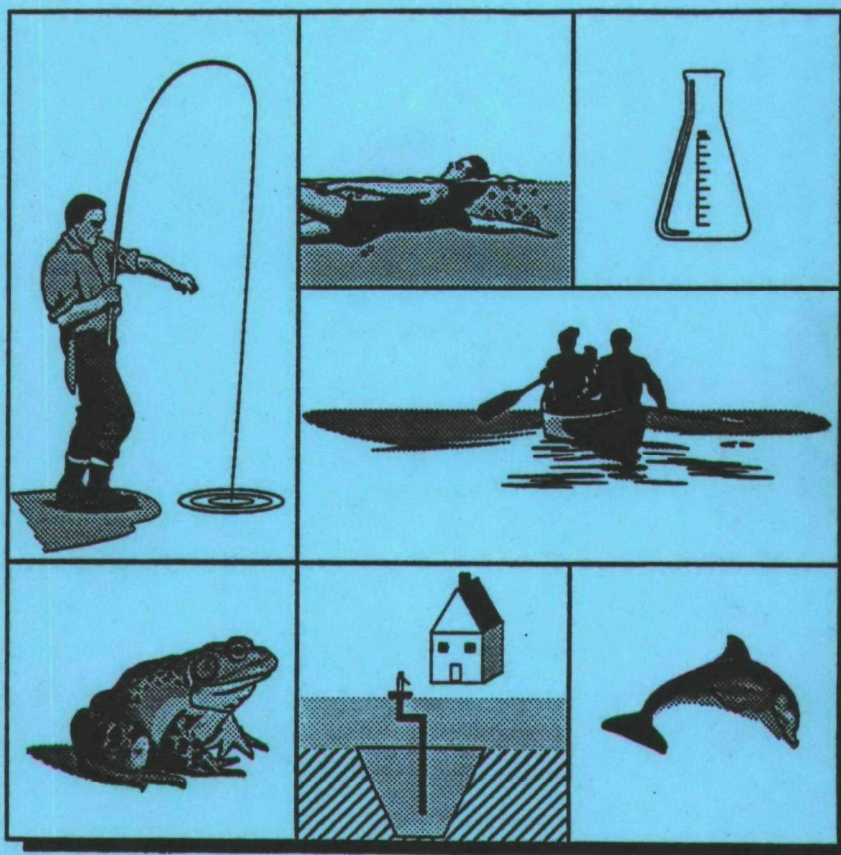




Office of Water  
Office of Wastewater Management

# SECTION 106 PROJECT OFFICERS' ORIENTATION TO STATE WATER QUALITY MANAGEMENT



## **COURSE INTRODUCTION**

This is an introductory course. Its objective is to give new regional water program project officers a basic understanding of state water quality management programs. It is designed to present the information a project officer needs to know in order to negotiate effective water quality management work programs with states and interstate agencies. Thus, the course provides an overview of the entire water quality management process, not an in-depth discussion of any single component. The course illustrates how the water quality management program components, or processes, relate to each other and explains their basis in the Clean Water Act and Environmental Protection Agency regulations.

Although, the primary audience for this course is new project officers in the regions, it is appropriate for other regional office staff (including experienced project officers) and state program staff. This course is to be offered in conjunction with the Headquarters Grants Administration Division's grants administration course, "Managing Your Financial Assistance Agreement—Project Officer Responsibilities."

### **Course Content**

This course begins with a review of the statutory and regulatory bases for state water quality management and ground water protection. It discusses the two types of assistance agreements, grants and cooperative agreements, and examines the role and responsibilities of the 106 project officer. The course concludes with a description of the process for developing a state work program including: developing regional guidance, negotiating, and monitoring and evaluating performance.

This information is organized into nine modules:

- Module 1: The Process of State Water Quality Management
- Module 2: Ground Water Protection
- Module 2A: Program Coordination Through the Watershed Protection Approach
- Module 3: Overview of Grants and Cooperative Agreements
- Module 4: Project Officer Role and Responsibilities
- Module 5: Developing Regional Guidance
- Module 6: Negotiating the Work Program
- Module 7: Performance Management
- Module 8: Special Subjects

**Module 1** sets the stage with an overview of the evolution of the statutory framework (specifically, the requirements of the Clean Water Act) which serves as the foundation

for state water quality management. The module discusses the complexity of the state water quality management program and takes a look at each of the program activities that comprise state water quality management. Six program activities are presented in detail: Designating Uses, Criteria Development and Adoption; Assessment/Water Quality Monitoring; Total Maximum Daily Loads; Implementing Point Source Controls, Implementing Nonpoint Source Controls; and Water Quality Program Management. At the end of this module, the planning process is emphasized with a discussion of Water Quality Management (WQM) Planning, WQM Plans and the Continuing Planning Process (CPP), and Priority Setting.

**Module 2** examines ground water protection, including: funding eligibility, priority setting, coordination, implementation strategies, information management, public education, and a review of the EPA ground water protection program.

**Module 2A** provides an overview of the Watershed Protection Approach and its leading form for States, the Statewide Basin Management Approach (BMA). The nine basic components of a BMA are reviewed, along with the stages of BMA development and implementation.

**Module 3** provides an overview of grants and cooperative agreements and reviews the program elements eligible for funding under Section 106, agency policy, and the process of applying for an assistance agreement.

**Module 4** examines the role and responsibilities of the project officer, including: the legal basis for the project officer's authority; the roles of federal, state, and local agencies; and the unique nature of state programs. The issue of limited resources versus workload is discussed along with how the project officer manages these challenges. The module ends with a review of the cooperative agreement process.

**Module 5** addresses the development of regional guidance: the role and basis of guidance, requirements and restrictions, and the elements in a guidance document.

**Module 6** explains the process of negotiating a work program, including: content and objectives; the sequence of events; scheduling; and the role of the project officer in negotiating, monitoring, and evaluating the plan.

**Module 7** discusses the elements of performance management, evaluation strategies, mid-year and end-of-year reviews, reports and products, and the types and application of incentives and sanctions. An appendix to Module 7 provides an example of a work program tracking system.

**Module 8** introduces special subjects that affect state water quality management programs, including: quality assurance (requirements, monitoring objectives, documentation, and project elements) and pollution prevention (priorities and incorporation into the work program).



## Course Materials

This is the Participant Manual. It contains all of the viewgraphs and information required to achieve the overall course objective. The top of each page is a viewgraph which presents the key points of the material. The text beneath each viewgraph provides more detail and examples as appropriate. Legislative references are provided for all mandated activities and programs. The Reference Manual which accompanies this course contains a copy of the Clean Water Act, applicable regulations, policy memoranda, and other materials that supplement the information provided in the modules.

The course was developed with substantial regional office input into the design and contents of the course. It is designed to be a regional training program to be revised and maintained by the Regions with continued oversight by Headquarters Office of Wastewater Management (OWM) to ensure national consistency in implementation.

To facilitate regional involvement and input into the development of this course, Jane Ephremides, Director, Resource Management Evaluation Staff, Office of Wastewater Management and Carol Crow, Headquarters Section 106 Coordinator established a steering committee consisting of Regional Water Quality Coordinators:

- Mr. William Nuzzo, Region 1
- Ms. Alice Jenik, Region 2
- Ms. Signe Pereira, Region 2
- Mr. Gene Mattis, Region 3
- Mr. Ken Cox, Region 3
- Ms. Grace Deatrick, Region 4
- Ms. Janet Causey, Region 5
- Ms. Debora Dawley, Region 5
- Mr. Russell Bowen, Region 6
- Mr. Larry Ferguson, Region 7
- Mr. John Houlihan, Region 7
- Mr. Rick Claggett, Region 8
- Ms. Cheryl McGovern, Region 9
- Mr. Rick Albright, Region 10

In addition, advice and review was sought from key headquarters personnel. They include:

Mr. Donald Brady, OWOW  
Ms. Elizabeth Jester, OWOW  
Ms. Mary Belefski, OWOW  
Mr. Kenneth Hay, OGDW  
Mr. George Hoessel, OGDW  
Ms. Frances DeSalle, OST  
Mr. Dave Sabock, OST  
Mr. Robert Wood, OWM  
Mr. James Pendergast, OWM  
Ms. Corrine Allison, GAD

# **Orientation to State Water Quality Management**

## TABLE OF CONTENTS

---

<b>Module 1: The Process of State Water Quality Management</b> .....	<b>1-1</b>
Designating Uses, Criteria Development and Adoption .....	1-13
Assessment/WQ Monitoring .....	1-27
Total Maximum Daily Loads .....	1-39
Implement Point Source Controls .....	1-55
Implement Nonpoint Source Controls .....	1-93
Program Management .....	1-102
 <b>Module 1: Appendices</b>	
Statutory and Regulatory References	
Permit Issuance Procedures	
Example Permit	
 <b>Module 2: Ground Water Protection</b> .....	<b>2-1</b>
 <b>Module 2A: Program Coordination Through the Watershed</b>	
Protection Approach (WPA) .....	2A-1
The Statewide Basin Management Approach (BMA) .....	2A-6
BMA Development and Implementation Steps .....	2A-22
 <b>Module 3: Overview of Grants and Cooperative Agreements</b> .....	<b>3-1</b>
 <b>Module 4: Project Officer Role and Responsibilities</b> .....	<b>4-1</b>
 <b>Module 5: Developing Regional Guidance</b> .....	<b>5-1</b>
 <b>Module 6: Negotiating the Work Program</b> .....	<b>6-1</b>
 <b>Module 7: Performance Management</b> .....	<b>7-1</b>



**Module 7: Appendices****Example of a Work Program Tracking System**

<b>Module 8: Special Subjects</b> .....	<b>8-1</b>
Quality Assurance .....	<b>8-1</b>
Pollution Prevention .....	<b>8-13</b>

**REFERENCE MANUAL****Who's Who in the Regions****40 CFR 25****40 CFR 30****40 CFR 31****40 CFR 35, Subpart A****40 CFR 130****40 CFR 131****Superceded Regulations for Background Information****The 1987 Clean Water Act****WEF Users' Guide to the Clean Water Act of 1987****Performance Based Assistance Policy**

**GLOSSARY OF ACRONYMS**

Acronym	
AC&C	Abatement, Control, and Compliance
AG	Attorney General
AOA	Advice of Allowance
AOG	Agency Operating Guidance
BMA	Basin Management Approach
BMP	Best Management Practice
BOD	Biological Oxygen Demand
BPJ	Best Professional Judgement
CBI	Compliance Biomonitoring Inspection
CEI	Compliance Evaluation Inspection
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFR	Code of Federal Regulations
COD	Chemical Oxygen Demand
CPP	Continuing Planning Process
CR	Continuing Resolution
CSGWPP	Comprehensive State Groundwater Protection Program
CSI	Compliance Sampling Inspection
CSO	Combined Sewer Overflow
CWA	Clean Water Act
CZARA	Coastal Zone Act Reauthorization Amendments
DI	Diagnostic Inspection
DMR	Discharge Monitoring Report
DOJ	Department of Justice

<b>DQO</b>	<b>Data Quality Objective</b>
<b>EPA</b>	<b>Environmental Protection Agency</b>
<b>ESD</b>	<b>Environmental Sciences Division</b>
<b>FMFIA</b>	<b>Federal Managers' Financial Integrity Act</b>
<b>FMO</b>	<b>Financial Management Office</b>
<b>FWPCA</b>	<b>Federal Water Pollution Control Act</b>
<b>GAO</b>	<b>General Accounting Office</b>
<b>GMO</b>	<b>Grants Management Office</b>
<b>HQ</b>	<b>Headquarters</b>
<b>IFMS</b>	<b>Integrated Financial Management System</b>
<b>ISTEA</b>	<b>Intermodal Surface Transportation Efficiency Act</b>
<b>ITFM</b>	<b>Intergovernmental Task Force on Monitoring Water Quality</b>
<b>LA</b>	<b>Load Allocation</b>
<b>LC</b>	<b>Loading Capacity</b>
<b>LTCCP</b>	<b>Long-Term CSO Control Plan</b>
<b>MGD</b>	<b>Million Gallons Per Day</b>
<b>MOA</b>	<b>Memorandum of Agreement</b>
<b>MOS</b>	<b>Margin of Safety</b>
<b>MOU</b>	<b>Memorandum of Understanding</b>
<b>NOAA</b>	<b>National Oceanic and Atmospheric Administration</b>
<b>NOI</b>	<b>Notice of Intent</b>
<b>NPDES</b>	<b>National Pollution Discharge Elimination System</b>
<b>NPS</b>	<b>Nonpoint Source</b>
<b>NRDC</b>	<b>Natural Resources Defense Council</b>
<b>O&amp;M</b>	<b>Operation and Maintenance</b>
<b>OMB</b>	<b>Office of Management and Budget</b>
<b>ORC</b>	<b>Office of Regional Counsel</b>
<b>OW</b>	<b>Office of Water</b>

OWM	Office of Wastewater Management
P2	Pollution Prevention
PAI	Performance Audit Inspections
PCI	Pretreatment Compliance Inspection
PCS	Permit Compliance System
P.O.	Project Officer
POTW	Publicly Owned Treatment Works
PT	Pretreatment
QA	Quality Assurance
QAPP	Quality Assurance Project Plan
QA/QC	Quality Assurance/Quality Control
QMP	Quality Management Plan
QNCR	Quarterly Noncompliance Report
RI	Reconnaissance Inspection
RO	Regional Office
SCS	Soil Conservation Service
SRF	State Revolving Fund
STORET	EPA's database for STORage and RETrieval of water quality data
TMDL	Total Maximum Daily Load
TRI	Toxics Release Inventory
TSS	Total Suspended Solids
UIC	Underground Injection Control
USGS	United States Geological Survey
UST	Underground Storage Tank
WLA	Wasteload Allocation
WPA	Watershed Protection Approach
WQ	Water Quality
WQM	Water Quality Management



WQS	Water Quality Standard
XSI	Toxics Sampling Inspection

**Module 1:**  
**The Process of State Water Quality**  
**Management**

## History of the Clean Water Act (CWA)

- First Federal Involvement
- Studies & Funding
- Water Quality-Based Approach
- Technology-Based Controls
- Combined Approach

VIEWGRAPH #1: History of the Clean Water Act (CWA)  
KEY POINTS

**Rivers and Harbors Act of 1899:** Prohibited deposit of refuse into "navigable water of the United States." The federal government enforced the statute. Its primary purpose was to facilitate navigation.

**Water Pollution Control Act of 1948:** Required that technical assistance in water pollution control be provided to states and local governments. There were, however, no federal goals, objectives, limits, or guidelines.

**Federal Water Pollution Control Act of 1956:** Provided for pollution studies and started large-scale funding of publicly owned treatment works.

**Water Quality Act of 1965:** Introduced a water quality-based approach to water quality management. Specifically, it required the development of state water quality standards for interstate waters. Enforcement was limited: an action against a discharger had to be based on a showing that the discharge reduced the quality of the receiving waters below the standards, or that it endangered health and welfare.

**Federal Water Pollution Control Act Amendments of 1972:** Comprehensive legislation protecting both interstate and intrastate waters, including lakes, rivers, streams, estuaries, and wetlands. This statute retained water quality standards and waste load allocations, but added national **technology-based** effluent limitations. It also added requirements for comprehensive planning and recognized nonpoint source issues. It included large-scale federal funding for state water quality management programs.

**Clean Water Act of 1987:** Adopted a **combination of water quality-based and technology-based approaches**. This act added toxic and nonpoint source controls, improved storm water management, and tightened controls on point sources. It continued the federal-state relationship started with the 1972 Act.

Technology- and Water Quality-Based Programs		
Program Characteristics	Technology-Based	Water Quality-Based
Requirements	Technology-based controls for all types and classes of point source dischargers	Site-specific controls for point sources and nonpoint sources when technology-based controls fail to meet Water Quality Standards (WQS)
Assessment Requirements	End of pipe analysis based on criteria	Ambient water quality for physical, chemical, and biological parameters
Types of controls usually employed	Permits based on effluent limits to implement national standards	Water quality (site-specific) effluent limits; nonpoint source Best Management Practices (BMPs); ultimately habitat (physical) and biological controls
WQS	Predominantly, numeric criteria for chemicals	Numeric and narrative criteria for physical, chemical, and biological; antidegradation



## **Clean Water Act**

- **I - Research and Related Programs**
- **II - Grants for Construction of Treatment Works**
- **III - Standards and Enforcement**
- **IV - Permits and Licenses**
- **V - General Provisions**
- **VI - State Water Pollution Control Revolving Funds**

**VIEWGRAPH #2: Clean Water Act  
KEY POINTS**

The numbers of the titles in the Clean Water Act can assist you in learning about the statute. For example, the first digit in each section number refers to its title. Thus, for example, CWA § 205 is in Title II, CWA § 402 is in Title IV, and CWA § 319 is in Title III.

The structure of the Act also mirrors its historical evolution. Title I provides for research and related programs, and Title II is grants for construction of treatment works. Both of these federal activities go back to the Federal Water Pollution Control Act of 1956. Title III, standards and enforcement, was added by the Water Quality Act of 1965, with its emphasis on a water quality-based approach to water quality management. Title IV, permits, reflects the emphasis on technology-based effluent limitations of the National Pollution Discharge Elimination System (NPDES) program in the Federal Water Pollution Control Amendments of 1972. Title VI, for state water pollution control revolving funds, was added in the Clean Water Act of 1987.

## **EPA & State Programs**

- **EPA Programs Establish Objectives and Framework**
- **State Develops Total Program Needed in State**

### **VIEWGRAPH #3: EPA & State Programs KEY POINTS**

#### **Summary of EPA and State Programs in Water Quality Management**

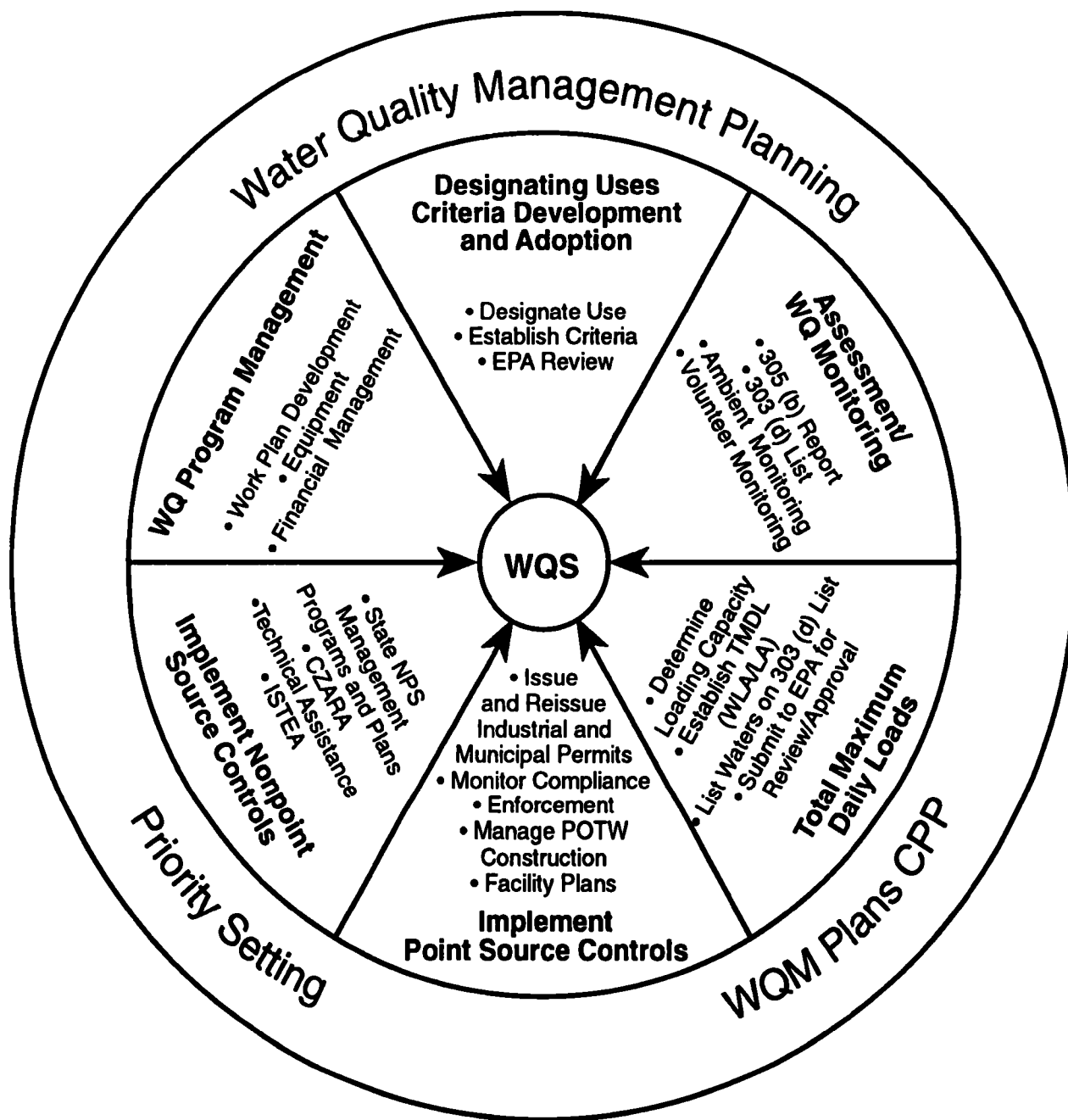
**EPA programs establish national objectives and regulatory framework, promote delegation of regulatory programs to states, and support that delegation in a manner that ensures achievement of national objectives.**

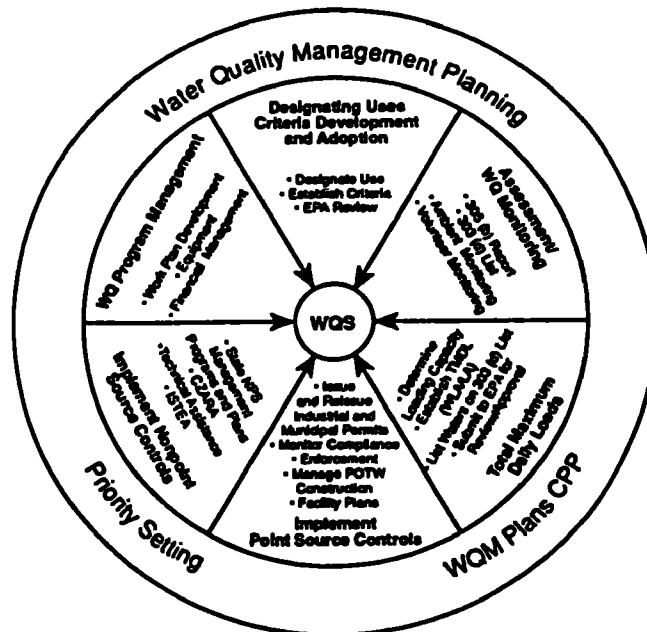
**State water quality programs are programs legislatively mandated by state legislatures. They do much more than simply administer programs delegated by EPA. The delegated EPA programs are the minimum programs acceptable from the federal perspective. They are not the total program needed in any state.**

**As an example of the unique aspects of state programs, consider the fact that many states permit all discharges in the state. NPDES, by definition, permits only discharges to navigable waters. Examples of discharges into waters that are not navigable include discharges to irrigation systems, discharges to ground water, and so forth. In California, more than half of all permitted facilities do not discharge to navigable waters. These regulated facilities require inspection, monitoring, and may require enforcement.**

**Another example: many states locate the agencies that regulate water quality with those that regulate water quantity. There is a connection between these two that is not made in federal law because quantity issues (particularly water rights) are a state and local issue.**

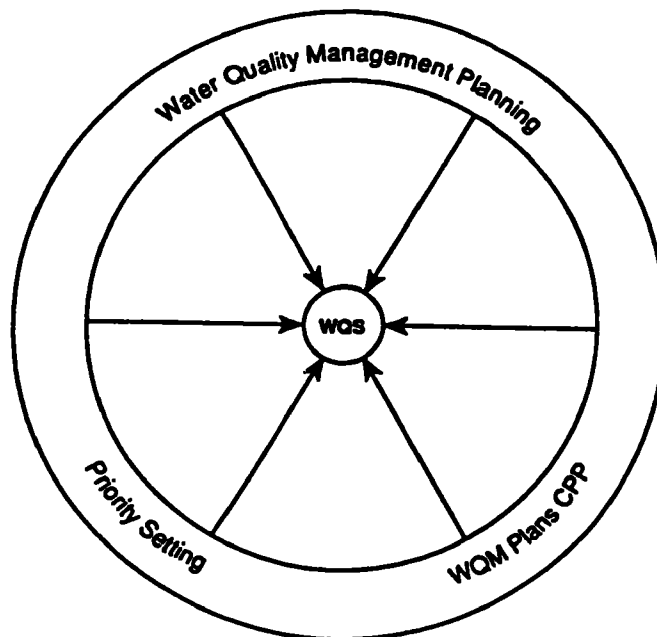
# **Water Quality Management Process**





**VIEWGRAPH #4: State Water Quality Management Programs (1)**  
**KEY POINTS**

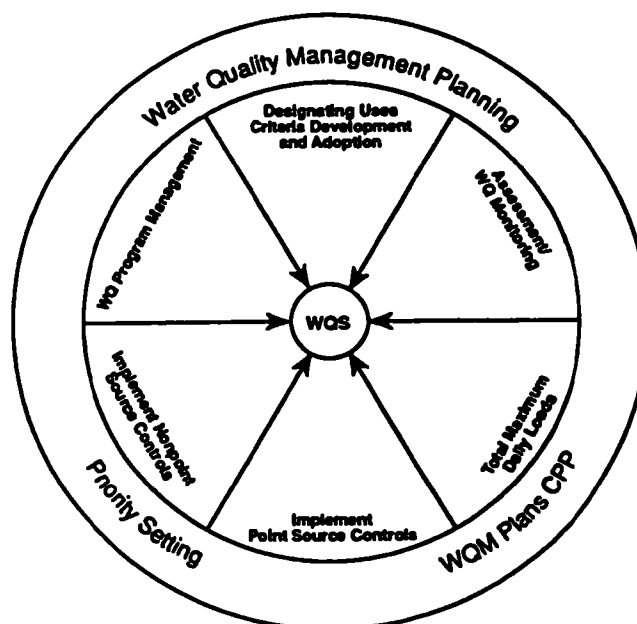
This wheel represents the entire water quality management process. Obviously this wheel and the process are very complex. The many components of the process are interrelated and are all designed to help the state meet its water quality standards (WQS). To facilitate understanding of the process, we will discuss each component of the wheel separately.



**VIEWGRAPH #5: State Water Quality Management Programs (2)**  
**KEY POINTS**

The diagram in the viewgraph will be used throughout this course to organize the elements of state water quality management programs included in a Section 106 assistance agreement.

This diagram shows that all activities coordinated by water quality management planning are aimed at achieving water quality standards.



**VIEWGRAPH #6: State Water Quality Management Programs (3)**  
**KEY POINTS**

Starting at the top of the diagram, there are six key activities:

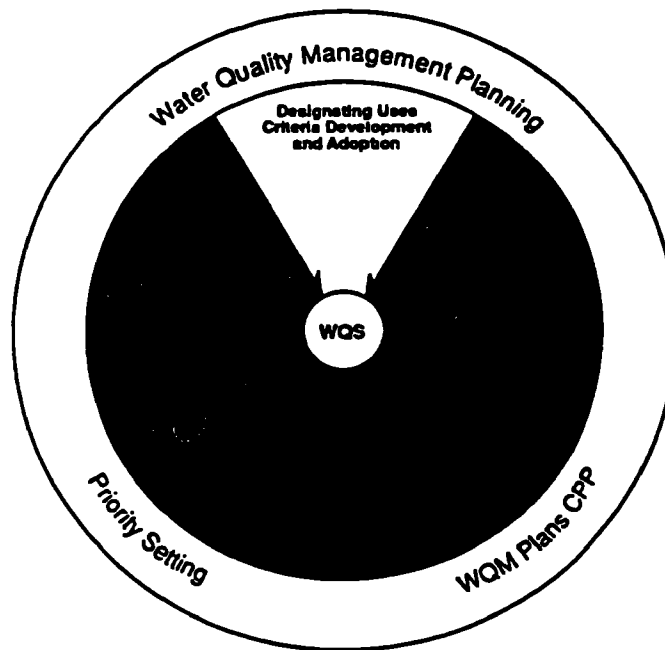
- Designating uses, criteria development and adoption
- Assessment and water quality monitoring
- Establishing Total Maximum Daily Loads (TMDLs)
- Implementing point source controls
- Implementing nonpoint source controls
- Program management

In terms of the sequence of activities, the first step is to designate uses and develop and adopt criteria. These criteria establish measurable goals of water quality management. The second step is to do an assessment of existing water quality to determine if water bodies meet these criteria. To the extent that criteria are not met, the process of establishing total maximum daily loads (TMDLs) allocates control responsibilities and develops an integrated pollution control strategy for point and nonpoint sources. Having defined control responsibilities, the next steps are to implement point and nonpoint source controls. The final category of activities is program management.



**The outer ring of the diagram is the water quality management planning process. This is designed to coordinate all six activities.**

**The six activities will be used to organize our discussion of state water quality management programs.**



**VIEWGRAPH #7: Designating Uses, Criteria Development and Adoption**  
**KEY POINTS**

This is the first activity in the wheel. Our discussion of this activity will address the following subjects:

An introduction to the concept of water quality standards

Designating uses and establishing criteria to protect those uses

Antidegradation policy and use attainability analyses

The state role

The EPA role

Each of these will be discussed in the following section of this module.

## What is a Water Quality Standard?

- Designate Use
- Establish Criteria  
Appropriate for Use

**VIEWGRAPH #8: What is a Water Quality Standard?**

### **KEY POINTS**

A water quality "standard" (WQS) **designates the desired uses** for a body of water, and **establishes water quality criteria to protect those uses**. By "water quality criteria" we mean specific levels of water quality that, if not exceeded, will probably result in a body of water suitable for its designated uses. Uses may include aquatic life, recreation, public water supply, industrial or agricultural water supply, etc. Water quality criteria are expressed in terms of concentration, frequency, and duration. Concentration levels vary during times of the year due to varying hydrologic conditions (i.e., storm events, droughts, etc.). Flow conditions are specified to clarify the ambient conditions when standards will be attained. WQS can also be based on higher quality water conditions to protect ambient water quality.

## **Designated Uses:**

- **Fish, Shellfish, and Wildlife**
- **Recreation**
- **Public Water Supplies**
- **Agricultural Purposes**
- **Industrial Purposes**
- **Other Purposes (navigation)**

**VIEWGRAPH #9: Designated Uses:**  
**KEY POINTS**

40 Code of Federal Regulations (CFR) 130.3 establishes the role of water quality standards in water quality management.

"A WQS defines the water quality goals of a water body, or portion thereof, by designating the use or uses to be made of the water and by setting criteria necessary to protect the uses. States and EPA adopt WQS to protect public health or welfare, enhance the quality of water and serve the purposes of the Clean Water Act (CWA). "Serve the purposes of the Act" (as defined in [CWA § 101(a)(2) and § 303(c)]) means that WQS should, wherever attainable, provide water quality for the protection and propagation of **fish, shellfish and wildlife** and for **recreation** in and on the water and take into consideration their use and value for **public water supplies**, propagation of fish, shellfish, wildlife, recreation in and on the water, and **agricultural, industrial and other purposes** including navigation."

Since most waters have many uses, and many criteria to protect those uses, water quality control efforts should focus on protecting the most sensitive designated use. Waste assimilation is not a recognized, acceptable use for waters of the U.S.

## **Dual Purpose of WQS**

- **Establish Water Quality Goals**
- **Regulatory Basis for Water Quality-Based Controls**

**VIEWGRAPH #10: Dual Purpose of WQS**  
**KEY POINTS**

**The standards described in 40 CFR 130.3 serve a dual purpose.**

**"Such standards serve the dual purposes of establishing the water quality goals for a specific water body and serving as the regulatory basis for establishment of water quality-based treatment controls and strategies beyond the technology-based level of treatment required by [CWA § 301(b) and § 306]. States shall review and revise WQS in accordance with applicable regulations and, as appropriate, update their Water Quality Management (WQM) plans to reflect such revisions. Specific WQS requirements are found in [40 CFR 131]."**

## **WQS Special Considerations**

- **Antidegradation**
- **Use Attainability Analysis**
- **Endangered Species Act**

### **VIEWGRAPH #11: WQS Special Considerations KEY POINTS**

#### **Antidegradation Policy**

**40 CFR 131.12 requires states to develop and adopt a statewide antidegradation policy and to specify how the policy will be implemented. Regulations, policies, and procedures for implementing antidegradation policies ensure protection of existing uses, consideration of alternatives to degrading existing high levels of water quality, and protection of outstanding national resource waters.**

#### **Use Attainability Analysis**

**CWA § 101(a)(2): It is the national goal that wherever attainable, an interim goal of water quality which provides for the protection and propagation of fish, shellfish, and wildlife and provides for recreation in and on the water be achieved by July 1, 1983. This has come to be known as the "fishable/swimmable" goal.**

**When a state believes that the level of water quality mentioned above is not attainable, the state must perform a Use Attainability Analysis (UAA) to support that belief (40 CFR 131.10(j)). A UAA "is a structured scientific assessment of**

the factors affecting the attainment of the use which may include physical, chemical, biological, and economic factors." (40 CFR 131.3(g))

### **Endangered Species Act**

The Endangered Species Act (ESA) established methods to conserve species of fish, wildlife, and plants threatened with extinction. Under Section 7 of ESA, each federal agency is required to "utilize their authority in furtherance of the purposes of this Act" and to consult with the Secretary of the Interior to "insure that any action authorized, funded, or carried out by such agency . . . is not likely to jeopardize the continued existence of endangered and threatened species or result in the destruction or adverse modification of [their critical habitat]," unless granted an exception under conference procedures outlined in ESA. (50 CFR 402)

Currently, implementation of ESA is coordinated through the U.S. Department of the Interior (USDI) Fish and Wildlife Service (FWS) and the USDI National Marine Fisheries Service (NMFS). Formal consultations with these agencies under ESA may not be needed if: (a) a biological assessment is prepared; or (b) an informal consultation concludes that no threat from the proposed action is projected; and (c) the Service(s) provides a written concurrence.

EPA, FWS, and NMFS entered into a Memorandum of Agreement (MOA) on July 27, 1992, regarding development of water quality criteria and standards. This MOA establishes the procedures to be followed by these agencies to ensure compliance with ESA § 7 in the development of water quality criteria and standards published under section CWA § 304(a) and § 303(c), with the aim of increasing protection of endangered and threatened species and their critical habitats.

## Types of Standards

- **Numeric**  
Quantifiable  
Human Health/Aquatic Life
- **Narrative**  
Unquantifiable  
Address Interacting Factors

### VIEWGRAPH #12: Types of Standards KEY POINTS

#### Numeric water quality criteria:

Are used when a particular **quantitative level** of a physical, chemical, or biological parameter can be established to protect a designated waterbody use. They can be applied on a statewide or site-specific basis.

Are used for toxics when the cause of the toxicity is known (i.e., specific chemical). Toxic standards may be set for the more stringent of **human health** or **aquatic life** protection levels (though usually this decision is made during the implementation phase), and are often expressed in units of concentration.

#### Narrative water quality criteria:

Are usually used when the critical levels of a parameter of concern are either **not quantifiable** or where they vary according to circumstances (e.g., no noticeable algal growths).

Are also used where protection of a use may depend on the control of a number of **interacting pollutants** or other environmental stressors. For example, a narrative standard is often adopted for toxicity in general (e.g., no



toxics in toxic amounts) where the toxicity cannot be traced to a singular pollutant.

Narrative criteria are used when the cause of toxicity is known, but chemical-specific numeric criteria have not been adopted. In these instances, EPA criteria guidance or other quantifiable information is used to implement the narrative criterion.

## State Role

- Establish WQS
- Review WQS
- Revise WQS
- Hold Public Hearings
- Minimum Requirements for WQS Submittal

**VIEWGRAPH #13: State Role**  
**KEY POINTS**

**States are responsible for reviewing, establishing, and revising water quality standards. (40 CFR 131.4)**

According to CWA § 303(c)(1), each state shall from time to time (but at least once each three years), **hold public hearings** for the purpose of reviewing applicable WQS and, as appropriate, modifying and adopting standards. Results of such review shall be made available to the Administrator.

**Minimum requirements for WQS submittal are specified in 40 CFR 131.6.**

**Use designations. (40 CFR 131.10)**

**Methods and analyses conducted to support WQS revisions.**

**Water quality criteria sufficient to protect designated uses. (40 CFR 131.11)**

**Antidegradation policy. (40 CFR 131.12) [Note: This protects higher quality waters where that quality is necessary to maintain existing uses.]**

**Certification by state attorney general or other appropriate legal authority that water quality standards were adopted pursuant to state law.**

**General information that will aid EPA in determining the adequacy of the scientific basis of the standards.**

## Federal Role

- Develop Regulations, Policies, and Guidance
- Review New or Revised WQS
- Promulgate WQS

### VIEWGRAPH #14: Federal Role KEY POINTS

#### EPA:

**Develops regulations, policies, and guidance to facilitate implementation of the WQS program.**

**Reviews new or revised state WQS to determine if standards meet CWA requirements and ensure consistency with the Endangered Species Act.**

**May promulgate WQS for the state if it fails to submit WQS on time or if the state submits standards that do not meet the regulatory requirements. (CWA § 303(b)(1))**

## **EPA Checks That:**

- **Uses Consistent with Act**
- **Criteria Protect Uses**
- **Legal Procedures Followed**
- **Appropriate Data Used**
- **Submission Meets Requirements**

### **VIEWGRAPH #15: EPA Checks That: KEY POINTS**

**EPA Review Process (40 CFR 131.5).**

**When reviewing water quality standards, EPA makes the following determinations:**

**Uses are consistent with the Clean Water Act.**

**Water quality criteria protect uses.**

**Legal procedures have been followed.**

**Appropriate technical and scientific data and analyses were used.**

**Submission meets requirements in 40 CFR 131.6.**

## WQS Review Timeline

- Approval Within 60 Days
- Disapproval Within 90 Days

VIEWGRAPH #16: WQS Review Timeline  
KEY POINTS

Procedural aspects in EPA review: note the timeline.

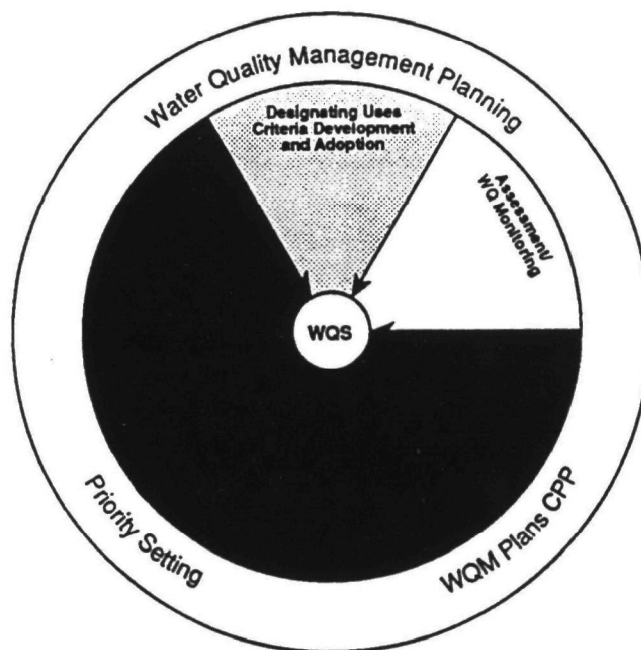
After the state submits its officially adopted revised standards, the Regional Administrator shall either: (1) Notify the state **within 60 days** that the revisions are approved, or (2) notify the state **within 90 days** that the revisions are disapproved. [40 CFR 131.21]

Before disapproving a state standard, EPA notifies the state of its intent to disapprove the standard unless changes are made. EPA indicates what changes must be made for the standard to be approved.

If a state fails to make the required changes, EPA initiates promulgation, setting forth a new or revised water quality standard applicable to the state. The federal rulemaking proceeds in a manner similar to the rulemaking procedures of some states. A state WQS remains in effect, however, until the state revises it or EPA promulgates a rule that supersedes the state WQS. [40 CFR 131.21(c)]

**To further your knowledge of the water quality standards and criteria programs, EPA provides the Water Quality Standards Training Academy Course, available through the Standards and Applied Science Division of the Office of Science and Technology.**

**Contact: Frances Desselle (202) 260-1320**



**VIEWGRAPH #17: Assessments and Water Quality Monitoring**  
**KEY POINTS**

This is the second activity on the water quality management process wheel. The subjects to be discussed in this area, include:

Types of water quality assessments required by states (e.g., the 305(b) report and the 303(d) list)

Reporting schedules and statutory requirements

Ambient monitoring: current issues and new directions

Volunteer monitoring



## **Types of Water Quality Assessment Reports**

- **§ 305(b) - All Navigable Waters**
- **§ 303(d) - Waters Not Likely to Meet WQS With Only Technology-Based Controls**
- **Specialized Assessments**

### **VIEWGRAPH #18: Types of Water Quality Assessment Reports**

**KEY POINTS**

#### **Introduction to water quality (WQ) assessment reports**

Given that water quality standards have been established, the purpose of assessment is to determine whether designated uses have been met. Several different types of assessments are required.

**CWA § 305(b)** requires biennial assessments of water quality for **all navigable waters**. This report is the primary assessment of state water quality (40 CFR 130.8). The assessments determine whether designated uses are being maintained.

According to "Guidelines for the Preparation of the [year] State Water Quality Assessments (305(b) Reports)," the categories to be used in use assessment are:

Supporting  
Support threatened  
Partially supporting  
Not supporting

These categories describe the relationship between the water quality and the designated use (e.g., the water quality "supports" the designated use). 305(b) assessments cover surface and ground waters.

**CWA § 303(d)** requires states to identify waters **not expected to meet WQS with technology-based point source controls** alone, i.e., those controls required by CWA § 301(b), § 306, or § 307, or nonpoint source controls required by EPA or state agencies. It also requires states to prioritize impaired waters for development of TMDLs.

The 303(d) list typically is a subset of impaired waters assessed under CWA § 305(b) and described as "partially supporting" or "not supporting".

In addition to the assessments required by CWA § 305(b) and § 303(d), the CWA also requires other **specialized assessments**, including:

CWA § 304(l) - A one-time report (due in 1989) that identifies waters impaired by toxics (also known as "hot spots").

CWA § 314(a) - Assessment of impaired lakes.

CWA § 319(a) - Identify waters impaired by nonpoint sources.

These contribute to 305(b) and 303(d) assessments.

Regulations and guidance providing instructions for these assessments:

40 CFR 130.8 ("Water quality report") explains in detail the content of the biennial 305(b) assessment and report by the state.

40 CFR 130.10 ("State submittals to EPA") mandates that states submit the 305(b) report, the 303(d) assessment, and the lists required by 304(l).

EPA Office of Water publishes guidelines prior to each reporting period titled "Guidelines for the Preparation of the [year] State Water Quality Assessments (305(b) Reports)." These guidelines provide instructions and categories for use assessment.

Section 106 funds typically fund the state water quality monitoring used in assessments.

## Reporting Schedules

- Even # Years:
  - § 305(b) Assessments
  - § 303(d) Updates
- Odd # Years:
  - § 305(b) Certification or Update

### VIEWGRAPH #19: Reporting Schedules KEY POINTS

CWA § 305(b) assessments are due April 1 of every even-numbered year. According to 40 CFR 130.8, in those years in which it is submitted, the 305(b) report satisfies the requirement for the annual water quality report under CWA § 205(j). In years when the 305(b) report is not required, states may meet the 205(j) requirements by certifying that the most recently submitted 305(b) report is current, or by updating the 305(b) report.

CWA § 205(j)(2)(C) requires that recipients of 205(j) grants determine the "nature, extent, and causes of water quality problems in various areas of the State and interstate region," and report on these annually.

Incorporated in the CWA § 305(b) report are CWA § 314 lake assessments, and CWA § 319 nonpoint source assessments.

According to 40 CFR 130.7 as amended (see 57 Federal Register 33040; Friday, July 24, 1992), the first 303(d) list was due on October 22, 1992. Updates are due April 1 of every even-numbered year thereafter. A copy of the amendment to 40 CFR 130.7 (57 Federal Register 33040) can be found behind the 1992 version of 40 CFR 130 in the reference manual of this course.

According to CWA § 303(d)(2), the Administrator shall *approve or disapprove the identification of water quality-limited waters within 30 days* after submission by the state.

Unlike 303(d) lists, 305(b) reports are accepted, rather than approved, by EPA.

## **Statutory Requirement**

- **Must Monitor Water Quality**
- **Must Provide Annual Updates**

**VIEWGRAPH #20: Statutory Requirement**  
**KEY POINTS**

CWA § 106(e)(1) stipulates that the Administrator shall not make any grant under CWA § 106 to a state that has not provided, or is not carrying out as part of its program: "The establishment and operation of appropriate devices, methods, systems, and procedures necessary to monitor, and to compile and analyze data on (including classification according to eutrophic condition), the quality of navigable waters and to the extent practicable, ground waters including biological monitoring; and provision for annually updating such data and including it in [the (305(b) report)]."

40 CFR 130.4 says that a state's monitoring program shall include quality assurance and quality control programs to ensure scientifically valid data.

## **Monitoring Types**

- **Ambient Monitoring**
- **Intensive Surveys**
- **Compliance Monitoring**

**VIEWGRAPH #21: Monitoring Types**  
**KEY POINTS**

**The three types of monitoring activities funded by CWA § 106 are:**

- 1) **Ambient monitoring**
- 2) **Intensive surveys**
- 3) **Compliance monitoring**

## **Ambient Monitoring Helps Evaluate:**

- **WQM Progress**
- **WQS Attainment**
- **Source Controls Required**
- **Necessity of WQS Revision**

**VIEWGRAPH #22: Ambient Monitoring Helps Evaluate:  
KEY POINTS**

**Through ambient monitoring, the states and EPA assess the effectiveness of point and nonpoint source controls. In doing so, it is possible to determine whether water quality standards are attained, whether additional point and nonpoint source controls are required, and whether water quality standards should be revised.**

## **New Monitoring Directions**

- **Geographic Targeting**
- **Biological Diversity**
- **Wetlands, Habitat &  
Sediment**

**VIEWGRAPH #23: New Monitoring Directions**  
**KEY POINTS**

**EPA is undertaking new efforts to implement an integrated nationwide monitoring strategy to ensure that monitoring programs change to support new water program directions such as geographic targeting, biological diversity, wetlands, habitat, and sediment.**



## **ITFM**

- **Institutional Framework**
- **Choose & Monitor Core Indicators**
- **Store & Share Data**
- **Assess & Report Data**

### **VIEWGRAPH #24: ITFM**

#### **KEY POINTS**

**The nationwide monitoring effort is headed by the Intergovernmental Task Force on Monitoring Water Quality (ITFM), chaired by EPA. ITFM is looking to:**

**Devise an institutional framework to better integrate existing federal, state, local, and private monitoring activities.**

**Choose core environmental indicators to monitor.**

**Use comparable methods to monitor indicators; store and share data in each agency's information system so it can be easily shared.**

**Assess data and report information to support management decisions.**

## EPA & Ambient Monitoring

- Emphasizes State Programs
- Program Elements Eligible for Funding

### VIEWGRAPH #25: EPA & Ambient Monitoring KEY POINTS

EPA's portion of the nationwide monitoring strategy **emphasizes states and state monitoring programs**. The 106 program is important in supporting and managing monitoring programs.

**Ambient monitoring elements eligible for 106 funding include:** development and continued planning of monitoring strategies and plans (objectives); monitoring design (including stations/parameters), frequency (i.e, fixed station network, intensive surveys, targeted areas under watershed, multi-program and individual programs, and biological and physical integrity monitoring (including reference site characterization)); development of written protocols (field/lab/assessment); laboratory analytical support; quality assurance/quality control (field/lab/data); data storage, management, and sharing; assessment; reporting (including CWA § 305(b)); monitoring and data management training; volunteer monitoring; and evaluation.

## **Cooperative & Volunteer Monitoring**

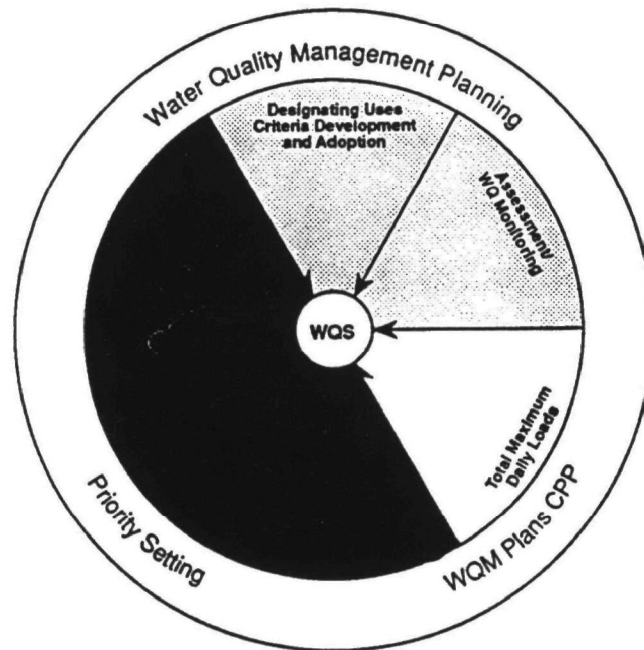
- **Maximize Limited Resources**
- **Use Volunteers**
- **Scientifically Valid Data**

### **VIEWGRAPH #26: Cooperative & Volunteer Monitoring KEY POINTS**

Cooperative monitoring involves shared efforts by individuals or groups in assessing water quality conditions. Such projects require careful planning and strong management and Quality Assurance (QA) controls. This approach can provide a mechanism to **maximize limited resources** and may help encourage "grass-roots" support for water quality awareness and improvement. In addition to making more efficient use of resources, cooperative monitoring enables the user to have more site-specific data from which to develop site-specific water quality criteria.

Volunteer monitoring involves the **use of volunteers** in identifying sources of pollution, tracking the progress of protection and restoration projects, and reporting special events such as fish kills and storm damage.

Current guidance describes factors to be considered in designing and implementing cooperative and volunteer monitoring projects so that **water quality data are scientifically valid** and state water pollution control agencies have the necessary information for final review and approval of all projects.



**VIEWGRAPH #27 TMDLs**  
**KEY POINTS**

The third activity in the WQM process is establishing total maximum daily loads (TMDLs). The following subjects will be discussed in Module 1:

List and rank waterbodies (the 303(d) list)

Establish TMDL (Waste Load Allocation/Load Allocation (WLA/LA))

Alternative approaches to developing TMDLs

The process for TMDL approval: state responsibilities and EPA role

## **Objective of 303(d) Assessment**

- **List and rank water bodies where technology-based controls will not meet WQS.**

**VIEWGRAPH #28: Objective of 303(d) Assessment  
KEY POINTS**

The objective of the assessment process outlined in CWA § 303(d) is to determine whether there are water bodies where technology-based pollution controls will not meet water quality standards. If not, then the state is required to list the waterbody and develop TMDLs, WLAs, and LAs. Appendix C of "Guidance for Water Quality-based Decisions: The TMDL Process," (Office of Water, EPA 440/4-91-001, April 1991), available from the Watershed Branch of the Assessment and Watershed Protection Division, offers a process and 16 recommended screening categories for states to use when considering candidates for inclusion in the 303(d) list.

## **Data Sources for WQ Assessments**

- **State Monitoring Data/  
Ambient & Intensive Survey**
- **Compliance NPDES Self-Monitoring Data**
- **Toxic Release Inventory**
- **Other Agency Reports**

### **VIEWGRAPH #29 Data Sources for WQ Assessments**

#### **KEY POINTS**

A primary data source is the monitoring data collected by the state. This information is often found in EPA's STORET database (EPA's database for STORAge and RETrieval of water quality data).

Another source is NPDES facility self-monitoring data. All regulated dischargers must monitor and report using the discharge monitoring reporting (DMR) system in the Permit Compliance System (PCS) database.

Where a state agency doing assessments does not have WQ data in sufficient quantity or quality, the following sources might be used to supplement the information available.

Toxics Release Inventory (TRI).

Reports of water quality problems from local, state and federal agencies.

## **Non-Listed Impaired Waters**

- **Justify Not Listing**
- **Demonstrate Controls:**
  - Are Enforceable**
  - Are Problem-Specific**
  - Meet WQS**

### **VIEWGRAPH #30: Non-Listed Impaired Waters KEY POINTS**

According to the TMDL Process Guidance (EPA 440/4-91-001), for impaired waters that are not listed under CWA § 303(d), states should be able to demonstrate why they are not listed. Specifically, states should show that existing or planned controls are enforceable, specific to the pollution problem of that water body, and stringent enough to meet the water quality standards for that water body. States are expected to provide a schedule for implementation of controls that are not yet implemented.

## CWA § 303(d) Public Participation

- States Include Public
- Increases Probability of Success

### VIEWGRAPH #31: CWA § 303(d) Public Participation KEY POINTS

**States are expected to include the public** in the development of the high-priority targeted water list. "The process for . . . involving the public, affected dischargers, designated areawide agencies, and local governments in this process shall be clearly described in the State Continuing Planning Process (CPP)." (40 CFR 130.7(a))

The goal of public involvement in the TMDL process is to **increase the probability of success**. States can and should coordinate notice and hearings for TMDLs with other issues that require public notice and participation (e.g., NPDES permits, WQS revisions, and WQM plan updates).



## **Loading Capacity vs. Total Maximum Daily Load**

- **LC: Overall Pollutant Loading Capacity**
- **TMDL: Sum of Allocations**

### **VIEWGRAPH #32: Loading Capacity vs. Total Maximum Daily Load KEY POINTS**

After ranking and targeting waterbodies (CWA § 303(d)), the next task is to define and allocate control responsibilities. The state does this by determining what pollution controls will be necessary to achieve the water quality standards. To determine this, states rely on the concept of Loading Capacity (LC) and a Total Maximum Daily Load (TMDL) for a waterbody.

Loading Capacity (LC) is the overall pollutant loading capacity of a waterbody, i.e., the greatest loading that a waterbody can receive without violating water quality standards (40 CFR 130.2(f)). Loading capacity reflects assimilative capacity. Assimilative capacity is not limited to water chemistry; it also includes features such as physical habitat and biological integrity.

A TMDL reflects a waterbody's assimilative or loading capacity. However, a TMDL and loading capacity are not necessarily equivalent. A TMDL reflects the sum of all the individual allocations of portions of the assimilative capacity. Therefore, a TMDL is equivalent to the loading capacity only if all of the assimilative capacity has been allocated. The TMDL may represent only a portion of the waterbody's loading capacity if, under the set of allocations for the watershed, there is still assimilative capacity remaining. A TMDL must never exceed the loading capacity.

## TMDL Relationships

$$\text{TMDL} = \sum \text{WLAs} + \sum \text{LAs} + \text{MOS}$$

Where TMDL Maintains WQS.

### VIEWGRAPH #33: TMDL Relationships KEY POINTS

To understand the process of establishing TMDLs, we need to define some terms.

**Total Maximum Daily Load (TMDL)** is a tool for implementing state water quality standards for a given waterbody through controls of point and nonpoint sources of pollution.

**Wasteload Allocation (WLA)** is the portion of a receiving water's loading capacity that is allocated to one of its existing or future **point sources** of pollution. (40 CFR 130.2(h))

**Load Allocation (LA)** is the portion of a receiving water's loading capacity that is attributed either to one of its existing or future **nonpoint sources** of pollution or to natural background sources. Load allocations are best estimates. (40 CFR 130.2(g))

Theoretically,

$$\text{TMDL} = \sum \text{WLAs} + \sum \text{LAs} + \text{MOS}$$

where:

TMDL maintains WQS at

WLAs = Wasteload Allocations

LAs = Load Allocations

MOS = Load reserved as a margin of safety.

## TMDL Components

- Waste Load Allocations
- Load Allocations
- Margin of Safety

### VIEWGRAPH #34: TMDL Components KEY POINTS

As mentioned previously, a primary function of the TMDL is to direct control responsibilities.

**Waste Load Allocations** are implemented through issuance of NPDES permits for point sources. Water quality-based limits for these permits are typically based on modeling.

**Load Allocations** should be set to reflect nonpoint source and natural background stress. These loads are only best estimates because of the difficulty in accurately predicting nonpoint source pollution loads. Nonpoint sources are controlled through best management practices (BMPs).

**The Margin of Safety (MOS)** can be handled implicitly through incorporation of conservative model assumptions. Alternatively, it can be handled explicitly as a separate component of the TMDL. As a general rule of thumb, the MOS should increase with the degree of uncertainty in the TMDL. (CWA § 303(d)(1)(C))

## **Approaches to Developing TMDLs**

- **Chemical-Specific Approach  
Water Chemical Contents**
- **Whole Effluent Toxicity  
Effects on Living Organisms**

### **VIEWGRAPH #35: Approaches to Developing TMDLs**

**KEY POINTS**

There are three approaches to developing TMDLs. They may be used individually, or in combination.

The **chemical-specific approach** is one where loadings are evaluated in terms of their impact on physical-chemical water quality conditions (e.g., dissolved oxygen or toxic pollutant concentrations). It is accomplished by subjecting samples to laboratory tests that identify chemical substances and measure their concentrations. This approach targets a specific water quality parameter related to water quality standards or EPA criteria. Quantitative analysis (e.g., modeling) is used to establish the allocations. Use of chemical-specific numeric criteria is the approach preferred by EPA for human health criteria.

**Whole effluent toxicity** is used to develop TMDLs for discharges of complex wastewaters. In this approach, one evaluates the toxic effects of an effluent on a given test species. Toxicity testing requirements are typically based on the in-stream waste concentration.

## Approaches to Developing TMDLs (Cont.)

- Biocriteria/Bioassessment  
Effects on Biota
- Integrated Approach  
Combination of 3  
Approaches

VIEWGRAPH #36: Approaches to Developing TMDLs (Cont.)

### KEY POINTS

*Continued from previous page.*

The third approach is the biocriteria/bioassessment approach. In this approach, loadings are evaluated in terms of their impact on the ecology of the waterbody. This is accomplished by studying the organisms inhabiting the receiving water. Bioassessment evaluates the biological condition of a body of water by studying its biota, which are its resident organisms, and its chemical and physical characteristics. Ecological indicators of health include:

- Phytoplankton
- Benthic macroinvertebrates
- Fish community structure
- Fish tissue toxic concentrations

The ratings in this approach typically are based on levels of diversity and abundance. Physical habitat sometimes is used as a surrogate measure.

Because the previously mentioned approaches are limited, an integrated approach using all three approaches is preferred for the protection of aquatic life as expressed in EPA's national guidance. When this approach presents several options, the most stringent option should be used.

## **TMDL Iterative Process**

- **Lack of Information**
- **Activities Performed Incrementally**
- **Interim Controls**
- **Used Where BMPs Are Required**

### **VIEWGRAPH #37: TMDL Iterative Process**

#### **KEY POINTS**

##### **Iterative Process to TMDL Development**

An iterative process is preferred in situations where problem assessment and goal setting are limited by **lack of information**. As indicated above, that is the situation in many cases of TMDL development. An iterative process allows for additional information to be collected or the following **activities to be performed incrementally**.

**Problem scoping**

**Additional monitoring**

**Model development**

**TMDL development**

**Performance monitoring**

**Reassessment/TMDL modification**

The iterative process allows for the possibility of **interim controls** to be implemented while final TMDLs are being developed.

This is the method preferred by EPA where **extensive BMPs are required** for load allocations since the response to these BMPs is often uncertain.

It also works well when basin water quality management planning is performed on a cyclical basis. For example, gaps uncovered in one cycle of controls can be filled during the next cycle.



## **TMDL Approval Process State Responsibilities:**

- Public Notice
- Hearing (option)
- Submit to EPA
- Supporting Information
- Phased TMDL Schedule

**VIEWGRAPH #38: TMDL Approval Process, State Responsibilities:**  
**KEY POINTS**

### **Approval Process**

**State responsibilities include:**

**Publicly notice proposed TMDLs.**

**Hold hearing if warranted.**

**Submit TMDLs to EPA for approval.**

**Provide supporting information.**

**Outline schedule of activities for phased TMDLs.**

## **TMDL Approval Process EPA Responsibilities:**

- Review TMDL or Process
- Approve/Deny w/in 30 Days  
Answer in Writing  
TMDL w/in 30 Days of  
Disapproval
- Cooperation with State

**VIEWGRAPH #39: TMDL Approval Process, EPA Responsibilities:  
KEY POINTS**

EPA responsibilities include review and approval or disapproval of TMDLs proposed by states. CWA § 303(d) requires that EPA review TMDLs. Typically, the review of TMDLs is by one of two methods:

An in-depth review of each TMDL (generally used where the state does not have an approved process for establishing TMDLs).

