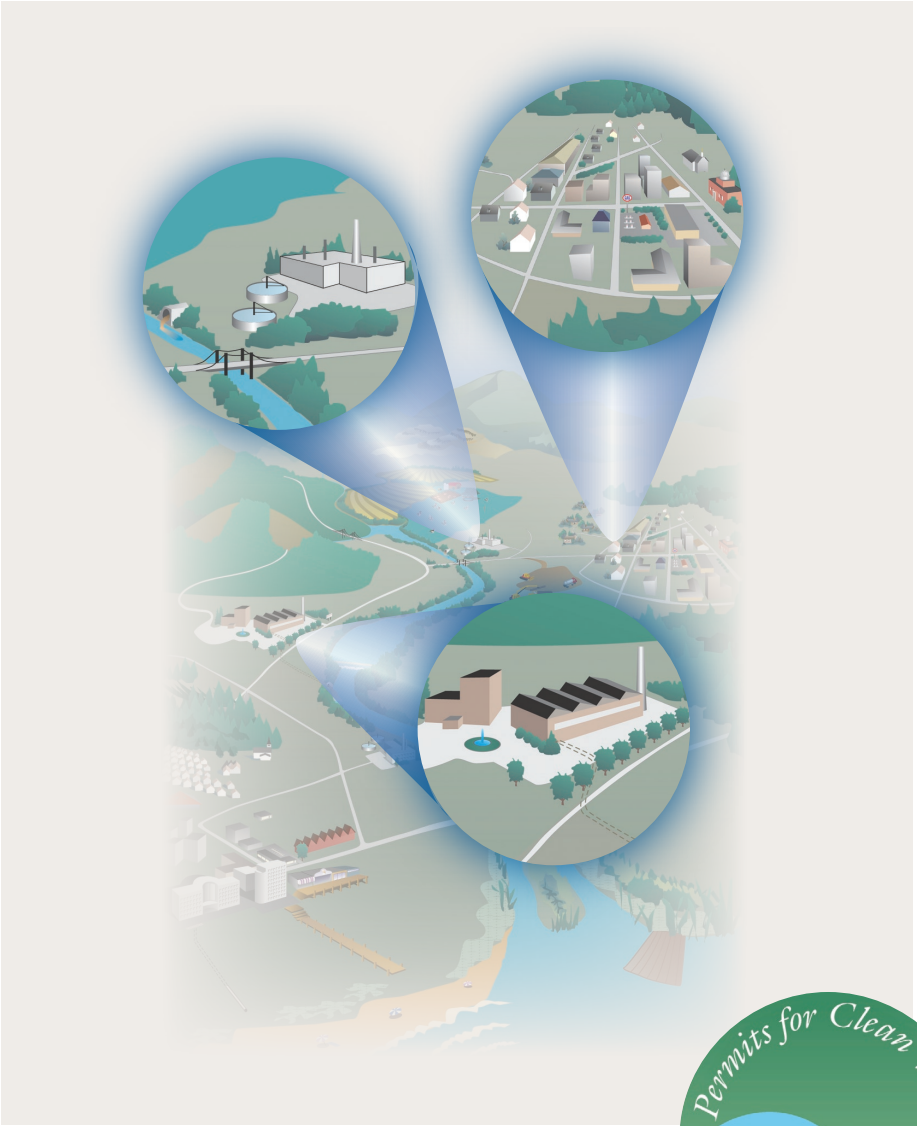
EPA
United States
Environmental Protection
Agency

Watershed-Based National Pollutant Discharge Elimination System (NPDES) Permitting Implementation Guidance



Permits for Clean Water
NPDES

This guidance expresses EPA's support for watershed-based NPDES permitting. Implementation of watershed-based permitting will be governed by existing requirements of the CWA and EPA's NPDES implementing regulations. Those CWA provisions and regulations contain legally binding requirements. This document does not substitute for those provisions or regulations. The recommendations in this guidance are not binding; the permitting authority may consider other approaches consistent with the CWA and EPA regulations. When EPA makes a permitting decision, it will make each decision on a case-by-case basis and will be guided by the applicable requirements of the CWA and implementing regulations, taking into account comments and information presented at that time by interested persons regarding the appropriateness of applying these recommendations to the particular situation. EPA may change this guidance in the future.

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Introduction and Purpose

The purpose of this guidance is to describe the concept of and the process for watershed-based permitting under the National Pollutant Discharge Elimination System (NPDES) permit program. Watershed-based NPDES permitting is an approach to developing NPDES permits for multiple point sources located within a defined geographic area (watershed boundaries) to meet water quality standards. This approach, aimed at achieving new efficiencies and environmental results, provides a process for considering all stressors within a hydrologically defined drainage basin or other geographic area, rather than addressing individual pollutant sources on a discharge-by-discharge basis.

This guidance focuses on defining both the general approach and the process for watershed-based NPDES permitting. The guidance addresses issues related to program implementation, but it does not provide detailed technical information or address procedural and administrative actions related to permit issuance. Those will be covered in future guidance documents. An overview of each section is provided below.

- Section One provides background information on the concept of watershed-based NPDES permitting and why U.S. Environmental Protection Agency (EPA) is encouraging this approach.
- Section Two describes EPA's recommended process for watershed-based NPDES permitting. This process is presented in six steps.
- Section Three describes the anticipated benefits and challenges associated with taking a watershed-based approach to NPDES permitting. Where related case study information is available, EPA has included it to illustrate the potential benefits and challenges of watershed-based NPDES permitting.
- Section Four looks ahead to the future of watershed-based permitting and provides a series of resources and references.

Section One: Overview

For nearly a decade the EPA has supported and encouraged a watershed approach to addressing water quality problems. Awareness and understanding of this approach has grown over time, but with demonstrated gaps in implementation. In December 2002 the EPA Assistant Administrator for Water issued a policy memorandum entitled "Committing EPA's Water Program to Advancing the Watershed Approach." This policy memorandum not only reaffirmed EPA's commitment to the watershed approach but also reenergized efforts to ensure that EPA as a whole fully integrates the watershed approach into program implementation. The memorandum established an EPA Watershed Management Council (WMC) to accelerate efforts to develop and issue NPDES permits on a watershed basis.

Following the release of the December 2002 watershed approach policy memorandum, EPA's Office of Water released the "Watershed-Based NPDES Permitting Policy Statement" on January 7, 2003. This statement communicates EPA's policy on implementing NPDES permitting activities on a watershed basis, discusses the benefits of watershed-based permitting, presents an explanation of the process and several mechanisms to implement watershed-based permitting, and outlines how EPA will encourage watershed-based permitting. It serves as both a formal commitment and a strategy for fully integrating the watershed approach into the NPDES permitting program and accelerating these efforts, as called for in the December 2002 watershed approach policy memorandum. Appendix A contains both the policy memorandum on advancing the watershed approach and the watershed-based permitting policy statement. These documents are also available on EPA's Web site at http://www.epa.gov/owow/watershed/memo.html and http://www.epa.gov/npdes/pubs/watershed-permitting-policy.pdf.

Although the process of watershed-based NPDES permitting involves a number of key players, the information contained in this implementation guidance targets the state regulatory agencies and EPA regional offices that serve as NPDES permitting authorities. The NPDES permitting authorities will need to move the process from concept to implementation. The watershed-based NPDES permitting process also requires the support of the regulated community. Point source dischargers in a watershed will play an active role in the process, assisting NPDES permitting authorities with collecting the information needed to calculate effluent limits and to select the appropriate type of watershed-based permit. The data collection that is an integral part of the watershed-based NPDES permitting process might also provide data for other programs (e.g., statewide monitoring and assessment programs). Data collection will be a cooperative activity shared by the NPDES permitting authority and the permittees. This guidance discusses some of these coordination and integration issues. It will help point source dischargers understand the process and the role that they can play in the permit program and other water quality programs. Other stakeholders, such as watershed organizations, residents of the watershed community, and entities that contribute nonpoint source pollution are important to the success of the watershed-based permitting process and might also find this implementation guidance useful.

What Is Watershed-Based NPDES Permitting?

As stated above, watershed-based NPDES permitting is an approach to developing NPDES permits for multiple point sources within a defined geographic area (watershed boundaries). The primary difference between this approach and the current approach to permitting is the consideration of watershed goals and the impact of multiple pollutant sources and stressors, including nonpoint source contributions. Watershed-based permitting may encompass a variety of activities ranging from synchronizing permits within a basin to developing water quality-based effluent limits using a multiple-discharger modeling analysis. The types of permitting activities will vary from watershed to watershed, depending on the unique circumstances in the watershed and the sources affecting watershed conditions. The ultimate goal of watershed-based NPDES permitting, however, is to develop and issue NPDES permits that consider the conditions of the entire watershed and address the diverse sources within the watershed, not just an individual point source discharger.

Why Does EPA Encourage Watershed-Based NPDES Permitting?

Although significant water quality improvements have been made during the past three decades, water quality problems remain. Many of the remaining problems involve complex mixtures of sources and impacts that require integrated, holistic solutions. According to the 2000 Clean Water Act section 305(b) analysis of the nation's waters, 39 percent of assessed rivers and streams, 51 percent of assessed estuarine square miles, and 46 percent of assessed lake, pond, and reservoir acres (not including the Great Lakes) do not fully support water quality standards. That analysis identifies point source discharges as one of several leading sources of impairment in assessed lakes, rivers, and coastal resources (USEPA 2002d).

Over the past decade, the number of sources subject to the NPDES program has increased almost tenfold. Given this national picture, there is a pressing need for innovative and efficient solutions to permitting these point sources that will result in further water quality gains. As a mechanism to help integrate other water program activities and to target the most pressing environmental issues within a watershed, a watershed-based approach to NPDES permitting can serve as one innovative tool for achieving new efficiencies and environmental progress. Section Three of this guidance discusses some of these potential benefits, as well as the challenges of watershed-based permitting, in greater detail.

Watershed-based permitting is a key tool under EPA's NPDES Permitting for Environmental Results Strategy (the Strategy), issued by the EPA Assistant Administrator for Water on August 15, 2003. As stated in the Strategy, it is "an important element in an overall plan to meet the watershed restoration

goals established in EPA's Strategic Plan." The overarching goal of the Strategy is "to more efficiently and effectively manage the NPDES permit program with an increased environmental focus" (USEPA 2003c). The Strategy contains the following primary components:

- Program Results: NPDES Permit Prioritization
- Program Efficiency: NPDES Permit Streamlining
- Program Integrity

Each component of the Strategy contains specific goals and detailed descriptions of tools to meet those goals. Under Program Efficiency, the Strategy lists several tools related to watershed-based permitting, demonstrating EPA's belief that this approach to developing and issuing NPDES permits can benefit watershed stakeholders through increased environmental results and administrative efficiencies. Appendix B contains the Strategy, which is also available on EPA's Web site at http://cfpub.epa.gov/npdes/strategy.cfm.

Not only is watershed-based permitting a potential tool for generating process efficiencies, but also for generating much needed cost efficiencies. Recent EPA reports related to the cost of clean water have found a significant disparity between the projected need and the current spending on capital costs and operation and maintenance of clean water and drinking water infrastructure. To address this gap in funding, EPA has developed a strategy intended to promote (1) better infrastructure management, (2) more efficient water use, (3) full cost pricing for revenue and conservation, and (4) watershed-based approaches to infrastructure planning. Watershed-based permitting, as well as other programs with a watershed-focus, have the potential to affect local planning decisions and improve coordination in terms of making investments in clean water and drinking water infrastructure.

EPA's Office of Water has researched and supported development of the watershed-based NPDES permitting approach throughout the past decade. The 1994 NPDES Watershed Strategy reflects EPA's earliest support, with continued backing for the approach through the Watershed Framework (1996), Effluent Trading in Watersheds Policy (1996), Draft Framework for Watershed-Based Trading (1996), and Water Quality Trading Policy (2003). As stated in the 1994 NPDES Watershed Strategy, "The NPDES program occupies a unique position within the overall water program, since it is both a key customer and an essential partner in supporting other Office of Water program activities and achieving many of our broader water quality goals."

In an effort to move from concept to implementation, EPA is undertaking a number of activities related to researching and analyzing past and current watershed-based NPDES permitting efforts. Experience in watershed-based NPDES permitting is growing through the efforts of some NPDES permitting authorities and watershed organizations. Highlights of existing watershed-based NPDES permits and other related activities (e.g., permit synchronization, statewide basin management) appear throughout this implementation guidance to provide real-world examples of how the watershed-based NPDES permitting concept and process can translate into practice. Appendix C contains case studies of some existing watershed-based permitting activities, which are also available on EPA's Web site at http://cfpub.epa.gov/npdes/wqbasedpermitting/wspermitting.cfm. These case studies provide an overview of the watershed, including water quality issues and pollutant sources affecting the watershed. They describe the NPDES permitting issues faced by permitting authorities and the point sources within the watershed, as well as the innovative permitting approach taken to achieve greater environmental results with more efficient use of resources. Many of the lessons learned from previous research, past and ongoing projects, and general watershed management activities provide a basis for this guidance.

Examples of Driving Factors for Watershed-Based NPDES Permitting

Not every watershed will take the same approach to watershed-based permitting; therefore not every approach will produce the same results. In some watersheds, the final outcome might be a new permit with new limits. In others, the result might be a watershed study to generate new data for site-specific water quality standards. Presented below are a variety of factors that may influence or drive watershed-based permitting.

Long Island Sound (CT): A watershed-based general permit for 79 publicly owned treatment works (POTWs) resulted from the creation of a nitrogen credit exchange program established to achieve a total nitrogen reduction goal in the Sound's watershed management plan.

Rahr Malting Company (MN): The individual permit contains a water quality-based effluent limitation for biochemical oxygen demand (BOD) driven by a TMDL. It includes provisions allowing the point source to trade impacts of an increase in its discharge from plant expansion for reductions in nonpoint sources of pollution upstream.

South Platte River (CO): Potential changes to the state's selenium water quality standard catalyzed affected point sources to initiate a cooperative data collection effort that will result in site-specific selenium criteria. These criteria will influence permit renewals for several dischargers.

Neuse River Compliance Association (NC): Long-term nutrient impacts led to the development of the Neuse River Basin Nutrient Sensitive Waters (NSW) Management Strategy, which establishes specific nutrient control requirements for point source dischargers in the basin. The strategy allows dischargers to form a group compliance association that can work together to meet their combined total nitrogen allocation.

How Does Watershed-Based NPDES Permitting Relate to Other Watershed Management Activities?

Understanding the concept and process of watershed-based NPDES permitting requires an understanding of the factors that can influence, and even drive, this approach. All watersheds are influenced by a wide array of management activities related to various regulations, plans, and programs. These activities might include local or state watershed management planning, Total Maximum Daily Load (TMDL) development and implementation, water quality trading, water quality standards modification through the triennial review process, and source water protection planning for drinking water supplies. In some cases, a basic interest among point sources in using a more efficient, cost-effective permitting approach will act as a catalyst for watershed-based NPDES permitting.

Ideally, watershed-based NPDES permitting should be integrated with other existing policies, programs, and permitting processes that influence overall watershed conditions. The National Research Council's 1999 report *New Strategies for America's Watersheds* looked at integration among surface, ground, and drinking water programs, as well as the various agencies that administer them. The findings of that report identified integration as a gap in existing watershed management efforts. A truly comprehensive watershed management approach should bring together key programs under the Clean Water Act, such as the NPDES Program, the TMDL Program, the Section 319 Nonpoint Source Program, and Section 404 Wetlands Permitting, as well as the Source Water Assessment Program under the Safe Drinking Water Act. Watershed-based NPDES permitting can be another tool to facilitate comprehensive programmatic integration at a watershed level and ensure that permitting activities tie into existing watershed management efforts. Below are brief descriptions of how watershed-based NPDES permitting can link to other programs and activities that influence watershed management.

Statewide Rotating Basin Planning Approach

The desire to better coordinate federally delegated programs under the Clean Water Act has led several states to develop and implement a statewide rotating basin planning approach. Under this approach,

Permitting According to the 5-Year Plan: State Examples of Permit Synchronization

Michigan: Basinwide permit reissuance is a key element of Michigan's NPDES permit backlog elimination plan. Established in 1983, this 5-year approach allows the state to reissue approximately 20 percent of NPDES permits each year. Benefits of this approach include coordination with NPDES support activities such as monitoring and inspections. Though this approach works well for reissuing individual permits, the rotating basin approach is challenging for the reissuance of general permits (MDEQ 2002).

North Carolina: The state established a statewide watershed management approach as a way to streamline NPDES permitting and integrate permit reissuance with water quality modeling at a watershed level. By 1998 the 17 river basins in the state had basin plans in place using a 5-year development process. During the 5-year period the state coordinates activities such as monitoring, modeling, TMDL development, nonpoint source planning, and NPDES permit limit development (USEPA 2002a).

Ohio: Permitting was based on priority until 1990, when the state made this activity a part of the 5-year rotating basin plan. In doing so, the state synchronized permitting with basin monitoring activities. This allowed the state to use basin monitoring data and comprehensive water quality reports when developing new permits. Basinwide synchronization is now carrying over to TMDL development: the state is attempting to develop TMDLs for all listed segments in a watershed at the same time (USEPA 2002a).

Washington: Recommendations of a Washington State legislature "efficiency commission" contributed to the development of Washington's statewide watershed framework. The state stresses that statewide coverage is ensured by scheduling water quality management areas, not prioritizing them. Permitting occurs during the implementation phase in the last year of the 5-year process. One of the lessons learned through this approach is "targeting issues for treatment each cycle provides focus" (Ecology 2003).

the applicable state agency delineates the watershed boundaries in the state and groups the watersheds into basin management units. After delineating the basin management units, states then implement a watershed management process according to a statewide rotating schedule. The process, which varies from state to state, usually comprises five activities: (1) data collection and monitoring, (2) assessment, (3) strategy development, (4) basin plan review, and (5) implementation (USEPA 2002a).

States stagger this process on a rotating basis, usually on a 5-year cycle. During the first year, step 1 takes place in a particular basin management unit. In the second year, step 2 takes place in the initial basin and step 1 takes place in another basin, and so on. This statewide rotating basin planning approach could generate the data required to inform the watershed-based NPDES permitting approach. States that use this approach are more likely to have stakeholders that are aware of watershed concepts and feel comfortable with the idea of developing and implementing a permitting approach for their basin management unit. A statewide rotating basin planning approach can serve as a strong foundation for watershed-based permitting activities.

The 303(d) List and TMDLs

It Starts with Standards …

Every waterbody has a set of water quality goals known as water quality standards. These standards, developed by states, identify the uses for each waterbody and the scientific criteria to protect that use.

Impairment Leads to Listing …

Waters that do not meet water quality standards are considered impaired. Section 303 of the CWA requires states to include impaired waters on a list referred to as the 303(d) list. States must develop TMDLs for impaired waters on the 303(d) list.

Allocations Are Met to Attain Standards …

A TMDL is a calculation of the maximum amount of a pollutant that a waterbody can receive and still meet water quality standards. Once the state calculates that maximum amount, smaller pieces of the TMDL pie (allocations) are allotted to pollutant sources. Both regulatory and voluntary actions by point and nonpoint sources are necessary to successfully implement a TMDL and achieve water quality standards.

Permit Synchronization

States have recognized the benefits of administering programs using a systematic approach based on

defined basin management units, as described under the statewide rotating basin planning approach, and have applied this approach to synchronize the issuance of NPDES permits. Synchronized permit issuance can lead to improved technical analysis and, therefore, more equitable NPDES permits. In addition, permit synchronization can result in administrative efficiencies, such as less travel time for monitoring and inspections (USEPA 2002a). Although permit synchronization on a basinwide basis does not ensure that permit limits will take watershed conditions into consideration, it is a significant watershed-based NPDES permitting activity that many states already implement. With this activity in place, states have a strong foundation for moving to watershed-based NPDES permit limits and other watershed-based permitting efforts.

Watershed Management Planning

Watershed management planning is an iterative process of goal-setting, data collection and analysis, problem identification, strategy development and implementation, and evaluation. This process, with meaningful stakeholder participation, is often the overarching management tool for achieving watershed goals. The watershed-based NPDES permitting approach can advance the goals established in a watershed management plan by providing a mechanism for coordinating control activities and data collection activities. In addition, it can provide a vehicle for public participation or for communication of the goals of the watershed management plan.

Not every watershed has a management plan that coordinates existing activities and information. In the absence of an existing watershed management plan, the watershed-based NPDES permitting process can initiate a broader dialogue about watershed goals, data needs, and possible pollutant control strategies. Developing permits provides a single mechanism for gathering much of the data necessary for watershed

What's the Point?

Pollutants can enter waters of the United States from a variety of pathways, including agricultural, domestic, and industrial sources. For regulatory purposes these sources are generally categorized as point sources or nonpoint sources.

Point Sources

A point source means any discernable, confined, and descrete conveyance, including but not limited to, any pipe, ditch, channel, tunnel, conduit, well, discrete fissure, container, rolling stock, concentrated animal feeding operation, landfill leachate collection system, vessel or other floating craft from which pollutants are or may be discharged. The term does not include return flows from irrigated agriculture or agricultural storm water runoff.

Nonpoint Sources

Nonpoint source pollution, unlike pollution from industrial and sewage treatment plants, comes from many diffuse sources. It is caused by rainfall or snowmelt moving over and through the ground, picking up pollutants and depositing them into nearby receiving waters. These sources can include agricultural lands, residential areas, forestlands, and construction sites less than one acre. In general, nonpoint sources are sources of runoff not addressed under the NPDES Program.

Distinguishing Between Point and Nonpoint Sources

Construction sites and municipalities with separate storm sewer systems are often regulated as point sources. Under the NPDES Storm Water Program, storm water runoff from construction activities disturbing more than 1 acre of land must have NPDES permit coverage. This same program requires NPDES permit coverage for municipal separate storm sewer systems (MS4s) in Urbanized Areas, including universities and federal facilities. When sources of runoff such as construction sites and MS4s do not fall under the NPDES regulations, they can be addressed as nonpoint sources of pollution.

