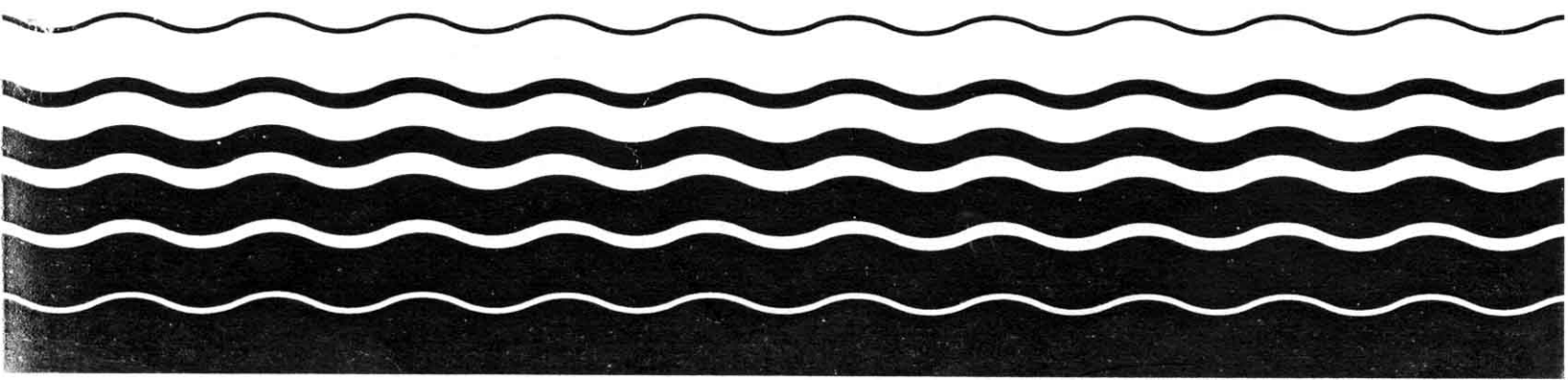
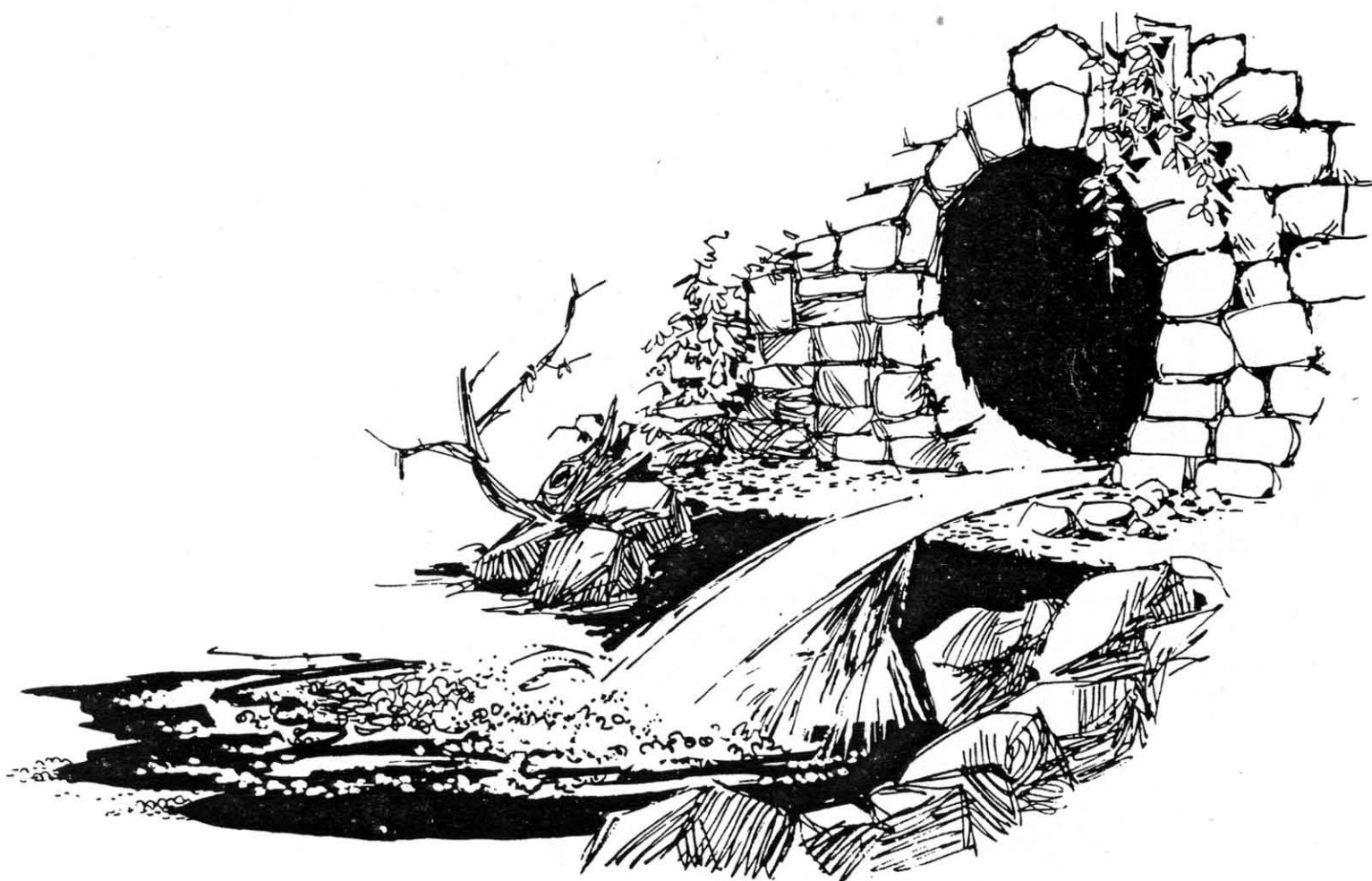