A review and approval of the overall state process and a spot check of TMDLs.

EPA must approve or disapprove of states' TMDLs within 30 days after submittal. Approvals must be transmitted in writing to the state. If EPA disapproves, it must establish an alternative control strategy to attain WQS within 30 days of disapproval. These alternative control strategies must be developed in cooperation with the state.

## **Keys to Successful TMDL Development**

- **Geographic Basis**
- **Coordinated Basinwide Planning**
- **Staggered Activities**
- **Monitoring/Modeling Support**

### **VIEWGRAPH #40: Keys to Successful TMDL Development**

#### **KEY POINTS**

Proceed along a geographic basis (i.e., watershed or basin).

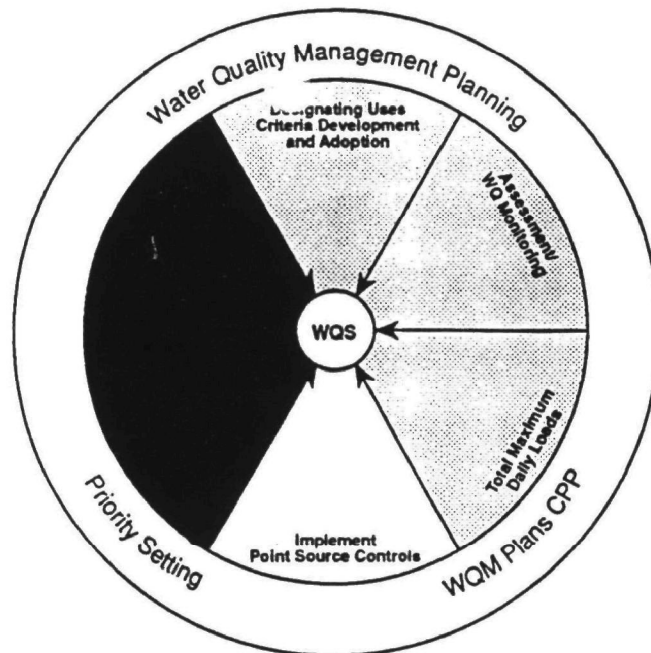
Coordinate with other water quality program activities organized within a basinwide planning context:

Use a planning cycle (e.g., 5 years) to stagger program activities within a basin:

- **Monitoring**
- **Assessment**
- **Prioritization**
- **Modeling**
- **TMDL development**
- **Implementation plan**
- **Performance monitoring**

Schedule NPDES permit issuance by basin so that all permits within a manageable hydrogeologic unit are issued at the same time.

Provide strong support of the TMDL management strategy through well-orchestrated monitoring and modeling programs.



**VIEWGRAPH #41: Implement Point Source Controls**  
**KEY POINTS**

This is the fourth activity in the WQM process. The tasks undertaken by state programs and EPA in this area include:

- Issue and reissue industrial and municipal permits

- Monitor compliance

- Enforcement

- Manage Publicly Owned Treatment Work (POTW) construction

Each of these will be discussed in the following section of this module.

## NPDES Permits

- Point Source Control
- Permitting System
- Renewed Every 5 Years

### VIEWGRAPH #42: NPDES Permits KEY POINTS

#### Control Strategies: Permitting

The next stage in the state water quality management process is to establish **point source controls**. This section of the course will discuss control of point source pollution via the permitting program.

The National Pollution Discharge Elimination System (NPDES)—authorized by CWA § 402, and implemented by 40 CFR 122-125—is a **permitting system** for the direct or indirect discharge of pollutants through point sources (any discernible, confined, and discrete conveyance) into waters of the United States.

A NPDES Permit is a license to discharge a specified amount of pollutants under specified conditions into a water of the United States. NPDES permits are required for all discharges into waters of the U.S. except indirect discharges to Publicly Owned Treatment Works (POTWs), some discharges from marine vessels, and nonpoint source runoff. NPDES permits must be **renewed at least every five years**.

## Pollutant Categories

- Conventional: BOD, TSS, pH
- Toxic: Heavy Metals, Organic Chemicals
- Nonconventional: Ammonia, COD

### VIEWGRAPH #43: Pollutant Categories KEY POINTS

There are three categories of pollutants limited by NPDES permits: conventional, toxic, and nonconventional.

**Conventional pollutants** listed in CWA § 304(a)(4) are:

Biological oxygen demand (BOD)  
Total suspended solids (TSS)  
Oil and grease  
Fecal coliform  
pH

According to the Act, it is the national policy that the discharge of **toxic pollutants** in toxic amounts be prohibited (CWA § 101(a)(3)). After several years of debate, these pollutants finally were defined as a result of a consent decree that resulted from a lawsuit brought by the Natural Resources Defense Council (NRDC). The final list of toxics include 65 classes of pollutants plus their derivative compounds. The total list is 126 priority pollutants. These generally are divided into two categories:

Heavy metals  
Organic chemicals

The final category includes pollutants that are not conventional or toxic. These are called **"nonconventional pollutants."** They include:

Ammonia  
Nitrogen  
Chemical oxygen demand (COD)



**VIEWGRAPH #44: State NPDES Program Status**  
**KEY POINTS**

The NPDES program is administered in one of two ways. Where the Agency has authorized states to administer the program, states issue NPDES permits. In states that are not authorized, the program is administered by EPA regional offices. EPA may authorize NPDES programs for states, territories, and Indian tribes.

There are 39 authorized states, as shown in the map above. Not all NPDES authorized states have the authority to administer all aspects of the NPDES program, however. There are five different types of programs, and a state must be authorized for each one. The programs are:

**Basic municipal and industrial permit programs.** 39 states are authorized.

**Pretreatment programs.** 27 states are authorized.

**Federal facilities programs.** 34 states are authorized.



**General permit programs for stormwater point sources or categories of similar wastes or discharges. 35 states are authorized.**

**Sewage sludge permit programs. 0 states are authorized.**

## **Program Submission Contents**

- **Request for Authority**
- **Program Description**
- **AG Certification**
- **State/EPA MOA**
- **State Statutes & Regs**

### **VIEWGRAPH #45: Program Submission Contents KEY POINTS**

CWA § 402(b) provides that any state may administer the NPDES program if it requests authority and receives EPA approval. The CWA requires submittal and approval of "a full and complete description of the program [the state] proposes to establish and administer under State law." It further requires the state to submit "a statement from the Attorney General . . . that the laws of such State . . . provide adequate authority to carry out the described program."

States requesting NPDES or sludge program approval must submit three copies of a program submission (40 CFR 123.21). Each submission must contain the following:

- **A letter from the state's governor requesting program approval.**
- **A complete program description that summarizes the structure, scope, coverage, and processes of the proposed state program and outlines the state's permitting and review procedures. In addition, copies of all relevant permit forms, application forms, and reporting forms must be submitted.**

- A statement from the state Attorney General (AG) certifying that the state laws provide adequate authority to carry out the program requirements as outlined in the program description.
- A Memorandum of Agreement (MOA) between the state Director and the EPA Regional Administrator. The MOA must clarify the division of responsibilities between the state agency and EPA. It also must specify the procedures that will ensure adequate coordination between EPA and the state, and it must discuss this coordination in detail. In particular, it must address compliance activities, enforcement activities, and the transfer of information between the state and EPA. It must also describe which classes and categories of permits the Regional Administrator must review before a permit is issued by the state and further specify those classes for which the Regional Administrator will waive review.
- Copies of all relevant state regulations and statutes.

**To further your knowledge of NPDES permitting procedures,  
EPA provides the NPDES Basic Permit Writers Course,  
available through the Permits Division  
of the Office of Wastewater Enforcement and Compliance.**

**Contact: Deborah Nagle (202) 260-2656**

## Major Facilities

- **POTW:**  
Design Flow > 1 MGD  
Service Population > 10,000  
Significant Impact
- **Industrial:**  
Point System

### VIEWGRAPH #46: Major Facilities KEY POINTS

For purposes of prioritizing permit issuance and compliance, NPDES facilities are classified as one of two types: major or minor.

#### Major facilities:

**POTWs** are "majors" if they have a design flow greater than 1 million gallons per day (MGD), a service population of 10,000 or greater, or a significant impact on water quality.

**Industrial facilities** are classified as "majors" through a rating system which allocates points in various categories such as flow, pollutant loadings, potential public health impact, and water quality factors.

Minor facilities are those not classified as Major.

## Essential Permit Elements

- Standard Conditions
- Effluent Limits
- Compliance Monitoring and Reporting
- Compliance Schedules

### VIEWGRAPH #47: Essential Permit Elements KEY POINTS

EPA regulations (40 CFR 122) require that each permit contain **standard "boilerplate" conditions**. These describe the legal effect of the permit and the permittee's duties and obligations during the effective period of the permit. For example, the conditions require the permittee to report changed conditions at the facility.

**Effluent limits** required in the permit are of two types.

Technology-based effluent limits (40 CFR 125.3) define a floor or minimum level of control and are imposed at the point of discharge. For industrial sources, there are two ways to establish technology-based effluent limits:

National effluent limitation guidelines

Best Professional Judgment (BPJ) of the permit writer.

All municipal sources must achieve an effluent quality at least as high as "secondary treatment."

Technology-based national effluent limitation guidelines are developed by EPA headquarters. They are developed on an industry-by-industry basis and are

generally expressed as maximum daily and monthly mass loading or concentration limits.

Water quality-based effluent limits are used when technology-based guidelines are not sufficient to protect designated uses of receiving waters. As indicated previously, the TMDL process is used to establish these limits.

**Compliance monitoring and reporting** (40 CFR 122.41(l)(4)) is the responsibility of the NPDES permittees. Permits instruct each permittee on the frequency for collecting wastewater samples, the location for sample collection, the pollutants to be analyzed, and the laboratory procedures to be used in conducting the analysis, including whole effluent toxicity for the third round of permits. Detailed records of these self-monitoring activities must be retained by the permittee for at least 3 years. Each permittee is required to submit the results of these analyses in a discharge monitoring report (DMR) on a periodic basis. The DMRs are entered into PCS.

**Compliance Schedules** (40 CFR 122.41(l)(5)) are used in permits for compliance with new standards and for pretreatment program development or implementation. Compliance schedule milestones may not be longer than statutory deadlines. They become part of enforceable orders such as consent agreements and administrative orders.

## Stormwater Permits

- Phase I  
Certain Industrial Activities  
Municipal Separate Storm  
Sewer Systems
- Phase II  
Diffuse Sources (New  
Focus)

### VIEWGRAPH #48: Stormwater Permits KEY POINTS

#### Special Permitting Topics

##### Stormwater.

Stormwater refers to large volumes of water that can result from rain, snow melt, surface runoff, street washing, or other drainage. CWA § 402(p), added by the 1987 amendments, requires EPA to establish a NPDES permitting program for stormwater discharges. The regulations implementing this program are in 40 CFR 122.26.

Under **Phase I** of the stormwater permitting program, EPA established industrial and municipal stormwater discharge requirements. On the industrial side, EPA requires **certain categories of industrial activities** to obtain coverage for their discharges of stormwater. On the municipal side, EPA requires **municipal separate storm sewer systems** that serve populations greater than 100,000 to apply for a permit for their stormwater discharges. Under **Phase II** of the program, EPA intends to focus its permitting efforts on **diffuse sources** of water pollution, such as other urban runoff and smaller municipalities.

## Stormwater Permit Coverage

- Individual Permit
- Group Application for Individual Permit
- General Permit

### VIEWGRAPH #49: Stormwater Permit Coverage KEY POINTS

#### Stormwater (continued)

Facilities with stormwater discharges associated with industrial activity may obtain permit coverage in one of three ways:

They may apply for **individual permit** coverage by submitting an individual permit application form.

They may apply for individual permit coverage by participating with a group of industrial dischargers that is submitting a **group application**.

They may apply for **general permit** coverage by submitting a "notice of intent" (NOI) form for coverage under an appropriate general permit if one is available.

Individual permit coverage allows facilities to obtain coverage of their process wastewater discharges as well as their stormwater discharges under one NPDES permit. General permits may authorize coverage for a category of discharges associated with industrial activity that are located within a geographic area.



Municipal separate storm sewer systems (MS4s) located in municipalities with populations greater than 100,000 must obtain a stormwater discharge permit. In addition, permitting authorities may require municipal systems serving populations of *fewer than* 100,000 to obtain a stormwater discharge permit for a variety of reasons, such as proximity to other municipal systems. EPA established a phased implementation of the stormwater program for MS4s depending on their size. MS4s in large municipalities (those with populations greater than 250,000) should have submitted Part 1 of the application by November 18, 1991, and Part 2 by November 16, 1992. MS4s in medium municipalities (those with populations greater than 100,000) should have submitted Part 1 by May 18, 1992, and Part 2 by May 17, 1993.

## Domestic Sewage Sludge

- Sludge Management & Disposal
- Domestic Sewage Treatment Works
- Through Existing Permits or "Sludge Only"

VIEWGRAPH #50: Domestic Sewage Sludge  
KEY POINTS

### *Special Permitting Topics (Cont.)*

#### Domestic Sewage Sludge

The nation's success in treating its wastewater has given rise to another challenge—proper management and disposal of sewage sludge (the solids that are removed from wastewater during treatment) which may contain concentrations of toxic and nonconventional pollutants.

The Technical Standards for the Use or Disposal of Sewage Sludge (40 CFR 503) promulgated in 1993 establish pollutant limitations and requirements for monitoring, record keeping, and reporting for three types of sewage sludge use or disposal: land application, surface disposal, and incineration. These standards apply to treatment works treating domestic sewage, a category which includes POTWs, privately owned treatment works, composting facilities, surface disposal site owner/operators, some commercial fertilizer manufacturers, and sewage sludge incinerator owner/operators.

EPA will implement 40 CFR 503 requirements through NPDES permits for those facilities with existing permits or through "sludge-only" permits for those facilities, such as composters, and are not required to have NPDES permits.

A state may implement a sewage sludge management program in one of two ways: either as part of an approved NPDES program or as a separate program. However, state sewage sludge management programs are optional. If a state does not manage its own program, EPA is the permitting authority. To receive program approval, a state must demonstrate that its program is at least as stringent as the requirements in 40 CFR 503.

## Combined Sewer Overflows (CSOs)

- Must have NPDES Permits as Source Discharges
- States Must Develop Data & Planning

VIEWGRAPH #51: Combined Sewer Overflows (CSOs)  
KEY POINTS

### *Special Permitting Topics (Cont.)*

#### Combined Sewer Overflows

Combined sewers collect stormwater as well as wastewater from domestic and industrial sources. During dry weather, the wastewater flows to the treatment plant. But during storms, the volume of flow exceeds the capacity of the treatment plant, so most of it—including the untreated wastewater—discharges directly into the receiving water. The discharge points are known as combined sewer overflows. As point source discharges, **CSOs must have NPDES permits.**

CSOs present enough distinctive problems that the Office of Wastewater Enforcement and Compliance (OWEC) has formulated a special CSO Policy. (The Policy was issued in draft on January 14, 1993, and will be made final in late 1993.) Each of the 30 states that have municipalities with CSOs is responsible for developing **CSO data and plans**, including an inventory of all CSO points, the current permit status of each, and a priority ranking for permitting its unpermitted or inadequately permitted CSOs.

## CSO Strategy Goals

- No Dry-Weather Overflows
- Compliance With Requirements
- Minimize Impacts

### **VIEWGRAPH #52: CSO Strategy Goals**

#### **KEY POINTS**

EPA's CSO Strategy has three major goals:

To ensure that if CSO discharges occur, they are only a result of wet weather. This is done by **prohibiting dry weather overflows**, making maximum use of the collection systems for storage, and maximizing flows to POTWs for subsequent treatment.

To bring all wet weather CSO discharge points into **compliance with the technology-based requirements** of the CWA and applicable State water-quality standards—by achieving proper operation and regular maintenance programs for the sewer system and CSO points, and reviewing and modifying pretreatment programs to ensure that CSO impacts are minimized.

To **minimize impacts** on water quality, aquatic biota, and human health from wet weather overflows by controlling solids and floatables in discharges.

**Municipalities are responsible for ensuring that CSO discharge points are permitted, for complying with the permit, and for finding the funding to develop needed controls.**

## **Minimum CSO Controls**

- **Proper O&M**
- **Maximum Use of Collection**
- **Review/Modify PT Programs**
- **Maximize Flow to POTW**
- **Prohibit Dry-Weather Discharges**

**VIEWGRAPH #53: Minimum CSO Controls**  
**KEY POINTS**

The Draft CSO Control Policy scheduled to be final in late 1993, strongly suggests to permit writers that the following nine minimum control measures be included in NPDES CSO permits, as minimum technology controls. For some systems, one or more of the measures may not be appropriate, while in other cases, the permit writer may require additional minimum controls.

A proper operation and maintenance (O&M) program

Maximum use of the collection system for storage

Review and modification of pretreatment (PT) programs

Maximization of flow to the POTW for treatment

Prohibition of discharges during dry weather

## **Minimum CSO Controls (Cont.)**

- **Control Solids/Floatables**
- **Pollution Prevention Programs**
- **Public Notification**
- **Characterize Impacts/Effectiveness**

**VIEWGRAPH #54: Minimum CSO Controls (Cont.)**  
**KEY POINTS**

*Continued from previous page.*

**Control of solid and floatable materials in CSO discharges**

**Pollution prevention programs**

**Notify public of CSO occurrences and impacts**

**Monitoring to characterize CSO impacts and the effectiveness of controls**

**Phase I will also require municipalities to submit a Long-Term CSO Control Plan (LTCCP) within two years of the effective date of the permit.**



## **Phase II CSO Requirements**

- **Enforceable Requirements**
- **WQ-Based Limits**
- **Post-Const. Monitoring**
- **Sensitive Areas**
- **Evaluate Compliance**
- **Reopen Permit**

**VIEWGRAPH #55: Phase II CSO Requirements**  
**KEY POINTS**

**Phase II CSO permit conditions will include, among other requirements:**

**Enforceable requirements for implementation of the LTCCP**

**Development of water quality-based effluent limits**

**Implementation of a post-construction water quality monitoring program**

**Re-assessment of overflows to sensitive areas where elimination or relocation of discharges is not possible**

**Evaluation of compliance with water quality standards**

**Reopening of the permit if the CSO controls fail to meet water quality standards or maintain designated uses**

## Pretreatment Objectives

- Prevent Interference w/  
POTW Operations
- Prevent Pass Through
- Improve  
Recycling/Reclamation
- Prevent Worker Exposure to  
Hazards

VIEWGRAPH #56: Pretreatment Objectives  
KEY POINTS

### *Special Permitting Topics (Cont.)*

#### Pretreatment

The statutory basis for the pretreatment program is CWA § 307(b), as implemented by the General Pretreatment Regulations (40 CFR 403.)

Industrial plants are one of many sources of wastewater discharged into municipal sewers. The discharges by industry, however, often contain toxic or otherwise harmful substances at concentrations not common to domestic sources of wastewater. These wastes can pose serious hazards to the municipal sewer system and treatment plant. These hazards can be prevented if industrial plants can remove or eliminate pollutants from their wastewaters before discharging them into a municipal sewage treatment system. This practice is known as "pretreatment."

The objectives of the pretreatment program are to prevent the introduction of pollutants into POTWs that will interfere with POTW operations, prevent the introduction of pollutants into POTWs that will pass through the treatment works or be incompatible with such works, improve the opportunities to recycle

**and reclaim wastewaters and sludges, and prevent the exposure of workers to chemical hazards.**

## **POTW Responsibilities**

- **ID Industrial Users**
- **Inspect/Monitor**
- **Local Limits & Response Plans**
- **Data Management**
- **Report Annually**
- **Public Participation**

**VIEWGRAPH #57: POTW Responsibilities**  
**KEY POINTS**

To meet the objectives of the pretreatment program, 40 CFR 403.8 requires POTWs with design flows greater than 5 MGD receiving industrial discharges that pass through or interfere with POTW operations, or that are otherwise subject to pretreatment requirements, to establish approved local pretreatment programs. Smaller POTWs receiving such industrial discharges may also be required to establish local programs. Requirements for establishing and implementing a pretreatment program are typically included in the POTW's NPDES permit.

Management of local pretreatment programs is the responsibility of EPA, or of NPDES-authorized states that are authorized to administer the pretreatment program. To obtain authorization for the pretreatment program, NPDES-authorized states must meet the requirements of 40 CFR 403.10. States with approved pretreatment programs may elect to assume local responsibilities in lieu of requiring the POTW to do so.

**The responsibilities of POTWs implementing the pretreatment program include:**

**Identifying and regulating industrial users**

**Performing inspections and monitoring**

**Developing and enforcing local limits**

**Developing and implementing enforcement response plans**

**Performing data management and record keeping**

**Reporting annually to the state/EPA**

**Complying with public participation requirements**

## **Compliance Monitoring and Enforcement**

- **EPA or State Monitors and Enforces Compliance With Permit Limits and Conditions.**

**VIEWGRAPH #58: Compliance Monitoring and Enforcement**  
**KEY POINTS**

### **Introduction**

To make permitting programs effective, EPA or states monitor and enforce compliance for point sources. The permittee or discharger must meet the conditions in the NPDES permit and the appropriate regulatory authority. States and EPA use a variety of methods to determine whether permittees are in compliance with permit limits and with other permit conditions. These are described in the following section.

## **Compliance Assessment Inspections**

- **Compliance Sampling**  
Chemical Analyses Verify  
Self-Monitoring
- **Compliance Evaluation**  
Record Reviews Verify  
Compliance

**VIEWGRAPH #59: Compliance Assessment Inspections**  
**KEY POINTS**

### **Compliance Assessment Inspections (CWA § 308)**

**Compliance Sampling Inspections (CSI).** Chemical analyses are performed and the results are used to verify the accuracy of the permittee's self-monitoring program and reports, determine the quantity and quality of effluents, develop permits, and provide evidence for enforcement proceedings where appropriate.

**Compliance Evaluation Inspections (CEI).** The CEI is a nonsampling inspection designed to verify permittee compliance with applicable permit self-monitoring requirements and compliance schedules. This inspection involves record reviews, visual observations, and evaluations of the treatment facilities, effluents, receiving waters, etc.

## Compliance Assessment Inspections (Cont.)

- Performance Audit  
Observes Self-Monitoring
- Diagnostic  
Identify Causes of Noncompliance

VIEWGRAPH #60: Compliance Assessment Inspections (Cont.)  
KEY POINTS

*Continued from previous page.*

**Performance Audit Inspections (PAI).** The PAI is used to evaluate the permittee's self-monitoring program. As with a CEI, the PAI is used to verify the permittee's reported data and compliance through a records check. However, unlike in a CEI, the inspector actually observes the permittee performing the self-monitoring process from sample collection and flow measurement through laboratory analyses, data workup, and reporting.

**Diagnostic Inspections (DI).** The DI primarily focuses on POTWs that have not achieved permit compliance and are having difficulty diagnosing their problems. The purpose of the DI are to identify the causes of noncompliance and to suggest immediate remedies that will help the POTW achieve compliance. Once the cause of noncompliance is defined, an administrative order is usually issued that requires the permittee to conduct a detailed analysis and develop a composite correction plan.



## **Compliance Assessment Inspections (Cont.)**

- **Compliance Biomonitoring  
Tests Effluent Effects on  
Organisms**
- **Toxics Sampling  
CSI + Toxics Emphasis**

VIEWGRAPH #61: Compliance Assessment Inspections (Cont.)  
KEY POINTS

*Continued from previous page.*

**Compliance Biomonitoring Inspection (CBI).** The CBI uses acute and chronic toxicity testing techniques to evaluate the biological effect of a permittee's effluent discharge(s) on test organisms.

**Toxics Sampling Inspection (XSI).** While the XSI has the same objectives as a conventional CSI, it places increased emphasis on toxic substances regulated by the NPDES permit. The XSI covers priority pollutants other than heavy metals, phenols, and cyanide, which are typically included in a CSI.

## Compliance Assessment Inspections (Cont.)

- Reconnaissance  
Visual Inspection
- Pretreatment Compliance  
Pretreatment Record  
Review

VIEWGRAPH #62: Compliance Assessment Inspections (Cont.)  
KEY POINTS

*Continued from previous page.*

**Reconnaissance Inspection (RI).** The RI is used to obtain a preliminary overview of a permittee's compliance program. The inspector conducts a brief visual inspection of the permittee's treatment facility, effluents, and receiving waters. The RI uses the inspector's experience and judgement to summarize quickly any potential compliance problems.

**Pretreatment Compliance Inspections (PCI).** The PCI evaluates the POTW's implementation of its approved pretreatment program. It includes a review of the POTW's records on monitoring, inspections, and enforcement activities for its industrial users. The PCI is also known as a "pretreatment audit."

## QNCRs

- Facility Information
- Specifics of Noncompliance
- State Action
- Status
- Mitigating Circumstances

VIEWGRAPH #63: QNCRs  
KEY POINTS

Quarterly Noncompliance Reports (QNCRs) - 40 CFR 123.45: Authorized states must submit to EPA quarterly reports of noncompliance by major permittees. These reports include the name, location and permit number of the facility; the date and a brief description of each instance of noncompliance; the date and a brief description of action taken by the State; the status of noncompliance or the date noncompliance was resolved; and any details that explain or mitigate the noncompliance. PCS produces a list of QNCRs.

## Participants in Enforcement Process

- Regional Staff
- Office of Regional Counsel
- HQ Program & Enforcement
- Department of Justice
- State
- Citizens

### VIEWGRAPH #64: Participants in Enforcement Process KEY POINTS

The Enforcement Branch in the **Regional Water Management Division** are the front-line representatives of the Agency's NPDES program on the enforcement team.

The staff attorney from the **Office of Regional Counsel (ORC)** is the front-line attorney on the case.

While routine decisions are made at the regional level, precedent-setting, highly visible and other novel cases are usually carefully watched by the **headquarters program** office representative (The Office of Wastewater Enforcement and Compliance (OWEC) for NPDES cases). OWEC is also responsible for reviewing decisions to commence judicial cases and settlements for national consistency.

The Headquarters **Office of Enforcement** plays an active role in particularly interesting or precedent-setting cases. Otherwise, it is responsible for securing concurrences on work done by the regional team in routine cases.

By law, the **Department of Justice (DOJ)** attorney is the government's lawyer and must file suit on behalf of the United States when federal statutes are violated. When EPA decides that a judicial enforcement action is warranted, it "refers" a request to DOJ that they file suit on EPA's behalf. DOJ usually retains the greatest interest and control

over the trial. All other steps in the litigation can be, and usually are, split between the DOJ and ORC attorney as their experience, interest, and time allow.

State agency or attorney general staff often are involved in the case. In some cases, personnel from the state in which the case arises will be involved in the prosecution of an EPA enforcement case. EPA might rely on state inspectors or enforcement officers as witnesses or consultants. In NPDES suits, the state often is a named party to the litigation because CWA § 309(e) requires that states be joined as parties to suits against violating municipalities.

Occasionally, citizens or citizens groups initiate suits under the citizen suit provision of the Act (CWA § 505). A citizen or group also can intervene in an action commenced by EPA if they can show that they have an interest that will not be adequately represented by EPA.

## **Origination of Cases**

- **EPA-Initiated**
- **State Agency Referrals**
- **Citizen Suits**
- **Whistle-Blowers**

**VIEWGRAPH #65: Origination of Cases**  
**KEY POINTS**

**NPDES enforcement cases originate in several ways, including: cases initiated by EPA; cases referred to EPA by state agencies; and citizen suits. Occasionally a case is initiated when EPA receives a letter or telephone call from someone who claims to have information about a possible violation (whistle-blowers).**

## **Types of Violations**

- **Discharge w/Out Permit**
- **Falsification of Application or DMR**
- **Permit Effluent Exceedances**
- **Noneffluent Permit Violations**

**VIEWGRAPH #66: Types of Violations**  
**KEY POINTS**

A violation of the NPDES program is the commission of any action or behavior that is prohibited by the Act, and made actionable under CWA § 309. While the variety of types of violations is virtually unlimited, NPDES cases tend to fall into one of four categories: discharge without a NPDES permit, falsification of permit application or DMR, permit effluent exceedances, or noneffluent permit violations.

## Managing Assistance Programs

- Construction Grants
- SRF

### VIEWGRAPH #67: Managing Assistance Programs KEY POINTS

In addition to permitting, compliance monitoring, and enforcement, other major state activities in this section of the process are the management of assistance programs.

#### Construction Grants Program

Under the Construction Grants program (Title II of CWA), EPA awarded grants, at various levels of cost sharing, directly to municipalities for the purpose of planning, designing, and constructing publicly owned treatment works (POTWs). Authorizations for this program ended in FY 1990 and the program is scheduled for closeout in FY 1997. However, Congress has appropriated additional funds pursuant to Title II since FY 1990 for specific projects.

States could apply for and were delegated responsibility for carrying out most program management activities under the Construction Grants program. Program management responsibilities are declining as the program winds down. State activities include: tracking and managing funds, making payments as construction is completed, deobligating unused funds, managing obligations and outlays, and amending active grants. Some states are still planning to award a limited number of new grants.



For active local Construction Grant funded projects, state project level responsibilities may still include construction-related activities, such as construction inspections and performance certifications. Most activities, however, are administrative and include deobligation of unused funds, administrative completion of grant files, responses to audit findings, and resolution of disputes arising from the audit or the grant itself.

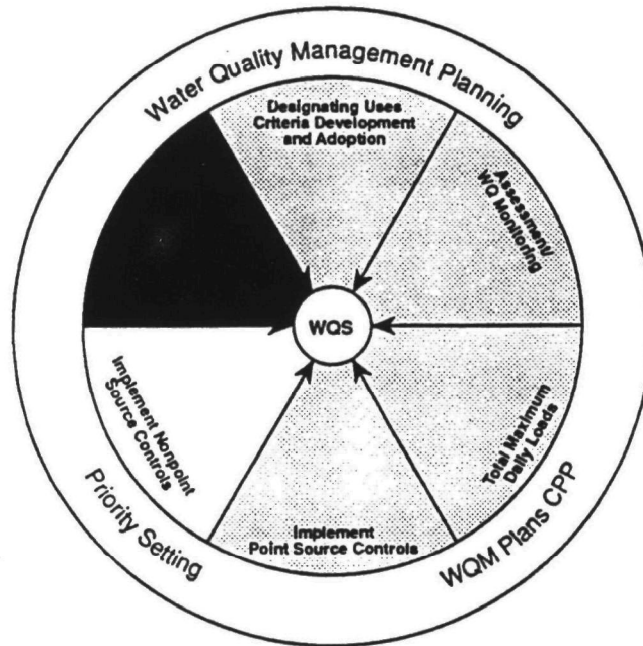
#### State Revolving Funds (SRFs)

Under the SRF program (Title VI of CWA), EPA gives grants to states to capitalize state revolving loan funds. States may make loans at below-market interest rates for the construction of POTWs as well as for projects included in a state's approved Section 319 (nonpoint source management) and Section 320 (estuarine protection) plans. Four percent of all grant awards under Title VI can be used to administer the SRF (CWA § 603(d)(7)). The current reauthorization of the Clean Water Act may further expand SRF eligibilities.

State activities under program management include: the development of the SRF program, preparation and maintenance of Intended Use Plans and Project Priority Lists to set priorities for the use of available funds, provision of the state match, issuance of bonds (if applicable), management of obligations and outlays, management of the loan portfolios, and preparation of annual reports to EPA.

Project level activities include: assistance to communities during facility planning, especially small communities, review and approval of facility plans and engineering designs, assurance of compliance with federal and state requirements (e.g., identification of a dedicated repayment source, conduct of an environmental review, participation of minority firms in award of construction contracts, fostering the use of innovative and alternative technology, and preparation of value engineering analyses), making of binding commitments (i.e., loans), and construction inspections.

The assistance programs have furthered EPA/state efforts to achieve broader water quality management objectives. As eligibilities expand, the SRF program will be an increasingly vital tool in such water quality initiatives as pollution prevention, water conservation, watershed protection, and environmental equity.



**VIEWGRAPH #68: Implement Nonpoint Source Controls**  
**KEY POINTS**

The fifth activity in the WQM process is to implement nonpoint source (NPS) controls. The following subjects will be covered in our discussion of this activity:

- An overview of state nonpoint source management programs

- Load allocations and BMP effectiveness

- History of NPS provisions in the CWA

Each of these will be discussed in the following section of this module.

## **Nonpoint Source (NPS) Management**

- **Control Pollutants Entering Water Body**
- **Control Particular Activities**

**VIEWGRAPH #69: Nonpoint Source (NPS) Management**  
**KEY POINTS**

The second part of establishing source controls is the control of nonpoint sources of pollution via nonpoint source management programs. Nonpoint source control programs may be designed in two ways: 1) to control pollutants entering a particular water body such as a river, wetland, lake or estuary; or 2) to control particular types of activities such as those associated with agriculture, silviculture, construction, mining, etc.

## **NPS Management Programs**

- **Control NPS Pollution**
- **Specify Implementation Activities**
- **Expanded by CZARA**
- **Expanded by ISTEA**

### **VIEWGRAPH #70: NPS Management Programs KEY POINTS**

CWA § 319(b) mandates creation of state management programs for control of NPS pollution. It specifies that each management program proposed for implementation must include the following: an identification of BMPs needed for impaired waters; an identification of programs to achieve BMP implementation; schedules for milestones and implementation; a certification that the state has the authority to implement the program; an identification of sources of funding and purposes for which money will be used; and an identification of all federal financial assistance programs and federal development projects to determine their effects on water quality.

Under the provisions of CWA § 319(b), states were required to submit their NPS management programs for approval within 18 months of the CWA amendments enacted in February, 1987. States were to lay out activities for implementation including issuance and management of 319 grants to local projects for BMP implementation.

Additional mandates for BMP implementation are contained in the Coastal Zone Act Reauthorization Amendments (CZARA) of 1990. This act requires a state with approved coastal zone management programs to establish an approved coastal nonpoint source pollution control program. The programs are not intended to supplant existing coastal zone management programs and nonpoint source

management programs. Rather, they are to serve as an update and expansion of existing programs.

CZARA § 6217(b) states that each state program must "provide for the implementation, at a minimum, of management measures in conformity with the guidance published under subsection (g) to protect coastal waters. . . ." The Act also specifies that states must develop and obtain EPA and National Oceanic and Atmospheric Administration (NOAA) approval of their Coastal Nonpoint Pollution Control Programs within 30 months of EPA's publication of final guidance (published in January, 1993 under the title, "Guidance Specifying Management Measures for Sources of Nonpoint Pollution in Coastal Waters"). States that fail to submit an approvable program will have their federal grant dollars under nonpoint source programs reduced beginning in fiscal year 1996 with a 10 percent cut, increasing to 15 percent in FY 1997, 20 percent in FY 1998, and 30 percent in FY 1999 and thereafter.

The Intermodal Surface Transportation Efficiency Act (ISTEA) of 1991, is another example of a nonpoint source consistency requirement. ISTEA reauthorized federal highway legislation to require, among other things, nonpoint erosion controls consistent with state nonpoint source programs. ISTEA § 1057 deals with erosion control during highway construction by requiring the Secretary to develop erosion control guidelines for states to follow in carrying out construction projects. These guidelines must be consistent with both nonpoint source management programs under CWA § 319 and coastal nonpoint pollution control guidance under CZARA § 6217(g).

## **Mechanisms for Control**

- **States Impose Controls**
- **States Rely on Voluntary BMPs**
- **BMPs Vary w/Site Characteristics**
- **Technical Assistance**

**VIEWGRAPH #71: Mechanisms for Control**  
**KEY POINTS**

In some cases, states impose regulatory nonpoint source control programs. However, in many cases states are forced to rely on the voluntary cooperation of land owners or operators to implement BMPs. BMPs vary according to site characteristics but are well established for many land uses. EPA provides technical assistance to some of those required to implement BMPs in the form of education and training on BMP design and implementation. An example of a BMP is composting of dead birds and waste at a chicken farm to avoid runoff from these sources.

## Load Allocations

- Target BMP Implementation
- NPS Loading Capacity/  
Reduction Goals
- Many Agencies
- Varying Objectives

### VIEWGRAPH #72: Load Allocations

#### KEY POINTS

Load allocations are often used to target BMP implementation. Load allocations provide overall NPS loading capacity or reduction goals. However, it is difficult to translate LAs into BMP implementation programs. One reason for this difficulty is that many agencies are involved at federal, state and local levels. There are often varying objectives among agencies which makes coordination and enforcement difficult. Also, "assistance type" agencies (e.g., agriculture extension) are reluctant to associate themselves with regulatory agencies.

## **BMP Effectiveness**

- **Difficult to Monitor**
- **Difficult to Predict**
- **Emphasis on Biological Monitoring**

### **VIEWGRAPH #73: BMP Effectiveness**

**KEY POINTS**

Although necessary, it is **difficult to monitor** the effectiveness of nonpoint source measures because of the diffuse nature of pollution sources, the effects of other activities in the watershed, and the variability in hydrologic conditions. Effectiveness is also **difficult to predict** because BMPs vary according to site characteristics, design, implementation, and level of maintenance.

Increasing **emphasis is being placed on biological monitoring** (e.g., monitoring the condition of fish and invertebrate communities in streams) as a means of measuring BMP effectiveness in restoring and protecting aquatic life uses.



## **NPS Through Iterative TMDL Process**

- Improved Coordination
- Long-Term Monitoring
- Allows Revision

**VIEWGRAPH #74: NPS Through Iterative TMDL Process**  
**KEY POINTS**

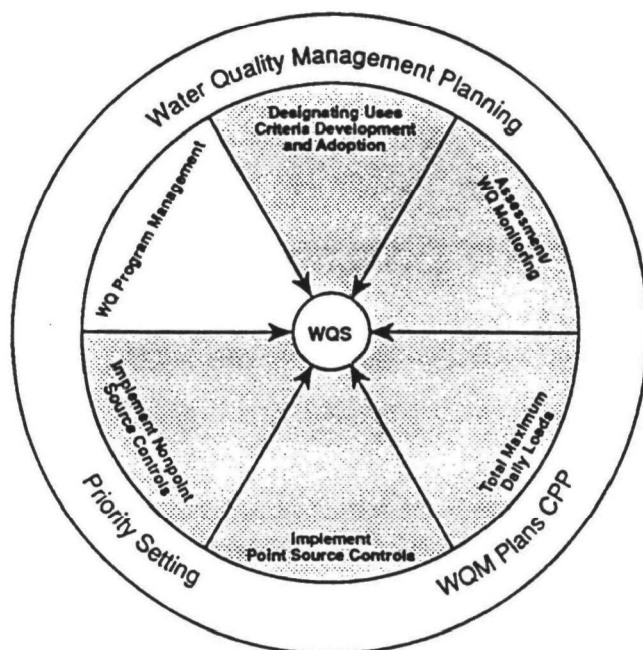
Nonpoint source programs can also be incorporated through an iterative TMDL process. This process provides time for improved **multi-agency coordination** and sets up **long-term watershed water quality monitoring** programs to evaluate effectiveness of BMP implementation. It also **allows the state to revise the BMP** implementation strategy or TMDL, if necessary, as knowledge of BMP implementation and effectiveness improves.

## **History of NPS Provisions of CWA**

- 1972 - FWPCA
- 1977 - FWPCA Amendments
- 1987 - CWA
- 1991 - CZARA
- 1992 - ISTEA

**VIEWGRAPH #75: History of NPS Provisions of CWA**  
**KEY POINTS**

1972	Federal Water Pollution Control Act (FWPCA): Section 208 planning addressed point and nonpoint sources of pollution. No implementation funds were available.
1977	Amendments to FWPCA: Required permits for runoff from industrial storage areas.
1987	CWA: Requires stormwater permits for urban areas and other NPS pollution-generating activities (e.g., construction and road building). Requires states to perform NPS assessments and to develop NPS management programs. Authorizes funds for implementation.
1991	CZARA: Requires coastal zone states to have a coastal NPS management program consistent with the state NPS management program and with enforceable requirements.
1992	ISTEA: Requires Department of Transportation funded construction projects to control NPS pollution consistent with the state NPS management program.



## VIEWGRAPH #76: Program Management KEY POINTS

### Work Program Development

The state work program for the Section 106 assistance agreements should define realistic commitments that foster accountability. To achieve this objective, the state should work closely with the EPA project officer to achieve a consensus on goals and specific water quality activities to be accomplished under the work program.

The process of work program development will be discussed in detail in Module 6 of this course.

### Equipment

Project officers should pay particular attention to state equipment purchases. Equipment may be purchased with grant monies as long as it is authorized in the work program. Equipment is defined as tangible, non-expendable personal property having a useful life of more than one year and an acquisition cost of \$5,000 or more. It can only be purchased during the budget period and, while the state holds title to the equipment, EPA can transfer title to another entity within 120 days of the end of the "project."

### **Budget Review**

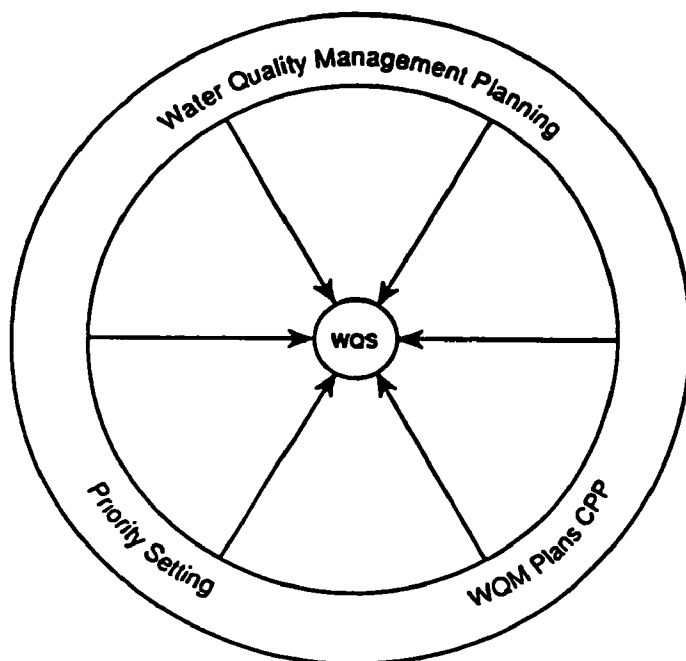
**Project officers, working with grants administration staff, need to ensure adequate state fiscal management capability and integrity. This requires the following routine tasks:**

- **conducting a budgetary review of the grant to determine if adequate funds are available to accomplish the commitments in the work program,**
- **reviewing and tracking carryover funds.**

### **Personnel**

**The work program should contain job titles for state personnel contributing to work program outputs. Project officers review the appropriateness of personnel for tasks in the work program. For example, if the state proposes to conduct a lake study, the project officer would look to see that a limnologist or someone with similar qualifications was working on the study.**

**These issues are discussed in greater detail in Module 4 of this course.**



**VIEWGRAPH #77: Planning and Priority Setting**  
**KEY POINTS**

The remainder of this module is an explanation of the activities that make up the perimeter of the water quality management process wheel. These are the continuing activities that serve as the framework for the rest of the process. They include:

The continuing planning process

Water quality management plans

Priority setting

Public participation

## **Continuing Planning Process (CPP)**

- **Establish & Maintain**
- **Implement Processes**
- **Review Periodically**

### **VIEWGRAPH #78: Continuing Planning Process (CPP)**

#### **KEY POINTS**

The objective of the state CPP is to establish a management program and arrive at the implementation decisions contained in state Water Quality Management (WQM) plans and other plans prepared pursuant to the CWA.

The purpose of the Continuing Planning Process (CPP) is to document how the state will make its WQM decisions. The CPP updates the WQM plan.

#### **The Continuing Planning Process (40 CFR 130.5)**

"Each state shall establish and maintain a continuing planning process (CPP) as described under [CWA § 303(e)(3)(A)-(H)]. Each state is responsible for managing its water quality program to implement the processes specified in the [CPP]. EPA is responsible for periodically reviewing the adequacy of the state's CPP."

Situations likely to trigger CPP review include:

- **Change in standards.**
- **Finalized sludge regulations.**

## **CPP Contains Processes For:**

- **Developing Effluent Limits**
- **Incorporating Plan Elements**
- **Prioritizing 303(d) List and  
Developing TMDLs &  
Effluent Limitations**
- **Updating WQM Plans**

**VIEWGRAPH #79: CPP Contains Processes For:  
KEY POINTS**

### ***The Continuing Planning Process (40 CFR 130.5) Continued.***

**The state may determine the format of its CPP as long as the minimum requirements of the CWA and this regulation are met. The following processes must be described in each state CPP, and the state may include other processes at its discretion.**

**The process for developing effluent limitations and schedules of compliance at least as stringent as those required by the Act and any requirement contained in applicable water quality standards.**

**The process for incorporating elements of any applicable areawide waste treatment plans and basin plans.**

**The processes for prioritizing the waterbodies on the 303(d) list and for developing TMDLs and individual water quality based effluent limitations for pollutants in accordance with CWA § 305(d).**

**The process for updating and maintaining Water Quality Management (WQM) Plans, including schedules for revision.**

## CPP Contains Processes For: (Cont.)

- Intergovernmental Cooperation
- Implementing WQS
- Disposing Residual Waste
- Ranking Construction Needs
- Prioritizing Permit Issuance

VIEWGRAPH #80: CPP Contains Processes For: (Cont.)  
KEY POINTS

*Continued from previous page.*

The process for assuring adequate authority for **intergovernmental cooperation** in the implementation of the state WQM program.

The process for establishing and assuring adequate **implementation of new or revised water quality standards**, including schedules of compliance.

The process for assuring adequate controls over the **disposition of all residual waste** from any water treatment processing.

The process for developing an inventory and **ranking, in order of priority of needs for construction** of waste treatment works.

The process for determining the **priority of permit issuance**.



## **Administrator's Review**

- Review CPP "From Time to Time"
- Shall Not Approve Permit Program for State w/Out CPP

**VIEWGRAPH #81: Administrator's Review**  
**KEY POINTS**

**"The Regional Administrator shall review approved state CPPs from time to time to ensure that the planning processes are consistent with the Act and this regulation. The Regional Administrator shall not approve any permit program under Title IV of the Act for any state which does not have an approved [CPP]." (40 CFR 130.5)**

## History of WQM Planning

- CWA § 303(e) - Phase I
- CWA § 208 - Phase II

### VIEWGRAPH #82: History of WQM Planning KEY POINTS

The purpose of the water quality management (WQM) program is the development and implementation of state WQM plans so that the goals of the CWA can be met. The CWA calls for a WQM process at the state and local level that ensures continuous planning for, and implementation of, pollution control measures.

WQM plans should be aimed at two principal mandates of the CWA:

- the determination of effluent limitations needed to meet appropriate WQS including the requirement to at least maintain the existing quality of water bodies, as of November 1972 (CWA § 303), and
- the development of state and areawide management programs to implement abatement measures for all pollution sources (CWA § 208).

Shortly after the Act of 1972, states were asked to develop a continuing planning process consistent with CWA § 303(e). As part of the process, the states submitted Phase I WQM plans that were directed toward establishing effluent limitations needed by point sources to meet existing WQS. These plans were due in 1975. These Phase I plans were the basis for the first round of NPDES permits.

Section 208 introduced a second phase of WQM planning. Phase II plans were to consider revisions to WQS to achieve the national water quality goals specified in Section 101(a)(2) of the Act, i.e., that all waters should be fishable/swimmable, where attainable. The Phase II plans, due in 1978, were to consider all available means to meet these WQS, including effluent limitations for point sources and management of nonpoint sources.

An essential element of Phase II plans was the designation of areawide planning areas and planning agencies to carry out Phase II planning. These areas were identified, and agencies were designated (usually a regional council of governments). State Phase II planning was to be done by the state water quality agency. Areawide agencies were given special funds to develop WQM plans. State agencies were not. However, the National Association of Counties (NACO) sued EPA to get some of the 208 funds to the states. NACO prevailed, and statewide planning was funded.

## **Water Quality Management Plans**

- According to § 303(e) and § 208
- Focus on Priority Issues & Geographic Areas

### **VIEWGRAPH #83: Water Quality Management Plans KEY POINTS**

#### **Definition of the water quality management (WQM) plan**

The WQM plan consists of plans initially produced in accordance with CWA § 303(e) and § 208. (40 CFR 130.2(k))

Planning should focus annually on priority issues and geographic areas (40 CFR 130.6(a)).

"WQM plans consist of initial plans produced in accordance with [CWA § 303(e) and § 208] and certified and approved updates to those plans. Continuing water quality planning shall be based upon WQM plans and water quality problems identified in the latest 305(b) reports. State water quality planning should focus annually on priority issues and geographic areas and on the development of water quality controls leading to implementation measures. Water quality planning directed at the removal of conditions placed on previously certified and approved WQM plans should focus on removal of conditions which will lead to control decisions."

## **WQM Plans Are Used To:**

- **Direct Implementation**
- **Identify Priority Problems**
- **Consider Alternative Solutions**
- **Recommend Control Measures**

**VIEWGRAPH #84: WQM Plans Are Used To:**  
**KEY POINTS**

**Use of WQM plans (40 CFR 130.6(b)):**

**"WQM plans are used to direct implementation. WQM plans draw upon the water quality assessments to identify priority point and nonpoint water quality problems, consider alternative solutions and recommend control measures, including the financial and institutional measures necessary for implementing recommended solutions. State annual work programs shall be based upon the priority issues identified in the state WQM plan."**

## **WQM Plan Elements**

- **TMDLs**
- **Effluent Limitations**
- **Waste Treatment Works**
- **Nonpoint Source  
Management & Control**
- **Management Agencies**

### **VIEWGRAPH #85: WQM Plan Elements**

#### **KEY POINTS**

The following elements must be included in the WQM plan or referenced as part of WQM plan if contained in separate documents (40 CFR 130.6(c)):

**TMDLs to support permits.**

**Effluent limitations** including water quality-based effluent limitations and schedules of compliance.

**Anticipated municipal and industrial waste treatment works** including facilities for treatment of stormwater-induced combined sewer overflows; programs to provide necessary financial arrangements for such works; establishment of construction priorities and schedules for initiation and completion of such treatment works including an identification of open space and recreation opportunities from improved water quality.

**Nonpoint source management and control.**

The plan shall describe regulatory and non-regulatory programs, activities, and best management practices (BMPs) selected to control

**nonpoint source pollution where necessary to protect or achieve approved water uses.**

**Identify regulatory programs necessary to attain or maintain an approved water use, or where non-regulatory approaches are inappropriate in accomplishing that objective.**

**BMPs shall be identified for nonpoint sources.**

**Management agencies.**

**The plan must identify management agencies necessary to implement the plan and provide adequate authority for intergovernmental cooperation. Agencies must demonstrate legal, institutional, managerial, and financial capability and specific activities necessary to carry out responsibilities.**

## **Elements of WQM Plan (Cont.)**

- **Implementation Measures**
- **Dredge and Fill Programs**
- **Basin Plans**
- **Ground Water Programs**

**VIEWGRAPH #86: WQM Plan Elements (Cont.)**  
**KEY POINTS**

*Continued from previous page.*

**Necessary implementation measures.**

**Identification of implementation measures necessary to carry out the plan, including financing, the time needed to carry out the plan, and the economic, social, and environmental impact of carrying out the plan.**

**Dredge and fill programs.**

**Identification and development of programs for the control of dredge or fill material.**

**Relationship to any applicable basin plans.**

**Ground water programs.**

**States are not required to develop ground-water WQM plan elements beyond the requirements of the Act, but may develop one if they determine it is necessary to address a ground-water quality problem. If a**



**state chooses to develop a ground-water plan element, it should describe the essentials of the state program and should include at least:**

**Goals, policies, and legislative authorities for protection of ground water.**

**Monitoring and resource assessment programs.**

**Programs to control sources of ground water contamination.**

**Procedures for coordinating local, state, and federal ground water protection programs.**

**Program management and administration procedures including, program financing, training and technical assistance, public participation, and emergency management.**

## **WQM Plans**

- Updated "As Needed"
- Process & Schedule in CPPs
- State Certification of Consistency w/ Area-Wide WQM Plans

### **VIEWGRAPH #87: WQM Plans KEY POINTS**

#### **Updating plans (40 CFR 130.6(e)):**

**"State and/or areawide agency WQM plans shall be updated as needed to reflect changing water quality conditions, results of implementation actions, new requirements or to remove conditions in prior conditional or partial plan approvals. Regional Administrators may require that state WQM plans be updated as needed. State Continuing Planning Processes (CPPs) shall specify the process and schedule used to revise WQM plans. The state shall ensure that state and areawide WQM plans together include all necessary plan elements and that such plans are consistent with one another. The Governor or the Governor's designee shall certify by letter to the Regional Administrator for EPA approval that WQM plan updates are consistent with all other parts of the plan. The certification may be contained in the annual state work program."**

## **Basinwide /Watershed Planning**

- **Focuses Resources**
- **Helps Prioritization**
- **Integration & Cooperation**
- **Long-Range Planning**
- **Unique Solutions**
- **Public Participation**

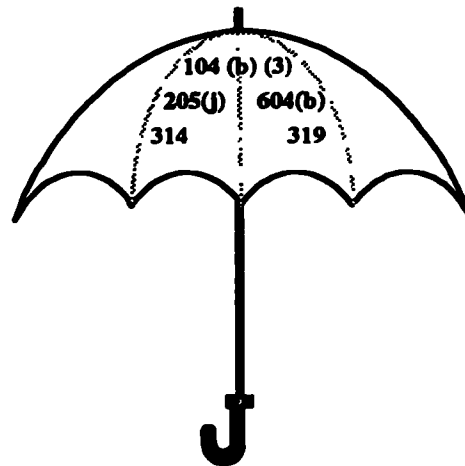
### **VIEWGRAPH #88: Basinwide/Watershed Planning KEY POINTS**

Some states (e.g., NC, DE, WA) are coordinating all WQ program management activities around a basin unit. A basin is defined as a series of watersheds. This coordination is advantageous in that it: focuses resource expenditures; helps in prioritization to see "big picture" within basin; integrates program components within a basin; encourages interdisciplinary cooperation; provides for longer range program planning; results in more consistent decision-making; provides more opportunities for unique solutions (e.g., pollutant trading); and facilitates participation in planning by public and outside agencies.

EPA is encouraging states to proceed in this manner by providing flexibility in EPA/state work program agreements; providing support through grants for states to develop an implementation approach; and working on an information document for states on integration of basinwide planning into WQ program operational organization.

The Clean Water Act Reauthorization Bill (S. 1114) encourages voluntary state comprehensive watershed planning programs through a series of financial and other incentives. It also calls for the establishment of an interagency committee to support comprehensive watershed management and planning.

## Section 106 and Other Planning Activities



### **VIEWGRAPH #89: Section 106 and Other Planning Activities**

#### **KEY POINTS**

Section 106 is historically related to other planning activities, including:

Section 201 facilities plans.

Section 208 areawide plans: Areawide plans were attempts to provide a comprehensive approach involving all sources and pollutants. The budget for 208 planning was larger than the section 106 budget in the 1970s.

The state-wide water quality management plans and the continuous planning process, funded as part of the Section 106 state water pollution control program, must coordinate with all other planning activities.

Section 106 and the following assistance agreements complement and support the implementation of the water quality management plan:

Section 104(b)(3) - Research and Demonstration, Training

Section 205(j) - Water Quality Management Grant

Section 604(b) - Same as 205(j) Using Title VI Funds

Section 314 - Clean Lakes Program

Section 319 - Nonpoint Source Management Program

## Priority Setting

- States Prioritize Listed Waters
- TMDL-Targeted Waters
- All WQ Program Activities Considered

### VIEWGRAPH #90: Priority Setting KEY POINTS

States are mandated under CWA § 303(d) to set priorities for addressing the impaired waters, after they identify waters not expected to meet water quality standards with technology-based controls alone. According to CWA § 303(d)(1), the state "shall establish a priority ranking for such waters, taking into account the severity of the pollution and the uses to be made of such waters".

The priority ranking process will vary from state to state, but it should enable the state to make efficient use of its available resources and meet the objectives of the Clean Water Act. Using multi-year approaches, states are encouraged to direct resources to maximize environmental benefits by dealing with the most serious water quality problems and the most valuable and threatened resources first.

EPA expects that states will list all waters needing TMDLs in the priority ranking, and will identify "high" priority waters, i.e., those targeted for TMDL development within 2 years following the listing process.

**States should consider all state water program activities when prioritizing. This includes, for example:**

**Competing needs.**

**Complementary activities that can be coordinated.**

**The amount of TMDL work that can be accomplished.**

## Priority Setting Considerations

- Risk
- Habitat Vulnerability
- Public Interest
- Importance

**VIEWGRAPH #91: Priority Setting Considerations**  
**KEY POINTS**

Targeting of high priority waters for TMDL development should reflect an evaluation of the relative value and benefit of waterbodies and should consider:

**Risk** to human health and aquatic life.

**Vulnerability** of aquatic habitat, specifically threatened and endangered species.

Degree of **public interest** and support.

Recreational, economic, and aesthetic **importance**.

## **Priority Setting Considerations (Cont.)**

- **Program Needs**
- **§ 304(l) List**
- **Court Orders & Decisions**
- **National Policies & Priorities**

**VIEWGRAPH #92: Priority Setting Considerations (Cont.)**  
**KEY POINTS**

*Continued from previous page.*

**Immediate program needs** such as wasteload allocations needed for permits coming up for revision.

**Waters on 304(l) list** (a one-time only list of impaired waters not expected to meet their designated uses after the mandated effluent limits and pretreatment standards).

**Court orders and decisions.**

**National policies and priorities** such as those identified in EPA's Annual Operating Guidance (e.g., environmental equity).



## **Consider High Priority Waters When:**

- **Setting Other Priorities**
- **Drafting Work Plan & CPP**

**VIEWGRAPH #93: Consider High Priority Waters When:**  
**KEY POINTS**

Priority setting for impaired waters is mandated under CWA § 303(d), however, states and EPA continually set priorities in all of the programs discussed in this module. High priority waters identified under CWA § 303(d) (as well as those waters identified on the § 304(l) list) should be considered when **setting priorities** for permitting, nonpoint source, enforcement, etc. (e.g., states should look at high priority waters when prioritizing permits or deciding when and where to take enforcement actions). After the high priority waters have been identified, states may address these priorities in their **work programs and CPPs**.

## **Long-Range Scheduling For Prioritization**

- Integration of Activities
- Monitor Effectiveness
- TMDL Consistency
- Prioritization Basis
- Supports Geographic Targeting

### **VIEWGRAPH #94: Long-Range Scheduling For Prioritization KEY POINTS**

EPA recommends that states use long-range schedules for establishing the prioritization required under CWA § 303(d). The advantages of long-range scheduling include that it:

Encourages integration of the prioritization process with the permitting cycle, water quality standards revisions, and other required water quality management activities.

Allows for long-term performance monitoring, which may be needed to assess the effect of specific controls.

Results in more consistency in TMDL development.

Establishes a basis for setting overall WQ management priorities.

Supports a geographic approach for TMDL development for targeted waterbodies.

## Public Participation

- Consider All Views
- Improves Public Support
- Early Public Involvement
- EPA Encourages Combining Requirements

### VIEWGRAPH #95: Public Participation

#### KEY POINTS

Public participation is important in that it provides an opportunity for **varying views** and ideas to be expressed and considered in the decision-making process, and it encourages public involvement in environmental issues. Encouraging public participation lets concerned citizens know that they can contribute to EPA policy. It **improves public support** for EPA initiatives. Therefore, it is important to involve the public as early in the planning or decision process as is practical.

Many of the components of the water quality management process require public notification and public participation. For example, states must give public notification when proposing a new WQS, establishing TMDLs, or issuing a permit. Public participation requirements vary by program but often require the following: public notification; public hearings; public comment periods; and response to comments.

**EPA encourages combining public notice requirements when possible (40 CFR 25.13).** For example, when a new TMDL is being proposed for a basin, public notice for the proposed TMDL can be combined with that for renewed or updated NPDES permits in the basin. Combining public participation requirements saves time and resources, and helps the public to understand the broad spectrum of EPA initiatives.