For more information on point sources, see EPA's Water Permitting 101 document on EPA's NPDES Program Web site at www.epa.gov/npdes. For more information on nonpoint sources, visit www.epa.gov/owow/nps/. Consult with NPDES permitting authorities for state-specific information on point and nonpoint sources categorizations.

plans. As stakeholders gather and analyze the data necessary to develop the watershed-based NPDES permit, portions of the watershed management plan will begin to take shape and additional stakeholders might join the process.

Total Maximum Daily Load Development and Implementation

Watershed-based NPDES permitting, TMDL development and implementation, and watershed management planning can and should be tightly linked. Water quality impairments that lead to 303(d) listings and TMDL development often drive watershed management planning. Many of the actions necessary for a successful TMDL are also needed for a successful watershed approach. Therefore, common data needs between the TMDL approach and the watershed approach should be considered in watershed plans and reflected in NPDES permits developed at the watershed level.

Section 319 Nonpoint Source Management Program

One of the most challenging aspects of watershed management is effectively reducing nonpoint sources of pollution. Nonpoint source pollution is runoff from diffuse sources that picks up pollutants as it moves over and through land and deposits them in receiving waters. (See text box entitled "What's the Point?" for clarification of the differences between point and nonpoint sources of pollution.) Point sources in a watershed are issued federally required NPDES permits to regulate effluent discharges, but this type of federal regulatory mechanism does not exist for nonpoint sources. Nonpoint sources are managed largely through voluntary programs, although some states and local governments have regulatory mechanisms for some nonpoint source activities. Funding for best management practices to control nonpoint source runoff often provides an incentive for nonpoint sources to actively engage in watershed management. Given the impact nonpoint sources can have on a watershed, and the typically voluntary nature of nonpoint source management, it is imperative that stakeholders representing nonpoint source issues and interests actively participate in watershed management activities from the outset.

Each year EPA allocates funds to states with approved Nonpoint Source Assessment Reports and Nonpoint Source Management Programs under section 319(h) of the Clean Water Act. States can use these funds to implement programs and projects designed to reduce nonpoint source runoff, including nonpoint source TMDLs, ground water protection activities, and abandoned mine land reclamation projects. EPA's recently published guidelines for section 319 grant funds require that watershed-based plans for impaired waters include specific information that will "help provide assurance that the nonpoint source load allocations identified in the nonpoint source TMDL (and/or anticipated in NPDES permits for the watershed) will be achieved" (USEPA 2003b). According to those guidelines, watershed-based plans funded through section 319 grants must include information on causes and sources of nonpoint source pollution in the watershed, an estimated load reduction expected for nonpoint source management measures and a description of the management measures, an implementation schedule, measurable milestones for gauging success, estimates of financial and technical assistance, and an education component to encourage public participation (USEPA 2003b). EPA also encourages integration with other environmental programs, such as the U.S. Department of Agriculture's Environmental Quality Incentives Program (EQIP), to support the implementation of watershed-based plans developed using section 319 grants.

No matter how stringent permit requirements are for point sources, conditions in some watersheds will simply not improve without reductions in nonpoint source pollutant contributions. Funding provided through the section 319 grant program (and other associated funding programs such as Farm Bill programs for agricultural nonpoint sources) can play a significant role in achieving necessary nonpoint source pollutant reductions. The guidelines under the section 319 grant program can play a key role in watershed-based permitting. They provide an added incentive for nonpoint sources to participate in the

process: the information generated through the watershed-based permitting process will help section 319 grantees develop watershed-based plans that fulfill the section 319 grant requirements.

Water Quality Trading

EPA's Water Quality Trading Policy encourages the use of voluntary trading programs to achieve water quality improvements at reduced costs on a watershed basis. EPA's policy advances the view that water quality trading, as a market-based approach, increases flexibility to meet water quality goals while increasing efficiencies (USEPA 2003e). The policy recognizes the connections between water quality trading and the NPDES Program, as well as other Clean Water Act requirements. According to the policy, "Provisions for water quality trading should be aligned with and incorporated into core water quality programs … by incorporating provisions for trading into TMDLs and NPDES permits" (USEPA 2003e).

The development of watershed-based permitting approaches might catalyze the development of water quality trades. To facilitate water quality trading, it is necessary to quantify tradable units such as pollutant loads and load reductions. States can then develop procedures for using tradable credits in NPDES permits. EPA identifies several flexible approaches for incorporating provisions for trading into NPDES permits, including the "use of watershed general permits, where appropriate, to establish pollutant-specific limitations for a group of sources in the same or similar categories to achieve net pollutant reductions or water quality goals" (USEPA 2003e). The use of watershed general permits is discussed later in this document. Sources that have initiated trades may also consider the development and implementation of watershed-based permitting approaches, given the close connections in both data and process. In some cases watershed-based NPDES permit development might lead to the creation of a water quality trading program.

Source Water Protection Planning

Through the Source Water Assessment and Protection (SWAP) Program under the Safe Drinking Water Act, states are conducting assessments of the existing and potential threats to public water supplies by delineating source water protection areas (also referred to as protection zones), conducting contaminant source inventories, and determining the susceptibility of the public water supply to contamination from the inventoried sources. Operators of public water systems and other stakeholders involved in source water protection efforts can then take this information and develop source water protection strategies, in which watershed-based NPDES permitting can play a role. NPDES permitting authorities consider the proximity of point sources to surface water intake structures when developing permit limits. For example, to decrease risk, permit writers might generate more stringent permit limits for the point sources in the source water protection zone closest to the surface water intake structures than for those in the protection zone farthest from the intake structures.

Section Two: Developing and Implementing a Watershed-Based NPDES Permitting Approach

This document serves as a road map for those interested in taking a watershed-based approach to NPDES permitting. Gauging the interest and support of all potential participants–specifically permittees and the permitting authority–is crucial early in the process. The basic components of a watershed-based permit and many of the key steps in the watershed-based permitting approach are similar to those for individual NPDES permits, but the permit takes into account the entire watershed and all its sources rather than individual point sources. Much of the process is similar to what is involved in developing a TMDL for a waterbody.

Because the term watershed approach refers to a process that is unique and site-specific, NPDES permits developed using a watershed approach will not look the same in any two watersheds. Given the need for customization at the watershed level, this section presents a general process for developing NPDES permits that permitting authorities, point source dischargers, and other key stakeholders can use as a starting point. EPA intends for stakeholders to tailor this process as appropriate to fit the needs and circumstances in a specific watershed.

What Is a Watershed?

A watershed is a geographic area in which water, sediments, and dissolved materials drain to a common outlet such as a point on a larger stream, a lake, an underlying aquifer, an estuary, or an ocean. Watershed boundaries can transcend local, state, and national political boundaries.

The U.S. Geological Survey delineates watersheds in the United States using a nationwide system based on surface hydrologic features. This system divides the country into 21 regions, 222 subregions, 352 accounting units, and 2,262 cataloging units. These hydrologic units are arranged within each other, from the smallest (cataloging units) to the largest (regions). The U.S. Geological Survey identifies each hydrologic unit by a unique hydrologic unit code (HUC) consisting of 2 to 8 digits based on the four levels of classification in the hydrologic unit system.

Regions contain either the drainage area of a major river, such as the Missouri region, or the combined drainage areas of a series of rivers, such as the Texas-Gulf region, which includes a number of rivers that drain into the Gulf of Mexico. The Missouri region (2-digit HUC 10) covers more than 500,000 square miles and all or parts of 10 states and numerous tribal reservations. An example of a subbasin within the Missouri region is the Lower Yellowstone River subbasin in Montana and North Dakota (8-digit HUC 10100004). This subbasin covers 5,416.8 square miles.

The remainder of this document makes the assumption that watershed-based permitting is happening throughout a state on a select case-by-case basis, rather than on a statewide level, either in state-defined basin management units or in locally defined watersheds. EPA's suggested process for developing and implementing a watershed-based NPDES permitting approach consists of the following six steps:

Step One - Select a Watershed and Determine the Boundaries

Step Two - Identify Stakeholders and Facilitate Their Participation

Step Three - Collect and Analyze Data for Permit Development

Step Four - Develop Watershed-Based Permit Conditions and Documentation

Step Five - Issue Watershed-Based NPDES Permit

Step Six - Measure and Report Progress

Each step is discussed in more detail below. As mentioned earlier, NPDES permitting authorities will likely initiate and facilitate this process; therefore, the watershed-based permitting process primarily addresses this audience. However, highlighted text entitled "Where Do I Fit In?" appears throughout the process description, providing specific information to other stakeholders (e.g., permittees and watershed organizations) about the role they can play at certain points in the process.

Step One: Select a Watershed and Determine the Boundaries

Selecting the geographic boundaries of the watershed is an important first step. The process for watershed-based NPDES permitting can draw upon the experience of other programs and activities, such as TMDL development or other activities described in Section One of this document (see "How Does Watershed-Based NPDES Permitting Relate to Other Watershed Management Activities?"). If NPDES permitting authorities are looking for an appropriate watershed in which to start the watershed-based permitting process, watersheds with these activities and programs in place might make good candidates. The list of questions in the box below might also help NPDES permitting authorities determine whether a particular watershed is appropriate for this approach. Watershed boundaries will influence the scale and scope of every aspect of the process, particularly stakeholder involvement and data collection. The physical characteristics of the area and the jurisdictional limits affect the process for defining the boundaries of a watershed. The larger the watershed boundaries, the larger the scope of complexities such as multijurisdictional issues, data collection and management, stakeholder involvement, and funding. Those initiating the process for watershed-based NPDES permitting should keep these factors in mind when defining watershed boundaries. The watershed should be of a manageable size to allow for integration and coordination of water quality program activities with the permitting process.

Appropriate boundaries for watershed projects often depend on site-specific circumstances and the overall goals of the project. For example,

- States that use a watershed management approach for conducting assessments and prioritizing actions typically delineate water resources using hydrologic unit codes, or HUCs (see text box "What is a Watershed?"). The term basin typically refers to watersheds that have 6-digit HUCs and subbasin to watersheds that have 8-digit HUCs. These smaller watersheds might be well suited for

When Considering Watershed-Based NPDES Permitting, Consider This ...

- Does the state regulatory agency manage water resources on a watershed basis?
- Are data available to characterize the pollutant sources and overall condition of the watershed?
- Are point source dischargers in the watershed interested in or currently seeking innovative approaches to pollution control?
- Is there a desire on the part of major stakeholders to pursue a watershed approach to achieving watershed goals?
- Is there a watershed management plan in place or under development for the watershed?
- Have watershed stakeholders set local goals for the watershed?
- Does the watershed contain a local watershed organization? If so, does the organization perform key functions such as stakeholder education and outreach, monitoring, data management, or water quality modeling?
- Is there a single entity that controls multiple point sources in the watershed?
- Are any of the waters in the watershed impaired and listed on the state's 303(d) list? (Do they require TMDL development?)
- Is there an approved TMDL?
- Are NPDES permits in the watershed scheduled for reissuance in the near future? Do any of the expiration dates fall close together?
- Does nonpoint source pollution affect watershed conditions as well as point source discharges?
- Are surface or ground water sources of drinking water located in the watershed? Do any of these sources have, or will any have, a source water protection plan?

activities such as synchronizing permitting, coordinating permitting with other activities such as monitoring, or developing a permit that covers multiple sources in the basin or subbasin.

- Some metropolitan sewer districts have organized according to watershed boundaries, but these boundaries might include only the portions of HUCs that fall within the district's service area boundary. This type of watershed delineation, driven by a combination of natural and jurisdictional boundaries, reflects how project goals can determine the appropriate scope of a project.
- Through the Source Water Protection Program, states have created rules for delineating protection zones for surface water and ground water sources. These rules incorporate a prioritization scheme based on potential for source water contamination within natural watershed boundaries. As a result, management approaches become more intensive zone by zone based on proximity to drinking water sources within the overall watershed boundary. Source water protection zones and other source water protection considerations can also affect the development of permit limits by requiring the permitting authority to investigate for localized effects and watershed-wide effects in relation to source water protection as well as other water quality standards.

WHERE DO I FIT IN?
Selecting and Determining Watershed Boundaries

If you are the NPDES Permitting Authority, you can

- Identify watersheds with existing watershed-based programs and efforts to build on.
- Provide information to other stakeholders on the watershed delineations that the state uses to manage water resources.
- Present other watershed delineation options to participating stakeholders for consideration.
- Provide guidance to stakeholders on how to address and resolve multijurisdictional issues.

If you are a point source, you can

- Request that the NPDES permitting authority consider watershed-based permitting approaches.
- Develop options for delineating watershed boundaries.
- Provide information on how the local community views the watershed.
- Comment on watershed boundary options presented by the permitting authority.

If you are a non-NPDES stakeholder, you can

- Suggest watershed delineation options.
- Share information about existing watershed efforts and the boundaries in which they operate.

As in the examples above, the drivers for watershed-based NPDES permitting can help to establish watershed boundaries. In some watersheds, TMDL development might serve as the impetus for watershed-based permitting. In others, comprehensive watershed management planning might emphasize the necessity for a watershed approach to permitting. The watershed boundaries established through these projects might serve as a good starting point for determining the most appropriate boundaries for watershed-based NPDES permitting. As the permitting process moves forward, permitting authorities might adjust watershed boundaries to reflect the concerns of other stakeholders in the process or a desire to narrow or broaden the scope of watershed-based permitting activities.

Step Two: Identify Stakeholders and Facilitate Their Participation

Successful watershed management efforts require identifying and involving the key players, or stakeholders, that should participate in the process from the outset because they influence and are affected by watershed decisions. Early and continuous stakeholder involvement can garner stakeholder participation and support on potentially contentious decisions. Meaningful stakeholder involvement can produce stakeholders that have ownership over the process and feel empowered. This is important to guarantee implementation of the outcomes of this potentially resource-intensive stakeholder negotiation

process. Stakeholder involvement is particularly important in watershed-based permitting, where sustained voluntary participation of nonpoint sources might be the key to meeting water quality goals, regardless of the watershed-based permit limits reflected in NPDES permits for point sources.

Identifying Stakeholders

For watershed-based NPDES permitting, there are two categories of stakeholders to consider: NPDES stakeholders and non-NPDES stakeholders. The category referred to as NPDES stakeholders includes those directly involved in the NPDES permitting process, which in most cases are the NPDES permitting authority (NPDES program managers and permit writers from the state environmental regulatory agency or EPA regional office) and NPDES permittees. Other NPDES stakeholders might include other state agency and EPA regional staff who are working directly in the watershed and have access to important data and information (e.g., watershed coordinators, TMDL program staff, source water protection program staff).

The category referred to as non-NPDES stakeholders includes other key watershed stakeholders that are not directly involved in the NPDES permitting process but that affect, or are affected by, the overall condition of the watershed. Stakeholders in this category might include active local watershed organizations, entities that contribute nonpoint source pollution, and residents. The NPDES permitting authority and a few of the point source dischargers most likely will initiate and facilitate the watershed-based permitting process.

The list of stakeholders that should participate in a watershed-based permitting process will vary from watershed to watershed. Identifying and involving stakeholders is an iterative process. Initially, the list of both categories of stakeholders should be comprehensive, representing all interests at the federal, state, and local levels. As an understanding of the watershed, the water quality conditions, and the sources affecting water quality develops, permitting authorities will gain a better understanding of who is interested in actively participating. As a result, the list of participating stakeholders might shrink or expand as the process moves forward.

Types of Stakeholder Involvement In Watershed-Based NPDES Permitting

NPDES Stakeholders

Who Are They?

- NPDES permitting authority
- EPA
- Other federal partners and land managers (e.g., Department of Defense, Bureau of Land Management, Department of Energy Department of Agriculture, U.S. Geological Survey)
- Municipalities
- POTWs
- Industrial facilities
- Developers
- Concentrated Animal Feeding Operations (CAFOs)
- Other watershed-related staff (e.g., EPA, state, and tribal TMDL program staff, state and tribal water quality standards staff, state and tribal watershed coordinators)

What Role Do They Play?

- Initiate the process
- Facilitate the process
- Identify other stakeholders
- Provide technical direction for the process
- Educate non-NPDES stakeholders on NPDES issues
- Contribute data and information
- Provide input on the technical process

Non-NPDES Stakeholders

Who Are They?

- Agricultural interests
- Local watershed organizations
- Residents
- Businesses
- Universities
- Federal agency partners
- State agency partners
- Local planning organizations
- Local health departments
- Local water utilities

What Role Do They Play?

- Contribute data and information
- Provide input on the technical process
- Educate other watershed stakeholders
- Implement additional solutions to control other watershed stressors

Other important stakeholders can also affect the NPDES permitting process. Nongovernmental organizations, such as watershed groups and other environmental nonprofit groups, often become involved in NPDES permitting activities by providing comments on draft permits, conducting water quality monitoring activities, and educating the public on water quality and wastewater issues. Federal agencies active in watersheds, such as the National Park Service and the U.S. Geological Survey, are important partners to involve in the process. Even if these agencies are not NPDES permittees in the watershed, they might conduct activities important to the overall process, such as data collection, public education, or land management.

Although stakeholders contributing nonpoint source pollution to the watershed are not directly affected by the NPDES program, they should be invited to participate in the watershed-based permitting process. This group may include local farmers, residents, businesses, and schools. In some watersheds, stakeholders typically thought of as point sources due to storm water runoff (e.g., municipalities, developers, universities) might not be required to obtain NPDES permit coverage because of regulatory definitions (e.g., the municipality falls outside an Urbanized Area or the construction site is less than 1 acre) and would participate in the process as nonpoint sources. As stated above, the types of nonpoint sources affecting the watershed will become more clear with additional data and information. If new information reveals that other stakeholders affect, or are affected by, watershed conditions, they should also be invited to participate in the process. Stakeholders that contribute nonpoint source pollution to the watershed might play a critical role in achieving overall loading reductions of pollutants of concern. As stakeholders in the watershed-based permitting process, they will learn about the watershed and their impact on water quality and be able to provide their input on watershed goals. Their involvement increases the chances for successful voluntary measures for nonpoint source pollutant reductions and for participation in any trading program in the watershed.

Throughout the process of watershed-based NPDES permitting, each type of stakeholder will play a specific role and have certain responsibilities. Many of these roles and responsibilities are not dictated by whether the stakeholder falls into a specific category, but rather by each stakeholder's area of expertise, available resources, and jurisdictional authorities. Roles and responsibilities of significant stakeholders are defined below.

U.S. Environmental Protection Agency

EPA's role will include providing technical assistance to the permitting authority, providing educational background on the permitting process to all stakeholders, providing direction regarding compliance with the Clean Water Act and other regulatory requirements, developing tools such as additional guidance, and conducting outreach such as training for permit writers and other stakeholders interested in the process. EPA will also play an important oversight role where the state agency is the NPDES permitting authority.

NPDES Permitting Authorities

The NPDES permitting authority will play the central role in watershed-based permit development. It ultimately has the responsibility for leading permit negotiations, including determining the appropriate type of permit to develop and issue; identifying eligible sources; and setting appropriate permit limits, monitoring requirements, and other permit conditions. The permitting authority may initiate the watershed-based permitting process within a particular watershed or may respond to the initiative of one or more point sources or other stakeholders. In either case, support from the permitting authority for both the concept of watershed-based permitting and the specific process used to develop the permit is essential.

The permitting authority will need to work closely with EPA to identify and address potential regulatory challenges and technical issues associated with developing an NPDES permit on a watershed basis. It will also play the important role of identifying and involving both categories of stakeholders, including those

that contribute nonpoint source pollution, and working with those stakeholders to customize the permit development process to the specific watershed. Finally, the permitting authority will have the primary role in defining and measuring the success of the watershed-based permitting effort.

Point Sources

As the stakeholders ultimately responsible for permit implementation, point sources must support the watershed-based permitting concept and process for it to be successful. Point sources will work with the NPDES permitting authority to customize the permitting process for the watershed, calculate appropriate permit limits, and develop other suitable permit requirements (e.g., comprehensive, integrated reporting and monitoring). In addition, point sources should be encouraged to assist the permitting authority in identifying other key stakeholders, as well as engaging other point source dischargers in the watershed that initially elect not to participate.

Point sources currently play an important role in collecting and managing facility-specific data. In watershed-based permitting, point sources might also decide that collecting and managing watershed-level data could benefit their involvement in the process. They should also help the permitting authority define measures of success for the watershed-based permit. Monitoring conducted by point sources will help track progress toward these goals.

Other Watershed Stakeholders

Other watershed stakeholders, such as active local watershed organizations, nonpoint sources, state and local agencies, universities, and residents, will have a role in educating the permitting authority, EPA, and point sources about specific local watershed issues and concerns. Although water quality standards are the primary goals of NPDES permits, the watershed-based permitting process can incorporate additional watershed goals. Other watershed stakeholders might help set additional goals for the permitting process (e.g., habitat restoration and improved recreational opportunities) and provide input on how the process should be tailored to the specific watershed.

As the permit is developed, these stakeholders might be a source of important watershed-level data or might engage in data collection to help fill any gaps. They might also be called upon to serve as facilitators, provide technical expertise (such as modeling), or identify and implement additional non-NPDES solutions to help achieve water quality goals.

Facilitating Participation

Although stakeholder participation is listed here as one of the early steps in this overall process, it is not a discrete step. Early and continuous stakeholder involvement is essential to the success

WHERE DO I FIT IN?
Identifying Stakeholders and Facilitating Their Participation

If you are the NPDES Permitting Authority, you can

- Generate a list of potential stakeholders within the watershed and convene a new group.
- Identify existing watershed organizations and ask to attend their meetings to recruit stakeholders or educate stakeholders on watershed-based permitting.
- Identify representatives from stakeholder groups and request assistance in identifying other stakeholders.

If you are a point source, you can

- Identify other stakeholders that might have an interest in participating in watershed-based permitting.
- Lead the effort to initiate a group of stakeholders and approach the permitting authority with a proposal.
- Learn about the approach and present information to local groups that have potential stakeholders as members.

If you are a non-NPDES stakeholder, you can

- Invite the permitting authority to speak at a meeting attended by possible stakeholders in the process.
- Share information with the permitting authority about other possible stakeholders.
- Develop and present information on watershed-based permitting to other potential stakeholders to gauge interest in the approach.

of any watershed approach. EPA envisions that stakeholders' actions will fuel the entire process and that every step will include some aspect of stakeholder involvement.

