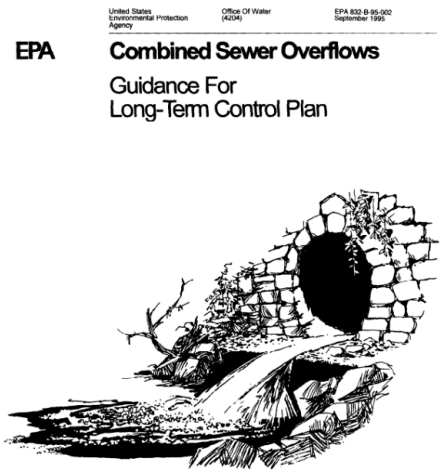
Long-Term Control Plan Review

This fact sheet lays out the process for developing and reviewing combined sewer overflow (CSO) long-term control plans (LTCPs) to ensure conformity with EPA's 1994 CSO Control Policy. National Pollutant Discharge Elimination System (NPDES) authorities and CSO permittees can use this information to determine if the controls proposed in an LTCP are sufficient to meet water quality standards (WQS) and protect designated uses and if the permittee has designed an appropriate plan for controlling CSOs.



When developing and reviewing LTCPs, it is important to keep in mind that the level of detail in the LTCP can vary significantly depending on the permittee and the complexity of the combined sewer system involved. The overall intent of the review is to ensure that the LTCP is a coherent, organized document featuring a logical, step-by-step analysis that justifies the selection of CSO controls to meet WQS and protect designated uses.

EPA created an interactive checklist to help CSO permittees and NPDES authorities determine if LTCPs meet the requirements of the CSO Control Policy and conform with EPA guidance on developing LTCPs. The checklist is an Excel workbook that is available to permittees and NPDES authorities. Through an interactive review process, the checklist also provides a list of recommendations that can be used to improve LTCPs. Due to the site-specific nature of CSOs and LTCPs, the checklist includes additional fields for the user to document their specific situation.

> The CSO Control Policy (59 FR 18691) states that permittees:
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> *...should immediately undertake a process to accurately characterize their sewer systems, to demonstrate implementation of the nine minimum controls, and to develop a long-term CSO control plan.... Implementation of the nine minimum controls with appropriate documentation should be completed as soon as practicable but no later than January 1, 1997.*

Nine Minimum Controls (NMC)

The LTCP should integrate the NMC to achieve the requirements of CWA and CSO Control Policy. The NMC are measures that can reduce CSOs and their effects on receiving water quality, that do not require significant engineering studies or major construction, and that can be implemented in a relatively short period (e.g., less than two years). Implementation of the NMC was among the first steps a municipality was expected to take in response to the CSO Control Policy. The NMC are not temporary measures; they should be part of long-term efforts to control CSOs. It is expected that all municipalities have already implemented the NMC. These are presented in the figure below.

Nine Minimum Controls	
	Proper operation and regular maintenance programs for the sewer system and CSOs
	Maximum use of the collection system for storage
	Review and modification of pretreatment requirements to assure CSO impacts are minimized
	Maximization of flow to the POTW for treatment
	Prohibition of CSOs during dry weather
	Control of solids and floatable materials in CSOs
	Pollution prevention
	Public notification to ensure that the public receives adequate notification of CSO occurrences and CSO impacts
	Monitoring to effectively characterize CSO impacts and the efficacy of CSO controls

LTCP Elements

The CSO Control Policy (59 FR 18691.C) states that:

Permittees with CSOs are responsible for developing and implementing long-term CSO control plans that will ultimately result in compliance with the requirements of the CWA. The long-term plans should consider the site-specific nature of CSOs and evaluate the cost effectiveness of a range of control options/strategies.

CSO communities are generally expected to complete the development of an LTCP within two years of being required to do so by an NPDES permit or other enforceable mechanism. The CSO Control Policy lists the following nine elements that should be addressed, as appropriate, in an LTCP:

Characterization, Monitoring, and Modeling of the Combined Sewer System

The primary objective of system characterization is to develop a detailed understanding of the current conditions of the CSS and receiving waters. This assessment—a crucial part of the planning process—establishes a baseline and a foundation for determining receiving water goals and priorities and identifying specific CSO controls in the LTCP.

Throughout CSO planning, it is essential to have a well-developed monitoring and modeling plan that covers gathering useful monitoring data for system characterization, evaluating and choosing control alternatives, and post-construction compliance monitoring. The monitoring effort necessary will depend on a number of factors: the layout of the collection system; the quantity, quality, and variability of the existing historical data and the necessary additional data; whether modeling will be done and, if so, the complexity of the selected model; and the available budget. The monitoring program should span enough storm events to enable the permittee to fully understand the pollutant loads from CSOs, including the means and variations of pollutant concentrations and the resulting effects on receiving water quality.