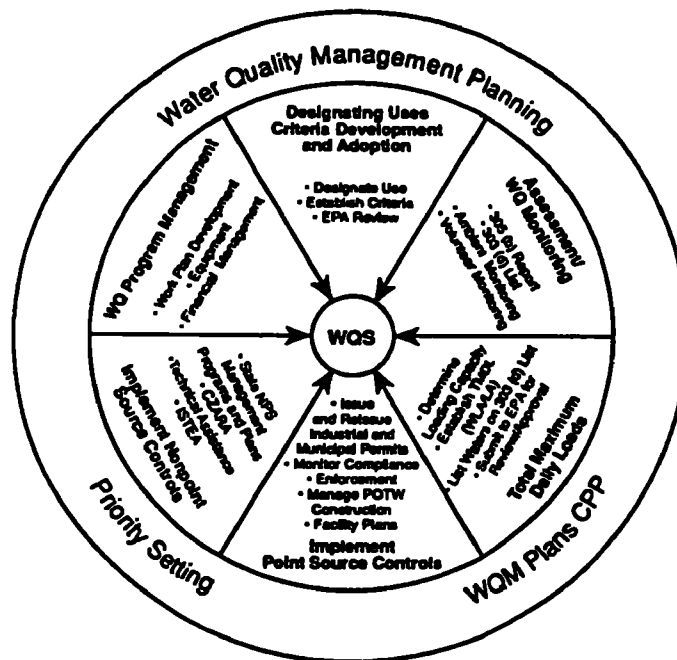
## Activities Requiring Public Participation

- Rulemaking
- Permits
- Guidance Memoranda
- Activities Supported by EPA
- As Required by Administrator

### VIEWGRAPH #96: Activities Requiring Public Participation KEY POINTS

The following are examples of EPA activities that require public participation (40 CFR 25.2(a)):

- **EPA Rulemaking**, (except non-policy rulemaking) and state rulemaking under CWA.
- Issuance and modification of **permits** and enforcement of permits.
- Development of strategy and policy **guidance memoranda** when a Deputy Assistant Administrator determines it to be appropriate.
- Development and implementation of plans, programs, standards, construction, and other **activities supported with EPA financial assistance** to state, interstate, regional, and local agencies.
- **Other activities** which any EPA regional Administrator deems appropriate in view of the EPA's responsibility to involve the public in significant decisions.



**VIEWGRAPH #97: Water Quality Management Process**  
**KEY POINTS**

Again, this wheel represents the water quality management process. The components of the wheel work together help the state meet water quality standards. The perimeter of the wheel is made up of continuing activities that serve as the framework for the process. The project officer must understand how the various activities in the WQM process inter-relate in order to effectively manage the activities in the assistance agreement.

# **Statutory and Regulatory References**

**A. Criteria Development and Adoption****CWA §303****Water Quality Standards and Implementation Plans****CWA §304 (a)****Criteria, Guidelines, and Information to be Published by the Administrator****CWA §307 (a)****Toxic Pollutants List****40 CFR 130.3****Water Quality Standards****40 CFR 130.10****State Submittals to EPA****40 CFR 131****Water Quality Standards****B. Assessments/WQ Monitoring****CWA §303 (d)****Water Quality Standards and Implementation Plans****CWA §304 (l)(1)(A-B)****List of Waters Impaired by Toxics****CWA §314 (a)(1)(A),(E)&(F)****Establishment and Scope of Clean Lakes Program****CWA §319 (a)****State Nonpoint Source Assessment Reports****CWA §106 (e)(1)****Monitoring and Data Analysis Requirements****CWA §305 (b)****Water Quality Inventory****40 CFR 30.503 (a-e)****Quality Assurance Requirements****40 CFR 31.45****Quality Assurance****40 CFR 35.260 (a)****Limitations for Award****40 CFR 130.4****Water Quality Monitoring****40 CFR 130.8****Water Quality Report (305(b))****C. Total Maximum Daily Loads****CWA §303 (d)(1)(A)****Identification and Priority Ranking of Water Quality Based Waters****40 CFR 130.7****Total Maximum Daily Loads and Individual Water Quality-Based Effluent Limitations****40 CFR 130.5 and 130.7****Continuing Planning Process****D. Implement Point Source Controls****CWA §301****Effluent Limitations****CWA §302****Water Quality Related Effluent Limitations****CWA §307 (a)****Toxic Pollutants List****CWA §313****Federal Facilities Pollution Control****CWA §401 (a)****Certification****CWA §402****National Pollutant Discharge Elimination System****CWA §403****Ocean Discharge Criteria****CWA §404****Permits for Dredged or Fill Material****CWA §405****Disposal of Sewage Sludge**

CWA §308  
CWA §309  
CWA §505  
40 CFR 130.12

Inspections, Monitoring and Entry  
Federal Enforcement  
Citizen Suits and Procedures  
Coordination With Other Programs

**E. Implement Nonpoint Source Controls**

CWA §319 (b)  
40 CFR 130.6 (c)(4)

Nonpoint Source Management Programs  
Nonpoint Source Management and Control

**F. Program Management**

CWA §106  
40 CFR 31  
40 CFR 35  
40 CFR 130

**G. Outer Ring**

CWA §208  
CWA §209  
CWA §303 (e)  
CWA §104 (b)(3)  
  
CWA §106 (b)  
  
CWA §205 (j)(1-3)  
CWA §314 (b&c)  
CWA §319 (h)  
  
CWA §319 (i)  
CWA §604 (b)  
40 CFR 130.5  
40 CFR 130.6

Areawide Waste Treatment Management Plans  
Basin Planning  
Continuing Planning Process  
Research, Investigations, Demonstrations,  
Studies, etc. Grants  
State Allotments for Pollution Control  
Programs  
Water Quality Management Planning Grants  
Clean Lakes Grants  
Nonpoint Source Management Program  
Implementation Grants  
Grants for Protecting Ground Water Quality  
Reservation of Funds for Planning  
Continuing Planning Process  
Water Quality Management Plans

**K. Other**

CWA §320  
CWA §504  
CWA §510  
CWA §518

National Estuary Program  
Emergency Powers  
State Authority  
Indian Tribes



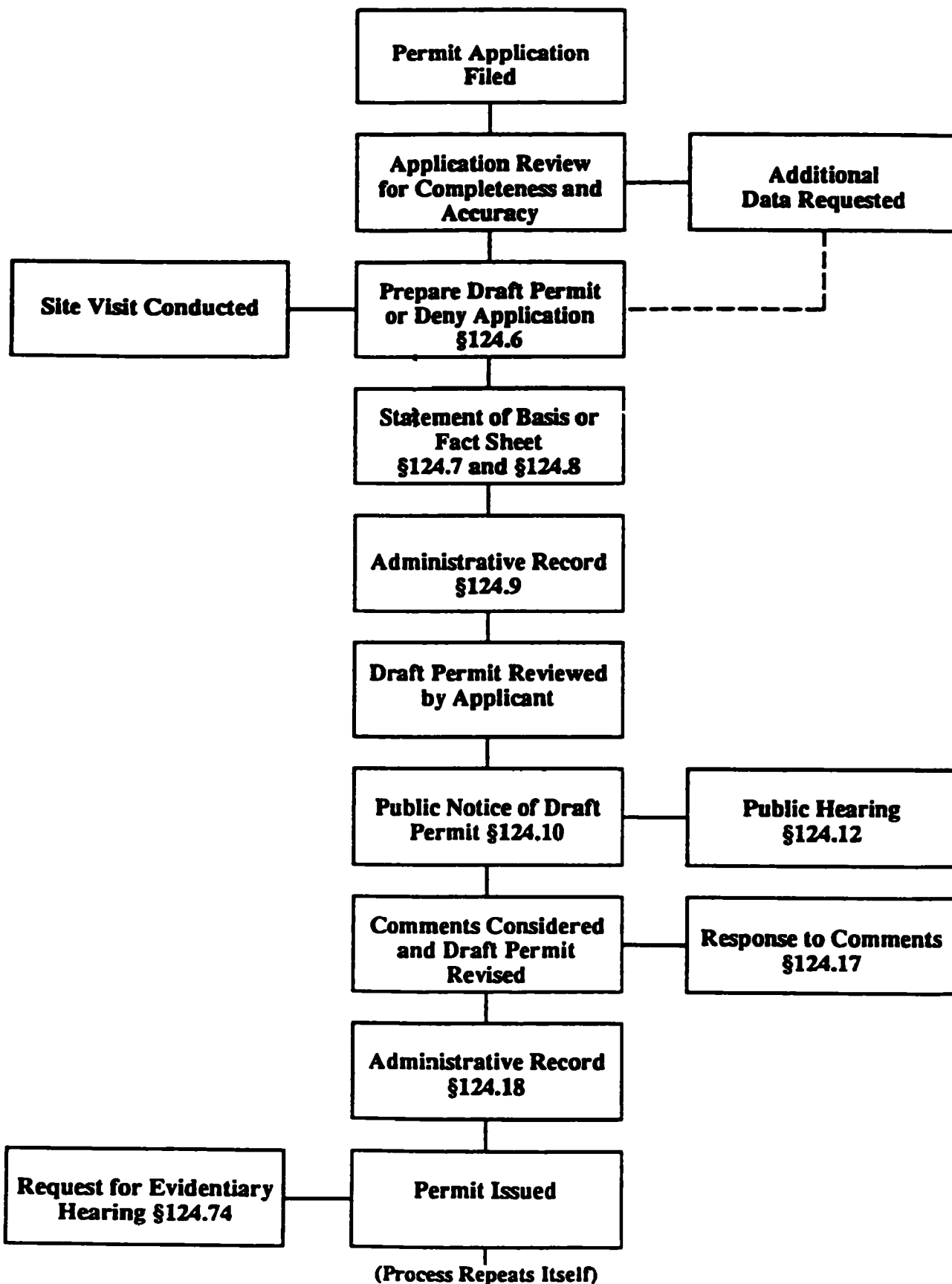
# **PERMIT ISSUANCE PROCEDURES**

## **LEARNING OBJECTIVES**

- **The permit issuance process**
- **Documenting development of the permit**
- **EPA/State coordination**
- **Public participation**
- **Permit appeals**
- **Modification/termination**

**NOTES:**

## COMMON ELEMENTS OF THE ISSUANCE PROCESS



## **REASONS FOR GOOD DOCUMENTATION**

- **Streamlines reissuance/compliance-monitoring process**
- **Permanent record of the basis for the permit**
- **Explanation of basis of permit for public, management, permittee, and attorneys, if appealed**
- **Provide sound basis for modifications and future permits**
- **Requires permit writer to be organized and logical, resulting in better permits**

## **CHARACTERISTICS OF A GOOD FACT SHEET**

- **Identify party being permitted**
- **Bring forward background and history of permit**
- **Develop rationale for all pertinent permit decisions**
- **Display all calculations and document sources of data**
- **Keep accessible to permitting authority personnel and the public**

**NOTES:**

## **MINIMUM ELEMENTS OF A FACT SHEET**

### **§124.8(b)**

- **Description of facility or activity**
- **Type and quantity of wastes/pollutants**
- **Basis of the draft permit**
  - **Statutory/regulatory citations**
  - **References to administrative record**
- **Basis of effluent limitations and conditions**
- **Specific explanation of**
  - **Toxic pollutant limits**
  - **Limits on internal wastestreams**
  - **Case-by-case requirements**
  - **Limits on indicator pollutants**
  - **Regulation of users**
- **Sketch or description of location**
- **State certification**
- **Sewage sludge land application plan**
- **Inappropriateness of requested variances**
- **Permit procedures**
  - **Comment period begin and end dates**
  - **Procedures for requesting a hearing**
  - **Public involvement in final decision**
- **Contact name and telephone**

## **CONTENTS OF ADMINISTRATIVE RECORD §124.9**

- **Application and supporting data**
- **Draft permit**
- **Statement of basis or fact sheet**
- **Documents/items cited in statement of basis or fact sheet**
- **Other items supporting permit development**
- **EIS for new source draft permits**

**NOTES:**

## CONTENTS OF THE ADMINISTRATIVE RECORD

A brief explanation follows of the express statutory or regulatory provision on which permit requirements are based, including appropriate supporting references to the Administrative Record required by 40 CFR S124.9:

The following items are used to establish the basis of the draft permit:

- (1) NPDES Permit No. LA0002933, effective date 2/17/80, expiration date 3/31/81.
- (2) Consolidated Permit Application Forms No. 1 and 20 received 4/3/82.
- (3) Louisiana Water Quality Criteria, LSCC, 1977.
- (4) Louisiana Water Quality Management Plan, Department of Natural Resources, including Appendix D (Ponchartrain Basin) and Appendix F (Mississippi River), Phase II, Vols. I.
- (5) 40 CFR Part 415 Subpart F, [47 FR 28260, 6/29/83].
- (6) 40 CFR Part 415.65(b) [39 FR 9616, 3/12/74].
- (7) Letter White (EPA) to Vlacos (Vulcan) dated 3/29/76.
- (8) Letter White (EPA) to Campbell (Vulcan) Dated 6/9/76.
- (9) ROC Hale (EPA) to Leonard (Vulcan) dated 11/10/76.
- (10) 40 CFR Part 122.29 (d)(1) [48 FR 14146, 4/1/83].
- (11) Letters Gordon (Vulcan) to McHam (EPA) dated 5/17/82 and 7/19/82.
- (12) 40 CFR Part 401.17, 6/4/82.
- (13) Letters Gordon (Vulcan) to Hale (EPA) dated 1/30/81.
- (14) Discharge Monitoring Reports 1980-1982.
- (15) 40 CFR Part 122.62(a)(3) [48 FR 14146, 4/1/83].
- (16) 40 CFR Part 122.44(1)(2)(1) [48 FR 14146, 4/1/83].
- (17) 40 CFR Part 415.65(b) [47 FR 28260, 6/29/82].
- (18) 40 CFR Part 415.62(b) [47 FR 28260, 6/29/82].
- (19) Final Development Document for Inorganic Chemicals, EPA 440/1-82/007, June 1982.
- (20) Letter Gordon (Vulcan) to Ferguson (EPA) dated 10/30/79.
- (21) 40 CFR Part 125.3(a)(2)(v) [44 FR 32948, 6/7/89, as amended at 45 FR 33512, 5/19/80].
- (22) 40 CFR part 415.63(b) [47 FR 28260, 6/29/82].
- (23) 40 CFR Part 122.29(d)(2) [48 FR 14146, 4/1/83].
- (24) 40 CFR Part 141.12 [40 FR 59570, 12/24/75, as amended at 44 FR 68641, 11/29/79].
- (25) Preamble to Inorganic Chemical Effluent Limitations Guidelines 47 FR 28263, 6/29/82, Column 3].
- (26) ROC McHam (EPA) to Gordon (Vulcan) dated 5/25/83.
- (27) EPA Treatability Manual, EPA 600/2-82/001, September 1982 (Revised).
- (28) Work Book for Determining Economic Achievability for NPDES Permits prepared for Hap Thron, Permits Division; prepared by Putnam, Hayes & Bartlett, Inc., August 1982.
- (29) Moody's Industrial Manual, 1982, pp. 4602-4605
- (30) C E Plant Cost Index, Chemical Engineering Magazine, 6/13/83, page 7.

## **PUBLIC NOTICE**

### **§124.10**

- **Purpose of public notice**
- **Types of actions requiring public notice**
  - **Tentative denial of application**
  - **Draft NPDES permit**
  - **Public hearing**
  - **Formal appeal of permit**
  - **Major program modifications**
  - **Granting of evidentiary hearing**
- **Methods applicable to public notice process**
  - **Publication in newspaper**
  - **Direct mailing**
- **Contents of public notice**
  - **Name and address of regulatory authority**
  - **Name and address of permittee**
  - **Brief description of facility**
  - **Name, address, and telephone number of contact**
  - **Additional information (EPA-issued permits)**
- **Timing of public notice**
  - **After EPA/State review**
  - **EPA/State MOA should address**
- **Significant comments must be responded to in writing**
- **Public hearing is always optional**

**NOTES:**



**EPA REVIEW OF STATE PERMITS**  
**§123.24(d)**

**EPA may not waive review of:**

- **Major municipal and industrials**
- **General permits**
- **Class I sludge facilities**
- **Other (minor) permits which:**
  - **Discharge to territorial seas**
  - **Affect another State's waters**
  - **Cooling water discharges > 500 MGD**
  - **Process discharges >0.5 MGD**
  - **Primary industry categories**

**CONTENTS OF ADMINISTRATIVE RECORD -**  
**FINAL PERMIT**  
**§124.18**

- **All comments received**
- **Public hearing tape or transcript**
- **Response to comments**
- **Final EIS for new sources**
- **Final permit**

**NOTES:**

# **EXAMPLE FACT SHEET**

**NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) PERMIT  
FACT SHEET**

**Permittee Name:** Luster Glass, Inc.

**NPDES Permit  
Number:** IL0654321

**Mailing Address:** P.O. Box 319  
Morris, IL 60123

**Location:** 1 River Ridge Drive  
Morris, IL 60123

**Contact Person:** Mr. John Baker, Vice President

**Telephone:** (312) 834-4536

**I. Status of Permit**

NPDES Permit No. IL0654321 was issued on August 5, 1984, became effective on August 31, 1984, and expired on August 31, 1989. The permittee submitted an NPDES permit application for the renewal of the permit on March 1, 1989.

**II. Facility Description**

Luster Glass Inc. operates a manufacturing facility in Morris, IL. The facility specializes in manufacturing auto glass. On average, 40,000 sq. ft./day of auto tempered glass, and 275,000 sq. ft./day of auto laminated glass is produced at the facility.

**III. Description of Discharge**

All wastewater generated at this facility is discharged through Outfall 001 to the Illinois River. The primary waste streams discharged through Outfall 001 are process and rinse waters from the glass manufacturing processes and cooling tower blowdown. The glass manufacturing process wastewaters from auto glass tempering (cutting, grinding, polishing edges, bending, and tempering) and auto glass lamination (cutting, bending, washing, and laminating) are routed through a wastewater treatment system consisting of oil and water separators and settling basins. The cooling tower blowdown is not treated prior to discharge.

**IV. Receiving Water**

The receiving water for Outfall 001 is the Illinois River, Segment 16 of the Northern Illinois River Basin. Downstream of the facility, the Illinois River flows approximately 3 miles to Segment 15 of the Northern Illinois River Basin. Following is a summary of flow data for Segment 16 of the Illinois River:

Average Flow - 446.7 cfs  
Harmonic Mean Flow - 245.5 cfs  
7Q10 - 70.9 cfs  
1Q10 - 58.8 cfs

The use designations for the Illinois River are given below:

**Indigenous Aquatic Life**

The applicable water quality standards to protect these uses are specified the State Water Pollution Control Rules in Part 302 (State Administrative Code, Title 35 - Environmental Protection; Subtitle C - Water Pollution, Chapter 1; adopted March 17, 1989). The effluent standards are found in Part 304.

**V. Description of Discharge**

**a. Permit Application Summary**

The following table summarizes the discharge characteristics of Outfall 001 as reported in the NPDES permit application dated March 1, 1989:

<u>Parameter</u>	<u>Long-Term Average</u>	<u>Daily Maximum</u>
Flow (MGD)	4.563	4.591
TSS (mg/l)	18.8	50.0
COD (mg/l)	ND	50.0
pH (S.U.)	6.6 min.	9.0 max.
Oil & Grease (mg/l)	12	22
Phosphorus (lbs/day)	19	29
Zinc (mg/l)	0.036	0.07
Lead (mg/l)	0.025	0.047

Note: Only data for parameters reported above detection limits are shown above.

**b. Discharge Monitoring Report (DMR) Data**

A summary of DMR data is given in Table 1. This data was taken from March 1988 through February 1989.

Whole Effluent Toxicity (WET) testing performed during the last year of the permit term (March 1988 to February 1989) demonstrated acute toxicity at Outfall 001. Test results indicated a fathead minnow LC50 of 8 percent and a Ceriodaphnia LC50 of 15.8 percent. Chronic Toxicity tests also demonstrated toxicity at Outfall 001. Chronic toxicity test results indicated a fathead minnow NOEC of 1.3 percent and a Ceriodaphnia NOEC of 2.7 percent. A summary of WET data for Luster is also presented in Table 1.

# VI. Proposed Technology-Based Effluent Limitations

Regulations promulgated at 40 CFR §122.44(a) require technology-based effluent limitations to be placed in NPDES permits based on National effluent limitations guidelines and standards, best professional judgement (BPJ), or a combination of the two. Discharges from Outfall 001 are subject to effluent limitations given in 40 CFR Part 426 for the Glass Manufacturing Point Source Category, and State effluent and water quality standards.

Limits were developed for Luster Glass Inc. based on an evaluation of the permit application and DMRs. Lead and zinc were detected in significant concentrations in the discharge as reported in DMRs. While the previous permit did not contain limits for lead and zinc, monitoring was required. Thus, technology-based effluent limits were set for zinc found in the cooling tower blowdown. Technology-based limits were also established for lead which is found in the process wastewater, however water quality-based limits were found to be more limiting (see Section VII of this Fact Sheet).

Effluent mass limits for total suspended solids (TSS), phosphorus, and oil and grease are based on the best practicable control technology currently available (BPT) limitations specified for the Automotive Glass Tempering Subcategory in 40 CFR §426.62 and for the Automotive Glass Laminating Subcategory in 40 CFR §426.72. These limitations are shown below:

## Automotive Glass Tempering Subcategory

<u>Pollutant</u>	<u>Effluent Limits</u>	
	<u>Monthly Avg.</u> <u>(lb/1000ft<sup>3</sup>)</u>	<u>Daily Max.</u> <u>(lb/1000ft<sup>3</sup>)</u>
TSS	0.25	0.40
Oil and Grease	0.13	0.13

pH shall be within the range of 6.0 to 9.0 standard units.

## Automotive Glass Laminating Subcategory

<u>Pollutant</u>	<u>Effluent Limits</u>	
	<u>Monthly Avg.</u> <u>(lb/1000ft<sup>3</sup>)</u>	<u>Daily Max.</u> <u>(lb/1000ft<sup>3</sup>)</u>
TSS	0.90	0.90
Oil and Grease	0.36	0.36
Phosphorus	0.22	0.22

pH shall be within the range of 6.0 to 9.0 standard units.

Effluent limitations for oil and grease, TSS, phosphorus, and pH from the process wastewater contribution to Outfall 001 are calculated using the above effluent limits and the production rates of 40,000 square feet per day of tempered glass and 275,000 square feet per day of laminated glass. The TSS effluent limitations for cooling tower blowdown are based on State Effluent Standards for TSS in non-process wastewaters, including cooling tower blowdown. Calculations of the effluent limitations are shown below. It should be noted that both mass and concentration limits will be applied to Outfall 001 for oil and grease, TSS, and phosphorus.

#### Oil and Grease

##### Mass Limitations (Monthly Average and Daily Maximum)

$$\text{Oil \& Grease} = (40,000 \text{ ft}^2/\text{day (tempered)} \times 0.13 \text{ lb}/1000 \text{ ft}^2) + (275,000 \text{ ft}^2/\text{day (laminated)} \times 0.36 \text{ lb}/1000 \text{ ft}^2) = 5.2 + 99 = 104.2 \text{ lbs/day}$$

##### Concentration Limitations - Outfall 001 (Monthly Average and Daily Maximum)

$$\text{Oil \& Grease} = (104.2 \text{ lbs/day}) (454 \text{ g}/1 \text{ lb}) (1000 \text{ mg}/1 \text{ g}) (1 \text{ gal}/3.785 \text{ l}) (1 \text{ day}/4.563 \times 10^6 \text{ gal}) = 2.74 \text{ mg/l}$$

#### TSS

##### Mass Limitations - Process Wastewater (Monthly Average)

$$\text{TSS} = [(40,000 \text{ ft}^2/\text{day (tempered)} \times 0.25 \text{ lb}/1000 \text{ ft}^2) + (275,000 \text{ ft}^2/\text{day (laminated)} \times 0.9 \text{ lb}/1000 \text{ ft}^2)]/1000 = 257.5 \text{ lbs/day}$$

##### Mass Limitations - Process Wastewater (Daily Maximum)

$$\text{TSS} = [(40,000 \text{ ft}^2/\text{day (tempered)} \times 0.4 \text{ lb}/1000 \text{ ft}^2) + (275,000 \text{ ft}^2/\text{day (laminated)} \times 0.9 \text{ lb}/1000 \text{ ft}^2)]/1000 = 263.5 \text{ lbs/day}$$

##### Mass Limitations - Cooling Tower Blowdown (Monthly Average)

$$\text{TSS} = (25 \text{ mg/l}) (0.45 \times 10^6 \text{ gal/day}) (1 \text{ lb}/454,000 \text{ mg}) (3.785 \text{ l/gal}) = 93.8 \text{ lbs/day}$$

##### Mass Limitations - Cooling Tower Blowdown (Daily Maximum)

$$\text{TSS} = (50 \text{ mg/l}) (0.45 \times 10^6 \text{ gal/day}) (1 \text{ lb}/454,000 \text{ mg}) (3.785 \text{ l/gal}) = 187.6 \text{ lbs/day}$$

##### Mass Limitations - Outfall 001 (Monthly Average)

$$\text{TSS} = 257.5 \text{ lbs/day} + 93.8 \text{ lbs/day} = 351.3 \text{ lbs/day}$$

**Mass Limitations - Outfall 001 (Daily Maximum)**

$$\text{TSS} = 263.5 \text{ lbs/day} + 187.6 \text{ lbs/day} = 451.1 \text{ lbs/day}$$

**Concentration Limitations - Outfall 001 (Monthly Average)**

$$\text{TSS} = (351.3 \text{ lbs/day}) (454,000 \text{ mg/lb}) (1 \text{ gal}/3.785 \text{ l}) (\text{day} / 4.563 \times 10^6 \text{ gal}) = 9.23 \text{ mg/l}$$

**Concentration Limitations - Outfall 001 (Daily Maximum)**

$$\text{TSS} = (451.1 \text{ lbs/day}) (454,000 \text{ mg/lb}) (1 \text{ gal}/3.785 \text{ l}) (\text{day} / 4.563 \times 10^6 \text{ gal}) = 11.86 \text{ mg/l}$$

**Phosphorus**

**Mass Limitations - Outfall 001 (Monthly Average and Daily Maximum)**

$$\text{Phosphorus} = 275,000 \text{ ft}^3/\text{day} (\text{laminated}) \times 0.06 \text{ lb}/1000 \text{ ft}^3 = 16.5 \text{ lbs/day}$$

**Concentration Limitations - Outfall 001 (Monthly Average and Daily Maximum)**

$$\text{Phosphorus} = (16.5 \text{ lbs/day}) (454,000 \text{ mg/lb}) (1 \text{ gal}/3.785 \text{ l}) (\text{day} / 4.563 \times 10^6 \text{ gal}) = 0.43 \text{ mg/l}$$

**pH**

pH limits are based on State effluent standards, as follows:

**State Effluent Standards**

<u>Pollutant/Parameter</u>	<u>Range</u>	<u>Monthly Avg.</u> <u>(mg/l)</u>	<u>Daily Max.</u> <u>(mg/l)</u>
pH	6.0 - 9.0	N/A	N/A

### Toxic Pollutants

Zinc and lead were detected in the effluent discharge when the previous permit was issued. At that time no limits were set, but a requirement was made to monitor for zinc and lead. Significant concentrations of zinc (used as a corrosion inhibitor in cooling water) and lead (from lead soldering of products) have been found, as reported in DMRs. Therefore, technology-based effluent limitations are being established and will be included in the draft permit.

Technology-based effluent limitations for the toxic pollutant zinc present in the cooling tower blowdown are based on the transfer of the best available technology economically achievable (BAT) limitations specified in the Steam Electric Effluent Guidelines and Standards at 40 CFR §423.13(d)(1). These limitations are shown below:

#### BAT Effluent Limitations

<u>Pollutant</u>	<u>Monthly Avg.</u> <u>(mg/l)</u>	<u>Daily Max.</u> <u>(mg/l)</u>
Zinc (total)	1.0	1.0

Using the average blowdown flow from the cooling towers (0.45 mgd), monthly average and daily maximum mass limitations are calculated as follows:

$$\text{Zinc} = (1.0 \text{ mg/l})(0.45 \times 10^6 \text{ gal/day})(1 \text{ lb}/454,000 \text{ mg})(3.785 \text{ l/gal}) \\ = 3.75 \text{ lbs/day}$$

Equivalent end-of-pipe concentration effluent limitations are also being established in the draft permit. Using the total Outfall 001 flow (4.563 mgd), monthly average and daily maximum concentration limitations are calculated as follows:

$$\text{Zinc} = (3.75 \text{ lbs/day})(454,000 \text{ mg/lb})(1 \text{ gal}/3.785 \text{ l})(\text{day} / 4.563 \times 10^6 \text{ gal}) \\ = 0.10 \text{ mg/l}$$

Technology-based effluent limitations for lead found in the process wastewaters are based on transfer of BAT limitations specified in the Metal Finishing Effluent Guidelines and Standards at 40 CFR §433.14(a). These limitations, which are based on the performance of lime precipitation and sedimentation, are shown below.

#### BAT Effluent Limitations

<u>Pollutant</u>	<u>Monthly Avg.</u> <u>(mg/l)</u>	<u>Daily Max.</u> <u>(mg/l)</u>
Lead (total)	0.43	0.69



Due to the potential for dilution of the treated process wastewaters by the cooling tower blowdown wastewaters, both mass and concentration limitations are established. Using the average process flow (4.113 mgd), mass limitations are calculated as follows:

**Monthly Average**

$$\text{Lead} = (0.43 \text{ mg/l}) (4.113 \times 10^6 \text{ gal/day}) (1 \text{ lb}/454,000 \text{ mg}) (3.785 \text{ l/gal}) \\ = 14.74 \text{ lbs/day}$$

**Daily Maximum**

$$\text{Lead} = (0.69 \text{ mg/l}) (4.113 \times 10^6 \text{ gal/day}) (1 \text{ lb}/454,000 \text{ mg}) (3.785 \text{ l/gal}) \\ = 23.66 \text{ lbs/day}$$

Equivalent end-of-pipe concentration effluent limitations are also being established in the draft permit. Using the total Outfall 001 flow (4.563 mgd), concentration limitations are calculated as follows:

**Monthly Average**

$$\text{Lead} = (14.74 \text{ lbs/day}) (454,000 \text{ mg/lb}) (1 \text{ gal}/3.785 \text{ l}) (\text{day} / 4.563 \times 10^6 \text{ gal}) \\ = 0.38 \text{ mg/l}$$

**Daily Maximum**

$$\text{Lead} = (23.66 \text{ lbs/day}) (454,000 \text{ mg/lb}) (1 \text{ gal}/3.785 \text{ l}) (\text{day} / 4.563 \times 10^6 \text{ gal}) \\ = 0.62 \text{ mg/l}$$

**VII. Proposed Water Quality-Based Effluent Limitations**

The State water quality standards require that point source discharges shall not cause a violation of any applicable water quality standards nor interfere with the attainment or maintenance of that water quality which assures the protection and propagation of a balanced indigenous population of shellfish, fish, and wildlife and allows recreational activities in and on the water. In addition, a requirement of the State water quality standards is that no effluent shall, alone or in combination with other sources, cause a violation of any applicable water quality standard.

**Temperature**

Temperature limits are based on State water quality standards as follows:

State Water Quality Limits

<u>Pollutant/Parameter</u>	<u>Range</u>
Temperature	Not greater than 2.8°C above ambient, or 1.7°C above the following maximum limits: in December through March, 16°C (60°F) and in April through November, 32°C (90°F)

Toxic Pollutants

Based on evaluation of the NPDES permit application and DMR data submitted by Luster Glass Inc., the following pollutants and parameters for which applicable State water quality standards are available are present in Outfall 001: lead and zinc. Based on the fact that no other toxic pollutants are expected to be present in Outfall 001 at significant concentrations, evaluation for compliance with water quality standards will only be performed for lead and zinc.

The State water quality regulations require that water quality standards be achieved under the following critical receiving water flow conditions:

Chronic water quality standards:  
7 day, 10 year return frequency flow (7Q10)

Acute water quality standards:  
One-third (1/3) of the 7Q10 flow

The 7Q10 for the Illinois River is 70.9 cubic feet per second (cfs)

The facility provided a study of the outfall which showed that the outfall quickly achieved complete mixing across the width of the river. Dilution at the edge of the mixing zone can therefore be characterized by the complete mixing equation:

$$Cr = \frac{(Cd)(Qd) + (Cs)(Qs)}{(Qd + Qs)}$$

where      Cr = the receiving water concentration,  
            Cd = the effluent concentration,  
            Qd = the effluent flow,  
            Cs = the receiving water background concentration, and  
            Qs = the appropriate receiving water flow.

The receiving water concentrations (Cr) expected in the Illinois River are calculated using the equation described above, and the following data:

<u>Pollutant</u>	<u>Effluent Concentration (Cd) *</u> (mg/l)	<u>Receiving Water Concentration (Cs) **</u> (mg/l)
Lead	0.38	0
Zinc	0.21	0.07

\* - Maximum daily concentration reported in the application Form 2C

\*\* - Source U.S.G.S. STORET

For comparison with acute water quality standards, receiving water concentrations are calculated as follows:

$$\begin{aligned} \text{Cr (lead)} &= [(0.38 \text{ mg/l})(7.06 \text{ cfs}) + (0 \text{ mg/l})(23.6 \text{ cfs})] / (7.06 \text{ cfs} \\ &\quad + 23.6 \text{ cfs}) \\ &= 0.088 \text{ mg/l} \end{aligned}$$

$$\begin{aligned} \text{Cr (zinc)} &= [(0.21 \text{ mg/l})(7.06 \text{ cfs}) + (0.07 \text{ mg/l})(23.6 \text{ cfs})] / (7.06 \\ &\quad \text{cfs} + 23.6 \text{ cfs}) \\ &= 0.102 \text{ mg/l} \end{aligned}$$

For comparison with chronic water quality standards, receiving water concentrations are calculated as follows:

$$\begin{aligned} \text{Cr (lead)} &= [(0.38 \text{ mg/l})(7.06 \text{ cfs}) + (0 \text{ mg/l})(70.9 \text{ cfs})] / (7.06 \text{ cfs} \\ &\quad + 70.9 \text{ cfs}) \\ &= 0.034 \text{ mg/l} \end{aligned}$$

$$\begin{aligned} \text{Cr (zinc)} &= [(0.21 \text{ mg/l})(7.06 \text{ cfs}) + (0.07 \text{ mg/l})(70.9 \text{ cfs})] / (7.06 \\ &\quad \text{cfs} + 70.9 \text{ cfs}) \\ &= 0.083 \text{ mg/l} \end{aligned}$$

The following table compares each receiving water concentration calculated above with the State Water Quality Standard for aquatic life protection:

<u>Pollutant</u>	<u>State Standard (μg/l)</u>	<u>Receiving Water Concentration (μg/l)</u>
<u>Zinc</u>		
Chronic	110	83
Acute	120	102
<u>Lead</u>		
Chronic	3.2	34
Acute	82	88

Since the calculated receiving water concentrations are less than the criterion for zinc and greater than the criterion for lead, water quality limits will be necessary for lead, but not for zinc. It should be noted that the procedure used above does not account for the variability of the pollutant concentrations in the effluent. The EPA Technical Support Document for Water Quality-based Toxics Control recommends accounting for this variability by calculating the reasonable potential for pollutants to cause exceedances of water quality standards. Specifically, the reasonable potential is calculated using the maximum expected effluent concentration, which is estimated by using a multiplication factor (F) that incorporates both the coefficient of variation (CV) and the number of effluent samples collected. If this methodology were used with the existing data for Luster Glass, Inc., there would be a reasonable potential for the concentration of zinc in the discharge to exceed both the acute and chronic water quality standards, and thus water quality permit limits will also be calculated for zinc.

The following equation is used to calculate the effluent concentrations [which is commonly referred to as the waste load allocation (WLA)] for lead and zinc that will ensure protection of the State water quality standard.

$$Cd = WLA = \frac{Cr (Qd + Qs) - (Cs)(Qs)}{Qd}$$

where  
 Cd = WLA = waste load allocation  
 Cr = the applicable water quality standard  
 Qd = the effluent flow = 7.06 cfs  
 Qs = the appropriate receiving water flow  
 Cs = the receiving water background concentration

Based on the following information, the waste load allocations for lead and zinc are calculated.

<u>Pollutant</u>	<u>Cr = Acute State Water Quality Standard</u>	<u>Cs = Upstream Concentration</u>
Lead	0.082 mg/l	0 mg/l
Zinc	0.12 mg/l	0.07 mg/l

<u>Pollutant</u>	<u>Cr = Chronic State Water Quality Standard</u>	<u>Cs = Upstream Concentration</u>
Lead	0.0032 mg/l	0 mg/l
Zinc	0.11 mg/l	0.07 mg/l

$$\begin{aligned} \text{Lead (acute) Cd} &= [(0.082 \text{ mg/l})(7.06 \text{ cfs} + 23.6 \text{ cfs}) - (0 \\ &\quad \text{mg/l})(23.6 \text{ cfs})] / 7.06 \text{ cfs} \\ &= 0.36 \text{ mg/l} \end{aligned}$$

$$\begin{aligned} \text{Lead (chronic) Cd} &= [(0.0032 \text{ mg/l})(7.06 \text{ cfs} + 70.9 \text{ cfs}) - (0 \\ &\quad \text{mg/l})(70.9 \text{ cfs})] / 7.06 \text{ cfs} \\ &= 0.04 \text{ mg/l} \end{aligned}$$

$$\begin{aligned} \text{Zinc (acute) Cd} &= [(0.12 \text{ mg/l})(7.06 \text{ cfs} + 23.6 \text{ cfs}) - (0.07 \\ &\quad \text{mg/l})(23.6 \text{ cfs})] / 7.06 \text{ cfs} \\ &= 0.29 \text{ mg/l} \end{aligned}$$

$$\begin{aligned} \text{Zinc (chronic) Cd} &= [(0.11 \text{ mg/l})(7.06 \text{ cfs} + 70.9 \text{ cfs}) - (0.07 \\ &\quad \text{mg/l})(70.9 \text{ cfs})] / 7.06 \text{ cfs} = 0.51 \text{ mg/l} \end{aligned}$$

Given that all State water quality standards are expressed as never to be exceeded (i.e., water quality-based limits must be protective of the most stringent waste load allocation), a maximum daily limitation (MDL) and a average monthly limitation (AML) for lead and zinc are calculated using the waste load allocations calculated above. It should be noted that the ratio of daily maximum to monthly average for the technology-based effluent limitations for lead and zinc are used to derive the MDL and AML. Specifically, these ratios are 1.6 for lead and 1.0 for zinc.

**Lead** - Since the chronic WLA is more limiting than the acute WLA (i.e., 0.04 mg/l < 0.36 mg/l), it will be used as the basis for limitations. Since the chronic WLA can never be exceeded, 0.04 mg/l is used as the MDL. The AML is calculated as follows:

$$\begin{aligned} &0.04 \text{ mg/l} \\ &\underline{\quad\quad\quad} \quad = 0.03 \text{ mg/l} \\ &\quad 1.6 \end{aligned}$$

**Zinc** - Since the acute WLA is more limiting than the chronic WLA (i.e., 0.29 mg/l < 0.51 mg/l), it will be used as the basis for limitations. Since the acute WLA can never be exceeded, 0.029 mg/l is used as the MDL. The AML is calculated as follows:

$$\begin{aligned} &0.29 \text{ mg/l} \\ &\underline{\quad\quad\quad} \quad = 0.29 \text{ mg/l} \\ &\quad 1.0 \end{aligned}$$

Comparing the chemical specific water quality-based limits calculated above with the technology-based effluent limitations calculated for Outfall 001 (see Section VI above), the water quality-based limits for lead are more stringent than the technology-based limits, so they will be used as the basis for effluent limits in the permit. Since the technology-based effluent limits for zinc are more stringent than the water quality-based

limits, the technology-based effluent limits will be used.

Equivalent end-of-pipe mass effluent limitations are also being established in the draft permit. Using the total Outfall 001 flow (4.563 mgd), mass limitations for lead are calculated as follows:

$$\begin{aligned}\text{MDL} &= (0.04 \text{ mg/l}) (4.563 \times 10^6 \text{ gal/day}) (1 \text{ lb}/454,000 \text{ mg}) (3.785 \text{ l/gal}) \\ &= 1.52 \text{ lbs/day}\end{aligned}$$

$$\begin{aligned}\text{AML} &= (0.03 \text{ mg/l}) (4.563 \times 10^6 \text{ gal/day}) (1 \text{ lb}/454,000 \text{ mg}) (3.785 \text{ l/gal}) \\ &= 1.14 \text{ lbs/day}\end{aligned}$$

### Whole Effluent Toxicity

The previous NPDES permit issued to the Luster Glass facility contained a requirement for conducting monthly acute and chronic toxicity tests during the fourth and fifth year of the permit (March 1988 through February 1989). The test species selected by the facility was the fathead minnow, based on an initial comparison of species sensitivity performed in February 1988. The results of these toxicity tests were reviewed to determine whether an effluent limit on toxicity should be developed for the permit.

The concentration of acute and chronic toxicity in the receiving water is calculated and is then compared to the State water quality standards. The receiving water concentrations for acute and chronic toxicity were calculated using the following formula:

$$Cr = \frac{(Cd)(Qd) + (Cs)(Qs)}{(Qd + Qs)}$$

Where

Cr = receiving water concentration  
Cd = effluent concentration  
Qd = effluent flow  
Cs = receiving water background concentration  
Qs = appropriate receiving water flow

The following summarizes the toxicity data submitted by Luster Glass for the period from March 1988 to February 1989:

Toxicity Data (Fathead minnows)

LC <sub>50</sub> (% effluent)	NOEC (% effluent)
58.0	50
25.2	3
55.0	10
46.3	30
44.8	25
5.9	1
67.8	10
3.9	1
50.1	30
52.0	10
32.1	3
41.7	30

All toxicity testing by Luster Glass involved the use of upstream ambient water for the control and diluent, so that in all calculations, the upstream toxicity is assumed to be zero. The highest result of chronic toxicity measured was an NOEC equal to 1% effluent. By dividing 1 into 100, the NOEC is converted to chronic Toxic Units (TU<sub>c</sub>). Similarly for acute toxicity, the highest acute toxicity was measured at an LC<sub>50</sub> equal to 3.9 % which converts to 25.6 TU<sub>a</sub>.

The resultant receiving water concentration (Cr) in toxic units for both acute and chronic toxicity are calculated using the following data:

$$\begin{aligned}
 Cs &= 0 \\
 Qs &= 23.6 \text{ cfs (one third the 7Q10 for acute protection)} \\
 Qs &= 70.9 \text{ cfs (the 7Q10 for chronic protection)} \\
 Qd &= 7.06 \text{ cfs}
 \end{aligned}$$

Acute

$$\begin{aligned}
 Cr &= (25.6 \text{ TU}_a) (7.06 \text{ cfs}) / (7.06 \text{ cfs} + 23.6 \text{ cfs}) \\
 &= 5.9 \text{ TU}_a
 \end{aligned}$$

Chronic

$$\begin{aligned}
 Cr &= (100 \text{ TU}_c) (7.06 \text{ cfs}) / (7.06 \text{ cfs} + 70.9 \text{ cfs}) \\
 &= 9.1 \text{ TU}_c
 \end{aligned}$$

The State water quality standards for acute and chronic protection are summarized below:

State Water Quality Standard for Acute Protection = 0.3 TU<sub>i</sub>  
State Water Quality Standard for Chronic Protection = 1.0 TU<sub>i</sub>

WET limits would be necessary since the calculated receiving water concentrations exceed the state water quality standards for both acute and chronic protection:

For acute protection 5.9 TU<sub>i</sub> > 0.3 TU<sub>i</sub>  
For chronic protection 9.1 TU<sub>i</sub> > 1.0 TU<sub>i</sub>

Using steady state assumptions, the WLAs were calculated using the following formula:

$$Cd = [Cr(Qd + Qs) - (Cs)(Qs)] / Qd$$

where:

Cd = Concentration of the pollutant in the discharge, or waste load allocation  
Cr = State Water Quality Standard  
for chronic protection = 1.0 TU<sub>i</sub>  
for acute protection = 0.3 TU<sub>i</sub>  
Qd = Discharge flow = 7.06 cfs  
Qs = Appropriate receiving water flow  
chronic flow (7Q10) = 70.9 cfs  
acute flow = 23.6 cfs  
Cs = Receiving water or upstream concentration = 0

Assuming zero background toxicity, the limits are calculated as follows:

$$\begin{aligned} \text{WLA (acute)} &= [(0.3 \text{ TU}_i)(7.06 \text{ cfs} + 23.6 \text{ cfs})] - [(0)(23.6 \text{ cfs})] \\ &\quad \underline{\hspace{10em}} \\ &\quad \quad \quad 7.06 \text{ cfs} \\ &= 1.3 \text{ TU}_i \end{aligned}$$

$$\begin{aligned} \text{WLA (chronic)} &= [(1.0 \text{ TU}_i)(7.06 \text{ cfs} + 70.9 \text{ cfs})] - [(0)(70.9 \text{ cfs})] \\ &\quad \underline{\hspace{10em}} \\ &\quad \quad \quad 7.06 \text{ cfs} \\ &= 11.0 \text{ TU}_i \end{aligned}$$

An acute to chronic ratio (ACR) was calculated from the toxicity data by taking the average ACR from each data set as follows:



<u>LC<sub>50</sub></u> <u>(% effluent)</u>	<u>NOEC</u> <u>(% effluent)</u>	<u>ACR</u>
58.0	50	1.16
25.2	3	8.40
55.0	10	5.50
46.3	30	1.54
44.8	25	1.79
5.9	1	5.9
67.8	10	6.78
3.9	1	3.9
50.1	30	1.67
52.0	10	5.20
32.1	3	10.7
41.7	30	<u>1.39</u>
	Average	4.5

The acute WLA (in TU<sub>a</sub>) are converted to TU<sub>c</sub> using the acute to chronic ratio (ACR) as follows:

$$\begin{aligned}
 \text{WLA (in TU}_{a,c}\text{)} &= 1.3 \text{ TU}_a * \text{ACR} \\
 &= 1.3 \text{ TU}_a * 4.5 \\
 &= 5.9 \text{ TU}_{a,c}
 \end{aligned}$$

Given that all State water quality standards are expressed as never to be exceeded (i.e., water quality-based limits must be protective of the most stringent waste load allocation), a maximum daily limitation (MDL) and a average monthly limitation (AML) for WET were calculated using the waste load allocations calculated above. A ratio of daily maximum to monthly average of 1.6 is assumed for WET based upon technology-based effluent limits for lead.

Since the acute WLA is more limiting than the chronic WLA (i.e.,  $5.9 \text{ TU}_{a,c} < 11.0 \text{ TU}_c$ ), it will be used as the basis for limitations. Since the acute WLA can never be exceeded,  $5.9 \text{ TU}_{a,c}$  is used as the MDL. The AML is calculated as follows:

$$\frac{5.9 \text{ TU}_{a,c}}{1.6} = 3.7 \text{ TU}_c$$

The permittee shall conduct chronic toxicity tests according to methods outlined in "Short Term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms" (EPA 600/4-89 001).

#### **VIII. Proposed Effluent Limitations**

Table 2 summarizes the proposed effluent limitations for Outfall 001. Proposed effluent limitations for zinc are based on BPJ. The limitation for temperature is based on State water quality standards. The proposed limitations for lead were calculated above as chemical specific water quality-based limitations. The remainder of the effluent limitations are based on BPT/BAT effluent guidelines at 40 CFR Part 426 and State effluent standards.

#### **IX. Monitoring Requirements**

Monitoring for those pollutants expected to be present in Outfall 001 (i.e., TSS, oil and grease, phosphorus, lead, and zinc) will be required once per week. Except for oil and grease, for which a grab sample is required, 24-hour composite samples are required. Temperature is to be monitored continuously during discharge.

Whole effluent toxicity testing for chronic toxicity shall be conducted 2/month on a 24-hour composite sample of the final effluent.

#### **X. Special Conditions**

Luster Glass Inc. will be required to update their existing Best Management Practices (BMP) plan to address the potential for leakage of gasoline from Tank Number 42 and nitric acid from the drum storage area. Specifically, Luster Glass Inc. should undertake the following two site-specific BMPs and incorporate them into their plan. First, remedial action must be taken on Tank Number 42 to repair the damaged tank. The gasoline must be transferred to another vessel (e.g., tank truck) while the tank is cleaned, repaired, welded or holes plugged. To prevent environmental damage at this site in the future, the following BMPs should be incorporated into the plan: visual inspection, secondary containment, preventative maintenance, or some combination thereof. Secondly, the drum storage area must be cleaned up by following procedures such as the following: inventory the drums to identify the contents and amounts of chemicals therein; inspect the drums for deterioration or leaks, and segregate and adequately dispose of the leaking or deteriorating drums; remove and adequately dispose of any contaminated soil; neatly stack the remaining drums in a manner to eliminate hazards to humans or the environment by isolating the drums from walkways or roadways, placing them on an impervious pad, covering the storage area, diking the area, moving the storage area away from the stream or some combination thereof.

**XI. Information Sources**

While developing effluent limitations, monitoring requirements, and special conditions for the draft permit, the following information sources were used:

- (1) EPA NPDES Application Forms 1 and 2C dated October 1980 and February 1985, respectively.
- (2) State Effluent Standards, Part 304 of the State Administrative Code, Title 35 - Environmental Protection; Subtitle C - Water Pollution, adopted March 17, 1980.
- (3) Division files related to the Luster Glass Inc. NPDES Permit No. IL0654321.
- (4) State Water Quality Standards, Part 302 of the State Administrative Code, Title 35 - Environmental Protection; Subtitle C - Water Pollution, adopted March 17, 1980.
- (5) EPA Technical Support Document for Water Quality-Based Toxics Control.
- (6) 40 CFR Parts 423, 433, and 426.

TABLE 1  
DISCHARGE MONITORING REPORT  
LUSTER GLASS INC.

March 1988 through February 1989

<u>Date</u>	<u>Flow (mgd)</u>		<u>TSS (lb/d)</u>	<u>Oil &amp; Grease (lb/d)</u>	<u>Phosphorus (lb/d)</u>
	<u>Mon.</u>	<u>Avg. Daily Max.</u>			
03-88	4.575	4.583	180.4	19	14
04-88	4.554	4.567			
05-88	4.552	4.569			
06-88	4.568	4.573	245.2	27	18
07-88	4.585	4.589			
08-88	4.588	4.591			
09-88	4.571	4.581	429.3	88	29
10-88	4.568	4.572			
11-88	4.553	4.573			
12-88	4.551	4.541	308.7	22	15
01-89	4.550	4.561			
02-89	4.560	4.570			

TABLE 1 (Continued)  
DISCHARGE MONITORING REPORT  
LUSTER GLASS INC.

March 1988 through February 1989

<u>Date</u>	<u>pH</u> <u>(S.U.)</u>	<u>Temperature</u> <u>(degrees F)</u>	<u>Zinc</u> <u>(mg/l)</u>	<u>Lead</u> <u>(mg/l)</u>	<u>COD</u> <u>(mg/l)</u>
03-88	6.6	80	0.21	0.10	50
04-88					
05-88					
06-88	7.1	83	0.08	0.17	
07-88					
08-88					
09-88	9.0	78	0.09	0.12	
10-88					
11-88					
12-88	8.1	61	0.06	0.38	
01-89					
02-89					

TABLE 1 (Continued)  
DISCHARGE MONITORING REPORT  
LUSTER GLASS INC.

March 1988 through February 1989

Toxicity Test Data: Unless otherwise indicated, acute toxicity tests were conducted using fathead minnow and reported as 48 hr. LC<sub>50</sub>; chronic toxicity tests were conducted using fathead minnows and reported as 7 day NOEC.

DATE	LC <sub>50</sub> (% effluent)	NOEC (% effluent)
3/88	58.0	50
4/88	25.2	3
5/88	55.0	10
6/88	46.3	30
7/88	44.8	25
8/88	5.9	1
9/88	67.8	10
10/88	3.9	1
11/88	50.1	30
12/88	52.0	10
1/89	32.1	3
2/89	41.7	30

\* Toxicity tests using *Ceriodaphnia dubia* 48 hour survival (acute) and 7 day reproduction (chronic)

TABLE 2  
PROPOSED EFFLUENT LIMITATIONS  
NPDES PERMIT NO. IL0654321

<u>PARAMETER</u>	<u>DAILY MAXIMUM</u>		<u>MONTHLY AVERAGE</u>	
	<u>LBS/DAY</u>	<u>MG/L</u>	<u>LBS/DAY</u>	<u>MG/L</u>
Flow (mgd)	Report	--	Report	--
TSS	451.1	11.86	351.3	9.23
Oil & Grease	104.2	2.74	104.2	2.74
Phosphorous	16.5	0.43	16.5	0.43
pH	a/	--	--	--
Temperature	b/	--	--	--
Total Lead	1.52	0.04	1.14	0.03
Total Zinc	3.75	0.10	3.75	0.10
Whole Effluent Toxicity (WET)	c/	--	c/	--

a/ pH shall be within the range of 6.0 - 9.0 standard units

b/ Not greater than 2.8 degrees Centigrade above ambient, or 1.7 degrees Centigrade above the following maximum limits:

December 1 through March 31 16 deg C (60 deg F)  
April 1 through November 30 32 deg C (90 deg F)

c/ Discharges of effluent with toxicity greater than the following amounts are prohibited: Maximum Daily Chronic Toxicity of 5.9 TU<sub>u</sub> and Average Monthly Chronic Toxicity of 3.7 TU<sub>c</sub>.

## **EXAMPLE RESPONSE TO COMMENTS**



**RESPONSE TO COMMENTS  
FINAL PERMIT DECISION**

This is our response to comments received on the subject draft permit in accordance with regulations promulgated at 40 CFR Part 124.17.

**Permit No.** LA0006181

**Applicant:** Allied Chemical Corporation  
P.O. Box 226  
Geismar, Louisiana 70734

**Issuing Office:** U.S. Environmental Protection Agency  
Region 6  
1445 Ross Avenue  
Dallas, Texas 75202-2733

**Prepared By:** Edward C. McHam, Engineer  
Industrial Permits Section (6W-PI)  
Permits Branch  
Water Management Division  
(214) 655-7180

**Permit Action:** Final permit decision and response to comments received on the draft permit publicly noticed on 7/7/84.

**Date Prepared:** 9/5/84

Unless otherwise stated, citations to 40 CFR refer to promulgated regulations listed at Title 40, Code of Federal Regulations, revised as of 7/1/83.

The following comments have been received on the draft permit:

Letter Dessert (Allied) to Caldwell (EPA) dated 7/30/84

**ISSUE NO. 1**

The draft permit establishes biomonitoring requirements at Outfall 004. The company requests deletion of these requirements.

**RESPONSE NO. 1**

The request is denied.

The permittee states that biomonitoring will be duplicative and unnecessary because:

- (1) EPA has identified the toxic pollutants of concern.
- (2) The proposed permit places BAT limits and monitoring requirements on these pollutants.

- (3) The BAT limits are more restrictive than water quality-based limitations.
- (4) Biomonitoring results could be distorted and masked by the osmotic stress on test organisms exerted by the salts present in an effluent plant effluent.

The biomonitoring method is a standardized method used throughout EPA Region 6 to measure the toxicity of various effluents which contain toxic components. The test is not based on water quality impacts of a specific receiving stream. Under Section 308 of the Clean Water Act, EPA Region 6 has the authority to require permittees to support development of data bases such as those associated with toxics. Therefore, biomonitoring requirements as established in the draft permit are retained in the final permit.



**Chevron Chemical Company**  
PO Box 78, St James LA 70086 • Phone (504) 473 7946

January 12, 1990

D P Teichman  
Plant Manager  
St. James Plant

CERTIFIED MAIL - RETURN RECEIPT # P 965 729 397

Ms. Ellen Caldwell  
Permits Branch (6W-PS)  
U.S. EPA Region VI  
1445 Ross Avenue  
Dallas, TX 75202-2733

SUBJECT: CHEVRON CHEMICAL COMMENTS  
NPDES PERMIT NO. LA0029963

Dear Ms. Caldwell:

We have reviewed draft NPDES Permit No. LA0029963 for Chevron Chemical's St. James Plant issued for public comment by the EPA on December 16, 1989. We have the following comments:

1. As represented in the Fact Sheet (Part VIII. Section C 1), we understand an administrative order will be issued concurrent with the final permit decision. We understand the administrative order will establish interim limits which will be in effect until 2/1/91, when our upgraded effluent treatment plant will be operational. As a result, we have not reviewed, and are not providing comments on the draft permit relative to it being in effect during the interim period (i.e. from final permit issuance to 2/1/91).
2. We want to clarify that the discharge description included in Part V of the Fact Sheet is representative of our current facility discharge. Following completion of our ongoing facility expansion, the concentration of pollutants in our discharge will significantly decrease and the discharge flowrate will increase from current levels. These changes to our discharge were detailed in our submittals to the EPA and have been properly recognized in development of the proposed permit limits.
3. We request that you change the pH of the Outfall 002 from 9.0 to 10.0. The plant's clarified water and firewater is purchased and is lime softened with a pH of 10. This water has a high pH but a low alkalinity and is not hazardous to personnel nor to the environment.

In the last 6 months we have had 2 permit excursions due to these water systems. In the first instance, by simply washing the paved areas of the plant with firewater, we exceeded the 9.0 pH limit. In the second instance, a number of clarified water

JAN 18 1990

UVV-PS

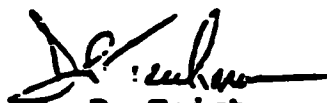
and firewater lines failed due to the hard December freeze. This water overflowed the retention pond and again we had a permit exceedence.

We have developed and have begun implementing a plan to eliminate continuous sources of high pH water currently discharged to our retention pond. This work will be completed by the 1/1/91. We therefore feel that a change of the pH limit on Outfall 002 from 9.0 to 10.0 would not endanger people nor the environment and would eliminate nuisance excursions.

We appreciated receiving the well-organized and readable fact sheet which clearly established the basis for the permit requirements. Although the proposed permit limits are substantially lower than those in our previous permit, we expect to be able to achieve and maintain compliance once our upgraded effluent treatment plant is fully operational.

If you have any questions or wish to discuss our comments further, please do not hesitate to contact me or my staff.

Very truly yours,



D. P. Teichman

LLR/vho

**PRACTICAL EXERCISE**  
**The Administrative Process**

**DIRECTIONS:**

You are a permit writer and have issued an NPDES permit for Luster Glass Inc., a glass manufacturer located on the Illinois River. Luster Glass Inc., unhappy with your work, seeks an administrative appeal of the permit and in so doing, raises the following issues:

- The permit is improperly based on the provisions of 40 CFR Part 426 (Glass Manufacturing Point Source Category);
- The effluent limitations for zinc and lead are calculated incorrectly;
- Luster Glass Inc.'s request to delete the duty to mitigate condition was improperly ignored;
- The weekly monitoring requirements for lead and zinc are excessive; and
- The Agency violated its regulations and established policy by refusing to hold a hearing as requested by Luster Glass Inc.

**QUESTIONS:**

- (1) Assuming Luster Glass Inc.'s appeal is granted, what effect will this have on the effectiveness of the NPDES permit?
- (2) What standard of review should the Hearing Officer use to evaluate the permit?
- (3) You have been called upon to testify on behalf of the Permit Authority. How do you respond to each of the issues raised by Luster Glass Inc.?
  - (a) The improper use of regulations:
  - (b) The calculation of limitations:
  - (c) The inclusion of the duty to mitigate condition:
  - (d) The excessive monitoring requirements:
  - (e) The failure to hold a hearing:
- (4) In addition to this logically organized and undeniably scientific testimony concerning your actions in developing this permit, what other assistance might you be asked to lend to your attorney?
- (5) Once the Hearing Officer has made a decision, what is the next step in the process of getting the Luster Glass permit final and effective?