To help guide the stakeholder group throughout this process, identifying a facilitator could prove advantageous. A facilitator can develop and enforce guidelines for participation in any stakeholder meetings, ensure that all interests are heard, assess stakeholders' degree of understanding of the process and technical details of watershed permitting, and identify points of contention impeding the process and help the group to work through them.

Watershed Stakeholders Planning for Action

It took nearly 3 years and consensus from a 120-member Watershed Action Team to develop a watershed action plan to restore the Elizabeth River watershed in Virginia. The plan, sponsored by the Elizabeth River Project, identifies 18 action items that reflect the concerns and priorities of the local watershed stakeholders.

Action items that could influence a watershed-based permitting effort include reducing toxics and nutrients in storm water runoff, establishing a monitoring program and data bank, and supporting efforts to implement a load allocation approach as a voluntary approach to watershed management (Elizabeth River Project 2002).

After identifying the initial stakeholder group and the appropriate facilitator, it is essential to conduct a few very basic activities: (1) educate stakeholders on the concept of watershed-based NPDES permitting and obtain their support for this approach, (2) provide stakeholders with background information and known data on the condition of the watershed, and (3) obtain input from stakeholders on both the concept of watershed-based permitting and the factors affecting implementation in their watershed.

The stakeholder group could serve as the collective decisionmaking body for some aspects of the watershed-based NPDES permitting effort (e.g., goal setting) or as a group that simply provides advice and guidance to the permitting authority. Given the various backgrounds, interests, and areas of expertise among the group, it is important that everyone has a general understanding of the NPDES program and the watershed-based NPDES permitting concept. The NPDES permitting authority or a representative from EPA should provide the group with this information. In addition, the permitting authority might want to compile readily available information about the health of the watershed (e.g., existing watershed management plans, state 305(b) reports, volunteer monitoring information) to provide stakeholders with an introduction to the water quality issues in the watershed.

Once the members of the stakeholder group have reviewed basic information about the watershed and the concept of watershed-based NPDES permitting, they can begin to examine the approach and consider ways to customize it for their watershed.

Step Three: Collect and Analyze Data for Permit Development

As with development of any NPDES permit, the permitting authority developing a watershed-based permit needs to collect and analyze data on receiving water standards and goals, receiving water characteristics, and sources of pollutants to the waterbody. These data will be used as inputs for water quality models that will assist the permitting authority in establishing appropriate requirements in the watershed-based permit. Because a watershed-based permit addresses multiple sources within the watershed, this data collection and analysis process will be similar to that used in developing TMDLs for impaired waterbodies. Data collection and analysis for watershed-based permitting, however, is further complicated by the fact that the analysis might address not only multiple sources but also multiple pollutants. This section lists questions stakeholders should consider when conducting initial data collection and analysis, and lists potential sources for those data.

Receiving Water Standards and Goals

- What are the applicable water quality standards?
  - Designated uses
  - Numeric criteria (including magnitude, duration, and frequency) and narrative criteria
  - Antidegradation policy and implementation procedure
- Are water quality standards scheduled for review or have changes to water quality standards been proposed?
- Are there any variances to existing water quality standards?
- What are the critical conditions under which the water quality standards apply (e.g., low flow)?
- Do different water quality standards provisions apply under different critical conditions (e.g., low flow vs. peak flow conditions)?
- What is the state or tribal mixing zone policy?
- Is there a TMDL or watershed plan?
- What other goals, in addition to water quality standards, have stakeholders identified?
  - Water quantity
  - Endangered species habitat protection
  - Drinking water source protection
  - Green space protection
  - Recreation
- Have the stakeholders identified any water quality goals that should be modified (e.g., through a Use Attainability Analysis)?

Identifying Pollutant Hot Spots: Selenium Stakeholders Case Study

Members of the Selenium Stakeholders Group in Colorado work together to collect information on the sources of selenium in the South Platte River watershed. Through their monitoring efforts, the Selenium Stakeholders Group identified "hot spots" of selenium and traced these elevated concentrations upstream to nonpoint sources in the watershed. By collaboratively monitoring, the Selenium Stakeholders Group revealed important information about upstream selenium concentrations that the state would use as background concentrations in calculating permit limits. The comprehensive data set generated by the group will contribute to the development of a site-specific selenium criterion that will affect future permit limits.

Working as a consortium of watershed point source dischargers allowed members of the Selenium Stakeholders Group to generate a significant amount of data while leveraging their resources. The result was a larger data set to support the goals of all point source dischargers at a lower cost to each member (Congram et al. 2002).

Sources:

- State or tribal water quality standards.
- Use Attainability Analyses for water quality standards.
- Approved TMDLs.
- State, tribal, or local watershed plans.
- State, regional, tribal, or local ordinances, authorities, or initiatives.
- Stakeholder meeting decisions or other input about water quality goals (e.g., meeting minutes, watershed group planning documents).

Receiving Water Data

- Is the receiving water meeting water quality standards?

- What are the characteristics of the receiving water under critical conditions (e.g., low or high flow, temperature, pH, hardness)?
- What unique issues related to overall water quality should be considered in the permitting process (e.g., endangered species, historic preservation)?

Sources:

- Clean Water Act 305(b) reports.
- Clean Water Act 303(d) listings of impaired waters.
- TMDL analyses.
- State, tribal, or local watershed plans.
- U.S. Geological Survey stream data (flow, water quality).
- EPA, state, or tribal monitoring data (e.g., STORET).
- Discharge Monitoring Reports.
- Environmental Impact Statements.
- Federal and state endangered species and historic preservation laws.
- Special studies by regulatory authorities, point sources, or other agencies (e.g., U.S. Fish and Wildlife Service).

WHERE DO I FIT IN?
Collecting and Analyzing Data for Permit Development

If you are the NPDES Permitting Authority, you can

- Collect all relevant data available at the state level and identify data gaps.
- Initiate a process for assessing data availability among watershed stakeholders.
- Identify a strategy for addressing existing data gaps and present the strategy to the stakeholder group (use mechanisms such as Clean Water Act section 308 or state equivalent).

If you are a point source, you can

- Share existing data from ongoing monitoring efforts.
- Initiate a monitoring consortium with other point and nonpoint sources.
- Contribute resources to fill data gaps.

If you are non-NPDES stakeholder, you can

- Organize a volunteer monitoring program with input from the permitting authority to collect data.
- Share existing data from ongoing monitoring efforts.
- Write a grant proposal to obtain funds for a watershed monitoring program.

Pollutant Source Data

- What point sources are located within the watershed and where are they?
- What nonpoint sources are located within the watershed and where are they?
- Are there major pollutant sources that originate outside the watershed (e.g., upstream sources, air deposition)?
- What loading of each pollutant of concern is contributed by each source?
- How are loadings transported to and within the watershed?

Sources:

- Federal, state, or local geographic information system layers (e.g., point source layer, land use layer).
- Permit applications.
- Discharge Monitoring Reports.
- Special studies conducted by the discharger (e.g., mixing studies).
- Nonpoint source loading estimates from modeling.
- Drinking water source water assessments.

Some or all of these data would be used to establish NPDES permit conditions for point sources in the watershed. At this stage of the process, the NPDES stakeholders initiating the process might decide it is appropriate to change the scope of the watershed-based permitting effort. For example, based on an analysis of existing water quality, the watershed-based permit might be tailored to focus on a single pollutant or a few critical pollutants of concern for which there are a number of sources in the watershed. Or, the stakeholders might analyze data on sources and determine that the watershed permit should address multiple pollutants for only one category of sources (e.g., municipal discharges). The stakeholders might choose to limit or enlarge the geographic scope of the watershed-based permit to reduce complexity, or to reduce or expand the number of sources and pollutants the permit considers.

In the course of completing this step, stakeholders might also identify a need to generate additional data to support the watershed-based permitting process. Additional data and information could come from the following sources:

- Requests under the authority of Clean Water Act section 308 for point sources to provide additional information needed to develop their NPDES permits (e.g., effluent data, mixing studies).
- Voluntary monitoring or other studies by permittees participating in the watershed-based permitting process, perhaps through a monitoring consortium.
- Additional monitoring studies conducted by EPA, the state, a tribe, or a local government.

Any additional monitoring performed to support the watershed-based permitting process should follow federal and state data collection standards to ensure high-quality, credible data. If a state intends to conduct additional monitoring to support watershed-based permitting, the monitoring program developed to fulfill this need should address the 10 elements outlined in the document *Elements of a State Water Monitoring and Assessment Program* (USEPA 2003). If stakeholders are assisting with additional data collection efforts, monitoring programs should comply with the state's data quality management plan and quality assurance program.

Step Four: Develop Watershed-Based Permit Conditions and Documentation

An NPDES permit has five major components: (1) a cover page, (2) effluent limitations, (3) monitoring and reporting requirements, (4) special conditions, and (5) standard conditions. In addition, each permit has an administrative record that documents the basis for permit conditions. One element of the administrative record is a fact sheet or statement of basis that explains the rationale for the effluent limitations, monitoring and reporting requirements, and any special conditions. This section summarizes the content of and process for developing each of these major permit components and the appropriate documentation for a watershed-based permit.

Cover Page

Though only a small portion of any NPDES permit, the cover page has a critical administrative function. It typically includes the name and location of the permittee(s), a statement authorizing each discharge, a list of locations of authorized discharges, and the effective period of the permit (not to exceed 5 years).

Effluent Limitations

Effluent limitations are requirements that restrict pollutant discharges from point sources. Permitting authorities spend a large portion of the time for permit development determining appropriate effluent limitations. Effluent limitations are developed by considering the technology available to treat pollutants (technology-based limits) and the protection of the designated uses of the receiving water (water quality-based limits). The most protective limitation (technology- or water quality-based) is included in the permit.

Technology-Based Limitations

For many point sources, technology-based effluent limitations are based on national standards. Municipal (POTW) discharges must meet secondary treatment standards, and many nonmunicipal (industrial) discharges must meet national effluent limitations guidelines promulgated by EPA. Where national requirements are not available for industrial discharges, the permitting authority might have to establish technology-based limitations for each discharger based on best professional judgment.

Technology-based requirements in watershed-based permits are developed in the same manner as technology-based requirements for traditional individual permits. The applicable national standards apply regardless of geographic location and are based on the performance capability of the specific industry. Similarly, technology-based limits developed by best professional judgment, although calculated for a specific discharger, are also based on performance capabilities. Technology-based effluent limits do not depend on the specific watershed or on site-specific environmental factors such as stream flow or existing ambient water quality. Where a watershed-based permit covers more than one category of discharges, there may be some technology-based requirements in the permit that apply to only a subset of all the discharges covered by the permit.

If technology-based effluent limitations are not sufficient to attain and maintain the applicable water quality standards, permitting authorities must develop water quality-based effluent limitations. Developing water quality-based effluent limitations presents the best opportunity to consider permit conditions based on overall watershed conditions, interaction among sources in the watershed, and watershed goals.

Water Quality-Based Limitations

EPA issued detailed guidance on developing water quality-based effluent limitations for toxics in its Technical Support Document for Water Quality-Based Toxics Control (1991). Traditionally, water quality-based effluent limitations developed using the approach in that document reflect only the impact of the discharge from the facility, combined with upstream background concentrations or loadings of the pollutant of concern, where such data are available. Water quality-based effluent limitations developed for watershed-based permits, however, should consider multiple sources in the watershed. The permitting authority might have to use water quality models to determine the allowable pollutant load from all sources based on the applicable water quality standards or goals.

The key task in developing water quality-based effluent limits in a watershed-based permitting approach is determining the appropriate wasteload allocations for each of the point sources. Again, this process should already have been completed if there is a TMDL or watershed plan. These allocations may be expressed through multiple, coordinated permits or a single permit that applies to multiple sources.

It is possible that some point sources included in a watershed-based permitting process will not have water quality-based effluent limitations for all pollutants of concern. The Clean Water Act and implementing regulations for the NPDES program require water quality-based effluent limits where necessary to achieve water quality standards. Where a facility does not have the "reasonable potential" to cause or contribute to an ambient excursion of water quality standards for a particular pollutant, a water quality-based effluent limitation for that pollutant at that facility is not necessary (40 CFR 122.44(d)).

Developing Appropriate Limits for Storm Water Discharges

Effluent limitations to control point source discharges are usually expressed in numerical form. However, for many storm water discharges, it may be infeasible to calculate numeric effluent limits. In these cases effluent limits may be expressed as BMPs (see 40 CFR122.44(k)). For more information on appropriate effluent limitations for storm water discharges visit EPA's Web site at www.epa.gov/npdes/pubs/swpol.pdf and www.epa.gov/npdes/pubs/final-wwtmdl.pdf.

Thus, it is possible that even a single watershed-based permit that applies to multiple sources could have a common set of water quality-based effluent limits for all point sources covered by the permit, as well as some water quality-based effluent limits that apply to a limited subset of dischargers. The more diversity in applicable effluent limitations across the set of point sources considered in the watershed-based permitting process, the more complex the watershed permit or permits will be. After assessing the need for water quality-based limits for all the point sources in the watershed, stakeholders might determine that it is desirable to narrow the scope of the watershed permitting effort to a limited set of discharges or pollutants in the watershed (see Step Five: Issue Watershed-Based NPDES Permit).

The fact sheet or statement of basis for the permit should explain all decisions made in developing the water quality-based effluent limits, including the rationale and assumptions used in deriving the limits. Fact sheets not only describe the factual, legal, and policy questions considered in preparing a permit, this element of the permit administrative record also documents the methodological issues addressed in preparing the permit. Given watershed-based permitting is site-specific and might require new calculations and methodologies, the permit fact sheet will help the general public understand both the rationale and the process of developing permit conditions and assist other permit writers that are undertaking a similar watershed-based approach.

Monitoring and Reporting Requirements

Monitoring and reporting requirements in a permit are used to characterize effluent and receiving water quality, evaluate wastewater treatment efficiency, and determine compliance with other permit conditions. Monitoring and reporting requirements in a watershed-based NPDES permit are likely to be a combination of individual discharges and watershed-wide requirements. Monitoring and reporting requirements included in the permit must provide the necessary data for the permittee to demonstrate compliance with the permit conditions. They should also support other watershed management activities. The monitoring should be part of the overall monitoring and assessment plan for the watershed and provide data needed to determine progress toward watershed goals.

Individual Requirements

In a watershed-based permit, dischargers with individual technology-based or water quality-based effluent limitations or other individual permit conditions (e.g., ambient monitoring) will continue to have individual monitoring and reporting requirements that reflect those permit conditions. The *U.S. EPA NPDES Permit Writers' Manual* provides guidance on establishing individual monitoring and reporting requirements.

Watershed-Wide Requirements

In addition to individual monitoring and reporting requirements, watershed-based NPDES permits may contain watershed-wide requirements that could be applied to multiple dischargers in the watershed. For example, permittees might form a monitoring consortium to collect ambient water quality data that

Useful Monitoring and Reporting Resources

USEPA. 1996. *U.S. EPA NPDES Permit Writers' Manual*. EPA-833-B-96-003, Office of Water (4203) U.S. Environmental Protection Agency, Washington, DC. www.epa.gov/npdes/pubs/chapt_07.pdf

USEPA. 1996. *The Volunteer Monitor's Guide to Quality Assurance Project Plans*. EPA-841-B-96-003, Office of Wetlands, Oceans and Watersheds, U.S. Environmental Protection Agency, Washington, DC. www.epa.gov/owow/monitoring/volunteer/qappcovr.htm.

USEPA. 1997. *Monitoring Consortiums: A Cost-Effective Means to Enhancing Watershed Data Collection and Analysis*. EPA-841-R-97-006, Office of Water (4503F) U.S. Environmental Protection Agency, Washington, DC. www.epa.gov/owow/watershed/wacademy/its03/

USEPA. 2003. *Elements of a State Water Monitoring and Assessment Program*. EPA-841-B-03-003, Assessment and Watershed Protection Division, Office of Wetlands, Oceans and Watersheds, U.S. Environmental Protection Agency, Washington, DC. www.epa.gov/owow/monitoring/elements/elements03_14_03.pdf

supplements end-of-pipe monitoring data required by NPDES permits. Through a monitoring consortium, permittees could generate data that could be used in Clean Water Act section 305(b) water quality reports and other watershed assessments. Depending on the structure of the watershed-based permit(s), watershed-wide requirements might be coordinated across several individual permits or contained in a single permit that applies to multiple sources. EPA has developed guidance on monitoring consortiums that might be helpful to permitting authorities in developing watershed-wide monitoring and reporting requirements (USEPA 1997).

Special Conditions

Special conditions in watershed-based permits may include best management practices, compliance schedules, administrative and reporting requirements associated with a trading program, or special studies (e.g., mixing zone analyses, site-specific criteria studies, studies to support analyses of attainability of designated uses, bioaccumulation studies). Special conditions may be applied to individual dischargers, to a group of dischargers, or watershed-wide. Incorporating requirements for special studies into a watershed-based permit presents an excellent opportunity for maximizing efficient use of stakeholder resources. For example, a group of dischargers collectively held responsible for a special study on sediment contamination might be able to complete the study more quickly and with less resources than if the permitting authority had to include requirements in individual permits to try to obtain the desired information.

Standard Conditions

Standard conditions are preestablished conditions that must be included in every NPDES permit, including watershed-based permits. Standard conditions describe the legal, administrative, and procedural requirements of the permit. Certain standard conditions are required by federal regulation (see 40 CFR 122.41 and 122.42), but state permitting authorities may have additional standard conditions adopted in their state regulations.

Administrative Record

The administrative record forms the foundation for issuing a permit. Where EPA is the permitting authority, the contents of the administrative record are prescribed by regulation (40 CFR 124.9 and 124.18). In addition to the supporting documentation that would be in the record for any NPDES permit, the record for a watershed-based permit may include reports from facilitated stakeholder meetings, local watershed plans, nonpoint source loading or load reduction estimates, and any other documentation that explains or supports watershed-based requirements in the permit. Stakeholders interested in the success of a watershed-based permit should help to make sure that the permitting authority has the information it needs to develop a complete, well-organized administrative record that is easy to access and understand.

Step Five: Issue Watershed-Based NPDES Permit

The most important factors affecting the process for issuing a watershed-based permit will be the administrative requirements and the type or structure of the permit.

Permitting authorities, permittees, and other stakeholders need to be familiar with the specific administrative requirements for permit issuance in their jurisdiction (in accordance with 40 CFR Part 124). Administrative requirements address public notice and comment; public hearings; EPA and state or tribal permit review; actions required for final permit issuance (e.g., approval of the state environmental board); and requirements for modification or for permit appeal after final permit issuance. These requirements vary by jurisdiction.

Another major factor affecting the permit issuance process is the type or structure of the watershed-based permit. Watershed-based NPDES permitting approaches will vary from watershed to watershed. As a result, the types of permits developed through a watershed-based permitting process will vary. There is no single model or example of what an NPDES permit developed through watershed-based permitting should look like. Possible watershed-based permitting mechanisms are variations of general and individual point source NPDES permitting approaches. Examples of possible approaches are described below in more detail.

Integrated Municipal NPDES Permit

Coverage This permitting approach bundles all point source requirements for a municipality (POTWs; combined sewer overflows; storm water, including municipally owned industrial activities such as public works and utility yards; biosolids; and pretreatment) into a single permit.

Rationale Many municipalities have multiple wastewater treatment plants, with each plant receiving a separate permit. In cases where the treatment plants; storm water; combined sewer overflows, if applicable; and other municipally controlled point source activities are all under single ownership and within the same watershed boundaries, the permitting authority could consider one permit that covers and integrates all NPDES requirements.

Benefits This approach will reduce the administrative burden for both the permittee and permitting authority (e.g., one application, one public notice and public hearing, one compliance report) and will allow the permitting authority to develop permit conditions (limits and monitoring requirements) that specifically address existing watershed goals and watershed management plans.

WHERE DO I FIT IN? Developing Watershed-Based Permit Limits and Documentation

If you are the NPDES Permitting Authority, you can

- Develop the appropriate permit limits and, where necessary, allocate the wasteload.
- Provide stakeholders the opportunity to comment on proposed permit conditions, such as limits (based on information provided in the fact sheet), during the public notice period or public hearings.
- Identify opportunities for stakeholders to provide technical input into the process (e.g., conduct computer modeling, conduct special studies).

If you are a point source, you can

- Offer to contribute to the technical analysis required for developing water quality-based permit limits.
- Propose a special study to conduct as part of the permit.
- Provide comment on proposed permit conditions, such as limits (based on information provided in the fact sheet), during the public notice period or public hearings.
- Provide materials to include in the administrative record.
- Consider water quality trading opportunities to meet permit limits and water quality goals efficiently.

If you are a non-NPDES stakeholder, you can

- Offer to contribute to the technical analysis required for developing water quality-based permit limits.
- Propose a special study to conduct as part of the permit.
- Provide comment on proposed permit conditions, such as limits (based on information provided in the fact sheet), during the public notice period or public hearings.
- Host or facilitate a public meeting.
- Provide materials to include in the administrative record.

Watershed-Based Individual Permit—Multiple Permittees

Coverage This type of permitting approach is also a single permit and would cover multiple sources included in the same watershed, watershed plan, or TMDL. It would allow several point sources in a watershed to apply for and obtain permit coverage under the same permit.

Rationale This type of permit may be used in situations where a watershed plan or TMDL identifies the need to address a specific pollutant. A watershed plan or TMDL implementation plan might include agreed-upon controls necessary to achieve watershed goals. Stakeholders could then identify point sources that would be logical to include in the same permit. A single permit would identify all point sources that have agreed to the controls and the individual requirements for each point source. An example is a permit that includes control requirements for nutrients issued to all POTWs in the watershed and requires specific nutrient reduction requirements that reflect agreed-upon goals and trades. This type of watershed-based permit may be issued in addition to the existing individual permits and would include the necessary controls to address only the specific problem pollutant or pollutants. This approach is similar to the approach used for wastewater treatment plant discharges in North Carolina contributing nutrients to the Neuse River watershed (NCDENR 2002).