# Combined Sewer Overflows

## Guidance For Permit Writers



# **Combined Sewer Overflows**

## **Guidance For Permit Writers**

**Office of Wastewater Management  
U.S. Environmental Protection Agency  
401 M Street, SW  
Washington, DC 20460**

**August 1995**

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

AUG 3 1995

OFFICE OF  
WATER

MEMORANDUM

SUBJECT: CSO Guidance for Permit Writers

FROM: Michael B. Cook, Director (4201)  
Office of Wastewater Management

A handwritten signature in dark ink, appearing to read "Michael B. Cook".

TO: Interested Parties

I am pleased to provide you with the Environmental Protection Agency's (EPA's) guidance document for permit writers involved in developing National Pollutant Discharge Elimination System (NPDES) permits with Combined Sewer Overflow (CSO) conditions. This document is one of several being prepared to foster implementation of EPA's CSO Control Policy. The CSO Control Policy, issued on April 11, 1994, establishes a national approach under the NPDES permit program for controlling discharges into the nation's waters from combined sewer systems.

To facilitate implementation of the CSO Control Policy, EPA is preparing guidance documents that can be used by NPDES permitting authorities, affected municipalities, and their consulting engineers in planning and implementing CSO controls that will ultimately comply with the requirements of the Clean Water Act.

Specifically, this manual provides guidance to NPDES permitting authorities and permit writers to develop and issue NPDES permits to control CSOs in accordance with the expectations of the National CSO Control Policy. It recommends procedures and provides example permit language that permit writers can use to develop defensible and enforceable NPDES permit requirements. This guidance assumes the permit writer is responsible for ensuring coordination and involvement with WQS authorities, enforcement authorities, the public, and the permittee.

This guidance has been reviewed extensively within the Agency as well as by municipal groups, environmental groups, and other CSO stakeholders. I am grateful to all who participated in its preparation and review, and believe that it will further the implementation of the CSO Control Policy.