## **PERMIT WRITERS ON APPEAL**

- **Witness for permit authority**
- **Source of technical knowledge for attorney**
- **Assist in developing cross-examination questions**

**NOTES:**

## **MAJOR MODIFICATIONS**

- 1. Reopener condition**
- 2. Correct technical and legal mistakes**
- 3. Failure to notify interested State**
- 4. New information**
- 5. Alterations justifying new/different conditions**
- 6. New regulations**
- 7. Modification of a compliance schedule (> 120 days)**
- 8. Require POTW to develop pretreatment programs**
- 9. Unsuccessful BPJ treatment installed**
- 10. Address non-limited pollutants**
- 11. Variance request**
- 12. Adjust limits to reflect net pollutant treatment**
- 13. Insert 307(a) toxic or Part 503 sludge use/disposal**
- 14. Establish notification levels**

**NOTES:**



## **MINOR MODIFICATIONS**

- 1. Typographical errors**
- 2. More frequent monitoring**
- 3. Change in interim compliance date (<120 days)**
- 4. Change in ownership**
- 5. Change in construction schedule for new source**
- 6. Deletion of point source outfall**
- 7. Incorporate approved local pretreatment program**

## **PERMIT TERMINATIONS**

- Suspend effectiveness in emergency**
- Terminate for falsifications, recalcitrants or changed conditions**
- Post public notice intentions and offer permittee a hearing**

**NOTES:**

## **APPLICABLE EFFLUENT STANDARDS REVIEW EXERCISE**

- 1. Industrial Facilities are subject to: \_\_\_\_\_**
- 2. POTWs are subject to: \_\_\_\_\_**
- 3. Federal facilities are subject to: \_\_\_\_\_**
- 4. Industrial storm water is subject to: \_\_\_\_\_**
- 5. Municipal storm water is subject to: \_\_\_\_\_**
- 6. Combined sewer overflows are subject to: \_\_\_\_\_**
- 7. New sources are subject to: \_\_\_\_\_**
- 8. New dischargers are subject to: \_\_\_\_\_**

**NOTES:**

Permit No.: IL0654321

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

AUTHORIZATION TO DISCHARGE UNDER THE  
NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM

In compliance with the provisions of the Clean Water Act, as amended, (33 U.S.C. §1251 et seq; the "Act"),

LUSTER GLASS, INC.

is authorized to discharge from a facility located in Morris, Illinois

to receiving waters named the Illinois River

in accordance with discharge point(s), effluent limitations, monitoring requirements and other conditions set forth herein. Authorization for discharge is limited to those outfalls specifically listed in the permit.

This permit shall become effective

August 31, 1989

This permit and the authorization to discharge shall expire at midnight, August 31, 1994.

Signed this            day of

\_\_\_\_\_  
Authorized Permitting Official

Director  
Water Management Division  
\_\_\_\_\_  
Title

## TABLE OF CONTENTS

## Cover Sheet--Issuance and Expiration Dates

## I. Effluent Limitations and Monitoring Requirements

- A. Definitions
- B. Description of Discharge Point
- C. Specific Limitations and Self-Monitoring Requirements  
(Includes Compliance Schedules as Appropriate)

## II. Monitoring, Recording and Reporting Requirements

- A. Representative Sampling
- B. Monitoring Procedures
- C. Penalties for Tampering
- D. Reporting of Monitoring Results
- E. Compliance Schedules
- F. Additional Monitoring by the Permittee
- G. Records Contents
- H. Retention of Records
- I. Twenty-four Hour Notice of Noncompliance Reporting
- J. Other Noncompliance Reporting
- K. Inspection and Entry

## III. Compliance Responsibilities

- A. Duty to Comply
- B. Penalties for Violations of Permit Conditions
- C. Need to Halt or Reduce Activity not a Defense
- D. Duty to Mitigate
- E. Proper Operation and Maintenance
- F. Removed Substances
- G. Bypass of Treatment Facilities
- H. Upset Conditions
- I. Toxic Pollutants
- J. Changes in Discharge of Toxic Substances

## IV. General Requirements

- A. Planned Changes
- B. Anticipated Noncompliance
- C. Permit Actions
- D. Duty to Reapply
- E. Duty to Provide Information
- F. Other Information
- G. Signatory Requirements
- H. Penalties for Falsification of Reports
- I. Availability of Reports
- J. Oil and Hazardous Substance Liability
- K. Coast Guard
- L. Property Rights
- M. Severability
- N. Transfers
- O. State Laws
- P. Water Quality Standard Requirements-Reopener Provision
- Q. Toxicity Reopener Provision

## V. Special Requirements

- A. Best Management Practices (BMP) Plan
- B. BMP Implementation
- C. Site-Specific BMPs

**I. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS****A. Definitions.**

1. The "30-day (and monthly) average," other than for fecal coliform bacteria and total coliform bacteria, is the arithmetic average of all samples collected during a consecutive 30-day period or calendar month, whichever is applicable. Geometric means shall be calculated for fecal coliform bacteria and total coliform bacteria. The calendar month shall be used for purposes of reporting self-monitoring data on discharge monitoring report forms.
2. The "7-day (and weekly) average," other than for fecal coliform bacteria and total coliform bacteria, is the arithmetic mean of all samples collected during a consecutive 7-day period or calendar week, whichever is applicable. Geometric means shall be calculated for fecal coliform bacteria and total coliform bacteria. The 7-day and weekly averages are applicable only to those effluent characteristics for which there are 7-day average effluent limitations. The calendar week which begins on Sunday and ends on Saturday, shall be used for purposes of reporting self-monitoring data on discharge monitoring report forms. Weekly averages shall be calculated for all calendar weeks with Saturdays in the month. If a calendar week overlaps two months (i.e., the Sunday is in one month and the Saturday in the following month), the weekly average calculated for that calendar week shall be included in the data for the month that contains the Saturday.
3. "Daily Maximum" ("Daily Max.") is the maximum value allowable in any single sample or instantaneous measurement.
4. "Composite samples" shall be flow proportioned. The composite sample shall, as a minimum, contain at least four (4) samples collected over the compositing period. Unless otherwise specified, the time between the collection of the first sample and the last sample shall not be less than six (6) hours nor more than 24 hours. Acceptable methods for preparation of composite samples are as follows:
  - a. Constant time interval between samples, sample volume proportional to flow rate at time of sampling;
  - b. Constant time interval between samples, sample volume proportional to total flow (volume) since last sample. For the first sample, the flow rate at the time the sample was collected may be used;
  - c. Constant sample volume, time interval between samples proportional to flow (i.e., sample taken every "X" gallons of flow); and,
  - d. Continuous collection of sample, with sample collection rate proportional to flow rate.
5. A "grab" sample, for monitoring requirements, is defined as a single "dip and take" sample collected at a representative point in the discharge stream.

PART I

Page 4 of 19

Permit No.: IL0654321

6. An "instantaneous" measurement, for monitoring requirements, is defined as a single reading, observation, or measurement.
7. "Upset" means an exceptional incident in which there is unintentional and temporary noncompliance with technology-based permit effluent limitations because of factors beyond the reasonable control of the permittee. An upset does not include noncompliance to the extent caused by operational error, improperly designed treatment facilities, inadequate treatment facilities, lack of preventive maintenance, or careless or improper operation.
8. "Bypass" means the intentional diversion of waste streams from any portion of a treatment facility.
9. "Severe property damage" means substantial physical damage to property, damage to the treatment facilities which causes them to become inoperable, or substantial and permanent loss of natural resources which can reasonably be expected to occur in the absence of a bypass. Severe property damage does not mean economic loss caused by delays in production.
10. "Director" means Director of the United States Environmental Protection Agency's Water Management Division.
11. "EPA" means the United States Environmental Protection Agency.
12. "Sewage Sludge" is any solid, semi-solid or liquid residue that contains materials removed from domestic sewage during treatment. Sewage sludge includes, but is not limited to, primary and secondary solids and sewage sludge products.
13. "Acute Toxicity" occurs when 50 percent or more mortality is observed for either test species (See Part I.C.) at any effluent concentration. Mortality in the control must simultaneously be 10 percent or less for the effluent results to be considered valid.
14. "Chronic Toxicity" occurs when the survival, growth, or reproduction, as applicable, for either test species, at the effluent dilution(s) designated in this permit (see Part I.C.), is significantly less (at the 95 percent confidence level) than that observed for the control specimens.

**B. Description of Discharge Points**

The authorization to discharge provided under this permit is limited to those outfalls specifically designated below as discharge locations. Discharges at any location not authorized under an NPDES permit is a violation of the Clean Water Act and could subject the person(s) responsible for such discharge to penalties under Section 309 of the Act. Knowingly discharging from an unauthorized location or failing to report an unauthorized discharge within a reasonable time from first learning of an unauthorized discharge could subject such person to criminal penalties as provided under the Clean Water Act.

**Outfall  
Serial Number****Description of Discharge Point**

001

Discharge of effluent from the wastewater treatment oil/water separator and settling basins, and cooling tower blowdown to the Illinois River.

**C. Specific Limitations and Self-Monitoring Requirements****1. Effluent Limitations (Outfall 001)**

Effective immediately and lasting through the life of the permit, the permittee is authorized to discharge from Outfall 001. Such discharges shall be limited by the permittee as specified below:

<b><u>Effluent Parameter</u></b>	<b><u>30-Day a/ Average</u></b>	<b><u>Daily a/ Maximum</u></b>
Flow, MGD	N/A	N/A
Total Suspended Solids, lb/day	351.3	451.1
mg/l	9.23	11.86
Oil and Grease, lb/day	104.2	104.2
mg/l	2.74	2.74
Total Phosphorus, lb/day	16.5	16.5
mg/l	0.43	0.43
Total Zinc, lb/day	3.75	3.75
mg/l	0.1	0.1
Total Lead, lb/day	1.14	1.52
mg/l	0.03	0.04
Whole Effluent Toxicity (WET), TU, <u>b/</u>	3.7	5.9
pH, s.u.	<u>c/</u>	<u>c/</u>
Temperature	<u>d/</u>	<u>d/</u>

There shall be no discharge of floating solids or visible foam in other than trace amounts.

---

a/ See Definitions, Part I.A. for definition of terms.

b/ The permittee shall demonstrate compliance with WET requirements specified in Part I.C.3 of this permit.

c/ pH shall not be less than 6.0 s.u. nor greater than 9.0 s.u.

d/ Temperature shall not be greater than 2.8 degrees Centigrade above ambient, or 1.7 degrees Centigrade above the following maximum limits: from December 1 through March 31, 16 degrees Centigrade (60 degrees Fahrenheit) and from April 1 through November 30, 32 degrees Centigrade (90 degrees Fahrenheit).



C. Specific Limitations and Self-Monitoring Requirements (Cont.)

## 2. Self-Monitoring Requirements (Outfall 001)

As a minimum, upon the effective date of this permit, the following constituents shall be monitored at the frequency and with the type of measurement indicated; samples or measurements shall be representative of the volume and nature of the monitored discharge. If no discharge occurs during the entire monitoring period, it shall be stated on the Discharge Monitoring Report Form (EPA No. 3320-1) that no discharge or overflow occurred.

<u>Effluent Parameter</u>	<u>Frequency</u>	<u>Sample Type a/</u>
Flow, MGD <u>b/</u>	Daily	Instantaneous or Continuous
Temperature	Daily	Continuous
Total Suspended Solids	Weekly	24-Hour Composite
Oil and Grease	Weekly	Grab
Total Phosphorus	Weekly	24-Hour Composite
Total Zinc	Weekly	24-Hour Composite
Total Lead	Weekly	24-Hour Composite
Whole Effluent Toxicity (WET), Chronic	2/Month	24-Hour Composite
pH	Daily	Continuous or Grab

---

Sampling by the permittee for compliance with the monitoring requirements specified above shall be performed at the following location(s): within 100 feet of Outfall 001 to the Illinois River.

a/ See definitions, Part I.A.

b/ Flow measurements of effluent volume shall be made in such a manner that the permittee can affirmatively demonstrate that representative values are being obtained.

**C. Specific Limitations and Self-Monitoring Requirements (Cont.)****3. Whole Effluent Toxicity Testing - Chronic Toxicity**

Starting the effective date of this permit, the permittee shall conduct biweekly chronic toxicity tests on a 24 hour composite sample of the final effluent. If chronic toxicity is detected, the permittee shall conduct a Toxicity Reduction Evaluation, according to specifications in Part I.C.4 of this permit. Test species shall consist of *Pimephales promelas* (Fathead minnows). The chronic toxicity tests shall be conducted in general accordance with the procedures set out in the latest revision of "Short-Term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms", EPA/600-4-89-001. If control mortality exceeds 20 percent, the test shall be considered invalid. Chronic toxicity occurs when the No Observed Effect Concentrations (NOECs) (calculated within a 95 percent confidence interval) exceed(s) the permit limit(s). Test results shall be reported along with the Discharge Monitoring Report (DMR) submitted for the end of the calendar period during which the whole effluent test was run. The report shall include all the physical testing as specified and shall report test conditions, including temperature, pH, conductivity, mortality, total residual chlorine concentration, control mortality, and statistical methods used to calculate an NOEC.

If the results for one year (26 consecutive weeks) of whole effluent testing indicate no chronic toxicity, the permittee may request the permit issuing authority to allow the permittee to reduce testing frequency. The permit issuing authority may approve, partially approve, or deny the request based on results and other available information.

**4. Toxicity Reduction Evaluation (TRE)**

If the permittee fails to meet toxicity requirements specified in this permit, the permit issuing authority shall determine that a TRE is necessary. The permittee shall be so notified and shall initiate a TRE immediately thereafter. The TRE shall include a TRE Test Plan that must be submitted to the permitting authority within 60 days after notification of a TRE requirement. The permitting authority will then establish a deadline for compliance. The purpose of the TRE will be to establish the cause of the toxicity, locate the source(s) of the toxicity, and control or provide treatment for the toxicity prior to the deadline.

If acceptable to the permit issuing authority, this permit may be reopened and modified to incorporate any additional numerical limitations, a modified compliance schedule if judged necessary by the permit issuing authority, and/or a modified whole effluent protocol.

Failure to conduct an adequate TRE, or failure to submit a plan or program as described above, or the submittal of a plan or program judged inadequate by the permit issuing authority, shall in no way relieve the permittee from the deadline for compliance contained in this permit.

## II. MONITORING, RECORDING AND REPORTING REQUIREMENTS

- A. Representative Sampling. Samples taken in compliance with the monitoring requirements established under Part I shall be collected from the effluent stream prior to discharge into the receiving waters. Samples and measurements shall be representative of the volume and nature of the monitored discharge.
- B. Monitoring Procedures. Monitoring must be conducted according to test procedures approved under 40 CFR Part 136, unless other test procedures have been specified in this permit.
- C. Penalties for Tampering. The Act provides that any person who falsifies, tampers with, or knowingly renders inaccurate, any monitoring device or method required to be maintained under this permit shall, upon conviction, be punished by a fine of not more than \$10,000 per violation, or by imprisonment for not more than two years per violation, or by both.
- D. Reporting of Monitoring Results. Effluent monitoring results obtained during the previous month(s) shall be summarized for each month and reported on a Discharge Monitoring Report Form (EPA No. 3320-1), postmarked no later than the 28th day of the month following the completed reporting period. If no discharge occurs during the reporting period, "no discharge" shall be reported. Until further notice, sludge monitoring results may be reported in the testing laboratory's normal format (there is no EPA standard form at this time), but should be on letter size pages. Legible copies of these, and all other reports required herein, shall be signed and certified in accordance with the Signatory Requirements (see Part IV), and submitted to the Director, Water Management Division and the State water pollution control agency at the following addresses:
- original to: United States Environmental Protection Agency  
Attention: Water Management Division  
Compliance Branch
- copy to: State Department of Health  
Attention: Permits and Enforcement
- E. Compliance Schedules. Reports of compliance or noncompliance with, or any progress reports on interim and final requirements contained in any Compliance Schedule of this permit shall be submitted no later than 14 days following each schedule date.
- F. Additional Monitoring by the Permittee. If the permittee monitors any pollutant more frequently than required by this permit, using test procedures approved under 40 CFR 136 or as specified in this permit, the results of this monitoring shall be included in the calculation and reporting of the data submitted in the DMR. Such increased frequency shall also be indicated.
- G. Records Contents. Records of monitoring information shall include:
1. The date, exact place, and time of sampling or measurements;
  2. The initials or name(s) of the individual(s) who performed the sampling or measurements;
  3. The date(s) analyses were performed;
  4. The time(s) analyses were initiated;

5. The initials or name(s) of individual(s) who performed the analyses;
6. References and written procedures, when available, for the analytical techniques or methods used; and,
7. The results of such analyses, including the bench sheets, instrument readouts, computer disks or tapes, etc., used to determine these results.

H. Retention of Records. The permittee shall retain records of all monitoring information, including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation, copies of all reports required by this permit, and records of all data used to complete the application for this permit, for a period of at least three years from the date of the sample, measurement, report or application. This period may be extended by request of the Director at any time. Data collected on site, copies of Discharge Monitoring Reports, and a copy of this NPDES permit must be maintained on site during the duration of activity at the permitted location.

I. Twenty-four Hour Notice of Noncompliance Reporting.

1. The permittee shall report any noncompliance which may seriously endanger health or the environment as soon as possible, but no later than twenty-four (24) hours from the time the permittee first became aware of the circumstances. The report shall be made to the EPA Emergency Response Branch at (312) 293-1788 and the State at (312) 370-9395.
2. The following occurrences of noncompliance shall be reported by telephone to the EPA Compliance Branch at (312) 293 1589 and the State at (312) 331-4590 by the first workday (8:00 a.m. - 4:30 p.m.) following the day the permittee became aware of the circumstances:
  - a. Any unanticipated bypass which exceeds any effluent limitation in the permit (See Part III.G., Bypass of Treatment Facilities.);
  - b. Any upset which exceeds any effluent limitation in the permit (See Part III.H., Upset Conditions.); or,
  - c. Violation of a maximum daily discharge limitation for any of the pollutants listed in the permit to be reported within 24 hours.
3. A written submission shall also be provided within five days of the time that the permittee becomes aware of the circumstances. The written submission shall contain:
  - a. A description of the noncompliance and its cause;
  - b. The period of noncompliance, including exact dates and times;
  - c. The estimated time noncompliance is expected to continue if it has not been corrected; and,
  - d. Steps taken or planned to reduce, eliminate, and prevent reoccurrence of the noncompliance.

PART II

Page 11 of 19

Permit No.: IL0654321

4. The Director may waive the written report on a case-by-case basis if the oral report has been received within 24 hours by the Compliance Branch, Water Management Division by phone, (312) 293-1589.
5. Reports shall be submitted to the addresses in Part II.D., Reporting of Monitoring Results.
- J. Other Noncompliance Reporting. Instances of noncompliance not required to be reported within 24 hours shall be reported at the time that monitoring reports for Part II.D. are submitted. The reports shall contain the information listed in Part II.I.2.
- K. Inspection and Entry. The permittee shall allow the Director, or an authorized representative, upon the presentation of credentials and other documents as may be required by law, to:
  1. Enter upon the permittee's premises where a regulated facility or activity is located or conducted, or where records must be kept under the conditions of this permit;
  2. Have access to and copy, at reasonable times, any records that must be kept under the conditions of this permit;
  3. Inspect at reasonable times any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required under this permit; and,
  4. Sample or monitor at reasonable times, for the purpose of assuring permit compliance or as otherwise authorized by the Act, any substances or parameters at any location.

## III. COMPLIANCE RESPONSIBILITIES

- A. Duty to Comply. The permittee must comply with all conditions of this permit. Any permit noncompliance constitutes a violation of the Act and is grounds for enforcement action; for permit termination, revocation and reissuance, or modification; or for denial of a permit renewal application. The permittee shall give the Director advance notice of any planned changes at the permitted facility or of an activity which may result in permit noncompliance.
- B. Penalties for Violations of Permit Conditions. The Act provides that any person who violates a permit condition implementing Sections 301, 302, 306, 307, 308, 318, or 405 of the Act is subject to a civil penalty not to exceed \$25,000 per day of such violation. Any person who willfully or negligently violates permit conditions implementing Sections 301, 302, 306, 307, or 308 of the Act is subject to a fine of not less than \$5,000, nor more than \$50,000 per day of violation, or by imprisonment for not more than 3 years, or both. Except as provided in permit conditions in Part III.G., Bypass of Treatment Facilities and Part III.H., Upset Conditions, nothing in this permit shall be construed to relieve the permittee of the civil or criminal penalties for noncompliance.
- C. Need to Halt or Reduce Activity not a Defense. It shall not be a defense for a permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit.
- D. Duty to Mitigate. The permittee shall take all reasonable steps to minimize or prevent any discharge in violation of this permit which has a reasonable likelihood of adversely affecting human health or the environment.
- E. Proper Operation and Maintenance. The permittee shall at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used by the permittee to achieve compliance with the conditions of this permit. Proper operation and maintenance also includes adequate laboratory controls and appropriate quality assurance procedures. This provision requires the operation of back-up or auxiliary facilities or similar systems which are installed by a permittee only when the operation is necessary to achieve compliance with the conditions of the permit. However, the permittee shall operate, as a minimum, one complete set of each main line unit treatment process whether or not this process is needed to achieve permit effluent compliance.
- F. Removed Substances. Collected screenings, grit, solids, sludges, or other pollutants removed in the course of treatment shall be buried or disposed of in such a manner so as to prevent any pollutant from entering any waters of the state or creating a health hazard. Filter backwash shall not be directly blended with or enter either the final plant discharge and/or waters of the United States.
- G. Bypass of Treatment Facilities:
1. Bypass not exceeding limitations. The permittee may allow any bypass to occur which does not cause effluent limitations to be exceeded, but only if it also is for essential maintenance to assure efficient operation. These bypasses are not subject to the provisions of paragraphs 2. and 3. of this section.

2. Notice:

- a. Anticipated bypass. If the permittee knows in advance of the need for a bypass, it shall submit prior notice, if possible at least 60 days before the date of the bypass.
- b. Unanticipated bypass. The permittee shall submit notice of an unanticipated bypass as required under Part II.I., Twenty-four Hour Reporting.

3. Prohibition of bypass.

- a. Bypass is prohibited and the Director may take enforcement action against a permittee for a bypass, unless:
  - (1) The bypass was unavoidable to prevent loss of life, personal injury, or severe property damage;
  - (2) There were no feasible alternatives to the bypass, such as the use of auxiliary treatment facilities, retention of untreated wastes, or maintenance during normal periods of equipment downtime. This condition is not satisfied if adequate back-up equipment should have been installed in the exercise of reasonable engineering judgement to prevent a bypass which occurred during normal periods of equipment downtime or preventive maintenance; and,
  - (3) The permittee submitted notices as required under paragraph 2. of this section.
- b. The Director may approve an anticipated bypass, after considering its adverse effects, if the Director determines that it will meet the three conditions listed above in paragraph 3.a. of this section.

H. Upset Conditions.

1. Effect of an upset. An upset constitutes an affirmative defense to an action brought for noncompliance with technology based permit effluent limitations if the requirements of paragraph 2. of this section are met. No determination made during administrative review of claims that noncompliance was caused by upset, and before an action for noncompliance, is final administrative action subject to judicial review (i.e., Permittees will have the opportunity for a judicial determination on any claim of upset only in an enforcement action brought for noncompliance with technology-based permit effluent limitations).
2. Conditions necessary for a demonstration of upset. A permittee who wishes to establish the affirmative defense of upset shall demonstrate, through properly signed, contemporaneous operating logs, or other relevant evidence that:
  - a. An upset occurred and that the permittee can identify the cause(s) of the upset;
  - b. The permitted facility was at the time being properly operated;
  - c. The permittee submitted notice of the upset as required under Part II.I., Twenty-four Hour Notice of Noncompliance Reporting; and,
  - d. The permittee complied with any remedial measures required under Part III.D., Duty to Mitigate.

PART III

Page 14 of 19

Permit No.: IL0654321

3. **Burden of proof.** In any enforcement proceeding, the permittee seeking to establish the occurrence of an upset has the burden of proof.
- I. **Toxic Pollutants.** The permittee shall comply with effluent standards or prohibitions established under Section 307(a) of the Act for toxic pollutants within the time provided in the regulations that establish those standards or prohibitions, even if the permit has not yet been modified to incorporate the requirement.
- J. **Changes in Discharge of Toxic Substances.** Notification shall be provided to the Director as soon as the permittee knows of, or has reason to believe:
  1. That any activity has occurred or will occur which would result in the discharge, on a routine or frequent basis, of any toxic pollutant which is not limited in the permit, if that discharge will exceed the highest of the following "notification levels":
    - a. One hundred micrograms per liter (100 ug/L);
    - b. Two hundred micrograms per liter (200 ug/L) for acrolein and acrylonitrile; five hundred micrograms per liter (500 ug/L) for 2,4-dinitrophenol and for 2-methyl-4, 6-dinitrophenol; and one milligram per liter (1 mg/L) for antimony;
    - c. Five (5) times the maximum concentration value reported for that pollutant in the permit application in accordance with 40 CFR 122.21(g)(7); or,
    - d. The level established by the Director in accordance with 40 CFR 122.44(f).
  2. That any activity has occurred or will occur which would result in any discharge, on a non-routine or infrequent basis, of a toxic pollutant which is not limited in the permit, if that discharge will exceed the highest of the following "notification levels":
    - a. Five hundred micrograms per liter (500 ug/L);
    - b. One milligram per liter (1 mg/L) for antimony;
    - c. Ten (10) times the maximum concentration value reported for that pollutant in the permit application in accordance with 40 CFR 122.21(g)(7); or,
    - d. The level established by the Director in accordance with 40 CFR 122.44(f).



## IV. GENERAL REQUIREMENTS

- A. Planned Changes. The permittee shall give notice to the Director as soon as possible of any planned physical alterations or additions to the permitted facility. Notice is required only when:
1. The alteration or addition to a permitted facility may meet one of the criteria for determining whether a facility is a new source as determined in 40 CFR 122.29(b); or
  2. The alteration or addition could significantly change the nature or increase the quantity of pollutants discharged. This notification applies to pollutants which are subject neither to effluent limitations in the permit, nor to notification requirements under Part IV.A.1.
- B. Anticipated Noncompliance. The permittee shall give advance notice of any planned changes in the permitted facility or activity which may result in noncompliance with permit requirements.
- C. Permit Actions. This permit may be modified, revoked and reissued, or terminated for cause. The filing of a request by the permittee for a permit modification, revocation and reissuance, or termination, or a notification of planned changes or anticipated noncompliance, does not stay any permit condition.
- D. Duty to Reapply. If the permittee wishes to continue an activity regulated by this permit after the expiration date of this permit, the permittee must apply for and obtain a new permit. The application should be submitted at least 180 days before the expiration date of this permit.
- E. Duty to Provide Information. The permittee shall furnish to the Director, within a reasonable time, any information which the Director may request to determine whether cause exists for modifying, revoking and reissuing, or terminating this permit, or to determine compliance with this permit. The permittee shall also furnish to the Director, upon request, copies of records required to be kept by this permit.
- F. Other Information. When the permittee becomes aware that it failed to submit any relevant facts in a permit application, or submitted incorrect information in a permit application or any report to the Director, it shall promptly submit such facts or information.
- G. Signatory Requirements. All applications, reports or information submitted to the Director shall be signed and certified.
1. All permit applications shall be signed as follows:
    - a. For a corporation: by a responsible corporate officer;
    - b. For a partnership or sole proprietorship: by a general partner or the proprietor, respectively;
    - c. For a municipality, State, Federal, or other public agency: by either a principal executive officer or ranking elected official.
  2. All reports required by the permit and other information requested by the Director shall be signed by a person described above or by a duly authorized representative of that person. A person is a duly authorized representative only if:
    - a. The authorization is made in writing by a person described above and submitted to the Director, and,

b. The authorization specified either an individual or a position having responsibility for the overall operation of the regulated facility or activity, such as the position of plant manager, operator of a well or a well field, superintendent, position of equivalent responsibility, or an individual or position having overall responsibility for environmental matters for the company. (A duly authorized representative may thus be either a named individual or any individual occupying a named position.)

3. Changes to authorization. If an authorization under paragraph IV.G.2. is no longer accurate because a different individual or position has responsibility for the overall operation of the facility, a new authorization satisfying the requirements of paragraph IV.G.2. must be submitted to the Director prior to or together with any reports, information, or applications to be signed by an authorized representative.

4. Certification. Any person signing a document under this section shall make the following certification:

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

H. Penalties for Falsification of Reports. The Act provides that any person who knowingly makes any false statement, representation, or certification in any record or other document submitted or required to be maintained under this permit, including monitoring reports or reports of compliance or noncompliance shall, upon conviction be punished by a fine of not more than \$10,000 per violation, or by imprisonment for not more than two years per violation, or by both.

I. Availability of Reports. Except for data determined to be confidential under 40 CFR Part 2, all reports prepared in accordance with the terms of this permit shall be available for public inspection at the offices of the State water pollution control agency and the Director. As required by the Act, permit applications, permits and effluent data shall not be considered confidential.

J. Oil and Hazardous Substance Liability. Nothing in this permit shall be construed to preclude the institution of any legal action or relieve the permittee from any responsibilities, liabilities, or penalties to which the permittee is or may be subject under Section 311 of the Act.

K. Coast Guard. If the Permittee operates its facility at certain times as a means of transportation over water, the Permittee shall comply with any applicable regulations promulgated by the Secretary of the department in which the Coast Guard is operating, that establish specifications for safe transportation, handling, carriage, and storage of pollutants.

L. Property Rights. The issuance of this permit does not convey any property rights of any sort, or any exclusive privileges, nor does it authorize any injury to private property or any invasion of personal rights, nor any infringement of federal, state or local laws or regulations.

- M. **Severability.** The provisions of this permit are severable, and if any provision of this permit, or the application of any provision of this permit to any circumstance, is held invalid, the application of such provision to other circumstances, and the remainder of this permit, shall not be affected thereby.
- N. **Transfers.** This permit may be automatically transferred to a new permittee if:
1. The current permittee notifies the Director at least 30 days in advance of the proposed transfer date;
  2. The notice includes a written agreement between the existing and new permittees containing a specific date for transfer of permit responsibility, coverage, and liability between them; and,
  3. The Director does not notify the existing permittee and the proposed new permittee of his or her intent to modify, or revoke and reissue the permit. If this notice is not received, the transfer is effective on the date specified in the agreement mentioned in paragraph 2. above.
- O. **State Laws.** Nothing in this permit shall be construed to preclude the institution of any legal action or relieve the permittee from any responsibilities, liabilities, or penalties established pursuant to any applicable state law or regulation under authority preserved by Section 510 of the Act.
- P. **Reopener Provision.** This permit may be reopened and modified (following proper administrative procedures) to include the appropriate effluent limitations (and compliance schedule, if necessary), or other appropriate requirements if one or more of the following events occurs:
1. **Water Quality Standards:** The water quality standards of the receiving water(s) to which the permittee discharges are modified in such a manner as to require different effluent limits than contained in this permit.
  2. **Wasteload Allocation:** A wasteload allocation is developed and approved by the State and/or EPA for incorporation in this permit.
  3. **Water Quality Management Plan:** A revision to the current water quality management plan is approved and adopted which calls for different effluent limitations than contained in this permit.

PART IV

Page 18 of 19

Permit No.: IL0654321

Q. Toxicity Limitation-Reopener Provision. This permit may be reopened and modified (following proper administrative procedures) to include a new compliance date, additional or modified numerical limitations, a new or different compliance schedule, a change in the whole effluent protocol, or any other conditions related to the control of toxicants if one or more of the following events occur:

1. Toxicity was detected late in the life of the permit near or past the deadline for compliance.
2. The TRE results indicate that compliance with the toxic limits will require an implementation schedule past the date for compliance and the permit issuing authority agrees with the conclusion.
3. The TRE results indicate that the toxicant(s) represent pollutant(s) that may be controlled with specific numerical limits, and the permit issuing authority agrees that numerical controls are the most appropriate course of action.
4. Following the implementation of numerical controls on toxicants, the permit issuing authority agrees that a modified whole effluent protocol is necessary to compensate for those toxicants that are controlled numerically.
5. The TRE reveals other unique conditions or characteristics which, in the opinion of the permit issuing authority, justify the incorporation of unanticipated special conditions in the permit.

**V. SPECIAL REQUIREMENTS**

**A. Best Management Practices (BMP) Plan**

A BMP plan shall be developed within six months of permit reissuance, addressing each of the nine specific requirements described in the June 1981 EPA document, NPDES BMP Guidance Document. Emphasis shall be placed on good housekeeping practices, visual inspection, and preventative maintenance.

The BMP plan shall be written up and delivered to the U.S. Environmental Protection Agency no later than February 5, 1990.

**B. BMP Implementation**

The BMP plan shall be fully implemented within twelve months of permit reissuance. An implementation report shall be delivered to the U.S. Environmental Protection Agency no later than August 5, 1990.

**C. Site-Specific BMPs**

The following site-specific BMPs shall be included:

1. Tank Number 42: Remedial action is required to repair the damaged tank. This shall include transfer of the contents to another vessel (e.g., tank truck), cleaning the tank, and repairing, welding, or plugging the hole. To prevent environmental damage in the future, secondary containment is required. Monthly visual inspections and/or preventative maintenance shall be conducted.
2. Drum Storage Area: The drums shall be inventoried to identify the contents and amounts of chemicals therein. The drums shall be inspected for deterioration or leaks. They shall be segregated and any leaking or deteriorating drums shall be disposed of or repaired. Any contaminated soil shall be removed and adequately disposed of. The remaining drums shall be neatly stacked in a manner to eliminate hazards to humans or the environment by isolating the drums from walkways or roadways, placing them on an impervious pad, covering the storage area, diking the area, moving the storage area away from the river, or some combination thereof.

## **Example Permit**



**STATE OF CONNECTICUT  
DEPARTMENT OF ENVIRONMENTAL PROTECTION**



**NPDES PERMIT**

The Upjohn Company  
410 Sackett Point Road  
North Haven, Conn. 06473

Re: DEP/WPC-101-038  
City of North Haven  
Quinnipiac River Watershed

Attention: Mr. Robert T. Campaigne

This permit is issued in accordance with Section 22a-430 of Chapter 446k, Connecticut General Statutes, and regulation adopted thereunder, as amended and Section 402(b) of the Clean Water Act, as amended, 33 USC 1251, et. seq., and pursuant to an approval dated September 26, 1973, by the Administrator of the United States Environmental Protection Agency for the State of Connecticut to administer a N.P.D.E.S. permit program.

Your application for permit reissuance submitted by Upjohn Company on January 31, 1986, has been reviewed by the Connecticut Department of Environmental Protection.

The Commissioner, acting under Section 22a-430, hereby permits the Upjohn Company to discharge treated wastewaters from organic chemical manufacturing and pharmaceutical manufacturing in accordance with the following conditions:

1. The wastewater shall be collected, treated and discharged in accordance with the above referenced application and all approvals issued by the Commissioner or his agent for the discharges and/or activities authorized by or associated with this permit.
2. The discharges shall not exceed and shall otherwise conform to specific terms and conditions listed below. The discharges shall be monitored and results reported to the Water Management Bureau (Attn: DMR Processing) by the end of the month after the month in which samples are taken according to the following schedule:
  - A. Discharge Serial No. 001      MON LOC 1  
Description: Treated process & laboratory wastewaters, cooling tower overflow/backflush, groundwater & rainwater  
(Code 1010420)  
Receiving Stream: Quinnipiac River      (Basin Code 5200)  
Present/Future Water Quality Standard: SC/SB  
Average Daily Flow: 570,000 gallons per day  
Maximum Daily Flow: 750,000 gallons per day

<b>Parameter</b>	<b>Code</b>	<b>Average Monthly Limits</b>	<b>Maximum Daily Limits</b>	<b>Minimum Frequency of Sampling</b>	<b>Sample Type</b>
Chemical Oxygen Demand	81017-019	300.0 mg/l	500.0 mg/l	12 per mo.	Daily Composite
Chemical Oxygen Demand	81017-001	648.0 kg/d	1080.0 kg/d		
Biochemical Oxygen Demand	00318-019	43.0 mg/l	115.0 mg/l	12 per mo.	Daily Composite
Biochemical Oxygen Demand	00318-001	92.8 kg/d	248.0 kg/d		
Total Suspended Solids	00530-019	50.0 mg/l	175.0 mg/l	12 per mo.	Daily Composite
Total Suspended Solids	00530-001	108.0 kg/d	378.0 kg/d		
Acenaphthene	34205-019	.021 mg/l	.056 mg/l	Annually	Daily Composite
Acenaphthene	34205-001	0.04 kg/d	0.12 kg/d		
Acrylonitrile	34215-019	.092 mg/l	.232 mg/l	Annually	Grab Sample Average
Acrylonitrile	34215-001	0.19 kg/d	0.50 kg/d		
Benzene	34030-019	.035 mg/l	.130 mg/l	Weekly	Grab Sample Average
Benzene	34030-001	0.07 kg/d	0.28 kg/d		
Carbon Tetrachloride	32102-019	.017 mg/l	.036 mg/l	Annually	Grab Sample Average
Carbon Tetrachloride	32102-001	0.04 kg/d	0.07 kg/d		
Chlorobenzene	34301-019	.014 mg/l	.020 mg/l	Weekly	Grab Sample Average
Chlorobenzene	34301-001	0.03 kg/d	0.04 kg/d		
1,2,4-Trichlorobenzene	34551-019	.065 mg/l	.134 mg/l	Annually	Daily Composite
1,2,4-Trichlorobenzene	34551-001	0.14 kg/d	0.29 kg/d		
Hexachlorobenzene	39700-019	.014 mg/l	.026 mg/l	Annually	Daily Composite
Hexachlorobenzene	39700-001	0.03 kg/d	0.06 kg/d		
Hexachloroethane	34396-019	.020 mg/l	.051 mg/l	Annually	Daily Composite
Hexachloroethane	34396-001	0.04 kg/d	0.11 kg/d		
1,2-Dichloroethane	32103-019	.065 mg/l	.202 mg/l	Weekly	Grab Sample Average
1,2-Dichloroethane	32103-001	0.14 kg/d	0.44 kg/d		
1,1,1 Trichloroethane	34506-019	.020 mg/l	.051 mg/l	Annually	Grab Sample Average
1,1,1 Trichloroethane	34506-001	0.04 kg/d	0.11 kg/d		
Chloroethane	34311-019	.099 mg/l	.257 mg/l	Annually	Grab Sample Average
Chloroethane	34311-001	2.14 kg/d	0.55 kg/d		
Chloroform	32106-019	.020 mg/l	.044 mg/l	Annually	Grab Sample Average
Chloroform	32106-001	0.04 kg/d	0.09 kg/d		
2-Chlorophenol	34586-019	.029 mg/l	.094 mg/l	Weekly	Grab Sample Average
2-Chlorophenol	34586-001	0.06 kg/d	0.20 kg/d		
1,2-Dichlorobenzene	34536-019	.010 mg/l	.020 mg/l	Weekly	Grab Sample Average
1,2-Dichlorobenzene	34536-001	0.02 kg/d	0.04 kg/d		



1,3-Dichloro-benzene	34566-019	.029 mg/l	.042 mg/l	Weekly	Grab Sample Average
1,3-Dichloro-benzene	34566-001	0.06 kg/d	0.09 kg/d		
1,4-Dichloro-benzene	34571-019	.014 mg/l	.026 mg/l	Weekly	Grab Sample Average
1,4-Dichloro-benzene	34571-001	0.03 kg/d	0.06 kg/d		
1,2-Trans-Dichloroethylene	34546-019	.020 mg/l	.051 mg/l	Annually	Grab Sample Average
1,2-trans-Dichloroethylene	34546-001	0.04 kg/d	0.11 kg/d		
1,2-Dichloro-propane	34541-019	.146 mg/l	.220 mg/l	Annually	Grab Sample Average
1,2-Dichloro-propane	34541-001	0.31 kg/d	0.47 kg/d		
1,3-Dichloropro-pylene	77163-019	.027 mg/l	.042 mg/l	Annually	Grab Sample Average
1,3-Dichloropro-pylene	77163-001	0.06 kg/d	0.09 kg/d		
2,4-Dimethylphenol	34606-019	.017 mg/l	.034 mg/l	Annually	Grab Sample Average
2,4-Dimethylphenol	34606-001	0.04 kg/d	0.07 kg/d		
2,4-Dinitrotoluene	34611-019	.108 mg/l	.273 mg/l	Annually	Daily Composite
2,4-Dinitrotoluene	34611-001	0.23 kg/d	0.59 kg/d		
2,6-Dinitrotoluene	34626-019	.244 mg/l	.615 mg/l	Annually	Daily Composite
2,6-Dinitrotoluene	34626-001	0.52 kg/d	1.33 kg/d		
Ethylbenzene	34371-019	.030 mg/l	.103 mg/l	Annually	Grab Sample Average
Ethylbenzene	34371-001	0.06 kg/d	0.22 kg/d		
Fluoranthene	34376-019	.024 mg/l	.065 mg/l	Annually	Daily Composite
Fluoranthene	34376-001	0.05 kg/d	0.65 kg/d		
Bis(2-Chloroiso-propyl) ether	34283-019	-----	-----	Annually	Daily Composite
Methylene Chloride	34423-019	.038 mg/l	.085 mg/l	Weekly	Grab Sample Average
Methylene Chloride	34423-001	0.08 kg/d	0.18 kg/d		
Methyl Chloride	34423-019	.082 mg/l	.182 mg/l	Annually	Grab Sample Average
Methyl Chloride	34423-001	0.18 kg/d	0.39 kg/d		
Hexachloro-butadiene	39702-019	.019 mg/l	.047 mg/l	Annually	Daily Composite
Hexachloro-butadiene	39702-001	0.04 kg/d	0.10 kg/d		
Naphthalene	34696-019	.021 mg/l	.056 mg/l	Annually	Daily Composite
Naphthalene	34696-001	0.04 kg/d	0.12 kg/d		
Nitrobenzene	34447-019	.025 mg/l	.065 mg/l	Annually	Daily Composite
Nitrobenzene	34447-001	0.05 kg/d	0.14 kg/d		
2-Nitrophenol	34591-019	.039 mg/l	.066 mg/l	Annually	Grab Sample Average
2-Nitrophenol	34591-001	0.08 kg/d	0.14 kg/d		
4-Nitrophenol	34646-019	.069 mg/l	.119 mg/l	Weekly	Grab Sample Average
4-Nitrophenol	34646-001	0.15 kg/d	0.26 kg/d		
2,4-Dinitrophenol	34616-019	.068 mg/l	.118 mg/l	Annually	Grab Sample Average
2,4-Dinitrophenol	34616-001	0.15 kg/d	0.25 kg/d		
4,6 Dinitro-o-cresol	34657-019	.074 mg/l	.265 mg/l	Annually	Grab Sample Average
4,6 Dinitro-o-cresol	34657-001	0.16 kg/d	0.57 kg/d		

Phenol	C016'-019	.014 mg/l	.024 mg/l	Weekly	Grab Sample Average
Phenol	C016 -001	0.03 kg/d	0.05 kg/d		
Bis(2-ethylhexyl) phthalate	39100-019	.098 mg/l	.267 mg/l	Annually	Daily Composite
Bis(2-ethylhexyl) phthalate	39100-001	0.21 kg/d	0.57 kg/d		
Di-n-butyl phtha- late	39110-019	.025 mg/l	.054 mg/l	Annually	Daily Composite
Di-n-butyl phtha- late	39110-001	0.05 kg/d	0.12 kg/d		
Diethyl phthalate	34336-019	.077 mg/l	.194 mg/l	Annually	Daily Composite
Diethyl phthalate	34336-001	0.17 kg/d	0.42 kg/d		
Dimethyl phthalate	34341-019	.018 mg/l	.045 mg/l	Annually	Daily Composite
Dimethyl phthalate	34341-001	0.04 kg/d	0.10 kg/d		
Benzo(a)anthracene	34526-019	ND*	ND*	Annually	Daily Composite
Benzo(a)anthracene	34526-001	ND*	ND*		
Benzo(a)pyrene	34247-019	ND*	ND*	Annually	Daily Composite
Benzo(a)pyrene	34247-001	ND*	ND*		
3,4-Benzofluoran- thene	34230-019	ND*	ND*	Annually	Daily Composite
3,4-Benzofluoran- thene	34230-001	ND*	ND*		
Benzo(k)fluor- anthene	34242-019	ND*	ND*	Annually	Daily Composite
Benzo(k)fluor- anthene	34242-001	ND*	ND*		
Chrysene	34320-019	ND*	ND*	Annually	Daily Composite
Chrysene	34320-001	ND*	ND*		
Acenaphthylene	34200-019	ND*	ND*	Annually	Daily Composite
Acenaphthylene	34200-001	ND*	ND*		
Anthracene	34220-019	ND*	ND*	Annually	Daily Composite
Anthracene	34220-001	ND*	ND*		
Fluorene	34381-019	ND*	ND*	Annually	Daily Composite
Fluorene	34381-001	ND*	ND*		
Phenanthrene	34461-019	ND*	ND*	Annually	Daily Composite
Phenanthrene	34461-001	ND*	ND*		
Pyrene	34469-019	ND*	ND*	Annually	Daily Composite
Pyrene	34469-001	ND*	ND*		
Tetrachloro- ethylene	34475-019	.021 mg/l	.053 mg/l	Annually	Grab Sample Average
Tetrachloro- ethylene	34475-001	0.04 kg/d	0.11 kg/d		
Toluene	34010-019	.024 mg/l	.076 mg/l	Weekly	Grab Sample Average
Toluene	34010-001	0.05 kg/d	0.16 kg/d		
Trichloroethylene	39180-019	.020 mg/l	.051 mg/l	Annually	Grab Sample Average
Trichloroethylene	39180-001	0.04 kg/d	0.11 kg/d		
Vinyl Chloride	39175-019	.099 mg/l	.257 mg/l	Annually	Grab Sample Average
Vinyl Chloride	39175-001	0.21 kg/d	0.55 kg/d		
Total Chromium	01034-019	0.10 mg/l	0.200 mg/l	Annually	Daily Composite
Total Chromium	01034-001	0.21 kg/d	0.43 kg/d		
Total Copper	01042-019	.20 mg/l	.400 mg/l	Annually	Daily Composite
Total Copper	01042-001	0.43 kg/d	0.86 kg/d		
Total Cyanide	00720-019	.100 mg/l	.180 mg/l	Weekly	Daily Composite
Total Cyanide	00720-001	0.22 kg/d	0.38 kg/d		

Total Lead	01051-019	.200 mg/l	.400 mg/l	Weekly	Daily Composite
Total Lead	01051-001	0.43 kg/d	0.86 kg/d		
Total Nickel	01067-019	0.500 mg/l	1.000 mg/l	Annually	Daily Composite
Total Nickel	01067-001	1.08 kg/d	2.16 kg/d		
Total Zinc	01092-019	.300 mg/l	0.600 mg/l	Weekly	Daily Composite
Total Zinc	01092-001	0.65 kg/d	1.30 kg/d		
Dissolved Oxygen	00300-019		-----	-----	Weekly Grab
pH	00400-012	SEE SUBPARAGRAPH 2(A)(1)		Weekly	Range During Composite
1-chloro-2-nitro- benzene	C0005-019	-----	-----	Weekly	Daily Composite
Acute Toxicity	C0019-09A	SEE SUBPARAGRAPHS 2(A)(10) AND	(11)		Daily Composite
Chronic Toxicity	C0020-09A	SEE SUBPARAGRAPHS 2(A)(12) AND	(13)		Daily Composite
Dioxane	82388-019	10.0 mg/l	20.0 mg/l	Weekly	Daily Composite
Dioxane	82388-001	21.6 kg/d	43.2 kg/d		
Ammonia-Nitrogen	00610-019	25.0 mg/l	50.0 mg/l	Weekly	Daily Composite
Ammonia-Nitrogen	00610-001	54.0 kg/d	108.0 kg/d		
Total Kjeldahl Nitrogen	00625-019	65.0 mg/l	80.0 mg/l	Weekly	Daily Composite
Total Kjeldahl Nitrogen	00625-001	140.4 kg/d	172.8 kg/d		
Benzidine	39120-019	0.1 mg/l	0.2 mg/l	Weekly	Daily Composite
Benzidine	39120-001	0.21 kg/d	0.43 kg/d		
Dichlorobenzidine	34631-019	0.25 mg/	0.5 mg/l	Weekly	Daily Composite
Dichlorobenzidine	34631-001	0.54 kg/d	1.08 kg/d		
Pentachlorophenol	39032-019	0.3 mg/l	0.5 mg/l	Weekly	Grab Sample Average
Pentachlorophenol	39032-001	0.65 kg/d	1.08 kg/d		
2,4,6 Trichloro- phenol	34621-019	0.3 mg/l	0.6 mg/l	Weekly	Grab Sample Average
2,4,6 Trichloro- phenol	34621-001	0.64 kg/d	1.29 kg/d		
2,4 Dichlorophenol	34601-019	0.039 mg/l	.112 mg/l	Weekly	Grab Sample Average
2,4 Dichlorophenol	34601-001	0.08 kg/d	0.24 kg/d		
Dichloran	38446-019	1.0 mg/l	1.5 mg/l	Weekly	Daily Composite
Dichloran	38446-001	2.16 kg/d	3.24 kg/d		

ND\* - NON-DETECTABLE The Permittee shall not discharge at or above the detection limit as specified in Table 4, Method 625, 40 CFR Part 136

- (1) The pH of the discharge shall not be less than 6.0 or greater than 9.0 (Code 00400-012)
- (2) The discharge shall not contain or cause in the receiving stream a visible oil sheen or floating solids.
- (3) The discharge shall not cause visible discoloration or foaming in the receiving waters.
- (4) The temperature of the discharge shall not increase the temperature of the receiving stream above 85°F or raise the normal temperature of the receiving stream more than 4°F beyond any zone of influence as provided in the "Connecticut Water Quality Standards & Criteria" as amended.

- (5) The maximum daily concentration of each of the parameters specified above, except for pH, acute toxicity and chronic toxicity, shall not be exceeded by a factor of 50%, as measured by a grab sample.
- (6) The permittee shall no longer manufacture Dichloran in accordance with the written certification to the Commissioner dated February 7, 1991. The Average Monthly Concentration limitation for Dichloran shall be 1.0 mg/l, and the Maximum Daily Concentration limitation shall be 1.5 mg/l.
- (7) The permittee shall record the total flow (Code 74076-007) and the number of hours of discharge (Code 81381-079) for each day of sample collection.
- (8) The report shall include a detailed explanation of any violations of the limitations specified above.
- (9) All parameters shown above as an annual monitoring requirement shall be monitored on a quarterly basis (Jan., Apr., Jul., Oct.) for the first year beginning with the issuance of this permit. Effluent limitations for these parameters shall be modified after submission of 4 quarterly sample analyses, if determined to be necessary by the Commissioner and incorporated into a proposed modification of this permit.
- (10) A daily composite sample of the effluent shall not exhibit acute toxicity in the receiving waterbody.
- (a) Dilution equivalent to 811,750 gallons per hour (gph) is allocated to a zone of influence for assimilation of acute toxicity. This allocation shall be used to calculate the instream waste concentration (IWC) according to the formula:
- $$\text{IWC} = \frac{\text{permitted average daily flow rate} \times 100}{(\text{permitted average daily flow rate} + \text{allocated zone of influence flow})}$$
- (b) In lieu of the permitted average daily flow rate, the mean effluent flow rate for the previous 30 consecutive operating days may be used to calculate the instream waste concentration provided the flow rate for any operating day used in calculating the mean does not exceed the mean-flow rate by more than twenty-five (25) percent.
- (11) Monitoring to determine compliance with this acute limit shall be performed biweekly following the toxicity testing protocol for static acute toxicity tests in "Methods for Measuring the Acute Toxicity of Effluents to Freshwater and Marine Organisms" (EPA 600/4-85/013) with the following specifications as follows:

- (a) Juvenile Palaemonetes pugio, (grass shrimp), adapted at a salinity of 10 parts per thousand (10 ppt) for at least 24 hours, shall be used as test organism in all biweekly tests. Juvenile Fundulus heteroclitus, (mummichog, less than 30 days old) shall also be used as test organism in addition to P. pugio in one test each month.
- (b) Synthetic or uncontaminated natural seawater adjusted to a salinity of ten parts per thousand (10 ppt) shall be used as dilution water in the tests.
- (c) Test duration shall be 48 hours for tests employing P. pugio as test organism and 48 hours for tests employing F. heteroclitus as test organism.
- (d) In determining  $LC_{50}$  values a minimum of five (5) consecutive test concentrations surrounding the expected limit selected from the series, 100%, 56%, 32%, 18%, 10%, 5.6%, 3.2%, 1.8% effluent by volume, in duplicate, shall be utilized.
- (e) The  $LC_{50}$  value shall be determined by the computational method (Binomial Distribution, Probit Analysis, Moving Average Angle, Spearman-Kärber) which yields the smallest 95% confidence interval and also yields an  $LC_{50}$  value which is consistent with the dose-response data.
- (f) Any test in which the survival of test organisms is less than ninety (90) percent in any replicate control test chamber or failure to achieve test conditions as specified in the cited document, such as maintenance of appropriate environmental controls, shall constitute an invalid test and will require immediate retesting. Failure to submit suitable valid test results constitutes a violation of this permit.
- (g) Acute toxicity is demonstrated, and this permit violated, when the  $LC_{50}$  value for the effluent, calculated in accordance with this paragraph, is less than or equal to 3 X IWC. IWC shall be calculated in accordance with paragraph 2(A)(10).
- (h) Results of the toxicity tests required as part of this permit condition will be entered on the Discharge Monitoring Report (DMR) for the month in which it was performed, using the appropriate parameter code. Additionally, complete and accurate test data, including a description of the method of collection and compositing the effluent sample and all supporting chemical/physical measurements performed in association with the toxicity tests, and dose/response data shall be entered on the Aquatic Toxicity Monitoring Report form (ATMR). The ATMR shall be sent to the following address within thirty (30) days of the date of sample collection:

Aquatic Toxicity  
Connecticut Department of Environmental Protection  
Water Management Bureau  
122 Washington Street  
Hartford, CT 06106

- (1) If any two consecutive test results or any three test results in a single year fail to meet the maximum daily permit limit for acute toxicity as described above, the permittee shall submit a report describing proposed steps to eliminate the toxic impact of the discharge on the receiving waterbody. Such a report shall include a proposed time schedule to accomplish toxicity reduction.
- (12) A daily composite sample of the effluent shall not exhibit chronic toxicity in the receiving waterbody.
- (a) Dilution equivalent to 2,041,312 gallons per hour (gph) is allocated to a zone of influence for assimilation of chronic toxicity. This allocation shall be used to calculate the instream waste concentration (IWC) according to the formula:
- IWC =  $\frac{\text{permitted average daily flow rate} \times 100}{\text{permitted average daily flow rate} + \text{allocated zone of influence flow}}$
- (b) In lieu of the permitted average daily flow rate, the mean effluent flow rate for the previous 30 consecutive operating days may be used to calculate the instream waste concentration provided the flow rate for any operating day used in calculating the mean does not exceed the mean flow rate by more than twenty-five (25) percent.
- (13) Monitoring to determine compliance with this chronic limit shall be performed biweekly following the toxicity testing protocol for static acute toxicity tests in "Methods for Measuring the Acute Toxicity of Effluents to Freshwater and Marine Organisms" (EPA 600/4-85/013) with the following specifications as follows:
- (a) Juvenile Palaemonetes pugio, (grass shrimp), adapted at a salinity of 10 parts per thousand (10 ppt) for at least 24 hours, shall be used as test organism in all biweekly tests. Juvenile Fundulus heteroclitus, (mummichog, less than 30 days old) shall also be used as test organism in addition to P. pugio in one test each month.
- (b) Synthetic or uncontaminated natural seawater adjusted to a salinity of ten parts per thousand (10 ppt) shall be used as dilution water in the tests.
- (c) Test duration shall be 48 hours for tests employing P. pugio as test organism and 48 hours for tests employing F. heteroclitus as test organism.

- (d) In determining  $LC_{50}$  values a minimum of five (5) consecutive test concentrations surrounding the expected limit selected from the series, 100%, 56%, 32%, 18%, 10%, 5.6%, 3.2%, 1.8% effluent by volume, in duplicate, shall be utilized.
- (e) The  $LC_{50}$  value shall be determined by the computational method (Binomial Distribution, Probit Analysis, Moving Average Angle, Spearman-Kärber) which yields the smallest 95% confidence interval and also yields an  $LC_{50}$  value which is consistent with the dose-response data.
- (f) Any test in which the survival of test organisms is less than ninety (90) percent in any replicate control test chamber or failure to achieve test conditions as specified in the cited document, such as maintenance of appropriate environmental controls, shall constitute an invalid test and will require immediate retesting. Failure to submit suitable valid test results constitutes a failure of this permit.
- (g) Chronic toxicity is demonstrated, and this permit violated, when the  $LC_{50}$  value for the effluent, calculated in accordance with this paragraph, is less than or equal to  $20 \times$  IWC. IWC shall be calculated in accordance with paragraph 2(A)(12).
- (h) Results of the toxicity tests required as part of this permit condition will be entered on the Discharge Monitoring Report (DMR) for the month in which it was performed, using the appropriate parameter code. Additionally, complete and accurate test data, including a description of the method of collection and compositing the effluent sample and all supporting chemical/physical measurements performed in association with the toxicity tests, and dose/response data shall be entered on the Aquatic Toxicity Monitoring Report form (ATMR). The ATMR shall be sent to the following address within thirty (30) days of the date of sample collection:
- Aquatic Toxicity  
Connecticut Department of Environmental Protection  
Water Management Bureau  
122 Washington Street  
Hartford, CT 06106
- (i) If any two consecutive test results or any three test results in a single year fails to meet the maximum daily permit limit for chronic toxicity as described above, the permittee shall submit a report describing proposed steps to eliminate the toxic impact of the discharge on the receiving waterbody. Such a report shall include a proposed time schedule to accomplish toxicity reduction.

B. Discharge Serial No. 002A MON LOC 1  
Description: Stormwater - South Side (Zone 2)  
(Code 1080000)

Receiving Stream: Quinnipiac River (Basin Code 5200)

Present/Future Water Quality Standard: SC/SB

Maximum Daily Flow: 1,625,000 gallons per day (50 year storm event)

- (1) The pH of the discharge shall not be less than 4.0 or greater than 8.5 (Code 00400-012).
- (2) The discharge shall not contain or cause in the receiving stream a visible oil sheen or floating solids.
- (3) The discharge shall not cause visible discoloration or foaming in the receiving waters.
- (4) The temperature of the discharge shall not increase the temperature of the receiving stream above 85°F or raise the normal temperature of the receiving stream more than 4°F beyond any zone of influence as provided in the "Connecticut Water Quality Standards & Criteria" as amended.
- (5) The stormwater collection tank pumps shall be automatically activated to begin pumping accumulated stormwater at the beginning of each stormwater event to the wastewater treatment system, and shall continue to transfer stormwater to the treatment system at the design pump capacity to a maximum volume of 20,000 gallons or the entire storm event, whichever is smaller. A grab sample from each storm event shall be collected within the first 10 minutes of pump activation and be analyzed for Chemical Oxygen Demand. Any discharge of excess stormwater to the receiving stream shall also be sampled within the first 10 minutes of discharge and analyzed for Chemical Oxygen Demand. Results of all tests shall be retained in accordance with section 22a-430-4(j) of the Regulations of Connecticut State Agencies, and made available to the Commissioner upon request. On a quarterly basis (January, April, July and October), following a period of no precipitation for at least 72 hours, a grab sample of the stormwater, collected within 10 minutes of collection tank pump activation, shall be analyzed for all parameters listed in paragraph 2A above which have a weekly monitoring frequency.
- (6) The permittee shall record the total flow for the day (74076-007) and the number of hours of discharge (81381-079) for each day of discharge.

C. Discharge Serial No. 002B MON LOC 1  
Description: Stormwater - South Side (Zone 3)  
(Code 1080000)

Receiving Stream: Quinnipiac River (Basin Code 5200)

Present/Future Water Quality Standard: SC/SB

Maximum Daily Flow: 1,625,000 gallons per day (50 year storm event)



- D. Discharge Serial No. 003 MON LOC 1  
Description: Stormwaters - North Side(Zone 1) (Code 1080000)  
Receiving Stream - Drainage swale to Quinnpiac River  
(Basin Code 5200)  
Present/Future Water Quality Standard - SC/SB  
Maximum Daily Flow - 1,420,000 gallons per day (50 year storm event)

- (1) The pH of the discharge shall not be less than 4.0 or greater than 8.5(Code 00400-012).
- (2) The discharge shall not contain or cause in the receiving stream a visible oil sheen or floating solids.
- (3) The discharge shall not cause visible discoloration or foaming in the receiving waters.