WHERE DO I FIT IN? Issuing Watershed-Based NPDES Permits

If you are the NPDES Permitting Authority, you can

- Research which permitting options are feasible given state-specific regulations and other regional or local considerations.
- Educate stakeholders on the pros and cons of each permitting option.
- Craft a preliminary draft of the permit and ask stakeholders for informal feedback.

If you are a point source, you can

- Conduct an analysis of which permit option would best suit your situation.
- Review and provide comments on the draft permit developed by the permitting authority.
- Comply with permit requirements while maintaining a log of challenges, benefits, and other recommendations for reissuance of the permit.
- Craft a preliminary draft of the permit and request permitting authority action.

If you are a non-NPDES stakeholder, you can

- Define the role you would like to play in the context of the permit.
- Serve as a liaison between permittees and nonpoint source dischargers in the watershed that might affect the success of the permit and attainment of water quality goals.
- Provide comment on the draft permit developed by the permitting authority.
- Assist with an aspect of permit implementation, such as monitoring and reporting, as a way to gauge permit effectiveness.

Another type of multiple-source permit would address all pollutants of concern in the watershed. For example, a single permit could be used to implement a comprehensive watershed plan. The watershed plan would have to include procedures for addressing a number of stressors to a watershed and identify specific point sources. The permit would reflect controls for the point sources and include all requirements that would otherwise be found in individual permits for the point sources.

Benefits This approach allows for trades, if used, to be carried out, and it includes any cooperative efforts (such as watershed-wide monitoring) necessary for meeting watershed goals. This approach also focuses public participation on a single permit.

Watershed General Permits

Coverage This approach relies on the use of general permits. These permits would be similar to many existing general permits, except that the watershed boundary (and not the type of discharge) would be the primary criterion defining eligibility for coverage or the applicability of certain conditions in the permit. The permit would include requirements that reflect watershed-specific goals (e.g., comprehensive watershed monitoring, nutrient reduction, management of biosolids or manure).

Rationale The general permit model is very similar to the multiple source permitting approach described above. The general permit, however, would require point sources to request coverage through a Notice of Intent once the permit is issued rather than through the application process used for individual permits.

Benefits This general permitting approach could be further refined based on the category or source of discharger. The model would allow coverage of common sources (e.g., all POTWs, Concentrated Animal Feeding Operations, or storm water) in the watershed. The limitations and requirements within a category or subcategory of sources would largely be the same, but the limitations and requirements might differ among categories or subcategories.

In addition to the permit structure or type, it is also important to consider the appropriate approach. A few watersheds engaging in this process are exploring the use of adaptive management plans as part of their watershed-based permitting approach. Adaptive management is an iterative approach to developing and implementing a management strategy. Any strategy generated through an adaptive management approach contains a monitoring plan for evaluating implementation successes and has mechanisms in place for using monitoring data to revise and adjust the overall strategy. An example of where EPA currently supports the use of adaptive management is NPDES permits for storm water discharges. These permits contain best management practices, rather than numeric effluent limits, and mechanisms for evaluating the effectiveness of the practices, allowing permittees to make adjustments to their stormwater management plans that reflect the data on the effectiveness of best management practices.

There are several factors to consider when determining what type of watershed-based permitting approach is right for a particular watershed. These factors include the types of sources participating in the process and requiring permit coverage, the availability of a watershed plan or TMDL, and the need to address multiple pollutants. The text box entitled "When Considering Watershed-Based NPDES Permitting, Consider This ..." under "Step One: Select a Watershed and Determine Boundaries" provides some helpful questions to ask when determining what type of watershed-based permit would be most appropriate in a particular watershed.

Step Six: Measure and Report Progress

The ultimate goal of watershed-based permitting is to ensure that receiving water quality is protected through the implementation of an integrated, holistic approach. Progress toward attaining this overall goal can be measured at both the watershed and permit levels.

Watershed-Level Performance Measures

Watershed-level performance measures consist of water quality standards and other watershed goals developed by stakeholders. States, tribes, and territories typically track attainment of water quality standards through Clean Water Act section 305(b) and 303(d) monitoring and reporting. Other watershed goals developed by stakeholders should also be measurable to allow assessment of trends over time, much like water quality goals. Some of these measures might directly reflect environmental benefit

(e.g., number of stream miles restored for aquatic life habitat). Others might reflect an intermediate step toward the ultimate environmental goal (e.g., number of storm drains labeled in a stenciling program, reduction in pounds per year of nitrogen loadings in the watershed).

Permit-Level Performance Measures

A properly developed watershed-based permit will be designed to achieve specific water quality standards and other goals through effluent limitations and other permit conditions, such as site-specific studies. These permit requirements are, in effect, the performance measures for the watershed-based permit. Some of these measures might directly incorporate watershed-level measures. For example, the storm drain stenciling goal cited above could be directly incorporated as a best management practice requirement in a watershed permit for a municipality or group of municipalities.

Monitoring and Reporting: Watershed-Based Permits as a Tool for Measuring Progress

As described in "Step Four: Develop Watershed-Based Permit Conditions and Documentation," the permitting authority will develop monitoring and reporting requirements to ensure compliance with watershed-based permit effluent limitations and other permit conditions. Thus, implementation of the permit ensures performance measurement at the permit level, that is, point sources in compliance with effluent limitations and other permit conditions. With careful planning, however, the monitoring and reporting requirements in the permit can also provide valuable data for use in measuring progress toward attainment of watershed-level performance measures.

For example, ambient receiving water monitoring requirements may be included in the permit to evaluate the impact of the point source discharges on receiving waters and to measure progress toward attaining water quality standards. Data collected as part of the watershed-based permit can be combined with data and information generated by other related watershed protection activities outside the watershed-based permit (e.g., habitat restoration programs) to assess the overall condition of the watershed. Collectively, these measures would provide all stakeholders with an indication of progress with respect to watershed-level performance measures.

Data collected through watershed-based permitting approaches should be easily accessible to stakeholders in the watershed and other interested parties. Doing so will ensure that watershed data can inform other important efforts that might affect the watershed, such as the development of watershed-based plans to address nonpoint source pollution using section 319 grant funding. EPA's *Elements of a State Water Monitoring and Assessment Program* recommends that states use STORET to make monitoring data available (USEPA 2003b). EPA is stressing the importance of using STORET to manage monitoring data from EPA-funded projects, such as Watershed Initiative grants and

When Developing Monitoring and Reporting Requirements for Performance Measurement, Consider Whether They Are…

- Consistent with the effluent limitations and conditions (permit-level performance measures) contained in the watershed-based permit.
- Consistent with measuring attainment of water quality standards and watershed management and protection goals (watershed-level performance measures).
- Quantifiable so as to allow comparison over time.
- Specific in terms of roles and responsibilities for data generation and reporting.
- Understandable to all stakeholders.
- Reflective of appropriate data collection and reporting methods.
- Tailored to the various point and nonpoint sources contributing pollutants to the watershed.
- Reported in a format that allows for efficient review by the permitting authority, as well as all stakeholders.
- Not overly burdensome in light of other monitoring and reporting requirements.

section 319 grants (USEPA 2003b). STORET is publicly available and widely used, making water quality data available to a broad range of stakeholders to allow for program integration at a watershed level.

Section Three: Potential Benefits and Challenges of Watershed-Based NPDES Permitting

Achieving water quality goals in a cost-effective and efficient manner is one of the many potential benefits EPA anticipates that stakeholders such as permittees and permitting authorities can realize through watershed-based NPDES permitting. Although there is limited empirical information on the benefits of watershed-based NPDES permitting, EPA expects that ongoing pilot projects and other efforts will demonstrate a mix of both administrative and environmental benefits. As with any change, EPA anticipates that there will be several challenges in moving watershed-based permitting from concept to implementation. Overall, EPA believes that the benefits will outweigh the challenges.

Benefits of Watershed-Based Permitting

EPA anticipates a number of benefits from watershed-based permitting. Although the specific benefits will be unique to each project, they will likely include a mix of environmental and administrative benefits such as those described below.

Enhanced Opportunity for Environmental Results

Watershed-based permitting can help to expand the focus of the NPDES Program beyond the "end of the pipe" by promoting more ambient monitoring, permit conditions that consider upstream and downstream impacts, and consideration of all stressors. This approach provides the foundation for thinking more broadly about potential solutions to environmental problems or ways to attain watershed goals. Also, the additional information about the watershed gained from this approach to permitting will help the permitting authority to develop more effective permits—even for point sources in the watershed that are not participating in the process.

Integration of Water-Related Programs

Developing watershed-based permits requires much of the same data and information used in developing TMDLs, source water assessment plans under the Safe Drinking Water Act, and watershed management plans. Given the similarities in both process and required inputs, watershed-based permitting might serve as yet another driver facilitating integration of water resource protection programs under the Clean Water Act and the Safe Drinking Water Act.

Targeted and Maximized Use of Resources to Achieve Greatest Environmental Results

Through the analysis to support the development of watershed-based permits, stakeholders might gain a better understanding of the stressors that affect watershed health. With better data, NPDES permitting authorities can develop targeted permit limits that are tied to watershed data and goals, and targeted monitoring and inspections. Targeted permit limits will also reassure point sources that their efforts (e.g., investment in new technologies) will achieve the desired water quality results. In addition, more comprehensive watershed data might help stakeholders prioritize solutions (e.g., determine which pollutants and which sources to focus on first to achieve the greatest water quality improvements).

Administrative Efficiencies

Many states implementing the NPDES Program using a basin-wide approach claim that such an approach results in a more streamlined permitting process (USEPA 2002a). For example, holding one large public meeting for a watershed might be more efficient than holding numerous small public meetings for each individual permit. Administrative efficiencies in the permitting process might enable permitting

authorities to more effectively target valuable resources to the highest priorities and eventually help to alleviate permitting backlogs.

Local Cooperative Efforts

Watershed-based permitting can promote cooperation and collaboration among point source dischargers responsible for successfully complying with permit conditions and achieving environmental results. North Carolina has demonstrated this benefit through the formation of NPDES discharger coalitions that work together to determine the most equitable approach to reducing loadings (USEPA 2002a).

Watershed-Wide Monitoring Plans

Watershed-based permits can be useful as a catalyst for designing watershed-monitoring plans and also as a key data source for these plans. Sharing responsibility for monitoring and data collection can result in cooperative efforts that reduce duplication of work and take full advantage of opportunities for sharing monitoring responsibilities and results, as well as helping to ensure data are of the necessary quality. With a coordinated and integrated watershed monitoring plan, there will be one agreed-upon set of data quality objectives and quality assurance/quality control protocols to follow.

Trading and Other Market-Based Strategies

EPA believes that market-based approaches such as water quality trading can provide greater flexibility and have potential to achieve greater water quality and environmental benefits than current practices and policies. Watershed-based permits could be useful in facilitating trading. As discussed earlier, the process for developing watershed-based permits might include collecting loading data, which are necessary for making decisions related to trading. The watershed-based permitting process is also likely to include extensive stakeholder participation, which is another necessary component for a successful trading program. Stakeholder participation and data exchange within the context of the larger watershed management planning process could facilitate use of market-based approaches among sources in a watershed.

Public Involvement

Permits contain many common elements that provide a good starting point for opening a dialogue with the point sources in the watershed community. Usually, as data are gathered and analyzed and the watershed plan is developed, the process for bringing in more stakeholders becomes clearer and easier. The permits provide a single location for gathering much of the data necessary for watershed plans.

Potential Challenges

Like the benefits of watershed-based permitting, the challenges of implementing this approach will be unique to each watershed and each permit. Some challenges that stakeholders might encounter throughout the process are described below.

Expanded Stakeholder Involvement

As the scope of technical analysis and decisionmaking in the permitting process expands from a single point source to a watershed, the number of parties with an interest in the outcome of the process will expand, too. An expansion in stakeholders presents a challenge to and a new role for the permitting authority (coordinator). Engaging a wider variety of stakeholders means that the permitting authority and the permit writer will have to consider a broader range of interests and watershed goals when developing the permit, potentially adding technical complexity and time to the permit development process. An

expansion in stakeholder involvement will also challenge the other stakeholders as they take the time to understand one another's goals for and concerns about the watershed, and determine how to best structure the watershed-based permitting process to meet those goals.

Those involved in watershed-based permitting can address this potential challenge by developing a strategy for stakeholder involvement. Part of this strategy can include identifying a trained facilitator to ensure the process is effective and stays on track. Another potential solution is to tap into existing watershed stakeholder groups and activities, rather than establishing a new process. For example, in a watershed where a TMDL is under development, there is likely to be a stakeholder group in place. Watershed-based permitting activities can piggyback onto existing stakeholder meetings to present information and have decisions made.

Integrating Nonpoint Sources

As noted above, entities that contribute nonpoint source pollution play an important part in watershed-based permitting, in both achieving overall loading reductions of pollutants of concern and providing their input on watershed goals. It might be challenging, however, to integrate nonpoint sources into the watershed-based permitting process. Participation by nonpoint sources in most efforts will be voluntary, but some nonpoint sources might fear that getting involved in a watershed-based permitting process will lead to direct regulation of their activities. Other stakeholders will need to understand these concerns and structure the permitting process in such a way that it provides incentives for nonpoint source participation while addressing nonpoint source concerns about being involved in implementation of a point source regulatory program.

Many watershed-related activities garner the support and participation of nonpoint sources by using mechanisms and incentives that might also work for watershed-based permitting. One effective mechanism for obtaining nonpoint source involvement is outreach, particularly peer-to-peer outreach. Technical and financial assistance often serve as incentives for participating in watershed management efforts. To overcome the potential challenge of integrating nonpoint sources, watershed-based permitting should tap into existing programs that currently involve nonpoint sources in the watershed or provide an incentive for their involvement. Using a facilitator that has the trust of nonpoint sources within the watershed might also increase the potential for their participation.

Need for More Flexible Program Infrastructure

Watershed-based NPDES permitting will likely be very different from the process for developing more traditional NPDES permits. Permitting authorities and EPA have infrastructure in place to analyze data, develop permit conditions, track compliance, and conduct enforcement activities for traditional NPDES permits. Watershed-based permitting might require flexibility in this infrastructure. As previously discussed, more parties within and outside the permitting agency might be involved in the process, and developing a watershed-based permit could take longer than developing a traditional permit. Using increased stakeholder involvement and addressing watershed-wide issues might require changes to the public notification and participation process for the NPDES Program, as well as other water programs (e.g., water quality standards, TMDLs). Permit conditions (e.g., trading arrangements, permit conditions that apply to multiple point sources) might require permitting authorities to think creatively about how to track compliance.

Overcoming this potential challenge will require a commitment from NPDES permitting authorities to identify program infrastructure hurdles and take steps to address them. Permitting authorities might prefer to take a proactive approach by analyzing existing program processes and systems to identify possible changes that will support watershed-based permitting approaches.

Conflicting Jurisdictional Requirements

Developing permits watershed-wide might require permitting authorities and other stakeholders to overcome overlapping or conflicting jurisdictional requirements (e.g., differences in water quality standards, differences in local ordinances, differences in planning cycles) at the state or local level. Permitting authorities might also have to address differences in permit requirements or timing of actions required by existing permits. For example, combining municipal permitting requirements into a single watershed-based municipal permit could require reconciling schedules for storm water or combined sewer overflow controls that differ under existing permits for each system.

An analysis of requirements at the federal, state, tribal, and local levels is the first step in identifying potential conflicts and overcoming them to facilitate watershed-based permitting. The analysis should include program schedules, agency authority, jurisdictional boundaries, funding cycles, and public participation requirements. Through this analysis, points of conflict and opportunities for coordination can be identified. In addition to conducting this type of analysis, watersheds could also exchange strategies and effective actions for overcoming jurisdictional conflicts. This type of information exchange could happen in the form of watershed-based permitting case studies, presentations, or forums such as conferences and other types of meetings.

Regulatory Structure

As the watershed-based permitting process develops in a particular watershed, stakeholders might come up against a number of challenges related to the existing regulatory structure. For example, permitting authorities might face the challenge of structuring permit requirements that depend on nonpoint source reductions or point-nonpoint source trades in such a way that they are legally enforceable but do not encroach on the voluntary nature of nonpoint source participation in the process. As stakeholders identify such challenges, it will be important for them to work closely with both the permitting authority and EPA to determine how to address them. EPA, in particular, might be able to apply its experience in other jurisdictions to help resolve such issues.

EPA and many jurisdictions embarking on a watershed-based permitting approach are examining regulatory issues and identifying potential challenges. EPA is encouraging stakeholders to exchange research and analysis conducted on regulatory issues to avoid duplication of effort and promote the sharing of ideas and strategies. Identifying challenges related to regulatory structure will enable EPA to find solutions that work within the existing regulatory structure or to take steps to make the necessary changes.

Making an Initial Investment

As with any changes in ways of doing business, moving to a watershed-based permitting process will require an initial investment of time and resources. Permitting authorities may, understandably, be reluctant to make this initial investment in light of their responsibility for timely permit issuance—often in times of decreasing budgets. Where point sources or other stakeholders are initiating the watershed-based permitting process, it is critical that they be able to clearly explain why making an investment in watershed-based permitting will pay off in environmental benefits and administrative benefits for the stakeholders involved.

Measuring and reporting successes–both environmental and administrative–linked to watershed-based permitting activities might encourage permitting authorities, point sources, and other stakeholders to make the initial investment in this approach. This solution requires stakeholders making the initial investment to think about how they will measure and track success, as well as how they can share successes. Some stakeholders have shared their process and preliminary results through conferences, case

studies, and articles. Dissemination of success stories could expand to include formats such as Web sites and annual reports. It is likely the learning curve associated with watershed-based permitting will become shorter as more and more watersheds gain experience in this process, reducing the time and resources other watersheds will invest when taking this approach.

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Section Four: Moving Ahead In Watershed-Based Permitting

Watershed-based NPDES permitting is gaining momentum as an innovative approach to addressing the nation's remaining water quality issues. EPA is committed to accelerating watershed-based permitting efforts through a variety of actions focused on education and technical assistance. Next steps related to promoting watershed-based permitting include the following:

- **Preparing additional guidance documents.** In addition to this implementation guidance document, EPA will develop follow-on guidance documents that address the technical and procedural aspects of the watershed-based NPDES permitting approach.
- **Providing technical education.** As mentioned in the previous sections, the support of the NPDES permitting authority—both program managers and permit writers—is essential to successfully implementing watershed-based permitting. By providing the necessary tools for implementation, EPA will increase the likelihood that NPDES permitting authorities will buy into the approach. EPA intends to develop educational resources, such as a module on watershed-based permitting in the NPDES Permit Writer's Training Course, to ensure that NPDES permitting authorities (and other key stakeholders) have the appropriate resources and training to undertake this approach.
- **Developing and reporting on case studies and pilot projects.** EPA is working with each regional office to identify examples of watershed-based permitting. If no examples exist in a region, EPA will encourage the development of pilot projects to generate real-world experience and lessons. By tracking ongoing permitting efforts and pilot projects, EPA intends to generate and disseminate educational information (e.g., lessons learned about overcoming procedural challenges) that will benefit other watershed-based permitting efforts. As projects are completed, the lessons learned from the project will be added to a compendium of case studies that will be periodically updated.
- **Supporting efforts by state NPDES permitting authorities.** EPA is committed to providing technical support and other resources to state NPDES permitting authorities interested in initiating watershed-based permitting activities.

EPA recognizes that in addition to education and technical assistance, stakeholders interested in pursuing this approach will also need financial resources to support their efforts. A wide variety of federal funding sources to support watershed-based permitting activities are available through EPA and other federal agencies. EPA provides useful tools for researching these federal funding opportunities, including the following:

- *The Catalog of Federal Funding Sources for Watershed Protection* is available on EPA's Web site (www.epa.gov/owow/watershed/funding.html) as a searchable database of federal financial assistance sources, including grants and loans. Private and nonprofit sources of funding are not included in this database, but EPA does provide a limited list of these sources.
- The Environmental Finance Program (EFP) is another EPA resource for providing financial technical assistance to the regulated community. From the EFP's Web site (www.epa.gov/efinpage/efp.htm), stakeholders looking for financial resources can obtain information on grants, loans, and other financial tools, as well as information on the Environmental Finance Centers Network. This Web site also provides links to funding sources by EPA regional office.

To successfully implement watershed-based permitting approaches, EPA encourages stakeholders to leverage financial resources such as section 319 grant funds with funding from other federal partners such as the U.S. Department of Agriculture. The goal is to create an integrated funding base for this integrated approach to water quality protection.

With this initial guidance, EPA has renewed its commitment and reenergized its efforts to fully incorporate the watershed approach into the implementation of the NPDES Program and create a comprehensive suite of resources to achieve that goal.

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Appendix A

Watershed Approach Policy Memorandum and Watershed-Based NPDES Permitting Policy Statement

DATE: December 3, 2002

SUBJECT: Committing EPA's Water Program to Advancing the Watershed Approach

FROM: G. Tracy Mehan, III /S/
Assistant Administrator

TO: Office Directors
Regional Water Division Directors

A Renewed Commitment to Watershed Management

We face many complex and challenging environmental problems related to the water environment. Unlike the problems of the past, today's problems are often subtle, chronic, and inter-related. Addressing 21st century problems like polluted runoff, suburban growth, drinking water security, ground water/surface water interactions, invasive species, microbes in drinking water, and atmospheric deposition demands a modern approach to environmental protection – an approach grounded in sound science, innovative solutions, and broad public involvement.

About a decade ago, EPA embraced and took steps to encourage a watershed approach to better address water quality problems. I firmly believe that such an approach, which focuses multi-stakeholder efforts within hydrologically defined boundaries to protect and restore our aquatic resources and ecosystems, offers the most cost-effective opportunity to tackle today's challenges. Administrator Whitman shares my belief. She feels strongly that a watershed or "place-based" approach is one of the most important environmental guiding principles for her as well as for this Administration. By working together with a diverse array of partners, I believe we can identify and implement successful strategies to maintain and restore the chemical, physical and biological integrity of our waters. No doubt, many of these strategies will be tailored to specific problems in specific communities. Hence, the importance of the watershed as a social and hydrological reality. Here is where communities, neighbor to neighbor, can engage, educate and persuade one another in a mutual quest for shared goals.

