NOTE TO READER: The NPRM is an unofficial copy for purposes of public comment. You may refer to the official version in the Federal Register or on the Government Printing Office's web site (http://www.access.gpo.gov/su_docs/aces/aces140.html).

ENVIRONMENTAL PROTECTION AGENCY
40 CFR Parts 122 and 123
[FRL]
National Pollutant Discharge Elimination System (NPDES) Permit Requirements for Municipal Sanitary Sewer Collection Systems, Municipal Satellite Collection Systems, and Sanitary Sewer Overflows

AGENCY: Environmental Protection Agency (EPA)

ACTION: Proposed Rule

SUMMARY: EPA is proposing to clarify and expand National Pollutant Discharge Elimination System (NPDES) permit requirements for municipal sanitary sewer collection systems and sanitary sewer overflows (SSOs). Municipal sanitary sewer collection systems play a critical role in protecting human health and the environment. SSOs, which are releases of raw sewage, can result when these systems fail. The most immediate health risk associated with SSOs is exposure to disease-causing pathogens.

Today's proposal includes standard permit conditions addressing capacity, management, operation and maintenance (CMOM) requirements; a prohibition on discharges (with a framework for a defense for unavoidable discharges); and requirements for reporting, public notification, and recordkeeping for municipal sanitary sewer collection systems and SSOs.

The Agency also is proposing a regulatory framework for applying NPDES permit conditions, including applicable standard permit conditions, to municipal satellite collection systems. Municipal satellite collection systems are sanitary sewers owned or operated by a municipality that convey sewage or industrial wastewater to a publicly owned treatment works (POTW) that has a treatment plant owned or operated by a different municipality.

Implementation of this proposal would improve the capacity, management, operation and maintenance of municipal sanitary sewer collection systems and improve public notice for SSO events, which would:

- Reduce health and environmental risks by reducing SSO occurrences and improving treatment facility performance; and
- Protect the nation's collection system infrastructure by enhancing and maintaining system capacity, reducing equipment and operational failures and extending the life of its components.

DATES: Written comments on this proposed rule must be received or postmarked by **[insert date 120 days after date of publication in the FEDERAL REGISTER]**.

ADDRESSES: Commentors are requested to mail an original and three copies of their comments and enclosures (including references) to the W-00-08 Sanitary Sewer Overflows Comments Clerk, Water Docket (MC-4101), U.S. Environmental Protection Agency, Ariel Rios Building, 1200 Pennsylvania Ave., N.W., Washington, DC

20460. Comments delivered by hand or overnight courier should be sent to the Water Docket, Room EB-57 (East Tower basement), Waterside Mall, 401 M Street, S.W., Washington, DC 20460. Commentors who would like acknowledgment of their comments should include a self-addressed, stamped business-size envelope. No facsimiles (faxes) will be accepted.

EPA will also accept comments electronically. Comments should be addressed to the following Internet address: ow-docket@epamail.epa.gov Electronic comments must be submitted as an ASCII or WordPerfect file avoiding the use of special characters and any form of encryption. Electronic comments must be identified by the docket number W-00-08 and may be filed on-line at many Federal Depository Libraries. No confidential business information (CBI) should be sent via e-mail.

This document also has been placed on the Internet for public review and downloading from the Office of Wastewater Management home page at the following location: www.epa.gov/owm/sso.htm

The public may inspect the administrative record for the proposed rulemaking at EPA's Water Docket, Room EB-57 (East Tower basement), 401 M Street, SW, Washington, DC 20460. The record for this rulemaking has been established under docket number W-00-08 and includes supporting documentation. The public may inspect the administrative record between the hours of 9 a.m. and 4 p.m., Monday through Friday, excluding legal holidays. For access to these docket materials, please call (202) 260-3027 to schedule an appointment. As provided in 40 CFR Part 2, a reasonable fee may be charged for copying any material in the docket.

FOR FURTHER INFORMATION CONTACT: For questions about the substance of this proposed rule, contact Kevin Weiss (e-mail at weiss.kevin@epa.gov or phone at (202) 564-0742) at Office of Wastewater Management, U.S. Environmental Protection Agency (Mail Code 4203M), Ariel Rios Building, 1200 Pennsylvania Ave., NW, Washington, D.C. 20460. To obtain a copy of the proposed rule, contact Sharie Centilla (e-mail at centilla.sharie@epa.gov or phone at (202) 564-0697) at Office of Wastewater Management, U.S. Environmental Protection Agency (Mail Code 4203M), Ariel Rios Building, 1200 Pennsylvania Ave., NW, Washington, D.C. 20460.

SUPPLEMENTARY INFORMATION:

Regulated Entities

Entities potentially regulated by this action include:

Category	Examples of regulated entities
Local governments	Owners or operators of publicly owned treatment works and municipal sanitary sewer collection systems Owners or operators of municipal satellite collection systems (including systems comprised of combined sewers or separate sewers)

State and tribal governments	Owners or operators of publicly owned treatment works and municipal sanitary sewer collection systems Owners or operators of municipal satellite collection systems (including systems comprised of combined sewers or separate sewers)

This table is not meant to be exhaustive, but rather provides a guide for readers regarding entities likely to be regulated by this action. Other types of entities not listed in the table could also be regulated. If you have questions about the applicability of this action to a particular entity, consult the person listed for substantive information in the preceding FOR FURTHER INFORMATION CONTACT section.

Acronyms Used

APWA	American Public Works Association
ASCE	American Society of Civil Engineers
ASIWPCA	Association of State and Interstate Water Pollution Control Administrators
CMOM	capacity, management, operation and maintenance
CSO	combined sewer overflow
EPA	Environmental Protection Agency
I/I	inflow and infiltration
MGD	million gallons per day
NASSCO	National Association of Sewer Service Companies
NRDC	Natural Resources Defense Council
NTTAA	National Technology Transfer and Advancement Act
NPDES	National Pollutant Discharge Elimination System
O&M	operation and maintenance
POTW	publicly owned treatment works
RII	rainfall-induced infiltration
SBREFA	Small Business Regulatory Enforcement Fairness Act
SSO	sanitary sewer overflow
WEF	Water Environment Federation
WQBEL	water quality-based effluent limitation
WWTP	wastewater treatment plant

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PART 123 – STATE PROGRAM REQUIREMENTS
§ 123.25 Requirements for permitting

I. BACKGROUND

A. President Clinton's Directive

On May 29, 1999, President Clinton directed EPA to: "Improve protection of public health at our Nation's beaches by developing, within one year, a strong national regulation to prevent the over 40,000 annual sanitary sewer overflows from contaminating our nation's beaches and jeopardizing the health of our nation's families. At a

minimum, the program must raise the standard for sewage treatment to adequately protect public health and provide full information to communities about water quality problems and associated health risks caused by sanitary sewer overflows." Today's proposed rule would clarify the national framework for reducing the environmental and public health impacts of SSOs and will help ensure protection of the nation's investment in sewer infrastructure.

B. Why are Wastewater Collection Systems Important?

1. What Functions Do Wastewater Collection Systems Perform?

During the eighteenth and nineteenth centuries, people living in cities in the United States mostly used cesspools and privy vaults to dispose of household wastewater and sewage. Cesspools and privy vaults were essentially holes in the ground, often lined with stone and located close to residences. These systems were largely privately maintained, and removal of sewage and residuals was typically inefficient and labor intensive. Municipalities began to install sewerage systems in the late nineteenth century due to a combination of factors, including an increased awareness of the health risks of sewage, the availability of indoor plumbing and toilets (and the resulting need to dispose of increased volumes of wastewater), and increased urban populations. In contrast to the privy vault-cesspool system, sewerage systems were capital rather than labor intensive and required the construction of large public works. They were designed to operate passively, in a much less labor intensive manner than the older cesspool/privy vault system. Proponents of sewerage systems stressed municipalities should adopt sewerage systems for three main reasons: the capital and maintenance cost of sewerage systems would be less than the annual cost of cleaning the cesspool/privy vault system; sewerage systems resulted in greatly improved sanitary conditions; and because of improved sanitary conditions, cities with sewerage systems would attract population and industry and grow at a faster rate than those that did not.

Wastewater collection systems collect domestic sewage and other wastewater from homes and other buildings and convey it to wastewater sewage treatment plants for proper treatment and disposal. The collection and treatment of municipal sewage and wastewater is vital to the public health in our cities and towns. The proper functioning of wastewater systems is among the most important factors responsible for the general level of good health enjoyed in the United States. When these conveyance systems fail and release untreated sewage, however, they can pose risks to public health and the environment.

In addition, the efficiency of wastewater treatment at a wastewater treatment plant depends strongly on the performance of the collection system. When the structural integrity of a sanitary sewer collection system deteriorates, high volumes of infiltration (including rainfall-induced infiltration) and inflow can enter the collection system. High levels of inflow and infiltration (I/I) increase the hydraulic load on treatment plants, which can reduce treatment efficiency, lead to bypassing a portion of the treatment process, or in extreme situations make biological treatment facilities inoperable (e.g., wash out the biological organisms that treat the waste).

In the United States, municipalities historically have used two major types of sewer systems. One type, combined sewers, were designed to collect both sanitary sewage and storm water runoff in a single-pipe system. Sewer builders designed this type of sewer system to provide the primary means of surface drainage and drain precipitation flows away from streets, roofs, and other impervious surfaces. State and local authorities generally have not allowed the construction of new combined sewers since the first half of the 20th century. The other major type of domestic sewer design is sanitary sewers (also known as separate sanitary sewers). Sanitary sewers are not installed to collect large amounts of runoff from precipitation events or provide widespread drainage, although they typically are built with some allowance for higher flows that occur during storm events for handling minor and controllable

amounts of I/I that enter the system. Developed areas that are served by sanitary sewers often also have a separate storm sewer system (or storm drains) to collect and convey runoff, street wash waters, and drainage.

2. What Does the Public Expect from Their Wastewater Collection Systems?

Most members of the general public take a well-operated wastewater collection system for granted, without being aware of its design and technical workings. However, in general, the public expects these systems to function effectively at a reasonable cost to rate payers. This means that sewage releases into homes, streets, streams, parks, beaches, or other areas where there is a reasonable potential for human exposure or environmental degradation are minimized. Where releases occur, the public expects to be notified of significant health risks, expects spills to be cleaned up as soon as possible, and expects steps to be taken to avoid future releases.

3. How Many Sanitary Sewer Collection Systems Are There in the United States?

Sanitary sewer collection systems are an extensive and valuable part of the nation's infrastructure. They serve about 150 million people in the United States -- roughly 55 percent of the nation's population. EPA estimates that there are about 500,000 miles of municipally owned pipes in publicly owned systems and probably another 500,000 miles of privately owned pipes that deliver wastewater into these systems. These systems serve an area of about 57,000 square miles.

The database used to develop the 1998 Clean Water Needs Survey identifies more than 19,000 municipal sanitary sewer collection systems. A relatively few larger systems serve a significant percentage of the population, while there are a great number of smaller systems. A description of the distribution of service population size among these systems is provided in section III.K of today's preamble. Of the more than 19,000 systems, about 4,800 are satellite collection systems that do not treat their own wastewater but rather contribute to a regional collection system that is owned or operated by a different entity.

Sewers owned by non-municipal entities, including privately owned sewers, make up a high percentage of the total sewer length of most sanitary sewer collection systems. Some portions or the entire length of lateral connections to buildings are generally owned by the building owner. Building laterals may feed into privately owned satellite collection systems that convey wastewater to a municipal collection system. Non-municipal satellite collection systems are associated with trailer parks, residential subdivisions, apartment complexes, commercial complexes such as shopping centers, industrial parks, college campuses, and military facilities.

The Association of State and Interstate Water Pollution Control Administrators (ASIWPCA) estimates that about 25,000 NPDES permits have been issued for privately owned treatment plants. Each of these treatment plants is expected to have a privately owned collection system. EPA lacks data to estimate the number of privately owned collection systems that discharge their wastewater to municipal collection systems.

4. Early Municipal Collection Systems[1]

In the late 1800s and early 1900s, a number of municipalities began to install public sewer systems to address health and aesthetic concerns association with the cesspools and privy vaults found in most cities. At the same time, many municipalities did not have well developed drainage systems, with storm water presenting flooding problems as

[1] For a more detailed discussion of the development of early sewer systems in the United States, see The Search for the Ultimate Sink: Urban Pollution in Historical Perspective, Tarr, J.A., University of Akron Press, 1996.

well as sanitation and aesthetic concerns due to manure from horses and other animals and other poor sanitary conditions.

Municipalities installing sewerage systems faced a choice in the design of the system, with combined sewers (for both runoff and sanitary wastewater) or two separate conveyance systems (separate sanitary sewers and separate storm drains) being the two predominant options. Key factors in selecting between the combined sewer and sanitary sewer designs were that there was no European or American precedent of a successful separate system and engineers were reluctant to experiment with large capital works; and the relative cost of the system. Combined systems were less expensive for municipalities needing both sanitary and storm sewers while separate sanitary sewer collection systems were less expensive for municipalities that only needed a sewage collection system. At the time, many thought that both designs provided roughly equivalent health protection. This view was supported by an 1881 report to the National Board of Health that suggested that both sanitary sewers and combined sewers had equal sanitary value and recommended that the choice between systems should be based on local conditions and financial considerations. The assumption that sanitary and combined sewers had equal sanitary value was based on the theory that disposal of untreated sewage into waterways was safe.

In the 1860s and early 1870s a number of cities in the United States installed combined sewer systems. The first separate sanitary collection system was installed in the U.S. in the late 1870s. Early sanitary sewer systems provided for house sewage only and made no provisions for storm water, were accompanied by agricultural tiles laid in the same ditch as the sewer to provide drainage, used automatic flush tanks to clean the sewers and had no manholes. The earliest designs experienced problems with frequent stoppages, inadequate slopes, and because of connections of drains by householders, excess wet weather flows which forced municipalities to construct overflows and intercepting sewers. Later designs addressed some of these problems. However, it was not until early in the twentieth century that engineers fully recognized that an adequate storm water drainage system was necessary to protect the sanitary sewer system. Construction of separate sewers without storm sewers often resulted in excess storm and ground water entering the sanitary sewer. This excess water could lead to surcharging, basement backups, overflows at manholes and overwhelming the capacity of treatment plants.

Construction of sewerage systems by municipalities greatly improved local sanitary conditions and in many cases reduced illnesses. However, the disposal of wastewater created potential impacts on downstream communities. In early sewerage systems, treatment prior to discharge was only provided in a few special cases, usually where a city was not located on a potential receiving stream or river. Views on the safety of disposal of untreated sewage into waterways began to shift toward the end of the nineteenth century. Bacterial research during the 1880s and 1890s began to identify concerns. In addition, during the 1880s and 1890s, the rate of typhoid deaths rose in cities that withdrew their water supply downstream of discharging sewer systems. Bacterial analysis confirmed the link between sewage pollution in rivers and typhoid fever.

As the need for providing sewage treatment prior to discharge became recognized, the major design difference between sanitary sewer systems and combined sewer systems was highlighted. Due to significantly smaller volumes of wet weather flows, sanitary sewer systems simplified and lowered the cost of sewage pumping and treatment. By 1892, twenty-seven municipalities treated their sewage; of these twenty-six had separate systems. While combined sewers offered an efficient means of removing storm water and sewage, they made treatment and disposal more difficult. However, municipalities that had already built combined sewers often continued to utilize combined sewers and add to them. In part this was due to concerns that municipalities would be unable to keep

runoff and drainage from private residences and businesses out of sanitary sewer systems[2]. Another factor that allowed continued utilization of combined sewers was the belief that emphasizing the treatment of drinking water would minimize the need to treat wastewater prior to discharge.

C. What are the Health and Environmental Risks of SSOs?

SSOs result in releases of raw sewage. The health and environmental risks attributed to SSOs vary depending on a number of factors including location and season (potential for public exposure), frequency, volume, the amount and type of pollutants present in the discharge, and the uses, conditions, and characteristics of the receiving waters. The most immediate health risks associated with SSOs to our waters and other areas with a potential for human contact are associated with exposure to bacteria, viruses, and other pathogens. Adverse health consequences can be more severe for children, the elderly, and those with weakened immune systems.

In addition to pathogens, raw sewage may contain metals, synthetic chemicals (including endocrine system disruptors), nutrients, pesticides, and oils, which also can be detrimental to the health of humans and wildlife.

1. Human Health Risks

The need for effective sanitary wastewater removal and management has been clearly documented for over a century.[3] SSOs can release raw sewage to areas where they present high risks of human exposure, such as streets, private property, basements, and receiving waters used for drinking water, fishing and shellfishing, or contact recreation. Some SSOs can form puddles and muddy areas that can attract children or pets, while others may result in direct exposure to untreated wastewater via other pathways. Additional information on pathways for parasitic diseases to children is provided at www.cdc.gov/ncidod/dpd/parasiticpathways/kids/htm.

Although SSOs contain other pollutants, the major acute health risks of most untreated SSOs are pathogens. Major groups of disease-causing organisms or agents associated with untreated SSOs include: bacteria, viruses, protozoa, and helminths (intestinal worms). Table 1 shows examples of the pathogens in inadequately treated wastewater and the diseases they cause. These diseases range in severity from mild gastroenteritis (causing stomach cramps and diarrhea) to diseases that can be life-threatening, such as cholera, infectious hepatitis, dysentery, and severe gastroenteritis.

One study has indicated a growing consensus among researchers that elevated Giardia levels are due to introduction of sewage effluents, while elevated Cryptosporidium levels may be due to input from nonpoint sources such as agricultural or forested areas.[4] The study also indicates that there is a growing concern regarding Giardia sources about the adequacy of disinfection practices at wastewater treatment plants. The study observed that the highest Giardia levels were detected in rivers and creeks which in many cases also received sewage and industrial effluents.

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[2] Cunningham, S.L., Combined versus Separate Sewers: Louisville's Good, But Thwarted Intentions, Spring 1999.

[3] See, "Sewerage and Land Drainage," Waring, 1889 and "The Search for the Ultimate Sink:Urban Pollution in Historical Perspective", Tarr, J.A.,1996.

[4] LeChevallier, Mark W., W. D. Norton, R. G. Lee, "Occurrence of Giardia and Cryptosporidium spp. in Surface Water Supplies," Applied and Environmental Microbiology, Sept. 1991, p. 2610-2616.

2. Environmental Risks

SSOs, by themselves or in combination with other sources of pollution (e.g., POTWs, other point source effluents, runoff from farms, ranches, mines, forests, and developed areas) may affect the quality and uses of waters of the United States. Adverse water quality impacts from SSOs may include changes to the physical characteristics and viability of aquatic habitats, causing fish kills. These impacts can cause adverse economic impacts such as beach closures, shellfish harvesting quarantines, increased risks and demands on drinking water sources, and impairment of people's ability to use waters for recreational purposes.

The National Water Quality Inventory, 1998 Report to Congress, required by section 305(b) of the Clean Water Act (CWA), shows that States have identified pollutant sources associated with urban development, including sewage treatment facilities and wet weather sources, as a leading cause of water quality impairment.[5] Given the close proximity of these discharges and the complex interrelation of the discharges, it is difficult to attribute impairment of urban waters to specific sources, particularly those occurring during wet weather (e.g., storm water, combined sewer overflows, SSOs). EPA's National Water Quality Inventory Report, using information provided by States, identifies the two categories "urban runoff/storm sewers" and "municipal point sources" as together making up the second-largest cause of impairment in lakes, rivers, and streams, and the largest cause of impairment in estuaries. The category "municipal point sources" used in the Water Quality Inventory does not distinguish between treatment plant discharges and collection system discharges (other than combined sewer overflows), and therefore does not allow an evaluation of impacts directly associated with SSOs. The Agency believes, however, that the performance of municipal treatment plants and collection systems are highly interrelated and efforts to address the municipal point source category typically should focus on both aspects. The Agency also believes that some sources identified in the "urban runoff/storm sewers" categories are adversely affected by SSOs.

In a different, more detailed 1998 survey conducted by the Natural Resources Defense Council, States identified sewage spills and overflows (including sewage overflows from combined sewers and sanitary sewers, malfunctioning sewage treatment plants and pump stations, sewage spills and sewer-line breaks) as the leading identified cause of beach closures and swimming advisories in the United States.[6]

Table 1. Examples of Pathogens in Inadequately Treated Municipal Wastewater

	ORGANISM	**DISEASE / SYMPTOMS**
Bacteria	Vibrio cholerae	Cholera
	Salmonella spp.	Salmonellosis (food poisoning), typhoid fevers
	Shigella spp.	Bacillary dysentery
	Yersinia spp.	Acute gastroenteritis (including diarrhea, abdominal pain)
	Campylobacter jejuni	Gastroenteritis

[5]National Water Quality Inventory, 1998 Report to Congress, EPA.

[6]Draft Pathogens and Swimming: Assessment of Beach Monitoring and Closure, Environomics, 1995, and Testing the Waters-A Guide to Water Quality at Vacation Beaches, Volume 9 - Natural Resources Defense Council, July 1999.