- (4) The temperature of the discharge shall not increase the temperature of the receiving stream above 85°F or raise the normal temperature of the receiving stream more than 4°F beyond any zone of influence as provided in the "Connecticut Water Quality Standards & Criteria" as amended.
- (5) The stormwater collection tank pumps shall be automatically activated to begin pumping accumulated stormwater at the beginning of each stormwater event to the wastewater treatment system, and shall continue to transfer stormwater to the treatment system at the design pump capacity to a maximum volume of 20,000 gallons or the entire storm event, whichever is smaller. A grab sample from each storm event shall be collected within the first 10 minutes of pump activation and be analyzed for Chemical Oxygen Demand. Any discharge of excess stormwater to the receiving stream shall also be sampled within the first 10 minutes of discharge and analyzed for Chemical Oxygen Demand. Results of all tests shall be retained in accordance with section 22a-430-4(j) of the Regulations of Connecticut State Agencies, and made available to the Commissioner upon request. On a quarterly basis (January, April, July and October), following a period of no precipitation for at least 72 hours, a grab sample of the stormwater, collected within 10 minutes of collection tank pump activation, shall be analyzed for all parameters listed in paragraph 2A above which have a weekly monitoring frequency.
- (6) The permittee shall record the total flow (74076-007) and the number of hours of discharge (81381-079) for each day of discharge.

E. Discharge Serial No. 004      MON LOC 1  
Description: Stormwater - Bubble Area Code(1080000)  
Receiving Stream: Quinnipiac River  
                  (Basin Code 5200)  
Present/Future Water Quality Standard: SC/SB  
Maximum Daily Flow: 1,019,000 gallons per day (50 year storm event)

- (1) The pH of the discharge shall not be less than 4.0 or greater than 8.5(Code 00400-012).
- (2) The discharge shall not contain or cause in the receiving stream a visible oil sheen or floating solids.
- (3) The discharge shall not cause visible discoloration or foaming in the receiving waters.
- (4) The temperature of the discharge shall not increase the temperature of the receiving stream above 85°F or raise the normal temperature of the receiving stream more than 4°F beyond any zone of influence as provided in the "Connecticut Water quality Standards & Criteria" as amended.

- (5) A grab sample of Discharge Serial No. 004 shall be collected within the first 10 minutes of discharge and analyzed on a quarterly basis (January, April, July, and October) for all parameters listed in paragraph 2A above which have a weekly monitoring frequency.

This permit shall be considered as the permit required by Section 402 of the Federal Water Pollution Control Act and Section 22a-430 of the Connecticut General Statutes and shall expire on MARCH 31, 1997.

This permit shall be subject to the following sections of the Regulations of Connecticut State Agencies which are hereby incorporated into this permit:

Section 22a-430-3 General Conditions

- (a) Definitions
- (b) General
- (c) Inspection and Entry
- (d) Effect of a Permit
- (e) Duty
- (f) Proper Operation and Maintenance
- (g) Sludge Disposal
- (h) Duty to Mitigate
- (i) Facility Modifications; Notification
- (j) Monitoring, Records and Reporting Requirements
- (k) Bypass
- (l) Conditions Applicable to POTWs
- (m) Effluent Limitation Violations (Upsets)
- (n) Enforcement
- (o) Resource Conservation
- (p) Spill Prevention and Control
- (q) Instrumentation, Alarms, Flow Recorders
- (r) Equalization

22a-430-4 Procedures and Criteria

- (a) Duty to Apply
- (b) Duty to Reapply
- (c) Application Requirements
- (d) Preliminary Review
- (e) Tentative Determination
- (f) Draft Permits, Fact Sheets
- (g) Public Notice, Notice of Hearing
- (h) Public Comments
- (i) Final Determination
- (j) Public Hearings
- (k) Submission of Plans and Specifications. Approval.
- (l) Establishing Effluent Limitations and Conditions
- (m) Case by Case Determinations
- (n) Permit issuance or renewal
- (o) Permit Transfer
- (p) Permit revocation, denial or modification
- (q) Variances

- (r)Secondary Treatment Requirements
- (s)Treatment Requirements for Metals and Cyanide
- (t)Discharges to POTWs - Prohibitions

Your attention is especially drawn to the notification requirements of subsection (i)(2), (i)(3), (j)(6), (j)(9)(C), (j)(11)(C), (D), (E), and (F), (k)(3) and (4) and (l)(2) of Section 22a-430-3.

This Permit requires the payment of a compliance determination fee annually as set forth in Section 22a-430-7 of the Regulations of Connecticut State Agencies.

The Commissioner reserves the right to make appropriate revisions to the permit in order to establish any appropriate effluent limitations, schedules of compliance, or other provisions which may be authorized under the Clean Water Act or the Connecticut General Statutes or regulations adopted thereunder, as amended. The permit as modified or renewed under this paragraph may also contain any other requirements of the Clean Water Act or Connecticut General Statutes or regulations adopted thereunder which are then applicable.

Entered as a Permit of the Commissioner on the 31TH DAY OF MARCH, 1992.

ROBERT E. MOORE  
Robert E. Moore  
Deputy Commissioner

State Application No. 86-034  
NPDES CT0001341

WCIS  
FACT SHEET

Location Address:

Name The Upjohn Company  
Street 410 Sackett Point Rd. City North Haven  
State Connecticut Zip \_\_\_\_\_  
Contact Name R. Campaigne Phone 281-2816

Site Category: Point (X) Non-point ( )

USGS Quad 95

CHECK ALL THAT APPLIES

\_\_\_\_ MUNICIPAL  
\_\_\_\_ UIC                      \_\_\_\_ STATE                      X NPDES  
X MAJOR                      \_\_\_\_ SIGNIFICANT MINOR                      \_\_\_\_ MINOR

Compliance Schedule Included \_\_\_\_ Yes X No \_\_\_\_ Order No. \_\_\_\_

Ownership Code: Private (X) Federal ( ) State ( )  
Municipal (town-owned only) ( ) Other public ( )

For UIC Permits: Total Wells \_\_\_\_ Well Type 1\_\_ 2\_\_ 3\_\_

ENGINEER: DICK MASON

FEE SCHEDULE

TENTATIVE DETERMINATION	\$
PERMIT ISSUANCE	\$
ANNUAL FEES	\$



STATE OF CONNECTICUT  
DEPARTMENT OF ENVIRONMENTAL PROTECTION



Fact Sheet  
The Upjohn Company  
NPDES Permit No. CT0001314  
410 Sackett Point Road  
North Haven, Connecticut



The NPDES wastewater discharge permit for The Upjohn Company is due for reissuance for the second time. All NPDES permits for discharges to surface waters in Connecticut are reissued on a 5 year cycle, providing the public with the opportunity to comment on the restrictions imposed by the permit.

NPDES permits are issued for point sources of discharge to waters of the United States under Section 402(b) of the Federal Water Pollution Control Act (FWPCA) as amended and Section 22a-430 of the Connecticut General Statutes as amended. Connecticut received authority to issue permits under the FWPCA from the U.S. Environmental Protection Agency in 1973.

The primary business of North Haven Fine Chemical Division of The Upjohn Co. is the manufacture of organic chemicals for use as dye and pigment pharmaceuticals, photographic intermediates, agricultural treatment chemicals, UV curing initiators, flavor and fragrance components, and the byproducts resulting from the manufacture. The Upjohn Company submitted their application for reissuance of their NPDES permit on January 31, 1986.

Previous Permit Requirements.

The previous permit issued on July 30, 1981 contained the following requirements:

1. Elimination of all process discharges to the yard drainage system to insure that no process waters bypassed the wastewater treatment facilities.
2. Identification through sampling, of all substances and compounds contained on the Toxic Pollutant and Priority Pollutant Lists, established by EPA. Sampling of the untreated wastewater and treated effluent was required.
3. An evaluation of all operation and maintenance procedures for the wastewater treatment facilities, as well as wastewater sampling methods and flow monitoring.
4. The submission of a proposal for modifications and/or additional facilities to maximize the efficiency of the wastewater treatment facilities and in-plant recovery systems.
5. Submission of an evaluation of the aeration lagoon and the feasibility of alternatives to modify it. At the time, the lagoon was uncovered and was a source of odors. Acting on the complaints from local citizens, the DEP required Upjohn to review ways of covering it.

Phone:

166 Capitol Avenue • Hartford, Connecticut 06106

6. The submission of an evaluation of the secondary settling tank and recirculation equipment which had been ordered by the DEP to be installed prior to the permit reissuance hearings (Order No. 2635). This clarifier was required to be covered to reduce odors.

7. The submission of a proposal for modified wastewater discharge limitations to reflect the effect of seasonal temperature variations on pollutant removal efficiencies and to reflect the new treatment facilities. Modified limitations were later listed in the March 10, 1983 permit modification.

8. The submission of an evaluation of odorous emissions from plant property during summertime conditions and recommendations for additional measures to control odors. These studies were performed. Other studies were also accomplished by EPA. This data is available through the Air Compliance Unit of the DEP.

9. The submission of plans followed by installation of an automatic sampler on the wastewater treatment discharge to the Quinnipiac River. The purpose of this sampler is to hold for possible analysis, a sample of each days effluent, making it possible for the DEP to check on the previous days wastewater quality if desired.

10. Submission of plans for modification of the primary settling lagoon to end its normal use. This lagoon was later eliminated and replaced with a covered tank known as the primary clarifier. The contents of the lagoon were excavated. The initial quantity was placed on the sludge pile and the remainder was transported to an off-site hazardous waste disposal facility.

11. Submission of a report describing the plant operations related to the production of the chemical dichloran, with recommended additional treatment to meet an EPA promulgated effluent limit. Upjohn applied for a variance from the limit. This is the subject of a separate public hearing process with EPA.

12. Submission of a report detailing volumes and characteristics of wastewater sludge with a feasibility study on alternate disposal methods. At present, all generated sludge is transported off-site with the approval of the DEP.

13. Submission of an evaluation of modifications necessary to reduce the concentration of lead in the discharge. The use of lead in the production of products at Upjohn has been terminated, and discharge concentrations have been reduced.

14. Submission of a report defining the extent and degree of sediment contamination in the Quinnipiac River as the result of Upjohn's wastewater effluent prior to the construction of solids removal equipment. This report was submitted, and the DEP decided to hold off on the requirement to dredge until the escape of solids from the facility was under better control and until the pollutant lead(Pb) was eliminated from use. The requirement to dredge the sediment near the outfall pipe has been re-instated(Order No. 4706).

15. The previous permit allowed the treated wastewater discharge to be directed to either the Quinnipiac River or the North Haven Sewage Treatment Plant. It had been anticipated that the entire effluent would be directed to the Town Sewage Treatment Plant when that Plant was rebuilt and upgraded to an advanced treatment facility. Following pilot testing with Upjohn's wastewater, a concern arose that their effluent may adversely affect the advanced treatment stage of the new facilities. In addition, due to the fact that the Upjohn treatment system provides a much longer detention time for wastewaters, and provides a degree of treatment technology which exceeds the technology to be provided at the Town's upgraded sewage treatment plant, it was felt that very little or no benefit to the Quinnipiac River would be realized from passing their effluent through the Town's system. The allowance to discharge wastewater to the municipal facilities has been left out of the new permit draft.

#### Permit Modification Requirements

Upjohn's permit was modified on March 10, 1983 and included the following additional requirements:

1. Submission of a final report and plans for the installation of additional aerators in the aeration lagoon, an inflatable cover over the aeration lagoon with treatment for vented emissions, an additional final clarifier, and related appurtenances.
2. Submission of a discussion and recommendations for protecting the wastewater treatment facilities from a 100-year flood event, for further removal of clean stormwater from the treatment system (to prevent hydraulic overloads), and for further reductions in the quantities of the chemicals 3,3 dichlorobenzidine and benzidine in the discharge.
3. The construction of a temporary cap(to reduce odors) followed by excavation of all sludge from the abandoned primary lagoon with restoration of the area to grade.
4. Submission of an engineering report containing a proposal for a study of the effect of Upjohn's treated effluent on the North Haven sewage treatment plant, analysis of the effluent for PCBs, and additional effluent parameter information.
5. The preparation and submittal of a report by an outside consultant on the nature and extent of groundwater contamination on the Upjohn property.



### Wastewater Treatment Facilities

As a result of all the upgradings and additions performed by The Upjohn Company in conformance with the requirements of the previous permit, the wastewater treatment facilities at present, consist of the following main components:

1. Several recycle/recovery systems within the process areas.
2. Two-stage pH adjustment system.
3. Primary settling tank - solids dewatered and disposed of off-site.
4. Decant tank for separation of any floatable layer in the wastewater.
5. Extended-aeration biological treatment basin, with addition of powdered activated carbon, and special microorganisms for the breakdown of organic pollutants.
6. Secondary settling tanks (2) - solids dewatered and disposed of off-site.
7. Solids dewatering equipment.

### Effluent Limitations

The U.S. Environmental Protection Agency promulgates effluent limitations for various industrial categories. The Upjohn Company falls under the category of Organic Chemicals and Plastics and Synthetic Fibers (OCPSF), as defined by EPA. On November 19, 1987, effluent limitations were finally issued for this category. Proposed standards had been under review for several years, but were delayed due to litigation from industry and environmental groups on the national level. The Upjohn Company also falls under the Pharmaceutical Industry Category due to the manufacture of one product used as a sunscreen agent. In addition, Upjohn is proposing to make some products in the future which would fall under the Pharmaceutical Industry Category. These would take the place of products presently manufactured.

The recently promulgated effluent limitations from EPA have been placed in the draft permit and, in accordance with the Federal Water Pollution Control Act, Section 301, must be met by March 31, 1989. These new standards will require extensive modifications and upgradings to the existing treatment system in a very short period of time. The Upjohn Company has performed studies to determine what additional treatment technologies will be necessary, and a separate administrative Order has been issued by the DEP to Upjohn Company to establish a schedule of submissions of plans and construction of the new facilities. Initial plans were submitted in May 1988 and approved on October 13, 1988.

The previous NPDES permit issued on November 9, 1981 contained interim effluent limitations which reflected the quality of the effluent at the time of reissuance and indicated that the limitations would be modified after February 28, 1982 to reflect interim improvements to the wastewater treatment facilities. It also indicated that the limitations would be modified again after July 31, 1983 to reflect the major treatment system upgrading. The permit modification issued on March 10, 1983, established revised effluent limitations for the effluent to the Quinnipiac River. These were established prior to completion of construction of the treatment facilities and represented anticipated effluent quality from the new facilities. In some instances the effluent limitations for individual pollutant parameters were established with incomplete data and were merely estimates of the attainable effluent quality.

The wastewater treatment facilities which were completed have resulted in a greatly improved effluent quality to the river. The equipment installed was determined by the DEP to represent Best Available Technology Economically Achievable (BAT). It was also anticipated at the time, that some of the individual effluent limitations would need to be adjusted up or down when experience with the treatment system showed what it was actually capable of. For this purpose, the following statement was written into the March 10, 1983 permit modification:

"The effluent quality from the treatment facilities will be evaluated for a one year operating period beginning on December 1, 1983 after which time revised effluent limitations will be adopted if necessary to reflect the actual ability of the treatment facilities to remove the permitted pollutants. Notwithstanding the above sentence the Commissioner specifically reserves the rights to establish more stringent effluent limitations pursuant to Chapter 474a of the Connecticut General Statutes and the Federal Water Pollution Control Act should it be determined that these limitations will not protect the water quality of the receiving waters".

To address this issue, the permit required The Upjohn Company to submit a report by February 28, 1985 which evaluated the effluent quality for the previous year. With this data, the DEP had anticipated adjusting the effluent limitations, however, at the same time, initial effluent testing had been performed on Upjohn's discharge by the EPA which indicated that Upjohn's effluent would probably cause toxicity to aquatic organisms in the Quinnipiac River during periods of low flow. After review of this information, the DEP chose not to revise any effluent limitations until a definitive program to address effluent toxicity was established.

Effluent toxicity is now a critical aspect of the permit reissuance and a program addressing toxicity has been defined as noted below.

## Draft Permit Requirements

The draft permit presented now for public review contains the following requirements:

1. The most significant requirement in the permit is to meet the new EPA effluent standards by March 31, 1989. These standards are technology based for the entire Organic Chemicals industry and are not reflective of the specific toxicity of Upjohn's effluent. The new EPA limitations represent the latest thinking on a national level of the effluent quality attainable by the application of BAT technology without detailed consideration of the acute or chronic toxicity of the discharge on the receiving stream.

The majority of products manufactured at this facility, and the majority of the wastewater flow, falls under the OCPSF category. The OCPSF guidelines provide effluent limitations for the portion of the wastewater volume which is generated by OCPSF processes. This portion of the total volume has been determined to be 501,970 gallons per day, which is the average flow from the three production buildings.

Pharmaceutical chemicals may also be manufactured in these production buildings, taking the place of products covered under the OCPSF guidelines. The Pharmaceutical Manufacturing Point Source Category Effluent Guidelines 40 CFR, Part 439 do not have specific limitations for a host of individual chemicals as do the OCPSF guidelines. They do provide allowable BOD, COD, and TSS monthly average limitations as percent removal of influent concentrations. Using historical influent data, the monthly average limitations for BOD and TSS have been calculated to be less stringent than the OCPSF limitations. Therefore, the OCPSF limitations have been applied to all wastewaters from the three process buildings. The OCPSF guidelines do not limit COD. The COD limit calculated with the required removal efficiency of the Pharmaceutical guidelines is less stringent than the presently permitted level. Therefore, COD limitations have been calculated using the standard of Best Professional Judgement, giving consideration to the anticipated efficiency of the proposed treatment system upgrading.

The OCPSF guidelines also include limitations for five metals. The Upjohn Company does not utilize those metals in their processes, therefore alternate limitations have been proposed based on Best Professional Judgement. These proposed limits are more stringent than the OCPSF limits.

In addition, the Pharmaceutical Manufacturing guidelines include limitations for cyanide which must appear in the permit. All cyanide wastewaters at this facility are treated using standard hypochlorite treatment, prior to being discharged through the biological portion of the system. Using EPA's method of calculating effluent limitations, contained in 40 CFR 439, with a flow of 93,000 gallons per day for the cyanide wastewaters, the limitations for cyanide on the final effluent would be 0.98 mg/l and 0.54 mg/l for maximum daily and average monthly limitations respectively. The Department has instead placed limitations of 0.18 mg/l and 0.10 mg/l on cyanide.

There are some additional wastewaters which are processed by the wastewater treatment facilities. These consist of 9,500 gallons per day of stormwater, 21,000 gallons per day of boiler room wastewaters, 28,800 gallons per day of sludge belt press wastewaters from the treatment system, and a proposed flow of 15,000 gallons per day of contaminated groundwaters.

All of these wastewaters, with the exception of the boiler wastewaters can be contaminated with the same pollutants as the process wastewaters. The stormwater is from the manufacturing area, the belt press treats the sludge from the treatment system, and the groundwaters are contaminated as a result of the past and present wastewater treatment and disposal. The OCPSF guidelines appear to be appropriate to use as limitations for these wastewaters, and have been allocated to them in accordance with Best Professional Judgement.

With the exception of the boiler wastewaters, all wastewaters processed through the treatment system have been allocated limitations consistent with the OCPSF guidelines. With the inclusion of the boiler wastewaters in the overall flow, this results in limitations on Discharge Serial No. 001 that are slightly more stringent than the OCPSF guidelines.

2. Water pollution control programs throughout the country are now also beginning to address effluent toxicity to aquatic life in much greater detail due to our increased knowledge of the specific effects of various pollutants and because BAT treatment systems have been installed on the vast majority of discharges. Elimination of effluent toxicity is the next stage of water pollution control.

The draft permit contains in paragraph 2a(7) an acute toxicity limitation which will apply upon completion of a 3 month shakedown period following construction of the new treatment system. This limitation is based on the requirement that Upjohn's treated effluent cannot cause acute toxicity to sensitive test organisms in laboratory tests, at a concentration which represents conditions in the Quinnipiac River at the edge of a chosen mixing zone. Paragraph 2a(9)(6) of the permit requires Upjohn to submit to the DEP on or before March 30, 1990, a report for the review and approval of the Commissioner which summarizes all aquatic toxicity information generated in accordance with the permit conditions, and which includes additional hydraulic data on the Quinnipiac River, and a proposal for final limitations which will protect the Quinnipiac River from chronic toxic effects of the discharge.

### Other Comments

1. On June 15, 1988, Order No. 4706 was issued to the Upjohn Company to require the following:

- Installation of new treatment facilities to improve effluent quality in order to comply with strict new federal discharge standards.
- Removal of lead(Pb) contaminated sediments from the Quinnipiac River.
- Reduction of the treatment system influent quantities of dichlorobenzidine and dichloran.

2. In 1982, Upjohn applied for a variance from an effluent limitation for the chemical dichloran, which is regulated under the Pesticide Chemicals Manufacturing category. Such a variance can only be granted by the U.S. Environmental Protection Agency. This request has been under review by the EPA, and has been the subject of a separate public hearing process.

The EPA limitation for dichloran has been placed in paragraph 2(A)6 (page 2) of the draft permit along with language which would provide for future limitations based on the outcome of the variance request. Language has also been included which would establish BAT limitations for dichloran should Upjohn verify that they are no longer manufacturing this chemical as a pesticide.

CT Y4K

### PERMIT QUALITY REVIEW CHECKLIST

\* If time allows, the questions listed below should be answered in advance of the PQR.

Permit #:

Facility name: UPJOHN CO. NP

Reviewer: RUDY COOPER

Permit writer: DICK MASON

#### I. PRE-SITE REVIEW: STATE-WIDE PERMITTING PRACTICES

##### A. WATER QUALITY STANDARDS (WQS)

1. Do the WQS require an anti-degradation review before a permit limit can be relaxed?
2. Do the WQS allow mixing zones or otherwise provide some portion of the receiving water for dilution of effluent?
3. How is the mixing zone/available dilution expressed?
  - a. The actual sizes and stages of the mixing zones?
  - b. The entire receiving water design flow?
  - c. Do the mixing zone provisions restrict the application of the mixing zone for certain water use designations?
  - d. Do the mixing zone provisions handle acute and chronic protection differently?
4. Do the WQS establish chronic and acute criteria for pollutants? If so, how many pollutants have criteria (eg., TU(c), TU(a), Pb)?
5. Do the WQS place any minimum toxicity requirements on all discharges such as an end of the pipe LC<sup>50</sup>?
6. Do the WQ criteria, based on "Ambient" conditions, specify the pollutant magnitude and seasonal and critical flows; and those based on "End of Pipe" conditions, specify the pollutant magnitude, duration, and frequency?

## PERMIT QUALITY REVIEW CHECKLIST

\* If time allows, the questions listed below should be answered in advance of the PQR.

Permit #:  
Facility name:  
Reviewer:

### I. PRE-SITE REVIEW: STATE-WIDE PERMITTING PRACTICES

#### B. NPDES PROGRAM REVIEW

1. Does PCS data indicate that permits are being timely re-evaluated on a five year cycle?
  - % of Industrial-Majors awaiting re-issuance
  - % of Minors Permits awaiting re-issuance
  - % of General permits awaiting re-issuance
2. What is the backlog of expired and not yet reissued permits?

#### C. BOILERPLATE LANGUAGE

1. Are the following general conditions incorporated into all permits, either directly or by reference to 40 CFR Part 122.41?

- \_\_\_\_\_ (a) Duty to comply
- \_\_\_\_\_ (b) Duty to reapply
- \_\_\_\_\_ (c) Need to halt or reduce activity
- \_\_\_\_\_ (d) Duty to mitigate
- \_\_\_\_\_ (e) Proper operation and maintenance
- \_\_\_\_\_ (f) Permit actions
- \_\_\_\_\_ (g) Property rights
- \_\_\_\_\_ (h) Duty to provide information
- \_\_\_\_\_ (i) Inspection and entry
- \_\_\_\_\_ (j) Monitoring and records
- \_\_\_\_\_ (k) Signatory requirements
- \_\_\_\_\_ (l) Reporting requirements
- \_\_\_\_\_ (m) Bypass
- \_\_\_\_\_ (n) Upset

Project Name: WJOHN CO - NORTH HAVEN  
 Reviewer: Ruby COOPER

# PERMIT QUALITY REVIEW CHECKLIST

## I. PERMIT FILE REVIEW

### A. ADMINISTRATIVE RECORDS

1. Does the permit file contain each of the following items relating to the current/most recent permit?

☒ Permit application and supporting data

Date received: 12/88

☒ Statement of Basis or Fact Sheet (and a separate FS for zone influence)

☒ Draft permit (old permit included in file as well)

☐ EPA Regional comments/concurrence

☐ Proof of public notice

Date noticed: \_\_\_\_\_

☐ intent to issue, reissue, or modify

☐ opportunity for public comment

☐ opportunity to request public hearing

☐ All comments received during public comment

☐ summary response to significant comments

☒ Transcripts or submissions from any hearings held

☐ public notice

☐ summary response to significant comments

☒ Explanation of changes from draft to final permit (several revised draft permits (4) in the file)

☐ Final permit

Date of final permit: \_\_\_\_\_



Permit #: . . . . .

6

5. Complete the following chart for each pollutant parameter with specific limits

Pollutant	Basis of Limit										
	Water Quality Based			Technology Based					Treatment Technology		
	State	EPA	Narrative	BPT	BCT	BAT	BPJ	ELG	2°Treat.	Other	Test Method

→ There are 3 outfalls and too many parameters to list; refer to Factsheet and permit

J = Best Professional Judgement  
G = Effluent Limitations Guidelines

Facility name:  
Reviewer:

### PERMIT QUALITY REVIEW CHECKLIST

#### C. INDUSTRIAL PERMITS LIMITS (CONT)

- b. Have alternate permit limitations been included to address different production levels? Specify the number of tiers of limits.

alternate permit limits were developed for dichloran  
in case variance from an effluent limitation is  
granted)

#### 2. Is a BPJ analysis used as a basis for permit limitations?

- a. Which of the following sources were used in establishing any BPJ limitations?

- ☒ Promulgated guidelines (
- ☐ Proposed guidelines
- ☐ Development document
- ☐ Treatability database
- ☐ Other (Specify)

#### D. MUNICIPAL PERMITS LIMITS

1. Were secondary treatment limitations adjusted (for BOD or SS) because of industrial contributions? Was it appropriate and correctly computed (Special consideration 40 CFR 133.103(b))?

Facility Name:  
Reviewer:

### PERMIT QUALITY REVIEW CHECKLIST

#### F. SPECIAL CONDITIONS IN MUNICIPAL PERMITS (Cont)

2a. Are sewage sludge requirements (Section 405) included?

2b. Does the permit contain requirements for:

\_\_\_\_\_ influent analysis  
\_\_\_\_\_ effluent analysis  
\_\_\_\_\_ sludge analysis

If so, list the parameters and frequency of analysis.

2c. Are Pretreatment Program conditions included, where appropriate?  
If so, describe the conditions (or attach a copy).

#### G. WATER QUALITY-BASED PERMITTING

1. Why does this permit have water quality-based toxics control?

\_\_\_\_\_ effluent toxicity screening  
\_\_\_\_\_ ambient stream monitoring results  
\_\_\_\_\_ inspection  
\_\_\_\_\_ DMR data  
\_\_\_\_\_ 304(1) listed receiving water  
\_\_\_\_\_ other (explain)  
\_\_\_\_\_ unclear

Reviewer:

**PERMIT QUALITY REVIEW CHECKLIST**

**G. WATER QUALITY-BASED PERMITTING (Cont)**

6. Have human health concerns been considered or specifically used in determining limits?

7. Are whole effluent toxicity (WET) conditions included in the permit? If not, is justification included in the fact sheet to indicate that toxicity is not a problem?

a. Is there an actual limit or is WET testing used as a screen only?

b. Where in the permit are the conditions specified? ("Up front," as a special condition, or as a standard condition?)

c. Identify WET testing methods:

Type	Frequency	Species	Duration	Endpoint

Facility Name:  
Reviewer:

### PERMIT QUALITY REVIEW CHECKLIST

#### G. WATER QUALITY REVIEW PERMITTING (Cont)

10. For this permit, was wasteload allocation (WLA) modeling performed?
  - a. What type of model(s) was used to perform the WLA(s) (Steady state, dynamic, or other)? Describe the type of calculation(s) used.
  - b. What mechanisms or sources of data were used for WLA modeling?
    - ☐ application form information
    - ☐ DMRs
    - ☐ 308 letters
    - ☐ administrative orders
    - ☐ intensive stream survey
    - ☐ other (explain)
  - c. Are the WLA/TMDLs approved by EPA?
11. What stream design flow is specified?
12. Was non-point source contribution from upstream considered? How?
13. Were the impacts of other major dischargers (multiple discharges) taken into account in determining any permit limits or other requirements?
  - a. How were multiple discharges taken into account?

1. ☐ 2. ☐ 3. ☐ 4. ☐ 5. ☐ 6. ☐ 7. ☐ 8. ☐ 9. ☐ 10. ☐ 11. ☐ 12. ☐ 13. ☐ 14. ☐ 15. ☐ 16. ☐ 17. ☐ 18. ☐ 19. ☐ 20. ☐ 21. ☐ 22. ☐ 23. ☐ 24. ☐ 25. ☐ 26. ☐ 27. ☐ 28. ☐ 29. ☐ 30. ☐ 31. ☐ 32. ☐ 33. ☐ 34. ☐ 35. ☐ 36. ☐ 37. ☐ 38. ☐ 39. ☐ 40. ☐ 41. ☐ 42. ☐ 43. ☐ 44. ☐ 45. ☐ 46. ☐ 47. ☐ 48. ☐ 49. ☐ 50. ☐ 51. ☐ 52. ☐ 53. ☐ 54. ☐ 55. ☐ 56. ☐ 57. ☐ 58. ☐ 59. ☐ 60. ☐ 61. ☐ 62. ☐ 63. ☐ 64. ☐ 65. ☐ 66. ☐ 67. ☐ 68. ☐ 69. ☐ 70. ☐ 71. ☐ 72. ☐ 73. ☐ 74. ☐ 75. ☐ 76. ☐ 77. ☐ 78. ☐ 79. ☐ 80. ☐ 81. ☐ 82. ☐ 83. ☐ 84. ☐ 85. ☐ 86. ☐ 87. ☐ 88. ☐ 89. ☐ 90. ☐ 91. ☐ 92. ☐ 93. ☐ 94. ☐ 95. ☐ 96. ☐ 97. ☐ 98. ☐ 99. ☐ 100. ☐

## PERMIT QUALITY REVIEW CHECKLIST

## **I. COMPLIANCE AND ENFORCEMENT**

1. Does the permit include a compliance schedule for each outfall which is not in compliance with the limitations specified in the permit? If not, is an explanation provided?
2. Have any enforcement actions been taken? If yes, briefly describe the nature and dates of the actions.

NOTES

## FACT SHEET ZONE OF INFLUENCE ALLOCATION

The draft permit for the UpJohn Company includes an allocation of 811,750 gallons per hour of flow in the Quinnipiac River to Upjohn for use as a Zone of Influence (ZOI). Within this ZOI, the discharge may cause degraded water quality including toxic impacts to aquatic organisms. However, this allocation of flow limits the area of the river encompassed by the ZOI to insure that the overall quality of the Quinnipiac River will not be impaired. The magnitude of the ZOI allocation is important since it establishes the maximum amount of pollution which can be discharged by UpJohn without violating the permit.

Connecticut's NPDES permit regulations provide the Commissioner of DEP with broad discretionary powers to determine whether it is appropriate to allocate a portion of the receiving water resource to a ZOI and, if so, how large an allocation can be made without significantly impairing the water quality in the receiving water. It is the intent of this provision in the Regulations to allow the Commissioner of DEP some flexibility in establishing permit conditions based on the unique characteristics of both the wastewater and receiving water at each discharge site.

### What is a Zone of Influence?

A ZOI is defined as the spatial area or volume of flow in the receiving water which is degraded by a discharge of pollutants. The degree of impairment varies considerably within a ZOI. Near the point of discharge, impairment may be severe since the pollutants are present in high concentrations. Further distant from the pollution source, water quality approaches minimally acceptable levels as pollutants become more dilute. At the boundary of the ZOI and beyond, water quality is no longer impaired by the pollution source.

The size and shape of a ZOI is determined by the initial concentration of pollutants in the wastewater, the rate of discharge, the flow in the receiving stream, the persistence of pollutants in the receiving water after discharge, and the physical attributes of the discharge site which dictate the mixing characteristics of the discharge and receiving waterbody. For example, when flow is high in the river, the ZOI will shrink in size since the effluent is rapidly diluted near the outfall site. During low flow conditions, the size of the area impacted by the discharge will be much larger since the river provides less dilution for the wastewater under these conditions. Similarly, all other factors being equal, a smaller ZOI will result when the discharger decreases the rate at which wastewater is discharged or removes additional pollutants from the wastewater by improving treatment or changing the process which generates the wastewater since less dilution is needed to make the effluent non-polluting.

### How is the ZOI Allocation Determined?

The ZOI allocation represents the DEP's estimate of the maximum ZOI which can occur at a specific site before unacceptable impacts to the River will result. Even very infrequent exposure to toxic concentrations of pollutants which persist for only a short period of time can adversely impact populations of sensitive aquatic species. These populations may eventually recover if the impact is not too severe and enough organisms survive to recolonize the affected area. Therefore, a ZOI allocation is made only after giving careful consideration to all the site-specific factors which relate to the potential for a discharge to cause pollution at a specific site. Many of the factors vary either in a predictable way (such as tidal influences), or in a more random manner (such as river flow or treatment system efficiency). The variability in site-specific conditions and the associated uncertainty in making exact predictions also is taken into account by staff in determining the maximum ZOI which can exist in the river before impacts are unacceptable.

### How Does this Apply to UpJohn?

The proposed ZOI for UpJohn is based on consideration of data provided by two dye dilution studies performed by UpJohn, effluent monitoring data, and other relevant data concerning the environmental characteristics at the site including numerous site visits by DEP staff.

Wastewater from UpJohn is discharged to an area of the Quinnipiac River which can be characterized as a tidal estuary where fresh and saline waters mix. These areas provide essential habitat and nursery areas for numerous important aquatic species, are relatively rare in Connecticut, and have high ecological value. Several other wastewater discharges, both industrial and municipal, also utilize this area of the river for waste assimilation. The presence of other pollution sources in the area is important since sequential ZOI's could result in a cumulative impact to the river if care was not taken to insure that these ZOI's do not overlap or encompass too large an area of the river.

Examination of the effluent monitoring data revealed the presence of numerous toxic compounds, including several synthetic compounds which may pose a health risk to human consumers of fish which have incorporated these compounds into their tissues. The presence of numerous chemicals at concentrations which may be toxic or pose a risk of contaminating fish or sediments is important because there is a degree of uncertainty regarding the dangers of these compounds. This uncertainty is taken into account in the assessment since caution regarding limits on the area exposed to them is warranted.

The dye studies show that tidal dispersion is of much greater importance than freshwater flow for diluting UpJohn's wastewater. Dilution provided by tidal dispersion results in a more predictable, repeating pattern of daily exposure than is the case where river flow is the principal source of dilution for the wastewater. The dye studies also showed that wastewater from the UpJohn



discharge does not always mix rapidly with the river but frequently forms a shore hugging plume of partially diluted effluent along the western bank of the river. These factors, taken together, indicate that organisms living in an extended, narrow band along the western shore of the river downstream of the discharge site are exposed to partially diluted effluent on a regular basis.

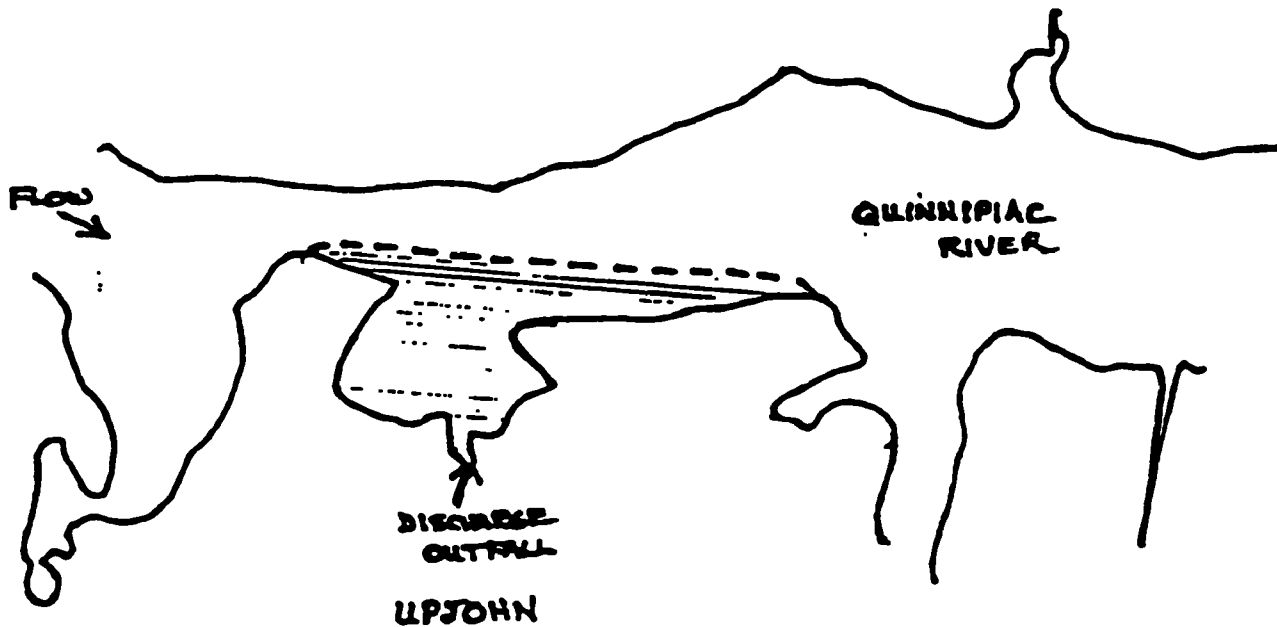
As a result of a detailed and thorough assessment of all site-specific factors, DEP staff recommended limiting the ZOI for UpJohn to a small area near the discharge outfall as shown on the attached site sketch.

It is the consensus of DEP professional staff that the recommended ZOI allocation provides adequate protection to the Quinnipiac River estuary, a highly valuable and environmentally sensitive resource. The recommended allocation recognizes the presence of other pollution sources in the immediate area, accounts for the unique hydrologic mixing characteristics at the site, and was recommended by staff only after giving careful consideration to the scientific uncertainty associated with predicting pollution impacts to humans and aquatic life and the natural statistical variability associated with environmental data collected at the site.

#### How is the Area of the ZOI Related to the ZOI Flow Allocation in the Permit?

In order to limit the ZOI to the area shown on the site sketch, the effluent must be non-toxic when diluted to the maximum concentration which will occur at the boundary of the ZOI. The dye studies provide a large number of measurements of effluent concentrations at the edge of the ZOI. Since these concentrations are variable, primarily as a result of tidal flows and dispersion of the effluent, the upper 95th percentile of the data was determined by DEP staff to be representative of the highest concentration likely to occur at the boundary of the ZOI. Under most normal conditions (95% of the time) the concentration of effluent at the boundary of the allocated ZOI would be less. The maximum concentration, approximately 2.9% effluent, represents a 35:1 dilution of UpJohn wastewater by river water at the boundary of the ZOI. Subsequent calculations employing the actual flow of wastewater discharged by UpJohn during the dye studies indicates that this dilution is equivalent to the dilution which would be provided by mixing the effluent with 811,750 gallons per hour of river water.

**SITE SKETCH : UPJOHN ZONE OF INFLUENCE / QUINNIPIAC RIVER**



The dashed line indicates the maximum area included in the ZOI within which water quality may be impaired by the UpJohn discharge. The NPDES permit specifies that, 95 percent of the time under normal conditions when UpJohn is in compliance with all permit limits, toxic concentrations of effluent will not occur in the river outside of the shaded area.

# **Module 2:**

# **Ground Water Protection**

# **State Ground Water Program Elements Eligible for Funding With EPA Assistance**

**VIEWGRAPH #1: State Ground Water Program Elements Eligible for Funding With EPA Assistance**

## **KEY POINTS**

**Within state ground water programs are several categories of activities that can be funded by Section 106 and other assistance programs. This module will discuss those program elements, and then focus particular attention on the Comprehensive State Ground Water Protection Program (CSGWPP).**

# Ground Water Protection Goal

- Unique to Each State
- Consistent Themes  
Throughout Country

**VIEWGRAPH #2: Ground Water Protection Goal**  
**KEY POINTS**

EPA's 1990 Ground Water Task Force Report recognized the local nature of ground water protection and contamination. The report emphasizes giving states and local governments primary responsibility for protection, and where contamination has occurred, for assessing and prioritizing risks to public health and the ground water environment.

States have articulated two long-term ground water protection goals: first, to prevent pollutants from entering ground water; and second, to remove known contaminants from ground water. In many states, particularly urban states, these general goals have been refined to focus on the discharge of certain contaminants, at defined levels.

## **Priority Setting for Ground Water Protection**

- **Comprehensive Assessments**
- **Inventory & Rank  
Contamination Sources**
- **Delineate Wellhead  
Protection Areas**
- **Establish Quality Standards**

**VIEWGRAPH #3: Priority Setting for Ground Water Protection**  
**KEY POINTS**

To ensure comprehensive ground water protection in accordance with the state's and EPA's ground water protection goal, the following "priority setting" steps should be taken:

- **Conduct a comprehensive assessment of aquifer systems.** A comprehensive assessment includes an ongoing program that provides information on the occurrence, movement, and quality of ground water within the state's boundaries.
- **Inventory and rank potential sources of contamination.** Sources of ground water contamination present varying levels of threat to the resource. States need to develop an ongoing program to identify the existence, location, and relative magnitude (risk) of man-made and natural threats to ground water quality. Contaminant source inventories typically have three components:
  - (1) Identifying specific categories of land use activities that threaten ground water quality.

- (2) Locating these threats and, if relevant, where they are concentrated.
  - (3) Identifying known contaminants that have entered, or will likely enter, the subsurface and threaten public health and/or the environment.
- **Delineate wellhead protection areas.** The delineation of wellhead protection areas surrounding public drinking supply wells is a critical component of a ground water protection program. The delineated area(s) represent the land areas that provide recharge to the well. Once delineated, pollution sources in these areas can be managed to protect public health. Wellhead protection focuses on the protection of drinking water supplies through the control of contaminant sources before they enter the subsurface. Three broad purposes underlie wellhead protection programs:
  - (1) Minimizing the risk from bacteria and virus migration to drinking water wells.
  - (2) Allowing lead time to detect and control contaminants that do not degrade in ground water prior to their reaching the well.
  - (3) Allowing the establishment of management controls for existing and future facilities and land uses with known or potential discharges to ground water.
- **Establish ground water quality standards.** Ground water quality standards (e.g., nitrogen loading standards) are the basis for ground water quality decisions regarding discharge controls, mitigation of contaminant activities, and possible variations from statutory requirements. Ground water quality standards often include the classification of ground water—recognition of the fact that ground waters vary in their background quality, quantity, and future use.

## **Coordinating State Ground Water Protection**

- **Identify Lead State Agency**
- **Coordinate With EPA, Other Programs, Agencies, Authorities & Governments**
- **Develop MOUs & MOAs for Overlapping Issues**

### **VIEWGRAPH #4: Coordinating State Ground Water Protection KEY POINTS**

The implementation of a state ground water protection program occurs over several years and involves numerous state, federal, and local agencies. This requires an ongoing process of coordination and cooperation among the various players. A key ingredient of all successful state ground water protection programs is the identification of a lead state agency to coordinate the various ground water protection activities found throughout state and regional governments. Elements of the coordinating program include:

- **Coordination with EPA and other federal agencies, state agencies, tribal authorities, and county and local governments.**
- **Coordination with international (e.g. Canada and Mexico) and interstate programs.**
- **Coordination with other relevant natural resource programs that cross agency lines.**
- **Development of Memoranda of Understanding and Agreements (MOU and MOA) for issues that overlap corporate boundaries (e.g. tribal and local governments, state and foreign governments, etc.).**



## Strategic Implementation Activities

- Coordinate Programs
- Enforceable Standards
- Management Controls
- Well Standards

**VIEWGRAPH #5: Strategic Implementation Activities**  
**KEY POINTS**

**Coordinated pollution prevention and source reduction program.** Ground water protection, as articulated by EPA and the states, is a preventive program. While the prevention of all discharges to the ground waters of a state is unrealistic, the prevention of contaminant entry to the most sensitive aquifers and wellhead protection areas is not. To that end, states should consider the relative vulnerability of ground water in determining prevention measures and source reduction programs. Pollution prevention and source reduction programs are more successful when they are coordinated with on-going federal and state programs, including, but not limited to the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), the Resource Conservation and Recovery Act (RCRA), the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA), the National Pollutant Discharge Elimination System (NPDES), the Underground Injection Control (UIC) program, and Underground Storage Tank (UST) program.

In addition to coordination with EPA and with other state agencies, state ground water protection agencies need to coordinate with county and local governments (where most land use decisions are made). If states are to develop effective source reduction and pollution prevention programs, they need to work with local governments to share data on issues such as aquifer vulnerability and regional withdrawal needs.

**Enforceable ground water quality standards.** The protection of ground water often requires the enforcement of ground water quality standards and regulations. States can promulgate regulations that are stricter than federal standards for the purposes of protecting the public health. (In many states, local governments also develop local regulations more stringent than the states'). In applying standards, state and local governments should distinguish between prevention (avoiding the contamination from entering the subsurface) and remediation (removing contamination after it enters the ground water).

**Management controls.** States have enabling powers to regulate (and allow local governments to further regulate) contaminant sources and land uses that will degrade ground water quality. Management Controls are commonly divided into two categories: regulatory and non-regulatory. Regulatory controls may involve the use of land. Controls on the transportation, use, and disposal of known contaminants are typical regulatory controls. Non-regulatory actions include acquisition of land, public education programs, citizen monitoring or source identification programs, and promotion of best management practices. The underlying principle behind management controls is that the identification of contamination sources alone will not prevent ground water contamination.

**Well construction, installation, and abandonment standards.** Wells used for drinking water purposes, monitoring, and irrigation represent significant threats to ground water quality if they are not installed and abandoned properly. A well represents a direct conduit to the subsurface through which contaminants can readily travel—along the well's casing or via the well itself. As a result, it is critical that states have standards for well construction, testing, and driller certification to ensure that wells are drilled and completed in a manner that will not threaten ground water quality. These standards should cover public and private drinking water wells, irrigation wells, and monitoring wells.

## **Integrated Information Collection & Management**

- **Monitoring**
- **Use Data**
- **Well Locations**
- **Pollution Sources & Threats**
- **Flow, Interaction &  
Recharge Data**

### **VIEWGRAPH #6: Integrated Information Collection & Management KEY POINTS**

The data needs of states range from site-specific information on known contaminant sources to statewide tabulations on the types of contaminants found within its boundaries. Data are used for a variety of purposes ranging from enforcement to planning. States need to cooperate with EPA, the U.S. Geological Survey, the U.S. Department of Agriculture, and local and regional agencies that compile and analyze data on ground water quality and use. There are eight general categories of ground water data needs by states:

- **Monitoring and characterization of ground water quality (often by sub-region within the state).**
- **Ground water use (withdrawal) data.**
- **Location of drinking water wells.**
- **Estimate of pollution sources**
- **Identification of significant source threats to ground water.**
- **Ground water flow (direction) data.**
- **Ground water and surface water interaction data.**
- **Ground water recharge data.**

## **Public Education and Participation**

- **Informational Meetings**
- **Posters, Brochures, & Newsletters**
- **Volunteer Activities**
- **Citizen Monitoring**
- **Road Signs**

**VIEWGRAPH #7: Public Education and Participation**  
**KEY POINTS**

Many states have recognized that public education may be the key to comprehensive ground water protection. Public education encompasses a variety of techniques, including:

- **Informational meetings for community residents.**
- **Posters, brochures, and newsletters.**
- **Volunteer activities such as contaminant source investigation teams.**
- **Citizen monitoring of wells.**
- **Citizen monitoring of land use decisions made by local government boards and agencies.**
- **Road signs indicating the entry into a wellhead or ground water protection area.**

# **EPA's Comprehensive State Ground Water Protection Program Guidance**

**January 19, 1993**

**VIEWGRAPH #8: EPA's Comprehensive State Ground Water Protection Program Guidance  
KEY POINTS**

**On January 19, 1993 the EPA Administrator approved the concept, policy, and guidance to state environmental agencies on Comprehensive State Ground Water Protection Programs (CSGWPPs).**

## History of CSGWPP

- 1984 Ground Water Protection Strategy
- 1989 EPA Ground Water Task Force
- 1991 Task Force Final Report

**VIEWGRAPH #9: History of CSGWPP**  
**KEY POINTS**

In 1984 the Agency adopted a Ground Water Protection Strategy to address the lack of coordination among various federal programs to prevent and control sources of ground water contamination. The strategy also identified EPA's role in a national ground water protection program.

In 1989, the EPA Administrator established a Ground Water Task Force to review the Agency's ground water protection program and to develop concrete principles and objectives to ensure that all Agency decisions affecting the resource were effective and consistent.

In May 1991, the EPA Ground Water Task Force revised the strategy in a document titled "Protecting The Nation's Ground Water: EPA's Strategy for the 1990s." The document was the first to acknowledge the need for comprehensive ground water protection at the state and local levels.

## **EPA's Ground Water Protection Goal is to Protect:**

- Humans
- Environment
- Integrity of Ground Water

**VIEWGRAPH #10: EPA's Ground Water Protection Goal is to Protect:**  
**KEY POINTS**

EPA's ground water goal is to prevent adverse effects to human health and the environment and to protect the environmental integrity of the nation's ground water resources. This goal calls for CSGWPPs that ensure protection of drinking water supplies and maintenance of the environmental integrity of ecosystems associated with ground water. In addition, EPA will consider the use, value, and vulnerability of the ground water resource, as well as the resource's social and economic values.

## Objectives

- Prevention of Contamination
- Prevention Based on Relative Vulnerability, Use, and Value
- Remediation Based on Relative Use and Value

VIEWGRAPH #11: Objectives

### KEY POINTS

To implement this goal, EPA is pursuing a three-tiered hierarchy of preferred ground water protection objectives:

- **Prevention of contamination whenever possible.** To meet the Agency's goal of preventing adverse effects to human health and the environment and protecting environmental integrity, prevention of contamination must be the first priority of the CSGWPP approach.
- **Prevention of contamination based on the relative vulnerability of the resource and, where necessary, the ground water's use and value.** EPA also recognizes that basic human activity will affect ground water. The prevention of all discharges to all ground water is not possible, but some level of protection should be considered for all ground water resources. The relative vulnerability of the ground water should help determine the level of controls necessary to prevent contamination. The relative use, value, and vulnerability of ground water also can be used in siting any potentially contaminating facilities and activities.



- **Remediation based on relative use and value of ground water.**  
Remediation must be accomplished as a final option when prevention fails or where contamination already exists. EPA's goal is to remediate all aquifers to meet their designated uses. EPA, the states, and other federal agencies must work together to ensure consistent approaches to determining clean-up objectives.

## **EPA's Approach**

- **Resource-Oriented Decision Making**
- **"State-Centered"**
- **Common Framework**

### **VIEWGRAPH #12: EPA's Approach KEY POINTS**

The centerpiece of the new ground water strategy is the concept of Comprehensive State Ground Water Protection Programs (CSGWPPs). Comprehensive programs will serve as a "hub" for State-Centered, Resource-Oriented Decision Making. This "hub" will help align the various ground water related programs to ensure more effective and efficient protection of the nation's ground water resources.

**Resource-Oriented Decision Making** refers to the use of the characteristics of the ground water resource itself as the basis for setting geographic or programmatic priorities for protecting ground water. These decisions can be based on the characteristics of the resource, such as its vulnerability to contamination. They also can be based on the effects to human health or the environment if contamination were to occur. Resource-Oriented Decision Making includes evaluating all actual and potential sources of contamination and using all available programs (regulatory and non-regulatory) to address these sources in a coordinated, systematic manner.

**"State-Centered"** means that the state will have the lead role in making these resource-oriented decisions. The state will have the primary responsibility for developing and directing protection efforts to particular ground water resources.

Most states' ground water protection efforts remain disjointed. Each state has developed a unique structure and approach to ground water protection. Flexibility and variation are necessary as a result of each state's unique environmental and institutional situation. However the lack of a common framework makes it difficult to assess state achievements, to understand state capabilities, to identify programmatic gaps and needs, and to identify funding needs.

Most federal and state ground water protection programs remain focused on single sources of contamination, which makes it difficult to achieve more comprehensive protection of the ground water resource.

## **Six Strategic Activities**

- **Establish Goal**
- **Establish Priorities**
- **Define Roles/Responsibilities**
- **Implement Necessary Efforts**

**VIEWGRAPH #13: Six Strategic Activities**  
**KEY POINTS**

A state CSGWPP comprises six strategic activities, which foster more efficient and effective protection of ground water through more cooperative, consistent, and coordinated operation of all relevant federal, state, and local programs within a state.

The EPA CSGWPP guidance identifies the six strategic activities as:

- **Establishing a ground water protection goal to guide all relevant programs in the state.**
- **Establishing priorities—based on characterization of the resource, identification of sources of contamination, and programmatic needs—to direct all relevant programs and activities in the state toward the most efficient and effective means of achieving the state's protection goal.**
- **Defining authorities, roles, responsibilities, resources, and coordinating mechanisms across relevant federal, state, tribal, and local programs for addressing identified ground water protection priorities.**
- **Implementing all necessary efforts to accomplish the state's ground water protection goal consistent with the state's priorities and schedules:**

## **Six Strategic Activities (Cont.)**

- **Coordinate Information Collection/Management**
- **Improve Public Education/Participation**

**VIEWGRAPH #14: Six Strategic Activities (Cont.)**  
**KEY POINTS**

*Continued from previous page.*

- **Coordinating information collection and management to measure progress, re-evaluate priorities, and support all ground water-related programs.**
- **Improving public education and participation in all aspects of ground water protection to achieve support of the state's protection goal, priorities, and programs.**

**The comprehensive approach and guidance places considerable emphasis on resource-based, priority-setting decision-making. It is expected that states will afford extra management attention and ground water quality protection efforts to delineated wellhead protection areas, and other areas determined by the state to require protection and management. In addition, ground water resource characterization and mapping conducted under wellhead protection programs will aid in priority-setting under the CSGWPP.**

The EPA CSGWPP guidance also ensures coordination between state ground water protection and management programs and other EPA programs. For example, vulnerability assessments completed under a wellhead protection program will meet the requirements for vulnerability assessments and sanitary surveys under the Public Water Supply Supervision Program. This approach will avoid duplicate efforts under similar drinking water protection programs run by EPA and the states.

## Levels of CSGWPPs

- **Core:** Initial Commitment, Demonstrate Effectiveness
- **Fully Integrating:** Efforts Coordinated and Focused on All Goals

### VIEWGRAPH #15: Levels of CSGWPPs KEY POINTS

As stated previously, the six strategic activities are intended to be interactive. This will result in a state's re-assessment and improvement of its program, which will eventually lead the state from a base or "core" CSGWPP to a more developed "fully integrating" CSGWPP. Both levels of CSGWPPs are presented in the January 19, 1993 EPA headquarters guidance.

A core CSGWPP represents a state's initial commitment to working jointly with EPA. It enables the state to demonstrate its effectiveness in ground water protection. Having a fully integrating CSGWPP means that ground water protection efforts are coordinated and focused on achieving the state's goal across all federal, state, and local ground water-related programs.

Each CSGWPP has a different set of criteria to be approved by EPA. A core program is attained when all six strategic activities emerge as a cohesive, clearly identifiable program. Once a core program is attained, continual improvement and implementation is expected to eventually lead to a fully integrating CSGWPP.

## **The CSGWPP Goal**

- **Build on What Has Been Learned About Ground Water Protection**
- **Provide a National Consensus**

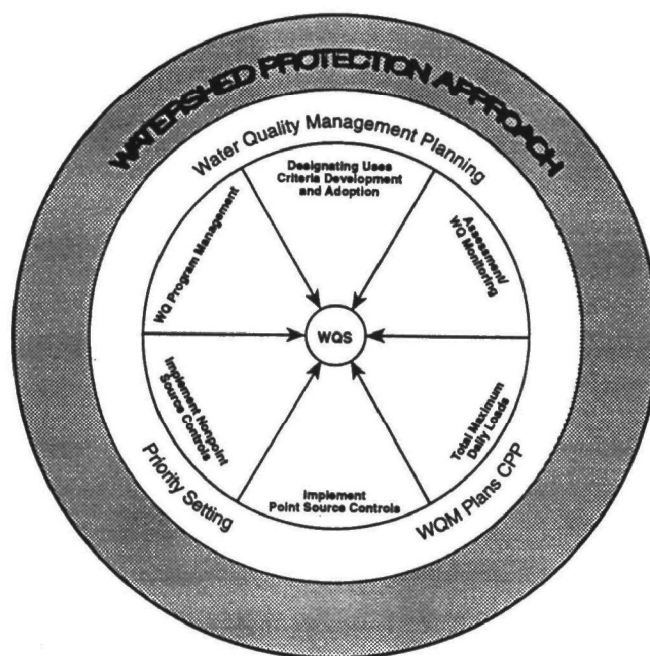
**VIEWGRAPH #16: The CSGWPP Goal**  
**KEY POINTS**

**CSGWPPs are intended to build on what has been learned about ground water protection and remediation efforts over the past two decades and to provide a national consensus on what actually comprises comprehensive ground water protection. Therefore, CSGWPPs will include the following topics:**

- **Prevention**
- **Remediation**
- **State-Directed, Resource-Based Priority Setting**
- **State Flexibility**
- **Program Coordination**
- **Increased Recognition of the Interrelationship Between Ground Water Quantity and Quality**
- **Increased Public Participation and Support**
- **More Flexible Funding, and Consensus and Future Direction**



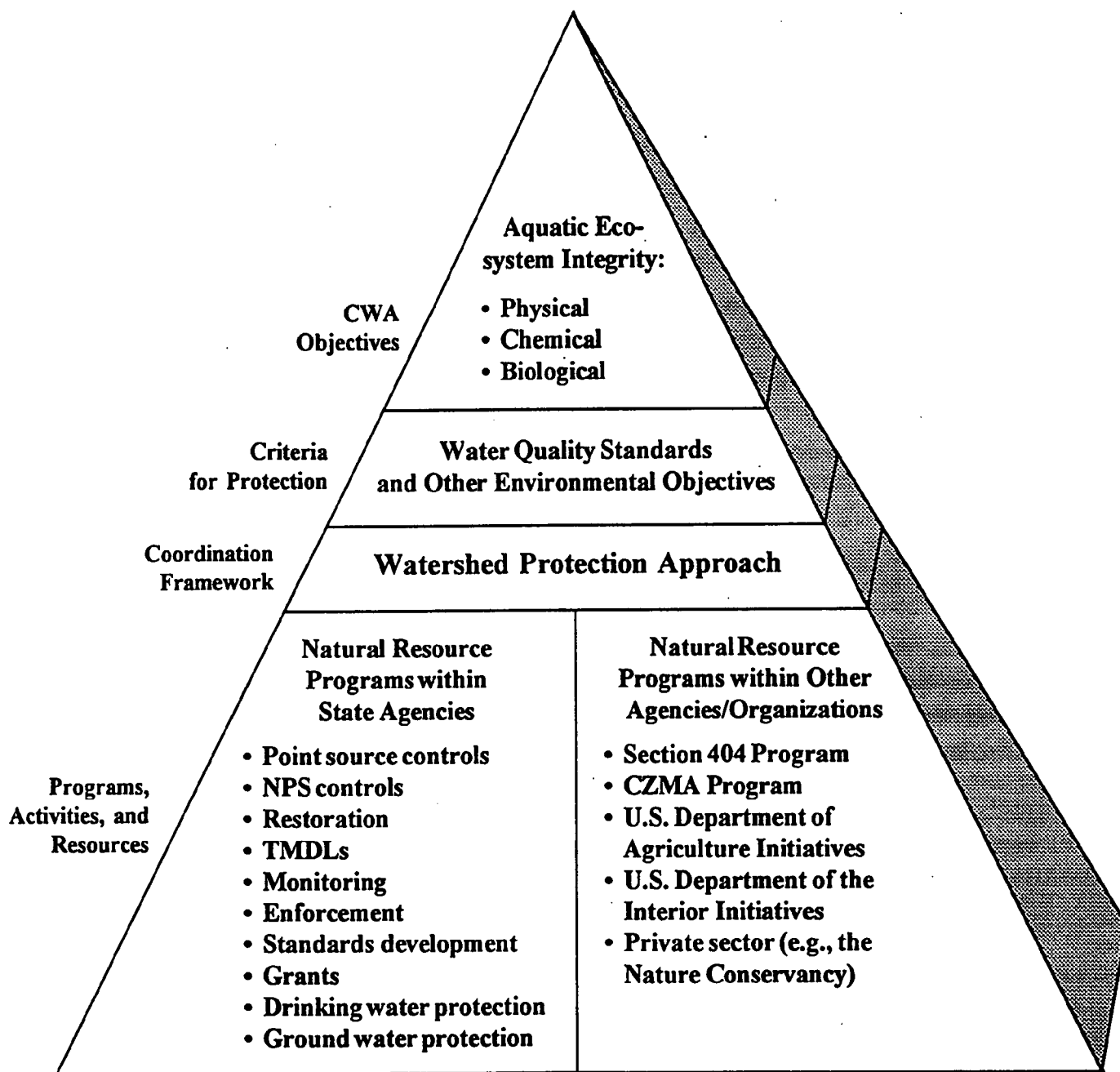
**Module 2A:**  
**Program Coordination Through**  
**The Watershed Protection**  
**Approach (WPA)**



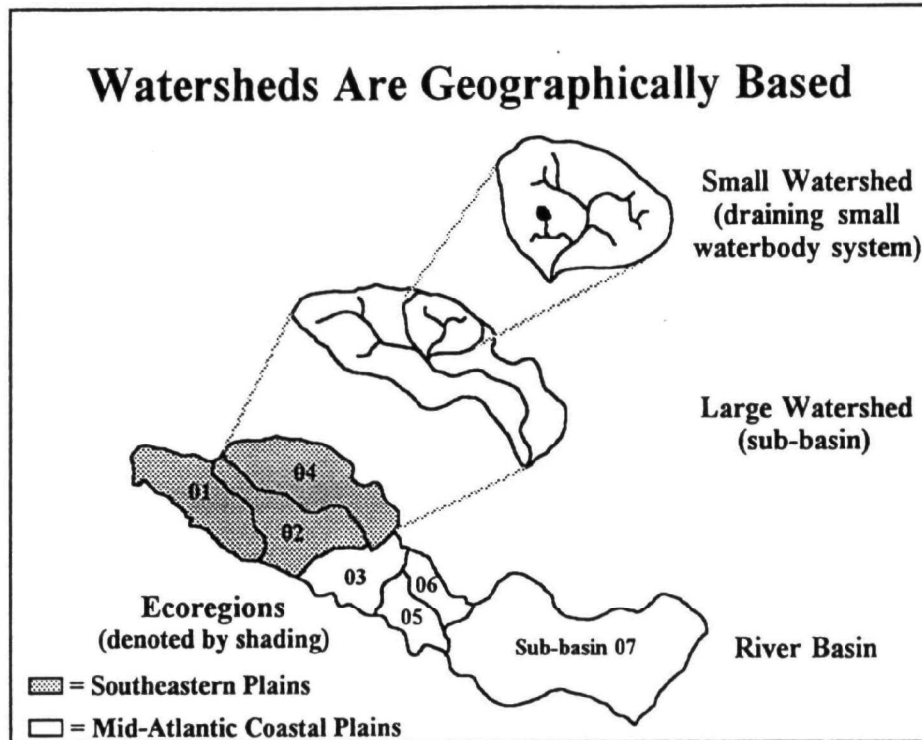
**VIEWGRAPH #1: The Emerging Water Quality Program**  
**KEY POINTS**

The surface water and groundwater water quality management programs described in Modules 1 and 2 need to be integrated with other ecosystem management programs and projects to more effectively achieve Clean Water Act (CWA) ecosystem protection and restoration goals. Many agencies and programs at the local, state, and federal levels have embraced the idea of using the geographic boundaries of a watershed as an effective basis for coordinating and integrating management efforts. This approach has come to be known as the Watershed Protection Approach (WPA), and is depicted in the viewgraph by an additional "rim" around the Water Quality Management (WQM) program wheel. Exhibit 2A-1 further illustrates how the WPA is a coordinating framework for achieving CWA objectives.