Although a decade of effort has resulted in general awareness of the watershed approach within the Agency, recent evaluations show substantial gaps in actual implementation. The watershed approach should not be seen as merely a special initiative, targeted at just a selected set of places or involving a relatively small group of EPA or state staff. Rather, it should be the fulcrum of our restoration and protection efforts, and those of our many stakeholders, private and public. Failure to fully incorporate the watershed approach into program implementation will result in failure to achieve our environmental objectives in many of our nation's waters.

I want to reaffirm the Office of Water's commitment to advancing the watershed approach. Consequently, I am creating a Watershed Management Council (WMC) comprised of Headquarters and Regional representatives. This group is charged with overseeing efforts to address the specific issues listed below, as well as identifying and exploring other ways to advance the watershed approach. I am asking each Office Director (OWOW, OST, OWM, OGWDW, and AIEO) to designate an SES-level representative for the Council, and I am inviting

each Regional Water Management Division Director to do the same. Please provide the names of your representatives to Walter Mugdan of Region 2 by December 31, 2002. This group will begin its work at a kickoff meeting to be held before the end of January. Among the specific issues to be addressed under the leadership of the WMC are:

- **Program Integration**

The watershed approach can help us integrate and focus our programs. I would like the Council to:

1) Review the findings of the Program Integration Team (PIT)

The PIT and other recent evaluations made recommendations for improving the coordination of programs on a watershed basis. I want the WMC to review these findings and recommend to me specific actions Headquarters and/or the Regions can take to make these recommendations a reality. Particular attention should be paid to ways to better integrate CWA and SDWA implementation.

2) Create models of program integration

The Watershed Initiative, pending Congressional appropriation, will fund projects in up to 20 selected watersheds in 2003. I would like EPA to make these places "laboratories" for integration of EPA and other federal programs. Consistent with local objectives, I want the Regions to develop program integration strategies for each selected watershed and present these strategies to the WMC within 6 months of the announcement of the awards. If an integration strategy is not consistent with local objectives for a particular watershed, I would like to know why.

3) Expand cross-program training

In order for cross-program integration to work, EPA, state, and other federal agency staff need to have a better overall understanding of key CWA and SDWA programs and other federal and state tools for watershed protection. I would like the WMC to establish annual goals starting in the calendar year 2003 for providing training to HQ and Regional water employees on the basics of our key programs under CWA, SDWA, and other relevant statutes.

- **Internal Management Systems**

I have heard from many that EPA's internal accountability mechanisms, such as Headquarters-Regional management agreements and employee performance standards, do not offer adequate incentives and can create barriers to program integration on a watershed basis. The WMC should look for ways to remove existing barriers and create new incentives.

- **Funding Local Watershed Strategies**

Local partnerships are finding it challenging to fund the implementation of holistic watershed strategies because of narrowly-defined, balkanized grants and loans. I would like the WMC to explore ways to address this by identifying "best practices" and models for streamlining processes and other barriers to watershed funding.

- **Local Capacity Building**

Local watershed partnerships report substantial need for a wide array of training and technical assistance. EPA and state water programs cannot provide help to all of the thousands of watershed partnerships that are now operating. We need to bolster the efforts of academia, nonprofits, local governments, and businesses. EPA could help fill some of this gap by:

1) Expanding support to 3rd-party providers

As an initial step, I want the WMC to recommend ways to provide additional support to our partners' efforts, such as helping other organizations expand their training and technical assistance to local entities.

2) Increasing direct EPA involvement in training and technical assistance.

I believe that our assistance, if strategically placed, can be extremely valuable in helping local watershed partnerships. Since my arrival here, I have been impressed with the tremendous amount of expertise that resides in EPA, and I would like to increase our presence in those places where we can be of most value at the local level. I expect the WMC to find ways to accomplish this, such as the use of IPAs, internet broadcasting, increased EPA travel, and other strategies. To support the WMC, I am tasking the OW Budget staff with examining internal barriers to having sufficient travel funds.

- **Assistance to States and Tribes**

As you know, there can be many variations in the specific approaches states use to implement programs on a watershed basis. It is not my intention that EPA impose or specify a particular watershed management model. Rather, we should support states in implementing the approaches they find work best for them. I want to expand our efforts to help states that are seeking assistance in adopting a statewide watershed approach; and I want to assist those states that have already begun to implement watershed management for certain elements of their programs to broaden their application where practicable. I would also like to have EPA's Statewide Watershed Approach Framework document updated to better reflect this philosophy.

Tribes are key partners in demonstrating the value of the watershed approach. We need to find additional ways to help tribes build the watershed approach into their programs.

- **Fostering Innovations**

I cannot emphasize enough the importance of innovation to EPA's future. Watersheds are ideal for experimenting with market-based incentives and trading, and for devising new, non-traditional methods to provide data and information in ways that allow stakeholders at the local level to better assess and address their own unique problems. For example, I believe the use of watershed-based permits can help foster these kinds of innovations. As such, I would like to accelerate our efforts to implement innovations in several program areas. Specifically, I would like to see the following:

✓ Implement innovations set forth in the Strategy for Water Quality Standards and Criteria.

✓ Expand the use of innovative approaches to monitoring and information collection in watersheds (using landscape modeling and probablistic designs).

✓ Use integrated approaches to TMDL development in watersheds; and use the watershed approach to attain water quality standards, obviating the need for TMDLs in a number of watersheds.
✓ Promote the use of watershed plans to guide greater investment of SRF funds to protect source water, wetlands, and address nonpoint sources.
✓ Accelerate efforts to develop and issue NPDES permits on a watershed basis. To accomplish this, I'm asking OWM to issue, in final form, the watershed-based permitting policy statement and to work with the Regions to:

- Develop and implement a "roadmap" for advancing watershed-based NPDES permitting activities.
- Implement the watershed-based NPDES permitting policy immediately in those Regions that administer the NPDES permit program.
- Have regions identify watershed-based permit case studies. If no regional examples already exist, create watershed-based pilots.
- Include watershed-based permitting approaches as priority decision criteria for Water Quality Cooperative Agreement funding.
- Characterize the permit universe to determine permits or groups of permits that may be a high priority for reissuance based on watershed specific goals, impacts, and expected results.

✓ Aggressively promote trading and other market-based incentives in watersheds.
✓ Foster innovation through ORD's research agenda.

- **Rulemakings and Guidance**

I've heard that, on occasion, EPA rules and guidance can unintentionally create barriers to implementing watershed approaches. The WMC should recommend a process to ensure that this does not happen in the future.

Closing

I am very enthusiastic about this endeavor. The watershed approach is essential to address
our most pressing water issues, and now is the right time to focus and re-invigorate our efforts to more fully institutionalize the approach – both on the ground and as a cornerstone of our core water programs. I greatly appreciate your continued support for the watershed approach, as well as your active leadership in this particular effort.

cc: Christine Todd Whitman, Administrator
Linda Fisher, Deputy Administrator
Tom Gibson, Associate Administrator, Office of Policy, Economics, and Innovation
Regional Administrators
Assistant Administrators

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

JAN - 7 2003

OFFICE OF
WATER

MEMORANDUM

SUBJECT: Watershed-Based National Pollutant Discharge Elimination System (NPDES) Permitting Policy Statement

FROM: G. Tracy Mehan, III
Assistant Administrator

TO: Water Division Directors, Regions I - X

I am pleased to transmit to you the final Watershed-Based NPDES Permitting Policy Statement. The policy referenced in my December 3, 2002, memorandum on Advancing the Watershed Approach, represents an important aspect of EPA's commitment to watershed management and support for a holistic watershed approach to water quality management.

The policy describes the benefits of watershed-based permitting, and the implementing mechanisms for this component of the watershed approach, and how EPA will be encouraging an increase in the use of watershed-based NPDES permits over the next 12 months. Owing to the importance of NPDES permits and the potential benefits and efficiencies of this approach, I encourage you to work with your states to move watershed-based permitting from the concept stage to implementation stage.

If you have questions regarding this policy, please contact Robin Kime at (202) 564-5047. I greatly appreciate your support and leadership in this effort.

Attachment

cc: Christine Todd Whitman, Administrator
Linda Fisher, Deputy Administrator
Jessica Furey, Associate Administrator, Office of Policy, Economics, and Innovation
Regional Administrators
Office Directors, Office of Water

WATERSHED-BASED NPDES PERMITTING
POLICY STATEMENT

Purpose

As outlined in Assistant Administrator for Water, G. Tracy Mehan's December 3, 2002, memo to EPA Office Directors and EPA Regions, EPA is committed to implement Office of Water programs through watershed management. EPA is issuing this policy statement to demonstrate the Agency's significant level of support for developing and issuing National Pollutant Discharge Elimination System (NPDES) permits on a watershed basis, and to further the objectives of the 1994 NPDES Watershed Strategy. For this Policy, watershed-based permitting is defined as an approach that produces NPDES permits that are issued to point sources on a geographic or watershed basis to meet watershed goals. This policy statement communicates EPA's policy on implementing NPDES permitting activities on a watershed basis, discusses the benefits of watershed-based permitting, presents an explanation of the process and several mechanisms to implement watershed-based permitting, and outlines how EPA will be encouraging watershed-based permitting.

A holistic watershed management approach provides a framework for addressing all stressors within a hydrologically defined drainage basin instead of viewing individual sources in isolation. Within a broader watershed management system, the watershed-based permitting approach is a tool that can assist with implementation activities. The utility of this tool relies heavily on a detailed, integrated and inclusive watershed planning process. Watershed planning includes monitoring and assessment activities that generate the data necessary for clear watershed goals to be established and permits to be designed to specifically address the goals.

Policy

EPA will build on the existing NPDES Watershed Strategy and previous activities to actively support and promote watershed-based NPDES permitting. Further, EPA will work to provide greater incentives and mechanisms necessary to undertake a more holistic and integrated approach to assessing water quality conditions, identifying and quantifying pollutant sources, developing and implementing efficient control practices, and working with stakeholders to the extent authorized by the Clean Water Act and implementing regulations. EPA will educate stakeholders about the benefits of watershed-based permitting, facilitate stakeholder involvement, and move watershed-based permitting from concept to implementation.

Benefits

EPA continues to support a holistic watershed approach to water quality management. The process for developing and issuing NPDES permits on a watershed basis is an important tool in water quality management. EPA believes that developing and issuing NPDES permits on a watershed basis can benefit all watershed stakeholders, from the NPDES permitting authority to local community members. A watershed-based approach to point source permitting under the

NPDES program may serve as one innovative tool for achieving new efficiencies and environmental results. EPA believes that watershed-based permitting can:

- lead to more environmentally effective results;
- emphasize measuring the effectiveness of targeted actions on improvements in water quality;
- provide greater opportunities for trading and other market based approaches;
- reduce the cost of improving the quality of the nation's waters;
- foster more effective implementation of watershed plans, including total maximum daily loads (TMDLs); and
- realize other ancillary benefits beyond those that have been achieved under the Clean Water Act (e.g., facilitate program integration including integration of Clean Water Act and Safe Drinking Water Act programs).

Explanation of the Process and Mechanisms to Implement Watershed-Based Permitting

Watershed-based permitting is a process that ultimately produces NPDES permits that are issued to point sources on a geographic or watershed basis. In establishing point source controls in a watershed-based permit, the permitting authority may focus on watershed goals, and consider multiple pollutant sources and stressors, including the level of nonpoint source control that is practicable. In general, there are numerous permitting mechanisms that may be used to develop and issue permits within a watershed approach. The most common approach currently used in many states is to re-issue NPDES permits according to a five-year rotating basin schedule. Each source receives an individual permit and the permits are issued based on basin or watershed management areas. This process allows permittees to compare their permits with other dischargers in the same area and facilitates sharing data to arrive at the most appropriate limits. Some other permit approaches currently available include:

Watershed-based General Permit - Common Sources. An NPDES permitting authority would develop and issue this type of general permit to a category of point sources within a watershed, such as all publicly owned treatment works (POTWs) or all confined animal feeding operations (CAFOs) or all storm water discharges from municipal separate storm sewer systems. This is similar to current general permits, except that the geographic area covered by the permit would correspond to the watershed boundary. The most significant difference between a traditional general permit and the watershed-based general permit for common sources would be permit requirements that reflect watershed-specific water quality standards.

Watershed-based General Permit - Collective Sources. Unlike the watershed-based general permit described above, this type of permit would address all point sources within the watershed or alternatively, several subcategories of point sources within the watershed. This type of permit would be similar to the multi-sector general permit for storm water discharges associated with industrial activity with requirements being tied to categories and subcategories of discharges. Again, the distinguishing feature of this type of permit would be geographic

coverage based on the watershed-boundaries and the permit requirements reflecting watershed-specific water quality standards.

Watershed-based Individual Permit - Multiple Permittees. Similar to the approach used for Phase I MS4s with multiple permittees, this type of permit would allow several point sources within a watershed to apply for and obtain permit coverage under an individual permit.

Integrated Municipal NPDES Permit. This type of permit would bundle all NPDES permit requirements for a municipality (e.g., storm water, combined sewer overflows, biosolids, pretreatment, etc.) into a single municipal permit. While this type of permit would focus on municipal boundaries rather than watershed boundaries, the analysis in developing permit requirements would reflect watershed-specific water quality standards.

These are not all the possible mechanisms that may be used. EPA and states may consider other possible approaches that are consistent with the NPDES regulations and the Clean Water Act (CWA).

How EPA will Be Encouraging Watershed-Based NPDES Permitting

EPA is developing a framework for watershed-based NPDES permitting. It will be supported by a targeted communications approach focused on informing key stakeholders about the variety of tools developed by EPA to implement a watershed-based permitting approach. Over the next 12 months, EPA anticipates developing and issuing guidance addressing different aspects of the watershed-based permitting approach, including general implementation issues, technical tools and approaches, and procedural considerations. EPA will also be researching and documenting case studies that demonstrate different approaches for watershed-based permitting. EPA will maintain and periodically update the list of case studies.

This policy expresses EPA's support for watershed-based NPDES permitting. Implementation of watershed-based permitting will be governed by existing requirements of the CWA and EPA's NPDES implementing regulations. Those CWA provisions and regulations contain legally binding requirements. This document does not substitute for those provisions or regulations. The recommendations in this memorandum are not binding; the permitting authority may consider other approaches consistent with the CWA and EPA regulations. When EPA makes a permitting decision, it will make each decision on a case-by-case basis and will be guided by the applicable requirements of the CWA and implementing regulations, taking into account comments and information presented at that time by interested persons regarding the appropriateness of applying these recommendations to the particular situation. EPA may change this guidance in the future.

Appendix B

NPDES Permitting for Environmental Results Strategy

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

AUG 15 2003

OFFICE OF
WATER

MEMORANDUM

SUBJECT: National Pollutant Discharge Elimination System (NPDES) Permitting for Environmental Results Strategy

FROM: G. Tracy Mehan, III
Assistant Administrator

TO: Water Division Directors, Regions I – X

The NPDES program is integral to preserving and protecting our nation's waters. Over the past decade, interest in the program has increased with a corresponding increase in demands. The scope of regulated entities and environmental problems facing the program have become more numerous and broader in range. There is a growing need for resources to implement the Clean Water Act. Amidst these conditions, we are faced with many challenges in the Water Program. The National Water Quality Inventory 2000 Report to Congress indicates that of the nation's river and stream miles assessed, 39% are impaired. The NPDES permit backlog while improving, still persists. The integrity of the NPDES program has been raised as an issue in 19 petitions for EPA to withdraw program authorization in 12 States and an additional seven lawsuits have been brought. Because of these and other challenges, more than ever we need to build on past success, develop the tools needed to meet changing demands, and strategically manage the program into the future. To address these serious issues, we have developed the Permitting for Environmental Results Strategy to more efficiently and effectively manage the NPDES permit program with increased environmental focus.

The elements of this Strategy have been in development for over six months. Details of this Strategy were discussed at our Water Division Directors meeting in May, in numerous conference calls with you and your staff, and in workshop meetings and conference calls that have included both State and Regional staff. We plan to implement the Strategy beginning October 1, 2003. Over the next few weeks we will discuss the tools and processes with the States and with you during our September meeting and make adjustments as necessary. I look forward to your assistance in that process.

Elements of the Strategy

This Strategy presents a coordinated and integrated management system that when fully implemented will produce a program that is more efficient and focuses on environmental endpoints. The Strategy is an important element in an overall plan to meet the watershed restoration goals established in EPA's Strategic Plan. The primary components of the Strategy are listed below.

- Program Results: Permit prioritization - Identify the most environmentally significant permits and prioritize permit issuance within and among watersheds to maximize environmental benefits and optimize valuable resources.

- Program Efficiency: Permit streamlining - Identify and share best practices to increase efficiencies in permit issuance thus enabling resources to be applied where needed.

- Program Integrity - Implement tools to continually assess NPDES program performance and provide the necessary information and direction for making adjustments to program activities to correct problems and ensure continued success.

The Strategy also includes a detailed Communication and Outreach element that is integral to the implementation of the three primary components. We are working closely with the Office of Enforcement and Compliance Assurance on these efforts. Communication and outreach elements of the Strategy will ensure timely dissemination of information and training to maintain necessary expertise within the program. Once implemented, this management system will be reviewed annually to provide opportunity to make any necessary changes.

The Strategy is designed to support Goal 2 of EPA's new Strategic Plan and work within the Office of Water's (OW) watershed approach. The prioritization and streamlining components provide procedures to organize and better manage program implementation on a watershed basis. The integrity component provides the needed structure for effective program performance assessment.

Expectations

As partners administering the NPDES program, EPA and the States are working to improve the NPDES program by efficiently and effectively targeting resources to achieve the greatest environmental benefit. The Permitting for Environmental Results Strategy is designed to lead this effort by providing a system to reduce barriers to effective program implementation and achieve progress towards greater environmental benefits. I intend to pay close attention to the effectiveness of this implementation and discuss it with EPA Managers on a routine basis. As we move forward to implement the Strategy, the following action items are key:

For the Office of Wastewater Management (OWM):

- Fully develop the tools described in this Strategy in consultation with OECA, Regions and States.
- Work with EPA Regions and States to implement Strategy tools.
- Provide regular updates on Strategy implementation progress.
- Develop a prioritization process to identify high priority permits for workload planning. Priority permits will primarily be those for which requirements need to be revised in order to protect impaired or vulnerable waters.
- Share streamlining tools as successful approaches are identified among Regions and States.

EPA Regions and NPDES Authorized States:

- Develop approaches to implement the Strategy.
- Develop a candidate list of priority permits in each Region and State annually to be used as a basis for identifying permits to be issued in the upcoming year.
- Begin program integrity reviews in FY 2004 and complete them as soon as practicable.

I am very excited about this effort. I look forward to working closely with you and the States to overcome the challenges we face and protect and restore our nations' waters. If you have questions regarding this policy, please contact Linda Boornazian, Director, Water Permits Division at (202) 564-0221. I greatly appreciate your support and leadership in this effort.

Attachment

cc: Marianne L. Horinko, Acting Administrator
Stephen L. Johnson, Acting Deputy Administrator
Jessica Furey, Associate Administrator, Office of Policy, Economics, and Innovation
J. P. Suarez, Assistant Administrator, Office of Enforcement and Compliance Assurance
Michael Shapiro, Deputy Assistant Administrator, Office of Water
Benjamin Grumbles, Deputy Assistant Administrator, Office of Water
David Ziegele, Director, Office of Planning Analysis and Accountability, Office of the Chief Financial Officer
Regional Administrators
Office Directors, Office of Water
Office Directors, Office of Enforcement and Compliance Assurance
Regional NPDES Program Managers
Regional Enforcement Branch Chiefs

NPDES Permitting for Environmental Results Strategy Goals and Approaches

The NPDES Permitting for Environmental Results Strategy describes goals, expected outcomes, and tools designed to help Regions and States in three key areas: permit prioritization, permit streamlining, and program integrity. The Office of Water (OW) will work with the Regions and States to develop and implement an effective and productive Permitting for Environmental Results Strategy. The Strategy will be reviewed annually and updated as needed.

As indicated in the cover memorandum, a key element for the implementation of this Strategy involves an effort on the part of the Regions and States to characterize and prioritize permit issuance. As part of the NPDES backlog reduction efforts, OW requested on March 31, 2000, that the Regions submit backlog reduction plans for themselves and from the authorized States. As an expansion of this effort, OW will request that the Regions and States annually develop a permit issuance prioritization strategy and where priority permits remain backlogged, an explanation of the barriers to permit issuance and plans to address them. This information will be part of the annual State program profile for each State described below.

Strategy Goals and Approaches

I. Program Results: NPDES Permit Prioritization

Many permits, but not all, need to be revised upon re-issuance to achieve environmental benefits. EPA believes that, with a well articulated permit prioritization process, Regions and States can establish a basis for focusing permitting resources on those permits that are likely to provide a significant environmental benefit. Once a process is established, data requirements to implement the process can be developed. The Watershed Approach, as described in the December 3, 2002 memorandum "Committing EPA's Water Program to Advancing the Watershed Approach" provides a framework to integrate data and characterization of the permit universe in order to prioritize and streamline permit issuance. Information about the impacts of permits enables permitting authorities to prioritize permit issuance within and among watersheds to maximize environmental benefits and valuable resources.

Goal: Permit Prioritization – Identify permits of high environmental significance based on linkages between permits and environmental attributes. EPA recognizes that there are many applications for prioritization tools. For example, permit prioritization may help address workload issues or prioritize permit issuance when combined with bundling groups of permits or applying other streamlining options.

Permit Screening Process – OW is working with Regions and States to develop a screening process designed to help permitting authorities efficiently prioritize permit issuance to optimize valuable resources. The screening process will focus primarily on actions related to

environmental significance and will include a set of criteria (e.g., change in water quality standards, source water protection, protection of threatened and endangered species, impaired waters) against which permits will be compared to develop a candidate list of priority permits. Regions and States will use this candidate list as the basis for discussions to determine a final list of priority permits annually. EPA and the States are developing a screening checklist to assist in this process.

