

COMBINED SEWER OVERFLOWS
GUIDANCE FOR MONITORING AND MODELING

**Office of Wastewater Management
U.S. Environmental Protection Agency
Washington, DC 20460**

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OFFICE OF
WATER

MEMORANDUM

SUBJECT: Combined Sewer Overflows: Guidance for Monitoring and Modeling

FROM: Michael B. Cook, Director
Office of Wastewater Management (4203)

TO: Interested Parties

I am pleased to provide you with the Environmental Protection Agency's (EPA) guidance document on the monitoring and modeling of combined sewer overflows (CSO) and their impacts on receiving waters. This is the seventh in a series of guidance manuals that EPA prepared to support implementation of the 1994 Combined Sewer Overflow Control Policy.

This manual presents a set of guidelines that provide flexibility for a municipality to develop a site-specific strategy for characterizing its combined sewer system operations and impacts and for developing and implementing a long-term CSO control plan. It is **not** a "how-to" manual defining how many samples to collect or which flow metering technologies to use.

EPA used a peer-review process and solicited comments from CSO stakeholders and the general public. The EPA identified the Water Environment Research Foundation (WERF) and two technical experts to provide technical and scientific peer review. WERF convened a panel of its technical experts to review the document. The peer reviewers and the other reviewers submitted detailed comments and recommendations. EPA will make available to interested parties a "response-to-comments" document detailing how it addressed comments received during the peer review and the public comment period. I am very grateful to the peer reviewers and the other individuals and organizations who participated in preparation and review. I believe that this manual will assist municipalities as they develop and implement long-term CSO control plans to meet the requirements of the Clean Water Act and the objectives of the EPA's CSO Control Policy.

If you have any questions on the manual or its distribution, please contact Tim Dwyer in the Office of Wastewater Management at (202) 260-6064. Mr. Dwyer's e-mail address is dwyer.tim@epa.gov.

ACKNOWLEDGMENTS

The U.S. Environmental Protection Agency (EPA) wants to thank the Cities of Columbus, Georgia; South Bend, Indiana; and Indianapolis, Indiana for allowing EPA to use their experiences in monitoring and modeling as case studies for this manual. The experiences of these cities provide excellent examples of the monitoring and modeling process associated with developing and implementing combined sewer overflow (CSO) control programs. EPA believes that use of case studies greatly enhances the value of the document.

EPA also acknowledges the peer reviewers who kindly donated their time and knowledge to improving the technical and scientific discussions in this manual. The peer reviewers were David Dilks, Limno-Tech, Inc.; Raymond M. Wright, Ph.D., P.E., University of Rhode Island; and John Marr, Limno-Tech, Inc., who reviewed it on behalf of the Water Environment Research Foundation.

Finally, EPA thanks those individuals and organizations that took the time and energy to review and submit comments as part of the public review process. They are to be commended for their perseverance and dedication to a long and arduous task.

EPA believes that the peer review process and the public comments greatly improved the technical and scientific aspects of the manual. We hope that users will find the information in the manual useful as they develop and implement CSO control plans.

Assistance in developing this manual was provided to EPA under contract number 68-C4-0034.

NOTICE

The statements in this document are intended solely as guidance. 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. EPA and State officials may decide to follow the guidance provided in this document, or to act at variance with the guidance, based on an analysis of specific site circumstances. This guidance may be revised without public notice to reflect changes in EPA's strategy for implementation of the Clean Water Act and its implementing regulations, or to clarify and update the text.

Mention of trade names or commercial products in this document does not constitute an endorsement or recommendation for use.

LIST OF ACRONYMS

BASINS	Better Assessment Science Integrating Point and Nonpoint Sources
BAT	Best Available Technology Economically Achievable
BCT	Best Conventional Pollutant Control Technology
BMP	Best Management Practice
BOD	Biochemical Oxygen Demand
BPJ	Best Professional Judgment
CAD	Computer Aided Design
COD	Chemical Oxygen Demand
CSO	Combined Sewer Overflow
CSS	Combined Sewer System
CWA	Clean Water Act
DO	Dissolved Oxygen
EMAP	Environmental Monitoring and Assessment Program
EMC	Event Mean Concentration
EPA	U.S. Environmental Protection Agency
GIS	Geographic Information System
IDF	Intensity Duration Frequency
I/I	Infiltration/Inflow
LA	Load Allocation
LTCP	Long-Term Control Plan
MPN	Most Probable Number
NCDC	National Climatic Data Center
NMC	Nine Minimum Controls
NOAA	National Oceanic and Atmospheric Administration
NPDES	National Pollutant Discharge Elimination System
NURP	Nationwide Urban Runoff Program
PDF	Probability Density Function
O&M	Operation and Maintenance
POTW	Publicly Owned Treatment Works
RBP	Rapid Bioassessment Protocol
QA	Quality Assurance
QC	Quality Control
SCS	Soil Conservation Service
SSES	Sewer System Evaluation Survey
STORET	Storage and Retrieval of U.S. Waterways Parametric Data
SWMM	Storm Water Management Model
TDS	Total Dissolved Solids
TMDL	Total Maximum Daily Load
TSS	Total Suspended Solids
UAA	Use Attainability Analysis
USGS	U.S. Geological Survey
VOC	Volatile Organic Compound
WLA	Wasteload Allocation
WQS	Water Quality Standard(s)

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