If you have any questions regarding the manual or its distribution, please call Tony Smith in the Office of Wastewater Management, at (202) 260-1017.



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## CHAPTER 1

### INTRODUCTION

#### 1.1 BACKGROUND

Combined sewer systems (CSSs) are wastewater collection systems designed to carry sanitary sewage (consisting of domestic, commercial, and industrial wastewater) and storm water (surface drainage from rainfall or snowmelt) in a single pipe to a treatment facility. CSSs serve about 43 million people in approximately 1,100 communities nationwide. Most of these communities are located in the Northeast and Great Lakes regions. During dry weather, CSSs convey domestic, commercial, and industrial wastewater. In periods of rainfall or snowmelt, total wastewater flows can exceed the capacity of the CSS and/or treatment facilities. When this occurs, the CSS is designed to overflow directly to surface water bodies, such as lakes, rivers, estuaries, or coastal waters. These overflows—called combined sewer overflows (CSOs)—can be a major source of water pollution in communities served by CSSs.

Because CSOs contain untreated domestic, commercial, and industrial wastes, as well as surface runoff, many different types of contaminants can be present. Contaminants may include pathogens, oxygen-demanding pollutants, suspended solids, nutrients, toxics, and floatable matter. Because of these contaminants and the volume of the flows, CSOs can cause a variety of adverse impacts on the physical characteristics of surface water, impair the viability of aquatic habitats, and pose a potential threat to drinking water supplies. CSOs have been shown to be a major contributor to use impairment and aesthetic degradation in many receiving waters and have contributed to shellfish harvesting restrictions, beach closures, and even occasional fish kills.

#### 1.2 HISTORY OF THE CSO CONTROL POLICY

Historically, the control of CSOs has proven to be extremely complex. This complexity stems partly from the difficulty in quantifying CSO impacts on receiving water quality and the site-specific variability in the volume, frequency, and characteristics of CSOs. In addition, the financial considerations for communities with CSOs can be significant. The U.S. Environmental

Protection Agency (EPA) estimates the CSO abatement costs for the 1,100 communities served by CSSs to be approximately \$41.2 billion.

To address these challenges, EPA's Office of Water issued a National Combined Sewer Overflow Control Strategy on August 10, 1989 (54 *Federal Register* 37370). This Strategy reaffirmed that CSOs are point source discharges subject to National Pollutant Discharge Elimination System (NPDES) permit requirements and to Clean Water Act (CWA) requirements. The CSO Strategy recommended that all CSOs be identified and categorized according to their status of compliance with these requirements. It also set forth three objectives:

- Ensure that if CSOs occur, they are only as a result of wet weather
- Bring all wet weather CSO discharge points into compliance with the technology-based and water quality-based requirements of the CWA
- Minimize the impacts of CSOs on water quality, aquatic biota, and human health.

In addition, the CSO Strategy charged all States with developing state-wide permitting strategies designed to reduce, eliminate, or control CSOs.

Although the CSO Strategy was successful in focusing increased attention on CSOs, it fell short in resolving many fundamental issues. In mid-1991, EPA initiated a process to accelerate implementation of the Strategy. The process included negotiations with representatives of the regulated community, State regulatory agencies, and environmental groups. These negotiations were conducted through the Office of Water Management Advisory Group. The initiative resulted in the development of a CSO Control Policy, which was published in the *Federal Register* on April 19, 1994 (59 *Federal Register* 18688).

The intent of the CSO Control Policy is to:

- Provide guidance to permittees with CSOs, NPDES permitting and enforcement authorities, and State water quality standards (WQS) authorities
- Ensure coordination among the appropriate parties in planning, selecting, designing, and implementing CSO management practices and controls to meet the requirements of the CWA
- Ensure public involvement during the decision-making process.

The CSO Control Policy contains provisions for developing appropriate, site-specific NPDES permit requirements for all CSSs that overflow due to wet weather events. It also announces an enforcement initiative that requires the immediate elimination of overflows that occur during dry weather and ensures that the remaining CWA requirements are complied with as soon as possible.