> Outcome: EPA will work with States annually to identify high priority permits based on criteria that primarily includes permits for which requirements need to be revised in order to protect impaired or vulnerable waters. A candidate list of priority permits in each State will be developed annually and will serve as the basis for identifying the priority permits the States will issue in the upcoming year.

Goal: Permit Data – Identify and secure critical data required to characterize the regulated universe and manage program implementation.

Tool #1: Permit Compliance System (PCS) Modernization (Integrated Compliance Information System (ICIS - NPDES) – Management of the NPDES program is supported by the Permit Compliance System (PCS). Since the last modernization of PCS in 1985, the NPDES program has evolved to include new program requirements and an expansion of the core NPDES program. These changes are not currently addressed in legacy PCS. The need for a modernized PCS to support the changing requirements of the NPDES program and to take advantage of modern computer technology is critical for effective management of the NPDES program. PCS modernization is part of the Office of Enforcement and Compliance Assurance's (OECA) larger modernization effort, the Integrated Compliance Information System (ICIS). Phase I of ICIS, implemented in 2002, established the core database and Web-based interface to support the federal enforcement and compliance program. ICIS - NPDES (formerly ICIS Phase II) will replace legacy PCS and will be integrated with ICIS Phase I. As PCS modernization moves forward, OW will continue to be an active partner in the design and development of ICIS - NPDES.

> Outcome: Produce a new modern information management system that will not only provide access to accurate, real-time program data, but will also provide desktop tools to support permit applicants, permit writers, program managers, stakeholders, and the public.

Tool #2: Joint Memorandum from the Office of Wastewater Management and the Office of Compliance to State and Regional Enforcement and Water Program Directors Assessing PCS (Permit Compliance System) Data Quality Improvement – This memorandum will summarize our work with the States over the past several years to improve data quality in PCS and describes the next steps for the project. The memorandum reiterates the necessity of this information for operation and management of the NPDES program and summarizes the current status of PCS data. It also emphasizes the need for quality latitude/longitude data at the outfall level, noting that this type of data is essential for electronic tools such as the AskWATERS Permit

Characterization tool and eNPDES (both mentioned in this Strategy). The memorandum, scheduled to be issued in the Fall of 2003, will request that each Region work with their States to prepare a plan for improving PCS data quality.

Outcome: Obtain an increased quantity and quality of data, particularly locational data, critical to characterizing the NPDES permitted universe.

Goal: Permit Characterization – Accurately characterize the universe of NPDES permits relative to environmental attributes. OW recognizes that there are several approaches to permit characterization ranging from using computer applications to query national data (described below) to facility-level review of permits. OW will continue to work with co-regulators to explore the most effective methods for characterization.

Tool: AskWATERS: Permit Characterization – OW is developing "AskWATERS," a web-based tool that allows users to better characterize the relationship between pollutant sources and stressors by linking a wide variety of environmental data sets. The Water Permits Division (WPD) is utilizing the AskWATERS application to provide specific linkages between current and expired NPDES permits and environmental attributes. The initial version of the Permit Characterization, available on the EPA Intranet at: http://intranet.epa.gov/waters/tools/index.htm identifies NPDES permits discharging to impaired waters throughout the United States. It also identifies permits that discharge the pollutants that are the listed cause of impairments. As additional national data become available, they will be added to the tool. Potential topics include identification of permits that discharge to waters where: EPA and/or State water quality standards have been recently revised; a public drinking water source is nearby; a fish consumption advisory is in effect etc.

Outcome: Highlight critical areas of concern among current and expired permits to help prioritize permit issuance and maximize environmental benefits.

II. Program Efficiency: NPDES Permit Streamlining

In light of increasing demands on the NPDES program, OW is working to help permitting authorities by facilitating streamlining in the permit issuance process and by providing a variety of tools and support to Regions and States. The December 3, 2002 memorandum from G. Tracy Mehan to Office Directors and Regional Water Division Directors "Committing EPA's Water Program to Advancing the Watershed Approach" and the January 7, 2003 Watershed-based Permitting Policy Statement provides a clear Statement of EPA's expectation that NPDES permits should be developed and issued through a process that yields permits containing requirements that are coordinated on a watershed basis and focus on watershed goals. As described in the Policy Statement, EPA believes that developing and issuing NPDES permits on a watershed basis can benefit all watershed stakeholders. In addition to increased environmental results, many of these benefits involve administrative efficiencies.

Goal: Permit Streamlining – Identify and promote best practices to increase efficiencies in permit issuance.

Tool: Issue Report on Administrative Practices for NPDES Permit Streamlining – Document research on current practices and legal authorities for specific permit issuance processes, types of permits and administrative improvements that facilitate time savings and emphasize environmental results. Examples of such administrative efficiencies to be researched include bundling groups of permits through administrative procedures, expanded use of watershed-based permits, general permits, and use of "permit-by-rule."

Outcome: Issue a report describing administrative efficiencies that may be realized within the current regulatory scheme. Convey to permitting authorities EPA-approved permit streamlining mechanisms. Document use and effectiveness of streamlining practices.

Goal: EPA Support and Technical Assistance – Provide targeted support to EPA Regions and States to facilitate efficient program implementation. Mechanisms for support include electronic tools, guidance, and contract vehicles.

Tool #1: Electronic Tools – OW developed and will continue to improve upon several electronic tools to improve the NPDES permitting process. Additionally, OW will work to ensure that NPDES program needs are being included in the development of many Agency-wide tools.

- eNPDES - This electronic permit writing tool is designed to help develop water quality - based effluent limits in permits and permit fact sheets. This effort is under development with a beta version planned for release by December 2003. The next phase of eNPDES will include links to allow data to be pulled from the Storage and Retrieval System for National Water Data (STORET) and modernized PCS.

- Permit Application Software System (PASS) - PASS is an electronic NPDES application form design to improve application quality and reduce burden on applicants. This system is designed to be compatible with EPA and most State data systems, serving as a step towards electronic submission of NPDES permit applications. PASS was released in Fall of 2002 and is currently in use in 13 States. PASS is located on-line at: http://cfpub1.epa.gov/npdes/permitissuance/pass.cfm.

- eNOI – This tool enables on-line completion of applications for storm water construction, industrial, and no exposure application and termination forms. This effort is under development and is expected to be available in September 2003. Future enhancements to eNOI involve the inclusion of Combined Animal Feeding Operations (CAFOs).

- Permit Scanning – Beginning in June 2003, EPA began making available to the public electronic versions of permits and fact sheets for major facilities as they are issued or re-

issued with the goal of having all major permits represented after five years. The project will continue indefinitely so that the most current versions of permits are available. This availability will enable permit writers to easily see how their counterparts in other States have approached a variety of issues. Permits are available on-line at: http://cfpub1.epa.gov/npdes/permitissuance/permitscanning.cfm

Outcome: Electronic tools will enable permit writers to more efficiently draft and issue permits. These tools will have a resource saving benefit to NPDES permitting programs, and are being designed to ultimately function in an integrated manner to serve as a more automated permitting program system.

Tool #2: Watershed-based Permitting Case Studies – To implement NPDES permitting within a watershed approach, OW is working with Regions, States, and permittees to identify examples of watershed-based permits. Examples of watershed-based permitting are being documented and pilot studies have been developed to test different approaches for implementing watershed-based permitting. As the pilots produce results, the information generated is added to a series of case studies. The case studies are condensed into fact sheets, reviewed periodically and updated as appropriate. All case study information is posted on the EPA's website at: http://cfpub.epa.gov/npdes/wqbasedpermitting/wspermitting.cfm.

Outcome: Facilitate wider adoption of efficiencies gained through watershed-based permitting by providing public access to real-world examples including lessons learned, successes, challenges, actual permits and fact sheets, networking opportunities etc.

Tool #3: Watershed-Based Permitting Guidance – OW will issue two guidance documents for use in implementing watershed-based permitting; the first implementation guidance will be issued in September 2003 and a more detailed supplement to this will be issued in FY 2004. The more detailed document will serve as a technical guide to developing watershed-based permits.

Outcome: Identify opportunities and provide guidance for watershed-based permitting.

Tool #4: Blanket Purchase Agreement (BPA) – The BPA is a multiple contract award vehicle established in 2002. It enables EPA and States to directly tailor contract assistance to their specific permit program needs. This vehicle supports States through direct exchange of Clean Water Act §106 funds for "in-kind" contract assistance. Services for all aspects of watershed management are provided including: NPDES permitting, monitoring, non-point source program implementation, and implementation of the Total Maximum Daily Loads program. The BPA serves as long-range contract support with an unlimited dollar ceiling. States are consistently using this contract capacity.

Outcome: Streamline permit program management using the support and skills available through this vehicle.

III. NPDES Program Integrity

The purpose of the Program Integrity element of this Strategy is to implement a management system that provides EPA and States with improved capability to examine the performance of the NPDES program as well as other water and enforcement related activities. It provides a vehicle for States and Regions to showcase their strengths and enables them to identify and address shortfalls in a timely manner. Such a management system improves confidence in program implementation. This confidence will foster public acceptance of the use of more efficient processes including prioritization and streamlining. In addition, program oversight will be conducted in a more focused way.

Goal: NPDES Program Integrity - Implement a management system that will enable EPA and States to regularly assess the integrity of the NPDES program as well as other water and enforcement related activities on a national, regional, and State-specific level and to improve overall program performance.

Tool #1: Data Management and Reporting Systems – Implement effective mechanisms for the collection, reporting and tracking of key NPDES programmatic data to assess and improve program integrity.

- Self-Assessment Questionnaires: One of the questionnaires is directed toward the Regions and focuses on the oversight of State NPDES programs. The other questionnaire is directed toward the permitting authority and addresses the following: program administration, legal authorities, permit issuance, trends in compliance monitoring and enforcement actions, NPDES program innovations, program implementation, vulnerabilities, and environmental outcomes. Resources may be provided to assist States, where requested, in completing the information.

- Management report: This report provides a State-by-State summary of performance trends in NPDES and other NPDES-related water programs. The report is based primarily on data readily available from existing databases and reports. It provides a snapshot of State performance in four areas: (1) program administration; (2) program implementation; (3) compliance monitoring and enforcement; (4) environmental outcomes. While the report gives indications of program performance, it does not give a comprehensive view of the program and should be used in conjunction with the other information.

- State NPDES NPDES Program Profiles: The State profiles summarize how well each State is managing its NPDES program. The profiles highlight State innovations and successes toward more efficient or effective management of the NPDES program. The profiles are based primarily on data gathered for the Management report and the NPDES program self-assessments conducted by Regions and States.

- Withdrawal Petition Database: The NPDES program has 20 petitions in 13 States and seven lawsuits to withdraw NPDES authorization of authorized programs. Until recently, OW lacked a complete understanding as to whether the petitions were being addressed in a consistent manner and how frequently they were being addressed. To address this, a protocol was established in May 2000 for Regions to standardize a time frame to address petitioner concerns. OW also developed a management tool for tracking withdrawal petitions. In May 2003, OW launched a Web-based withdrawal petition management tool to track withdrawal petitions.

Tool #2: Performance Assessment and Feedback Mechanisms – In order for EPA to direct resources and efforts to areas that improve program integrity, OW will assess the impact and results of this Strategy's tools and goals and will determine if any changes need to be made to the process. OECA is currently working with EPA Regions and State Commissioners to identify appropriate compliance and enforcement program performance standards across all media programs. Once this effort is completed, modifications to the initial compliance and enforcement components of the Program Integrity Project may be necessary. Specific plans for this measurement are currently under development; comments and suggestions are welcome.

Tool #3: NPDES Program Oversight Guidance – The NPDES State Program Guidance has not been updated since its creation in April 1986. The Guidance does not address areas created or modified by the 1987 Clean Water Act amendments. In addition to increasing penalties for noncompliance, the amendments also carved out the permit program for storm water discharges from industrial sources and municipalities, created the federal sludge management program, and deemed that Indian tribes could be treated as "States" under the Act. Since 1987, there have been a number of regulatory changes made to reflect the amendments, and a variety of court cases that have affected the NPDES program. Because most States (all but five) already have approved NPDES programs, the focus of updating the Guidance will be on program operations and the working relationship between Regions and States. WPD plans to issue the updated Guidance based on feedback received from States and Regions through completed self-assessment questionnaires and State profiles in FY 2005.

> Outcome: The NPDES program management integrity system will be established. There are three components to this system: self-assessments of individual State and Regional NPDES programs, the National Water Program Management Report, and State NPDES program profiles. This information will be made available to the public. Once fully implemented, this system will enable States and Regions to showcase their strengths and address program vulnerabilities in a timely manner.

Communications and Outreach

The Permitting for Environmental Results Strategy relies on communications to ensure that EPA and co-regulator staff and managers have the information they need to successfully

implement the NPDES program. Through a variety of mechanisms, OW will provide and coordinate dissemination of key program information. Also, training will be provided on the most current topics and tools necessary to foster efficient and informed NPDES permit issuance.

Goal: NPDES Communications – Provide a variety of communications tools and activities including training and outreach to help attain Permitting for Environmental Results Goals.

Tool #1: Training – EPA recognizes that an important aspect of efficient program implementation is reliance on a well-trained permitting staff. Recent reports from Regions and States indicate a high rate of staff turnover. To alleviate the resulting problems, OW will provide training on the latest tools and innovative permitting approaches.

- Basic NPDES Permit Writers' Training Course – OW will continue to provide training to permit writers on the basic regulatory framework and technical considerations that support the development of wastewater discharge permits as required under the NPDES program. Training will also be provided to non-technical EPA Headquarters staff and managers to facilitate information sharing and program integration.

- Training/Outreach for Experienced Permit Writers – OW will provide an annual forum to facilitate communication and information exchange on the most current NPDES issues among experienced permit writers. This face-to-face exchange is an important aspect to maintaining a strong knowledge base among permit writers particularly when faced with emerging and often cross-program issues.

- Third Party Training – OW realizes that the regulated community needs training similar to training provided for permitting authorities. However, the specific information needed by permitees is very different from information needed by permit writers. Permit writers develop permits daily and need to be well versed on the development and issuance process. In contrast, permittees apply for and receive a permit only once every five years, and therefore permit issuance is only one limited activity in the life of the permit. The permittee is more focused on implementation of the permit and maintaining compliance. We will work with the Water Environment Federation and the Center for Environmental Innovation to develop a training course designed to help increase permittees knowledge of the program and help foster an atmosphere of cooperation. Once the permittee understands the program and how the data are used, permit issuance should be less contentious.

  Outcome: Create a variety of efficiencies in the permit issuance process by maintaining and supporting a well-informed/trained group of permit writers and permitees.

Tool #2: Outreach and Communication – OW will work to strengthen NPDES programs by providing outreach and fostering communication among co-regulators. These efforts are

designed to promote an accurate, real-time picture of the integrity of State authorized programs, both individually and nationally.

- Association of State and Interstate Water Pollution Control Administrators (ASIWPCA) CWA 104(b)(3) Cooperative Agreement Work Group Communications: OW will maintain ongoing communications with the ASIWPCA Permitting for Environmental Results Workgroup. This workgroup was established by a CWA 104(b)(3) Cooperative Agreement and has several goals that are related to the goals of this Strategy. We will use this forum to help ensure successful implementation of the Permitting for Environmental Results Strategy.

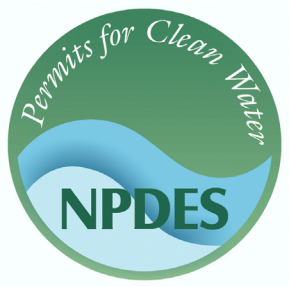
  Outcome: Strengthen nationwide NPDES program implementation through improved communication and understanding among managers of the NPDES program.

- Regional Liaisons: Headquarters liaisons to each Region will serve in several capacities to foster communication between Regions and Headquarters (HQ). For example, they will share information such as weekly reports currently produced by each HQ NPDES Branch as well as other materials useful for routine program management. Liaisons will also assist with program integrity efforts by facilitating attention from HQ management on policy issues in need of this attention. Also, liaisons will assist in the preparation and distribution of materials related to the NPDES program for use in Regional reviews conducted by HQ and other senior manager visits to the Regions.

  Outcome: Liaisons will improve communications between EPA Regions and HQ by working with their Regional counterparts to provide a systematic information exchange regarding implementation of the NPDES program.

Appendix C

Watershed-Based NPDES Permitting Case Studies



Watershed-Based NPDES Permitting Case Studies

December 2003 Update

Watershed-Based NPDES Permitting Case Studies

What is Watershed-Based NPDES Permitting?

Watershed-based NPDES permitting is a process that emphasizes addressing all stressors within a hydrologically-defined drainage basin or other geographic area, rather than addressing individual pollutant sources on a discharge-by-discharge basis. Watershed-based permitting can encompass a variety of activities ranging from synchronizing permits within a basin to developing water-quality based effluent limits using a multiple discharger modeling analysis. The type of permitting activity will vary from watershed-to-watershed, depending on the unique circumstances in the watershed and the sources impacting watershed conditions. The ultimate goal of watershed-based NPDES permitting, however, is to develop and issue NPDES permits that consider the entire watershed, not just an individual point source discharger.

What Does This Document Contain?

To promote this innovative permitting approach, EPA has generated a series of case study fact sheets highlighting existing watershed-based NPDES permitting efforts. These case studies generally fall into two categories: 1) Final Permit and 2) Permitting Approach. Case studies in the Final Permit category provide an overview of completed NPDES permits that have been developed and issued on a watershed basis. Case studies in the Permitting Approach category focus on projects related to one or more aspects of the watershed-based NPDES permitting process (i.e., an actual permit has not yet resulted from this process). This document contains fact sheets for the following case studies:

1. General Permit for Nitrogen Dischargers: Final Permit
2. The Selenium Stakeholder Group: Permitting Approach
3. Michigan General NPDES Storm Water Permit: Final Permit
4. Clean Water Services (Hillsboro, OR): Permitting Approach
5. Rahr Malting Company: Final Permit
6. Northern Kentucky Sanitation District No. 1: Permitting Approach
7. Discharges of Storm Water Runoff Associated with Industrial Activities and Maintenance Dredging at Marinas in the Lake Tahoe Hydrologic Unit (El Dorado and Placer Counties): Final Permit
8. Discharges of Storm Water Runoff Associated with Construction Activity Involving Land Disturbance in the Lake Tahoe Hydrologic Unit (El Dorado, Placer and Alpine Counties): Final Permit
9. Waste Discharge Requirements for the City of South Lake Tahoe, El Dorado County, and Placer County Storm Water/Urban Runoff Discharge: Final Permit
10. Louisville and Jefferson County Metropolitan Sewer District (MSD): Permitting Approach

Implementation of watershed-based permitting is relatively limited at this time. These case studies represent permitting activities that exemplify aspects of the watershed-based permitting process and help to illustrate how this approach can be applied in watersheds. EPA does not intend to imply that these case studies are “model” permits or permitting approaches. EPA first made these case studies available in April 2003. This version reflects updates to the original case studies made in December 2003. As more information is made available, EPA will update these fact sheets to reflect the current progress and results in these watershed-based permitting efforts. As states and EPA regions identify other examples, EPA will produce new case studies to add to the fact sheet series. The case study series, as well as other information on watershed-based NPDES permitting, is available on EPA’s Web site at http://cfpub.epa.gov/npdes/wqbasedpermitting/wspermitting.cfm.

Fact Sheet #1

Watershed-Based Permitting Case Study: Final Permit

General Permit for Nitrogen Discharges

Watershed
Long Island Sound

Permitting Authority
Connecticut Department of Environmental Protection (CTDEP)

Point of Contact
Gary Johnson
Planning & Standards, Water Bureau, CTDEP
(860)424-3754
Gary.Johnson@po.state.ct.us

Permit Information
www.dep.state.ct.us/pao/download.htm#watergp

Date Issued
January 1, 2002 (expires on December 31, 2006)

Background

- Excessive nitrogen loading causes low dissolved oxygen (DO) in bottom waters of western Long Island Sound in the summer.
- Publicly-owned treatment works (POTWs) in Connecticut (CT) and New York (NY) are a dominant source of nitrogen.
- Through the Long Island Sound Study, a 2014 goal of 58.5 percent nitrogen reduction from baseline has been established for CT and NY.
- CT and NY have formalized the nitrogen reduction program in a TMDL approved by EPA in April 2001.
- The entire State of Connecticut is within the Long Island Sound watershed.

Permit Type

- In CT, a nitrogen general permit has been issued for the 79 POTWs within the Long Island Sound watershed that discharge at least 20 pounds of total nitrogen (TN) per day.
- Individual permits continue to regulate non-nitrogen pollutants and protect against localized impacts.
- The general permit allows trading of TN loads.

Permitting Strategy

- CTDEP covered all 79 POTWs under one general permit.
- The permit contains annual statewide aggregate target for each year based on cumulative TN removal as new nitrogen treatment upgrades are brought online each year.
- The permit also sets annual end-of-pipe permit limits in pounds of TN per day for each POTW, apportioned by plant discharge volume to meet the aggregate state target.
- In addition, the permit includes the first five-year annual permit limits and final 2014 limit.
- Under the permit, facilities can purchase or sell nitrogen credits annually based on each facility's performance with respect to their annual limit.

Permit Overview

- The Permit became effective, with notification due process, on January 1, 2002.
- Requirements include scheduled effluent monitoring for flow and TN, reporting to the state on a monthly basis, and operating any installed nitrogen-removal equipment systems.

Permit Limits

- Permit limits pro-rated based on 1997-1999 average discharge volume, assuming equal TN removal needed to meet aggregate state target each year.
- Annual limits are reduced each year and are set well below TMDL requirements to ensure compliance with the TMDL.
- Permit limits are set with the objective of balancing credits sold and purchased to prevent a large deficit or surplus of credits in any year.
- The permit may be reopened and limits adjusted to reflect new information on annual performance and to better balance the credits.