	Escherichia coli (pathogenic strains)	Gastroenteritis
Viruses	Hepatitis A virus	Infectious hepatitis
	Polio virus	Poliomyelitis
	Coxsackievirus	Meningitis, pneumonia, hepatitis, fever, common colds, etc.
	Echovirus	Meningitis, paralysis, encephalitis, fever, common colds, diarrhea, etc.
	Rotavirus	Acute gastroenteritis with severe diarrhea
	Norwalk agents	Epidemic gastroenteritis with severe diarrhea
	Reovirus	Respiratory infections, gastroenteritis
Protozoa	Cryptosporidium	Gastroenteritis
	Entamoeba histolytica	Acute enteritis
	Giardia lambia	Giardiasis (including diarrhea, abdominal cramps, weight loss)
	Balantidium coli	Diarrhea and dysentery
	Toxoplasma gondii	Toxoplasmosis
Helminth Worms	Ascaris lumbricoides	Digestive and nutritional disturbances, abdominal pain, vomiting, restlessness
	Ascaris suum	Coughing, chest pain, and fever
	Trichuris trichiura	Abdominal pain, diarrhea, anemia, weight loss
	Toxocara canis	Fever, abdominal discomfort, muscle, aches, neurological symptoms
	Taenia saginata	Nervousness, insomnia, anorexia, abdominal pain, digestive disturbances
	Taenia solium	Nervousness, insomnia, anorexia, abdominal pain, digestive disturbances
	Necator americanus	Hookworm
	Hymenolepis nana	Taeniasis

D. Why is EPA Taking This Action?

As noted earlier, municipal sanitary sewer collection systems play a critical role in protecting human health and the environment in developed areas. SSOs, which are releases of raw sewage, can result when these systems fail. SSOs can pose health and environmental risks. The performance of municipal collection systems can also heavily influence the performance of sewage treatment plants.

Municipal sanitary sewer collection systems are an extensive, valuable, and complex part of the nation's infrastructure. EPA estimates that these systems would have a replacement value of $1 to 2 trillion. Another source estimates that wastewater treatment and collection

systems represent about 10 - 15 percent of the total infrastructure value in the United States.[7] The collection system of a single large municipality can represent an investment worth billions of dollars. Many collection systems exhibit poor performance. Table 2 describes many of the underlying reasons for the poor performance of many of these systems. In summary, these reasons include:

(1) much of the nation's sanitary sewer infrastructure is old; some parts of this infrastructure date back over 100 years. A survey of 42 wastewater utilities indicated the age of components of collection systems ranged from new to 117 years, with an average age of 33 years.[8] During this time, a wide variety of materials, design and installation practices, and maintenance/repair procedures have been used, many of which are inferior to those available today;

(2) An aging infrastructure that has deteriorated with time;

(3) A history of inadequate investment in infrastructure maintenance and repair often associated with an "out-of-sight, out-of-mind" approach;

(4) Collection system performance depends on numerous variables and the location of problems (e.g., roots, debris) may change throughout a system;

(5) Failure to provide capacity to accommodate increased sewage delivery and treatment demand from increasing populations; and

(6) Institutional arrangements relating to the operation of sewers -- e.g., almost all building laterals in a municipal systems are privately owned; in many municipal systems, a high percentage of collector sewers are owned by private entities or municipal entities other than the entity operating the major interceptor sewers.

[7]Fragile Foundations: A Report on America's Public Works. Final Report to the President and Congress. National Council on Public Works Improvement. February 1988.

[8]Optimization of Collection System Maintenance Frequencies and System Performance, American Society of Civil Engineers, 1999.

Table 2. Major Practices and Factors That Have Contributed to Poor Sewer Performance and Deterioration

1 Accepted industry design standards often provide inadequate flow capacities for realistic levels of inflow and infiltration	6 Not enough scientific knowledge existed or was available to designers about potential damage from plant roots to pipe joints. Root growth is a principal cause of pipe damage that allows infiltration.
2 Older systems were made of pipes with short lengths and many joints. Manholes were made of brick and mortar. Materials and joints were susceptible to hydrogen sulfide corrosion. Improved materials, such as precast concrete manholes, did not become predominant products until the late 1960s.	7 The "out-of-sight, out-of-mind" nature of the wastewater collection system poses an inherent problem. Many collection systems are maintained by a public works department charged with street, sidewalk, storm drain, and sometimes water utility maintenance. Money is usually spent where the rate-payer can see the results.
3 Collection systems were not installed as designed. Problems are caused by faulty construction, poor inspection, and low-bid shortcuts.	8 Negligence and vandalism can be the source of collection system problems. Any material in a sewer will slow the flow and allow other solids to settle.
4 Sewers made of "permanent" material are only as permanent as the weakest joints. Earth movement, vibrations from traffic, settling of structures, and construction disturbance require flexible pipe material or joints that can maintain tightness.	9 Ditches in which sewers are installed have the bottoms sloping downhill to produce gravity flow. Water that enters a ditch may not easily seep out of the ditch where silt and clay soils have been compacted by heavy excavation equipment. Possible problems include ground-water infiltration into the sewer, flotation of the sewer, and structural failure of the sewer or joint.
5 Corrosion of sewer pipes, from either the trench bedding and backfill or the wastewater being transported by the collection system, was a factor neglected by many design engineers.	10 Poor records on stoppages or complaints from the public can result in an ineffective maintenance program

Source: California State University at Sacramento, 1993.

Note: The Agency is not suggesting that the factors listed in this table are necessarily a defense for non-compliance. See section IV of today's preamble.

The poor performance of many sanitary sewer systems and resulting potential health and environmental risks highlight the need to increase regulatory oversight of management, operation and maintenance of these systems. The Agency believes that the approach proposed today should provide a more efficient approach to controlling SSOs through better management, increased public notice and increased focus on system planning, which should:

- Reduce health and environmental risks by reducing SSO occurrences and improving treatment facility performance; and
- Provide added protection to the nation's collection system infrastructure by enhancing and maintaining system capacity, reducing equipment and operational failures and extending the life of system components.

In addition, the Agency believes that given the nature of SSOs and the need to decrease the health risks associated with these events, increased public notification for SSO occurrences is necessary. Increased public notification also is expected to increase public support for funding improvements to collection systems. It also will enhance public involvement in the way collection systems are managed.

E. How Did EPA Consult with Stakeholders When Developing this Proposal?

EPA conducted a series of outreach activities to inform the public and obtain information for this rulemaking.

1. SSO Subcommittee of the Urban Wet Weather Flows Federal Advisory Committee

In 1994, a number of municipalities asked EPA to establish a Federal Advisory Committee (FAC) of key stakeholders to make recommendations on how the NPDES program should address SSOs. This request came soon after EPA had published the Combined Sewer Overflow Control Policy in 1994, which was designed to provide greater national clarity and consistency in the way NPDES requirements apply to combined sewer overflows (CSOs). In part, the municipalities indicated a desire for greater national clarity and consistency in the way NPDES requirements apply to SSOs. The municipalities indicated that they believed that eliminating all SSO discharges was technically infeasible, and, as a result, municipalities tasked with the responsibility of operating these systems could not comply with an absolute prohibition on SSOs. The municipalities suggested a need for a workable regulatory framework which allowed EPA and NPDES authorities to define compliance endpoints in a manner that was consistent with engineering realities and the health and environmental risks of SSOs.

EPA then convened a national "SSO policy dialogue" among a balanced group of representatives from key stakeholder organizations. EPA asked the individual stakeholders to provide input on how best to meet the SSO policy challenge. In 1995, EPA chartered an Urban Wet Weather Flows Federal Advisory Committee (FAC) with the goal of developing specific recommendations addressing cross-cutting wet weather issues and to improve the effectiveness of the Agency's efforts to address wet weather pollutant sources under the NPDES program. The Urban Wet Weather Flows Federal Advisory Committee reconvened the SSO policy dialogue group as its SSO Subcommittee. The membership of the SSO Subcommittee included representatives from the American Public Works Association, Association of Metropolitan Sewerage Agencies, Association of State and Interstate Water Pollution Control Administrators, Cahaba River Society, Citizens Campaign For The Environment, National Association of Attorneys General, National Association of Counties, National Center of Small Communities/National Association of Towns and Townships, National Environmental Health Association, National League of Cities, Natural Resources

Defense Council, Texas Association of Metropolitan Sewerage Associations, Tri-TAC, EPA, and the Water Environment Federation.

In early meetings, some members of the Urban Wet Weather Committee raised concerns about duplication of effort between the Urban Wet Weather Flows Committee and the SSO Subcommittee. Urban Wet Weather Committee members identified specific issues they would address, as well as issues that the SSO Subcommittee should address. The Urban Wet Weather Committee requested that the SSO Subcommittee provide them with regular status reports, copies of work products, and meeting minutes.

The SSO Subcommittee held ten meetings between December 1994 and December 1996. EPA provided public notice in the Federal Register in accordance with FACA procedures and held meetings that were open to the public. During that time, the SSO Subcommittee identified and explored a number of highly complex issues and concerns. The Subcommittee developed a consensus document entitled "SSO Management Flow Chart," October 12, 1995 (see section I.I of this preamble). The Subcommittee presented this document to the Urban Wet Weather Flows Committee for comment. The Urban Wet Weather Flows Committee did not provide additional detailed comment on the document. The Flow Chart outlines the SSO Subcommittee's approach for planning SSO management strategies. Other areas of general agreement include:

- SSOs are undesirable and can result in health and environmental risks;
- Avoidable SSOs should be eliminated;
- Collection systems are an important part of the municipal infrastructure and should have proper operation and maintenance to prolong their lives and preserve their investment value; and
- EPA, States, and other regulatory agencies are responsible for having a regulatory framework for SSOs that is responsive to real world conditions.

In addition, the SSO Subcommittee developed a number of non-consensus documents, including the following: a series of issue papers; draft standard permit conditions for noncompliance reporting and a prohibition on SSOs; and a draft comprehensive guidance document. The SSO Subcommittee also reviewed a number of documents, including "Setting Priorities for Addressing SSOs - EPA Enforcement Management System Guidance, Chapter X" (EPA, March 7, 1996), and "U.S. EPA Region IV Guide for Conducting Evaluations of Municipal Wastewater Collection System Operation and Maintenance Management Programs" (EPA, October 1996). EPA and the Subcommittee updated the Urban Wet Weather Flows FAC on these activities.

In 1997, EPA suspended discussions with the SSO Subcommittee to give the Agency time to make sufficient progress on resolving key issues and concerns raised during Subcommittee discussions. In May 1999, EPA distributed draft papers, describing draft standard permit conditions and policy approaches, to the SSO Subcommittee. The 1999 EPA approach was developed with an understanding of concerns and comments raised by the SSO Subcommittee, including the SSO management flow chart the Subcommittee had endorsed. The 1999 approach refined and elaborated on the Flow Chart, based on experience gained in EPA's Regional Offices by working with municipalities. EPA's Region 4 in particular had made extensive efforts to meet with municipalities within that Region to discuss sewer-related

problems faced by municipalities and the use of comprehensive management system approaches to improve sewer system performance.

The SSO Subcommittee met an eleventh and twelfth time to discuss the draft papers July 28-29, 1999, and October 18-20, 1999. Although the July meeting led to a temporary collapse in discussions, the October meeting resulted in unanimous support for a framework to address SSOs. The Subcommittee supported, when taken as a whole and recognizing that they are interdependent, basic principles expressed in documents addressing suggested NPDES permit requirements for:

(1) Capacity, management, operation and maintenance ("CMOM") programs for municipal sanitary sewer collection systems;
(2) A prohibition on SSOs, which includes a framework for raising a defense for unavoidable discharges;
(3) Reporting, public notification, and recordkeeping requirements for municipal sanitary sewer collection systems and SSOs; and
(4) Remote treatment facilities (or peak excess flow treatment facilities).

In addition, the Subcommittee unanimously supported a set of principles for municipal satellite collection systems and watershed management, although members did not develop detailed language addressing these topics.

EPA is committed to reflecting the approach discussed with the SSO Subcommittee in today's proposed rule. The standard permit conditions proposed today are consistent with the principles unanimously supported by the SSO Subcommittee, with the following major exceptions:

(1) The SSO Subcommittee did not have an opportunity to review draft regulatory language addressing municipal satellite collection systems.
(2) The SSO Subcommittee did not have an opportunity to review detailed language describing the watershed approach.
(3) The SSO Subcommittee did not review language defining the term "sanitary sewer overflow." EPA is proposing a definition of sanitary sewer overflow in today's proposed rule.
(4) During discussions with the SSO Subcommittee, EPA indicated that it would have additional discussions with representatives of small governments. The SSO Subcommittee did not review alternative requirements for small governments.

Given the one-year deadline associated with President Clinton's 1999 directive to develop regulations addressing SSOs, the Urban Wet Weather Committee did not meet again prior to publication of today's proposed rule to review the materials supported by the SSO Subcommittee. Under FACA, subcommittees created by parent committees do not operate independently of the parent committee unless separately chartered. The Agency will convene a meeting of the Urban Wet Weather Committee prior to promulgation of a final rule to provide an update on the rulemaking and to seek final recommendations.

2. Small Government Outreach Group

In the spring of 1999, EPA identified 21 potential participants for a Small Government Outreach Group to provide perspectives and concerns of small governments on potential

NPDES requirements for municipal sanitary sewers and SSOs. Participants represented governments with populations less than 50,000 from various regions of the country. Of the 21 invited participants, 14 accepted; of these, 6 represented governments with a population of less than 10,000, 7 represented governments with a population of less than 25,000 but more than 10,000, and 8 represented governments with a population of less than 50,000 but more than 25,000. EPA distributed the same draft papers to the Small Government Outreach Group (draft standard permit conditions and policy approaches) as were distributed to the SSO Subcommittee. EPA held eight conference calls with the Small Government Outreach Group between July and November 1999 to discuss the draft standard permit conditions. Section VIII.C of today's preamble summarizes the major concerns and recommendations raised by representatives of the Small Government Outreach Group.

3. States

A number of authorized NPDES States participated in the internal EPA/State work group that developed the approach outlined in today's proposal. States were also represented on the SSO Subcommittee. In addition, the Agency asked the Association of State and Interstate Water Pollution Control Administrators (ASIWPCA) to circulate EPA's draft regulations to its members for additional comment. From this process, the Agency received comments from Florida, Vermont, South Carolina, and Nevada. States raised the following concerns:

1. Whether States would be given flexibility to use their existing requirements in lieu of the proposed requirements;
2. That the level of detail in EPA's draft regulations may limit flexibility in how the proposed requirement would be applied;
3. Timing issues associated with initial implementation of the proposed requirements;
4. The extent of reporting that would be required under the proposed regulation; and
5. Whether the approach sufficiently targeted priority municipalities.

Several States supported the general concepts behind the approach and elements to the draft provisions. Several States raised concerns that the draft capacity, management, operation and maintenance (CMOM) provision may be beyond the capability of most smaller municipalities. Several suggested that EPA consider targeting these requirements to municipalities with identified problems. One State indicated that the approach may damage its relationship with municipal permittees, which could in turn cause negative impacts in implementing environmental programs.

F. Ownership Issues Associated with Municipal Sanitary Sewer Collection Systems

Municipal sanitary sewer collections systems can be a widespread network of pipes and associated components (e.g., pump stations). A large number of public and private entities may own different pipes and other components of the entire municipal sanitary sewer collection system. Municipal sanitary sewer collection systems provide wastewater collection service to the community in which they are located. The customers of a municipal sanitary sewer system typically retain ownership of building laterals. In addition, commercial complexes, home owner associations, and other entities may retain ownership of collector sewers leading to the

municipal sanitary sewer system. In some situations, the municipality that owns the collector sewers may not provide treatment of wastewater, but only convey its wastewater to a collection system that is owned and operated by a different municipal entity.

In this preamble, EPA refers to a municipality that owns and operates treatment plants that receive wastewater from the collection system of other municipal entities as a "regional system owner/operator." Regional system owner/operators who provide wastewater treatment often only operate a relatively small portion of the collection system (e.g., major interceptors, collector sewers in certain areas).

Municipal satellite collection systems discharge to a regional collection system that is owned and operated by an entity that is different from the owner and operator of the satellite system. Operators of municipal satellite collection systems typically do not operate a treatment plant for some or all drainage areas, but instead rely on the operator of the regional collection system to provide wastewater treatment and discharge the resulting effluent.

Portions of the collection system that are not directly owned by a regional municipal operator include:

- Municipal satellite collection systems - Some regional collection systems accept flows from municipal satellite collection systems that are owned and operated by a different municipal entity.
- Non-municipal collection systems - Private satellite collection systems are associated with a wide range of entities such as some trailer parks, residential subdivisions, apartment complexes, commercial complexes such as shopping centers, industrial parks, college campuses, and military facilities.
- Non-municipally owned building laterals - Non-municipally owned sewers make up a high percentage of the total sewer length of most sanitary sewer collection systems. Some portion or the entire length of lateral connections to buildings are generally owned by the building owner. Building laterals may feed into non-municipally owned satellite collection systems which convey wastewaters to a municipal collection system.

Ownership patterns often affect the amount of maintenance sewers receive. Typically, private building owners provide little maintenance of building laterals, other than to make sure that the lateral is not severely clogged or causing observable problems like sinkholes. Relatively severe infiltration may occur without any sign at the surface, and even if a building owner was somehow aware of infiltration in a lateral, the owner typically has little incentive to fix it. Municipalities participating in a WEF survey reported a wide range in the percentage of I/I in their systems that came from privately owned building laterals, from very little to 75 percent of the total I/I.[9]

G. Summary of Existing System Performance

Based on available information, EPA can make the following generalizations about sanitary sewer collection systems in the United States:

- Sanitary sewer systems experience periodic failures.
- Collection system performance varies significantly from system to system.

[9]Control of Infiltration and Inflow in Private Building Sewer Connections, WEF, 1999.

- # A significant number of systems have SSOs.
- # NPDES authorities have provided different interpretations or placed different emphasis on existing regulatory provisions.
- # The availability of information on sanitary sewer collection systems and SSOs is system-specific with the national picture being incomplete.

These generalizations are supported by major studies and national surveys (listed in Table 3) that provide information on the existing condition of sanitary sewer systems and the extent and nature of SSO problems. The surveys and case studies provide an understanding of sanitary sewer collection performance, the extent of SSO problems, and the need to address these problems. Additional information is available from a number of communities that have addressed problems with their sanitary sewer collection systems.

Table 3. Major Studies on U.S. Sanitary Sewer Collection Systems

Author/Conducting Agency	Title	Respondents	Date
Association of Metropolitan Sewerage Agencies (AMSA)	Sanitary Sewer Overflow (SSO) Survey	79 member municipalities	1994
Association of State and Interstate Water Pollution Control Administrators (ASIWPCA)	Sanitary Sewer Overflow (SSOs) Membership Survey Results	34 States (data for 38,950 wastewater collection systems)	1996
Urban Institute (UI)	Guide to Benchmarks of Urban Capital Condition	62 cities	1984
Water Pollution Control Federation (WPCF)	Problem Technologies and Design Deficiencies at Publicly Owned Treatment Works -- a Survey	1,003 treatment plants	1989
U.S. EPA	Sanitary Sewer Overflow Needs Report	60 municipalities	2000
U.S. EPA	1996 Clean Water Needs Survey Special Questions	377 municipalities	1996
Science Applications International Corporation (SAIC)	Comparative Updated Overflows Analysis for San Diego versus Comparable California Cities/Districts	6 municipalities	1991
Charlotte-Mecklenberg Utility Department	Benchmark '95: Wastewater Collection Agencies: An Analysis of Survey Data	18 municipalities	1995
Civil Engineering Research Foundation (CERF)	Meeting State and Local Public Work Needs - Problem Identification: A Report on Task 1 Activities	345 municipalities	1994
U.S. EPA	Rainfall Induced Infiltration Into Sewer Systems, Report to Congress	10 case studies	1990

American Society of Civil Engineers (ASCE)	Optimization of Collection System Maintenance Frequencies and System Performance	42 municipalities	1999
California State University at Sacramento (CSUS)	Collection Systems: Methods for Evaluating and Improving Performance	21 municipalities	1998
Water Environment Research Foundation (WERF)	Benchmarking Wastewater Operations-Collection, Treatment, and Biosolids Management, WERF, Project 96-CTS-5		1997
Water Environment Federation	Control of Infiltration and Inflow in Private Building Sewer Connections, Monograph, WEF,	316 municipalities	1999

1. Sanitary Sewer Systems Experience Periodic Failures

EPA estimates that there are at least 40,000 SSOs per year (excluding basement backups). Generalities regarding the occurrence of overflows include:

- A 1984 Urban Institute study of urban infrastructure indicated that sewer backup rates tended to be the highest in the Northeast and in economically distressed municipalities, and are generally higher in communities with the oldest sewer systems. Sewer line break rates tend to be highest in the South and West, and are particularly associated with large, growing cities.
- The Civil Engineering Research Foundation (CERF) estimates that approximately 75 percent of the nation's sanitary sewer systems function at 50 percent of capacity or less. CERF also estimated that sewer pipeline stoppages and collapses are increasing at a rate of approximately 3 percent per year. Tree roots cause over 50 percent of the stoppages, while a combination of roots, corrosion, soil movements, and inadequate construction are the cause of most structural failures.
- The State of Oklahoma has an extensive database on SSO occurrences. Over a two-year period, 350 of the 513 municipal sanitary sewer collection systems in Oklahoma reported at least one SSO. About 85 percent of these systems serve less than 10,000 population. About half of the SSOs occurred in 11 municipalities that reported over 100 SSOs each. An additional 43 municipalities reported 25 to 100 SSOs each. The database was used to develop a statewide estimate of 79 SSOs/year/1,000 miles of sewer.
- Table 4 summarizes the results from four case studies of large municipal collection systems with extensive records on their SSOs (excluding basement backups).