106 project officers need to have a basic understanding of the WPA. This module begins with an overview of the WPA. Particular emphasis is placed on the Statewide Basin Management Approach (BMA), a form of the WPA developed by states that provides a foundation and methodology for program integration and coordination. Important elements of the BMA are described, along with factors regarding BMA development and implementation that 106 project officers can consider in performing their basic responsibilities. The concepts illustrated for the BMA can also be applied to states that are using alternative forms of the WPA.



**Exhibit 2A-1. Emerging Framework for Achieving CWA Goal**



**VIEWGRAPH #2: Watersheds Are Geographically Based**  
**KEY POINTS**

The WPA is based on the premise that water quality protection and restoration are best addressed through geographic management units (i.e., watersheds, basins) so that all causes and sources of environmental stress can be managed collectively.

How is the term "**Watershed**" defined in this context?

- A watershed is broadly defined as the **geographic delineation of an entire waterbody system and the land that it drains above a specific outlet point.**
- **The size of a watershed is relative to the chosen outlet point.** For instance, the watershed size for a point on a headwater tributary will be considerably smaller than the size of the watershed at the mouth of a downstream river. The viewgraph illustrates how small waterbody systems are contained within small watersheds, which in turn are part of a larger watershed (e.g. sub-basin) for a river basin. The challenge to programs and agencies is to reach a consensus on how watershed boundaries will be delineated for purposes of coordinating and integrating management activities.

## **WPA: A Geographically Based System**

- Stakeholder involvement
- Environmental objectives
- Priority concerns
- Integrated solutions
- Resource protection options

### **VIEWGRAPH #3: Features of the WPA KEY POINTS**

The WPA is characterized by the following features:

- **Promotes stakeholder involvement**

Stakeholders are all agencies, organizations, and individuals that are involved in or affected by water quality management decisions. The WPA groups stakeholders by watershed so that they can work together to reach agreement on priority concerns, goals, and approaches for addressing a particular watershed's problems; the specific actions for mitigating problems; and how management activities can be coordinated and evaluated.

- **Focuses on environmental objectives**

The WPA helps stakeholders focus on the primary goals and objectives of the CWA. Management success is gauged by the progress made toward protecting or restoring waters from threats to human health and aquatic life, rather than on measurement of program activities such as numbers of permits issued or samples collected. In other words, the WPA is *resource-centered* rather than program-centered.

- **Targets priority concerns**

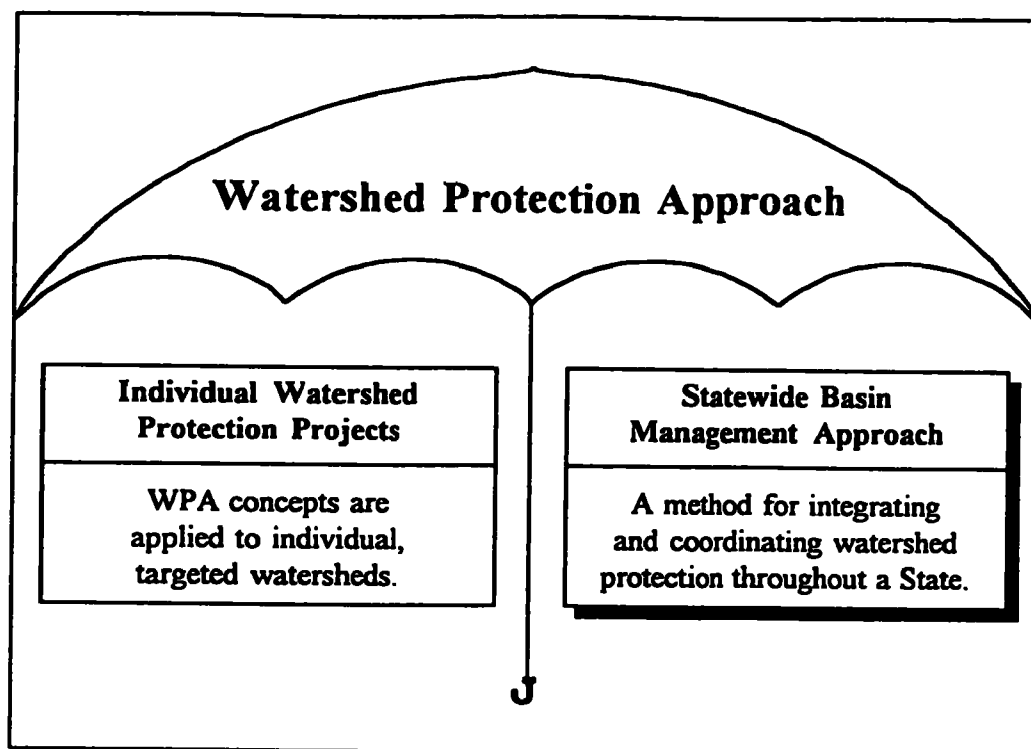
The WPA pushes monitoring and assessment to the forefront of the management process to better identify priority concerns within watersheds. Limited stakeholder resources can then be used efficiently for activities that address the priority concerns most effectively.

- **Facilitates integrated solutions**

Stakeholder expertise and funds may be more effective when they are pooled to deal with common concerns. Under the WPA, human and financial resources can be leveraged in accordance with plans and roles established through stakeholder agreement to address watershed management goals and objectives.

- **Broadens the base of resource protection options**

The WPA expands the focus of activities to evaluate all interacting sources of stressors/pollutants in a given watershed at the same time. Broadening the scale of evaluation also tends to increase the spectrum of stakeholders involved in management, which increases the management capabilities that can be brought to bear on the issues. Additionally, the increase in participants and capabilities creates more opportunities for innovative solutions such as ecological restoration, wetlands mitigation banking, and market-based alternatives (e.g., pollutant trading) that may be needed to address complex problems.



**VIEWGRAPH #4: The Statewide Basin Management Approach**  
**KEY POINTS**

General aspects of the WPA are often refined to more specific frameworks that meet individual needs of states and regions. These frameworks reflect how agencies and other stakeholders operate together under a WPA on a daily basis. The **Statewide Basin Management Approach (BMA)** has emerged as a leading WPA framework. It is not, however, the only viable approach for states and regions under the WPA. The BMA is emphasized here because it was **developed by states as a practical approach** to resource management. The BMA is not a new approach, rather it is a logical extension of basin planning and area-wide waste management efforts performed during the early years of CWA implementation, and more recent efforts such as the National Estuarine Program. The BMA has many **common sense elements that provide numerous benefits** to state and federal agencies responsible for implementing CWA provisions. Also, **the approach is very flexible** in that it can be adapted to the unique circumstances of a state or federal agency helping to implement water programs.

The BMA is considered a large-scale WPA because it applies the WPA concepts to WQM activities statewide. Many individual watershed protection projects across the nation represent multi-stakeholder efforts on a smaller scale. The BMA, however, incorporates the WPA into the daily operations of many of the lead regulatory and

nonregulatory agencies responsible for administering WQM program activities rather than limiting WPA activities to special watershed projects. Although 106 project officers may encounter both specific project WPAs and Statewide BMAs, this module emphasizes the latter because of their strong influence on WQM program activities.



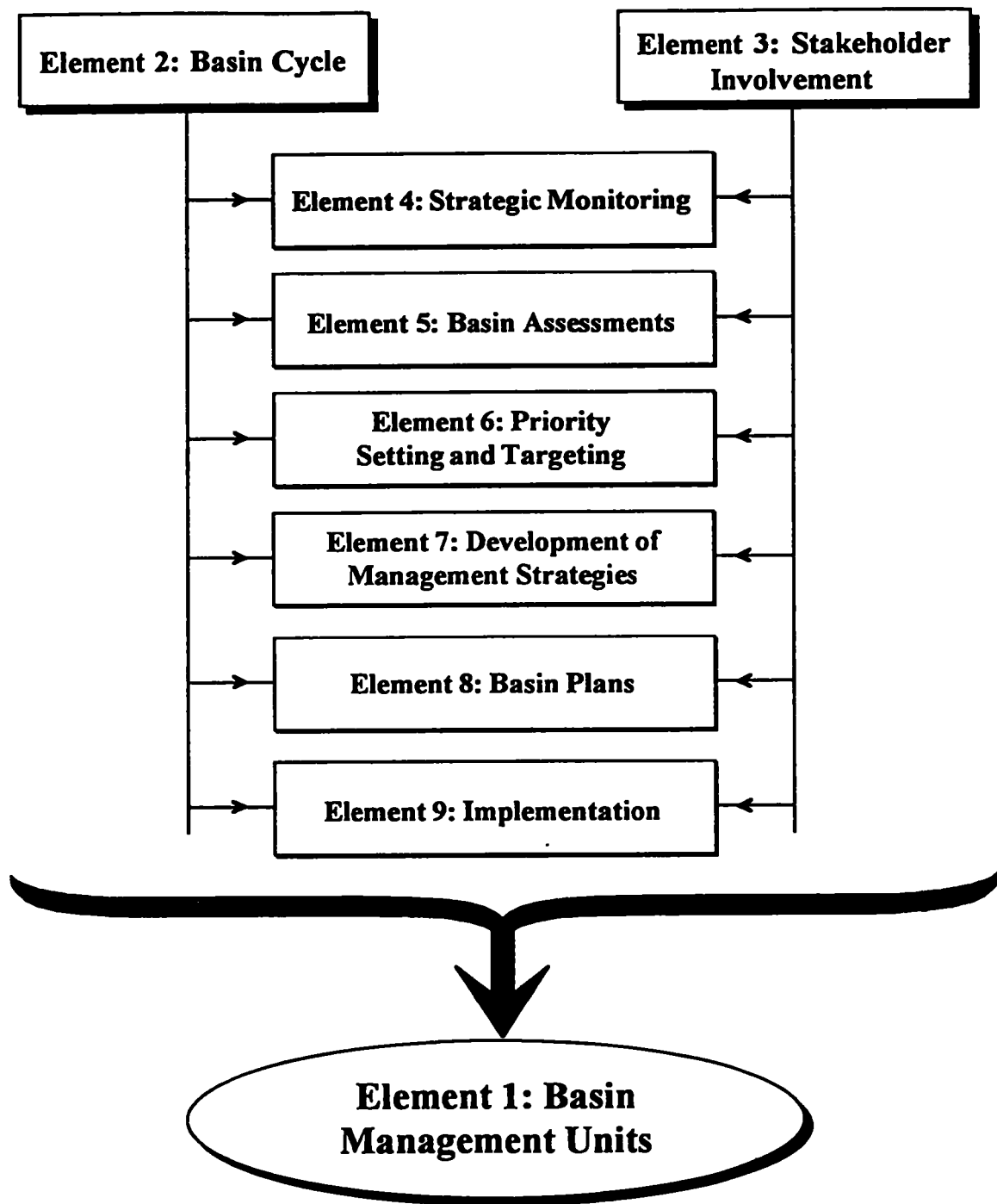
# **A Comprehensive BMA Has Nine Key Elements**

**VIEWGRAPH #5: Nine Key Elements  
KEY POINTS**

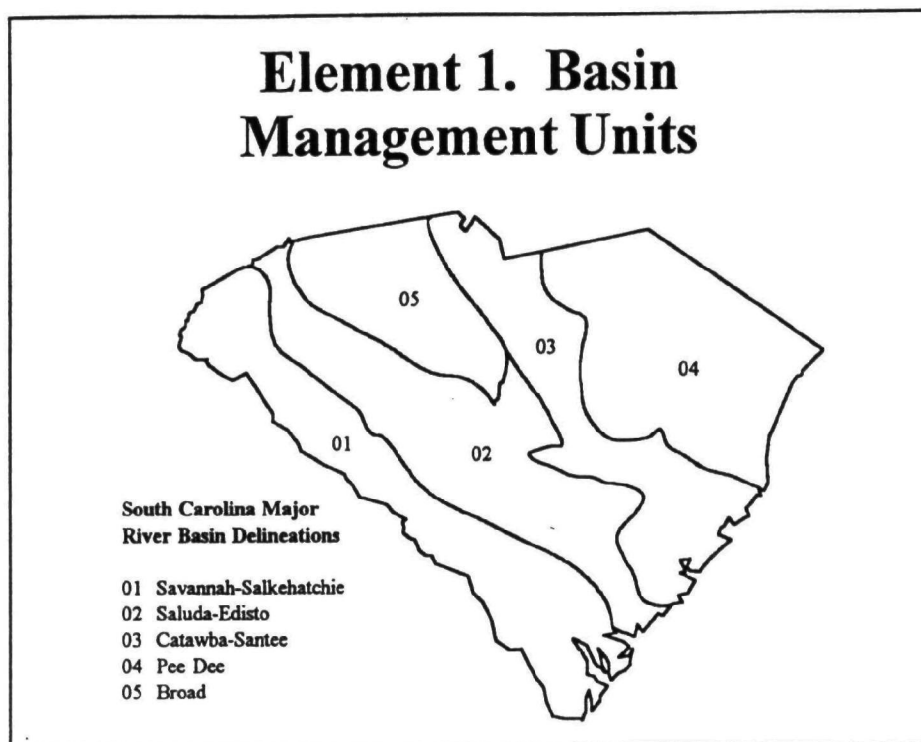
**A comprehensive BMA has nine key elements:**

- basin management units
- a basin management cycle
- stakeholder involvement
- strategic monitoring
- basin assessments
- a priority ranking and resource targeting system
- a capability for developing management strategies
- basin management plans
- an implementation component

As shown in Exhibit 2A-2, the nine elements are interrelated and combine to form the basic foundation for a statewide WPA operating framework. To facilitate understanding of the nine elements, we will discuss each one separately.



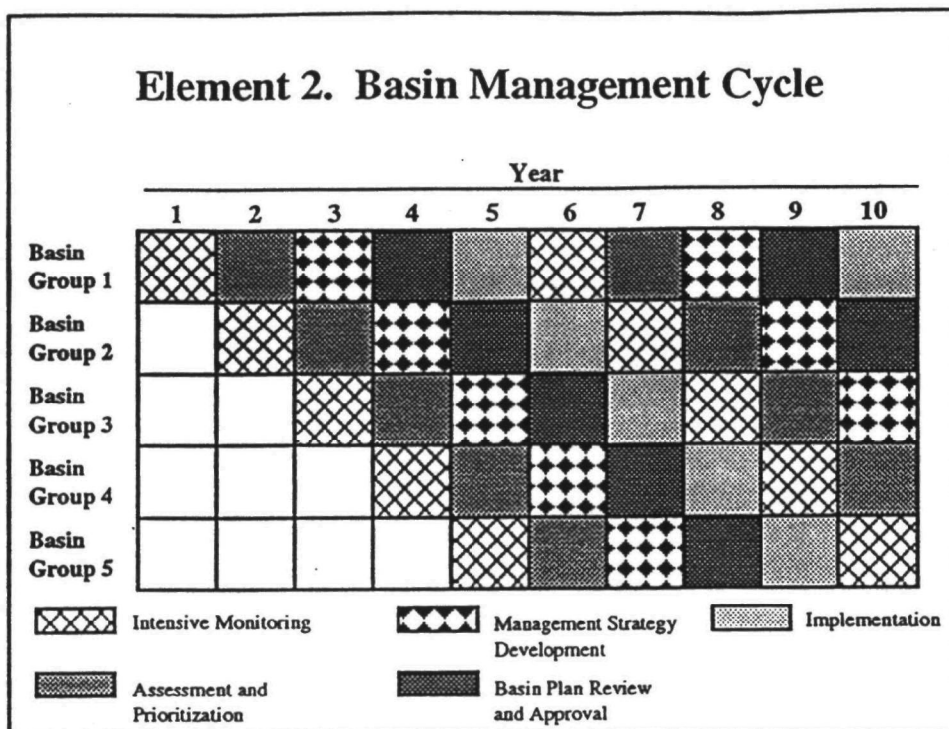
**Exhibit 2A-2. Elements of the Basin Management Approach**



**VIEWGRAPH #6: Element 1. Basin Management Units**  
**KEY POINTS**

Under a statewide BMA, the state is divided into geographic management units drawn around large river basins. The resultant **basin management units** are to be used by each participating stakeholder as the geographic basis for coordinating their WQM activities. Thus, basin management units must be suitable for coordinating monitoring, performing assessments, developing TMDLs, implementing point and nonpoint source controls, and management planning.

The diagram in the viewgraph shows the basins that were delineated by the State of South Carolina. The state was divided into five basins comprised of major rivers. WQM program activities for South Carolina are coordinated within each of these basin management units.



VIEWGRAPH #7: Element 2. Basin Management Cycle  
KEY POINTS

Although basin management units provide the geographic focus for coordinating WQM activities, another mechanism is needed for coordinating those activities over time. The BMA establishes a long-term and iterative resource protection program through implementing a basin management cycle that provides the temporal focus for stakeholders.

The basin management cycle has three features that create an orderly system for focusing and coordinating resource protection activities on a continuous basis:

- A **specified time period** for completing all elements of the management cycle.
- A **sequence for addressing basins** to balance workload from year to year.
- A **schedule of management activities** for each basin for all participating programs, agencies, public interest groups, and other stakeholders. This planning component provides a long-term reference and coordinating tool for BMA participants.

The illustration in the viewgraph provides an example of how WQM activities can be sequenced and scheduled using a 5-year cycle. During the first five years, the BMA schedule is phased in across the state (agreements are reached between the state and EPA on how WQM program requirements will be handled during this transition period). The cycle repeats itself for a given basin group every five years. In the example, the BMA is fully implemented after 5 years, with different WQM activities ongoing in each of the basin groups in any given year to balance workloads.

[NOTE: A detailed description of the basin management cycle established by the State of Nebraska is provided in the appendix to this module.]

## **Element 3. Stakeholder Involvement**

- Increase awareness of water-related issues
- Play meaningful roles

**VIEWGRAPH #8: Element 3. Stakeholder Involvement**  
**KEY POINTS**

Under a BMA, stakeholders are all agencies, organizations, and individuals that are involved in or affected by water quality management decisions for a given basin. They can include

- The state water quality agency(s)
- State agriculture, forestry, and wildlife agencies
- Native American tribes
- Local governmental agencies: city, county, regional
- Local and regional offices of federal agencies (e.g., EPA, agriculture, forestry, wildlife)
- NPDES dischargers
- Nonpoint Source (NPS) contributors
- Public and private utilities
- Trade associations
- Environmental groups
- General public

A BMA's success depends on the pooled resources, energy, and regulatory authority of multiple stakeholders. Therefore, **stakeholder involvement** in BMA development and

implementation can be very important. A well-designed BMA can create numerous opportunities for a broad range of stakeholders to **increase their awareness of water-related issues and play meaningful roles.**

Stakeholder roles and responsibilities should be defined for each stage of the management cycle. These roles and responsibilities can include (order of activities reflects typical chronological order in a basin management cycle):

- Data and research sharing
- Joint monitoring
- Identification of waterbody stressors
- Priority setting
- Goal setting
- Management strategy development
- Basin plan development, review, and approval
- Shared commitment of resources for plan implementation
- Outreach
- Measuring success

A variety of mechanisms can be used to involve stakeholders in these activities including: public meetings; citizen advisory groups, boards, or committees; technical planning teams; monitoring consortiums; basin festivals; and agency administrative agreements. Use of these basinwide public involvement mechanisms is often an efficient way to meet WQM program public participation requirements because they can be used to look at TMDL priority waters, NPDES permit requirements, etc. collectively within the basin.

## Element 4. Strategic Monitoring

- Assigned special priority
- Coordinated by basin
- Activities outlined in plan
- Stakeholder resources leveraged

VIEWGRAPH #9: Element 4. Strategic Monitoring  
KEY POINTS

Monitoring in the basin approach includes the collection of all relevant environmental information for the basin.

**Monitoring is assigned special priority in the BMA** because of the importance of environmental information to effective management and to the other components of the BMA, such as identifying stressors, estimating risk, and developing goals and objectives.

**Stakeholder ambient, compliance, and intensive monitoring efforts are strategically coordinated by basin** to address varying WQM program needs including:

- Determining water quality status and trends
- Evaluating use attainability
- Developing site-specific water quality standards
- Identifying environmental stressors and their sources
- Targeting priority waterbodies/watersheds for action
- Developing models for Total Maximum Daily Load (TMDL) development



- Developing management strategies including point and nonpoint source controls
- Evaluating the effectiveness of management actions and updating the basin management plan

The balance between these types of activities can be outlined in a **strategic monitoring plan** that describes specific monitoring objectives for each basin in a given year.

**The strategic planning process can be used to coordinate and leverage stakeholder monitoring resources.** For example, federal agencies such as EPA, USGS, NOAA, and SCS that might be collecting water quality data in a state can compare their objectives with those of the state's CWA §106-mandated monitoring program, setting up stations which complement one another where possible. Permittees with ambient monitoring requirements can form basin monitoring consortiums to pool resources and coordinate with the state's monitoring program in a given basin. Similarly, volunteer monitoring groups can be integrated with the plan. The key is for stakeholders to come together and design a monitoring program that makes the best use of each participant's resources and capabilities to support shared environmental assessment objectives.

## Element 5. Basin Assessment

### Stage

1. Determine water quality and ecosystem impairment
2. Quantify problems and predict water quality
3. Evaluate strategies

VIEWGRAPH #10: Element 5. Basin Assessment  
KEY POINTS

**Basin assessment** can be divided into three different stages.

- Stage 1.** Involves **determining levels of water quality and ecosystem impairment and identifying sources and causes** of this impairment. These early assessments are usually made with regard to water quality standards that reflect existing and designated uses. The results of these assessments describe resource status and provide essential input to the process of assigning priorities for management within a basin.
- Stage 2.** Assessment procedures including **problem quantification** (e.g., establishing pollutant loading and water quality correlation) **and predictive water quality modeling** are used in the **middle stages** of the basin management cycle to help establish TMDLs and management goals.
- Stage 3.** At the end of a basin management cycle, or in the early phases of the succeeding cycle, assessment can be used to **evaluate the effectiveness of implemented management strategies**.

## **Element 6. Priority Ranking and Resource Targeting System**

- Rank resource protection concerns within basin
- Allocate resources
- Update criteria for each cycle iteration

### **VIEWGRAPH #11: Element 6. Priority Ranking and Resources Targeting System KEY POINTS**

A priority ranking and resources targeting system is needed to ensure that WQM program resources are directed effectively and efficiently at priority concerns within a basin. Assigning priorities and targeting resources are two separate steps. **Assigning priorities is the process of ranking resource protection concerns within a basin.** Priority rankings for a basin can be used directly to establish candidates for the state's 303(d) list.

**Targeting is the process of deciding how resources should be allocated to address priority concerns.** Thus, the priority ranking and resources targeting system influences what monitoring will be performed, the type of assessments that will be needed, which waterbodies will have TMDLs developed over the next basin management cycle, where public funds should be used for implementation of point source and nonpoint source controls, and so on.

**Criteria for priority setting and targeting resources, targeted watersheds within the basin, resource protection goals, and ecosystem concerns can be updated and changed as appropriate with each new iteration of the basin management cycle.**

## **Element 7. Capability for Developing Management Strategies**

- Extension of priority setting and targeting
- Stakeholders define goals
- Strategies reflect unique basin concerns

**VIEWGRAPH #12: Element 7. Capability for Developing Management Strategies**  
**KEY POINTS**

Each BMA must have a **capability for developing management strategies** that are **logical extensions of the priority setting and targeting steps**. Mechanisms such as basin technical planning teams and citizens advisory groups are used to bring stakeholders together for this purpose. Specific goals and objectives are established for targeted watersheds, and **strategies are designed by appropriate stakeholders to achieve those goals and objectives**. Where applicable, strategies will include controls for point and nonpoint sources that reflect TMDLs for the basin or targeted smaller watersheds within the basin.

Management strategies should **reflect the unique concerns of individual watersheds, and constraining factors** such as resources available for control measures, legal authority, willingness of stakeholders to proceed, and the likelihood of success. In addition, strategies should build on existing projects and management efforts (e.g., point and nonpoint source controls, ecological restoration projects) that have a demonstrated value.

## Element 8. Basin Management Plans

- Document
  - BMA process
  - Management strategies
  - Stakeholder roles
- Serve as reference point for future basin cycles

### VIEWGRAPH #13: Element 8. Basin Management Plans KEY POINTS

**Basin management plans document the BMA process, the selected management strategies, and stakeholder roles. They also serve as reference points for future basin cycles.** Basin management plans are typically documented by state WQM staff and include useful background information on the basin (e.g., historical information on management, physical characteristics, and demographic trends), status of water resources, listing of priority concerns, strategies for how selected goals will be achieved (including point and nonpoint source controls), measures for evaluating management effectiveness, and a recommended plan for implementation. The planning documents are updated with each iteration of the basin management cycle.

Prior to implementation, basin management plans serve as a focus for basin planning activities (e.g., water quality status assessment, priority setting, TMDL development, and management strategy development). After implementation the basin management plan serves as a valuable reference for stakeholders and the general public (e.g., program management, point and nonpoint source control requirements and recommendations, how plan performance is being measured).

## **Element 9. An Implementation Component**

- Stakeholders know basin plan provisions
- Implementation includes relevant WQM activities

**VIEWGRAPH #14: Element 9. An Implementation Component**  
**KEY POINTS**

**An implementation component is key to the BMA and something that distinguishes it from past planning efforts (e.g., 208 planning). Implementation of the basin plan is the culmination of the basin management cycle. All of the activities during the basin management cycle up to this point should have helped to build a foundation that facilitates the implementation process. Stakeholders that participated in the process should be well aware of basin management plan implementation provisions.**

**Implementation includes relevant WQM activities such as support of ongoing projects and management efforts aimed at basin management goals, issuance of NPDES permits with conditions reflecting plan provisions, implementation of voluntary or mandatory Best Management Practices (BMPs) to control NPS pollutants, habitat restoration, continued development of phased TMDLs, and a monitoring program to measure success and guide future basin management plan revisions.**

## **BMA Development and Implementation Steps**

- **Initiate process**
- **Establish basin focus**
- **Refine procedures**
- **Establish administrative structure**
- **Implement the BMA**

### **VIEWGRAPH #15: BMA Development and Implementation Steps KEY POINTS**

Our discussion now turns to how the nine elements, or portions thereof, are developed and implemented for a specific state. Participating stakeholders typically develop and implement a BMA through a series of distinct steps that have been categorized as follows (Note: these concepts apply to other types of WPA frameworks as well):

- **Initiating BMA development**
- **Establishing a Basin Focus**
- **Refining Procedures to Support a BMA**
- **Establishing an Administrative Structure**
- **Implementing the BMA**

As is evident by the fact that there are 5 steps, BMA development and implementation is a fairly complex process. Transition to a BMA, therefore, requires substantial commitment, planning, and support by participants.

While 106 project officers may not be directly involved in development and implementation of BMA elements, the project officer's basic responsibilities (i.e., coordinating state guidance, negotiating work programs, managing performance,

resolving differences, applying performance consequences, and maintaining programmatic project files) can play a critical support role. Project officer basic responsibilities are covered in detail in a later module. However, the remainder of this module will provide project officers with an overview of possible state activities regarding WPA development and implementation that might be included in 106 Work Programs.



# Initiating BMA Development

- BMA Mission Statement
- Development Strategy
- Identification of barriers
- BMA framework document

## VIEWGRAPH #16: Initiating BMA Development KEY POINTS

Initiating the BMA development process involves establishing goals, participant roles, and methods for development. The following steps are often included in the initial process.

- **Establish a clear BMA Mission Statement**

Administrators of agencies participating in the BMA development process can demonstrate their commitment by developing a mission statement that supports the concept of basin-centered management. The mission statement reflects a consensus on the purpose, goals, objectives, and components of the proposed BMA. Establishing this common direction can help expedite BMA framework development and implementation.

- **Develop a strategy for managing BMA development and implementation**

The transition to a BMA must be carefully managed to ensure strong leadership and participation, adequate resources for development and implementation, proper education of participants, and communication of progress toward implementation. A strategy should be developed to address these needs.

- **Identify and resolve barriers**

Existing and potential barriers for developing and implementing a basin management approach should be identified early in the process so that appropriate levels of effort can be devoted to their elimination.

- **Initiate BMA framework documentation**

Documenting the decisions and agreements that make up the basin management approach provides a guiding reference for participating stakeholders that promotes consistency in quality across basins and helps the public better understand how management efforts will be integrated. Documentation should occur from the beginning and continue through the BMA development process.

## **Establishing a Basin Focus**

- **Delineate basin management units**
- **Establish a basin management schedule**
- **Develop a basin plan format**

**VIEWGRAPH #17: Establishing a Basin Focus**  
**KEY POINTS**

The second stage of BMA development involves establishing a basin focus by delineating basin management units, developing a basin management cycle, and determining basin plan formats. The exact nature of these tasks are state-specific, with scope and structure reflective of the goals, objectives, and activities of the stakeholders that are participating in the process. Although development of these three structural components is usually performed by a team of technical experts, consensus criteria for each component may be required from a broader range of stakeholders.

## **Refining Procedure to Support BMA**

- Synchronize permits
- Priority setting methods
- Monitoring protocol
- Public participation
- Info. mgmt. system
- Modify NPDES procedures

**VIEWGRAPH #18: Refining Procedures to Support BMA**  
**KEY POINTS**

After establishing the BMA coordinating features (i.e., basin management units, basin management cycle, and basin plan format), state WQM programs will likely want to refine their operating procedures to enhance the BMA. Potential refinements include:

- **Synchronizing permit expiration dates with the basin management cycle**
- **Developing criteria and methods for prioritizing concerns within basins**
- **Establishing a protocol for strategic monitoring**
- **Creating opportunities for public participation**
- **Developing an information management system**
- **Modifying NPDES procedures to support consolidated public notices and public meetings by geographic management units**

## Establishing an Administrative Structure

- Oversees daily operations
- Involves personnel, budget, and operational issues

### VIEWGRAPH #19: Establishing an Administration Structure KEY POINTS

Coordinating and integrating the BMA activities of multiple agencies, programs, and other stakeholders requires an administrative structure. Although development of key elements (basin management units, basin cycle, etc.) provides the framework for coordinating efforts, **an administrative structure is needed to oversee the day-to-day operations of the BMA.** Some states may simply adapt their existing administrative structure to operate the BMA, while others may decide that a new organizational structure is preferable.

**Administration involves personnel, budget, and operational issues.** States may be able to administer the BMA using their existing institutional structure. However, some states have created new opportunities for WQM program personnel and other stakeholders that enhance the day-to-day administration of operations, including the position of a BMA Coordinator to administer the BMA; Basin Teams comprised of technical staff from participating agencies to provide technical input and documentation for basin plan development and implementation; Citizens Advisory Committees as a forum for people from outside of the governmental agencies to provide input to the process on various issues such as monitoring, problem identification, goal setting, and priority ranking; and, a Basin Plan Authorization Board

made up of participating agencies or comprised of independent members appointed by the state government and responsible for approving basin plans.

Budgeting issues must also be addressed in the BMA administrative structure. Funding of operations must be considered, including sources of funds, timing, expenditure, reporting, and accounting requirements. Most state Water Quality Programs are funded by a combination of sources including federal 106, 205(j), and 604(b) program funds, state appropriations, and permit fees. Supplementary grants (e.g., federal 104(b)(3) grants) also may support management efforts. In addition, states use funding to support implementation activities (e.g., 319 funds for NPS control projects, 314 funds for lake restoration, and SRF for waste treatment). BMAs can benefit, therefore, from finding a way to efficiently coordinate and consolidate funding sources and reporting requirements.

Additionally, operational agreements (e.g., cooperative agreement, memorandum of understanding) may be needed among BMA participants to ensure that roles are clear and committed to by each party.

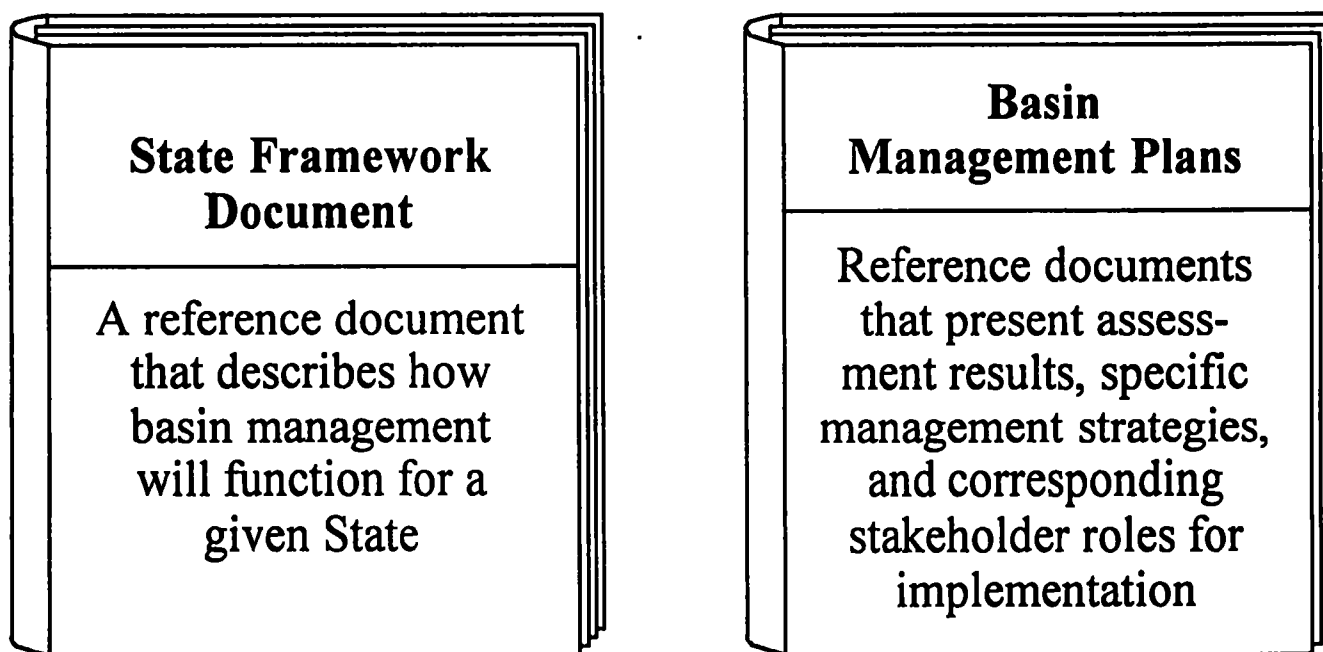
## Implementing the BMA

- Activities are carried out according to the basin management cycle
- Framework doc. and basin plans are references for 106 work programs

**VIEWGRAPH #20: Implementing the BMA**  
**KEY POINTS**

Finally, after the BMA components and administrative structure have been developed and documented, the BMA is ready for implementation. **Activities are carried out according to the schedule documented for the basin management cycle.** Initially, the BMA framework documentation and corollary operational agreements among stakeholders may serve as the reference for project officers as they negotiate 106 **Work Programs**. Basin sequences will be known and the general schedule of activities and milestones will be available for reference. As basin management plans are developed through the implementation of the BMA, they will provide even more specific details including basin priority concerns to be addressed through WQM programs. **The BMA framework document and basin management plans should facilitate the 106 project officer's work by providing consolidated information on WQM program needs, priorities, planned activities, and accomplishments (see Exhibit 2A-3).** This information will help in negotiating Work Programs and in monitoring performance under the Work Programs.

## Exhibit 2A-3. BMA Documents Are Useful References for 106 Project Officers





**APPENDIX TO MODULE 2A**  
**BMA MANAGEMENT CYCLE FOR**  
**THE STATE OF NEBRASKA**

## **BMA MANAGEMENT CYCLE FOR THE STATE OF NEBRASKA**

This appendix summarizes the basin management cycle established for the State of Nebraska. The information presented illustrates how Nebraska has applied the concepts presented in Viewgraph 7. Management activities within Nebraska's thirteen delineated basins will be coordinated around a five year cycle. A series of steps are executed for each basin over the cycle, ending with the promulgation and implementation of a management plan. These steps are illustrated in Figure 1 and described below in more detail.

### ***Step 1. Draft Strategic Monitoring Plan***

A strategic plan will be drafted that specifies monitoring to support basinwide assessment. Details shall include monitoring objectives, station locations, parameter coverage, sampling frequency, and monitoring plan rationale.

### ***Step 2. Initial Public Outreach***

As resources allow, NDEQ will hold public meetings at appropriate sites within the basin to acquaint stakeholders with the overall BMA framework and help identify management concerns specific to that basin. It is anticipated that the format of the meetings will generally follow that used for Nebraska Wetlands Conservation Plans, which includes Open House sessions, large group presentation, and small group discussions. Relevant portions of the NDEQ strategic monitoring plan will be presented with an explanation of how the resulting data will be used for assessing water quality and prioritizing management needs. This initial outreach will provide stakeholders with opportunities early in the basin planning process to submit relevant information, identify potential gaps in the monitoring strategy, participate in data collection where appropriate, or provide other feedback.

### ***Step 3. Implement Strategic Monitoring Plan***

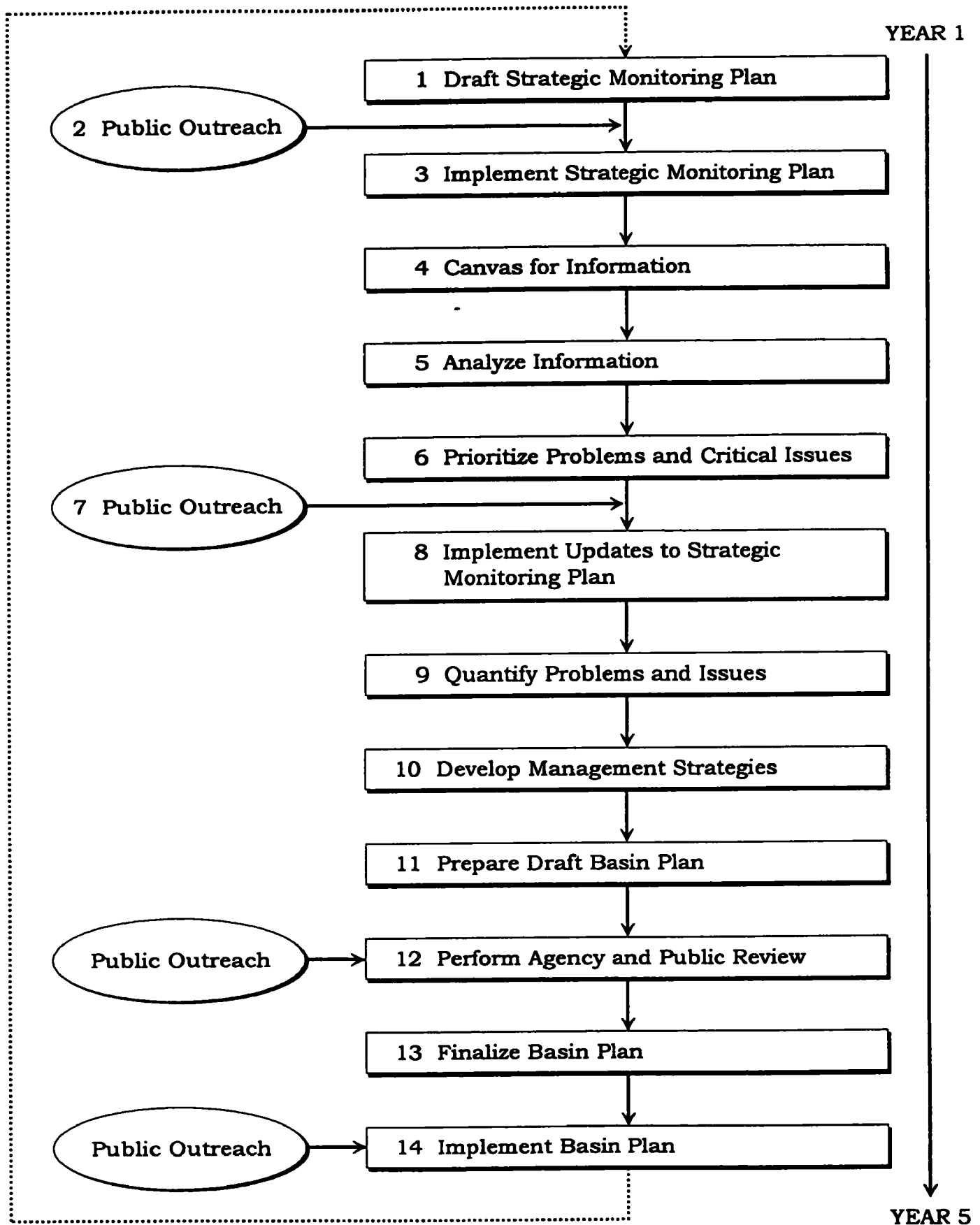
The strategic monitoring plan for basinwide assessment will be implemented following any modification resulting from feedback received during initial outreach activities.

### ***Step 4. Canvas for Information***

NDEQ will make direct contact with key agencies and other entities to obtain additional relevant information for use in basin planning. In particular, data will be sought for characterizing the basin (e.g., hydrology, land-use, population demographics, economic base, etc.) and for evaluating water quality. Stakeholder information will also be used where appropriate in the prioritization and management strategy development process.

### ***Step 5. Analyze Information***

Initial analyses of basinwide monitoring data and supplemental stakeholder information will focus on determining use support status, identifying problems and areas of special



**Figure 1. Major Steps in NDEQ Basin Management Cycle**

ecological value, and assessing information gaps. Limitations in data coverage should be specified so that initial findings can be appropriately qualified. Some quantification of problems may occur to clarify causes and sources, estimate loading, and quantify assimilative capacity. Further analysis and more detailed quantification of problems will continue for waters that are prioritized in the next step. Known gaps in field data will be addressed during updates of the strategic monitoring plan.

***Step 6. Prioritize Problems and Critical Issues***

NDEQ will apply a standardized set of criteria and procedures to prioritize waterbodies in need of management or additional assessment so that resources can be targeted to address the concerns in an efficient and effective manner.

***Step 7. Continue Public Outreach***

NDEQ will present potential stakeholders with a summary of the initial water quality assessments and recommended management priorities. Areas in need of further problem quantification will be identified. NDEQ will attempt to match stakeholders to corresponding priority waterbodies. In some cases, "Focus Groups" may be formed among stakeholders to help clarify matters. Stakeholder and Focus Groups will form the basis for stakeholder involvement in the evaluation of management options and development of basin management plans.

***Step 8. Implement Updates to Strategic Monitoring Plan***

Based on the results of initial assessment and prioritization, along with feedback from public outreach activities, NDEQ will update and implement its strategic monitoring plan to gather data for further problem quantification. This will include data for model development or other tools necessary to evaluate management options.

***Step 9. Problem Quantification***

Additional problem quantification will be performed where required to establish the magnitude of a problem, determine assimilative capacity, calculate loads for contributing sources of pollutants of concern, or otherwise further assess the problem such that sufficient information is available for management strategy development. This includes field calibration of models and development of total maximum daily loads (TMDLs).

***Step 10. Develop Management Strategies***

NDEQ will work with other stakeholders to arrive at a consensus on management goals, such as specific waterbody segments to be restored or protected. This will include loading reductions that should be achieved, or the amount of habitat that needs restoring, etc. Input will also be solicited from stakeholders to establish feasible combinations of point and nonpoint source control measures and management actions to achieve goals. Management options will be evaluated via predictive modeling, or by other methods where appropriate, for their relative effectiveness at achieving environmental objectives. Regulatory constraints and procedures will be considered, and stakeholder consensus will be sought where voluntary efforts are needed to meet environmental objectives. Selected management strategies will outline mechanisms for implementing controls, time frames, anticipated

costs, sources of funding, monitoring strategies, compliance tracking and enforcement methods, etc.

***Step 11. Prepare Draft Basin Plan***

NDEQ will prepare a draft basin plan which documents the results of the basin planning process including assessment, priorities, goals, selected management alternatives, and the implementation strategy. (See section 2.3 for more details on the components of a basin plan).

***Step 12. Agency and Public Review***

An internal review of the draft basin plan will be performed to ensure that it is ready for public distribution. Upon agency approval, the plan will be made available for public review and comment. Outreach will be provided to explain provisions and implications of the plan.

***Step 13. Complete Final Basin Plan***

Modifications will be made to the plan, as necessary, based on comments and input received through the review process, to complete a final basin plan.

***Step 14. Basin Plan Implementation***

Each cycle ends with a basin plan implementation period. The implementation strategy outlined in the plan will be followed, taking such steps as necessary to implement pollutant source controls, best management practices, monitoring programs, enforcement methods, etc. Activities occurring during this period will include public notice and issuance of NPDES individual and basin general permits, distribution of state revolving fund (SRF) loans to prioritized entities, and allocation of 319 funds to prioritized NPS problem areas. In addition, implementation will include an outreach component to communicate the goals and selected management strategies of the final plan. Outreach will also be used to educate stakeholders on implementation schedules, milestones, and where regulatory and voluntary efforts are required to meet environmental objectives.

The final basin plan contains recommendations for follow-up basinwide assessment to measure the degree of success from plan implementation and to evaluate areas that were not assessed during the previous cycle. After a specified period of time for plan implementation, NDEQ will implement the updated strategic monitoring plan and the basin management cycle will be repeated.

The basin management cycle will not be initiated in all basins at the same time for practical reasons. Activities within the thirteen basins will be sequenced so that steps are performed incrementally across the state. This helps to balance program workloads. Focusing on the same steps at one time in a small segment of the state creates a more efficient and effective operating framework.

Table 1 shows the sequence and scheduling of steps for Nebraska's thirteen river basins. The order in which river basins will be addressed is shown along the left hand column of the table. Corresponding schedules for performance of each step of the basin management cycle are shown to the right of the column of basins. Two lines of symbols are used for each basin to better depict simultaneous activities (Note: symbols are defined in the legend at the bottom of the table). The table shows how steps are

**TABLE 1 NEBRASKA BASIN PLANNING CYCLE ACTIVITY SCHEDULE**

	1994	1995	1996	1997	1998
	J F M A M J J A S O N D	J F M A M J J A S O N D	J F M A M J J A S O N D	J F M A M J J A S O N D	J F M A M J J A S O N D
Lower Platte	Mp Mp Mp Ma Ma Ma Ma Ma A A Cl Cl C C C C C C Q Q	A A P Mp Mq Mq Mq Mq Mq Mq Q Q Q On On N N N N N N N N	Q Q Q Q S S D D R R R R N N N N N N N N Or Or	R F I I I I I I I I I I Or Or Or Or	I I I I I I I I I I I I
Nemaha	Mp Mp Mp Ma Ma Ma Ma Ma A A Cl Cl C C C C C C Q Q	A A P Mp Mq Mq Mq Mq Mq Mq Q Q Q On On N N N N N N N N	Q Q Q Q Q Q Q S S D D N N N N N N N N N N Or Or Or Or	R R R R R F I I I I I I Or Or Or Or	I I I I I I I I I I I I
Elkhorn		Mp Mp Mp Ma Ma Ma Ma Ma A A Cl Cl C C C C C C Q Q	A A P Mp Mq Mq Mq Mq Mq Mq Q Q Q On On N N N N N N N N	Q Q Q Q S S D D R R R R N N N N N N N N Or Or	R F I I I I I I I I I I Or Or Or Or
Missouri Tribs		Mp Mp Mp Ma Ma Ma Ma Ma A A Cl Cl C C C C C C Q Q	A A P Mp Mq Mq Mq Mq Mq Mq Q Q Q On On N N N N N N N N	Q Q Q Q Q Q Q S S D D N N N N N N N N N N	R R R R R F I I I I I I Or Or Or Or
North Platte			Mp Mp Mp Ma Ma Ma Ma Ma A A Cl Cl C C C C C C Q Q	A A P Mp Mq Mq Mq Mq Mq Mq Q Q Q On On N N N N N N N N	Q Q Q Q S S D D R R R R N N N N N N N N Or Or
South Platte			Mp Mp Mp Ma Ma Ma Ma Ma A A Cl Cl C C C C C C Q Q	A A P Mp Mq Mq Mq Mq Mq Mq Q Q Q On On N N N N N N N N	Q Q Q Q Q Q Q S S D D N N N N N N N N N N
Middle Platte			Mp Mp Mp Ma Ma Ma Ma Ma A A Cl Cl C C C C C C Q Q	A A P Mp Mq Mq Mq Mq Mq Mq Q Q Q On On N N N N N N N N	Q Q Q Q Q Q Q Q Q Q Q N N N N N N N N N N
Big Blue				Mp Mp Mp Ma Ma Ma Ma Ma A A Cl Cl C C C C C C Q Q	A A P Mp Mq Mq Mq Mq Mq Mq Q Q Q On On N N N N N N N N
Little Blue				Mp Mp Mp Ma Ma Ma Ma Ma A A Cl Cl C C C C C C Q Q	A A P Mp Mq Mq Mq Mq Mq Mq Q Q Q On On N N N N N N N N
Republican				Mp Mp Mp Ma Ma Ma Ma Ma A A Cl Cl C C C C C C Q Q	A A P Mp Mq Mq Mq Mq Mq Mq Q Q Q On On N N N N N N N N
Loup					Mp Mp Mp Ma Ma Ma Ma Ma A A Cl Cl C C C C C C Q Q
Niobrara					Mp Mp Mp Ma Ma Ma Ma Ma A A Cl Cl C C C C C C Q Q
White-Hat					Mp Mp Mp Ma Ma Ma Ma Ma A A Cl Cl C C C C C C Q Q

- A** = Analysis of data to determine use support status, identify problems, assess information gaps, etc.
- C** = Canvassing for information to use in assessment, prioritization, and management strategy development process.
- D** = Prepare Draft basin management plan (i.e., put in public document form).
- F** = Finalize the basin plan, making modifications to the draft as needed based on reviewer comment.
- I** = Implement the basin plan; ready NPDES permits for public notice and subsequent issuance, implement NPS programs, etc.
- Ma** = Monitoring is performed for comprehensive basin Assessment.
- Mp** = Monitoring Plans are updated each year and include monitoring objectives, sampling locations, parameters, frequencies, etc.
- Mq** = Monitoring is performed per priorities for problem Quantification.
- N** = Negotiations are carried out with stakeholders to arrive at consensus on goals and feasible management options.
- O** = Outreach for Final basin plan implementation; explain changes from draft, direct actions or educate where voluntary efforts needed.
- OI** = Initial Outreach; explanation to stakeholders about process and initial solicitation for information and monitoring needs.
- On** = Outreach to begin Negotiations; explain basis of priorities, quantification needs, and begin negotiations with stakeholders as loading targets are established.
- Or** = Outreach for stakeholder Review of draft basin plan; explain provisions of plan and solicit comments.
- P** = Prioritization of waterbodies to reflect most important concerns (includes both protection and restoration needs).
- Q** = Quantification of problems; clarify causes and sources, estimate loading where appropriate, quantify capacity or loading reductions (e.g., TMDL).
- R** = The draft plan is distributed for Review.
- S** = A Strategy for management of the prioritized waters is selected based on stakeholder negotiations.

**TABLE 1 NEBRASKA BASIN PLANNING CYCLE ACTIVITY SCHEDULE (continued, page 2)**

	1999	2000	2001	2002	2003
	J F M A M J J A S O N D	J F M A M J J A S O N D	J F M A M J J A S O N D	J F M A M J J A S O N D	J F M A M J J A S O N D
Lower Platte	I Mp Mp Mp Ma Ma Ma Ma Ma A A Ol Ol C C C C C C Q Q	A A P Mp Mp Mp Mp Mp Mp Mp Mp Q Q Q On On N N N N N N N N N	Q Q Q Q S S D D R R R R R N N N N N N N N N Or Or	R F I I I I I I I I I I I Or Or Or	I I I I I I I I I I I I I
Nemaha	I Mp Mp Mp Ma Ma Ma Ma Ma A A Ol Ol C C C C C C Q Q	A A P Mp Mp Mp Mp Mp Mp Mp Mp Q Q Q On On N N N N N N N N N	Q Q Q Q Q Q Q Q S S D D N N N N N N N N N Or Or Or Or	R R R R R F I I I I I I I Or Or Or Or Or	I I I I I I I I I I I I I
Elkhorn	I I I I I I I I I I I I I	I Mp Mp Mp Ma Ma Ma Ma Ma A A Ol Ol C C C C C C Q Q	A A P Mp Mp Mp Mp Mp Mp Mp Mp Q Q Q On On N N N N N N N N N	Q Q Q Q S S D D R R R R R N N N N N N N N N Or Or	R F I I I I I I I I I I I
Missouri Tribs	I I I I I I I I I I I I I	I Mp Mp Mp Ma Ma Ma Ma Ma A A Ol Ol C C C C C C Q Q	A A P Mp Mp Mp Mp Mp Mp Mp Mp Q Q Q On On N N N N N N N N N	Q Q Q Q Q Q Q Q S S D D N N N N N N N N N Or Or Or Or Or	R R R R R F I I I I I I I
North Platte	R F I I I I I I I I I I I Or Or Or	I I I I I I I I I I I I I	I Mp Mp Mp Ma Ma Ma Ma Ma A A Ol Ol C C C C C C Q Q	A A P Mp Mp Mp Mp Mp Mp Mp Mp Q Q Q On On N N N N N N N N N	Q Q Q Q S S D D R R R R R N N N N N N N N N Or Or
South Platte	R R R R R F I I I I I I I Or Or Or Or Or	I I I I I I I I I I I I I	I Mp Mp Mp Ma Ma Ma Ma Ma A A Ol Ol C C C C C C Q Q	A A P Mp Mp Mp Mp Mp Mp Mp Mp Q Q Q On On N N N N N N N N N	Q Q Q Q Q Q Q Q S S D D N N N N N N N N N N N
Middle Platte	S S D D R R R R R F I I I N N Or Or Or Or Or	I I I I I I I I I I I I I	I Mp Mp Mp Ma Ma Ma Ma Ma A A Ol Ol C C C C C C Q Q	A A P Mp Mp Mp Mp Mp Mp Mp Mp Q Q Q On On N N N N N N N N N	Q Q Q Q Q Q Q Q Q Q Q Q Q N N N N N N N N N N N N N
Big Blue	Q Q Q Q S S D D R R R R R N N N N N N Or Or	R F I I I I I I I I I I I Or Or Or	I I I I I I I I I I I I I	I Mp Mp Mp Ma Ma Ma Ma Ma A A Ol Ol C C C C C C Q Q	A A P Mp Mp Mp Mp Mp Mp Mp Mp Q Q Q On On N N N N N N N N N
Little Blue	Q Q Q Q Q Q Q Q S S D D N N N N N N N N N N	R R R R R F I I I I I I I Or Or Or Or Or	I I I I I I I I I I I I I	I Mp Mp Mp Ma Ma Ma Ma Ma A A Ol Ol C C C C C C Q Q	A A P Mp Mp Mp Mp Mp Mp Mp Mp Q Q Q On On N N N N N N N N N
Republican	Q Q Q Q Q Q Q Q Q Q Q Q N N N N N N N N N N	S S D D R R R R R F I I I Or Or Or Or Or	I I I I I I I I I I I I I	I Mp Mp Mp Ma Ma Ma Ma Ma A A Ol Ol C C C C C C Q Q	A A P Mp Mp Mp Mp Mp Mp Mp Mp Q Q Q On On N N N N N N N N N
Loup	A A P Mp Mp Mp Mp Mp Mp Mp Mp Q Q Q On On N N N N N N N N	Q Q Q Q S S D D R R R R R N N N N N N Or Or	R F I I I I I I I I I I I	I I I I I I I I I I I I I	I Mp Mp Mp Ma Ma Ma Ma Ma A A Ol Ol C C C C C C Q Q
Niobrara	A A P Mp Mp Mp Mp Mp Mp Mp Mp Q Q Q On On N N N N N N N N	Q Q Q Q Q Q Q Q S S D D N N N N N N N N N N	R R R R R F I I I I I I I Or Or Or Or Or	I I I I I I I I I I I I I	I Mp Mp Mp Ma Ma Ma Ma Ma A A Ol Ol C C C C C C Q Q
White-Hat	A A P Mp Mp Mp Mp Mp Mp Mp Mp Q Q Q On On N N N N N N N N	Q Q Q Q Q Q Q Q Q Q Q Q N N N N N N N N N N	S S D D R R R R R F I I I Or Or Or Or Or	I I I I I I I I I I I I I	I Mp Mp Mp Ma Ma Ma Ma Ma A A Ol Ol C C C C C C Q Q

- A = Analysis of data to determine use support status, identify problems, assess information gaps, etc.
- C = Canvassing for information to use in assessment, prioritization, and management strategy development process.
- D = Prepare Draft basin management plan (i.e., put in public document form).
- F = Finalize the basin plan, making modifications to the draft as needed based on reviewer comment.
- I = Implement the basin plan; ready NPDES permits for public notice and subsequent issuance, implement NPS programs, perform follow-up monitoring, etc.
- Ma = Monitoring is performed for comprehensive basin Assessment.
- Mp = Monitoring Plans are updated each year and include monitoring objectives, sampling locations, parameters, frequencies, etc.
- Mq = Monitoring is performed per priorities for problem Quantification.
- N = Negotiations are carried out with stakeholders to arrive at consensus on goals and feasible management options.
- Of = Outreach for Final basin plan implementation; explain changes from draft, direct actions or educate where voluntary efforts needed.
- Ol = Initial Outreach; explanation to stakeholders about process and initial solicitation for information and monitoring needs.
- On = Outreach to begin Negotiations; explain basis of priorities, quantification needs, and begin negotiations with stakeholders as loading targets are established.
- Or = Outreach for stakeholder Review of draft basin plan; explain provisions of plan and solicit comments.
- P = Prioritization of waterbodies to reflect most important concerns (includes both protection and restoration needs).
- Q = Quantification of problems; clarify causes and sources, estimate loading where appropriate, quantify capacity or loading reductions (e.g., TMDL).
- R = The draft plan is distributed for Review.
- S = A Strategy for management of the prioritized waters is selected based on stakeholder negotiations.

phased in across the state over the first five year cycle from 1994 to 1998. Basinwide management activities will be ongoing in all basins across the state by 1998, and basin management plans will be implemented for all basins by the end of 2001.