Monitoring Requirements

- POTWs smaller than 10 million gallons per day (mgd) monitor on a weekly basis and larger POTWs monitor twice per week.
- All facilities required to take daily composite samples, flow proportioned over 24 hours.
- In addition, all facilities must monitor daily flow on a continuous basis to calculate average daily flow volume.
- The permit requires reporting on a monthly basis, with reports due by the 15th day of the following month.

Special Conditions

- CTDEP equalized end-of-pipe TN loads to account for attenuation, based on watershed location and relative effect on DO in western Long Island Sound, to facilitate the Nitrogen Credit Exchange (i.e., trading).
- TN reductions in watersheds close to the low DO impact zone in the Long Island Sound are more "valuable" than TN reductions from more distant sources that are naturally attenuated.
- Disparity in credit value is the economic engine that makes it attractive for sources close to the problem to remove more nitrogen than the permit requires and sell credits.
- Adjustment also lowers the relative cost of purchasing credits by the more distant sources that may find it less expensive to buy credits rather than upgrade during the early years of implementation.
- Links cost of a TN credit to the statewide aggregate costs (capital and operation and maintenance) for nitrogen removal and will increase over time as more expensive projects are completed.
- Each facility must maintain and operate all nitrogen removal process equipment so as to reduce nitrogen discharges to the maximum extent practicable.

Measures of Success

- Progress measured based on monitored loads compared to the permit limit for each year.
- Compliance achieved by meeting the permit limit or by buying the equalized nitrogen credits if the limit is exceeded. The State will purchase all excess credits generated through the Nitrogen Credit Exchange.
- Ultimate measure of success is meeting, or exceeding, the wasteload allocation or nitrogen reduction schedule in the TMDL.

Progress Update

- Since 1993, CT's state revolving fund has awarded about $350 million in grants and loans for POTW upgrades that included nitrogen removal. The nitrogen removal portion of the construction cost about $90 million.

- POTW upgrades to include nitrogen removal have been implemented since 1993 in anticipation of the nitrogen permit with 27 projects completed from retrofits to full upgrades by the end of 2002. Projects are centered around western Long Island Sound where equalized nitrogen loads are more valuable, confirming the economic incentive for projects in the geographic area where they are most beneficial.
- The Nitrogen Credit Advisory Board published the second annual Nitrogen Credit Exchange Program on September 25, 2003 to document milestones achieved during the second full year of the program.
- Connecticut POTWs discharged an average of 15,840 equalized pounds of nitrogen per day during 2002, 13 percent less than the projected amount of 18,220 equalized pounds per day. The difference between expected and actual performance is largely due to favorable weather conditions (e.g., warm and dry conditions) and the efforts of POTW operators to maximize the nitrogen removal efficiency of existing treatment capacity.
- Projected performance for 2003 is 16,955 equalized pounds per day, as a result of improved nitrogen removal through additional nitrogen removal upgrade projects. Based on early data, there will be less difference between actual and projected nitrogen removal during 2003 due to unfavorable weather conditions (e.g., colder and wetter winter and spring).
- The cost per equalized pound of nitrogen in 2002 was $1.65. To remain in compliance with the general permit, 38 municipalities purchased credits at this price for a total cost of $1,317223. Nitrogen removal at levels greater than required to comply with the general permit resulted in 39 municipalities selling credits for a total value of $2,757,323. As stated in the permit, the State purchased all excess nitrogen credits generated during 2002 for $1,440,100.
- The cost per equalized pound of nitrogen in 2003 is likely to increase significantly due to unfavorable weather conditions. Therefore, municipalities that do not provide nitrogen treatment may face higher costs and municipalities that generate nitrogen credits may receive higher payments.
- To assist POTWs covered by the general permit, CTDEP provided technical assistance in the form of outreach and training for POTW operators on enhancing nitrogen removal efficiency.
- Each facility covered under the general permit participated in a comprehensive evaluation conducted by CTDEP staff. Evaluations included on-site inspections to examine monitoring and nitrogen removal equipment, documentation review, and split sampling.
- State of Connecticut explored the expansion of the program to other point and nonpoint sources in an EPA-funded project. Project results are due in late 2003.

Fact Sheet #2

Watershed-Based Permitting Case Study: Permitting Approach

The Selenium Stakeholder Group

Watershed
South Platte River and Sand Creek (Segments 15 and 16a)

Permitting Authority
Colorado Department of Public Health and Environment (CDPHE)

Point of Contact
Anthony R. Congram
Suncor Energy (U.S.A.) Inc.
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acongram@suncor.com

Additional Information
www.suncor.com

Project Timeframe
2000 - 2004

Background

- Through the triennial review process in 2000, CDPHE proposed lowering the chronic selenium standard from 12 ug/l total selenium to 4.6 ug/l dissolved selenium.
- Suncor Energy (U.S.A.) Inc., formerly Conoco Denver Refinery, convened a stakeholder group consisting of two refineries, a municipality, and a wastewater district in Denver, CO, to discuss the potential impacts of changing the selenium standards for point sources discharging to the South Platte River and its tributaries, specifically Sand Creek.
- The Selenium Stakeholder Group believed the standard change was unwarranted based on preliminary site-specific biological data and literature review.
- A change in the selenium standard could make compliance with NPDES water quality-based effluent limits (WQBELs) extremely challenging (considering current technological limitations for selenium removal from process wastewater discharges and nonpoint source contributors).

Strategy

- The Selenium Stakeholder Group presented data at the Triennial Review hearings demonstrating that suspected non-point sources of selenium in the upper Sand Creek watershed would cause a violation of the lower standard and require placement on the state's 303(d) list.
- Based on data presented by the Selenium Stakeholder Group, the Colorado Water Quality Control Commission (Commission) granted a three-year Temporary Modification for Segment 15 of the South Platte River and Sand Creek.
- The negotiation process with the Commission required the Selenium Stakeholder Group to develop and implement a Study Plan to collect more information to better understand the sources of selenium in the Sand Creek watershed and determine appropriate site-specific selenium criteria. The Study Plan is now in its third year of implementation.

Factors to Consider in Permitting

- Each member of the Selenium Stakeholder Group had different motivating factors for participating. These factors are described below.
  - For the upstream municipality on Sand Creek, concerns over elevated upstream selenium concentrations and potential impacts on NPDES permit limits motivated participation in the group.

- The two refineries involved in the group are concerned about future WQBELs and implementation of a TMDL for a stream in which background selenium concentrations exceed the proposed lower selenium standard. Permit renewals for these facilities were imminent at the time of the temporary modification.
- The wastewater reclamation district participates in the group due to the fact that it cannot control selenium concentrations entering the POTW and the economic and technical limitations of treating huge municipal flows.

Study Plan Objectives

The Selenium Stakeholder Group intends to:

- Identify sources of elevated selenium levels to Sand Creek.
- Develop site-specific chronic selenium criterion for Sand Creek and South Platte River (Segment 15).

Study Plan Overview

- Since March 2001 the group has collected monthly water column and outfall data to identify selenium hotspots and trace selenium hotspots up into storm water drainage systems to identify sources.
- To support development of site-specific criteria, the group collects a suite of biological and chemical data from South Platte River, Sand Creek, and on reference streams.

Expected Outcomes

- The Selenium Stakeholder Group anticipates development of final site-specific selenium criteria for Sand Creek and Segment 15 of the South Platte River based on analyzed data.
- In addition to the site-specific criteria, the group will draft recommendations and a report that presents the data and data analysis during the next South Platte River Triennial Review in summer 2004.

Project Funding

- Cost of the project is estimated to be approximately $0.5 million, incorporating costs for consultants, sampling and legal assistance. The coordination of all billing is handled by the primary consultant, who divides the charges and invoices among the individual stakeholders based on a negotiated arrangement for splitting the charges.

Benefits to Date

- Through collaboration, the group produced successful negotiation of a temporary modification of the selenium stream standard.
- Members of the group collected comprehensive data with significant cost savings due to shared burden of both physical sampling and financial resources over the duration of the Study Plan.
- The relationship established among neighboring dischargers expanded to other issues; in one particular case, a wasteload re-allocation (water quality based trade) between two refineries was uncontested during the permit renewal process.
- The process promoted a broad watershed approach to issues of mutual concern, and provided an effective catalyst to bring dischargers and regulators around the same table.

- The Study Plan facilitated the collection of a large amount of quality data, which can be used in implementing better science-driven TMDLs in the future, not to mention important ecological data shared with state and federal agencies.
- This approach provided a medium for adaptive implementation—the desire to work cooperatively and pro-actively to solve problems outside of the regulatory realm, furthering efforts toward sustainability.

Fact Sheet #3

Watershed-Based Permitting Case Study: Final Permit

Michigan General NPDES Storm Water Permit

General Wastewater Discharge Permit Storm Water Discharges from Separate Storm Water Drainage Systems NPDES General Permit No. MIG610000

Watershed
All watersheds within the State of Michigan

Permitting Authority
Michigan Department of Environmental Quality (MDEQ)

Point of Contact
David Drullinger
Water Division, Permits Section, MDEQ
(517) 335-4117
drullind@michigan.gov

Permit Information
www.deq.state.mi.us/documents/deq-swq-stormwater-G610000.pdf

Date Issued
July 31, 1997

Revoked and Reissued
September 18, 1998

Background

- Initially developed to address water quality problems within the Rouge River watershed, including regular exceedances of dissolved oxygen (DO) and bacteria standards.
- Federal District Court overseeing the cleanup of the Rouge River promoted idea of an independent institutional structure to fund and manage water quality for the entire watershed *(United States, et al. v. City of Detroit, et al)*.
- The communities proposed a watershed-based NPDES general storm water permit as an alternative to Court's idea. Application for the permit was voluntary.
- Endorsed for use under the Phase II Municipal Separate Storm Sewer System (MS4) Stormwater Program by an Environmental Council of the States (ECOS) agreement.

Permit Type

- Voluntary general permit for MS4 discharges within a watershed that do not have Phase I MS4 permit coverage.

Permitting Strategy

- MDEQ conducted multiple workshops in the Rouge River watershed to educate the communities on the permit and compliance options.
- The Rouge Project Steering Committee formed to address the issues that cross subwatershed boundaries.
- Information obtained through this process is used by the state for the TMDL program, the Clean Michigan Initiative and a water quality trading program.
- MDEQ made the permit available beyond the Rouge River watershed to watersheds throughout the State of Michigan. Currently 50 MS4s have coverage under this permit, six of which are located outside of the Rouge River watershed.
- This permit is available as an alternative to the traditional six minimum measures permitting option under the Phase II MS4 Storm Water Program.
- Once reissued, this permit will also be available to MS4s currently covered under a Phase I MS4 Storm Water permit.

- Under Phase II, this permit will require storm water pollution control throughout the watershed, both inside and outside of urbanized areas.

Permit Overview

- Voluntary coverage for public agencies that own, operate or control storm water within the watershed that have not previously been required to obtain a Phase I MS4 NPDES permit.
- Dischargers within a subwatershed are encouraged to join together and submit applications as watershed partners, with a single Watershed Management Plan.
- Each permittee must also submit a Public Participation Process, Illicit Discharge Elimination Plan, Storm Water Pollution Prevention Initiative, and a Monitoring and Reporting Plan.
- Watershed partners establish the appropriate subwatershed size during the application process.

Permit Limits

- The permit has prescriptive requirements for illicit discharge elimination and public education.
- Permittees must develop and implement a watershed plan that includes short- and long-term goals with a method for assessing progress.
- During watershed plan development and goal setting, permittees must involve the public through a defined public participation process.
- This permit does not contain effluent limits.

Monitoring Requirements

- Dischargers must submit and implement a Monitoring and Reporting Plan for their subwatershed.

Special Conditions

- None.

Measures of Success

- Through the Rouge River Project, this permit has demonstrated the following successes:
  - Over 95 percent of the watershed is now covered under this voluntary permit.
  - Twenty-five different communities throughout the watershed are implementing more than 100 pilot projects.
  - The percent of DO readings that have indicated non-attainment has dropped from 61 percent to 4 percent.
  - Frog and toad surveys have demonstrated ecological improvements.

- A reissued watershed permit has demonstrated the following successes for 2003:
  - Coverage is provided watershed-wide, including many non-urbanized areas. Genessee County has applied for coverage county-wide, approximately doubling the coverage of the Flint urbanized area.
  - Waters of the State which are designated county drains received added attention for illicit discharge inspections.
  - Approximately three-quarters of Michigan's communities are expected to take the watershed permit option.

Watershed-Based Permitting Case Study: Permitting Approach

Clean Water Services (Hillsboro, OR)

Fact Sheet #4

Watershed
Tualatin River

Permitting Authority
Oregon Department of Environmental Quality (OR DEQ)

Point of Contact
Charles Logue, PE, Technical Services Department Director
Clean Water Services
(503) 846-3539
loguec@cleanwaterservices.org

Additional Information
www.cleanwaterservices.org

Project Timeframe
June 2002 - August 2003

Background

- The Tualatin River watershed, encompassing Washington County and small portions of Multnomah and Clackamas Counties, drains approximately 710 square miles of northwestern Oregon, just west of the City of Portland.
- Both Total Maximum Daily Loads (TMDLs) and endangered species are primary concerns within the Tualatin River watershed.
- One water withdrawal facility and two water storage reservoirs are also located within the Tualatin River watershed.
- Clean Water Services is a County Special Service District responsible for wastewater and surface water management in urban Washington County.

Factors to Consider in Permitting

- Clean Water Services performs the following functions:
  - Manages over 800 miles of sanitary sewer lines and 41 pump stations, as well as four wastewater treatment plants.
  - Operates a comprehensive surface water management utility to protect watershed health, manage flooding and maintain a regional storm water system.
  - Administers four NPDES permits for the wastewater treatment plants that expired in 1997 and have been administratively extended while new permits are negotiated.
  - Serves as co-permittee with Washington County for a Phase I municipal separate storm sewer system (MS4) storm water permit that covers the urbanized portion of Washington County within the Urban Growth Boundary. This permit expired in 2001.
  - Works with OR DEQ to cooperatively administer 79 general NPDES storm water permits through a Memorandum of Agreement.
- The second set of TMDLs for the Tualatin River were established in 2001. These TMDLs address temperature, bacteria, phosphorus, ammonia, and settleable volatile solids (i.e., storm water contribution to sediment oxygen demand).

Pilot Project Goals

- This is a multi-year project that will ultimately result in a documentable process and regulatory framework analysis that will demonstrate the feasibility of transitioning from a conventional NPDES permitting approach to a watershed-based NPDES permit.

- The goal is to evaluate the technical, stakeholder, regulatory, and legal issues involved in developing a watershed-based permit.

Pilot Project Overview

- The plan is divided into the following four elements:
  - Conducting stakeholder outreach;
  - Establishing a regulatory framework;
  - Assessing the watershed; and
  - Developing water quality trading and watershed management tools.

Stakeholder Outreach

- Under this element, Clean Water Services will perform the following:
  - Develop and implement a stakeholder process that provides meaningful input and develops support for the project.
  - Develop broad public support and regulatory Agency support for the watershed plan outcome.

Watershed Assessment

- Under this element, Clean Water Services will perform the following:
  - Implement strong scientific process developed for supporting good watershed-based decisions.
  - Identify prioritized actions that are consistent with TMDL and Endangered Species Act response.

Permitting and Regulatory Requirements

- Under this element, Clean Water Services will perform the following:
  - Develop interim permit that will allow development of a watershed-based permitting framework.
  - Develop a regulatory framework that will allow efficient means to attain the highest ecosystem benefit and comply with regulatory requirements.
  - Develop a detailed 5-year project workplan to coordinate requirements under the Clean Water Act, the Endangered Species Act and the Safe Drinking Water Act.

Water Quality Trading and Other Watershed Management Tools

- Under this element, Clean Water Services will perform the following:
  - Identify relevant tools to use in watershed improvement to exceed the improvements achievable through the traditional permitting processes.

Expected Outcomes

- The goal for the first year of this project is to develop a draft interim watershed permitting framework, or other appropriate regulatory agreement, as a transitional mechanism to move to a watershed-based permit that covers multiple point source discharges.

Pilot Project Funding

EPA is funding this project through a Clean Water Act 104(b)(3) Cooperative Agreement.

Pilot Project Update

- Clean Water Services participated in a collaborative process that resulted in a draft watershed-based integrated permit covering the four wastewater treatment

plants, the Phase I MS4, and industrial stormwater general permits (1200-Z) for the two wastewater treatment plants required to have coverage.

- The draft watershed-based integrated permit contains water quality trading elements for trading (1) carbonaceous BOD and ammonia both within a facility and among the four wastewater treatment facilities and (2) temperature with shading (i.e., tree planting in upstream agriculture areas) and release of cool water from a reservoir. The trading elements are in conformance with the waste load allocations from the 2001 Tualatin TMDL.
- OR DEQ made the draft watershed-based integrated permit available for public review and comment on November 14, 2003, for a 45 day period. The draft permit is available at www.deq.state.or.us/news/publicnotices. Permit issuance is anticipated in early 2004.
- Clean Water Services has developed the public involvement and outreach process on an ongoing basis.

Watershed-Based Permitting Case Study: Final Permit

Rahr Malting Company

Fact Sheet #5

National Pollutant Discharge Elimination System and State Disposal System Permit No. MN0031917

Watershed
Minnesota River

Permitting Authority
Minnesota Pollution Control Agency (MPCA)

Point of Contact
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Senior Engineer
Majors Water and Land Section, MPCA
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Permit Information
www.pca.state.mn.us/water/pubs/rahrtrad.pdf

Date Issued
January 8, 1997

Background

- The Rahr Malting Company processes approximately 2.5 million pounds of barley per day for various industries and discharges its waste into the 16,770 square-mile Minnesota River watershed.
- The receiving segment has a TMDL for biochemical oxygen demand (BOD).
- In 1996, Rahr Malting decided to expand operations and applied for a permit to build a wastewater treatment plant to treat the additional effluent.
- No waste load allocation was available for the proposed new discharge of 150 lb/five day carbonaceous BOD (CBOD5) and the best available technology proposed could not achieve zero discharge.

Permit Type

- Individual NPDES permit.

Permitting Strategy

- The Rahr Malting Company proposed to offset the proposed new discharge through a point-nonpoint source trading program.
- The Rahr Malting Company works with the Coalition for Clean Minnesota River and American Rivers to identify potential trades.

Permit Overview

- The permit expired in January 2002. Rahr Malting has applied for a new permit, but continues to operate under the requirements of the expired permit.
- The trading program allows point-to-nonpoint trades. Specific reductions to be purchased became part of the permit, and therefore could not easily be changed during the permit term.

Permit Limits

- Permit contains first effluent limit for phosphorous ever assigned to Rahr Malting, and the first effluent limit for a phosphorous discharge to the Minnesota River. It contains a CBOD5 effluent limit of 12-mg/l year round and a phosphorous monthly average limit of 2 mg/l.

- The Rahr Malting Company was required to install and maintain limits-of-technology controls at the wastewater treatment facility, in addition to the trading requirements.

Monitoring Requirements

- The permit requires monitoring and compliance at two separate outfalls for the following parameters: flow, temperature, pH, CBOD5, ammonia, phosphorus, and dissolved oxygen.

Special Conditions

- None.

Measures of Success

- As of January 2002, Rahr Malting exceeded its goal of offsetting 150 lbs. of CBOD per day.
- BMP implementation is ahead of schedule.
- The company has completed four trade sites and have achieved 204 lbs. of offsite CBOD credits per day.

Watershed-Based Permitting Case Study: Permitting Approach

Northern Kentucky, Sanitation District No. 1

Fact Sheet #6

Watershed
Ohio River

Permitting Authority
Kentucky Division of Water (KY DOW)

Point of Contact
John Lyons
Northern Kentucky, Sanitation District No. 1
(859) 578-7450
JLYONS@sd1.org

Additional Information
www.sd1.org/index.html

Project Timeframe
August 2002 - January 2004

Background

- Boone, Campbell, and Kenton Counties comprise an area referred to as Northern Kentucky located along the southern border of the Ohio River.
- Prior to 1995, operation and maintenance of the wastewater collection system in Northern Kentucky were the responsibility of respective municipal jurisdictions.
- State legislation authorized the transfer of ownership of most wastewater collection systems in Northern Kentucky to Sanitation District No. 1.
- Three county region has potential for water quality impacts from sanitary sewage, urban storm water runoff, rural storm water runoff, and failing septic systems.
- A recent evaluation revealed that existing storm water management programs in the 33 cities and three counties subject to the Phase II MS4 regulations vary administratively and structurally. These programs are not conducive to incorporating watershed-based planning into the storm water management decision making process.

Factors to Consider in Permitting

- Sanitation District No. 1 is responsible for managing 1,400 miles of combined and separate sewers, one major wastewater treatment plant, nine small wastewater treatment plants, 135 pump stations, and 15 flood pump stations.
- The District recently developed a regional facilities plan that includes a program to construct two new regional wastewater treatment plants over the next five years.
- The Combined Sewer Overflow Control Plan implemented by the District considers an integrated watershed approach to planning.
- The District also implements a Sanitary Sewer Overflow Plan requested by the KY DOW to reduce the number of unpermitted discharges from overflow points.
- A single regional storm water permit, under the direction of Sanitation District No. 1, has been issued to thirty cities and three counties. This permit will help the District facilitate its watershed management activities.

Pilot Project Goals

- Through this project, the District intends to:
  - Develop a broad conceptual model of how a watershed-based permitting approach would function in this three county area.
  - Identify the challenges to, and benefits of, implementing a watershed approach to water quality permitting and management.

Pilot Project Overview

- The project is divided into three major components:
  - Review of the consolidation of the sanitary sewer system already conducted by Sanitation District No. 1 and the storm water management program which is underway
  - Development of a conceptual model for a watershed-based approach
  - Evaluation of the feasibility of future implementation of the conceptual model.

Review of Consolidation

- Under this component, Sanitation District No. 1 will perform the following activities:
  - Examine the approach used by the District to consolidate several disparate sanitary sewer and storm water agencies under one management structure.
  - Document any identified legislative, legal, regulatory, and political obstacles that arose during the consolidation process and the techniques used to overcome these challenges.