Table 4. SSOs (excluding basement backups) from Four Large Municipalities

Parameter	City/Region			
	Louisville	**Oakland**	**Charlotte**	**MD Suburbs/ Washington, DC**
Miles of sewers maintained	1,534	1,500	2,445	4,600
Reporting period	1993–94	1993–94	1983–93	1990–94
Type of failure				
Blockages caused by oil and grease, roots, or solids	7	300	---	---
Hydraulic capacity exceeded	0	0	180	---
Pump station failures	25	0	4	---
Sewer breaks	12	600	---	---
Rainfall induced I/I	115	18	---	---
Total SSOs/year (excluding basement backups)	165	---	359	234*
Total SSOs/yr/1,000 miles (excluding basement backups)	**110**	**---**	**147**	**51**

*NOTE: Data do not include basement backups. MD Suburbs/Washington, DC reported an average of 592 basement backups per year, either caused by a problem outside the property line or high flows or surcharging in a sewer main.

2. Collection System Performance Varies Significantly from System to System

A number of studies have concluded that the performance of sanitary sewer collection systems varies significantly from system to system. Some of the highlights of these studies are:

A 1995 comparison study done by the City of Charlotte, North Carolina, gathered data from 18 municipal wastewater collection agencies on the size and extent of their systems and system performance. Even when adjusted for system size differences and related factors, the data showed wide variation in system performance. For example, the number of main blockages per 100,000 population ranged from 1 to 1,807, with a median value of 24. The study suggests that variation may arise from differences in system characteristics not considered in the study, such as system age, design and soil conditions.

- # A 1984 study by the Urban Institute found a wide range in performance of the 62 systems evaluated, with a few municipalities reporting annual rates of more than 3,000 sewer backups and 550 sewer breaks for every 1,000 miles of sewer. At the other end of the spectrum, some municipalities reported under 60 sewer backups and under 10 sewer breaks per year for every 1,000 miles of sewer.
- # In the 1984 Urban Institute study, local officials attributed high rates of sewer breaks and backups to a variety of factors: the location of pipe in trouble-prone areas, the pipe material, the size of pipes (smaller pipes back up and break more frequently), the construction methods and technology in practice at the date of installation, local soil conditions, and maintenance practices.
- # An EPA study compared overflows estimated to be over 1,000 gallons in six California municipalities. The results, summarized in Table 5, showed significant variation in performance across systems.
- # In ten case studies reviewed by EPA in 1990, peak wet weather flow ranged from 3.5 to 20 times the average dry weather flow.

3. A Significant Number of Systems Have SSOs

- # In 1996, States estimated that 29 percent of municipal sanitary sewer collection

Table 5. Comparisons of SSOs Over 1,000 Gallons in Six Municipalities in California

Agency	Time Period	Months	Average Number of Overflows per month Over 1,000 gallons per 1,000 Sewer Miles	Monthly Average Overflow Volume [Gallon/1,000 Sewer Miles]
City of San Diego	1/87 – 5/90	41	7.5	123,000
City of Los Angeles	1/87 – 5/90	41	0.1	37,000
Los Angeles County	2/87 – 5/90	38	0.3	3,000
County Sanitation District of Los Angeles County	2/87 – 5/90	38	0.3	11,000
County Sanitation District of Orange County	5/87 – 5/90	37	0.6	51,000
Central Contra Costa Sanitary District	1/87 – 5/90	41	0.3	10,000

Note: Sanitation District sewers do not include small diameter collector sewers (street sewers) serving local agencies.

SOURCE: "Comparative Updated Overflow Analysis for San Diego versus Comparable California Cities/Districts" Science Applications International Corporation, 1991.

systems experience wet weather SSOs and 25 percent of POTWs served by sanitary sewer collection systems experience some degree of treatment problem during wet weather (ASIWPCA).

- # Of the 79 large municipalities responding to AMSA's 1994 survey, 65 percent have SSOs in wet weather.
- # 25 States responded to an ASIWPCA survey on SSOs. They reported that 31 percent of municipal systems have at least an occasional dry weather SSO. The 25 States providing this information identified 1,962 SSOs annually (ASIWPCA).
- # In a 1989 Water Pollution Control Federation survey, 1,003 POTWs identified facility performance problems. Infiltration and inflow (I/I) was the most frequently cited problem, with 85 percent of the facilities reporting I/I as a problem. I/I was cited as a major problem by 41 percent of the facilities (32 percent as a periodic problem and 9 percent as a continuous problem).
- # In 1991, EPA Region VI's municipal wastewater pollution prevention program identified I/I as the major source of noncompliance and determined that wet weather SSOs and bypasses due to I/I were occurring in more than 50 percent of the 734 municipalities participating in the program.

4. The Availability of Information on Sanitary Sewer Collection Systems and SSOs is System-Specific and the National Picture is Incomplete.

Although national surveys and studies have collected information on sanitary sewer collection systems and SSOs, national information on the status of collection systems and the extent of SSO problems remains limited and many municipalities are unaware of the overall extent of SSO problems in their own systems:

- # In 1994, 40 percent of the municipalities participating in the AMSA survey reported that they did not have information on the annual number of SSOs in their systems. Half of the respondents did not know the SSO volume discharged and 87 percent have not characterized the pollutant characteristics of SSOs.
- # States report that compliance with NPDES reporting requirements for SSOs is mixed, with poor reporting in some categories. Only 30 percent of the States responding to the ASIWPCA survey estimate that all or nearly all of their municipal permittees comply with SSO reporting requirements, with a corresponding figure of 22 percent of States for their private sector permittees. Further, 18 percent of States thought that less than 50 percent of their municipal permittees are in compliance with SSO reporting requirements.
- # Municipalities have indicated that the lack of available and reliable information, as well as a lack of uniform definitions, have made characterization of their collection systems difficult and inaccurate[10].

H. What are the Major Causes of SSOs?

[10] Guide to Benchmarks of Urban Capital Condition, Urban Institute, 1984.

The factors that cause SSOs vary significantly from community to community. This section outlines some of the more common causes of SSOs and factors that affect sanitary sewer system performance, including the number and volume of SSOs. For the purpose of this discussion, major causes of SSOs are grouped into the following general categories:

- Peak flows that exceed system capacity
- Blockages
- Structural, mechanical or electrical failure
- Third party actions or activities

These categories are not exclusive because SSOs can be caused by a complex combination of factors. For example, partial blockages caused by debris, sediment, oil and grease, or roots can reduce the effective capacity of a pipe and cause an overflow during peak flow conditions.

1. Peak Flows in Sanitary Sewers

a. What Causes Peak Flows in Sanitary Sewers?

Flows in sanitary sewer collection systems can be described in terms of major components such as baseflow (or dry weather flow), inflow, and infiltration. "Baseflow" describes the wastewater that a sanitary sewer system is intended to convey and includes wastewater from residences and commercial, institutional, and industrial establishments. Sanitary sewers are not installed to collect infiltration and inflow (I/I), although I/I enters sanitary sewers because they are not watertight. For sanitary sewers that receive significant levels of I/I, peak flow conditions typically occur during wet weather conditions. Figure 1 shows how flows in a sewer system with significant I/I can respond to a wet weather event.

[Insert Figure 1]

Inflow generally refers to water other than wastewater -- typically precipitation like rain or snowmelt -- that enters a sewer system through a direct connection to the sewer.[11] Inflow connections to sanitary sewers generally are not supposed to be authorized. Many inflow connections are the result of third parties' "tapping" into a sanitary sewer line without the

[11] Inflow is defined in EPA's Construction Grants regulations at 40 CFR 35.2005(b)(21) as water other than wastewater that enters a sewer system (including sewer service connections) from sources such as, but not limited to, roof leaders, cellar drains, yard drains, area drains, drains from springs and swampy areas, manhole covers, cross connections between storm sewers and sanitary sewers, catch basins, cooling towers, storm waters, surface runoff, street wash waters, or drainage. Inflow does not include, and is distinguished from, infiltration. Other, non-regulatory definitions of inflow found in the technical literature are similar to this with some variation as whether specific sources are included.

knowledge or consent of the municipal sewerage authority. Other inflow sources were legal connections at the time of installation. The volume of inflow in a sanitary sewer typically depends on the magnitude and duration of storm events (or related phenomena, such as snow melt), as well as other variables. Therefore, inflow is often characterized by a rapid increase in volume that occurs during and immediately after a storm event.

Infiltration generally refers to other water that enters a sewer system through defects in the sewer.[12] Infiltration can be long-term seepage of water into a sewer system from the water table. In some systems, however, the flow characteristics of infiltration can resemble those of inflow -- i.e., there is a rapid increase in flow during and immediately after a rainfall event, due, for example, to rapidly rising ground water. This phenomenon is sometimes referred to as rainfall-induced infiltration (RII).

Two parameters are usually used to characterize peak flow in sanitary sewer collection systems. An instantaneous peak flow rate is often used to determine the appropriate design size for pump stations, interceptors, and other equipment that must handle wet-weather surges. A short-term average, such as the peak daily flow, is often used to determine the appropriate design size for equalization basins or other flow storage devices.

Almost all sewer systems exhibit some level of increased wet weather flow due to I/I. The amount of I/I in a system varies throughout the system and from storm to storm. EPA reviewed ten case studies of municipalities with significant I/I problems and found peak wet weather flows that ranged from 3.5 to 20 times the average dry weather flow (U.S. EPA, 1990).

Problems with data in the technical literature on sanitary sewer performance have arisen due to the complexity of the relationship between peak wet weather flows in sanitary sewers and the intensity and duration of rainfall, as well as other factors. This has led to confusion and misreporting of peak flow values. For example, I/I flows are often presented without discussion as to whether reported flows are an average of different measurements taken over a range of conditions or are tied to a specific set of conditions such as a storm event of specific magnitude and intensity . In other cases, simplifying assumptions are made, such as basing estimates of peak flow on a limited amount of data (e.g., one year) or assuming one value to describe all rainfall events and other conditions. The lack of specificity in data makes comparisons difficult (EPA, 1999).

b. What Factors Affect Peak Flows in Sanitary Sewers?

The amount of I/I entering a sanitary sewer system depends on rainfall and a complex set of other variables, such as surface water height, ground water height, condition of system components (e.g., joints, pipes, laterals, and manhole frames and covers), antecedent soil

[12] Infiltration is currently defined in EPA's Construction Grants regulations at 40 CFR 35.2005(b)(20) as water other than wastewater that enters a sewer system (including sewer service connections and foundation drains) from the ground through such means as defective pipes, pipe joints, connections, or manholes. Infiltration does not include, and is distinguished from, inflow. Other, non-regulatory definitions of infiltration found in the technical literature are similar to this with some variation as whether specific sources are included.

moisture, size of sewershed, drainage of soils, and the existence of improper connections.[13] About 70 percent of the over 300 municipalities reporting in a 1999 WEF survey indicated that surface water fluctuations (related to wet weather events) and ground water fluctuations have an effect on I/I in their sanitary sewer collection systems. The relationship between peak flows and these variables is system-specific and often event-specific. It probably changes with time for a given system as components of the system deteriorate with time, rehabilitation projects are undertaken, and the system expands. There is also uncertainty in characterizing peak flows and predicting how a collection system will respond under various conditions (EPA, 2000).

c. Why Must Peak Flows be Addressed to Avoid Overflows?

Peak flows in sanitary sewers can result in overflows when the flows exceed the capacity of a component of the collection system. Capacity problems typically arise when:

(1) Additional hookups have occurred that exceed the design of the collection system;

(2) The effective capacity of system components is significantly less than the design capacity of those components; and

(3) Actual I/I levels exceed projected levels used in system design.

Capacity limitations may result from undersized trunk and interceptor sewers, pump stations or force mains. Trunk sewers, pump stations, and treatment facilities are typically sized to accommodate projected future growth within reasonable periods. Capacity problems may occur if new hook-ups exceed the allowance for projected growth or if commercial, institutional, or industrial customers increase their wastewater contributions beyond anticipated levels.

Sewer design capacity may be lost to partial blockages caused by solid deposits, debris, sediment, grease or roots. Structural deficiencies (e.g., not meeting minimum velocity requirements, structural abnormalities) and inadequate sewer cleaning can contribute to the formation of partial blockages in sewers. Similarly, pumps often lose capacity with time. Pump capacity loss can be greatly accelerated by lack of proper maintenance.

1. Infiltration and Inflow

Sanitary sewers typically provide some capacity for I/I. For new sewers, this capacity is typically based on a peaking factor that is multiplied by estimates of the baseflow at build out levels. Peaking factors for new sanitary sewers typically range from 2 to 6. Minimum velocity requirements, which are intended to limit deposition of solids in pipes that can lead to loss of capacity and hydrogen sulfide production, are also factored in. Historically, due to a combination of factors such as pipe and manhole materials, number of pipe joints, overly

[13]See "Handbook: Sewer System Infrastructure Analysis and Rehabilitation," EPA, 1991, which indicates that inflow and RII are strongly related to the characteristics of the rainfall events causing the flows and discusses that infiltration is dependent on rainfall. Rainfall Induced Infiltration into Sewer Systems: Report to Congress, EPA, August 1990 ("EPA guidelines acknowledged that both infiltration and inflow are affected by rainfall"); Existing Sewer Evaluation & Rehabilitation, WEF Manual of Practice FD-6; ASCE Manual and Report on Engineering Practice no. 62, 1994 ("In many areas of the U.S., the combination of snow melt and rainfall may induce maximum I/I"); Operation and Maintenance of Wastewater Collection Systems, a Field Study Training Program, fourth edition, California State University, Sacramento, 1993 ("Precipitation runoff is usually highly correlated with inflow").

optimistic expectations of the ability to remove I/I, and lack of preventive maintenance, many sanitary sewers have experienced I/I levels that were greater than what were originally expected when sized (Merrill and Butler, 1994). Also, I/I projections often have not accounted for the manner in which I/I volumes depend on rainfall and other conditions. Peak flows depend on a number of variables in a complex way. In addition, accuracy is limited when monitoring peak flows, with considerable inaccuracy arising when measuring peak flow in surcharged sanitary sewers.[14]

The effectiveness of I/I removal efforts is system-specific. In 1973, EPA thought that from 70 to 100 percent of the I/I in a sanitary sewer collection system could be removed through cost-effective sewer system rehabilitation.[15] Later information indicated that sewer rehabilitation is far less effective than had been expected and that even large expenditures for the correction of I/I sometimes produced only a small reduction in infiltration. By 1989, EPA revised its estimate of I/I removal by cost-effective sewer rehabilitation to 40 percent of the estimated infiltration.[16] The Agency also recognized that the correction of excessive infiltration is likely to be unsuccessful in certain circumstances.[17] While the technology and procedures associated with measuring and removing I/I continue to improve, the success of specific I/I removal projects depends on an extremely complex set of variables. This indicates that I/I removal is but one component of a comprehensive capacity management program, and that such a program needs to accommodate the variability in the success of I/I removal.

Experience with I/I work has highlighted the need to address the following concerns during I/I removal efforts:

- The success of I/I removal efforts can be significantly limited if such efforts do not address private lateral connections to buildings. Many municipalities have hesitated to address private laterals due to institutional and technical problems.
- Peak flows must be correctly characterized. Infiltration may be incorrectly identified as inflow when RII enters the sewer system through defects, but produces a peak flow response similar to that of inflow from direct connections.[18] A correlation between measured rainfall and RII entering a particular system is almost impossible without many years of historical data.
- Ground water migration affects the effectiveness of I/I removal. Correction of a specific infiltration source may not result in a corresponding reduction in the infiltration rate where ground water migration occurs. Traditional approaches to identifying the

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[14] See "One Technique for Estimating Inflow with Surcharging Conditions," Nogaj and Hollenbeck, Journal Water Pollution Control Federation, 53, 491 (1981).

[15] See 54 FR 4225, January 27, 1989.

[16] See "Evaluation of Infiltration/Inflow Program, Final Report," February 1981, U.S. EPA, EPA-68-01-4913. The Report notes that many sewer rehabilitation programs eliminated from 0 to 30 percent of I/I flows despite typical engineers' predictions of 60 to 90 percent I/I removal.

[17] See 54 FR 4225, January 27, 1989.

[18] See "Rainfall Induced Infiltration into Sewer Systems - Report to Congress," EPA, 1990, 430-90-005.

cost effectiveness of sewer system rehabilitation that evaluate each inflow source or sewer defect on an individual basis may overestimate the amount of flow reduction by failing to account for the migration of water into pipe defects that remain unrepaired.[19]

- Ground water that was precluded from entering main pipes prior to I/I removal efforts can enter the system after major sources of I/I have been repaired.
- The relationship between monitored flows and I/I from source defects may overestimate I/I removal. Metering programs may not have accounted for peak flows that bypass the treatment facility or that overflow from the system itself.

2. Blockages

Deposition and blockages may occur from introducing improper materials into sewers, and from introduction of grease, grit, roots, or other debris. The potential for blockages can increase in sewers having flat slopes that reduce flow velocities or other structural defects. A detailed five-year review of backups and overflows in the Washington Suburban Sanitary Commission system (WSSC, 1995) attributed 74 percent of sewer system blockages to foreign material in the system, structural defects causing excessive deposition, or grease and root blockages.

3. Structural, Mechanical or Electrical Failure

A wide range of structural, mechanical or electrical failures occurs in sanitary sewer collection systems. Examples include cracks or holes in pipes caused by corrosion or external forces and loss of electricity to pump stations. A continuous maintenance effort, including an inspection program, should reduce the occurrence of overflows. Ready access to replacement parts and backup equipment supports rapid response to those SSOs that do occur.

I. Management Issues

1. Overview of Approaches to Address SSO Problems

The technical literature identifies several approaches to rehabilitating or remediating municipal sanitary sewer collection systems to control SSOs. While industry guidance suggests different variations, remediation efforts typically involve a comprehensive set of measures that are based on a multiple phased approach to planning and implementation. More recently, efforts have been made to integrate evaluations of improvements to management systems into remediation evaluations. An overview of some of the major approaches is provided below.

a. WEF/ASCE Approach

The Water Environment Federation and the American Society of Civil Engineers recommend a four phased integrated approach to rehabilitation of sewer systems (see "Existing Sewer Evaluation & Rehabilitation," WEF MOP FD-6, ASCE Report No. 62, 1994):

- Phase 1 - Planning Investigation;
- Phase 2 - Assessing the System I/I conditions, structural conditions, and hydraulics;
- Phase 3 - Developing the System Usage Plan; and

[19]See "Rainfall Induced Infiltration into Sewer Systems - Report to Congress," EPA, 1990, 430-90-005.

C Phase 4 - Implementing the System Usage Plan).

The approach is outlined in Figure 2.

[Insert Figure 2]

b. EPA 1991 Approach to Infrastructure Analysis and Rehabilitation

The "Handbook-Sewer System Infrastructure Analysis and Rehabilitation," EPA 1991, provides guidance on the evaluation and rehabilitation of existing sewers, including guidance on conducting sewer system evaluations under the construction grants program. The guidance document describes a multiple phase approach that includes:

C A preliminary sewer system analysis,
C An I/I analysis,
C A sewer system evaluation survey,
C Corrosion analysis and control, and
C Sewer system rehabilitation.

Under the construction grants program, if an I/I analysis demonstrates the existence or possible existence of excessive I/I, a sewer system evaluation survey (SSES) was required. A SSES is a systematic examination of the sewer system to determine, for each source of I/I, the specific location, estimated flow rates, and the most cost-effective method of rehabilitation. The SSES compares the cost of rehabilitation to remove sources of I/I with the cost of transporting the I/I to a treatment facility and providing treatment.

c. SSO Subcommittee Approach

The SSO Subcommittee developed a consensus approach to strategic planning to address SSOs, as shown in the SSO management flow chart in Figure 3. Major features include:

! An expectation that all municipal operators of collection system meet minimum operational, reporting and notification requirements which are tiered based on system performance;
! A prioritization process that focuses efforts on SSOs that are avoidable and recognizes that some SSOs are beyond the reasonable control of the operator;
! A screening process to evaluate whether specific SSOs must be addressed immediately in a short-term remediation plan or in a comprehensive remediation plan;
! When minimum requirements are in place, the opportunity to address some SSO controls in a comprehensive watershed plan. Where watershed alternatives are appropriate, SSO controls could be coordinated with management programs for sanitary sewers, municipal separate storm sewers, combined sewers, wet and dry weather flows at sewage treatment plants, or other water pollution control efforts.

[Insert Figure 3]

2. Overview of Key Participants' Roles in Sewer System Management

Key participants in sewer system management should include:

Operators - Operators of municipal and private collection systems are responsible for operating and maintaining the portion of the collection system within their jurisdictions and for any discharges from their collection systems. This responsibility would include complying with requirements to report SSOs to the NPDES authority and other appropriate health and environmental authorities, and implementing public notification requirements.
Local governments - Elected officials may be involved in approval of major undertakings and/or funding efforts. Elected officials typically have a role in demonstrating to constituencies the value of allocating resources for these programs. This may involve showing the benefits of the effort such as human health improvements, enhancement of greenways, or water-related activities, as well as the costs of the effort. The public typically will not support expenditures for projects that are not seen as cost-effective.
NPDES authorities - NPDES authorities must provide an appropriate regulatory framework that ensures compliance with the Clean Water Act. The NPDES authority establishes requirements, identifies compliance problems based on information from operator reports and other sources, and provides appropriate oversight in addressing compliance problems.
Public - Members of the public are the primary customers of sewerage services, users of water resources impaired by overflows, and providers of most sources of funding. The public is at risk when sewer systems fail and the public can provide information about system failures. The public is a key stakeholder group that should have an opportunity to identify concerns and expectations regarding operation and costs of collection systems, public health risks, and habitat and water quality impairment.
Public health officials - Public health officials have a key role in identifying the health risks associated with SSOs, providing public notification, and developing responses to SSO events.
Other affected entities - A number of other entities may be affected by a given SSO event or otherwise have a role in responding to an SSO event, including drinking water suppliers, beach monitoring authorities, facilities (such as food processors) with downstream intakes, local fire departments and police departments.