In developing a monitoring and modeling plan, the permittee should consider up front whether to use modeling. The CSO Control Policy refers to modeling as a tool for characterizing a CSS and the impacts of CSOs on receiving waters. Although not every CSS needs to be analyzed using complex computer models, EPA anticipates that most permittees will need to perform some degree of modeling to support CSO control decisions.

Public Participation

Input from the public, obtained during the early phases of the planning process, will enable a municipality to better develop an outreach program that reaches a broad base of citizens. In addition to public meetings, municipalities can obtain input in a number of ways, including

telephone surveys, community leader interviews, and workshops. Each of these activities can give the municipality a better understanding of the public perspective on local water quality issues and sewer system problems, the amount of public concern about CSOs in particular, and public willingness to participate in efforts to eliminate CSOs.

Consideration of Sensitive Areas

Sensitive areas are defined in the CSO Control Policy (59 FR 18692.C.3). In accordance with the CSO Control Policy, the LTCP should give highest priority to prohibiting new or significantly increased overflows (treated or untreated) to designated sensitive areas. If physically possible and economically achievable, existing overflows to sensitive areas should be eliminated or relocated unless doing so creates more environmental impact than continued discharge (with additional treatment necessary to meet WQS) to the sensitive area.

Evaluation of Alternatives

EPA expects the long-term CSO control plan to consider a reasonable range of alternatives. The plan should, for example, evaluate controls that would be necessary to achieve zero overflow events per year and an average of one to three, four to seven, and eight to 12 overflow events per year. Alternatively, the long-term plan could evaluate controls that achieve 100 percent capture, 40 percent capture, 85 percent capture, 80 percent capture, and 75 percent capture for treatment.

The analysis of alternatives should be sufficient to make a reasonable assessment of cost and performance as described in the CSO Control Policy, Section II.C.5. Because the final long-term CSO control plan will become the basis for NPDES permit limits and requirements, the chosen controls should be sufficient to meet CWA requirements. The evaluation of CSO control alternatives can be complex, and no one methodology is appropriate for all CSO control programs.

Cost/Performance Considerations

Cost/performance analyses typically involve estimating costs for a range of control levels, then comparing performance versus cost and identifying the point of diminishing returns, referred to as the "knee" of the curve. For the development of alternatives, it is likely that more than one alternative will be identified to achieve each level of control. A simpler cost/performance approach might be appropriate to eliminate non-cost-effective alternatives. For example, a computation of capital cost per gallon controlled might provide a reasonable basis for screening certain alternatives. During the more detailed alternatives evaluation process, present worth costs, incorporating annual operations and maintenance (O&M) costs, would be developed for the remaining alternatives.

Operational Plan

Typically, each facility constructed as part of the LTCP will have its own O&M manual detailing its equipment and features, including operating instructions, troubleshooting guides, and safety considerations. If the LTCP features multiple facilities, however, a master operating strategy should be developed to optimize the operation of the various LTCP components. Optimization

might involve coordinating pump back timing, dynamic regulator operation, or other real-time operating strategies. Interim operating strategies might be required for phased projects and for construction-period operations and flow transitions. Maintenance programs should consider the unique operating conditions of CSO facilities, particularly with regard to schedules for inspecting and exercising idle equipment.

Maximizing Treatment at the Existing POTW Treatment Plant

This control measure involves maximizing the quantity of flow collected and treated, thereby minimizing overflows. It involves ongoing maintenance and inspection of the collection system, particularly flow regulators and tide gates. Minor modifications or repairs can sometimes result in significant increases in the volume of storm flow retained in the system. Strict adherence to a well-planned preventive maintenance program can be a key factor in controlling dry and wet weather overflows.

Implementation Schedule

The CSO Control Policy recommends a phased implementation schedule based on the relative importance of adverse impacts on WQS and designated uses. The municipality is expected to consider eliminating overflows that discharge to sensitive areas and cause use impairment. The CSO Policy also recommends considering financial capability in developing the implementation schedule. The municipality can consider the availability of grants and loans; previous and current residential, commercial, and industrial sewer user fees and rate structures; and other viable funding mechanisms. Other considerations include the need for pilot-scale testing, the time necessary for obtaining permits, and the need to observe timing constraints for obtaining funding (e.g., State Revolving Fund grant/loan application deadlines, local referenda). These considerations are incorporated into a schedule with start and finish dates for major tasks and milestones. The schedule should also include interim dates for reporting CSO control results and monitoring program results.

Post-Construction Compliance Monitoring Program

The selected CSO controls should include a post-construction water quality monitoring program adequate to verify compliance with WQS and protection of designated uses as well as to ascertain the effectiveness of CSO controls.

The municipality should conduct a monitoring program during and after LTCP implementation to help determine the effectiveness of the overall program in meeting CWA requirements and achieving local water quality goals. Monitoring during LTCP implementation should include data collection to measure the overall effects of the program on water quality and to determine the effectiveness of CSO controls. Because existing water quality conditions should have been determined during the planning process, receiving water quality will probably be well understood before LTCP implementation. A monitoring plan to assess water quality conditions during and after program implementation will allow municipalities to evaluate improvements through comparison to baseline conditions.