Specific scheduling patterns have been incorporated within the basin cycle. For instance, the vast majority of field monitoring activities for NDEQ's Water Quality Division are performed between May and November for scientific reasons. Therefore, strategic monitoring plans will need to be finalized by the end of April each year so that actual sample collection can begin in May.

Data analysis (*A*) and problem quantification (*Q*) are shown in the table under the months of November through February following the first year of monitoring and information collection. However, this does not mean that analysis and quantification are restricted to that period. Rather, this is the period where data are screened and assessed for watershed prioritization purposes. It is recognized that analysis and quantification for purposes of evaluating management options will continue on in some prioritized watersheds up until development of management strategies and written plans. This is illustrated in the table by the series of months with a *Q* following the *Mq* period.

Finally, it should be noted that the length of time scheduled for follow-up problem quantification and management strategy development differs across basins that are grouped in the same year of the cycle. The times have been staggered so that only one basin plan is being drafted at a time. For example, plan drafting will occur in July-August of 1996 for the Lower Platte whereas the basin plan for the Nemaha will be written in November-December, 1996. This same type of pattern is repeated for each year of the basin cycle.



**Module 3:**  
**Overview of Grants and**  
**Cooperative Agreements**

## **Overview**

- **Assistance Agreements**
- **Program Elements**
- **EPA Policy**
- **Project Officer Challenges**

**VIEWGRAPH #1: Overview**  
**KEY POINTS**

The primary purpose of this module is to introduce the project officer to grants and cooperative agreements. The module explains the differences between contracts, grants, and cooperative agreements, lists the different program elements to be used in developing work programs, describes EPA's policy regarding assistance agreements, and identifies challenges the project officer will face when dealing with states.

# **Agreements**

- **Contracts Are for the Direct Benefit of the Federal Govt.**
- **Grants and Cooperative Agreements Are Not**

**VIEWGRAPH #2: Agreements**  
**KEY POINTS**

**Federal Grant and Cooperative Agreement Act (1977) Requirements:**

**Agencies must use contracts to acquire property or services for the direct benefit of the federal government.**

**Agencies must use grants or cooperative agreements to transfer money or purchase property, services, or anything else of value to support or stimulate an activity to accomplish a public purpose of assistance authorized by federal statute.**

**To further your understanding of assistance agreements administration, EPA provides the Assistance Project Officer Training Course, available through the Grants Administration Division of the Office of Grants and Debarment.**

**Contact: Corinne Allison (202) 260-5298  
or Richard Johnson (202) 260-5296**

## Grants & Cooperative Agreements

- Grants Do Not Substantially Involve EPA in the Project
- Cooperative Agreements Substantially Involve EPA in the Project
- Projects vs. Cont. Programs

### VIEWGRAPH #3: Grants & Cooperative Agreements KEY POINTS

#### Grant Agreements (40 CFR 30.200)

A grant agreement is an assistance agreement where there is **no substantial involvement** between EPA and the recipient. A grant agreement is appropriate when the recipient has the authority and capability to complete all elements of the program.

#### Cooperative Agreements (40 CFR 30.200)

A **cooperative agreement** is an assistance agreement where **substantial EPA involvement** is anticipated. Section 106 assistance agreements are cooperative agreements because the work program objectives change over time, and it is understood that change and redirection of funds may be necessary. Level of EPA involvement will vary by state depending on strength of program. Under a cooperative agreement, activities demonstrating EPA involvement must be documented. They can be included in the approved work program or identified in the assistance agreement.

EPA assistance agreements can fund both short-term projects and long-term programs. **Project Grants** typically fund projects with limited scopes which will be completed

within a limited time-period of one to two years, for example the 104(b)(3) demonstration project grants. EPA **continuing program grants** typically fund ongoing environmental activities such as planning, enforcement, monitoring, etc. These activities are likely to continue indefinitely as integral components of a continuing environmental program, such as the state water pollution control program.

## Program Elements

- Outreach/Technical Assistance
- Water Quality Planning
- Enforcement & Compliance
- Permits
- Combined Sewer Overflow

**VIEWGRAPH #4: Program Elements**  
**KEY POINTS**

The project officer must ensure that all recipients comply with statutory and regulatory requirements by providing in their Section 106 assistance applications a program element budget and a work program that supports it. The following is a recommended list of program elements to be used in developing work programs and program element budgets.

**Outreach/technical assistance** - all costs associated with public participation and technical assistance.

**Water quality planning** - all costs of (1) preparing and updating water quality management plans (including TMDLs), (2) ensuring that permits and construction grants are consistent with the plans, and (3) meeting other point and nonpoint source planning requirements of the Clean Water Act.

**Enforcement and compliance** - all costs of state/tribal enforcement of general permit and NPDES permit conditions and compliance schedules (including sludge) and other legislative and regulatory requirements under the Clean Water Act and directly related legislation.

**Permits** (other than sludge, pretreatment, CSO, and stormwater) - all costs of issuing, reissuing, and modifying NPDES permits, including general permits. Also, costs of reviewing and processing CWA section 402 applications and section 404 permit programs.

**Combined sewer overflow (CSO)** - all costs of establishing and operating a state/tribal NPDES program for CSOs.

## Program Elements (Cont.)

- Stormwater
- Sludge Management
- Pretreatment
- Ground Water
- NPS Implementation

VIEWGRAPH #5: Program Elements (Cont.)  
KEY POINTS

**Stormwater** - all costs of establishing and operating a state/tribal NPDES program for stormwater.

**Sludge management** - all costs of establishing and operating a state/tribal program to ensure that sludge from waste water treatment facilities meets sludge use and disposal requirements.

**Pretreatment** - all costs of state pretreatment programs and management of technical assistance of local pretreatment programs.

**Ground water** - all costs of establishing and operating a Comprehensive State Ground Water Protection Program (CSGWPP) consistent with EPA's national CSGWPP guidance, including the well head protection program (WHPP).

**NPS implementation** - all costs of carrying out state/tribal programs to implement nonpoint source controls.



## Program Elements (Cont.)

- Ambient Monitoring
- Water Quality Standards
- Administration
- Other

### VIEWGRAPH #6: Program Elements (Cont.)

#### KEY POINTS

**Ambient monitoring** - all costs of developing and implementing monitoring strategies and programs for assessing water quality conditions and trends in the state or tribal waters, including event-related, habitat, and biological monitoring.

**Water quality standards** - all costs of developing and adopting and administering state/tribal water quality standards, including numeric and narrative criteria, and anti-degradation policies, including use attainability analyses.

**Administration** - all necessary costs of program administration, including allowable indirect costs not assigned to categorical program elements.

**Other** - all costs of state/tribal specific priority water quality activities and outputs included in a work program, but only if they cannot be assigned to the categorical program elements.

## Consolidated Grant Applications

- Single Budget & Work Program
- Identify Each Program's Funds
- Identify Extent of Support by Element

VIEWGRAPH #7: Consolidated Grant Applications  
KEY POINTS

### Consolidated Grant Applications (40 CFR 35.145)

Applicants eligible to receive and administer funds from more than one Office of Water assistance program may submit an application for consolidated assistance. To be eligible for a consolidated grant, the applicant prepares **single budget and work program** covering all programs included in the application. The consolidated budget must **identify each assistance program's funds**.

## EPA Policy

- Encourages Delegation
- Ties Assistance to Accomplishment

VIEWGRAPH #8: EPA Policy

### KEY POINTS

EPA policy **encourages the delegation** of field operations in environmental protection to the states. EPA has the authority and responsibility to **tie assistance to a recipient's accomplishment** of specific activities agreed to in advance by the state and EPA. (40 CFR Part 35, Subpart A) EPA issued several important policy documents to clarify the EPA-state relationship in assistance agreements during the 1980s.

## Principles of EPA Policy

- Clear Goals as Basis for Relationship
- States as Active Participants
- Integrated Priorities
- Realistic Commitments
- Continuous Dialogue
- Recognize Accomplishments

VIEWGRAPH #9: Principles of EPA Policy  
KEY POINTS

EPA's policy is based on the following principles:

EPA and each state should articulate a set of **clear environmental goals** with measurable environmental results. EPA's goals will establish national priorities. State goals will establish state-specific priorities. Joint goals define overlapping priorities. These environmental goals will serve as the core agenda for the state-EPA relationship. EPA and the states should systematically integrate their respective strategic plans.

EPA's annual planning process should include the **states as active participants**. Each regional administrator should meet with states to articulate joint priorities.

Section 106 work programs should confirm the **integration of state and federal priorities**.

In negotiating Section 106 work programs, EPA and states will seek **realistic commitments** and presume good faith in their accomplishment.

**EPA and states should maintain continuous dialogue for rapid identification and solution of problems, or their forwarding to top managers.**

**EPA is committed to the success of state programs and will seek opportunities to acknowledge their accomplishments.**

amendment negotiated by the project officer without the approval of the award official.

Other changes requiring formal amendment and award official approval include:

- Revising the scope or objectives of the project (regardless of whether there is an associated budget revision).
- Extending the period of availability of funds.
- Changing key personnel.

Informal amendments and changes that may be made by mutual consent of the state and the project officer must be consistent with the project objective and within the scope of the assistance agreement. Examples of minor changes include:

- Making minor adjustments in methodology, approach, or other aspects of a project.
- Adjusting budgets, except those adjustments requiring formal amendment, provided that they use the funds in accordance with the approved scope of work, EPA regulations, and applicable cost principles.
- Changes in staff, provided the change will not change the objectives of the project.

Circumstances that may necessitate renegotiation include: a major change in national, regional, or state priorities; environmental emergencies; and greatly overestimated commitments.

State work programs should **specify the outputs** (environmental results) a state will produce under its federal assistance award (including state match and level of effort) and resources and time frames for completing outputs.

## **Supplemental EPA Support To States**

- **Describe Types of Support**
- **Regions Consult  
Headquarters**

### **VIEWGRAPH #12: Supplemental EPA Support To States KEY POINTS**

**The assistance agreement should describe the types of support EPA will provide.  
This assistance may include:**

- **research,**
- **technical advice and assistance,**
- **contractor assistance, or**
- **training.**

**Regions should consult with headquarters about support which will require  
headquarters action.**

## Indian Tribes

- Treatment as States
- Cooperative Agreements
- Water Quality Standards
- Assessment

### VIEWGRAPH #13: Indian Tribes KEY POINTS

The 1987 CWA amendments added § 518 which authorized EPA to recognize and treat Indian tribes as a state for the purposes of Title II and § 104 (Research and Demonstration), § 106 (Water Pollution Control), § 303 (Water Quality Standards and Implementation Plans), § 305 (Water Quality Inventory), § 308 (Inspections, Monitoring, and Entry), § 309 (Federal Enforcement), § 314 (Clean Lakes), § 319 (NPS Management Programs), § 401 (Certification), § 402 (NPDES), and § 404 (Permits for Dredged or Fill Materials).

To receive an award of CWA § 106 or § 314 funds from EPA, an Indian tribe must be deemed eligible to be "treated as a state" (TAS) and must submit an application and work program for federal funding.

To be determined to be eligible, a tribe must be federally recognized and must meet three broad eligibility criteria. The three eligibility criteria under CWA § 518 include:

- The tribe has a governing body carrying out substantial governmental duties and powers.
- The tribe has the necessary authority to administer CWA programs within reservation boundaries. Tribes must define their tribal boundaries.



- The Indian tribe is reasonably expected to be capable of carrying out the function to be exercised.

The initial application for TAS for each program (CWA § 106, §314) must be reviewed and receive EPA Headquarter's concurrence. Subsequent review and approvals are then delegated to the regional offices.

EPA is responsible for notifying other government entities (i.e., state and other federal agencies) and requesting comments on a tribe's request for TAS. A map identifying the areas over which they are claiming jurisdiction and authority should be provided.

Grants under CWA § 106 are intended to assist Indian tribes in carrying out effective water pollution control programs. The approaches taken by tribes to address these initial activities (i.e., development of WQS, water quality assessments, and planning) will depend, to a large degree, on the extent of the tribe's water quality problem, and on its previous experience in managing water quality programs.

The following CWA § 106 program requirements do not apply to tribes due to their relative inexperience:

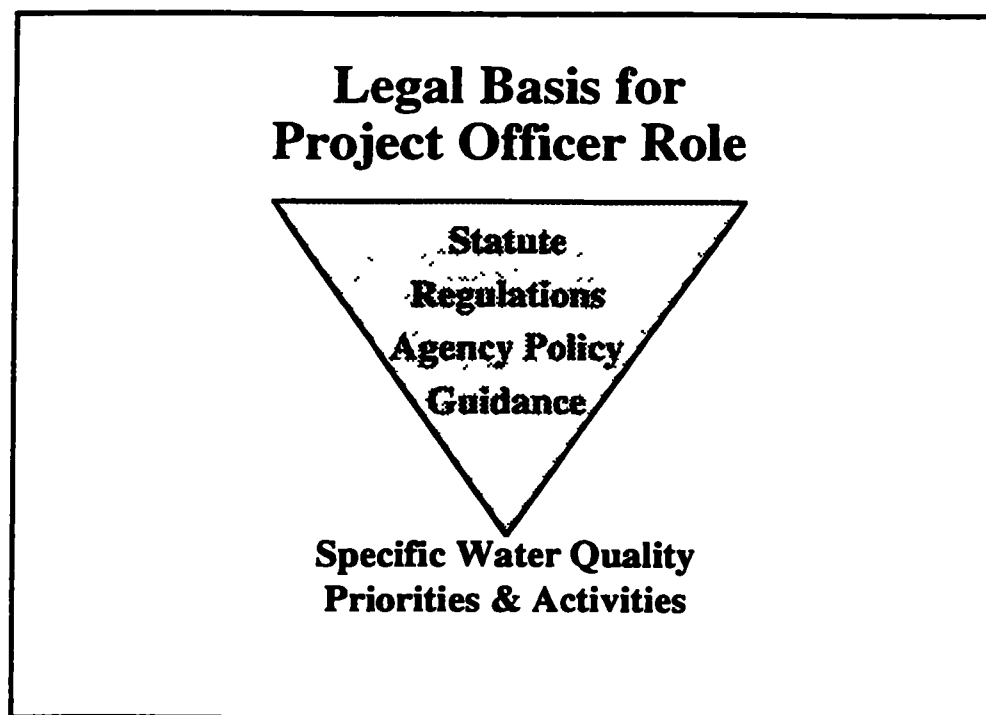
- The requirement to have an established surface water monitoring program.
- Preparing a 305(b) report.
- Level of effort requirements.

The special circumstances with regard to state and tribal relationships and the trust responsibilities of the federal government make these grants unique. There are also obvious cultural differences that establish communication protocols that a project officer needs to be sensitive to. Therefore, close coordination with the regional Indian Coordinator is critical for successful program management.

**For Further Information Contact  
Caren Rothstein**

**(202) 260-5682**

**Module 4:**  
**Project Officer Role and**  
**Responsibilities**



**VIEWGRAPH #1: Legal Basis for Project Officer Role**  
**KEY POINTS**

### **How Statutes and Regulations Affect Your Job**

Federal statutes, executive orders, regulations, agency orders, policies, and guidance define the project officer's responsibilities and authority.

A **federal statute** is a law passed by Congress and signed by the President that specifies responsibilities for the federal government, states, and other affected entities. EPA program and administrative activities must be conducted consistent with the requirements of applicable statutes. Deviation from these statutory requirements is not allowed.

Not all federal statutes are the same. Appropriations, for example, are passed annually, and the authority of an appropriation lasts only for one year. Each appropriations statute may contain Congressional directives to allocate funds under assistance agreements.

Project officers may be responsible implementing these Congressional directives. This, in turn, may require project officers to research documents that establish Congressional intent—e.g., committee reports, confer-

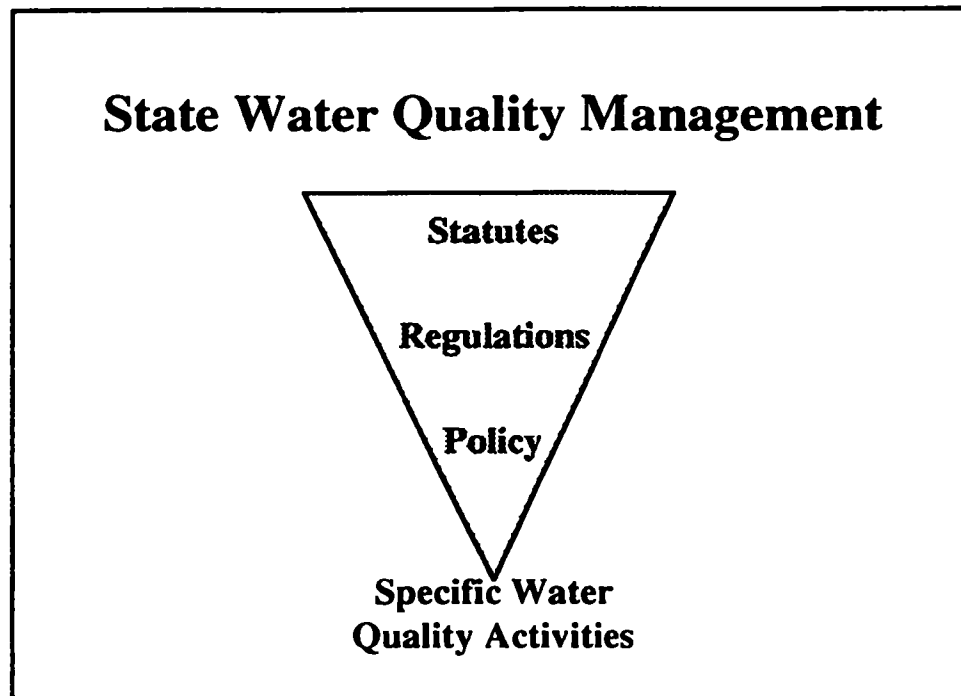
ence reports, or the *Congressional Record*. These documents may be obtained by contacting the Office of Regional Counsel.

**Executive orders** are requirements signed by the President. They pertain to the business of federal agencies and hold the force and effect of law.

**Federal regulations** are rules developed by federal agencies and issued by the federal government to implement federal statutes or agency policy. They are legally enforceable. A federal regulation cannot conflict with a statute. Codified federal regulations may govern the activities of a federal agency, states, or the general public. EPA regulations are codified in Title 40 of the *Code of Federal Regulations* (CFR). In rare cases, **deviations** from federal regulations are approved. A state seeking a variation from a federal regulation must submit a request to the regional office. The regional office then must submit the request to Harvey Pippen, Jr., the Director of the Office of Grants and Debarment at EPA Headquarters. Only Mr. Pippen can approve a variation from a federal regulation.

EPA orders and **policies** are agency requirements issued by EPA headquarters. In activities covered by both an order and a policy, the order supersedes the policy. Regions also may issue regional policies.

EPA also may issue **guidance** that provides detailed descriptions of how to achieve Agency objectives. Guidance is less binding than an order or a policy. Multi-year guidance defines the requirements for all program activities over a long period of time with updates as necessary. Annual Agency operating guidance (AOG) is issued by headquarters. It defines Agency priorities, objectives, commitments, measures, and reporting requirements. Regional guidance translates the AOG into priorities and activities that are specific to the states in the region and developed jointly with them. It incorporates regional and state priorities and helps set priorities for individual state programs.



**VIEWGRAPH #2: State Water Quality Management**  
**KEY POINTS**

State statutes, regulations, and policy define the authority and responsibilities of state program managers.

**State statutes** are laws enacted by state legislatures. In states where water quality management programs have been delegated by EPA, authorizing legislation must be at least as stringent as related federal statutes. In programs where federal statutes have taken precedence, state statutes must be consistent with federal law. In many areas of water quality management, there are no federal statutes. These areas are regulated only by state statute. For example, water rights, local land use control, water and sewer rates, and service area boundaries are regulated by state statute. The structure and activities of state water quality management programs are shaped by state laws.

**State regulations** are detailed instructions on how a statute is to be implemented. **State policy** includes the priorities and objectives of state programs.

## **P.O. Needs to Know:**

- **Basis of Authority**
- **Strongest Basis = Statute**

**VIEWGRAPH #3: P.O. Needs to Know:  
KEY POINTS**

### **Summary**

**The project officer (P.O.) needs to know:**

**Is his or her authority established by federal statute, executive order, regulation, agency order, policy, or guidance?**

**The strongest basis for any action is a federal statutory mandate.**

**State counterparts of 106 project officers are governed by both federal and state statutes and regulations. They are also governed by internal state program dynamics and history.**

## Federal, State, and Local Roles

- Federal: Implement Federal Statutes & Define Priorities
- State: Implement State Statutes
- Local: Regulate Land Use & Planning

### VIEWGRAPH #4: Federal, State, and Local Roles KEY POINTS

**Federal Role.** EPA is responsible for implementing Congressional statutes and achieving the environmental results they specify. EPA must define environmental priorities and the results expected from federal and state water quality agencies through regulation, policy, and guidance. In addition, EPA should contribute leadership and support to water quality programs at the federal and state levels.

**State Role.** The objectives of state water quality management agencies are defined by state statutes. However, to the extent states have assumed delegation of federal water quality programs, or are responsible for carrying out federal mandates, state programs may be shaped by federal statutes and regulations. States with delegated programs are responsible for day-to-day operations of the program.

**Local Role.** Local governments have the authority to regulate land use (e.g., zoning, building ordinances). Use of this authority may be required to implement water quality programs, particularly those relating to nonpoint sources. Local governments also have planning responsibilities, including regional or watershed planning.

## Unique Characteristics of State Programs

- Appreciate State Diversity
- Broader Objectives
- Non-Parallel Organization
- Emergencies May Re-Direct Resources

### VIEWGRAPH #5: Unique Characteristics of State Programs KEY POINTS

The project officer needs to **appreciate the diversity** in state programs. Program approaches vary from state to state. These differences make the project officer's job complex because there is no analytical template applicable to all states. For example, increasing numbers of states are adopting watershed approaches to water quality management. These approaches may result in work programs that are different from those submitted by other states.

State programs also are unique in other ways. For example, state-specific water quality objectives (defined by state statutes, regulations, and guidance) may be **broader in scope** than federal objectives. Also, project officers may have to deal with several state departments or agencies because organization of state water quality agencies may not parallel the federal structure. In addition, state obligations to deal with day-to-day emergencies may direct resources away from federal objectives.



## **Achieving Federal Objectives**

- **State Must Meet Both Federal & State Objectives**
- **Helps if Federal & State Objectives are Consistent**

**VIEWGRAPH #6: Achieving Federal Objectives**  
**KEY POINTS**

### **Achieving Federal Objectives Through Assistance Agreements**

By regulation, the provision of assistance to states (as in a section 106 cooperative agreement) gives EPA authority and responsibility to ensure that states use funds to achieve agreed-upon goals. In practice, this becomes increasingly difficult when federal funds account for a decreasing share of the total state budget for water quality programs. States are more inclined to help achieve federal objectives if the results are consistent with the state's water quality management priorities.

The project officer needs to remember that his or her counterpart at the state level is subject to conflicting demands. On the one hand, EPA program managers insist that the state program meet certain Agency objectives. At the same time, however, there are state legislators and administrators who insist that their objectives be met.

## **Project Officer Concerns**

- **EPA Stresses Program Delegation But Funding Has Not Kept Pace With Increasing State Responsibilities**

**VIEWGRAPH #7: Project Officer Concerns**  
**KEY POINTS**

EPA continues to emphasize delegation of programs to the states, but EPA/state funding has not kept pace with the increased responsibilities imposed on the states by EPA. Chronic funding shortfalls and the declining federal share of total state budgets have created greater challenges for both the EPA project officer and states in the negotiation process. The 106 project officer faces a difficult task of achieving accountability while maintaining the state-EPA partnership.

**Build Trust:**  
*Encourage and Assist in State Programs*



**VIEWGRAPH #8: Build Trust**

**KEY POINTS**

**State/EPA Trust**

Trust between EPA and states is essential to foster goodwill in staffing, training, and building capacity to carry out delegated responsibilities. EPA program managers may distrust states for several reasons, including:

They may be hesitant to entrust to state managers decisions that might conflict with their own.

They may feel distrust is justifiable based on direct experience with programs in particular states.

Regional water quality project officers can help to build trust between EPA and states by helping weak state programs build their capability.

State program managers may distrust EPA for several reasons:

They may feel that EPA talks about partnership, but really wants to establish a hierarchical relationship.

**They may feel that EPA program managers are so concerned about EPA priorities that they will ignore state-specific problems and priorities.**

**A challenge facing the project officer is to build (or restore) trust between EPA and the state.**

## States See "Negotiation" As EPA Imposing Demands

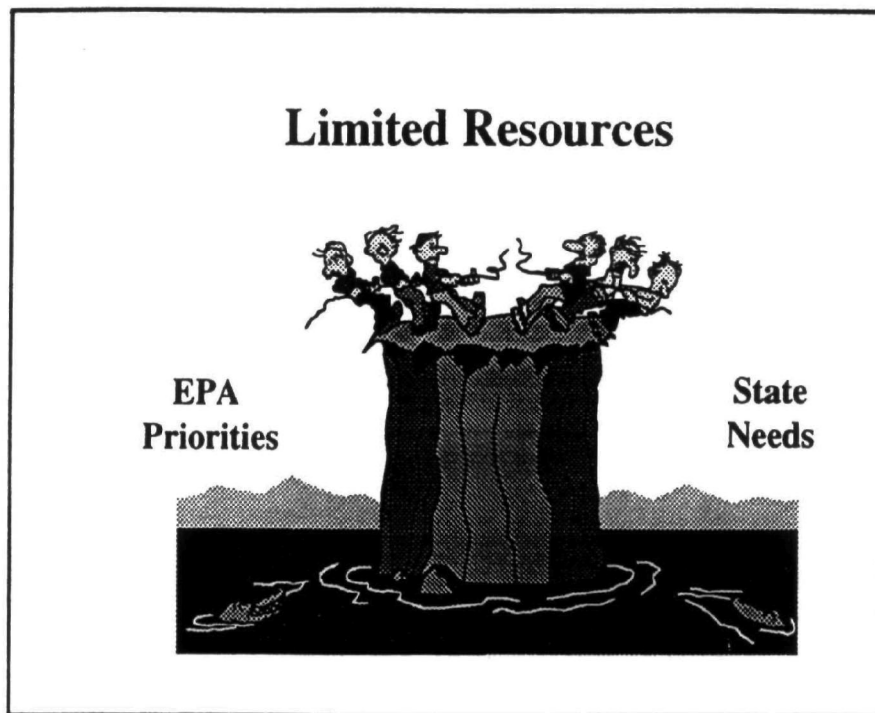


### VIEWGRAPH #9: States See "Negotiation" As EPA Imposing Demands KEY POINTS

In response to Congressional pressure, EPA headquarters managers tend to exert continuous pressure on regions which in turn place demands on states. States often consider these demands excessive or irrelevant to unique state problems. The project officer's job is to facilitate communication between the region and states and to help states set and achieve realistic environmental goals.

Frequently, project officers must enter negotiations over work programs with inflexible targets for state work outputs. These targets often come from EPA headquarters in its response to Congressional expectations. Expectations become commitments in the Agency's accountability system.

Because regional program managers tend to transfer headquarters pressures to states, conditions for genuine negotiation of state work programs may be poor. States may see "negotiation" as a process by which EPA imposes demands.



**VIEWGRAPH #10: Limited Resources**  
**KEY POINTS**

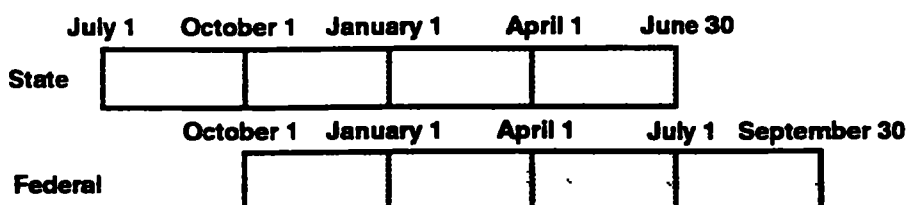
**Increasing Demands, Decreasing Resources**

States will try to resist EPA's trend to demand more as the federal share of total resources declines.

EPA argues that states are not fulfilling their responsibility to fund state program activities.

Federal statutes and delegation agreements require that states undertake a wide variety of activities. EPA assistance agreements were never intended to fund fully all activities expected of states.

## Inconsistent Budget Cycles



### VIEWGRAPH #11: Inconsistent Budget Cycles

#### KEY POINTS

#### Inconsistencies Between State and Federal Budget Cycles

State and federal budget cycles are often inconsistent. Many state fiscal years end on June 30; the federal fiscal year ends on September 30. Some state legislatures meet only every other year or every three years; these states have two- or three-year budget cycles, respectively.

The lack of consistency between federal and state budget cycles may contribute to problems in grant administration. States may be asked to implement state programs for up to one quarter without a final federal grant award. Although the states are entitled to reimbursement, this requires the states to spend state funds during this period. Also, states may be held accountable for a work program that begins before final federal funding commitments are made.

## Current Problems With Resource Constraints

- Funding or Staffing Shortfalls
- States Resist Ambitious Commitments

**VIEWGRAPH #12: Current Problems With Resource Constraints**  
**KEY POINTS**

### **Current Problems With Resource Constraints on State Programs**

Many state water quality programs are experiencing **funding or staffing shortfalls**. Resource constraints often cause problems for state programs. When state funding for water quality programs does not keep pace with new federal program requirements, **states may resist agreeing to ambitious work program commitments**.



## Relationship Between P.O., GMO, & FMO

- P.O. is EPA Program Contact
- GMO Handles Business and Other Nonprogrammatic Areas
- FMO Processes & Monitors

### VIEWGRAPH #13: Relationship Between P.O., GMO, & FMO KEY POINTS

Relationship between the Project Officer (P.O.), the Regional Grants Management Offices (GMOs), and the Financial Management Offices (FMOs).

The **project officer** is designated in the assistance agreement as EPA's **program contact** with the award recipient. The project officer is responsible for developing regional guidance and negotiating the work program, including measures of success. He or she also is responsible for monitoring the performance of the recipient.

The role of the EPA regional **GMOs** is to complement the technical knowledge of the project officer with expertise in the **business and other non-programmatic areas** of assistance awards. The GMO functions begin with review, negotiation, award and administration of assistance agreements and extend to audit resolution and final closeout. The Grants Specialist in the GMO evaluates and monitors the business management capability and administrative performance of recipients, and the internal operating procedures associated with the business management aspects of the grants process. The GMO also serves as the liaison between the project officer and the FMO.

**The FMO is responsible for processing payment requests, accounting, monitoring the recipients' cash management practices, and complying with the reporting requirements of the U.S. Treasury. Along with the GMO, the FMO must ensure that funds reach the recipient on time and that the payments are proper.**



**VIEWGRAPH #14: Project Officer Tasks**  
**KEY POINTS**

### **Project Officer Basic Responsibilities**

The project officer acts as the regional office's single point of program contact with the recipient. Program offices in regions communicate to states through the project officer. The state obtains information from the project officer regarding EPA guidance and policy.

The project officer also **coordinates state guidance**. He or she prepares state-specific guidance that communicates national and regional priorities, joint EPA-state priorities, and annual funding targets. To serve in this capacity the project officer must have in-depth knowledge of each state's water quality problems and approach to water quality management, as well as headquarter's and the regional office's priorities. (Some regions do not prepare written guidance.)

The project officer is responsible for **negotiating the work program**. To do this, he or she works with state and various regional water quality programs to identify activities that address national and regional priorities, address state priorities, and are eligible under the 106 program. The project officer works in partnership with the state to resolve work program issues. The work program identifies state activities and sets a schedule for accomplishment. The work

program's detail and specificity provide monitoring milestones to track progress. It becomes the basis for subsequent follow-up activities.

The project officer **manages performance and resolves differences**. He or she monitors progress continuously to track activities and identify potential problems before they become significant. The project officer also identifies problems and works with the appropriate staff to resolve issues early. He or she conducts formal mid-year evaluations and documents the findings and recommendations in writing. The results of mid-year review are used as the basis for the development of next year's work program. The project officer is responsible for keeping records of all these activities.

The project officer is responsible for **applying performance consequences**. He or she uses the information gained from monitoring state programs to manage state performance. The project officer has two motivational tools available: incentives such as letters of recognition for achievement to reward good performance; and sanctions that address serious problems, used as a last resort to motivate states to improve performance. The project officer recommends sanctions only after all efforts to resolve problems have been exhausted. Even under the best of circumstances, problems will arise which cannot be resolved without further action.

The project officer is responsible for documenting and **maintaining the programmatic project files** for all assistance agreements, and GMO is responsible for maintaining grant administration files. The project officer should coordinate with the GMO in the regions to ensure that documentation is complete. Also, the project officer is responsible for reviewing final SF269s (Financial Status Reports) to ensure compliance with program administration requirements and to check funding levels against project progress. The GMO grant specialist reconciles Financial Status Reports with applications and checks maintenance of effort. In some regions, project officers approve SF269s.

## Project Officer Basic Skills

- Communication
- Coordination
- Facilitation
- Know When to Escalate a Decision

### VIEWGRAPH #15: Project Officer Basic Skills KEY POINTS

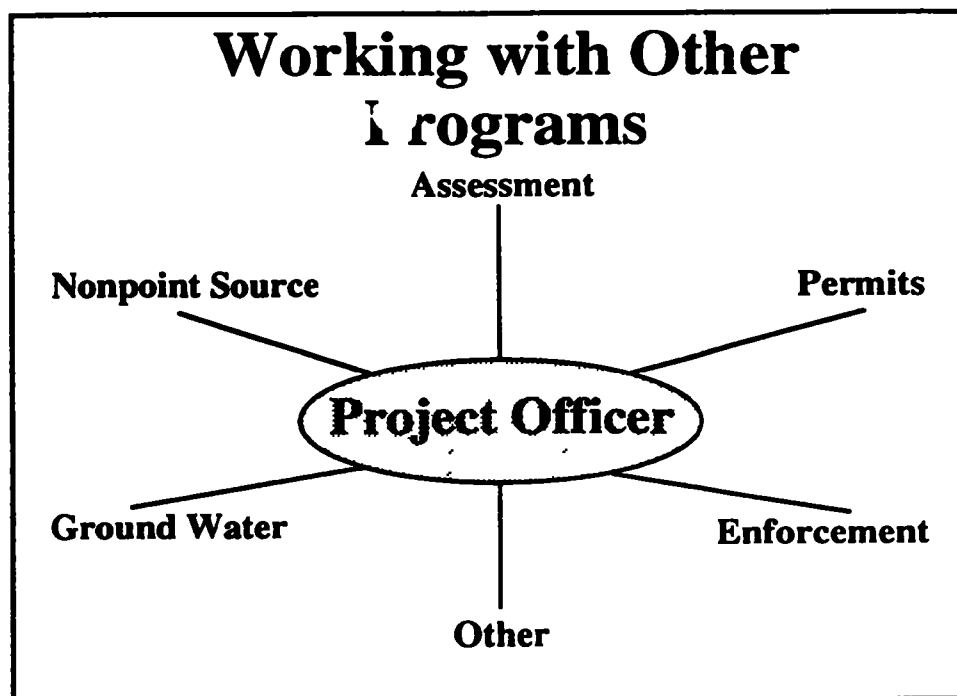
**Communication** is the most critical skill that a project officer can develop. The project officer must communicate frequently with both regional office program staff and state personnel. He or she must interpret and translate national and regional priorities for state program staff and communicate state priorities, needs, and concerns to regional office program staff.

The project officer must also develop **coordination** skills. He or she serves as the focal point for all state activities funded under the 106 assistance agreement. The project officer coordinates at the regional office level among various programs because activities are diverse. Ultimately, the project officer leads the process for achieving a negotiated consensus and agreement on an acceptable state work program.

**Facilitation** is another important skill for a project officer to possess. The project officer must be able to define the issues when a conflict arises. He or she identifies the appropriate contacts and manages a process that provides for involvement by all parties at the state and regional levels.

The project officer must **know when to escalate a decision**. Water Management Division Directors and Regional Administrators rely on project officers to achieve

**compromise and consensus. When compromise is impossible, the project officer must recognize when it is time to refer decisions to a higher authority.**

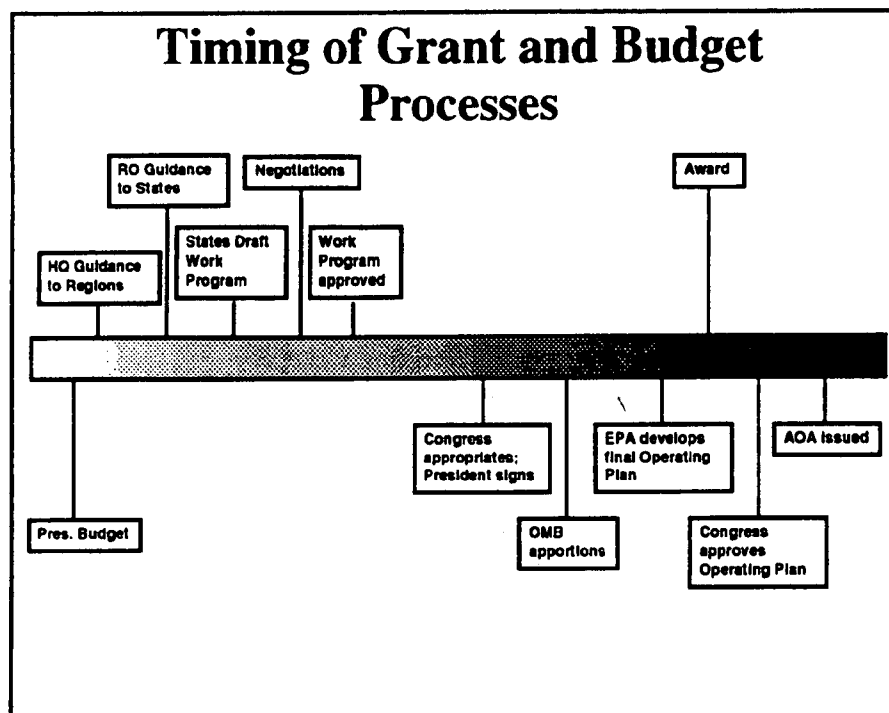


**VIEWGRAPH #16: Working with Other Programs**  
**KEY POINTS**

#### **Working with Other Programs**

As the focal point for management of 106 program activities, the project officer must be in close contact with the managers of various water programs, including: assessment, permits, enforcement, standards, ground water, non-point source, TMDLs, wetlands, coastal zone management, clean lakes, SRF, marine and estuarine, and watersheds.

The project officer also serves as a liaison with managers in other programs, including: pollution prevention, risk assessment, Resource Conservation Recovery Act, Comprehensive Environmental Response, Compensation, and Liability Act, Safe Drinking Water Act, Clean Air Act, quality assurance, Federal Energy Regulatory Commission, local governments, U.S. Department of Agriculture, soil conservation districts, sanitary districts, etc.



**VIEWGRAPH #17: Timing of Grant and Budget Processes**  
**KEY POINTS**

#### Timing of the Budget Process

State funding targets for upcoming fiscal years are based on the President's budget request and are usually issued by March. These are estimates; they do not reflect Congressional action on appropriations.

The final Congressional appropriations should be passed by the end of the fiscal year; in recent years, they have not.

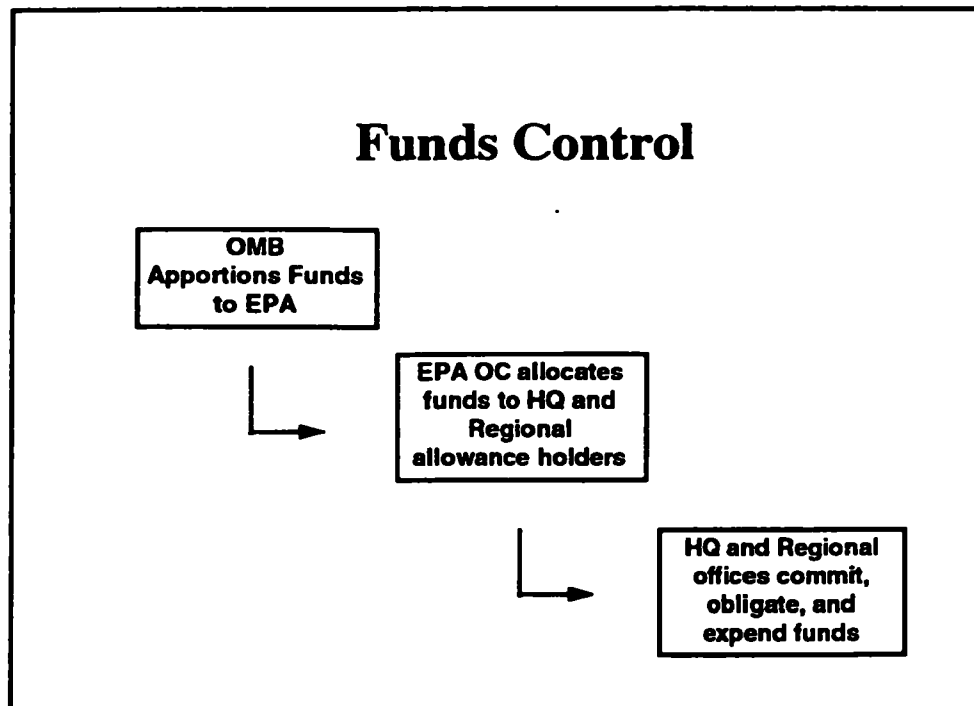
After Congress appropriates, the Office of Management and Budget (OMB) has 30 days to apportion EPA's appropriations, i.e., make resources available for EPA to obligate on a quarter-by-quarter basis.

EPA then has 30 days to provide an Operating Plan to Congress for its approval. The Operating Plan uses the Congressional Budget Justification as a baseline and modifies it according to the Congressional appropriations. The Operating Plan is loaded into the Integrated Financial Management System (IFMS) when it is sent to Congress.



### **Timing Under Continuing Resolutions**

**At the beginning of the fiscal year, the Agency is covered either by an annual Appropriations Act for the whole year or a Continuing Resolution (CR) covering a shorter period. Under a CR, Congress and OMB provide a complex set of rules that can be modified quarterly or even monthly. Generally, CRs restrict EPA's budget more than the appropriation.**



**VIEWGRAPH #18: Funds Control**  
**KEY POINTS**

**Actors in the Budget Process**

The President submits a budget request to Congress.

Congress passes appropriations bills.

OMB apportions the funds that Congress appropriates for EPA.

EPA's Office of the Comptroller converts the EPA apportionment into one allotment and gives it to the EPA's "allotment holder," the Budget Director.

The Budget Director then divides the allotment into allowances and electronically provides an "Advice of Allowance" (AOA) to each "allowance holder."

For the 106 program, the allowance holders are the Regional Administrators.

The final Operating Plan contains all AOAs by program element and object class, with funding levels by fiscal quarter.

## **Fundamentals of Program Budgeting**

- Congress Appropriates by Purpose, Time & Amount
- OMB Apportions by Quarter
- Advice of Allowance  
Authorizes Commitment,  
Obligation & Expenditure

### **VIEWGRAPH #19: Fundamentals of Program Budgeting KEY POINTS**

Congress appropriates funds by purpose, time, and amount. For example, Section 106 funds for cooperative agreements are two-year funds. They may only be spent for continuing program assistance, and they may not exceed the amount specified in the law.

Although many EPA assistance agreements are funded with multiple-year money, the Operating Plan is issued at the beginning of the fiscal year, and the Advice of Allowance cannot exceed one year.

The Advice of Allowance provides spending authority to each allowance holder, including the authority to take the following actions:

**Commitment** - an action to reserve funds in an allowance for a specific purpose (e.g., a grant or cooperative agreement).

**Obligation** - a binding agreement to spend a given amount of money for a specific purpose during a given period.

**Expenditure** - occurs when payment is made for goods or services received.

There are two types of allowances. New Obligation Authority is based on Congressional appropriations that are funded each year (e.g., funds for Abatement, Control, and Compliance (AC&C)). Agency Carryover Authority is used to spend unobligated federal balances remaining in multi-year appropriations. Agency Carryover Authority should not be confused with "carryover" under a grant or cooperative agreement award, which refers to funds awarded but not spent by the recipient during the budget period.

## **Timely Award of Assistance Funds**

- **EPA's Policy is to Award Quickly**
- **Award When Operating Plan In IFMS**
- **Can Obligate 100% In First Quarter**

### **VIEWGRAPH #20: Timely Award of Assistance Funds KEY POINTS**

It is EPA's policy to award assistance funds for Continuing Environmental Programs (including Section 106 funds) as quickly as possible after funds become available. The Agency is trying to be responsive to the needs of state programs that might have to lay off workers if federal funding is delayed. Also, the Agency recognizes its responsibilities under the Cash Management Improvement Act which provides that the Agency could be liable for interest penalties if grants or cooperative agreements are awarded late.

According to the Antideficiency Act, an obligation may be incurred only after Congress passes an appropriation and after the allowance holder receives an allowance from the Budget Division. As explained earlier, it is the final Operating Plan that provides the "advices of allowance" (AOAs) for all allowance holders. During the interim period prior to approval of the enacted Operating Plan, the Operating Plan based on the President's request is loaded into the Integrated Financial Management System (IFMS). Project officers should be aware that the Operating Plan based on the President's request has not been adjusted to reflect Congressional actions or final Administrator distribution of resources. As soon as the final Operating Plan is submitted to Congress, it is entered into IFMS and funds can be obligated. Therefore, project officers should be careful in managing resources in the event that modifications reduce the

amounts available. Once the Operating Plan has been approved by Congress, the normal Advice of Allowance letters are issued.

OMB apportions appropriation funds on a quarterly basis for the fiscal year. Grant and cooperative agreement funds are apportioned 80% in the first quarter, 10% in the second quarter, and 5% in the third and fourth quarters. Since not all funds for some project grants or cooperative agreements are obligated until late in the fiscal year, regions have the flexibility to obligate 100% of the Section 106 program's funding target in the first quarter without exceeding its quarterly AC&C funds apportionment.

## Where to Go For Help

- Water Management Division  
Administrative Assistant
- Regional Comptroller's  
Office
- Headquarters 106  
Coordinator

VIEWGRAPH #21: Where to Go For Help  
KEY POINTS

### Where To Go For Help

- 1) The project officer should first check with the **Water Management Division Administrative Assistant**.
- 2) For the Section 106 program, project officers should consult with the **Regional Comptroller's Office** (usually in the Assistant Regional Administrator's office) on funding questions.
- 3) Questions that cannot be answered by the offices listed above should be directed to the **headquarters 106 coordinator**.

Project officers should be able to provide their states with information on the status of funding.

# **Module 5:**

## **Developing Regional Guidance**



## **The Role of Guidance**

- **Reflect State & EPA Goals**
- **State-Specific**
- **Establishes Accountability**
- **Provides Written Record of Expectations**

### **VIEWGRAPH #1: The Role of Guidance KEY POINTS**

**Regional guidance for each state should:**

- **Reflect the goals and objectives of EPA regions and states.**
- **Provide a clear basis for development of work programs.**
- **Establish the basis to evaluate state performance.**

**Regional guidance should be developed for each state. The Section 106 project officer is primarily responsible for ensuring that each state has regional guidance. Individual state guidance will be based on EPA national guidance, regional priorities, and initiatives, the needs and capabilities of each state, and past state performance. The guidance also will specify detailed outputs in critical program areas that the region expects to see in the work program. The project officer should work with the Water Management Division and the state to ensure that regional guidance reflects the concerns of both EPA regions and states.**

**Guidance plays a critical role in establishing accountability. The detailed specification of outputs that the region expects to see in the work program documents the region's performance expectations. This, coupled with the final negotiated work program,**

**provides a written record of regional expectations and the state's agreement to meet those expectations.**

## **Regional Guidance is Based On:**

- National Guidance
- State Problems
- Past State Performance
- State Capabilities

**VIEWGRAPH #2: Regional Guidance is Based On:  
KEY POINTS**

**Requirements for Regional Guidance (40 CFR 35.125(b))**

**"Regional guidance is based on Headquarters guidance and the Regional Administrator's knowledge of environmental problems in each state in his region and evaluation of each applicant's ability to carry out the program."**

**Regional guidance is based on national guidance and translates EPA's priorities for state staff. Regional guidance is the region's interpretation of what is required to fully implement the requirements of the Clean Water Act.**

**Once the region receives EPA's national guidance, the project officer should let the state know which activities are most important to EPA and how the state should meet EPA's requirements. The project officer should base these decisions on the state's water quality problems, its past performance, and its capabilities for future performance. By working with the state, the project officer should be able to ensure that the individual state water quality problems and the national and regional water program objectives are met.**

## **Restrictions & Requirements**

- **Various Requirements**
- **Minimum Conditions**
- **P.O. Must Work With Various Programs**

### **VIEWGRAPH #3: Restrictions & Requirements KEY POINTS**

The project officer should be aware of various statutory and regulatory restrictions and requirements that states must meet in their work programs. Although states usually are aware of them, these restrictions and requirements may need to be reiterated in regional guidance.

Examples of these restrictions and requirements in Section 106 include:

CWA § 106(d), which says that no grant shall be made under this section to any state for any fiscal year when "the expenditure of non-Federal funds by such State . . . are less than the expenditure of such State or interstate agency non-Federal funds for such recurrent program expenses during the fiscal year ending June 30, 1971."

According to 40 CFR 35.305, "To receive funds under section 205(g), a state agency must expend annually for recurrent section 106 program expenditures an amount of non-Federal funds at least equal to such expenditures during fiscal year 1977, unless the Regional Administrator determines that the reduction is attributable to a non-selective reduction of expenditures in State executive branch agencies."

CWA § 106(e), which provides that grants under this section shall not be made to states that have not provided "the establishment and operation of appropriate devices, methods, systems, and procedures necessary to monitor, and to compile and analyze data on . . . the quality of navigable waters . . . ."

CWA § 106(f), which states that grants under this section are made on the condition that "no federally assumed enforcement as defined in Section 309(a)(2) is in effect with respect to such State or interstate agency."

There are other similar requirements, and not all of them can be listed here. Their existence, however, underscores the need for project officers to work with various program offices within the regional office when developing regional guidance.

## Involving Other Regional Programs

- Consult Other Program Offices
- Program-Specific Guidance

### VIEWGRAPH #4: Involving Other Regional Programs KEY POINTS

The project officer is the principal point of contact with the state. It is important that he or she **consult with all relevant EPA regional program offices** during the development of regional guidance. The guidance document should reflect the priorities of the consolidated regional water program for each state.

In addition to transmitting national and regional priorities, the guidance also should emphasize particular program issues that the region wants to see addressed—e.g., monitoring, pollution prevention, and so forth. These issues may be included in **"program-specific guidance."**

## **Timely Issuance of Regional Guidance is Essential**

<b>Action</b>	<b>Deadline</b>
<b>HQ issues draft guidance</b>	<b>January 15</b>
<b>HQ issues AOG &amp; funding planning targets</b>	<b>March 1</b>
<b>Senior state meetings</b>	<b>March</b>
<b>Regions issue guidance</b>	<b>April 1</b>
<b>States submit draft work programs</b>	<b>June 1</b>
<b>Work program approval; complete grant process</b>	<b>September 30</b>

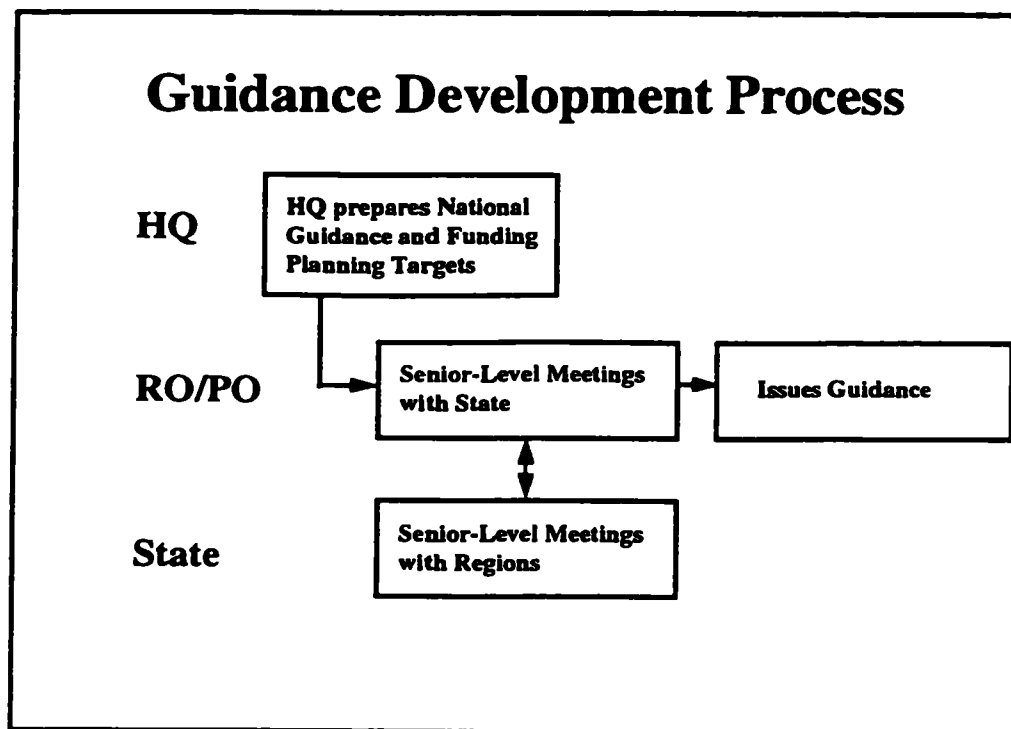
### **VIEWGRAPH #5: Timely Issuance of Regional Guidance is Essential**

**KEY POINTS**

It is important that regional guidance be developed according to an established schedule that both the region and the state understand. The project officer should take every opportunity to facilitate communication between the region and the state. To do this, the project officer should draft a schedule for guidance development and discuss it with the state.

The information in the regional guidance is essential for each state's work program and should be issued in a timely fashion. Therefore, regional guidance should be issued to the state on or before April 1 of each year. If this target is not met, it becomes difficult to require submission of draft work programs by June 1. The timely submission of work programs by the states is critical to the approval of work programs by September 30, in time for funding at the beginning of the new fiscal year.

The schedule outlined above assumes that Agency Operating Guidance (AOG) and funding planning targets from headquarters are available to the regions by March 1. If the final AOG is not available, then the regions should use the draft AOG or the previous years guidance in preparing regional guidance. If delays in the President's Budget delays the issuance of funding planning targets, then the project officer should use the previous year's targets as a base.



**VIEWGRAPH #6: Guidance Development Process**  
**KEY POINTS**

Regional offices play an essential role in interpreting and adapting EPA goals and requirements to individual state programs. This role involves communicating with states and Headquarters to solve issues that arise as states develop annual work programs.

Guidance for individual states should be based on mutually agreed-upon priorities and activities (as much as possible). Although the Section 106 project officer develops the guidance, it should reflect the involvement of all regional water programs and the states. Guidance is an essential part of the annual state work program development effort and is an important management tool that will ease the project officer's duties and improve EPA/state relationships.

The project officer must be communicative and flexible in developing guidance. Well-organized guidance will give the state a firm basis for work program development, provide for state contributions, help ensure proper timing, and stabilize the annual process. To reconcile regional priorities with state needs and capabilities, senior-level EPA and state personnel should meet well before the April 1 deadline. These discussions should focus on strategic planning, long-term objectives, and major program priorities for the coming year. All parties should agree on new initiatives and priorities for the coming year.



The project officer should use the results of these senior-level discussions to create state-specific guidance. The project officer also must use his or her understanding of national and/or regional priorities and the unique state characteristics and program priorities while developing the guidance.

## **Guidance Should Be Tailored to Unique State Conditions**

- Senior Level Agreements
- Problem Types & Severity
- Budget Cycles & Resources
- State Organizational Issues
- State Legislative Constraints

**VIEWGRAPH #7: Guidance Should Be Tailored to Unique State Conditions**  
**KEY POINTS**

Typically, each year more priorities are created than states have the resources to accomplish. Therefore, the project officer should consider all factors affecting a state's ability to meet national goals. Before developing state-specific guidance, the project officer might consider:

- Senior level agreements (state-EPA agreements, clean water strategies, strategic plans, etc.).
- Differences in types and severity of problems.
- State budget cycles.
- State and federal resources.
- State organizational issues (e.g., the involvement of many state agencies in one program).
- State legislative constraints (e.g., the need for legislative approval to spend federal funds).

## **Elements of a Guidance Document**

- **National & Regional Priorities**
- **Review & Issuance Schedule**
- **Work Program Schedule**
- **Unresolved Issues**

**VIEWGRAPH #8: Elements of a Guidance Document**  
**KEY POINTS**

**"The guidance contains EPA's objectives and priorities, the applicant's planning target, the program elements EPA uses for budget justification and management, categories of outputs which should be part of the applicant's work program, and the special conditions or limitations relevant to the applicant." (40 CFR 35.125(b))**

**Effective regional guidance should be a framework for the state work program. In developing the regional guidance, the project officer should create an atmosphere of mutual support and communication between the region and the state. This forum can then set the stage for similar negotiations regarding the state's work program. In formulating regional guidance, the project officer should:**

- **List the national priorities, emphasizing the relevant priorities to state objectives.**
- **List the regional priorities, including specific outputs and commitments requested by the region.**
- **Schedule a state review period and issue final guidance.**
- **Schedule draft and final work program submissions.**

- Tie up the previous year's loose ends, e.g. specific recommendations on how the state can complete previous years commitments (as necessary).

## **Elements of a Guidance Document (Cont.)**

- **Work Program Format**
- **Additional Guidance Sources**
- **Funding Targets**
- **Applications, Regulations & Referrals**

**VIEWGRAPH #9: Elements of a Guidance Document (Cont.)**  
**KEY POINTS**

- **Specify the state's work program format (the format should integrate all the water quality activities within the grant and specify their respective funding sources).**
- **Provide additional sources of guidance that the state can use to design individual program elements (e.g., special issues like performance based grants, ground water initiatives, etc.).**
- **Establish funding targets.**
- **Provide copies of grant application forms, copies of relevant regulations, and statements referring state administrative/financial staff to regional grant administration staff for specific assistance.**

**In addition to formal letters transmitting guidance, informal discussions, meetings, and conference calls also are effective means of supplying information on and interpreting guidance.**

The following is an example of what the table of contents of a regional guidance document might look like.

- I. GENERAL GUIDANCE FOR DEVELOPING WORK PROGRAM PLANS AND GRANT APPLICATIONS**
  - A. Milestones for FY'94 Program Grants Actions**
  - B. National Guidance and Priorities**
  - C. Regional Guidance and Priorities**
  - D. Grant Work Program Content**
  - E. Progress Reports**
- II. GRANT SPECIFIC GUIDANCE**
  - A. 106 Guidance**
  - B. 604(b) Guidance**
  - C. The Management Process for Section 319(h) Funds for Nonpoint Sources**
- III. PROGRAM SPECIFIC GUIDANCE**
  - A. Water Quality Assessment and Ambient Water Monitoring Programs**
  - B. Permits and Enforcement**
  - C. Clean Lakes Program**
  - D. Pollution Prevention**
  - E. Comprehensive State Ground Water Protection Programs**
  - F. Wellhead Protection**
  - G. Nonpoint Sources Management (NPS) Program**
- IV. FUNDING RESERVES AND TARGETS**
- V. GLOSSARY OF ACRONYMS**

**APPENDIX A: Headquarters Pollution Prevention Policy Information and Guidance Memos.**

**APPENDIX B: Headquarters List of Defined Work Program Program Elements for 106 and 604(b)**

**APPENDIX C: Headquarters 106 FY Guidance Memo**

See the reference manual of this course for an example of regional guidance.