3. What is EPA's Overall Approach to Watershed-Based Planning?

EPA encourages the use of a watershed approach to prioritize actions to achieve environmental improvements, promote pollution prevention, and meet other important community goals. Under a watershed approach, local stakeholders coordinate in the development of a comprehensive watershed plan that provides for collection of environmentally relevant data and provides the basis for identifying appropriate regulatory and non-regulatory actions to be implemented to improve water quality. A watershed approach does not provide any additional liability protection or change the legal status of discharges to waters of the United States. Watershed plans can be considered, however, when developing enforcement schedules for bringing unauthorized discharges into compliance with the CWA.

A watershed approach to controlling wet weather discharges has the potential to improve the basis for water quality management decisions, provide an equitable and cost-effective allocation of responsibility among dischargers, and, in so doing, should deliver the same or greater levels of environmental improvement sooner and at a cost savings. A watershed approach would emphasize the role of local stakeholders in identifying water quality

priorities and increase the opportunity for using risk-based approaches to environmental protection.

Several EPA documents explain the principles of watershed-based water quality planning. EPA's NPDES Watershed Strategy (March, 1994) outlines national objectives and implementation activities for integrating NPDES program functions into a broad watershed approach and provides support for development of State-wide basin management approaches. The Watershed Framework (May, 1996) describes EPA's expectations for State and Tribal implementation of watershed approaches. The 1998 Clean Water Action Plan has, at its core, an emphasis on local watershed planning. It calls upon State, Federal, and local agencies, watershed-based organizations, and the public to identify watersheds most in need of restoration and to cooperate in the development of watershed restoration action strategies and implementation of these strategies.

Additional information is provided in the 1998 draft Watershed Alternative for the Management of Wet Weather Flows, which was developed with substantial agreement by the Urban Wet Weather Federal Advisory Committee (see www.epa.gov/owm/unpolwg.pdf). The draft Watershed Alternative describes key components of a stakeholder-based approach to watershed planning. This document encourages use of watershed approaches to achieve environmental improvements. The draft Watershed Alternative describes a process for identifying key watershed stakeholders (i.e., parties with a direct financial, environmental, or regulatory interest, including unregulated entities), reaching agreement on pursuing a watershed alternative, developing a watershed plan, coordinating the collection of necessary data on pollutant sources and impacts, and fulfilling responsibilities under the watershed plan by carrying out regulatory and non-regulatory requirements. The draft Watershed Alternative document describes certain inherent flexibility to such an approach, such as more equitable allocation of responsibilities, coordination of monitoring, market-based approaches, and enhanced stakeholder and public involvement. The document also describes potential regulatory flexibility that NPDES authorities could provide, such as compliance schedules to achieve water quality-based requirements, streamlined monitoring requirements, and synchronization of permit issuance on a basin-wide basis.

a. Could Municipalities Incorporate Watershed-Based Concepts into Capital Planning for Sanitary Sewer Collection Systems?

In today's proposed rule, EPA is exploring how to support capital investments in sanitary sewer collection systems that are consistent with and support broader watershed planning objectives. Many municipalities are well positioned to coordinate with other watershed stakeholders in the development of long-term remediation plans addressing needs and deficiencies in storm water and wastewater infrastructure, including sanitary sewer collection systems. Municipalities may find it advantageous to take a leadership role in local watershed planning, particularly where municipal discharges contribute heavily to water quality impacts or where a municipality has substantial data, resources, or incentive to take a leadership role.

b. How Would the Watershed Alternative Work?

The 1998 Watershed Alternative for the Management of Wet Weather Flows proposes a process through which the NPDES permit authority and involved stakeholders would participate in a comprehensive watershed planning and implementation process, identifying water quality and environmental problems through a comprehensive watershed assessment. This framework encourages coordination of a number of programs to improve water quality in a more efficient and effective fashion. The watershed alternative would neither create new regulatory requirements nor diminish any existing regulatory requirements. Rather, it is intended to improve water quality management decisions and help in the selection of appropriate regulatory mechanisms.

The first step in the watershed planning process outlined in the 1998 draft Watershed Alternative involves identification of stakeholders who can contribute significantly to the implementation of coordinated periodic management activities, who are significantly impacted by water quality problems, who are required to undertake control measures because of legal or regulatory requirements, or who oversee implementation of such requirements. This process would include satellite municipalities whose collection systems significantly contribute to wet weather problems; owners of agricultural, industrial, or other pollutant sources outside the urban area that contribute to impairment; and members of the public.

Under the approach outlined in the draft Watershed Alternative, each regulated stakeholder would be required to implement appropriate minimum measures without delay. The parties to the watershed planning process would coordinate to assess the sources of impairment in the watershed and the degree to which sources contribute to impairment. If the assessment indicates the need for pollution controls beyond minimum measures, the parties should agree on recommendations for allocation of water quality management responsibilities based on sources' relative contributions to impairment. The watershed plan should identify recommendations for final and interim goals, including recommendations to NPDES authorities for establishing or adjusting enforceable requirements. Responsibilities for funding for both planning and remediation projects should be defined. When allowed under State law and consistent with any applicable total maximum daily load (TMDL), the NPDES authority could agree to phase additional water quality regulatory requirements to accommodate the planning process and to synchronize requirements such as monitoring among participants. Special consideration would be warranted for sensitive and high-exposure areas such as beaches and drinking water supplies. Watershed plans can be taken into account when developing enforcement schedules for bringing unauthorized or unpermitted discharges into compliance with the CWA, but watershed plans (including the planning process) are not a bar to enforcement actions.

4. Asset Management

Increasingly, utilities are beginning to be managed like businesses by using techniques such as asset management planning to manage their collection system (WEF, 1999). An asset management plan is a framework to bring all the key components of running a utility into a strategic business plan that provides a means to protect, maintain, or improve the asset value of a collection system with planned maintenance and repair based on predicted deterioration of the system. In either a private or public utility, key information is needed to manage cost

through asset management planning (WEF, 1999), including: current conditions and performance of assets; current operating costs; current financial position including revenues, balance sheet, and cash flow; required and anticipated future levels of service; and methods of measuring and monitoring performance of the system.

The goal of capital asset management is to efficiently protect, maintain, or improve the value of the collection system while providing the level of service desired. Capital asset management attempts to meet these goals by accurately projecting future costs. Cost projections should address the following factors:

- Determining existing conditions;
- Setting future goals;
- Attaining future goals; and
- Tracking progress.

5. Governmental Accounting Standards Board Statement 34

In June 1999, the Governmental Accounting Standards Board (GASB), which sets financial accounting and reporting standards for State and local governments issued Statement 34 which is entitled "Basic Financial Statements--and Management's Discussion and Analysis--for State and Local Governments." This standard contains changes to current financial accounting and reporting standards for State and local governments. Statement 34 is intended to make financial reporting for State and local governments more comprehensive and easier for the public to use and understand.

The new standard includes a provision that is used in the GASB standards for the first time that State and local governments either record and report depreciation on all long-lived assets, including infrastructure assets such as water and wastewater infrastructure; or use a modified approach of reporting infrastructure assets outside the basic financial statements as necessary supplementary information. In order to meet the criteria of the modified approach, State and local governments are to meet the following conditions:

- use an asset management system that has an up-to-date inventory of eligible infrastructure assets;
- perform condition assessments of eligible infrastructure assets and summarize the results using a measurement scale;
- estimate each year the annual amount to maintain and preserve the eligible infrastructure assets at the condition level established and disclosed by the government; and
- document that the eligible infrastructure assets are being preserved approximately at (or above) a condition level established and disclosed by the government.

Statement 34 provides an example of how infrastructure assets might be reported using supplementary information. The example provides that to meet the GASB standard using supplementary information, governments are to present the following schedules, derived from the asset management system, for all eligible infrastructure assets that are reported using the modified approach:

a. the assessed condition of eligible infrastructure assets, performed at least every three years, for the three most recent complete condition assessments, with the dates of the assessment;

b. the estimated annual amount, calculated at the beginning of the fiscal year, to maintain and preserve eligible infrastructure assets at the condition level established and disclosed by the government compared with the amounts actually expensed for each of the past five reporting periods.

The following disclosures should accompany the schedules:

i. The measurement scale and the basis for the condition measurement used to assess and report condition.

ii. The condition level at which the government intends to preserve its eligible infrastructure assets reported using the modified approach;

iii. Factors that significantly affect trends in the information reported in the schedules, including any changes in the measurement scale, the basis for the condition measurement, or the condition assessment methods used during the periods covered by the schedules. If there is a change in the condition level at which the government intends to preserve eligible infrastructure assets, an estimate of the effect of the change on the estimated annual amount to maintain and preserve those assets for the current period should also be disclosed.

J. Evaluating the Performance of Sanitary Sewer Systems

EPA believes the number of SSOs can be substantially reduced through improved sewer system management, operation and maintenance. Figure 4 shows the results of using different maintenance frequencies on a sanitary sewer system. For this study, conducted in Sacramento County, the wastewater collection system was divided into two sections and analyzed for development of a preventive maintenance schedule. One of the sections was cleaned every one to two years, while the other was cleaned every three to six years. As Figure 4 shows, the portion of the system on a more frequent one-to-two-year cleaning schedule experienced a noticeable reduction in the number of stoppages (from 384 in 1974 to 107 in 1984). By contrast, the portion of the system cleaned every three to six years experienced an increase in the number of stoppages over the same time (CSUS, 1993).

[Insert Figure 4]

This general trend is also evident from the 1984 Urban Institute study. That study collected data from 22 cities on the number of sewer backups per 1,000 miles of sanitary sewers and the percentage of the system cleaned by the city, for each year from 1978 to 1980. The study concluded that "in nearly every case, the cities that clean a high percentage of their sewer systems have lower backup rates. At the same time, the cities with the highest backup rates appear to be doing the least cleaning." (UI, 1984)

Another survey of nine cities and three wastewater districts in Kansas indicated consistently increasing levels of operation and maintenance expenditures beginning in approximately 1970, as shown in Figure 5 (Nelson, 1993). The survey indicated that the maintenance needs of the systems generally varied depending on their size, age, accessibility, topography, and city objectives. The preventive maintenance tasks performed in the cities

included flow monitoring, manhole inspection, smoke or dye testing, television inspection, and private sewer system inspections. The survey indicated that approximately 50 percent of the sewer length and 68 percent of the manholes in the systems had been inspected in the previous 25 years. The communities also estimated they had rehabilitated 37 percent of their manholes, sewer lines, relief sewers, and private sector connections. Reviewers of the Kansas survey found that annual inspection and maintenance frequencies of 6 percent and 10 percent of the system per year, respectively, appear to be cost-effective.

Fayetteville, Arkansas instituted a comprehensive program to improve the performance of its 420-mile collection system beginning in 1990. Data on identified SSO occurrences were reported from 1989 through 1997 and showed a continuous reduction of identified events attributable to implementation of the comprehensive program (see Table 6)[20].

Table 6 - Identified SSO events in Fayetteville, Arkansas

	1989	1990	1991	1992	1993	1994	1995	1996	1997
Number of SSOs identified per year	545	348	216	184	161	123	111	145	103

1. Evaluation Tools

Performance measures and performance indicators play an important role in evaluating collection system performance and the implementation of capacity management, operation and maintenance programs. Potential performance measures and indicators for sanitary sewer collection systems identified are shown in Table 7.

Table 7. Potential performance indicators

Input measures	• Per capita costs • Number of employee hours
Output measures	• Length of pipe maintained • Number of service calls completed • Percentage of length maintained repaired this year • Percentage of length maintained needing repair • Length of new sewer constructed • Number of new services connected
Outcomes	• Number of stoppages per 100 miles of pipe • Average service response time • Number of complaints

[20] Jurgens, "The Complete SSO Elimination Program," Proceedings of the Water Environment Federation 71st Annual Conference & Exposition, 1998.

Input measures	• Per capita costs • Number of employee hours
Ecological/Human health/ resource use	• Shellfish bed closures • Benthic Organism index • Biological diversity index • Beach closures • Recreational activities • Commercial activities

Sources: Wastewater Collection Systems Management, 5th edition, WEF MOP#7, 1999
Approaches to Combined Sewer Overflow Program Development: A CSO Assessment Report, AMSA, 1994.

2. ASCE Performance Rating

Performance ratings use measures of system performance to provide a quantitative basis for characterizing municipal utility performance. ASCE has developed one such rating, which is based on six performance measures:

- Pipe failures in failures per mile per year;
- Sanitary sewer overflows;
- Customer complaints on performance of the collection system;
- Pump station failures
- Peak hour flow/average annual daily flows and
- Peak monthly flow / average annual daily flows

The approach provides a statistical basis for combining the six performance indicators into one performance rating. ASCE believes that the performance rating can also be used to provide guidance for optimizing collection system maintenance frequencies and improving system performance.

K. What are the Estimated Costs of Addressing Existing SSO Problems?

EPA provides national estimates of the cost of projects eligible for State Revolving Fund (SRF) funding under the CWA in the Clean Water Needs Survey. The 1996 Clean Water Needs Survey Report to Congress (CWNS), EPA, September 1997, the most recent Needs report, did not provide separate need estimates for addressing SSO problems in municipal sanitary sewer collection systems. Although the needs associated with controlling SSOs are not identified separately in the CWNS report, many costs associated with addressing SSOs overlap with categories of needs identified in the CWNS report. These include:

- Category IIIA, which identifies needs associated with infiltration and inflow correction. The 1996 CWNS report identified $3.3 billion in category IIIA needs; and
- Category IIIB, which identifies needs associated with sewer replacement and sewer rehabilitation. The 1996 CWNS needs report identified $7.0 billion in category IIIB needs.

In addition, some portion of category I (secondary treatment), category IVA (new collector sewers and category IVB (new interceptor sewers) may be related to addressing SSO concerns. However, EPA believes that the needs estimates in categories that are potentially related to SSOs underestimate the total costs associated with preventing SSOs for the following reasons:

- Many municipalities have not fully investigated their SSOs or costed out the measures necessary to correct them;
- Some municipalities have not submitted documented needs for SSO correction measures such as I/I measures or sewer rehabilitation/replacement because these types of projects have traditionally been given lower priority in federal funding requests; and
- Some of the costs of addressing SSOs do not require capital (e.g., operations and maintenance) and are not eligible for funding under the SRF program.

EPA has prepared a draft supplementary estimate of the costs of addressing SSO problems in municipal sanitary sewer collection systems in draft - Sanitary Sewer Overflow (SSO) Needs Report, EPA, May, 2000. The costs estimated in the SSO needs study are distinct from and do not reflect the incremental costs associated with implementing today's proposal that are estimated in the economic analysis accompanying the proposal. Rather, the costs in the needs study are associated with longstanding reinvestment needs that have not yet been addressed. The incremental costs associated with implementing today's proposal are discussed separately in sections VII and VIII of today's preamble. However, as a practical matter, EPA recognizes that the proposed rule, once finalized, may accelerate investment in collection system improvements and maintenance.

The SSO Needs Report provided estimates of the costs associated with addressing two categories of SSO problems in municipal sanitary sewer collection systems: SSOs caused by wet weather conditions; and SSOs caused by other factors such as blockages, structural, mechanical, or electrical failure; or third party actions.

The estimated needs associated with addressing SSOs caused by wet weather are based on modeling comprehensive programs that could include providing storage, equalization and/or treatment capacity, and reduced inflow and infiltration (I/I). The estimated needs were shown to be dependent upon modeled performance level. Cost information from 60 communities was used to calibrate the model producing the estimates. Due to limitations in the modeling approach and calibration information, needs estimates could only be provided for a limited number of performance levels up to an overflow frequency of one wet-weather overflow every 5 years. The performance levels used in the SSO Needs Report do not correspond to the performance levels required to comply with existing requirements or today's proposal. Rather, EPA is proposing in today's notice that wet weather performance levels for sanitary sewer collection systems be evaluated on a case-by-case basis using two criteria: severe natural conditions and no feasible alternatives (see Section IV.E of today's notice). However, the cost estimates in Table 8 can give a rough idea and point of comparison of the order of reinvestment needs for municipal sanitary sewers. Table 8 provides cost estimates for controlling SSOs caused by wet weather. These estimated costs were assumed to be one-time costs. The table

indicates that the costs are high and the incremental cost for reducing wet weather SSOs increase significantly beyond the one system-level overflow per year frequency.

Table 8. Estimated One-Time Cost of Reducing SSOs Caused by Wet Weather

Control Objective (number of system-level wet weather overflows per year)	Total Estimated National Cost	Incremental National Cost per Overflow per Year Reduced
5	$27.6 billion	-
1	$56.3 billion	$7.2 billion
0.5	$70.0 billion	$27.4 billion
0.2	$87.3 billion	$57.6 billion

The SSO Needs Report also provides estimates of the costs for a modified control strategy for the three percent of municipal sanitary sewer collection systems with the highest per capita costs serving a population of 5,000 or more. The modified control strategy includes expanding collection system and treatment plant capacity, reducing peak flows and a limited number of controlled discharges (up to 5 per year) of effluent treated with high-efficiency clarification and disinfection. The costs of a control strategy which allowes such treatment is about half the costs of a control strategy without such discharges.

The draft SSO Needs Report also provides estimates of costs of reducing SSOs caused by conditions other than wet weather. These would include SSOs caused by blockages or structural, mechanical or electrical failures. In general, these types of SSOs would be addressed by improved collection system management, operation and maintenance to restore the structural integrity of the system and reduce the potential for blockages. The draft report estimates that these costs would be an additional $1.5 billion per year nationwide.

The total estimated cost of addressing SSOs caused by wet weather conditions and SSOs caused by other conditions in the manner discussed above ranged from $4.1 to $9.8 billion per year nationally, or for households served by sanitary sewer collection systems, an average household expenditure of about $75 to $160 per year.

The model and accompanying analysis used for estimating these costs was designed to estimate national costs and the results should not be used to reach any conclusions about individual systems. Actual costs are expected to vary significantly from system to system. Again, these costs do not represent new costs associated with the proposed regulations in today's notice.

EPA has also estimated the benefits associated with eliminating all SSOs in a draft report entitled Benefits of Measures to Abate SSOs, EPA, 2000. As with the costs in the draft SSO Needs Report, EPA, 2000, the total benefits estimated in this report do not represent benefits associated with implementing today's proposal. However, EPA believes that the improved planning and management envisioned in today's proposal will result in fewer overflows. As a practical matter, once finalized, the proposed requirements in today's notice, may also accelerate investment in collection system upgrade and maintenance and may

therefore lead to realization of some of these benefits sooner than would otherwise be the case. A share of these benefits, which was estimated based on the planning and management aspects of today's proposal, were allocated to the incremental benefits of today's proposal. A detailed discussion of the cost-benefit analysis for today's proposal is provided in Section VII of today's notice.

The draft report entitled Benefits of Measures to Abate SSOs estimates the total monetized benefits of eliminating all SSOs to range from $1.07 billion to $6.07 billion. This includes $0.94 billion to $5.3 billion in water quality related benefits, and $130 million to $752 million in system benefits from long-term reductions in capital and operation and maintenance costs stemming from better management and planning. It should be noted that the end point of the analysis in the draft report entitled Benefits of Measures to Abate SSOs is the elimination of SSOs, which is different from the end point of the draft SSO Needs Report. It should also be noted that some categories of benefits have not been monetized. These factors limit the ability to directly compare cost and benefit estimates provided in the draft SSO Benefits and draft SSO Needs reports.

Categories of benefits that have not been monetized or are incomplete

Several potentially important categories of benefits associated with SSO control have not been monetized. In addition, the estimated monetized benefit for some categories may only address a portion of the total benefit. When sufficient data and/or methodologies become available, the monetized benefits associated with these benefits categories may add significantly to the existing total of monetized benefits.

Non-monetized Benefits:

Potential benefits associated with avoided illnesses from contaminated drinking water were not estimated in the analysis supporting this proposal. The role of SSOs in contaminating drinking water supplies is not always visible or clearly understood. Thus, contamination may go unidentified, or unreported. EPA notes that surface water supplies of drinking water are subject to filtration and disinfection regulatory requirements intended to protect consumers from pathogens.

Another category of benefits from SSO abatement that EPA has not monetized is avoided aesthetic impacts on marine beaches and coastal recreation areas. EPA believes that tourists and people who live near marine beaches would assign some value to an improvement in marine water quality beyond that which has already been monetized in EPA's beach closure and swimming benefits analyses. EPA is unaware of any study that attempts to estimate these aesthetic values which, in light of the importance of coastal tourism, as well as the proportion of the U.S. population that lives near or visits the coast, could be significant.

A third non-monetized benefits category is the benefit of avoiding the aesthetic and other impacts of SSOs on land. EPA estimates address the benefits of avoiding SSO that reach surface waters or that result in basement backups. However, the Agency does not have a means for quantifying the benefits of avoiding SSOs that occur in streets, residential areas, and green spaces without a discharge to waters of the United States. EPA's benefits analysis assumes that 5 percent of SSO events fall into this category.