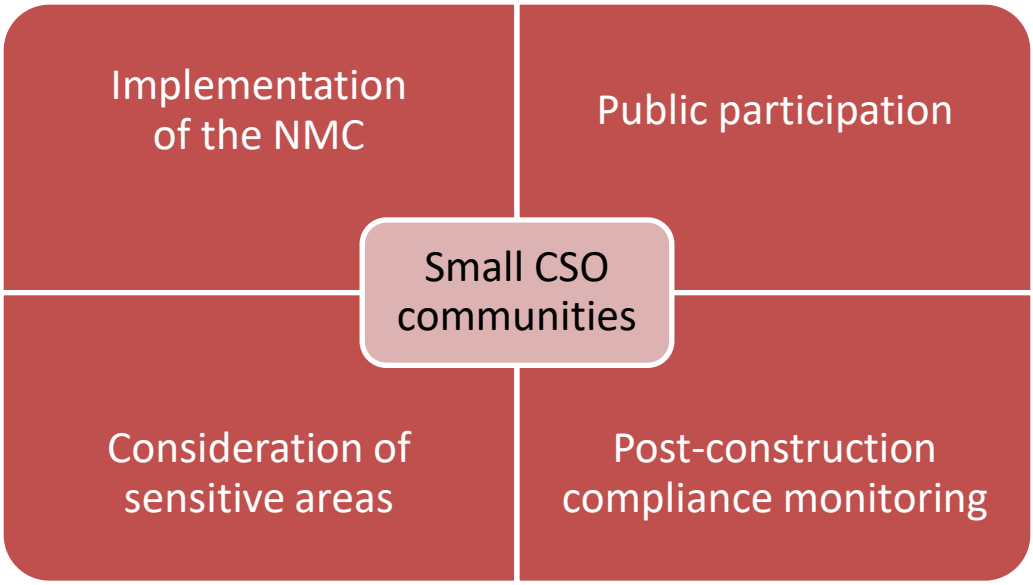
The CSO Control Policy (59 FR 18690.D) states:

At the discretion of the NPDES Authority, jurisdictions with populations under 75,000 may not need to complete each of the formal steps outlined in Section II.C. of this Policy, but should be required through their permits or other enforceable mechanisms to comply with the nine minimum controls (II.B], public participation (II.C.2), and sensitive areas (II.C.3) portions of this Policy.

Small CSO Communities

As EPA acknowledges in the CSO Control Policy (see the excerpt above), compliance with the scope of the LTCP may be difficult for some small CSO communities.

At a minimum, however, all small municipalities must continue to implement the NMCs. Further, municipalities should be required to develop LTCPs that will provide for the attainment of WQS and include the following elements, at the discretion of the NPDES Authority:



A municipality with a population less than 75,000 should consult with both the NPDES permitting authorities and WQS authorities to ensure that its LTCP addresses at least the elements noted above and it can show that the CSO control program will meet the objectives of the CWA. In addition, the municipality may propose to implement any of the criteria contained in the CSO Control Policy for alternatives evaluation.

For Additional Information

Contacts

Names and telephone numbers for the U.S. EPA's Office of Wastewater Management (Headquarters), each EPA regional office, and state contacts are listed at https://www.epa.gov/npdes/contact-us-combined-sewer-overflows-csos

Your NPDES Permitting Authority

Most states and U.S. territories are authorized to administer the NPDES Program, except the following, for which EPA is the permitting authority:

- American Samoa
- District of Columbia
- Guam
- Indian Tribes
- Johnston Atoll
- Massachusetts
- Midway and Wake Islands
- New Hampshire
- New Mexico
- Northern Mariana Islands
- Puerto Rico
- Trust Territories

Additional Resources

- EPA's CSO website
  - CSO Control Policy
  - Combined Sewer Overflows: Guidance for Long-Term Control Plan
  - Combined Sewer Overflows: Guidance for Monitoring and Modeling
  - Combined Sewer Overflows: Guidance for Nine Minimum Controls
  - Combined Sewer Overflows: Guidance for Permit Writers
  - Coordinating CSO Long-Term Planning with Water Quality Standards Reviews
  - EPA's Wastewater Collection System Toolbox
  - Greening CSO Plans: Planning and Modeling Green Infrastructure for CSO Control
  - NPDES SSO Technical Reports and Materials

Disclaimer: The statements in this document are intended solely as suggestions. This document is not intended, nor can it be relied on, to create any rights enforceable by any party in litigation with the United States. Long-term CSO control plans are site-specific in nature. EPA, state officials, and CSO permittees may decide to follow a suggestion provided in this document, or to act at variance with the suggestion, based on an analysis of site-specific circumstances.