### **1.3 KEY ELEMENTS OF THE CSO CONTROL POLICY**

The CSO Control Policy contains four key principles to ensure that CSO controls are cost-effective and meet the requirements of the CWA:

- Provide clear levels of control that would be presumed to meet appropriate health and environmental objectives
- Provide sufficient flexibility to municipalities, especially those that are financially disadvantaged, to consider the site-specific nature of CSOs and to determine the most cost-effective means of reducing pollutants and meeting CWA objectives and requirements
- Allow a phased approach for implementation of CSO controls considering a community's financial capability
- Review and revise, as appropriate, WQS and their implementation procedures when developing long-term CSO control plans to reflect the site-specific wet weather impacts of CSOs.

In addition, the CSO Control Policy clearly defines expectations for permittees, State WQS authorities, and NPDES permitting and enforcement authorities. These expectations include the following:

- Permittees should immediately implement the nine minimum controls (NMC), which are technology-based actions or measures designed to reduce CSOs and their effects on receiving water quality, as soon as practicable but no later than January 1, 1997.
- Permittees should give priority to environmentally sensitive areas.
- Permittees should develop long-term control plans (LTCPs) for controlling CSOs. A permittee may use one of two approaches: 1) demonstrate that its plan is adequate to meet the water quality-based requirements of the CWA ("demonstration approach"), or 2) implement a minimum level of treatment (e.g., primary clarification of at least 85 percent of the collected combined sewage flows) that is presumed to meet the water quality-based requirements of the CWA, unless data indicate otherwise ("presumption approach").
- WQS authorities should review and revise, as appropriate, State WQS during the CSO long-term planning process.
- NPDES permitting authorities should consider the financial capability of permittees when reviewing CSO control plans.

Exhibit 1-1 illustrates the roles and responsibilities of permittees, NPDES permitting and enforcement authorities, and State WQS authorities.

In addition to these key elements and expectations, the CSO Control Policy also addresses important issues such as ongoing or completed CSO control projects, public participation, small communities, and watershed planning.



Exhibit 1-1. Roles and Responsibilities

Permittee	NPDES Permitting Authority	NPDES Enforcement Authority	State WQS Authorities
<ul style="list-style-type: none"> <li>Evaluate and implement NMC</li> <li>Submit documentation of NMC implementation by January 1, 1997</li> <li>Develop LTCP and submit for review to NPDES permitting authority</li> <li>Support the review of WQS in CSO-impacted receiving water bodies</li> <li>Comply with permit conditions based on narrative WQS</li> <li>Implement selected CSO controls from LTCP</li> <li>Perform post-construction compliance monitoring</li> <li>Reassess overflows to sensitive areas</li> <li>Coordinate all activities with NPDES permitting authority, State WQS authority, and State watershed personnel</li> </ul>	<ul style="list-style-type: none"> <li>Reassess/revise CSO permitting strategy</li> <li>Incorporate into Phase I permits CSO-related conditions (e.g., NMC implementation and documentation and LTCP development)</li> <li>Review documentation of NMC implementation</li> <li>Coordinate review of LTCP components throughout the LTCP development process and accept/approve permittee's LTCP</li> <li>Coordinate the review and revision of WQS as appropriate</li> <li>Incorporate into Phase II permits CSO-related conditions (e.g., continued NMC implementation and LTCP implementation)</li> <li>Incorporate implementation schedule into an appropriate enforceable mechanism</li> <li>Review implementation activity reports (e.g., compliance schedule progress reports)</li> </ul>	<ul style="list-style-type: none"> <li>Ensure that CSO requirements and schedules for compliance are incorporated into appropriate enforceable mechanisms</li> <li>Monitor adherence to January 1, 1997, deadline for NMC implementation and documentation</li> <li>Take appropriate enforcement action against dry weather overflows</li> <li>Monitor compliance with Phase I, Phase II, and post-Phase II permits and take enforcement action as appropriate</li> </ul>	<ul style="list-style-type: none"> <li>Review WQS in CSO-impacted receiving water bodies</li> <li>Coordinate review with LTCP development</li> <li>Revise WQS as appropriate:</li> </ul> <p>Development of site-specific criteria</p> <p>Modification of designated use to</p> <ul style="list-style-type: none"> <li>Create partial use reflecting specific situations</li> <li>Define use more explicitly</li> </ul> <p>Temporary variance from WQS</p>