Additional benefit categories that have not be monetized include reduced drinking water treatment costs for either home units or for municipal suppliers responding to known SSO

events, enhanced freshwater commercial fishing, improved health of marine ecosystems, and enhanced marine water recreational shellfishing.

Categories with Incomplete Benefits Estimates

EPA requests comments on data to support monetized estimates of benefits for:

- Basement backups: EPA only had data on clean up costs for damage from basement backups. Basement backups also cause additional losses that have not been quantified: property damage, damage to intangibles, loss of use of flooded basements, aesthetic damages, damage to low-lying lawns and landscaping, and reductions in property values.
- "Systems benefits,"or long-term savings in maintenance, repair and rehabilitation costs that collection systems will accrue as a result of the significant increase in maintenance spending projected as necessary to abate SSOs. EPA has estimated these benefits at $120 million to $638 million annually. EPA requests data from case studies and other sources that could support improved estimates of system benefits, or long-term savings in maintenance, repair and rehabilitation costs that collection systems will accrue as a result of the increase in maintenance spending projected as necessary to abate SSOs.
- The set of freshwater benefits estimated in the analysis accompanying today's proposal does not specifically account for the relative importance of SSOs as a source of pollution in urban areas. The draft study uses Mitchell and Carson's contingent valuation study, which does not allow a parsing of the Mitchell and Carson willingness to pay estimates between urban and non-urban waters. Mitchell and Carson did ask survey respondents to divide their willingness to pay estimates between in-state and out-of-state waters and EPA used this distinction in its analyses. Since the majority of the nation's population lives in urban areas, EPA believes the bulk of the nation's willingness-to-pay for local water quality improvement may be focused on urban waters. Since the great majority of sanitary sewer infrastructure is used for urban development, urban waters are the waters most frequently impaired by SSOs. A benefits estimation approach that assigned a higher share of the public's willingness to pay to urban waters would likely provide a higher benefits estimate than the method EPA used in the draft report Benefits of Measures to Abate SSOs. However, neither sufficient contingent valuation studies nor water quality data specific to urban and non-urban areas were available to adjust for this concern or to determine if such an adjustment would have a significant impact on benefits estimates.

EPA requests comment on the costs estimated in the draft SSO Needs Report and the methodologies used to estimate them, and on the benefits identified in the draft report entitled Benefits of Measures to Abate SSOs, and the methodologies used to estimate them. EPA also requests any data that commenters could provide that would help refine these costs and benefit estimates, including data on the number and volume of SSOs annually, on the percentage of these SSOs that reach waters of the United States, and on rates of infiltration and inflow in sanitary sewers under various conditions and the effectiveness of measures to prevent infiltration and inflow.

EPA also requests comment on several specific methodological issues related to the draft report entitled Benefits of Measures to Abate SSOs. In that report, EPA used State

305(b) data to identify waters impaired by either municipal point sources (MPS) or urban runoff/storm sewers (UR/SS), two sources of impairment likely to be associated with SSOs. In order to estimate the share of impairment from these two sources attributable to SSOs, EPA estimated the loadings of various pollutants (BOD, nutrients, pathogens, and TSS) that reach waters of the US through SSOs and compared these with the loadings of pollutants reaching waters of the US through permitted discharges from POTWs and urban runoff generally. This required estimating total flow and dilution factors for both wet and dry weather SSOs.

For wet weather SSOs, EPA assumed in the upper bound estimate, based on the model developed for the SSO Needs Report, that total wet weather SSO flow equals about 5.4 percent of total POTW flow, and that SSO wet weather discharges contain about 20 percent raw sewage. This implies that about one percent of total sewage flow through the collection system escapes as wet weather SSOs. Data on this parameter are limited. EPA has identified data from Greenville, SC, which indicate that total wet weather SSO flow equals about one percent of total system flow, and Los Angeles, CA, which indicate that total wet weather SSO flow equals about 0.02 percent of total system flow. EPA believes the LA percentage is an outlier and has based its lower bound estimate on the Greenville data only. Using the dilution factor of 20 percent sewage implies that approximately 0.2 percent of total sewage flow through the collection system escapes as wet weather SSOs in the lower bound estimate.

To estimate dry weather flows, EPA started with the model assumption that dry weather flows equal about 25 percent of wet weather flows and are composed 100 percent of raw sewage. This would imply that about 1.4 percent of total sewage flow through the collection system escapes as dry weather SSOs. EPA has limited data on the percent of sewage in collection systems that escape during dry weather. EPA identified data from Los Angeles, CA that indicate that about 0.00033 percent of total sewage flow through the collection system escapes as dry weather SSOs. Taking these data and the model assumptions into account, EPA assumed that 0.66 percent of total sewage flow through the collection system escapes as dry weather SSOs. This is the midpoint between the model assumption and the percentage from LA, which, as with wet weather flow, EPA believes is an outlier.

The implication of these assumptions is that about 0.9 to 1.7 percent of total sewage flow through the collection system escapes as wet and dry weather SSOs. It should be noted that this estimate is intended to reflect a broad national average. Individual systems may be higher or lower than these numbers. The above data reflect identified SSO events. However, the Agency is aware that sewage exfiltrates from most collection systems. While it is difficult to quantify sewer exfiltration, the Agency notes that one study found exfiltration to infiltration ratios for sanitary sewers to be between 1.5 to 1 and 14 to 1[21]. Exfiltration has the potential to impact surface water quality, depending on site-specific factors such as hydraulic connections between sewer trenches and storm sewers, the hydraulic connection between ground water and surface waters and the proximity of sewers to surface waters. EPA requests comment on its estimates of wet and dry weather SSO flows and associated dilution factors, and on its

[21] Results of the Evaluation of Groundwater Impacts of Sewer Exfiltration, Engineering-Science, EPA contract no 68-03-3431, February 1989.

methodology for estimating them. EPA also requests data on the volume and sewage concentration of both wet and dry weather SSOs, and on the relationship of these flows to total sewage flow through the collection system.

A second methodological issue involves the procedure for attributing impairment to various source categories based on State 305(b) data. This is necessary to estimate the percentage of impairment that would be eliminated by controlling particular sources, in this case SSOs. These data generally identified sources qualitatively as either "major", "moderate," or "minor" sources of impairment for a given water body. Many water bodies have multiple sources of impairment listed, while others have none. Water bodies that list some source of impairment usually list multiple sources. To estimate the share of impairment attributable to MPS and UR/SS, EPA assumed in the upper bound that if one of these categories was listed as a major source, then 100 percent of the impairment should be attributed to that source (even if other major, moderate, and/or minor sources were listed), while if one of these sources was listed as a moderate source, then 30 percent of the impairment should be attributed to that source. No impairment was attributed if the source was listed only as a minor source. In the lower bound, EPA assumed that if a source was listed as major, 50 percent of impairment should be attributed to that source. No impairment was attributed if the source was listed as either moderate or minor. EPA requests comment on this methodology.

A third methodological issue involves the estimation of health benefits from reduced pathogen concentrations at swimming beaches. In estimating this benefit, EPA assumed the average marine beach had levels of 4.55 enterococci per 100 ml based on the mean of over 14,000 observations. EPA's marine recreational water quality criterion for enterococci is 35 counts per 100 ml. EPA assumed the average fresh water beach had levels of 35.61 E. coli based on the mean of 426 observations. EPA's fresh water recreational water quality criterion for E. coli is 126 per 100 ml. In general, these beaches have indicator pathogen counts below the recreational swimming water quality criteria established by EPA and are therefore considered swimmable, but these counts may still contribute a risk of illness. To the extent that elimination of SSOs further reduces these counts, there will be an associated reduction in swimming related illnesses. EPA estimates that there would be a reduction of 1.8 million to 3.5 million cases per year of swimming related illnesses if all SSOs were eliminated, and that the monetized value of this reduction in illnesses would be $0.5 billion to $4.08 billion, which corresponds to 54 to 67 percent of the total benefits from eliminating SSOs estimated in the draft report entitled Benefits of Measures to Abate SSOs. The methodology for deriving these estimates is briefly summarized below.

Based on a dose-response function from Cabelli and Dufour (1983), EPA calculated a dose response function for gastrointestinal (GI) illness stemming from exposure to indicator pathogens at swimming beaches. EPA estimated that for each GI related illness associated with pathogen exposure during swimming, there are from 1.5 to 2.5 non-GI illnesses also associated with swimming, and that for illnesses (both GI and non-GI) contracted by swimmers directly, there is a 20-30 percent secondary spread to other household members. EPA then used its estimate of the proportion of impairment in State 305(b) reports that stems from SSOs as a proxy for the proportion of pathogens at non-impaired swimming beaches that would be reduced if SSOs were eliminated. This yields an estimate that elimination of SSOs would result

in 0.7 million to 1 million fewer GI related illnesses and 1 million to 2.5 million fewer non-GI related illnesses nationally per year. Finally, these reduced illnesses were valued using a range of $375 to $2,000 per case for GI related illnesses, and $244 to $700 per case for non-GI related illnesses. For the GI related illnesses, this range comes from a range of studies, using the midpoint of those studies as the high end estimate in order to account for uncertainty. For the non-GI related illnesses, this range is derived starting from the average valuation of symptom days from Tolley (1992), as shown in Table 9.

TABLE 9. Monetary Value Estimates of Acute or Short-Term Health Effects

	Value Estimate for Acute or Short-Term Morbidity (in 1991 Dollars/Day)		
Health Effect	Low	Medium	High
Headache	25	65	145
Earache	30	55	75
Eye irritation	25	55	130
Sinus	25	45	80
Throat	10	35	55
Asthma	30	45	130
Severe rash	45	80	115

In the high end estimate, the values for some symptoms are then increased by a factor of 2.9 to reflect EPA's recommended figure of $5.8 million for the valuation of a statistical life, which is based on a range of studies rather than the $2.0 million used by Tolley. Finally, the resulting range of values for a symptom day are multiplied by a range of symptom durations of 2.5 to 7 days. The 7 day upper bound is based on data from Fleisher, and Kay, et al (1998), but is higher than the average reported by them in order to account for the possibility of additional severe health effects (e.g., sequela) beyond the listed symptoms. The 2.5 day lower bound is the average of a generally lower set of duration estimates from Cheung, et al (1990), as shown in Table 10.

TABLE 10. Duration of Non-Gastrointestinal Illnesses Among Swimmers in Days

	Fleisher, Kay et al (1998)		Cheung, et al (1990)
	Mean	Median	Mean
AFRI/respiratory	5.7	5	3.5
Ear	8.1	6	1.5
Eye	4.5	3.5	2.9
Skin	N.A.	N.A	4.0
Fever	N.A	N.A	4.2
Average Duration	**6.1**	**N/A**	**2.5**

A more detailed discussion of this methodology can be found in the draft report entitled Benefits of Measures to Abate SSOs. EPA requests comment on this methodology and the resulting estimates.

L. How Does the State Revolving Fund Apply to Municipal Sanitary Sewer Projects?

The CWA established a State Revolving Fund (SRF) to provide low-cost loans for wastewater projects. SRF funds may be used for major, and some minor, replacements of sanitary sewer collection system components. General guidelines include:

- Major replacements, reconstruction or substitutions necessary to correct system failures are eligible for SRF funds; and
- Minor replacements — such as obtaining and installing equipment, accessories, or appurtenances during the useful life of the treatment works necessary to maintain the capacity and performance for which such works are designed and constructed — are generally eligible for SRF funds. POTWs that began construction before October 1, 1994, with EPA grant funds must pay for minor replacements, however.

M. What Key Terms Are Used in This Proposed Rule?

The following definitions of key terms used in today's proposed rule are provided to assist the reader. The Agency requests comments on these definitions.

(1) Combined Sewer - A sewer that is designed as both a sanitary sewer and a storm sewer (see 40 CFR 35.2005(b)(11)).

(2) Inflow - Water other than wastewater that enters a sewer system (including sewer service connections) from sources such as, but not limited to, roof leaders, cellar drains, yard drains, area drains, drains from springs and swampy areas, manhole covers, cross connections between storm sewers and sanitary sewers, catch basins, cooling towers, storm water, surface runoff, street wash waters, or drainage. (see 40 CFR 35.2005(b)(20)).

(3) Infiltration - Water other than wastewater that enters a sewer system (including sewer service connections and foundation drains) from the ground through such means as defective pipes, pipe joints, connections, or manholes. (see 40 CFR 35.2005(b)(20)).

(4) Municipality - A city, town, borough, county, parish, district, association or other public body created by or under State law and having jurisdiction over disposal of sewage, industrial wastes, or other wastes, or an Indian Tribe or an authorized Indian tribal organization, or a designated and approved management agency under section 208 of the CWA (see 40 CFR 122.2)

(5) Rainfall-induced infiltration (RII) - The portion of infiltration flows (flows coming from infiltration sources) that enters the sewerage system during and immediately after rainfall events. Rainfall-induced infiltration does not include inflow.

(6) Regional collection system - A collection system that accepts wastewater from satellite collection systems.

(7) Sanitary sewer - A conduit intended to carry liquid and water carried wastes from residences, commercial buildings, industrial plants and institutions together with minor quantities of ground, storm and surface waters that are not admitted intentionally. (See 40 CFR 35.2005(b)(37).)

(8) Sanitary Sewer Overflow (SSO) - An overflow, spill, release, or diversion of wastewater from a sanitary sewer system. SSOs do not include combined sewer overflows (CSOs) or other discharges from the combined portions of a combined sewer system. SSOs include:

(A) Overflows or releases of wastewater that reach waters of the United States;

(B) Overflows or releases of wastewater that do not reach waters of the U.S.;

(C) Wastewater backups into buildings that are caused by blockages or flow conditions in a sanitary sewer other than a building lateral. Wastewater backups into buildings caused by a blockage or other malfunction of a building lateral that is privately owned are not SSOs.

(9) Satellite collection system - A collection system that is owned or operated by one entity that discharges to a regional collection system that is owned or operated by a different entity. Satellite collection systems depend on a separate entity for wastewater treatment and discharge.

II. OVERVIEW OF TODAY'S PROPOSAL

A. What Types of Requirements is EPA Proposing?

Today's proposed rule would establish: (1) three standard permit conditions for inclusion in NPDES permits for publicly owned treatment works (POTWs) and municipal sanitary sewer collection systems; and (2) a framework under the NPDES permit program for regulating municipal satellite collection systems.

1. What would the Proposed Standard Permit Conditions Address?

EPA is proposing three standard permit conditions for inclusion in NPDES permits for publicly owned treatment works (POTWs) and municipal sanitary sewer collection systems. The proposed standard permit conditions would address:

- Capacity, management, operation and maintenance requirements for municipal sanitary sewer collection systems (proposed 40 CFR 122.42(e));
- A prohibition on discharges to waters of the United States that occur prior to a publicly owned treatment works (POTW) treatment facility, which includes a framework for raising a defense for unavoidable discharges (proposed 40 CFR 122.42(f)); and
- Reporting, public notification and recordkeeping requirements for discharges from a municipal sanitary sewer collection system (proposed 40 CFR 122.42(g)).

These proposed standard permit conditions would derive from CWA sections 304(i), 308, and 402(a), and were developed from existing standard permit conditions to specifically address municipal systems and discharges.

2. Which NPDES Permits Would Have to Include the Proposed Standard Permit Conditions When Finalized?

Under today's proposal, NPDES authorities would be required to include the three proposed standard permit conditions in permits for POTWs that are served by municipal sanitary sewers, and in permits for municipal sanitary sewer collection systems. The Agency estimates that there are about 19,000 municipal entities that own and/or operate sanitary sewer collection systems. This estimate includes about 4,800 municipal satellite collection systems. Table 13 estimates the distribution of service population of sanitary sewer collection systems.

3. How Would Today's Proposal Expand NPDES Permit Coverage?

The Agency is proposing a framework under the NPDES permit program for regulating municipal satellite collection systems to reduce the likelihood of SSOs from these systems. Municipal satellite collection systems are collection systems owned or operated by one entity that discharges to a regional collection system that is owned or operated by a different entity. EPA is proposing that an NPDES permit must require the implementation of standard permit conditions throughout the entire municipal collection system, including the municipal satellite portions. Under the proposed approach, NPDES authorities would have flexibility in determining which entity — the satellite system or the regional system that operates the POTW treatment plant — would have responsibility for development and implementation of a CMOM program within the municipal satellite system.

Today's proposal would expand the scope of the NPDES program by clarifying that owners or operators of municipal satellite collection systems that convey wastewater to a POTW treatment which in turn discharges pursuant to an NPDES permit, are required to obtain NPDES permit coverage unless the NPDES permit for the POTW treatment plant that receives flows from the municipal satellite collection system requires the implementation of permit conditions throughout the municipal satellite collection system. Today's proposal would define municipal satellite collection systems to include certain collection systems that convey municipal sewage or industrial waste to a POTW treatment facility that has an NPDES permit or is required to apply for a permit under 40 CFR 122.21(a). Municipal satellite collection systems can be composed of either sanitary sewers or combined sewers, or a combination of

both types of sewers. Section V.D.2 provides additional discussion regarding the scope of this proposal.

4. When Would These Provisions Become Effective?

EPA is proposing standard NPDES permit conditions specifically tailored for POTWs and municipal sanitary sewer collection systems. These standard permit conditions would be implemented through permits. In other words, permittees would be responsible for complying with the standard permit conditions when incorporated into their permits. Before that time, permittees must comply with existing permit conditions, including existing standard permit conditions.

Permittees are required to comply with new permit conditions when the permit becomes effective, unless the permit establishes alternative dates. The timing for implementing CMOM program requirements is discussed in more detail in section III.L of today's preamble.

The proposed permit framework for municipal satellite collection systems, when finalized, would establish appropriate time frames for submitting permit applications.

B. Toolbox

The SSO Subcommittee identified the need for EPA to work with technical trade organizations (such as the Water Environment Federation, Water Environment Research Foundation, American Public Works Association, American Society of Civil Engineers and others), States and local governments to develop a range of "tools" for use in implementing today's proposed rule. This "toolbox" would help municipalities and States implement requirements in an effective and cost-efficient manner. EPA intends to provide a description of the toolbox on the SSO page of the OWM Internet site (http://www.epa.gov/owm/). The toolbox would include: fact sheets; guidance documents; an information clearinghouse; training and outreach efforts; sample overflow emergency response plans; sample self-audit reports; sample model ordinances for the necessary legal authorities; technical research; compliance monitoring and assistance tools; and descriptions of available funding resources. The toolbox site also would include ongoing development of draft guidance for NPDES inspectors for evaluating capacity, management, operation and maintenance (CMOM) programs at wastewater treatment plants and in collection systems. EPA is also considering developing guidance on: developing CMOM program summaries, developing a system evaluation and capacity assurance plan, and performing CMOM program audits.

EPA requests recommendations on specific items in the toolbox, along with suggestions on the most appropriate ways to share information, including the use of specific information-sharing mechanisms.

C. Definition of Sanitary Sewer Overflow

In the technical literature and elsewhere, there appears to be considerable variation with regard to what constitutes an SSO. In particular, different understandings exist as to whether backups in buildings and other overflows that do not result in a discharge to waters of the United States should be considered SSOs. The Agency believes that confusion in the definition of an SSO could lead to significant variation in the way that SSOs are reported.

EPA believes that a clear definition of an SSO is critical to effective and equitable program implementation. EPA is proposing a definition of sanitary sewer overflow as part of the proposed standard permit condition for reporting, public notification, and recordkeeping.

The proposed definition would identify the following classes of overflows or releases as SSOs:

(A) overflows or releases of wastewater that reach waters of the United States;

(B) overflows or releases of wastewater that do not reach waters of the U.S.;

(C) wastewater backups into buildings that are caused by blockages or flow conditions in a sanitary sewer other than a building lateral. Wastewater backups into buildings caused by a blockage or other malfunction of a building lateral that is privately owned is not a sanitary sewer overflow.

Wastewater backups into buildings caused by a blockage or other malfunction of a building lateral would be excluded from the definition of SSOs because such backups generally are not considered to be the responsibility of the municipality that owns and operates a municipal sanitary sewer collection system. The Agency believes that an SSO caused by a problem in a building lateral can be distinguished from an SSO caused by flow conditions in a collector sewer by the volume of wastewater that backs up into the building. The volume of a backup associated with a building lateral problem should be less than the volume of water used in the building during the time the backup was occurring. Further, the Agency believes that line investigations usually will not be necessary to make this type of problem identification. The Agency requests comment on the technical difficulties in distinguishing between backups caused by building laterals and backups caused by flow conditions in the collector sewer.

Under today's proposed definition, EPA does not intend for controlled management of flows that remain within the collection system, such as pumping wastewater into a tanker truck, or from one sewer to another to allow maintenance or repair activities, to be considered an SSO. The Agency requests comment on whether the proposed definition clearly excludes these situations, or whether such actions could be mistakenly considered a diversion and an SSO. The Agency requests specific examples of practices where such problems may arise.

The Agency notes that the proposed prohibition standard permit condition and the proposed reporting, public notification, and recordkeeping standard permit condition would apply to different classes of SSOs. For example, the proposed prohibition only applies to those SSOs that discharge to waters of the United States. The proposed reporting, public notification, and recordkeeping standard permit condition is tiered, with different proposed requirements applying to different classes of SSOs. The specific scope of these proposed standard permit conditions is discussed in greater detail in Sections IV and V of today's preamble.

Some collection systems are comprised of both sanitary and combined sewers. Today's proposed definition would clarify that SSOs do not include combined sewer overflows (CSOs) or other discharges from the combined portions of a combined sewer system.