Development of a Conceptual Model

- Under this component, Sanitation District No. 1 will perform the following activities:
  - Review programmatic support for the proposed approach to watershed-based permitting.
  - Develop a program framework for watershed-based permitting.

Review Feasibility of the Conceptual Model

- Under this component, Sanitation District No. 1 will perform the following activities:
  - Identify benefits and obstacles that would result from implementing the conceptual model as a watershed-based permit.

Expected Outcomes

- Through this pilot project, Sanitation District No. 1 made a determination that it is feasible to further pursue development of a watershed-based permit.
- Based on results of this study, the District will continue dialog with state and federal agencies related to the development of a watershed-based permit.

Pilot Project Funding

- EPA is funding this project through a Clean Water Act 104(b)(3) Cooperative Agreement. Sanitation District No. 1 is providing a local matching contribution.

Fact Sheet #7

Watershed-Based Permitting Case Study: Final Permit

Discharges of Storm Water Runoff Associated with Industrial Activities and Maintenance Dredging at Marinas in the Lake Tahoe Hydrologic Unit El Dorado and Placer Counties

NPDES General Permit No. CAG616003 Board Order No. 6-00-36

Watershed
Lake Tahoe Hydrologic Unit

Permitting Authority
State Water Resources Control Board (SWRCB), Lahontan Regional Water Quality Control Board (Region 6a)

Point of Contact
Mary Fiore-Wagner
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Permit Information
www.swrcb.ca.gov/rwqcb6/files/00-03.pdf

Date Issued
May 10, 2000

Background

- Several of the marinas in the Lake Tahoe Basin were regulated by both the NPDES General Industrial Activities Storm Water Permit and individual Waste Discharge Requirements (WDRs)[1] issued by the Regional Board.
- Complying with two separate but similar permits and their respective monitoring and reporting requirements had been complicated and costly for most marina operators.

Permit Type

General Permit for Discharges of Storm Water Runoff Associated with Industrial Activities and Maintenance Dredging at Marinas in the Lake Tahoe Basin Hydrologic Unit.

Permitting Strategy

- This permit combines the requirements and monitoring needs of each of the previous existing permits into one permit that should be more manageable for Regional Board staff and the regulated marina operators.
- The Permit regulates potential pollutant discharges at the marina including storm water runoff, waste from maintenance activities, vessel sewage, bilge water wastes, and pollutants associated with maintenance dredging.

Permit Overview

- Marina operators must submit a Notice of Intent (NOI) and an annual fee to the Lahonton Regional Board.
- Marina operators are required to comply with the water quality standards outlined in the Lake Tahoe Basin Plan and amendments[2].

[1] As per the state's Porter-Cologne Water Quality Control Act, any person discharging or proposing discharge within a region is required to apply for and obtain Waste Discharge Requirements. They can be adopted for individual or general permits. These requirements can be waived by the Regional Board. WDRs are in addition to NPDES requirements where applicable.

[2] Water Quality Control Plan for the Lahonton Region, North and South Basins. Lahonton Regional Control Board. 10/94.

Permit Limits

- The Basin Plan contains numeric effluent limitations for pollutants in storm water (e.g., total nitrogen, total phosphorus, turbidity, grease/oil, total iron) and requires a storm water pollution prevention plan (SWPPP) as well.

Parameter	Effluent Limits for Discharge to:	
	Land Treatment Systems	Collection Systems and Surface Waters
Total Nitrogen	5 mg/L (as N)	0.5 mg/L (as N)
Total Phosphorus	1 mg/L (as P)	0.1 mg/L (as P)
Total Iron	4 mg/L	0.5 mg/L
Turbidity	200 NTU	20 NTU
Suspended Solids	—	50 mg/L
Grease and Oil	40 mg/L	2 mg/L

- Must comply with existing WDRs that require marinas to regulate point sources, maintain a vessel pumpout facility, and install best management practices (BMPs) to treat runoff from a 20-year, 1-hour design storm from all impervious surfaces.

Monitoring Requirements

- Facilities were required to develop a Monitoring and Reporting Program by June 15, 2000, under Section 13267 of the California Water Code.
- Permittees are required to monitor the runoff discharging from the facility and inspect BMPs installed.

Special Conditions

- None.

Measures of Success

- All 12 Lake Tahoe, California-side marinas are permitted and have installed fixed or portable sewage pump-outs, depending on marina size.
- Monitoring and reporting requirements provide data about the presence and magnitude of gasoline constituents at marinas and sediment and nutrient in stormwater runoff.
- This permit allows a streamlined permitting process for dredging projects.
- Annual Reports provide Regional Board with information regarding fueling practices, sewage pump-out volumes, fertilizer application, irrigation practices, and motorized watercraft usage.
- Transition from two permits to one has reduced the time and resources Regional Board staff and dischargers must commit to the program.

Watershed-Based Permitting Case Study: Final Permit

Fact Sheet #8

Discharges of Storm Water Runoff Associated with Construction Activity Involving Land Disturbance in the Lake Tahoe Hydrologic Unit El Dorado, Placer and Alpine Counties

NPDES General Permit No. CAG616002 Board Order No. 6-00-03

Watershed
Lake Tahoe Hydrologic Unit

Permitting Authority
State Water Resources Control Board (SWRCB), Lahontan Regional Water Quality Control Board (Region 6a)

Point of Contact
Mary Fiore-Wagner
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(530) 542-5425
mfwagner@rb6s.swrcb.ca.gov

Permit Information
www.swrcb.ca.gov/rwqcb6/files/00-03.pdf

Date Issued
January 12, 2000

Background

- Water quality problems related to storm water discharges, erosion and sedimentation are most frequent and widespread due to significant amount of precipitation in this region.
- Significant resources had been allocated for implementation of the Environmental Improvement Program (EIP). Most EIP projects are large construction projects for purposes of restoration and improvement of water quality and wildlife habitat.

Permit Type

General permit that covers all storm water discharges to the Lake Tahoe hydrologic unit associated with any construction activity, which includes grading, clearing and excavation (***except*** activities that result in total land disturbance of less than five acres or beginning December 8, 2002 less than one acre and are not part of a common plan of development) or other storm water discharges determined eligible for coverage by the Regional Board and State Water Resources Control Board (SWRCB).

Permitting Strategy

- The permit was updated to include specific monitoring and reporting requirements for EIP projects to gauge success and identify strengths and weaknesses of these projects.

Permit Overview

- The permit requires co-permittees to comply with the water quality standards established in the Basin Plan[1] and any amendments.
- All dischargers must develop a SWPPP which outlines all of the pollution prevention measures necessary to reduce pollutants being discharged from the construction site to levels that are in compliance with the effluent limits and receiving water objectives.

[1]Water Quality Control Plan for the Lahonton Region, North and South Basins. Lahonton Regional Control Board. 10/94.

Permit Limits

- Effluent limitations for total nitrogen, total phosphorus, total iron, turbidity, suspended solids and grease/oil.

Parameter	Effluent Limits for Discharge to:	
	Land Treatment Systems	Collection Systems and Surface Waters
Total Nitrogen	5 mg/L (as N)	0.5 mg/L (as N)
Total Phosphorus	1 mg/L (as P)	0.1 mg/L (as P)
Total Iron	4 mg/L	0.5 mg/L
Turbidity	200 NTU	20 NTU
Suspended Solids	—	50 mg/L
Grease and Oil	40 mg/L	2 mg/L

Monitoring Requirements

- All dischargers are required to adhere to the Monitoring and Reporting Program which is included in the general permit. This program details the inspections and reporting required for each permitted site.
- No effluent or ambient monitoring is required by this permit.
- Additional monitoring requirements are included for restoration projects (Attachment C of the permit).
- The permit states that the Regional Board suggests monitoring for amount and type of vegetative cover, stability of stream banks, groundwater levels, success of erosion control measures used on-site and water quality parameters to include total suspended solids, total nitrogen, total phosphorus, conductivity and turbidity.

Special Conditions

- None.

Measures of Success

- The permit requires additional monitoring to track the success of restoration projects.
- Storm water effluent limitations developed for the Lake Tahoe Hydrologic Unit are reflected in the permit.
- Information gained by monitoring of restoration projects identify strengths and weaknesses of projects; this information provides feedback to improve the restoration project and enhance the success of future projects
- Since adoption of the permit, 11 projects have been enrolled.

Fact Sheet #9

Watershed-Based Permitting Case Study: Final Permit

Waste Discharge Requirements for the City of South Lake Tahoe, El Dorado County, and Placer County Storm Water/Urban Runoff Discharge

NPDES Permit No. CAG616001 Board Order No. 6-00-82

Watershed
Lake Tahoe Hydrologic Unit

Permitting Authority
State Water Resources Control Board (SWRCB), Lahontan Regional Water Quality Control Board (Region 6a)

Point of Contact
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Permit Information
www.swrcb.ca.gov/rwqcb6/files/00-82.pdf

Date Issued
October 12, 2000

Background

- Storm water discharges contribute a significant amount of the sediment and nutrients responsible for the decline in Lake Tahoe's water quality.

Permit Type

- General permit covering all storm water discharges from residential, commercial, industrial, municipal, and construction areas within the City of South Lake Tahoe, El Dorado County, and Placer County (the co-permittees).

Permitting Strategy

- The permit area includes all of the Lake Tahoe Basin (the Basin)[1] that is included in the State of California. This incorporates all of South Lake Tahoe, but only the Basin portions of Placer and El Dorado counties.
- This approach eliminated the need for multiple Board Orders and Waste Discharge Requirements (WDR)[2] within the Project Area.
- Each permittee is only responsible for the discharges originating within its jurisdiction boundaries, within the Basin.
- The permit excludes discharges from federal lands or other jurisdictions including state lands. The permit states that the Regional Board has the discretion and the authority to require other entities within the Project Area to obtain their own individual permits.
- Caltrans is covered separately under a state-wide NPDES permit.

[1]Water Quality Control Plan for the Lahonton Region, North and South Basins. Lahonton Regional Control Board. 10/94.

[2]As per the state's Porter-Cologne Water Quality Control Act, any person discharging or proposing discharge within a region is required to apply for and obtain Waste Discharge Requirements. They can be adopted for individual or general permits. These requirements can be waived by the Regional Board. WDRs are in addition to NPDES requirements where applicable.

Permit Overview

- The permit requires co-permittees to comply with the water quality standards established for the Basin contained in the Basin Plan and any amendments.

Permit Limits

- Effluent limitations for total nitrogen, total phosphorus, total iron, turbidity, and grease/oil.
- The effluent limitations for all storm water/urban runoff flows generated within the permit area (except those construction projects subject to a separate permit) must be met by November 30, 2008 (not within the current permit term).

Parameter	Effluent Limits for Discharge to:	
	Land Treatment Systems	Collection Systems and Surface Waters
Total Nitrogen	5 mg/L (as N)	0.5 mg/L (as N)
Total Phosphorus	1 mg/L (as P)	0.1 mg/L (as P)
Total Iron	4 mg/L	0.5 mg/L
Turbidity	200 NTU	20 NTU
Suspended Solids	—	50 mg/L
Grease and Oil	40 mg/L	2 mg/L

Monitoring Requirements

- Each permittee must submit and comply with a Storm Water/Urban Runoff Monitoring Program Plan, developed in accordance with the Monitoring and Reporting Program requirements included in the general permit.
- The Monitoring and Reporting Program outlines the inspections, California Toxics Rule water quality monitoring, special monitoring projects and reporting requirements for all co-permittees.
- Each permittee is required to submit a list of "storm water/erosion control projects" scheduled for the permit term. Each permittee must submit a plan for a special monitoring project each permit year.

Special Conditions

- None.

Measures of Success

- Annual Reports provide information regarding sand application and recovery; this data will be used to develop a Lake Tahoe basin-wide sand specification for low phosphorus material.
- The permit incorporates storm water effluent limitations developed for the Lake Tahoe Hydrologic Unit.
- Permittees must provide annual workplan of erosion control and stormwater treatment projects to treat runoff from existing roads and subdivisions.
- Comprehensive monitoring projects will determine the effectiveness of stormwater treatment projects; data from monitoring are used to improve future projects.

Watershed-Based Permitting Case Study: Permitting Approach

Louisville and Jefferson County Metropolitan Sewer District (MSD)

Fact Sheet #10

Watershed
Mill Creek, Ohio River, Pond Creek, Cedar Creek, Pennsylvania Run, Floyds Fork, South Fork Beargrass Creek, Middle Fork Beargrass Creek, Muddy Fork Beargrass Creek, Goose Creek, Harrods Creek

Permitting Authority
Kentucky Division of Water (KY DOW)

Point of Contact
Patti Grace-Jarrett, Water Quality/Quantity Administrator
MSD
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grace@msdlouky.org

Permit Information
www.msdlouky.org

Project Performance
1995 - present

Background

- Jefferson County borders the Ohio River in north central Kentucky and contains the City of Louisville, the state's largest city, as well as 93 smaller municipalities.
- MSD's existing service area consists of Jefferson County, approximately 375 square miles, which encompasses portions of eleven watersheds.
- MSD builds, maintains and operates wastewater and stormwater facilities for Jefferson County, serving nearly 200,000 businesses and households.

Factors to Consider in Permitting

- MSD manages 3,000 miles of sanitary sewer lines, 680 miles of which are combined sewers.
- Infrastructure operated by MSD includes one major publicly-owned treatment works (POTW), five regional POTWs, 22 small treatment plants, and 12 major pump stations.
- MSD's responsibilities include flood protection, management of all floodwall and levee facilities, as well as drainage, management of floodplains, and implementation of the floodplain ordinance.
- Management of the industrial pretreatment program, the combined sewer overflow (CSO) program, and the sanitary sewer abatement and elimination program fall within MSD's jurisdiction.
- The Phase I NPDES Municipal Separate Storm Sewer System (MS4) permit is also the responsibility of MSD as the lead agency on the permit.
- MSD also manages and implements the local erosion protection and sediment control ordinance.

Pilot Project Goals

- MSD will evaluate its monitoring activities and oversight strategies for implementation of Clean Water Act (CWA) requirements, with emphasis on improving and streamlining NPDES permits and related programs.
- Through this project, MSD intends to develop two alternative watershed-based permit models (i.e., unified permits) and explore application of these model permits in two different watersheds within Jefferson County.

Pilot Project Overview

This project took a phased approach and resulted in a mid-term report and a final report. Tasks performed under this project during the first phase included:

- Establishing internal and external advisory groups
- Reviewing literature on other NPDES integration efforts
- Interviewing other NPDES program managers around the country
- Evaluating MSD monitoring programs
- Evaluating data collection, management, and analysis procedures related to NPDES programs
- Sharing information at national conferences.

The second phase of the project focused on implementation of earlier recommendations defined in the Mid-Term Report. Activities included:

- Appointing a Chief Information Officer
- Developing an enterprise data structure
- Reorganizing departments and divisions to better manage NPDES permits and related programs, including integration of wet weather related programs and permits.

Phase three of the project focused on exploring the concept of a unified permit approach to managing NPDES regulatory programs. MSD developed two unified permit models: the regulatory flexibility permit model and the co-permittee model.

Regulatory Flexibility Permit Model

- This model represents a single permit combining MSD's existing point source permits and other NPDES-related programs.
- Under this model, MSD's programmatic constraints relaxed to allow MSD to pursue the "best" solution for water quality improvement rather than prescriptive program requirements.

Co-Permittee Permit Model

- This model combines existing MSD NPDES permits and NPDES-related programs with other point source permits under the authority of a local management group.
- It maximizes involvement and individual efforts of partner organizations, but balances independent efforts of these organizations with the direction of a watershed planning agency.

Expected Outcomes

Through this project, MSD expects to:

- Improve annual reporting based on watersheds.
- Improve management of water quality resources.
- Facilitate TMDL implementation.
- Increase involvement of the MS4 co-permittees and the community.

Pilot Project Funding

EPA funded the pilot project through a Clean Water Act 104(b)(3) Cooperative Agreement. Current activities are funded solely by MSD.

Pilot Project Update

Recent activities include:

- Refined the watershed permitting model that is a hybrid of two current EPA models—the "Watershed-Based Individual Permit" and "Integrated Municipal NPDES Permit models.
  - Bundled all point source requirements and mechanisms for all municipal point sources (CSO, SSO, MS4 Phase I Storm Water, and Pretreatment) under one permit.
  - Included MS4 co-permittees.
  - Based on watershed boundaries of the Beargrass Creek Watershed.
- Drafted a Beargrass Creek Watershed Permit Concept Paper and Presentation.
- Met with Kentucky Division of Water Regarding Watershed Permit (Summer, Fall 2003).
- Drafted a Beargrass Creek Watershed Permit and submitted to Kentucky Division of Water (Summer 2003) for review. Anticipate issuance in March 2004.

Benefits to Date

MSD cites the following benefits:

- Streamlined NPDES activities.
- Cross-trained staff.
- Better program integration.
- Better program management.

Watershed-Based Permitting Case Study: Final Permit

Neuse River Compliance Association

NPDES No. NCC000001

Fact Sheet #11

Watershed
Neuse River Basin

Permitting Authority
North Carolina Department of Environment and Natural Resources, Division of Water Quality (NCDWQ)

Point of Contact
Mike Templeton
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Additional Information
h2o.enr.state.nc.us/nps/neuse.htm

Date Issued
December 30, 2002

Background

- Neuse River Basin is classified as Nutrient Sensitive Waters (NSW) due to long-term over-enrichment of its estuary, leading to the development of the Neuse River Basin NSW Management Strategy (Strategy).
- The stated goal of the Strategy is to reduce Total Nitrogen (TN) loads to the estuary by 30 percent by 2003.
- Under the NSW Management Strategy, the Wastewater Discharge Requirements rule establishes specific nutrient control requirements for the point source dischargers in the basin. Dischargers with permitted flows of 0.5 million gallons per day (MGD) or greater (accounting for 95% of the point source TN load) receive TN limits in their individual NPDES permits.
- Nutrient impacts also led to listing on 303(d) list and the development of total maximum daily loads (TMDLs), which the U.S. Environmental Protection Agency (EPA) Region 4 has approved.

Permit Type

- Individual watershed-based permit with multiple co-permittees.

Permitting Strategy

- The Wastewater Discharge Requirements rule established under the NSW Management Strategy allows point source dischargers within the basin to form a compliance association to work collectively to meet their combined TN wasteload allocation of 1.64 million pounds TN per year (Phase I TMDL). Membership in an association is voluntary.
- The Neuse River Compliance Association (NRCA), a non-profit comprised of public and private entities in the basin that hold individual NPDES permits, functions as the compliance association described under the Wastewater Discharge Requirements rule.
- Dischargers participating in the NRCA are subject to TN limits in a group compliance NPDES permit, rather than those in their individual NPDES permits.
- The NRCA serves as the point of contact between NCDENR and its co-permittee members on issues related to the group permit.

Permit Overview

- Requirements in an association's permit supplement the requirements contained in each member's individual permit.

- An association permit governs only TN. The requirements under each individual permit remain in effect for all other parameters of concern. The compliance permit only replaces requirements of an individual permit where specifically stated.

Permit Limits

- Each co-permittee member has an estuary TN allocation and (due to transport effects) a corresponding discharge allocation. Similarly, actual loads can be specified as estuary or discharge loads.
- The Association's TN limit for a given calendar year is equal its estuary TN allocation. This overall TN allocation is the sum of all TN allocations for members of the NRCA (listed in Appendix A of the permit).
- TN allocations of co-permittee members may change due to purchases, sales, trades, leases and other transactions among NRCA members, impacting the Association's TN allocation. All TN transactions are expressed in terms of estuary allocations.
- Membership in the NRCA may change, impacting the Association's overall TN allocation.
- If a co-permittee member's membership in the NRCA is terminated, coverage under the group compliance permit terminates and the member is subject to the TN limitation in its individual NPDES permit.
- Changes in membership, and thus to the TN allocation, become effective at the beginning of the calendar year.

Compliance

- If the NRCA complies with its TN limit for the year, the Association and its co-permittee members are, by definition, in compliance with the TN limits in its permit.
- If the NRCA exceeds its TN limit, the Association is out of compliance and any co-permittee member that exceeds its individual TN limit in Appendix A of the permit is also out of compliance and subject to enforcement action.

Monitoring Requirement

- Members of the NRCA monitor discharges and report results to NCDWQ as specified in their individual permits.
- The NRCA compiles and submits co-permittee members' TN monitoring results for its own reporting purposes.
- The group compliance permit does not require instream monitoring. Each co-permittee member does have instream monitoring requirements in their individual NPDES permits, conducted for most by the Lower Neuse Basin Association, a coalition of dischargers established for this purpose.

Reporting Requirements

- The NRCA serves as the primary point of contact between the co-permittee members and NCDWQ, including preparation and submission of information such as reports and requests for modification or renewal of the group compliance permit.
- Under the permit, the NRCA must submit three types of reports: a mid-year report, a year-end report, and a five-year report.
    - The mid-year report contains a Discharge Monitoring Report (for informational purposes only) of each co-permittee member's discharge

and estuary TN loads and the overall Association's estuary TN load, and states planned changes in membership or TN allocations to become effective for the ensuing calendar year.

- The year-end report summarizes discharges for the NRCA and each co-permittee member, as well as transactions made during the previous calendar year that affect TN allocations.
- The five-year report provides a full accounting of membership and allocation changes for the previous five years. Its purpose is to ensure that the NRCA and NCDWQ agrees on the Association and individual allocations at the end of the permit term.

Special Conditions

– Any year in which the NRCA exceeds its TN allocation, the permit requires the NRCA to make payments to the Wetlands Restoration Fund in support of stream and wetlands restoration projects that will offset the excess nitrogen load to the estuary.

Measures of Success

NCDWQ may use the following as measures of success for the group compliance approach:

- ♦ Demonstrated feasibility of the group compliance concept and market-driven approach to TN reduction.
- ♦ Highlighted strengths and weaknesses of this approach, as well as possible improvements.
- ♦ Fostered cooperation of the members toward its environmental goal with the possibility of extending this cooperation to other endeavors and goals.
- ♦ Demonstrated cost-effective approach for reducing TN loads.

United States
Environmental Protection
Agency

EPA 833-B-03-004
December 2003