NPDES-delegated States. NPDES permits also contain self-monitoring requirements that are the responsibility of the individual discharger. Data obtained through self-monitoring are reported to the appropriate regulatory agency.

Based on a review of data, EPA or a State regulatory agency determines whether or not a NPDES permittee has complied with the requirements of the NPDES permit. If a facility has been identified as having apparent violations, EPA or the State will review the facility's compliance history. This review focuses on the magnitude, frequency, and duration of violations. A determination of the appropriate enforcement response is then made. EPA and States are authorized to bring civil or criminal action against facilities that violate their NPDES permits. State

nonpoint source programs are enforced under State law and to the extent provided by State law.

Once control measures have been implemented, the impaired waters should be assessed to determine if water quality standards have been attained or are no longer threatened. The monitoring program used to gather the data for this assessment should be designed based on the specific pollution problems or sources. For example, it is difficult to ensure, *a priori*, that implementing nonpoint source controls will achieve expected load reductions due to inadequate selection of practices or measures, inadequate design or implementation, or lack of full participation by all contributing nonpoint sources (USEPA, 1987e). As a result, long-term monitoring efforts must be consistent over time to develop a data base adequate for analysis of control actions.

7.8 Measure Progress

If the water body achieves the applicable State water quality standards, the water body may be removed from the 303(d) list of waters still needing TMDLs. If the water quality standards are not met, the TMDL and allocations of load and waste loads must be modified. This modification should be based on the additional data and information gathered as required by the phased approach for developing a TMDL, where appropriate; as part of routine monitoring activities; and when assessing the water body for water quality standards attainment.

REFERENCES

REFERENCES

WATER QUALITY STANDARDS HANDBOOK

SECOND EDITION