D. NPDES State Programs

EPA is proposing: (1) a framework at 40 CFR 122.38 for expanding NPDES permit coverage to municipal satellite collection systems; and (2) standard permit conditions at

Section 122.42. After EPA takes final action, both of these changes would be applicable to authorized NPDES State programs.

Section 123.25 provides that NPDES State programs would need to have legal authority to implement specific provisions of the NPDES regulation. EPA is proposing changes to 123.25 to clarify that, when finalized, the proposed framework at 122.38 to expand NPDES permit coverage to municipal satellite collection systems would be applicable to State NPDES programs. Because existing 123.25(a)(13) applies standard permit conditions at 122.42 to State NPDES programs, additional modification of 123.25 would not be necessary to clarify that the three standard permit conditions proposed in today's proposed rule apply to State NPDES programs when finalized.

After EPA has taken final action on the proposal, States with authorized NPDES programs would have to evaluate whether revisions to their NPDES programs were necessary. Under Section 123.62, which establishes procedures for any necessary NPDES State program revisions, authorized States must revise their NPDES programs within 1 year, or within 2 years if statutory changes are necessary.

III. PROPOSED CAPACITY, MANAGEMENT, OPERATION AND MAINTENANCE (CMOM) STANDARD CONDITION FOR MUNICIPAL SANITARY SEWER COLLECTION SYSTEMS

A. What Existing Standard Conditions Address Operation and Maintenance of Sanitary Sewer Collection Systems?

Under existing regulations at 40 CFR 122.41, all NPDES permits must contain two standard conditions addressing operation and maintenance:

- Proper operation and maintenance requirements at 40 CFR 122.41(e). This standard permit condition requires proper operation and maintenance of permitted wastewater systems and related facilities to achieve compliance with permit conditions; and
- Duty to mitigate at 40 CFR 122.41(d). This standard condition requires the permittee to take all reasonable steps to minimize or prevent any discharge in violation of the permit that has a reasonable likelihood of adversely affecting human health or the environment.

When these two standard conditions are in a permit for a POTW or a collection system, they require the permittee to properly operate and maintain its collection system as well as take all reasonable steps to minimize or prevent SSO discharges to waters of the United States that have a reasonable likelihood of adversely affecting human health or the environment. In addition, these provisions, along with a prohibition on SSOs to waters of the U.S., are the basis for requiring permittees to provide adequate sanitary sewer collection system capacity. Today's proposed CMOM standard condition would clarify EPA's expectations for case-by-case interpretations of how these existing conditions apply to municipal sanitary sewer collection systems. It would also build upon these provisions.

In addition, the CWA construction grants program established provisions requiring grantees under the program to assure proper and efficient operation and maintenance of treatment works and their associated collection systems. These provisions required the development of operation and maintenance manuals; emergency operating programs; personnel

training; adequate budget; and operational reports. (See 40 CFR 35.925-10, 35.935-12, 35.2106, and 35.2206).[22]

B. Why is Proper Management, Operation and Maintenance Important?

The purpose of a sanitary sewer collection system is to transport wastewater uninterrupted from its source to a treatment facility. Failure to do so can result in significant health and/or environmental risks associated with releases of raw sewage. Sanitary sewer collection systems are complex and must be properly managed, operated, and maintained for a number of reasons, including:

- The timing and location of most SSO events, such as those caused by blockages or component failures, is unpredictable.
- Sewer systems are continually degrading. This degradation can lead to structural failure, failure of pumps and other equipment, loss of capacity, increases in inflow and infiltration (I/I), and street subsidence.
- Sewer systems must be cleaned periodically to maintain their capacity and decrease corrosion.
- Collection systems can be overloaded if they are designed improperly, the service population is increased to levels that exceed design, or I/I rates become too high; and
- SSOs that do occur must be responded to immediately to minimize health or environmental risks.

Proper management, operation and maintenance (which includes ensuring the system provides adequate capacity) can reduce the occurrence of collection system failures. Effective management, operation and maintenance is necessary to maintain the capacity of the collection system, to reduce the occurrence of temporary problem situations such as blockages, to protect the structural integrity and capacity of the system, and to anticipate potential problems and take preventive measures.

Sanitary sewer collection systems represent a major national infrastructure investment and are typically one of the largest infrastructure assets of a community. Proper management, operation and maintenance of the collection system protects the investment in the collection system and treatment facilities; it also provides for more efficient operation, extends the life of system components, and can reduce the need to provide additional peak flow capacity. A report from the American Society of Civil Engineers (ASCE) and the Water Environment Federation notes that sanitary sewer collection systems are probably the most abused of all public utilities due to misuse and neglect.[23] Awareness is growing, however, of the need for operation and maintenance activities as investments in the sanitary sewer system. For example, a 1999 survey of 42 municipalities by ASCE showed that some municipalities have significantly increased their investment in maintenance of their sanitary sewer collection systems. Survey

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[22] In accordance with Section 602(b)(6) of the CWA, the Clean Water State Revolving Fund Program no longer contains Title II Construction Grant requirements.

[23] See Gravity Sanitary Sewer Design and Construction, WPCF Manual of Practice No. FD-5, ASCE Manual and Report on Engineering Practice No. 60, 1982.

participants increased maintenance investments by an average of 14 percent per year from 1989 to 1996 (see Table 11).

Table 11. Change in Maintenance Activities Over 20 Years (Percent of Collection System per Year)

Maintenance Activity	Annual percent of collection systems addressed in 1976	Average annual percent of collection systems addressed 1990-1996
Flow Monitoring	9%	31%
Manhole Inspection	12%	27%
Smoke/Dye testing	2%	8%
Closed circuit TV	2%	7%

Source: Optimization of Collection System Maintenance Frequencies and System Performance, ASCE, 1999.

C. What is the proposed CMOM Program Approach?

The proposed CMOM program approach described in today's proposed rule would:

- Clarify general performance standards;
- Provide a flexible framework for municipalities to identify and incorporate widely-accepted wastewater industry practices to: (a) manage, operate and maintain their collection systems; (b) investigate the capacity of their collection systems; and, (c) respond to SSO events that do occur;
- Include self-assessments and information management for improvement and adjustment of system-specific programs; and
- Establish minimum documentation requirements which are intended to improve program efficiency, improve oversight by the NPDES authority, and give the public information about specific events and performance trends.

The proposed CMOM approach outlines a dynamic system management framework that encourages evaluating and prioritizing efforts to identify and correct performance-limiting situations in the collection system. The approach is intended to:

(1) Assist municipal operators by establishing flexible procedures for efficient sewer management programs that result in a high level of service to customers and achieve regulatory compliance; and

(2) Provide NPDES authorities and other reviewers with clear documentation of the permittees' efforts.

1. What Would the CMOM Permit Provision Attempt to Accomplish?

The proposed CMOM permit conditions would establish a process and framework for improvement by the permittee to:

(1) Understand how the collection system works and performs;

(2) Identify goals and objectives for managing a specific collection system;

(3) Provide the necessary program structure to allow goals to be met. This would include ensuring appropriate program components are in place, including organization of administrative and maintenance functions; legal authorities; measures and activities; and design and performance provisions;

(4) Strive for adjustment of implementation activities to reflect changing conditions. This would include monitoring and measuring program implementation and making appropriate modifications, conducting necessary system evaluations, implementing a capacity assurance program, and conducting periodic program audits to evaluate CMOM program implementation and to identify deficiencies and steps to respond to them.

(5) Prepare for and respond to emergency events; and

(6) Communicate with interested parties on the implementation and performance of the CMOM program.

2. What are the Major Components of the Proposed CMOM Standard Permit Condition?

The permittee's permit would require development of a CMOM program with the following components:

- General standards - Comply with five general performance standards, as described below;
- CMOM program - Develop and implement a CMOM program, and develop a written summary of the program, that provides the necessary program structure to comply with the general performance standards. The program must:
  - (1) Identify goals;
  - (2) Identify the organizational structure that will implement program measures;
  - (3) Provide adequate legal authority needed for program implementation;
  - (4) Ensure appropriate programs, measures and activities are implemented;
  - (5) Provide necessary design and performance provisions; and
  - (6) Ensure that implementation is monitored and program elements are updated as appropriate.
- Overflow emergency response plan - Develop and implement an overflow emergency response plan that provides procedures for responding to SSO events.
- System evaluation and capacity assurance plan - Develop a plan for system evaluation and capacity assurance, if peak flow conditions contribute to an SSO discharge.
- Program audits - Conduct periodic program audits and report results.
- Communication - Communicate with interested parties.

When the proposed CMOM standard permit condition is incorporated into a permit, the provision will require the permittee to: (1) comply with general standards; (2) develop and implement a CMOM program that will result in compliance with the general standards and that must include elements listed in the CMOM permit provision; and (3) develop a written summary of its CMOM program. Some examples of potential violations associated with the CMOM permit provision are:

- Failure to comply with the documentation requirements of the CMOM program permit condition. Documentation requirements would include development of:

a written summary of the permittee's CMOM program, an overflow response plan, a system evaluation and capacity assurance plan (if required), and a CMOM program audit; and

- Failure to comply with the general standards established in the permit for a CMOM program, or any element of the CMOM program specifically required by the permit. Such a failure may be evidenced by an SSO occurrence, by inadequate CMOM program implementation, or by the permittee's failure to implement the measures and activities described in its CMOM program summary or other required document.

As discussed in section III.P of the preamble, EPA does not intend for the NPDES authority to approve permittees' CMOM programs. As a result, permittees could modify their CMOM programs at their discretion (and without notice to the permitting authority) provided that the CMOM program, as modified, continued to address each element required by the permit. The provisions in a permittee's CMOM program summary would not be independently enforceable if not approved by the NPDES authority, but could be evidence of failure to comply with the general standards established in the permit.

D. Why is EPA Proposing a CMOM Approach?

Today's proposal would clarify EPA expectations regarding proper management, operation and maintenance of municipal sanitary sewer collection systems and how permittees should comply with the five general standards in the proposed CMOM provision. EPA's major objective in proposing these clarifications is to reduce health and environmental risks by improving:

- The performance of the nation's municipal sanitary sewer collection system infrastructure through improved CMOM program implementation and system design; and
- The response to SSOs that do occur, including appropriate public notification.

EPA believes that the CMOM permit provision would improve the performance of municipal sanitary sewers because it would:

(1) Provide a framework with clear expectations for municipalities to evaluate, and where necessary modify, the manner in which they manage, operate and maintain their systems and ensure that their systems have adequate capacity; and

(2) Improve NPDES authorities' ability to provide regulatory oversight over the management, operation, maintenance and design of collection systems in a technically sound manner that fosters cooperative approaches between NPDES authorities and municipalities to identify and resolve deficiencies.

An improvement in sanitary sewer collection system performance should reduce the occurrence of noncompliance events (e.g., overflows and releases). As up-front (preventive and predictive) maintenance of collection systems increases, long-term rehabilitation costs are expected to fall. Flows to treatment plants would be reduced in some cases. Reductions in flows can lower collection system and treatment facility operating costs and capacity needs.

1. Efficient Management System Approach

Industry technical guidance supports the need for dynamic management, operation and maintenance approaches for sanitary sewer collection systems that use information about system performance, changing conditions, and operation and maintenance practices to guide and modify responses, routine activities, procedures, and capital investments. Today's proposed CMOM permit conditions are intended to encourage the efficient management system approaches and information handling supported by the wastewater industry. It brings together and coordinates the features of individual measures and initiatives.

An effective CMOM program would enable the permittee to:

- Develop and update routine preventive maintenance activities designed to prevent service interruption and protect capital investments;
- Develop an inspection schedule and respond to the results of the inspection;
- Investigate problems that cause SSOs and take appropriate corrective measures;
- Respond to SSOs in a timely manner that minimizes impacts to human health and the environment;
- Identify and evaluate trends in SSOs;
- Develop appropriate budgets and identify staffing needs;
- Plan for future growth and ensure adequate capacity is available, or would be provided;
- Identify hydraulic (capacity) and physical deficiencies and prioritize responses, including capital investments;
- Identify programmatic deficiencies (e.g., inadequate funding, lack of legal authority, inadequate preventive maintenance) and develop appropriate responses;
- Keep parts and tools inventories current and equipment in working order; and
- Report and investigate safety incidents and take steps
- to prevent their recurrence.

2. Clarified Expectations

Some representatives of stakeholder groups and other sources have postulated that clarifying expectations for the existing "duty to mitigate" and "proper operation and maintenance" standard conditions (40 CFR 122.41(d) and (e) respectively) is appropriate because operators currently do not understand what is expected and how their programs will be evaluated. While today's proposed requirements generally do not identify specific details of activities that would need to be taken, they do provide documentation requirements and a framework for evaluating the comprehensiveness of programs. One of the major purposes of these proposed requirements is to clarify the process for evaluating CMOM programs and activities and promote additional dialogue with the NPDES authority that would ultimately provide clearer expectations.

The proposed CMOM permit condition would clarify that the permittee must develop and implement a CMOM program. The CMOM program should be consistent with industry and State practices and guidelines and implement a process for appropriate improvement and proper management that uses self-assessments and information management techniques. In addition, permittees would have to satisfy the proposed documentation requirements of the provision. EPA will be encouraging NPDES permitting and enforcement authorities to use

CMOM documentation requirements to increase communication between the NPDES authority and permittees on the specific scope, nature, and requirements of these programs.

3. Oversight by NPDES Authority

Today's proposed CMOM approach would complement traditional performance characterizations (e.g., counting SSO events) and enforcement approaches with a technically sound approach that encourages municipalities to effectively operate their systems, respond to noncompliance events, and provide the public with information. Evaluating the performance of sanitary sewer collection systems is a complex task and depends on system-specific facts. Given the unplanned nature of SSO events, accurate data relating to the cause of the event is limited. There is no simple method for determining when the sewer utility has made enough effort to prevent SSO events. Evaluating the management, operation and maintenance program can complement performance information and allows for a consideration of effort as well as a comparison with industry best practices.

A major goal of today's proposal is to improve the ability of NPDES authorities to comprehensively and proactively evaluate the management programs and performance of municipal sanitary sewer collection systems. The proposed CMOM permit provision, coupled with today's proposed requirements for reporting and recordkeeping, would give NPDES authorities better information for identifying permitting, enforcement, and compliance assistance responses. The proposed CMOM permit provision is expected to provide both the permittee and the NPDES authority with a technically sound understanding of how the collection system is operated, performance trends, and the factual circumstances associated with specific events. This understanding should promote informed enforcement responses. NPDES authorities would consider the quality of CMOM program implementation when exercising prosecutorial discretion and developing enforcement priorities.

Where enforcement is appropriate, the proposed provision would ensure better documentation of SSO events. The proposed CMOM provision also provides additional detail which can be used to identify specific areas where permittee's programs are in noncompliance with its permit (e.g., specific legal authorities lacking, inadequate maintenance, inadequate training). In addition, the permittee's identification of steps to respond to deficiencies identified in the audit and elsewhere in the CMOM program can be a starting point for determining remedies.

E. What is EPA's Authority for Proposing the CMOM Standard Permit Condition?

Section 402(a) of the CWA authorizes EPA to prescribe permit conditions as necessary to carry out the provisions of the CWA, including permit conditions on data and information collection and reporting. In addition, section 308 of the CWA authorizes EPA to require NPDES permittees to establish, maintain, and report records for determining whether there has been a violation of the Act. The provisions in the proposal are modeled after existing standard permit conditions to the extent that such conditions assure that any resulting discharges comply with the CWA.

Table 12. General Performance Standards in Proposed CMOM Standard Permit Condition

The Permittee would need to:

(1) properly manage, operate and maintain, at all times, the parts of collection system that the permittee owns or over which it has operational control;

(2) provide adequate capacity to convey base flows and peak flows;

(3) take all feasible steps to stop, and mitigate the impact of, sanitary sewer overflows;

(4) provide notification to parties with a reasonable potential for exposure to pollutants associated with the overflow event; and

(5) develop a written summary of their CMOM program and make it, and required program audits, available to the public upon request.

F. What Performance Standards Would Be Required Under the Proposed CMOM Standard Permit Condition?

Today's proposed CMOM standard permit condition for municipal sanitary sewer collection systems contains five general performance standards shown in Table 12.

The first proposed performance standard would require proper management, operation and maintenance of the collection system and would clarify how the standard in the existing standard permit condition at 40 CFR 122.41(e) applies to sanitary sewer collection systems.

The second proposed performance standard would require that the municipal sanitary sewer collection system provide adequate capacity to convey base flows and peak flows. These concepts are discussed in section III.I of today's preamble.

The third proposed performance standard would require that the permittee take all feasible steps to stop and mitigate the impacts of SSOs. This is similar to the existing "duty to mitigate" standard permit condition at 40 CFR 122.41(d), but would expand the duty to mitigate to address SSOs that did not result in a discharge to waters of the United States. EPA believes that this expansion is appropriate because of the health risks associated with SSOs that do not go to waters of the U.S., as well as the difficulty at the start of a specific SSO event in determining whether the SSO would ultimately result in a discharge of pollutants to waters of the U.S. EPA is proposing use of the word "feasible" in describing the types of steps that must be taken as a way of limiting the response to a reasonable range of measures, within the practical capability of the permittee, resulting from the exercise of reasonable judgment in application of the overflow emergency response plan. EPA seeks comment on whether other adjectives, such as "practicable," or "reasonable," might better describe the type of response necessary.

The fourth proposed performance standard would require the permittee to provide notification to parties with a reasonable potential for exposure to pollutants associated with

specific SSO events. This provision is intended to work together with the public notification requirements proposed in today's proposed rule. Public notification is discussed in more detail in section VI.B of today's proposed rule.

The fifth proposed performance standard would require that a written summary of the CMOM program be developed and that it, along with required program audits, be made available to the public.

EPA requests comments on these performance standards, including whether they are worded clearly, whether they are appropriate to assure compliance with the CWA, and whether additional performance standards would be appropriate.

G. What Are the Proposed Components of CMOM Programs?

Today's proposal identifies six components of CMOM programs that EPA believes are generally necessary to meet the five performance standards in the proposed standard condition. The CMOM program would need to:

(1) Identify program goals consistent with the general standards;
(2) Identify administrative and maintenance functions responsible for implementing the CMOM program and chain of communication for complying with reporting requirements for SSOs;
(3) Include legal authorities necessary for implementing the CMOM program;
(4) Address appropriate measures and activities necessary to meet the performance standards;
(5) Provide design and performance provisions; and
(6) Monitor program implementation and measure its effectiveness.

EPA requests comments on these components of a CMOM program and whether additional components should be specified. In particular, the Agency requests comment on whether to require information about the permittee's capability and resources to implement the CMOM program as a separate component of the CMOM documentation requirements.

EPA also requests comments on whether each of the proposed program components is necessary to the goals of eliminating all avoidable SSOs and minimizing the health and environmental risks of those SSOs that do occur.

1. Program Goals

Program goals help determine the course of action needed to set a CMOM program in motion. Goals define the purpose and sought-for results of the CMOM program. Goals may reflect performance, safety, customer service, resource use, compliance, and other considerations. Wastewater Collection Systems Management, 5th edition, Manual of Practice #7, Water Environment Federation provides additional discussion of goals for sanitary sewer collection system programs.

2. Administrative and Maintenance Functions

There are different models for structuring an effective organization. Responsibilities for managing and implementing CMOM program activities need to be clearly defined,

documented, and communicated, however. Job descriptions help ensure that all employees know specific responsibilities and individuals have proper credentials.

An organization's size depends on the size, complexity, and specific features of the collection system. Determination of staff requirements for a collection system requires a working knowledge of the system and consideration of key variables. For all but very small systems, there should be at least one on-site management representative who has responsibility and authority for ensuring the program is being implemented and properly updated and who regularly reports back to top management officials on the performance of the program. Personnel should have the required training for each CMOM program activity.

3. Legal Authorities

In order to implement an effective CMOM program, the permittee would need to have sufficient legal authority to authorize implementation activities. Today's proposed CMOM provision would require the operator to exercise the legal authority necessary to implement the CMOM program. The proposed CMOM provision identifies five classes of activities that EPA generally believes are necessary for implementing a CMOM program:

(A) Controlling infiltration and connections from inflow sources;

(B) Requiring that sewers and connections be properly designed and constructed;

(C) Ensuring proper installation, testing, and inspection of new and rehabilitated sewers;

(D) Addressing flows from municipal satellite collection systems (to the extent the permittee services such systems); and

(E) Implementing the general and specific prohibitions of the national pretreatment program (see 40 CFR 403.5).

The Agency recognizes that the scope and nature of legal authority necessary to implement a CMOM program varies from system to system. For example, the legal authority needed to address flows from municipal satellite collection systems will vary from system to system. For some systems, the operator of a collection system receiving flows from a municipal satellite collection system will only need legal authority to control the volume of the peak flow. For other systems more comprehensive authority to implement CMOM measures may be appropriate (see discussion of permitting options for municipal satellite collection systems). A collection system without municipal satellite collection systems would not be required to have legal authority to address this situation. The proposed CMOM provision provides that if an element listed in the provision is not appropriate or applicable for a specific collection system, the permittee would need to explain in its CMOM program summary why the element is not appropriate.