## 1.4 GUIDANCE TO SUPPORT IMPLEMENTATION OF THE CSO CONTROL POLICY

To help permittees and NPDES permitting and WQS authorities implement the provisions of the CSO Control Policy, EPA is developing the following guidance documents:

- *Combined Sewer Overflows—Guidance for Long-Term Control Plan* (EPA, 1995a) (EPA 832-B-95-002)
- *Combined Sewer Overflows—Guidance for Nine Minimum Controls* (EPA, 1995b) (EPA 832-B-95-003)
- *Combined Sewer Overflows—Guidance for Screening and Ranking* (EPA, 1995c) (EPA 832-B-95-004)
- *Combined Sewer Overflows—Guidance for Monitoring and Modeling* (EPA, 1995d) (EPA 832-B-95-005)
- *Combined Sewer Overflows—Guidance for Financial Capability Assessment* (EPA, 1995e) (EPA 832-B-95-006)
- *Combined Sewer Overflows—Guidance for Funding Options* (EPA, 1995f) (EPA 832-B-95-007)
- *Combined Sewer Overflows—Guidance for Permit Writers* (EPA, 1995g) (EPA 832-B-95-008)
- *Combined Sewer Overflows—Questions and Answers on Water Quality Standards and the CSO Program* (EPA, 1995h) (EPA 832-B-95-009).

## 1.5 PURPOSE OF MANUAL AND TARGET AUDIENCE

This manual provides guidance to NPDES permitting authorities and permit writers on developing and issuing NPDES permits to control CSOs in accordance with the expectations of the CSO Control Policy. Whenever possible, the manual translates the CSO Control Policy into instructions, procedures, and example permit language that permit writers can use to develop defensible and enforceable NPDES permit requirements. The document emphasizes the role of the permit writer as the facilitator and coordinator of the CSO control program in achieving compliance with the CWA, including attainment of WQS. This guidance assumes the permit

writer is responsible for ensuring coordination and involvement with WQS authorities, enforcement authorities, the public, and the permittee.

This manual is designed to be used by EPA and State NPDES permit writers who possess a working knowledge of the CWA and NPDES permit regulations and requirements to control point source discharges. Therefore, it provides guidance only for developing CSO-related permit conditions; it does not provide the more general information available in other NPDES permit guidance manuals, such as the training manual for NPDES permit writers. In addition, this manual does not provide technical guidance on the operation of CSSs and the control of CSOs. Information on these topics is contained in other CSO guidance manuals. EPA recommends that the permit writer obtain all of the CSO guidance manuals listed previously and use them in conjunction with this manual during the development and issuance of permits.

## **1.6 ORGANIZATION OF MANUAL**

Chapter 2 presents an overview of the approach to CSO permitting as envisioned by the CSO Control Policy. The chapter explains the responsibilities of NPDES permitting authorities, setting of permitting priorities, and various strategies available to EPA Regions and States for ensuring that the CSO Control Policy objectives are met. Chapter 3 presents guidance on and example permit language for developing initial (Phase I) permit requirements for implementing minimum technology-based control measures and initiating the development of long-term plans for CSO controls. Chapter 4 provides the procedures, requirements, and example permit language for the second round (Phase II) of CSO permits, which implement the selected long-term CSO control measures. Chapter 5 discusses the development of post-Phase II permit requirements, including completion of the construction and implementation of the long-term CSO controls, as well as post-construction monitoring. The manual concludes with appendices, including a compilation of example CSO permit conditions and suggested checklists for evaluating the NMC and LTCP.