## Reviewing Past Performance

- Aids in Guidance Preparation
- Encourages Multi-Year Planning

### VIEWGRAPH #10: Reviewing Past Performance KEY POINTS

State performance measured against the previous year's commitments is an important source of information for developing this year's guidance. Project officers and regional staff also can use the results of reviews of current year commitments to form effective guidance. The mid-year review is an important source of information about state performance. The project officer's day-to-day discussions with state and regional staff also can give an insight into state performance. The results of these discussions, quarterly progress reports, and end-of-year reviews **help the project officer to formulate effective, state-specific guidance.**

Linking guidance to the previous year's performance encourages states to undertake **multi-year planning.** By using this approach, EPA demonstrates that it plans to measure program performance for more than one year and that positive results will benefit the next year's program.

# **Module 6:**

## **Negotiating the Work Program**



## **The Work Program**

- **Defines Outputs, Activities, and Schedules**
- **Must Be Realistic**
- **Contains Objectives of State & EPA**

### **VIEWGRAPH #1: The Work Program KEY POINTS**

#### **Overview to Work Program Negotiation**

In Section 106 cooperative agreements and other Office of Water (OW) grants, EPA provides funding and the recipients (states) agree to produce specific outputs or complete specific activities. The nature of this EPA-state agreement, the specific outputs or activities, and the schedule for producing these outputs or activities are defined by the work program (also known as the work plan).

In order for an agreement to be effective, the goals must be realistic. Ideally, a work program should contain the major objectives of both sides. This requires diplomacy, compromise, and close attention to detail.

For additional information on the work program, see 40 CFR 35.130, 130.10, and 130.11(a)-(e).

## Work Program Objectives

- Develop Realistic Work Program Commitments
- Define Commitments That Foster Accountability
- Part of Long-Range Plan

### VIEWGRAPH #2: Work Program Objectives KEY POINTS

The objective of the work program development process is a workable document

The final work program is the result of negotiations between the EPA regional office (represented by the project officer) and the state. The objective of the work program negotiation process is a workable document that has two characteristics.

**Realistic work program commitments.** There never are enough funds to achieve all of the water quality objectives of the state and EPA. Therefore, the project officer and the state must agree upon those commitments that are most important. A large part of this module will provide specific techniques that the project officer can use to achieve consensus on what is most important and to negotiate mutually-agreed-upon commitments.

**Defining commitments that foster accountability.** There are no easy ways to achieve this objective. Relevant regulations should be followed when establishing the content of the work program.

For example:

40 CFR 130.11(c) requires that work programs describe geographical and functional priorities for the use of grant funds in a manner that will facilitate EPA review of the grant application and subsequent evaluation of work.

Also, 40 CFR 130.8 states that annual work programs should reflect problems identified in the 305(b) reports.

Part 40 CFR 130.11(d) requires that work programs be structured according to key program elements.

40 CFR 130.11(c) and 40 CFR 130.11(d) require that the work program specify program activities, outputs, and funding by program elements.

For consolidated assistance (40 CFR 35.145), the consolidated budget must identify each assistance program's funds. The consolidated work program must identify the extent to which each assistance program's funds support each program element.

Activities in the work program must be consistent with these regulations.

The remainder of this module will present proven management principles that can enable the project officer to achieve these requirements in a practical work program document.

**Tying Long-Range EPA Planning to Long-Range State Planning.** States may want to adopt a multi-year approach to planning that reflects EPA's directions and meets their own program needs. Therefore, work program decision making should be based on a strategic outlook that goes beyond one year. It is inefficient for states to simply react to national goals and priorities. State strategies, priority waterbody lists, and water quality management plans represent long-term approaches to water quality management. The project officer should discuss the following benefits of long-range planning with the state water quality managers:

- Helps to improve water quality.
- Brings stability to the state program.
- Makes state programs flexible and less reactive by re-emphasizing and reconsidering existing components (long-range planning highlights this and makes national priority shifts less problematical).
- Helps predict and defend resource needs.

## **Important Steps**

- **Set Priorities & Commitments**
- **Set Schedule**
- **Check Structure**
- **Negotiate**

**VIEWGRAPH #3: Important Steps**  
**KEY POINTS**

**There are seven important management principles that should be followed in work program negotiation:**

- 1) Set priorities and commitments in the context of the overall state water quality program.**
- 2) Set a realistic schedule.**
- 3) Ensure that the state work program is structured according to key program elements with specific outputs. For a list of key program elements, see Module 3: Overview of Grants and Cooperative Agreements.**
- 4) Negotiate a work program that effectively achieves program goals.**

## **Important Steps (Cont.)**

- **Involve Other Programs**
- **Evaluation Plan**
- **Coordinate With Grants Administration Staff**

**VIEWGRAPH #4: Important Steps (Cont.)**  
**KEY POINTS**

*Continued from previous page.*

- 5) **Involve regional water programs in work program development.**
- 6) **Plan for evaluation of accomplishments from the outset.**
- 7) **Coordinate with grants management offices (GMOs) during work program development.**

## Setting Priorities

- Understand & Consider Overall Program
- Balance EPA & State Priorities

### VIEWGRAPH #5: Setting Priorities KEY POINTS

Set priorities and commitments in the context of the overall state water quality program.

The project officer must **understand the state's overall program** and budget. This goes beyond those elements supported by Section 106 or other EPA funds. It relates to the entire state water quality management program whether funded by EPA or not. It also refers to aspects of the state program that may be implemented by local and regional planning organizations. If the project officer does not understand the whole program and how 106-funded elements relate to the whole, it is difficult to evaluate the commitments made in the work program.

The priorities established in the work program should integrate and **balance EPA and state priorities**. Project officers must balance the needs of both sides in a work program where commitments are spread realistically across goals.

## Setting a Schedule

- Should be Realistic
- Set Schedule Early
- Final Work Program In Place by October 1

### VIEWGRAPH #6: Setting a Schedule KEY POINTS

Set a realistic schedule.

The project officer should establish a schedule for:

- Submission of the state work program.
- Review by EPA.
- Negotiation.
- Resubmission.
- Approval of the final work program.

This schedule should be established early in the planning process. A thoughtful schedule, if adhered to, can facilitate negotiation and the development of realistic commitments.

The schedule must necessarily focus on having the final work program in place before October 1. This implies the following range of schedules for events that are likely to take place before final work program approval. Each region may, of course, operate on a different schedule. Some regions complete work program negotiations prior to July to conform to state fiscal years ending June 30.

The following example shows a schedule that works for some regions.

<b>States Submit Draft Work Programs to EPA</b>	<b>By June 1</b>
<b>EPA/States Negotiate Preliminary Work Programs—Elevating Unresolved Issues</b>	<b>By July 15</b>
<b>States Submit Final Application to GMO <sup>1</sup></b>	<b>By August 1</b>
<b>Project Officer Submits Decision Memorandum and Final Work Program to GMO</b>	<b>August</b>
<b>EPA/States Cooperatively Resolve Final Work Program Issues</b>	<b>By August 15</b>
<b>States Submit Final Work Programs</b>	<b>By August 31</b>
<b>EPA Regions Notify States of Status of Assistance Applications and Work Programs</b>	<b>September 15</b>
<b>Awards Made by GMO October 1 (or as soon as funds are available following congressional appropriation and OMB apportionment)</b>	<b>October 1</b>

---

<sup>1</sup> States must submit the final application to the GMO 60 days prior to the beginning of the budget period. (40 CFR 35.140)



## **Work Programs Structured According to Key Program Elements:**

- **Must Have Specific Outputs**
- **Facilitate EPA Review**
- **Helps Compile Reporting Information**

**VIEWGRAPH #7: Work Programs Structured According to Key Program Elements:  
KEY POINTS**

The project officer should ensure that the state work program is structured according to key program elements with specific outputs.

The water quality management regulations establish the key program elements (or "functions") for the work program.

"State work programs under Sections 106, [and related programs] shall be coordinated." (40 CFR 130.11(d)).

"The work program must specify the work years and amount and source of funding estimated to be needed for each program element, the outputs committed to under each program element . . . and an identification of the agency responsible for each of the elements and outputs." (40 CFR 35.130)

A work program structured according to these elements facilitates EPA review of the work program and subsequent evaluation of work accomplished with funds from the assistance agreement. Consistent reporting by states within a region also helps the project officer compile information needed for reporting to headquarters.

## **Negotiate to Achieve Program Goals**

- **P.O. Has Discretion**
- **Success Depends on  
Knowledge and Skill**
- **Success Often Depends on  
Simple Tasks**

### **VIEWGRAPH #8: Negotiate to Achieve Program Goals**

**KEY POINTS**

As a project officer, you have a unique opportunity to work directly with the state to negotiate the work program. Although there may appear to be many constraints on your negotiating positions, both parties actually have significant discretion. How you finally arrive at an agreement is up to you. The challenge, therefore, is to use the negotiation process as a way to improve upon the draft work program submitted by the state.

Success will depend on how well you know your state (e.g., your knowledge of past state performance and your assessment of what is reasonable for the coming year) plus your skill as a negotiator.

Successful negotiation often depends on the simple tasks that you have the authority to perform. For example,

- **If states receive EPA guidance in a timely fashion, they will be more likely to use that guidance in developing their draft work programs.**
- **If you start the process early and convene early meetings with the state, you can answer questions and influence the draft work program process.**

- It is important to have accurate data on past program performance. This will improve your credibility as a negotiator. You may need to get some of this information from other regional office programs or review end-of-year and current mid-year performance reports.
- You need to realistically assess the state's ability to make commitments. This means that you should understand the state's current workload and its ability to take on projected work.
- Negotiation requires an understanding of the positions of both parties—their areas of potential consensus, and their areas of disagreement. The sooner you can identify these positions, the more helpful you can be as a negotiator.

## **Techniques of Negotiation**

- **Focus on Interests**
- **Explore Options to Resolve Conflict**

### **VIEWGRAPH #9: Techniques of Negotiation KEY POINTS**

We recommend that all project officers take a course in negotiation skills. The purpose of this course is much broader, and we cannot take the time required to properly conduct training in negotiation. There are commercial courses available, however, and your regional office should be able to recommend one.

There are, however, some basic negotiation principles that can be outlined here and that may be helpful for new project officers. Two principles for successful negotiation are:

- **Focus on interests.** Each state water quality management program has basic interests in achieving certain objectives. Your job, as project officer, is to understand what these interests are. It is these interests, and not the positions taken by a state negotiator, that will ultimately decide the outcome of a negotiation. You should make the interests of EPA clear to the state, and you should work to identify shared interests. One of the interests shared by both the state and EPA, for example, is to have the state continue to implement environmental programs.

- **Seek to invent options that can be used to resolve conflict.** Some negotiations break down because of a lack of creativity. Positions harden; parties become frustrated. The project officer should be searching for options that will enable him or her to achieve an acceptable solution for the Agency. Increasing the options—looking for creative solutions—is essential.

## **Unique Position of the Project Officer**

- **Agency's Lead Negotiator**
- **Must Negotiate Within Agency to Define Objectives & Priorities**

### **VIEWGRAPH #10: Unique Position of the Project Officer KEY POINTS**

**The project officer must negotiate in two directions.**

- **On the one hand, he or she is the lead negotiator for the Agency in its relationship with the state. This means that the project officer's job is to work with the state to develop a work program that meets the Agency's and state's objectives and priorities.**
- **At the same time, however, the project officer often has to negotiate internally, in the regional office, to establish the official Agency position in dealing with the state. Defining the Agency's objectives and priorities may not be as simple as it seems. Indeed, even though there may be an official set of priorities, there still may need to be trade-offs between program areas—e.g., between standards and permits—when faced with scarce state resources.**

## **Involve Other Regional Programs in Work Program Development**

- **Many Have Interest in Outcome**
- **Ask Them to Contribute**
- **Have Coordination Plan**

### **VIEWGRAPH #11: Involve Other Regional Programs in Work Program Development KEY POINTS**

Because the state work program will incorporate all water quality management activities funded by Section 106 and other grant programs, many regional water program offices will have an interest in the outcome. Staff in permits, for example, have an interest in the specific commitments made by the state in their area.

Staff throughout the regional water management division should be involved in work program development. They should be asked to contribute their technical expertise, their program priorities, their knowledge about previous state performance, their knowledge of state program capability, and their knowledge of the costs involved in implementing new program activities.

## **Plan Must Address:**

- **Comprehensiveness of Review**
- **Schedule**
- **Review Frequency**

### **VIEWGRAPH #12: Plan Must Address: KEY POINTS**

**Central to the success of regional office coordination is a plan by the project officer. This plan must address the following subjects:**

- **Comprehensiveness of review**

**What role do you want regional office personnel to play? Should they review the entire draft work program?**

**We recommend that some staff should review the draft work program in its entirety, while others should review only relevant portions.**

- **Schedule**

**The schedule for regional office review of the draft work program must mesh with the overall schedule for negotiation.**

**The project officer should establish a firm schedule, including deadlines for comments at each stage of the process.**



- **Frequency of review**

How many reviews of the work program will regional office personnel be involved in? This needs to be established clearly at the outset.

## **Role of the Project Officer**

- **Coordination**
- **Circulation**
- **Compilation**

### **VIEWGRAPH #13: Role of the Project Officer**

**KEY POINTS**

The role of the project officer in coordinating the review by regional office personnel includes the following tasks:

- **Coordination** with program office personnel to ensure that the various offices within the region communicate their priorities to the state.
- **Circulation** of the draft state work program to all relevant reviewers and establishment of a schedule for receipt of reviews.
- **Compilation** of the comments of all reviewers and communication of them to the state.

## **Planning for Evaluation From the Outset**

- **Introduce Subject When  
Negotiating Work Program**
- **Make EPA's Expectations  
Clear**

**VIEWGRAPH #14: Planning for Evaluation From the Outset**

### **KEY POINTS**

Although this seems like a subject from the next module, it is important to start planning for evaluation at the time that the work program is negotiated. This ensures that the state understands the importance of evaluation and the need to meet all reporting requirements that will facilitate evaluation.

EPA's expectations for the evaluation process should be made clear and explained to the state. Clarification of why certain evaluation measures are important will help to create a positive atmosphere.

## **Evaluation Strategy**

- **Method for Evaluating & Measuring Outputs**
- **Consequences**
- **Reporting Plan**
- **On-Site Visits**

**VIEWGRAPH #15: Evaluation Strategy**  
**KEY POINTS**

**Design of evaluation strategies should consider the following management principles:**

- **States need to understand how their programs will be evaluated. It is useful to define how outputs will be measured and how their adequacy will be assessed.**
- **Possible consequences of inadequate performance need to be defined.**
- **The evaluation plan should include a reporting plan that will enable the project officer to assess state progress in a timely manner. Quarterly reporting may be useful.**
- **Regularly scheduled on-site visits are extremely useful.**

## **Coordination**

- **Coordinate With GMO**
- **Ensure Fiscal Management and Grant Integrity**
- **Assist Processing/Review**
- **Pre-Application Assistance**

### **VIEWGRAPH #16: Coordination KEY POINTS**

**Coordinate with GMOs during work program development.**

**Grant administration and management functions are shared by project officers and regional GMO personnel. Assignment of responsibilities will vary by region. Regardless of the specifics of the process in your region, however, the project officer remains the main point of contact for the state. Therefore, the project officer should ensure that grant administration functions occur in a manner that is complementary to work program development. To this end, the project officer should:**

- **Coordinate with grants administration staff from the outset. Before the draft work program is submitted by the state, the project officer should meet with grants administration personnel and discuss previous state performance, anticipated problems, methods for addressing anticipated problems, and appropriate reporting requirements. The project officer must follow established file procedures. It is important for the project officer to coordinate with GMO on the administrative aspects of the grant application, budget review, standard conditions, and any special conditions. GMO should review the application while the project officer reviews the work program for acceptability. The project**

officer should forward a directive memorandum to GMO on intent of awards (e.g., full award, partial award, etc.).

- **Ensure adequate state fiscal management and grant integrity.** The project officer should review the grant budget to determine if adequate funds are available to accomplish the commitments specified in the work program. Also, the project officer should review and track carryover funds.
- **Assist in grant processing and review.** The project officer and grants administration staff should jointly review the draft work program submitted by the state. The purpose of this review should be to check the entire package for administrative completeness and adequacy, evaluate budgeted costs for eligibility, discuss areas that may need clarification, and discuss special grant conditions.
- **Provide the state with pre-application assistance.** The project officer should work with the grant administration staff to provide pre-application training or assistance to states. This may include, for example, assistance in explaining special grant conditions, explaining requirements for state level-of-effort, or determining allowable costs.

## State Submittals to EPA

- 305(b) & 205(j)
- Work Program
- WQS
- CPP & WQM Plan
- 303(d) List
- TMDLs

### VIEWGRAPH #17: State Submittals to EPA

#### KEY POINTS

States must submit the following regularly to EPA (40 CFR 130.10(a)):

- 305(b) report (every 2 years)
- 305(b) update (every 2 years) or 205(j) certification (off years)
- State work programs (annually)
- Revisions or additions to WQS

States must submit the following every two years (40 CFR 130.7(d)(1) and 130.10(b) [See 57 *Federal Register* 33040, Friday, July 24, 1992.] )

- 303(d) list
- TMDLs

The Clean Water Act also requires that each state initially submit to EPA and revise as necessary the following (40 CFR 130.10(b)):

- Continuing Planning Process
- WQM plan and certified and approved updates

# **Module 7:**

# **Performance Management**



## Elements of Performance Management

- Cooperation
- Communication
- Reporting Systems
- Incentives
- Sanctions

### VIEWGRAPH #1: Elements of Performance Management

#### KEY POINTS

The purposes of performance management are to ensure that work program commitments are carried out by the state agency, and that EPA and the state are **working cooperatively** to see that work program commitments are achieved.

Central to performance management are **communication** and **reporting systems**. Communication should be both formal and informal. Informal communication should be sufficiently frequent that the project officer knows the status of the state's activities and commitments. The state and region also must agree upon a formal reporting system that accurately communicates essential information regarding state work program commitments and activities. This reporting system should be accurate, timely, but not burdensome on the state.

States sometimes fail to meet previously agreed upon commitments. In such cases, the project officer may need to turn to **incentives** and **sanctions**, where appropriate, to ensure that commitments are met. However, states may fail to meet commitments for reasons beyond their control, such as drought or too much rain. This kind of "failure" does not merit sanctions. EPA should consider reprogramming as soon as these situations become evident.

**For further information on performance management, refer to EPA's Performance Based Assistance Policy in the reference manual of this course.**

## Communication

- Communication Is Key
- Formal Reporting Tracks Information & Progress
- Informal Communication Gains Background, Early Warning & Cooperation

### VIEWGRAPH #2: Communication KEY POINTS

Open **communication** is a key component of project officer performance management. If a project officer can establish a climate of open communication—where communication is frequent and the state agency is willing to talk with the project officer—performance management is likely to be successful.

In the rest of this module, we will discuss several types of **formal reporting** mechanisms that can be used by the project officer to obtain essential information on state activities and progress toward commitments.

**Informal communication** consists of weekly or monthly discussions between the project officer and the state agency. These discussions allow the project officer to keep abreast of current events in the state. It also allows the project officer to keep the state abreast of new policies and priorities at EPA. By maintaining this open communication, the project officer is better able to understand the background that affects a state's water quality management program. The project officer, for example, can learn about emerging budget problems that might affect commitments. This also means that the project officer will have an "early warning" about difficulties. Informal communication also enables the state and EPA to maintain an open, cooperative attitude that can focus on solving problems rather than judging and assigning blame.

## Evaluation Strategy

- Establishes Reporting Requirements
- Comprehensive
- State-Specific
- Quantitative & Qualitative Measures of Progress

### VIEWGRAPH #3: Evaluation Strategy KEY POINTS

The evaluation strategy is contained in the assistance agreement. It generally is not a separate document, but rather is contained in the work program.

The strategy should have qualitative and quantitative performance measures that EPA will use to judge state progress. It also should identify the formal **reporting requirements** to be used by the state to report on its progress according to these performance measures.

The evaluation strategy should be **comprehensive**. It should contain measures and reporting requirements for all commitments contained in the work program. This includes measures that are part of formal EPA reporting systems such as PCS and GICS, but should not be limited to these systems. The measures should be tailored to the work program and **specific circumstances of each state**. This may require the use of measures not found in formal EPA reporting systems.

In addition to **quantitative measures**, the evaluation strategy should also contain **qualitative measures** of the state's progress in maintaining and achieving water quality. For example, the state might be developing strategies for pollution prevention or watershed-based planning, and implementation of these strategies should be established as commitments and monitored by EPA.

## **The Mid-Year Review**

- **Most Important Formal Reporting Mechanism**
- **Requires Substantial Logistical Preparation**
- **Collect All Available Data Prior to State Visit**

### **VIEWGRAPH #4: The Mid-Year Review**

**KEY POINTS**

For most regions, the mid-year review is the most important formal reporting mechanism. It provides an opportunity for regional officials to visit the state, assess progress in meeting commitments, identify areas of concern and develop a plan to address these concerns for the remainder of the year, and provide mid-point feedback to state agency personnel.

Effective mid-year reviews require substantial logistics work by the project officer. The date and time of the review should be established well in advance to ensure that all relevant participants—from both the state and the region—can attend. The project officer needs to identify a comprehensive list of all of these personnel, ensuring full representation from the region. He or she should then work carefully on logistics so as to encourage maximum participation by both state and regional personnel.

Prior to visiting the state, the project officer should collect all available data that will be useful for the visit. For example, it may be useful for the project officer to review state expenditures to date, check on cost allowability, and check on whether any level-of-effort problems are emerging. This may require coordination with grants administration personnel to check on problems that they have identified.

## Format for the Mid-Year Review

- Significant Accomplishments
- Concerns
- Recommendations

### VIEWGRAPH #5: Format for the Mid-Year Review KEY POINTS

Each region may have a different format for the mid-year review. Several regions successfully use the following format for each major program area supported by the 106 grant (e.g., NPDES permits, enforcement, standards, monitoring, and so forth).

- **Significant accomplishments.** Start with a summary of the achievements of the program during the first half of the program year.
- **Concerns.** Identify, in order of priority, the deficiencies noted (if any) for each program area.
- **Recommendations.** Follow each concern with an action that the state program can take to remedy deficiencies. Be specific. Add a schedule, if necessary. These recommendations can be discussed with the state in advance. If they have been discussed, they can appear in the mid-year review as agreements between the state and the region. The region may want to schedule a follow-up meeting to check on the progress issues identified during the review.

## **Results of the Mid-Year Review**

- State Comments
- Differences Resolved
- Problems in Perspective
- Thorough & Constructive
- Address Problems w/Actions

### **VIEWGRAPH #6: Results of the Mid-Year Review KEY POINTS**

The state agency should have an opportunity to review and comment on the EPA mid-year evaluation report before it becomes final. The purpose of issuing the report is not only to provide the state with a written assessment of its performance, but also to enable the state to explain problems and work with EPA to resolve them. Performance problems, therefore, should be openly and thoroughly discussed in an effort to understand their causes and resolve both the immediate problems and any underlying institutional or management issues.

The state may not agree with the project officer's assessment. If so, it is important that differences of opinion be aired and resolved. The objective in evaluation is to solve problems cooperatively. If that cannot be achieved—if there are unresolved issues that the project officer cannot settle with the state—then it is appropriate to raise these issues to a higher management level. Unresolved differences regarding evaluation findings can only lead to problems in the future.

In preparing the report, the project officer must consider a number of questions. Are performance problems related to uncontrollable problems, e.g., lack of rainfall? Or is the problem a management issue that is within the state's authority to resolve? Is the problem short-term or long-term? Is the problem in a new area, or is it an area where the state has typically had problems over the last few years? Is this a problem that the

state has promised to correct, but never gotten around to? These types of considerations will enable the project officer to place performance problems in perspective and be most constructive in offering recommendations for change.

The report should be thorough and constructive. It should offer specific suggestions—informed by the project officer's understanding of the state—on how the state can resolve performance problems. It also should praise the state for noteworthy achievements during the reporting period.

Once the results of the mid-year review have been established and agreed to by the state and the region, the project officer should work with the state to identify specific actions that it can take to address the agreed-upon performance problems. It is possible, for example, that reporting may be increased (or decreased), or redirected to assist in improving performance. If commitment levels have not been met, and if it is unlikely (for good reason) that they will be met during the year, it may be advisable to amend the assistance agreements and commitments to reflect more realistic expectations.



## **End-of-Year Review**

- **Important to Assess Performance**
- **Helps Establish/Revise Commitments**

**VIEWGRAPH #7: End-of-Year Review**  
**KEY POINTS**

It is important that the project officer assess overall state performance at the end of each grant period. This should include both a quantitative and a qualitative assessment of work program commitments and an analysis of the working relationship between EPA and the state. This type of analysis will be useful in establishing or revising commitments for the following year and is important to keep on file.

A sample work program tracking system to assist in the end-of-year review is attached as an appendix to this module. As you can see, it is organized by program element and task. It includes task descriptions and outputs from the work program. After reporting on the status, the "comments" column enables the project officer to address issues that, if not completed, will be carried forward into the next program year.

## **Assistance Agreement Documents**

- **Types of Reports & Products**  
**Grant Admin. Documents**  
**CWA Requirements**  
**Program & Project Outputs**
- **Maintain Filing System**
- **Assist in Retrieval**

**VIEWGRAPH #8: Assistance Agreement Documents**  
**KEY POINTS**

The assistance agreement documents received by the project officer can be grouped into three categories:

- **Grant administration documents**
- **CWA requirements**
- **Program and project outputs**

Grant administration documents include:

- **Copy of applications/amendments (SF424)**
- **Copy of the work program**
- **Memoranda from the grants management office**
- **Copy of project officer work program approval memo**
- **Copy of commitment notices**
- **Copy of assistance agreement and amendments (EPA Form S700-20A)**
- **Official correspondence to recipients**
- **Quarterly project reports (if applicable)**
- **Project officer close-out memorandum and Financial Status Report**

**CWA requirements include:**

- CPP revisions.
- Identified/ranked priority of water quality limited segments (the 303(d) list).
- 305(b) report.
- Updates of 208 plans.
- Copies of 304(l) lists that have been required.
- Revised or added water quality standards.
- Updates to the water quality management plan (including TMDLs).
- Quality assurance program plan.
- Demonstration that public participation requirements are met.

**Program and project outputs:**

- Reports and products associated with all commitments made in the work program (including pollution prevention accomplishments).
- Project officer mid-year and end-of-year evaluations.
- Quality assurance project plans for all monitoring projects.
- For NPDES authorized states, Quarterly Noncompliance Reports (QNCRs), inspection reports, number of permits issued, numbers of violations, penalties assessed, and so forth.

The project officer is responsible for coordinating with other personnel in the Water Management Division to determine who should review these documents, who needs to sign off on documents (e.g., monitoring plans, quality assurance program plans, quality assurance project plans), when those sign-offs need to occur, and how the documents need to be filed.

This represents a large volume of paperwork. The project officer must be prepared to manage the flow and ensure that essential responsibilities are fulfilled. For example, CWA § 303(e) requires that states submit continuing planning processes (CPPs) to EPA. "Not later than thirty days after the date of submission of such a process the Administrator shall either approve or disapprove such process." Thus, if a state submits a revised CPP, the Administrator has only 30 days to respond.

Maintenance of a filing system does not necessarily mean that the project officer must file all the documents. It simply means that the project officer must be able to retrieve the paperwork, if necessary, to document that the state met its commitments under the 106 cooperative agreement. Therefore, if the project officer does not maintain the files, he or she must be able to ensure that some other responsible authority is maintaining files and that documents can be retrieved.

The following is an example of the way one region organizes and maintains its Program Office 106 cooperative agreement files:

- The grant document
- The work program
- Correspondence
- Outputs (including a tracking record that shows sign-off by individuals responsible for the approval of the output)
- Quality assurance program plan
- Contractual milestone reports

## **Use of Incentives and Sanctions**

- **Use to Enhance State Performance**
- **Inappropriate Sanctions Counterproductive**
- **Sanction Only When All Else Fails**

### **VIEWGRAPH #9: Use of Incentives and Sanctions**

**KEY POINTS**

If a state is not meeting the commitments established in its work program, the project officer may use either incentives or sanctions to try to remedy the situation.

Use of incentives or sanctions should occur only after state performance has been carefully reviewed against the commitments in the work program and in accordance with the evaluation plan that is part of the assistance agreement.

Sanctions are appropriate only after a state and region have failed to correct serious and persistent performance problems, and there is clear evidence of missed work program commitments. Also, sanctions are not to be used immediately after inadequate performance is documented. Rather, sanctions are appropriate only after a corrective strategy agreed to by the state and region fails to correct the problem. Thus, no sanctions should be imposed until the region and state have exhausted every other remedy.

In general, the project officer should follow these management principles:

- **Think of performance consequences as ways of enhancing state performance, as recognition for exceptional achievement, or to stimulate lagging performance.**

- **Inappropriate sanctions could be counterproductive in the long run. When considering a sanction, the affect of the sanction on future state and regional activities should be evaluated.**
- **In some cases, when all other remedies have been exhausted, sanctions are necessary. Use of sanctions should then be part of a clearly defined strategy for improving state performance. This strategy should be initiated only after approval by senior officials, including the Regional Administrator.**

## **Informal Incentives**

- **Send Letter of Congratulations**
- **Publicize Program Success**

### **VIEWGRAPH #10: Informal Incentives KEY POINTS**

There are many ways that a project officer can informally provide incentives for good performance. One example is a letter of congratulations to a state agency manager who consistently achieves work program commitments, or who produces an output of high quality. Letters may go to state agency project officers, divisional managers, or to cabinet secretaries. These congratulations also could be included in other communications with states—e.g., mid-year reviews—where they can demonstrate professional appreciation for the work of state managers.

States also should be encouraged to publicize program success. This is a subject that is often discussed, and more should be done. The project officer should use the services of the region's public affairs office and distribute congratulatory messages through the media, or through appropriate professional association meetings or conferences.

## **Formal Incentives**

- **Additional Grant Funds**
- **Reduction in Formal Reporting Requirements**
- **Management Level Discussed & Negotiated**

### **VIEWGRAPH #11: Formal Incentives KEY POINTS**

The most direct incentive that the project officer can provide is additional grant funds to grantees who have demonstrated exceptional achievement. In some cases, the only available mechanism is carryover or unawarded grant funds to create "incentive" grant pools. In regions that do not now use this mechanism, project officers may wish to explore this way of making incentive funds available.

Another incentive that project officers can offer to states is a reduction in formal reporting requirements. If a state has a record of solid performance over a long period of time, the project officer may substitute telephone progress reports for written progress reports from time to time. In general, the project officer should adjust performance management to the level necessary to ensure state fulfillment of work program commitments, while still maintaining regulatory requirements and imposing as little reporting burden as possible on a state.

Changes in the nature and level of performance management should be discussed and negotiated with the state during the work program negotiation. The level of performance management should be understood and agreed to by both parties and should be part of the work program.



## **Sanctions**

- **Sanction After All Else Fails**
- **Identify/Document Problem**
- **Corrective Action Strategy**
- **Discuss Consequences of Corrective Action Failure**
- **Timing, Severity, Effectiveness**

### **VIEWGRAPH #12: Sanctions**

#### **KEY POINTS**

As indicated earlier in this module, the decision to apply a sanction is not made by the project officer alone. Sanctions should be initiated only after it is clear that all other reasonable corrective actions have failed.

The first steps in the decision to use sanctions should be the identification and documentation of a performance problem. The next step should be the development of a joint region and state corrective action strategy. That strategy should include specific corrective actions that the state will take and milestones for achievement. It may also involve renegotiation and revision of the work program. The corrective action strategy should also discuss the consequences of a state's failure to correct the deficiencies. All of these steps should be documented.

If the project officer determines that the state is failing to implement the corrective action strategy, the project officer should recommend a strategy for sanctions to the Water Management Division Director and the Regional Administrator.

The following three factors may be used to select the proper approach to the use of sanctions.

- **Timing.** What is the best time to use a sanction? Will it properly address correction of an existing problem, or future avoidance of problems?
- **Severity.** Does the severity of the sanction fit the severity of the problem?
- **Effectiveness.** Will the sanction have the desired result? Will it correct, mitigate, or avoid recurrence?

## **Examples of Sanctions**

- **Conditional Award**
- **Audit Request**
- **Warning Letter**
- **Withhold Funds**

**VIEWGRAPH #13: Examples of Sanctions**  
**KEY POINTS**

There are many options that could be considered by the project officer if sanctions are required. Each of these should be discussed with the Water Management Division Director and the Regional Administrator. The following are examples of sanctions:

- **Impose award conditions**
- **Write a letter to the supervisor of the state program manager**
- **Postpone the award of the cooperative agreement**
- **Request an audit of the state program**
- **Send a warning letter to the governor**

Sanctions outlined in 40 CFR 31.43 include:

- **Temporarily withholding cash payments pending correction of the deficiency.**

- Disallowing all or part of the cost of the activity or action not in compliance.
- Wholly or partly suspending or terminating the current award for the grantee's program.
- Withholding further awards for the program.

**Others**

- Reducing funding targets
- Redistribution of carry-over funds to other states

# **Example of a Work Program Tracking System**

FY 92 106: Texas Water Commission

PROGRAM ELEMENT	TASK NO.	TASK DESCRIPTION	OUTPUT	Date Due	Status	Comments
WATER QUALITY STANDARDS AND EVALUATION (9110)  OBJECTIVE 1 \$256,357	1.1	Incorporate revised WQS requirements into all new, renewed, and amended permits.	Report # of permit actions, by month, in quarterly reports.	12/31/91 3/31/92 6/30/92 9/30/92	229 reported 113 reported 99 reported 113 reported	Complete
	1.2	Segment Maps & Descriptions (revised based on changes to WQS)	10 copies of revised segment maps	4/30/92	Maps were included in '92 305(b) Report, but 10 copies on hold due to printing problems.	Complete -- 10 additional copies will be submitted in FY 93.
	1.3	Unclassified Streams Procedures to implement and coordinate new WQS for unclassified streams	Copy of new Procedures	3/1/92	Under revision based on EPA comments; public hearing pending.	Complete
OBJECTIVE 2 \$74,929	2.1	Use-Attainability Analyses (Oyster Creek Above Tidal - Segment 1245)	UAA for Oyster Creek Above Tidal	8/31/92	Submitted by 2nd quarter and considered approvable.	Complete
	2.2	Site-Specific Standards Recommendations (for currently unclassified waterbodies)	15 anticipated for FY 92	As Developed	No "count" provided in quarterly reports.	Complete; "counts" should be provided in '93.
	2.3	Ecoregion-Based Standards	Summary of TWC's recommendations	8/31/92	Analysis complete, but no summary submitted.	Carry-forward to FY 93 with anticipated submittal date of 2/93.
OBJECTIVE 3 \$232,295	3.1	Five Intensive Surveys -Prairie Dog Town Fork of Red River (0207) -Intracoastal Waterway (0702) -Big Cypress Creek (0402) -Rio Grande downstream of Falcon Reservoir (2301-02) -Rio Grande near El Paso (2308/2314)	Abstracts (In addition, progress will be reported quarterly.)	10/1/92	-Surveys conducted on 0702 on 9/23-25/91 and 11/5-8/91. -Surveys conducted on 2308 and 2314 on 4/3-6/92. -Survey conducted on 0229 on 5/11-14/92. -Survey conducted on 0604 on 8/3-5/92 and on 0402 on 8/17-20/92.	Complete; substituted Neches River for Rio Grande (downstream of Falcon Reservoir) due to high flow.
	4.1	-Coordinate Surface Water Monitoring program.	-Copy of surface water quality monitoring schedule--including sites, sampling frequencies, parameters.	10-1-91	FY 92 Schedule submitted 9-1-91.	Complete
		-Integrate data into STORET quarterly	-# STORET updates reported quarterly.	12/31/91 3/31/92 6/30/92 9/30/92	STORET updated 12-4-91, 3-10-92, 6-10-92, and 8-31-92.	Complete

FY 92 106: Texas Water Commission

PROGRAM ELEMENT	TASK NO.	TASK DESCRIPTION	OUTPUT	Date Due	Status	Comments
		-Conduct QA visits to each of TWC's 14 field offices.	-# of field office QA visits performed each quarter.	12/31/91 3/31/92 6/30/92 9/30/92	4, 5, & 7 visited 3 and 9 visited 7, 8, 1, 10, 11, 14, 12, 2, and 6 visited.	Complete
		-Review and revise Field Procedures Manual, as necessary.			HQ Procedures and Supplementary Information Manuals updated and submitted to EPA on 9-1-91. First quarter and mid-year updates also provided to users.	Complete
		-Conduct training seminars for personnel in monitoring activities.			Annual Training Workshop for TWC surface water monitoring personnel was held in Austin on October 22-24, 1991.	Complete
OBJECTIVE 5 \$82,377	5.1	Prepare 1992 305(b) Report	5 copies of draft report  10 copies of Final Report to Region 6  5 copies of Final Report to EPA HQ  Copy of WBS diskettes with assessment data to EAP HQ and EPA Region 6	1/31/92  4-1-92 4-1-92 4-1-92	Submitted 2-1-92  Sent to printing in June, but not expected to be ready for distribution until September, due to backlog there.	Complete
POINT SOURCE PERMITTING (9130) OBJECTIVE 1 \$1,055,457	1.1	Prepare and submit to EPA Region 6 the following number and types of permit packages: 45 major municipal; 20 major non-municipal (18 renewals and 2 major modifications); 5 minor municipal (located along the Texas-Mexico border); and 5 minor non-municipal (also located along the Texas-Mexico border).	Report number of draft permit packages in quarterly reports. (Draft NPDES permit packages will be submitted throughout the year.)	12/31/91 3/31/92 6/30/92 9/30/92	Status was reported quarterly. Final counts: 41 major municipal; 20 major non-municipal; 18 minor municipal on Tex-Mexico border; 12 minor non-municipal on Texas-Mexico border.	Complete
OBJECTIVE 2 \$76,547	2.1	Certify proposed NPDES and 404 permits. (Workload estimate: 175 NPDES proposed permits and 220 404 permits)	The number of NPDES and 404 certification determinations will be reported, by month, in the quarterly progress reports.	12/31/91 3/31/92 6/30/92 9/30/92	Status was reported quarterly. Final counts: 265 NPDES permits; 158 Corps of Engineers permits.	Complete. (90 more NPDES permits than estimated; 62 less 404 permits than estimated.)

FY 92 106: Texas Water Commission

PROGRAM ELEMENT	TASK NO.	TASK DESCRIPTION	OUTPUT	Date Due	Status	Comments
OBJECTIVE 3 \$267,641	3.1	Pretreatment Program Evaluations Nine audits to be completed in FY 92.	Report number of audits conducted each month in quarterly reports. (Copies of audits will be completed within 45 days.)	12/31/91 3/31/92 6/30/92 9/30/92	6 done; 5 reports submitted. 8 done; 7 reports submitted. 9 done; 9 reports submitted.	Complete
	3.2	Local Limit Evaluations Ten modification packages to be reviewed and evaluated in FY 92.	Report number of modification evaluations performed each month in quarterly reports. (TWC comments on packages to be forward to EPA as soon as practicable after completion.)	12/31/91 3/31/92 6/30/92 9/30/92	6 received; 1 review complete. 6 received; 4 reviews complete. 9 received; 9 reviews complete.	Complete
OBJECTIVE 4 \$28,931	4.1	Assemble all known dioxin sampling info and evaluate new effluent, tissue, and sediment data in order to evaluate the level of dioxin contamination in the State and to monitor any control strategies being implemented by permittees.	Report on presence of dioxin contamination will be submitted to EPA on a semi-annual basis. In addition, TWC staff will make recommendations to EPA on specific permits regarding suggested dioxin monitoring requirements.	3/31/92	Report submitted 5-31-92. (Delay due to staff vacancies.)	Complete
				9/30/92	Report submitted on 8-26-92.	
OBJECTIVE 5 \$41,684	5.1	Develop critical condition flows and harmonic mean flows by developing and maintaining a streamflow database.	Submit written copies of the database to the Municipal and Industrial Permit program managers on a monthly basis.	monthly	Data provided monthly.	Complete
ENFORCEMENT OBJECTIVE 1 \$685,821	1.1	Enforcement Coordination	Report number of formal State water quality enforcement actions coordinated.	12/31/91 3/31/92 6/30/92 9/30/92	Information reported quarterly. EPA and TWC staff met formally regarding activities on 10-24-91, 2-13-92, 5-21-92, and 9-3-92.	Complete.
	1.2	Enforcement Activities	The number of enforcement actions initiated each month will be reported in quarterly progress reports.	12/31/91 3/31/92 6/30/92 9/30/92	35 new cases 22 new cases 23 new cases No new cases reported for 4th quarter?	Complete



FY 92 106: Texas Water Commission

PROGRAM ELEMENT	TASK NO.	TASK DESCRIPTION	OUTPUT	Date Due	Status	Comments
	1.3	Multi-Media Program Development & Implementation: TWC will continue to incorporate comments and recommendations from program divisions within the TWC and other State agencies into a Multi-Media Program Guidance document; develop MOU's with affected State agencies for operating procedures; establish a multi-media committee and appoint members; establish the format for committee meetings and initiate weekly multi-media screening meetings by 6-1-92; and implement program guidance by considering specific cases from participating agencies for possible multi-media action.	Progress in specific program activities will be reviewed and discussed with EPA during quarterly enforcement meetings and summarized in the quarterly reports.	12/31/91 3/31/92 6/30/92 9/30/92	EPA and TWC staff met formally regarding activities on 10-24-91, 2-13-92, 5-21-92, and 9-3-92.  Copy of "FY 93 Multi-Media Strategy and Guidance" submitted at End-of-Year Evaluation.	Complete
COMPLIANCE MONITORING  OBJECTIVE 1 \$1,625,553	1.1	Maintain compliance assurance by conducting inspections; issuing notices of findings; reviewing responses to notices; conducting follow-up inspections; making non-compliance referrals; conducting New Permit Site Assessments; and reviewing and revising QA procedures.	-424 inspections will be conducted; reports will be forwarded on a semi-annual basis.  -Number of compliance monitoring inspections conducted each month will be reported in quarterly reports.  -Copy of the Inspection Schedule will be provided to EPA no later than 11-1-91.	3/31/92 9/30/92  12/31/91 3/31/92 6/30/92 9/30/92  11/1/91	173 reports submitted as of 3-12-92. 424 reports submitted as of 9-30-92.  121 reported. 141 reported. 121 reported. 41 reported.  Submitted 9-12-91.	Complete
	1.2	Document each wastewater treatment facility inspection in a Notice of Finding forwarded to the permittee. Target for FY 92 is 424.	Report number of notices issued each month in quarterly reports.	12/31/91 3/31/92 6/30/92 9/30/92	121 reported. 141 reported. 121 reported. 41 reported.	Complete
	1.3	Response Reviews: Review response from permittees receiving a Notice of Findings that indicated non-compliance with permit requirements. Estimate for FY 92: 106.	Report number of responses reviewed each month in quarterly reports.	12/31/91 3/31/92 6/30/92 9/30/92	34 reported. 39 reported. 33 reported. 11 reported.	Complete (Nine more reviews than estimated.)

FY 92 106: Texas Water Commission

PROGRAM ELEMENT	TASK NO.	TASK DESCRIPTION	OUTPUT	Date Due	Status	Comments
	1.4	Noncompliance Follow-up Inspections: To check on all responses to Notices of Findings that are judged to be inadequate or incomplete and when monitoring is needed to ensure implementation of remedial measures. Estimate for FY 92: 40	Report number of follow-up inspections performed each month in quarterly reports.	12/31/91 3/31/92 6/30/92 9/30/92	18 reported. 21 reported. 18 reported. 7 reported.	Complete (Twenty nine more than estimated.)
	1.5	District Enforcement Referrals: major permit violations and chronic minor violations are referred to Central office staff for further technical review and possible enforcement action. Estimate for FY 92: 15	Report number of District enforcement referrals made each month in quarterly reports.	12/31/91 3/31/92 6/30/92 9/30/92	2 reported. 4 reported. 12 reported. 9 reported.	Complete (Twelve more than estimated.)
	1.6	New Permit Site Assessments: To evaluate where receiving water assessments (RWA's) are required. Estimate for FY 92: 15	Report number of new permit site assessments requiring a RWA each month in quarterly reports.	12/31/91 3/31/92 6/30/92 9/30/92	2 reported. 1 reported. 0 reported. 1 reported.	Complete (Eleven less than estimated.)
	1.7	Quality Assurance: Program and Project Plans are revised annually at the close of each FY. A summary report concerning the QA Program is prepared at the close of each year; evaluations are conducted throughout the year.	FY 91 Summary Report  Revised QAPP and QAPJP for FY 93  Number of QA evaluations conducted each month will be reported in quarterly reports.	9/30/91  8/31/92  12/31/91 3/31/92 6/30/92 9/30/92	Submitted 11-20-91.  Submitted 8-27-92.  2 reported. 6 reported. 5 reported. 19 reported.	Complete
OBJECTIVE 2 \$312,771	2.1	Investigate Complaints Received from the Public Estimate for FY 92: 1500	Number of complaint investigations conducted each month will be reported in quarterly reports.	12/31/91 3/31/92 6/30/92 9/30/92	493 reported. 447 reported. 997 reported. 691 reported.	Complete (1128 more than estimated.)  TWC acquired on-site sewage program from TDH effective 3-1-92. Total complaints increasing due to new responsibilities. Districts within more populated areas continued to receive the most complaints.
OBJECTIVE 3 \$80,184	3.1	Conduct RWA's for major permit amendments: a site assessment will be prepared for any major facility requesting an amendment to their permit where a RWA is required. Estimate for FY 92: 25	Number of RWA's conducted each month will be reported in quarterly reports.	12/31/91 3/31/92 6/30/92 9/30/92	2 reported. 2 reported. 3 reported. 3 reported.	Complete (Fifteen less than estimate.)

FY 92 106: Texas Water Commission

PROGRAM ELEMENT	TASK NO.	TASK DESCRIPTION	OUTPUT	Date Due	Status	Comments
OBJECTIVE 4 \$28,416	4.1	Review and revise Inspector Training Manuals as necessary and provide a minimum of 1 training session for each Inspector.	Training manuals provided upon completion of any revisions.	As completed	Submitted in August, 1992.	Complete
			Number of training sessions conducted will be reported in quarterly reports.	12/31/91 3/31/92 6/30/92 9/30/92	Training seminar held 6/16-18/92.	Complete
AMBIENT MONITORING (9150) OBJECTIVE 1 \$519,170	1.1	Routinely conduct WQ sampling of streams, reservoirs, and estuaries. The location, frequency, and intensity of the sampling activity is directly related to WQ conditions at the site. Data will be collected and compiled from 1,659 events during FY 92.	Number of routine sampling events conducted each month will be reported in quarterly reports.	12/31/91 3/31/92 6/30/92 9/30/92	282 reported. 319 reported. 342 reported. 692 reported.	Complete
OBJECTIVE 2 \$99,986	2.1	Conduct 9 special water quality investigations at selected locations in order to assess toxics, NPS, and improvements in water treatment. Survey sites are selected from segments with recurrent WQ problems.	Copies of abstracts  Number of special investigations conducted each month will be reported in quarterly reports.	10-1-92  12/31/91 3/31/92 6/30/92 9/30/92	Nine abstracts submitted.	Complete
OBJECTIVE 3 \$79,303	3.1	Field Operations Division staff will provide instruction concerning proper sampling and observation techniques to citizen volunteers and coordinate the activities of established citizen volunteer groups in the area of incorporating information received in TWC records. Estimate of volunteer workshops in FY 92: 40	Number of citizen volunteer workshops each month will be reported in quarterly reports.	12/31/91 3/31/92 6/30/92 9/30/92	22 reported. 21 reported. 5 reported 13 reported.	Complete (Twenty one more than estimated.)
SPILL INVESTIGATIONS (9160) OBJECTIVE 1 \$145,668	1.1	Participation in State's Emergency Response Notification System: Includes investigations of significant spills and discharges as well as the evaluation of remedial actions undertaken by responsible parties. Estimate for FY 92: 250 investigations	Number of spill and discharge investigations conducted each month will be reported in quarterly reports.	12/31/91 3/31/92 6/30/92 9/30/92	The Pollution Cleanup Division is 14 months (as of July 1992) behind in data entry due to lack of staff and increased workload. Actual counts are therefore unavailable.	Assumed complete; however, need to discuss how to address backlog problem and how to assure that work plan commitment was fulfilled.

**FY 92 106: Texas Water Commission**

<b>PROGRAM ELEMENT</b>	<b>TASK NO.</b>	<b>TASK DESCRIPTION</b>	<b>OUTPUT</b>	<b>Date Due</b>	<b>Status</b>	<b>Comments</b>
<b>LEGAL SERVICES</b>	<b>1.1</b>	Provide legal services associated with the review of wastewater control permit applications for domestic, industrial, and agricultural facilities. These services include the expeditious review of Section 205(j) contracts. Estimate for FY 92: 740 permits (No estimate possible for contract review.)	Number of permits reviewed each month will be reported in quarterly reports.	<b>12/31/91</b>		<b>Complete</b>  <b>Note: Dairy and aquaculture permits were of particular importance in FY 92.</b>
				<b>3/31/92</b>	<b>364 permits reviewed; 3 WCM contracts reviewed.</b>	
				<b>6/30/92</b>	<b>206 permits reviewed.</b>	
				<b>9/30/92</b>	<b>234 permits reviewed.</b>	

# **Module 8:**

# **Special Subjects**

# Quality Assurance

## **Quality Assurance (QA)**

- Ensures Data Quality
- Implemented at Management Level
- Avoids Wasted Resources
- Current QA Not Sufficient

### **VIEWGRAPH #1: Quality Assurance (QA)**

#### **KEY POINTS**

##### **Quality Assurance Policy**

EPA requires that all EPA national program offices, EPA regional offices, EPA laboratories, and states and intrastate agencies that are supported by EPA through grants, contracts, or other formalized agreements participate in a centrally planned, directed, and coordinated Agency-wide Quality Assurance/Quality Control (QA/QC) program.

The goal of QA is to ensure that all environmental measurements supported by EPA produce data of known quality, adequate for their intended use, with all aspects of their collection thoroughly documented, and such documentation being verifiable and defensible. All routine or planned projects involving environmental measurements shall be undertaken with an adequate QA project plan that is written and approved prior to the start of monitoring. This QA project plan must specify the data quality goals and assign responsibility for achieving these goals.

QA should not be confused with Quality Control (QC). QC is implemented at the bench/field level and focuses on technical activities such as sampling designs and calibration. QA is implemented at the management level and

focuses on activities needed to ensure data quality such as systems, policies, criteria, and procedures. QA includes QC functions and involves a completely integrated program for ensuring the reliability of monitoring and measurement data.

QA is important because significant resources are spent collecting environmental data and, without an adequate assurance of data quality, the data are virtually useless. Decisions based on inaccurate data are often costly and ineffective.

According to a General Accounting Office (GAO) Report published March 31, 1993, EPA and state QA programs are not adequate to detect error or fraud in compliance monitoring data from NPDES permitted dischargers (GAO/RCED-93-21, "Environmental Enforcement: EPA Cannot Ensure the Accuracy of Self-Reported Compliance Monitoring Data"). The EPA Administrator identified environmental data quality as an Agency-wide weakness in a 1992 report to the President under the Federal Managers' Financial Integrity Act (FMFIA).

Each region has a QA/QC officer. These officers are listed in the reference manual of this course.



## **QA Requirements**

- **QA Plan Required When Using Environmentally Related Measurements**
- **Monitoring Plans Include QA**

**VIEWGRAPH #2: QA Requirements**  
**KEY POINTS**

**40 CFR 31.45 states the grantee's obligation to have an adequate quality assurance project plan if a grantee's project involves environmentally related measurements. It does not assign responsibility to the project officer for sign-off of this plan. However, this responsibility can be delegated to project officers on the basis of an MOA.**

**40 CFR 130.4 says that a state's monitoring program shall include quality assurance and quality control programs to ensure scientifically valid data.**

## **Data Quality Objectives (DQOs)**

- **Balance Between Data Quality & Resources**
- **Data User Specifies Needs**
- **Establish Performance Measures**

### **VIEWGRAPH #3: Data Quality Objectives (DQOs)**

**KEY POINTS**

Data quality objectives (DQOs) strike a balance between data quality and resources. In other words, the QA officer uses DQOs to develop and define the type and quality of data the decision maker needs before the data are collected. The QA officer's role is to aid the decision maker and senior staff personnel, such as the project coordinator and officer, to develop the type and quality of data needed. Development of DQOs helps to avoid data that are not accurate enough for their intended purpose, or are more costly than they need to be.

DQOs require the data user to specify his or her needs and the supplier to establish measures of performance for customer evaluation. If the data user is not specific enough, the data may be insufficient or unnecessarily costly.

## **Required QA Documents**

- **Management Plan: General Policies and Procedures**
- **Project Plan: Project-Specific Procedures**

### **VIEWGRAPH #4: Required QA Documents**

#### **KEY POINTS**

EPA's QA program requires the development of two QA documents: the Quality Management Plan (QMP) and the QA Project Plan (QAPP). These plans are required of all recipients of EPA grants and assistance programs. 40 CFR 31 requires that QMPs be submitted to EPA before an applicant can receive an EPA grant.

QMPs describe general management policies and procedures that establish how data of known and acceptable quality will be produced, whereas the QAPP describes and defines specific procedures that will be applied to a specific project to ensure data quality.

Regions are responsible for developing QMPs and QAPPs for the activities that they conduct. Regions are also responsible for ensuring that states prepare these plans according to 40 CFR 31.45.

## QA Project Plan Elements

- Project Description
- Organization
- Objectives
- Audit Description
- Procedures

### VIEWGRAPH #5: QA Project Plan Elements KEY POINTS

The following elements must be considered and addressed in each QAPP:

- Title page with provision for approval signatures, table of contents, and project description including the experimental design.
- Table or chart of project organization that lists individuals responsible for the valid measurement of data.
- QA objectives for measurement data in terms of precision, accuracy, completeness, representativeness and comparability.
- Description and frequency of performance and system audits.
- Procedures including:
  - Description of sampling procedures and sample handling and custody procedures for both field sampling operations and laboratory operations.

**Calibration, frequency, and analytical procedures for each major measurement parameter.**

**Data reduction scheme, criteria used to validate data integrity, reporting scheme, and internal quality control methods and frequency of checks.**

**Preventive maintenance procedures, schedules, and specific routine procedures to be used to assess data precision, accuracy, and completeness of specific measurement parameters involved.**

**Corrective action procedures including limits of data acceptability, persons responsible for initiating and approving corrective action, and a mechanism for quality assurance reports to management.**

**If any of the elements are not relevant to the project under consideration, then an explanation of why the element is not relevant should be included.**

## **QA Conflict**

- **State Congressional Pressure**
- **QAPP Inadequate**
- **P.O. Lacks Necessary Technical Knowledge**
- **Designates Technical Mediator**

**VIEWGRAPH #6: QA Conflict**  
**KEY POINTS**

**Region 5 Example of Conflict Regarding Quality Assurance**

A large congressional add-on was designated for a project in the state. Because of pressure from the state's congressperson to get the money out quickly, the funds were awarded based on the state's (necessarily) hastily prepared work program, with the condition that the QAPP be submitted in 90 days.

The materials that the state submitted as a QAPP did not begin to meet the Environmental Sciences Division (ESD) requirements. Despite lengthy written comments and several conference calls, the state did not understand and/or provide what ESD wanted. And although the funds had technically been awarded, the state could not draw down on them until the QAPP was approved.

It was a difficult situation because neither the project officer nor the supervisor had the technical expertise to mediate resolution of the scientific issues, but only could facilitate phone calls and the exchange of comments. While this suffices for most cases, it was not enough for this project with its unique complicating circumstances.

After much time had passed, resolution came when the project officer's supervisor officially designated a highly skilled staff person to serve as technical contact; he was able to mediate between the state and ESD to resolve the technical issues. This person was in high demand, was always over-extended, and could not have assisted without being assigned to the project by his supervisor. Ideally, it would have been best if this person had been assigned to the project earlier in the process, but the circumstances did not allow for it until later.

**Conclusion:** Normally, it is sufficient for the project officer to facilitate communication between state and EPA scientific people to resolve QAPP issues. However, a problem can arise when scientific people cannot understand each other. It is necessary then to seek an unbiased, highly skilled, and diplomatic person who can mediate a resolution.

# **Pollution Prevention**



## Pollution Prevention (P2)

- Pollution Reduction or Elimination
- Multimedia View
- Evaluate Impacts

### VIEWGRAPH #7: Pollution Prevention (P2) KEY POINTS

The goal of pollution prevention (P2) is to **reduce or eliminate pollutants** at the source, before they are generated, whenever possible. The Pollution Prevention Act of 1990 encourages exploring P2 solutions to environmental problems before resorting to other techniques. By thinking in terms of P2, EPA and states can take a **multimedia view** of the environment and avoid transferring pollutants from one medium to another. This also allows a comprehensive **evaluation of the environmental impacts** of products and activities over their entire life-cycle.

Examples of P2 measures include: procuring, storing, and using supplies in ways that minimize waste; making double-sided rather than single-sided copies, and routing rather than copying when possible; procuring supplies that have less packaging, fewer toxic constituents, or are less resource-intensive to manufacture; including a P2 condition in an enforcement settlement such that the polluter agrees to implement a P2 project in exchange for a reduction in fines; and requiring P2 changes as a condition of permit issuance.

## Priorities Under P2 Strategy

- Source Reduction
- Closed-Loop Recycling
- Recycling
- Treatment
- Safe Disposal

**VIEWGRAPH #8: Priorities Under P2 Strategy**  
**KEY POINTS**

P2 strategy employs a hierarchy of five means to reducing pollution. When faced with a real or potential pollution problem, the decision maker should consider them in the following order:

- The decision maker should first consider whether **source reduction** would be effective. Source reduction avoids creating systems or situations that could generate pollutants. It also includes reducing or eliminating pollutants generated by existing sources.
- If source reduction is not an option, then the decision maker should explore the possibility of **closed-loop recycling**. This type of recycling recovers and reuses resources and potential pollutants within the system or process.
- The decision maker's third choice should be **recycling**. Recycling recovers resources and reduces waste through environmentally sound off-site recycling.

- If recycling is not an option, the decision maker should consider **treating the wastes** to reduce their hazard and volume.

The decision maker's last choice should be to **dispose of the residues safely**.

## **Incorporating P2 Into Work Program**

- **Reflect Preference for P2**
- **P2 Priority**
- **Encourage Upgrading**
- **Encourage Coordination**

**VIEWGRAPH #9: Incorporating P2 Into Work Program**  
**KEY POINTS**

Where consistent with statutory and regulatory requirements, EPA and states should consider P2 principles when negotiating work programs. Proposed work programs should:

- **Reflect an explicit preference for P2 when feasible and identify P2 activities.**
- **Incorporate P2 as a priority in decision-making.**
- **Encourage opportunities to modify or develop equipment, technology, processes, procedures, products, or educational or training materials to promote P2.**
- **Encourage institutional and multi-media coordination when appropriate.**

## Incorporating P2 Into Work Program (Cont.)

- Measures of P2 Success
- Increase State Flexibility
- Include P2 Activities
- P2 Data Available

### VIEWGRAPH #10: Incorporating P2 Into Work Program (Cont.) KEY POINTS

*Continued from previous page.*

- Identify and publicize **measures of P2 success** (for example, specific methods of quantifying and documenting quantities and/or toxicity of pollutants prevented).
- **Increase the flexibility** afforded to states to incorporate P2 approaches into their grant-assisted activities when appropriate (e.g., through numbers or types of required outputs, or timing of EPA deadlines).
- **Include specific P2 activities or approaches** that may serve as innovative models for other state and national programs, when appropriate, and encourage the use of innovative activities or approaches already developed.
- Include a mechanism to make **P2 data and experience available** to other states and in the Pollution Prevention Information Clearinghouse.