The Agency requests comment on whether the legal authority for controlling I/I should specify controlling I/I from private sources, such as the privately owned portions of building laterals. Private building sewer connections represent a large portion of the collection system (e.g., typically about 50 percent of the total sewer length). Many inflow connections are associated with these connections (e.g., foundation drains, area drains, downspouts), including connections that are intentionally made to provide site drainage. Such connections are typically considered illegal by local government agencies, although many older connections were

authorized at the time they were installed. A recent WEF survey indicated that about 80 to 85 percent of municipal sanitary sewer operators have enforceable regulations prohibiting downspout, roof drain and area drain connections to their sanitary sewer systems. A number of studies have shown that the overall effectiveness of I/I removal efforts will be limited in many municipal collection systems if private sources of I/I are not addressed.

The proposed CMOM provision would not specify the form of legal authority because adequate authority can generally be established through identification of sewer use ordinances, service agreements or other legally binding documents. EPA requests comments on the legal authority necessary to implement a CMOM program, and whether additional elements should be specified in the standard permit condition. In particular, EPA requests comments on whether controlling the introduction of grease from commercial establishments and institutions into a collection system should be specifically listed under the legal authorities section. Grease can be a significant source of blockages. Many systems have incorporated grease trap requirements for commercial food establishments or processors that discharge a large volume of waste oils or tallow. Although many existing municipal codes and ordinances require the installation of these traps, routine maintenance and inspection can sometimes be lacking. Lack of maintenance on traps can lead to failure. Local health departments sometimes have a role in assuring that grease trap owners routinely maintain their traps and reduce the amount of waste oils discharged to the system.

4. Measures and Activities

Municipalities would need to implement a variety of measures, activities and programs to meet the five performance standards in the proposed CMOM requirement. Measures, activities and program requirements would need to be tailored to the size, complexity and specific features of the collection system. The proposed CMOM provision specifically identifies eight general classes of measures and activities that EPA believes are generally appropriate and applicable for most municipal sanitary sewer collection system programs. The Agency recognizes that not all classes of measures or activities may be appropriate for all collection systems. For example, a very small system with a service population of several thousand may not require regular cleaning if the system has not experienced overflows. Where a permittee believes that a particular set of measures or activities that are listed in the CMOM provision is not appropriate or applicable for its collection system, the written summary of the program would document the reasoning for that belief.

a. Maintenance Facilities and Equipment

Permittees would need to provide adequate maintenance facilities and equipment. Maintenance facilities are locations where equipment, materials and personnel are dispatched and where operations records are kept. Increasingly, computer systems are used to manage maintenance records. Industry guidance recognizes that a properly planned and supported equipment yard is essential to collection system operation. In smaller municipalities, collection system maintenance equipment and personnel typically share one yard with other municipal operations, such as water and street departments. Larger municipalities typically have independent and self-sufficient facilities, except where a central repair yard or heavy-duty repair

shop is available. Detailed industry recommendations for maintenance facilities are provided in WEF, 1999.[24]

b. Maintenance of a Collection System Map

One of the most typical problems in collection system management and maintenance is determining the locations of sewer lines and manholes. Determining such locations is best done by keeping appropriate collection system maps. Many agencies keep large paper maps divided into overlapping, large-scale sections that can be bound into books that can be stored easily and taken into the field as needed. WEF, 1999 provides detailed industry recommendations for maps.

c. Use of Timely, Relevant Information

Timely, relevant information plays a critical role in an effective CMOM program, as highlighted by industry guidance. (See WEF, 1999, and Prevention and Control of Sewer System Overflows, Second Edition, Manual of Practice FD-17, Water Environment Federation, 1999.) A dynamic CMOM program focuses on planning, implementing, reviewing, evaluating and taking appropriate actions in response to available information. The key to these approaches is the ability to get information from staff in the field to managers.

Timely information is necessary for:

- Providing emergency responses;
- Investigating problems and complaints that cause or may lead to overflows and determining an appropriate response;
- Scheduling and tracking inspections;
- Planning maintenance activities, schedules, and work orders;
- Managing parts, equipment, and tool inventories;
- Developing training plans and schedules;
- Tracking and preventing safety incidents;
- Planning staffing and budgeting;
- Identifying hydraulic and physical deficiencies and prioritizing responses; and
- Identifying programmatic deficiencies and developing appropriate responses.

The proposed CMOM provision would not require that a computer or electronic database be used. Permittees could use paper copy systems to track information and data. EPA believes that regardless of the method for managing information, operators should have a written description of the procedures used, including procedures for operating and updating the system. If the system is computer-based, procedures should present any unique hardware and software requirements. EPA requests comments on the use of timely information in a CMOM program and the best way to reflect priorities in the proposed CMOM provision.

d. Routine Preventive Operation and Maintenance Activities

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[24]Water Environment Federation, 1999. Wastewater Collection Systems Management, 5th edition, Manual of Practice #7.

A good preventive maintenance program is one of the best ways to keep a system in good repair and to prevent service interruptions and system failures which can result in overflows and/or backups. In addition to preventing service interruptions and system failures, a preventive maintenance program can protect the capital investment in the collection system. Preventive maintenance activities should ensure that the permittee:

- Routinely inspects the collection system, including pump stations, and addresses damage or other problems;
- Investigates complaints and promptly corrects faulty conditions;
- Provides maintenance records, an adequate workforce and appropriate equipment in working order; and
- Maintains and updates a schedule of planned activities.

Preventive maintenance activities typically address:

- Planned, systematic, and scheduled inspections to determine current conditions and plan for maintenance and repairs;
- Planned, systematic, and scheduled cleaning and repairs of the system based on past history;
- Proper sealing and/or maintenance of manholes;
- Regular repair of deteriorating sewer lines;
- Remediation of poor construction;
- Inspection and maintenance of pump stations and other appurtenances; and
- A program to ensure that new sewers and connections are properly designed and constructed and new connections of inflow sources are prohibited.

Preventive maintenance, particularly in medium- or large-sized systems, typically includes predictive management and bases system management on historical information and how the system ages. Predictive management is an important feature of preventive maintenance and can be used for both long-range replacement or repairs and for establishing routine maintenance work orders for areas with known histories. Recordkeeping is the basis for an effective predictive management program, without which even the best guesswork will not produce the desired results. For agencies with limited personnel, equipment, or financial resources, predictive management can be an effective means for keeping ahead of problems that can cause major repairs or flow interruptions, and spreads the costs of remedial work over time.

EPA requests comments on the degree of specificity that is appropriate in this provision for requiring preventive maintenance programs. In particular, the Agency requests comments on whether specific aspects of a preventive maintenance program should be identified in the standard permit condition as a measure or activity of a CMOM program.

e. Program to Assess the Capacity of the Collection System and Treatment Facilities

A critical function of a collection system is to provide adequate capacity for wastewater flows. The capacity needs of a collection system change as the system ages, new connections are made, and existing connections change their water usage. Capacity problems can arise under a number of circumstances, including when:

- Service demands in part of the system are too great. Excessive service demands occur when new connections exceed the system's reserve capacity;
- I/I increases as the system ages;
- The capacity of the system decreases due to factors such as the formation of solids deposits and other partial blockages, increases in the roughness of pipes, or loss of pump capacity.

Today's proposed CMOM provision would require the permittee to develop and implement a program to assess the current capacity of the collection system and treatment facilities for which it has operational control. Identifying reserve capacity, hydraulic deficiencies, and capacity needs is critical for effective asset management. The capacity assessment program should ensure procedures exist and are implemented for:

- Determining whether adequate capacity exists in downstream portions of the collection system and treatment facilities that will receive wastewater from the new connections; and
- Identifying existing capacity deficiencies in the collection system and at treatment facilities.

(1) New Connections

Many States currently have requirements and/or guidelines for capacity certifications for new connections to sanitary sewer collection systems. In an initial review of several State requirements, EPA found that the States reviewed did not provide specific procedures and protocols for conducting capacity analysis as part of certification. Operators appear to base certification on available design data along with any information that may indicate previous overflow conditions. More detailed evaluations may be conducted where design information indicates that a sewer is nearing capacity or if overflow conditions had been previously noted in the applicable sewer segments. EPA requests comment on the specific procedures and protocols that municipalities use to support capacity certifications and on whether any State requirements specify particular protocols and procedures for evaluating capacity.

EPA expects that procedures and protocols used to comply with State certification requirements would typically satisfy the CMOM capacity assessment program requirements for new connections. EPA requests comment on whether existing State requirements provide adequate safeguards for ensuring that capacity limitations associated with new development are identified and reported to the appropriate State officials, or whether additional reporting requirements should be incorporated in the CMOM standard permit condition.

(2) Capacity Deficiencies

In addition to determining if adequate capacity exists for new connections, EPA is proposing that the permittee be required to conduct an ongoing program to identify existing capacity deficiencies in the collection system and at treatment facilities. This proposed provision would not be intended to require system-wide comprehensive evaluations, flow monitoring, and/or diagnostic work. As a general rule, detailed system-wide evaluations are inappropriate due to the nature of sanitary sewer problems, where typically only a portion of the sewer system experiences complex problems that call for complex evaluations. The technical literature generally suggests that typically about 20 percent of a sanitary sewer system with significant wet weather problems requires detailed investigation. For many systems,

detailed investigation of whole networks is usually not justified, either structurally, environmentally or hydraulically. (See Sewerage Rehabilitation Manual, Third Edition, 1994, Water Research Centre.) Rather, ongoing programs to assess system capacity can be based on information from a variety of sources, including targeted inspections, available flow monitoring information, and/or information on reserve capacity. Of course, the NPDES authority may require, in an enforcement action or permit, that a permittee conduct a detailed evaluation of more than 20 percent of its system if the NPDES authority believes it is warranted.

Under today's proposal, EPA would require more intensive evaluations and studies in areas of the collection system where peak flow conditions have contributed to an SSO event or to noncompliance at a treatment plant (see requirements for system evaluation and capacity assurance plans). This approach seems consistent with industry practice, where portions of the collection system that experience wet weather SSOs are typically given a high priority in rehabilitation efforts. Further, the identification of likely SSO locations and evaluation of the causes of SSOs are recommended as part of a comprehensive preventive maintenance program and capital expenditure plan (see draft Protocols for Identifying Sanitary Sewer Overflows, ASCE, April, 2000). EPA requests comments on this targeting approach.

Structural and hydraulic problems can be closely related. Minor defects can lead to structural problems in specific soil conditions when a sewer is subjected to surcharge because of insufficient hydraulic capacity. A cycle of exfiltration and infiltration can occur that causes fine soil particles to migrate into the sewer, reducing lateral support from the soil. This can lead to the collapse of the sewer. Many of the techniques used to identify structural defects also provide information on hydraulic performance, such as excess sediment, debris, roots, open joints and misaligned joints. EPA requests comments on the relationship between proposed requirements for programs to identify structural deficiencies, programs to identify hydraulic deficiencies and system evaluation and capacity assurance plans, and how the CMOM provisions for these measures should be coordinated.

f. Identification and Prioritization of Structural Deficiencies and Responding Rehabilitation Actions

Sanitary sewers are exposed to harsh internal and external environments. System components continuously deteriorate due to factors such as natural aging, soil settlement, excessive overburden, corrosion from sulfide and other causes, and electrochemical corrosion. Many systems are composed of components with a wide variety of ages. Structural condition assessment is a principle objective of any pipeline system inspection program and is important to cost-effective management of the collection system.

EPA is proposing that, where appropriate, CMOM programs would need to include ongoing programs for identifying structural deficiencies and prioritizing corrective actions. Where deficiencies are identified, the CMOM program must also identify implementing short-term and long-term rehabilitation actions to address each deficiency. The CMOM program summary should clearly identify the techniques used in the program, such as field inspections or closed-circuit television, identify areas of the collection system where various measures are employed, and describe criteria for identifying priorities for inspection and for correction.

Efforts to rate the condition of system components can be used to help prioritize actions. Where rating systems are used for identifying the condition of individual components of the collection system, the rating system should be explained.

Detailed recommendations for identifying, prioritizing and correcting structural and hydraulic deficiencies are provided in:

- Existing Sewer Evaluation & Rehabilitation, WEF Manual of Practice FD-6, ASCE Manual and Report on Engineering Practice No. 62
- Sewer System Infrastructure Analysis and Rehabilitation Handbook, EPA, 1991
- Manual of Sewer Condition Classification, Water Research Centre,1993

The Water Research Centre in the United Kingdom has agreed to allow the North American Association of Pipeline Inspectors to use its sewer classification program in North America and for the North America Sewer Services Companies (NASSCO) to have rights to their program in the United States. NASSCO intends to use this program in conjunction with others to develop a standard classification of sewer conditions in the United States. The NASSCO process will include: conversion to U.S. standards; certification of television operators; development of multiple teaching facilities; and assistance to software manufacturers to convert to the new standard.

g. Training

Collection system employees are exposed to numerous challenging conditions, and adequate training, including safety training, is necessary for employees to meet these challenges. Wastewater Collection System Management, Manual of Practice No. 7, Fifth edition, WEF, 1999, recommends that an organized training program is a necessity, regardless of agency size. The WEF guidance also provides that typically, 3 to 5 percent of the gross budget be set aside for training expenditures. Under today's proposal, training programs would address safety procedures and training to ensure employees are adequately prepared to implement appropriate provisions of the CMOM program.

h. Equipment and Replacement Parts Inventories

Providing adequate maintenance facilities and equipment typically includes a process for identifying critical parts needed for system operation, and maintenance of an adequate inventory of replacement parts. Without an adequate inventory of replacement parts, the collection system may experience extended overflow events in the event of a breakdown or malfunction. The process for identifying critical parts can be based on a review of equipment and manufacturer's recommendations, supplemented by the experience of the maintenance staff. The amount and types of equipment and tools held by a utility depend on the size, age and condition of the system.

5. Design and Performance Provisions

Many defects in sewers that contribute I/I are attributable to poor design and improper construction in both newly constructed and rehabilitated sewers.[25] An effective program that ensures that new sewers are properly designed and installed can help avoid permanent system deficiencies that could create or contribute to future overflow events and/or operation and maintenance problems. (Wastewater Collection System Management: Manual of Practice, 5th edition, Water Environment Federation, 1999.) Similarly, major rehabilitation and repair projects are opportunities to ensure that work is done correctly in a way that will minimize future problems. The proposed CMOM provision would require permittees to develop and implement programs to ensure:

- Requirements and standards are in place for the installation of new collection system components and for major rehabilitation projects; and
- Procedures and specifications for inspecting and testing the installation of new sewers, pumps, and other appurtenances and for rehabilitation and repair projects are implemented.

Under this proposed provision, the permittee typically would provide oversight, including inspection, of new sewers and major rehabilitation/repair projects associated with service connections and laterals and private satellite collection systems. The Agency requests comments on ownership issues associated with programs to oversee new sewers and major rehabilitation/repair efforts.

Many collection systems that have sized sewer components according to current protocols have experienced overflows because the levels of I/I were greater than originally expected and removal of I/I has generally proven more difficult and costly than was anticipated. The Agency requests comment on the continued use of existing I/I allowance criteria in light of improved materials of construction, and whether the Agency should investigate the need for modifying these requirements to further prevent SSOs in the future.

6. Monitoring, Measurement, and Program Modifications

Accurate sewer performance information is an important part of the proposed CMOM process for improving collection system performance and is a core task of any asset management program. Today's proposed CMOM provision would require permittees to monitor the implementation and, where appropriate, measure the effectiveness of elements of their CMOM programs. Satisfaction of this requirement typically would include identifying performance indicators to describe and track the implementation of various aspects of their CMOM programs. Performance indicators are ways to quantify and document the results and effectiveness of control efforts. Performance indicators also can be used to measure and report progress towards achieving goals and objectives and to guide management activities. EPA believes that information from these efforts is critical to ensuring that a CMOM program is updated as appropriate to reflect changing conditions, maintenance strategies that prove effective, and new information.

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[25] Control of Infiltration and Inflow in Private Building Sewer Connections, Water Environment Federation, 1999.

The Agency is in the process of identifying performance indicators for collection system CMOM programs. Recent discussions on performance indicators for collection systems are provided in:

- Collection Systems: Methods for Evaluating and Improving Performance, California State University, Sacramento, 1998.

- Optimization of Collection System Maintenance Frequencies and System Performance, American Society of Civil Engineers, 1999.

- Benchmarking Wastewater Operations-Collection, Treatment, and Biosolids Management, Water Environment Research Foundation, Project 96-CTS-5, 1997.

- MOP #7, Water Environment Federation, 1999.

- Stamaker, R. and Rigsy, M. "Evaluating the Effectiveness of Wastewater Collection System Maintenance." Water/Engineering Management, January, 1997.

Performance indicators for sanitary sewer collection systems are discussed in detail in section III.N of today's preamble. EPA requests comments on which performance indicators would be the most useful for characterizing collection system performance. In addition, the Agency requests comments on whether it should establish or recommend a minimum standard set of performance indicators to be tracked as part of the CMOM program. A standard set of performance indicators may allow for comparison of different collection systems and in the long run may lead to a better understanding of expectations for sanitary sewer performance.

In particular, the Agency requests comments on the use of the procedure for rating sanitary sewer collection system performance developed by the American Society of Civil Engineers (ASCE). (See Optimization of Collection System Maintenance Frequencies and System Performance, ASCE, 1999.) As discussed in section I.J of today's preamble, ASCE has developed a statistical method for comparing six performance measures associated with sanitary sewer collection systems: pipe failures, SSO events, complaints, pump station failures, the ratio of peak hourly flow to average daily flow, and the ratio of peak monthly flow to average daily flow.

7. Communications

Today's proposed standard permit condition encourages the permittee to communicate on a regular basis with interested parties on the implementation and performance of its CMOM program. The communication system should allow interested parties to provide input to the permittee as the CMOM program is developed and implemented.

Communications can include public education as well as public notification and public involvement that seeks broad public input before major proposals are developed and at key points during proposal development and implementation. This approach would require the permittee to identify and invite interested parties to the table, to present the scope of the project or program in a way that citizens and other pertinent government agencies can comprehend,

and to work to identify and address concerns. This up-front process is longer and more complex, but should help identify problems or conflicts before resources are spent. Such a process also can increase public support of public works projects from start to finish, including more support of the funding necessary to pay for the program or project.[26]

EPA seeks comment on whether communication with interested parties should be a mandatory element of the CMOM program (i.e., whether it should be included in the list of mandatory program elements in proposed 122.42(e)(2)), and, if so, which aspects should be mandatory requirements (e.g., development of a communication plan).

H. Should EPA Set Minimum Levels for CMOM Program Activities such as Preventive Maintenance?

Today's proposal does not include minimum levels for CMOM program activities such as preventive maintenance. EPA does not believe that national minimum levels are appropriate at this time for the following reasons:

(1) CMOM programs need to be tailored to the specific operational characteristics of a given collection system. Specific activities should be continually evaluated and modified as appropriate to address new conditions or new information. Defining national minimum requirements may work against this by driving programs toward the minimum rather than providing flexibility to focus on priority and critical sewers;

(2) Several studies have recommended that national numeric preventive maintenance standards for municipal sanitary sewer collection systems are not practical at this time because there is very little correlation of existing preventive maintenance data to system performance[27];

(3) National minimum standards may not reflect unique system characteristics. For example, cleaning crew production rates may be relatively high for an agency in which most of the gravity system is located in easily accessible, little traveled streets because the crews are able to quickly set up and clean the sewer segments with minimal traffic control activity. Variation in other system-specific factors, such as the travel time, and amount of debris in the pipe, debris removal and disposal procedures, can affect production rates and make comparisons difficult. Site-specific considerations, such as flat slopes or poor soils, may require some communities to clean and/or inspect the sanitary sewer system more regularly.

The Agency invites comments and specific suggestions on the use of national minimum standards in the proposed CMOM provision.

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[26]Layton, S, "Public Participation in Process is Strategic tool for Public Works," APWA Reporter, March 1997.

[27]See "Collection Systems: Methods for Evaluating and Improving Performance," California State University, 1998, "Stopping SSOs: Beneficial Maintenance Practices," Charlotte-Mecklenberg, SSO National Conference, EPA, 1995, and "Sanitary Sewer Overflows and Sewer System Maintenance," University of North Carolina at Charlotte, 1998.

I. What are the Major Documentation Requirements in the Proposed CMOM Standard Permit Condition?

All permittees would be subject to three major documentation requirements in today's proposed CMOM standard permit condition:

(1) Written summary of the CMOM program;
(2) Overflow emergency response plan; and
(3) Program audit report.

In addition, permittees that have had peak flow conditions that contribute to an SSO discharge would need to prepare a system evaluation and capacity assurance plan, unless the hydraulic deficiency causing the SSO was corrected or the SSO discharge met the criteria provided in section 122.42(f)(2) of the proposed standard permit condition clarifying the prohibition on SSO discharges caused by severe natural conditions and for which there was no feasible alternative.

1. CMOM Program Summary

In today's proposed rule, EPA is proposing that permittees be required to develop a written summary of their CMOM programs. The permittee would be required to make the CMOM program summary available to the NPDES authority and public upon request. The primary purposes of the CMOM program summary are to:

- Ensure NPDES authorities have adequate information to begin an evaluation of the permittee's CMOM program; and
- Provide the public with information on the permittee's CMOM program.

The program summary should give an overview of the management program and summarize major implementation activities. The summary may incorporate other documents by reference. At a minimum, the summary would have to describe:

(1) Goals of the CMOM program;
(2) The organization responsible for implementing the CMOM program, and the chain of communication for reporting SSOs to the NPDES authority;
(3) Legal authorities for implementing the CMOM program;
(4) Measures and activities the permittee intends to implement as part of its CMOM program;
(5) Design and performance requirements and/or standards for the following activities:
    (a) installation of new collection system components;
    (b) rehabilitation and repair projects;
    (c) procedures for inspecting and/or testing the installation of new sewers, pumps, and other appurtenances; and
    (d) rehabilitation and repair projects;
(6) How the permittee would monitor implementation of the CMOM program and, where appropriate, measure the performance or effectiveness of specific program elements; and
(7) How the permittee would communicate with interested stakeholders about the implementation and performance of the CMOM program.

If the permittee believes any of the listed CMOM provisions are not appropriate for its CMOM program, the summary would have to explain why. The permittee would be required to modify the summary of the CMOM programs as appropriate to keep it updated and accurate. In general, CMOM program summaries should be as brief as possible. EPA expects that the length of the summary would vary depending on the size and complexity of the system and other factors. The CMOM program summary for some very small municipalities may only be several pages long. EPA requests comments on the appropriate scope and content of the CMOM program summary.

2. Overflow Emergency Response Plans

An overflow emergency response plan provides a standardized course of action for wastewater collection system personnel to follow in the event of an SSO. An overflow emergency response plan should describe the permittee's planned options for response, remediation and notification measures under different SSO scenarios. EPA believes that an up-to-date overflow emergency response plan is necessary to ensure that a municipality is adequately prepared to respond to SSO events. EPA believes that given the public's potential direct interest in a municipality's response to SSO events, the public should be given access to overflow emergency response plans and, in certain cases, to inform their development.

EPA anticipates that under the proposal, overflow emergency response plans would identify procedures for a wide range of potential system failures. At a minimum, overflow emergency response plans would be expected to address mechanisms to:

(1) Identify SSOs;
(2) Provide immediate response and emergency operations;
(3) Provide appropriate immediate notification to the public, health officials, other affected entities and the NPDES authority (as required in today's proposed reporting, public notification and recordkeeping standard permit condition); and
(4) Ensure that appropriate personnel are adequately trained to implement the plan.

The plan should also provide a process for periodically reviewing and updating the plan. Detailed industry recommendations for overflow emergency response plans is provided in Preparing Sewer Overflow Response Plans: A Guidebook for Local Governments, American Public Works Association, 1999. The APWA guidebook also provides a model overflow emergency response plan.

a. Identification of SSOs

The overflow emergency response plan should describe strategies for a wide range of potential system failures for receiving and dispatching information. This would include a description of the role of each participant in the response, beginning at the time a complaint or report is received and continuing through the satisfactory response to the incident.

b. Provide Immediate Response and Emergency Operations

The overflow emergency response plan should describe strategies for a wide range of potential system failures to:

- Mitigate the impact of SSOs as soon as possible by mobilizing labor, materials, tools, and equipment to investigate reported incidents; and
- Document the findings and response.

The National Weather Service recommends that a National Oceanic and Atmospheric Administration (NCAA) weather radio, that includes a battery backup and a tone-alert feature that automatically broadcasts an alert when a watch or warning is issued, can be the best source of current flood warnings. A NOAA weather radio can provide warning messages on flash floods, flood watches, flood warnings, urban and small stream advisories, and flash flood or flood statements.

c. Immediate Notification to the Public, Health Agencies, Other Affected Entities, and the NPDES Authority

Today's proposed requirements for an overflow emergency response plan would require the permittee to provide a framework describing how it would notify the public, as well as other entities, of overflows that may imminently and substantially endanger human health. The proposed overflow emergency response plan provision would not dictate the specific procedures or the specific information that would be provided through immediate notification. Rather, the provision would require the permittee to develop a plan, in consultation with potentially affected entities, that establishes a framework for case-by-case notification which depends on the nature of the overflow event and the responsibilities of different local entities. Given the complexities of immediate notification, the Agency believes it is critical to use the flexibility of a system-specific overflow emergency response plan to identify and clarify specific notification responsibilities and notification protocols.

EPA expects that the plan would identify appropriate authorities at the local, county, and/or State level to receive notification and identify the roles and relationships of the permittee, public health authorities, and other authorities, including lines of communication and the identities of responsible officials. EPA requests comments on this approach.

i. Criteria for Identifying Overflows that Trigger Notification Requirements

Under the proposal, the overflow emergency response plan would describe the criteria to be used to evaluate if a given overflow event may imminently and substantially endanger human health and if immediate notification of the public, a public health agency, or other impacted entity (e.g., water supplier) is required. The criteria would reflect the uses of potentially impacted waters as well as other relevant factors. The development of these criteria should be coordinated with the NPDES authority, local health officials, drinking water suppliers, and other key potentially impacted entities.

In general, SSOs that are expected to meet the "may imminently and substantially endanger human health" criterion for immediate notification include major line breaks, overflow events that result in fish kills or other significant harm, and overflow events that occur in sensitive waters and high exposure areas such as protection areas for public drinking water intakes and swimming beaches and waters where primary contact recreation occurs (see Chapter X of the Enforcement Management System Guide, EPA, March 7, 1996). NPDES authorities may identify other areas or overflows of specific concern in guidance.

ii. Immediate Notification of the Public

Under today's proposal, the permittee would be required to coordinate with State and/or local health agencies to identify public notification procedures for inclusion in the permittee's overflow emergency response plan. The overflow emergency response plan would describe actions that would be taken, in cooperation with State and/or local health agencies, and the entity responsible for each action, to:

- Limit public access to areas impacted by municipal sanitary sewer overflows. Actions should include temporary signage to provide notification for impacted surface water bodies, ground surfaces or other areas;
- Post emergency overflow outfall locations where affected water bodies are accessible to the public; and
- Provide other appropriate media and public notification.

EPA expects that, at a minimum, notification would include the following information:

- The location of the overflow and/or affected receiving water;
- A clear statement identifying the potential health problem (e.g., raw sewage has been released, water is contaminated);
- Measures to avoid exposure (e.g., avoiding contact with ponded water or soil); and
- Name and phone number to contact for further information.

The Agency anticipates that an overflow emergency response plan would likely provide for a range of potential options with selection of a specific option or options depending on the immediate circumstances of the overflow. The notification methods selected for different types of SSOs should provide the necessary information to the appropriate audience based on exposure and public health considerations. Not all of these notifications would be appropriate for all situations. Options for consideration include:

- Hand delivery of information bulletins or door hangers to populations exposed to an imminent and substantial human health risk in cases where the population is limited and easily defined and accessible;
- Temporary (e.g., less than one week) posting at affected use areas (e.g., along a beach front) in cases where recreational uses are affected on a short-term basis;
- Temporary posting at selected public places with affected use areas such as a bulletin board or public information center at a park or beach, in cases where the public has access to the area selected for display; and
- Notices in newspapers or in radio/television public announcements, in cases where public exposure is likely to be widespread or health impacts severe.

Under the proposed provision, the permittee would be responsible for notifying the public in accordance with the permittee's overflow emergency response plan. Depending on local circumstances, this may involve the permittee directly notifying the public or it may involve the permittee notifying a different entity, such as the local health authority, who would in turn notify the public. The advantages to letting another authority provide this information include the existence of other notification mechanisms for public health and safety, the training and background of the employees applying the notification criteria, and the need for consistency of message. EPA is particularly interested in examples illustrating the appropriateness of an entity other than the permittee providing immediate public notification due to institutional arrangements

with other entities that provide notification of public health risks and can provide the necessary information on overflows with the necessary promptness. If, for example, the permittee's overflow emergency response plan documents an arrangement under which public health authorities receive the notification and transmit it directly to the affected public, should this relieve the permittee of responsibility for providing direct notification? EPA seeks comment on whether more flexible wording would provide greater flexibility while ensuring the same level of public health protection (for example, replacing "You must notify" with "You must ensure that the public is notified . . ."). EPA also seeks comment on how to clarify when the public health risk warrants different forms of public notification.

iii. Immediate Notification of Health Officials

Public health authorities can play an important role in assessing the health risks of SSOs and notifying the public of potential health threats. In many cases public health authorities may have mechanisms in place, or may be able to develop mechanisms, to coordinate assessment and public notification activities for SSOs with those activities for other similar potential public health risks, such as CSOs, or can integrate SSO notification into notification on beach closings, shellfishing restrictions, and other use impairments.

Public health authorities also can play an important local role, in coordination with the permittee, in tracking SSO occurrences and patterns and establishing long-term notification and posting procedures in cases where recurring SSOs pose a chronic health or environmental threat. In this role public health authorities can form an important bridge between citizens, the permittee, and Federal and State authorities.

Under today's proposal, the overflow emergency response plan would identify specific reporting protocols between the permittee and the appropriate public health authorities, tailored to the needs of the public health authorities and other local circumstances. EPA expects that, at the very least, the notification would enable public health authorities to assess any immediate health threat, participate in monitoring and public notification activities, and facilitate longer-term public awareness activities and tracking of long-term overflow trends and potential health threats.

EPA does not expect that immediate notification to public health authorities would entail significantly more information collection or reporting responsibilities than those already proposed for immediate noncompliance reporting to NPDES authorities or immediate notification to the public. EPA seeks comment on whether the regulation should specify certain minimum elements of this notification, such as a characterization of the size of the overflow and when the overflow began and ended, if known.

In establishing the institutional arrangements for permittees and public health authorities it may also be beneficial to agree on certain "boilerplate" public notification information that either the permittee or public health authority could provide, and which would be applicable in a range of SSO events. Information would include:

- Possible health risks of exposure;
- Measures to avoid exposure – e.g., avoiding contact with ponded water or contaminated soil; and
- Name and phone number to contact for further information.

iv. Immediate Notification of Other Impacted Entities

Under today's proposal, the permittee's overflow emergency response plan would have to identify other potentially impacted entities that would also receive immediate notification. These entities would be identified based on system-specific considerations and could include drinking water providers, beach monitoring authorities, local police or fire departments, downstream municipalities and downstream facilities with water intakes that use waters for purposes that could result in health risks (e.g., processing food). EPA seeks comment on whether the rule should provide guidance on how the overflow emergency response plan should identify which additional entities to notify, and under which circumstances.

v. Additional Public Notification

In addition to the immediate notification provisions described above, EPA is proposing to require permittees to provide more permanent notification at specific locations with recurring overflows that continue to have a potential to affect human health. For example, where the system has designed or "built in" overflow structures that may overflow in a manner that could have the potential to affect human health. The additional public notification requirement for recurring overflows that continue to have a potential to affect human health and designed overflow structures is intended to address more routine activities associated with responding to an overflow as well as long-term activities such as permanent posting of overflow structures at pump stations and other locations. As discussed in Section VI.B.4., the Agency is also requesting comment on whether "potential to affect human health" is the appropriate criterion to trigger additional public notification requirements.

The permittee's overflow emergency response plan should specify procedures and protocols for this additional public notification, including how other affected entities, such as local, State, or tribal public health officials, parks and recreation officials, and members of the public, would be consulted.

d. Training and Distribution and Maintenance of the Plan

EPA is proposing that the overflow emergency response plans ensure adequate training for appropriate personnel. The overflow emergency response plan would describe:

- How the plan would be distributed and otherwise made available to personnel responsible for implementing the plan;
- Training procedures for appropriate personnel, including the frequency of the training activities; and
- The process for reviewing and updating the plan.

3. Program Audit Report

At the heart of the CMOM process is the concept of ongoing assessment of the CMOM program and the performance of the collection system. EPA believes that one important part of the assessment is periodic comprehensive audits of the program. EPA is proposing that permittees conduct comprehensive audits of their programs at least once every five years.

Under the proposal, permittees would be required to conduct an audit that included:

- Interviews with facility managers;
- Field inspection of equipment and other resources;
- Interviews with field personnel and first level supervisors, observation of field crews; and
- Review of pertinent records and information management systems.

Based on an evaluation of information from these sources, the permittee would be required to develop an audit report. At a minimum the audit report would have to address:

(A) The findings of the audit, including deficiencies;

(B) Documentation of steps taken to respond to each finding in the report, including steps taken to correct each deficiency; and

(C) A schedule for additional steps to respond to findings of the report.

The proposed comprehensive audit requirement is not intended to necessarily require system-wide flow monitoring, SSESs or physical inspections. These types of activities may be part of a CMOM program to one degree or other, and are discussed in the context of system evaluation and capacity assurance plans (see section III.I.4), and CMOM measures and activities (see section III.G).

The Agency notes that its Audit Policy, Incentives for Self-Policing: Discovery, Disclosure, Correction and Prevention of Violations (65 FR 19618; April 11, 2000), would not apply to the proposed audit requirement in today's proposed rule. The Agency's Audit Policy, which provides incentives, including eliminating or substantially reducing the gravity component of civil penalties, applies to facilities who voluntarily self-disclose and promptly correct violations, and does not apply to compulsory disclosure requirements such as those proposed today.

4. System Evaluation and Capacity Assurance Plan

Capacity assurance is a process to identify, characterize and address hydraulic deficiencies in a sanitary sewer collection system. Under today's proposal, permittees would need to implement a program to assess the current capacity of the collection system and treatment facilities that they own or over which they have operational control. EPA is proposing that where peak flow conditions contribute to an SSO discharge or to noncompliance at a treatment plant, permittees would be required to prepare and implement a system evaluation and capacity assurance plan unless the permittee has either:

- Taken steps to correct the hydraulic deficiency; or
- The permittee demonstrates that the discharge was caused by severe natural conditions and that there were no feasible alternatives to the discharge (see the proposed prohibition provision at 122.42(f)(2)).

There are several evaluating and planning approaches for identifying, characterizing and addressing hydraulic deficiencies in sanitary sewer collection systems. A comprehensive set of long-term actions may be needed for collection systems with complex wet weather capacity problems. Industry guidance suggests different variations to the multiple phase approach for

complex situations[28]. While there is some variation in the multi-phase approach recommended in the literature, they generally address the following activities:

- Initial evaluation of the management and performance of the collection system based on available information;
- Planning for and collecting additional information/data on the management and performance of the collection system;
- Clarification of management and performance objectives, developing and evaluating alternatives and selecting measures;
- Implementation of measures; and
- Continued monitoring and assessment to determine the effectiveness of implemented measures and adjustment of measures as necessary.

Today's proposal would not require a specific approach be followed, and is intended to provide flexibility in conducting evaluations and identifying appropriate responses.

a. Evaluations

Under today's proposal, the evaluation portion of the plan would have to include a summary of steps that were planned or that have been taken to evaluate the cause of the hydraulic deficiency and provide suitable information to support selection of actions to address the deficiencies. The scope of an evaluation for a specific deficiency is expected to vary depending on the cause, nature and complexity of the deficiency. Some deficiencies, such as lift stations or pumps that are not coordinated, treatment plants that are not adjusted according to influent flow, or major structural problems at manholes or with pipes, should be addressed by short-term measures without the need for or the delay associated with extensive analysis of the system.

Where a collection system experiences complex wet weather capacity problems that result in wet weather overflows or plant noncompliance problems, accurate characterization of the sewer system should precede portions of the comprehensive response. In these situations, a thorough understanding of the characteristics and performance of the collection system is essential for developing cost-effective solutions. Trying to fix complex, wet weather collection system problems without adequately evaluating the collection system can result in pursuing inappropriate solutions that are not the most cost-effective and that may even lead to overflow problems in other parts of the collection system. In addition, a detailed evaluation of the collection system can dramatically reduce remediation costs by providing information on the causes of the SSO problem that allows selection of the most cost-effective solutions.

Collection system evaluations undertaken to address wet weather SSO problems should focus primarily on identifying the major sources that contribute to the peak flows

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[28] For example, Existing Sewer Evaluation & Rehabilitation, WEF MOP FD-6, ASCE Report No. 62, 1994, recommends a four phased integrated approach to rehabilitation of sewer systems (Phase 1 - Planning Investigation; Phase 2 - Assessing the System I/I Conditions, Structural Conditions, and Hydraulics; Phase 3 - Developing the System Usage Plan; and Phase 4 - Implementing the System Usage Plan). Handbook-Sewer System Infrastructure Analysis and Rehabilitation, EPA 1991, describes a four phase approach that includes a preliminary sewer system analysis, an I/I analysis, a sewer system evaluation survey and sewer system rehabilitation.

associated with overflow events (e.g., sources of inflow and rainfall-induced infiltration) and hydraulic problems (e.g., bottlenecks, insufficient slopes, inadequate pumps). Evaluations that focus primarily on SSO problems may differ from many traditional sanitary sewer evaluation surveys that often focus primarily on infiltration affecting base flows.[29] To quantify peak flows entering a collection system accurately, total flows need to be measured or accounted for and estimated, including contained flows remaining in the system and escaping flows such as overflowing manholes or other SSOs. Complete and accurate flow monitoring is extremely important to estimate peak flows.[30] Measured flows need to be correlated to the specific rainfall that caused the flow, as RII is dependant on the magnitude and duration of the storm event and other factors.

Modeling may be a valuable tool for providing general predictions of sewer system response to various wet weather events and evaluating control strategies and alternatives. EPA recognizes that there are many models that can accomplish these tasks. These models range from the simple to the complex. When a model is used, it should include calibration and verification with field measurements. EPA believes that continuous simulation models, using historic rain and I/I data, may be the best way to model sewer systems. The model simulation should be limited to the collection system for which data is provided and for only the range of rainfall data measured. Because of the iterative nature of modeling sewer systems, monitoring and modeling efforts are complementary and should be coordinated. Modeled flow projections should be accompanied by a characterization of the degree of uncertainty as such uncertainty can be significant[31].

EPA requests comments on whether the Agency should provide guidance or guidelines on characterizing information collected during collection systems evaluations, and if so what kind. For example, the Agency notes that it is often very difficult to interpret and compare I/I values that do not specify the conditions under which the values were observed[32]. In addition, the Agency requests comment on whether CMOM permit provisions should specify minimum information requirements for evaluations. Such requirements could generally include: estimates of peak flows (including flows from SSOs that escape from the system) associated with conditions similar to those causing overflow events; estimates of the capacity of key system components; identification of hydraulic deficiencies, including components of the system with

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[29]EPA developed requirements for SSESs under the Construction Grants regulations (40 CFR 35.927-2). The primary purposes of SSESs are to identify the location, estimate flow rate, method of rehabilitation and cost of rehabilitation versus cost of transportation and treatment for each defined source of I/I and provide a proposed rehabilitation program for the sewer system.

[30]See "Existing Sewer Evaluation and Rehabilitation," Water Environment Federation Manual of Practice FD-6, American Society of Civil Engineers Manual and Report on Engineering Practice No. 62, 1994.

[31]See Heaney, J.P. et al., "Research Needs in Urban Wet Weather Flows", WEF Research Foundation Project 96-IRM-1, February 1998.

[32] See Innovative Urban Wet-Weather Flow Management Systems , by Heaney, J., Pitt, R., Field R., EPA cooperative agreement nos. CX824932 & CX 824933, 1999.

limiting capacity; and identification of the major sources that contribute to the peak flows associated with overflow events.

b. Capacity Enhancement Measures

EPA is proposing that short- and long-term actions to address each hydraulic deficiency be identified in the system evaluation and capacity assurance plan. The plan would have to include an analysis of alternatives. EPA generally encourages permittees to include comprehensive approaches to reducing peak flows in collection systems with complex problems. Measures that reduce peak flow can reduce long-term operating costs and expenses associated with future plant and conveyance expansions. Some peak flow reduction measures can significantly reduce flows at relatively low costs, such as programs to remove illegal connections from private buildings (e.g., sump pumps, area drains and roof drains).

Under today's proposal, system evaluation and capacity assurance plans would have to include a description of how actions were prioritized and estimated schedules for implementing actions. Where a system evaluation and capacity assurance plan addresses multiple hydraulic deficiencies, EPA generally expects that priorities would be based on the human health and environmental risks associated with potential SSOs and the degree to which improvements can be made quickly. Factors that can affect risk are the location of the SSO, potential for human contact, receiving water uses, and the volume of discharge. SSOs that imminently and substantially endanger human health, such as discharges into buildings, to public drinking water supplies, and waters and beaches where swimming occurs, should be given the highest priority.

c. Interim use of Peak Excess Flow Treatment Facilities

EPA has identified a limited number of cases where NPDES permits have been used to authorize or approve infrequent discharges from a peak excess flow treatment facilities (PEFTFs) located in sanitary sewer collection systems. In the past, the NPDES permits issued for PEFTF discharges have used different regulatory constructs.

The Agency has identified permits written for facilities in Texas, California, and New York, that authorize discharges from PEFTFs and do not incorporate effluent limitations based on secondary treatment.[33] EPA requests comments on the existence of NPDES permits authorizing discharges from PEFTFs in other States, and the framework under which those permits were issued, including articulated expectations for how long the facilities were expected to operate.

Under the proposed approach, any permit issued in the future for discharges from a PEFTF that is located in a sanitary sewer collection system would need to include effluent limitations based on the secondary treatment regulation (40 CFR Part 133) and any more stringent limitations necessary to meet water quality standards. The approach outlined below discusses how EPA would address PEFTFs that are not designed to meet effluent limitations based on secondary treatment or any more stringent water quality-based requirements on an interim basis in enforcement actions.

Where a permittee's system evaluation and capacity assurance plan and program audit indicate that elimination of avoidable wet weather SSOs will take a long time (e.g., five to

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[33] Draft - Performance of Peak Excess Flow Treatment Facilities serving Sanitary Sewer Collection Systems, October, 1999, prepared for US EPA under contract with Science Applications International Corporation.

twenty years), EPA recognizes that interim use of a PEFTF to reduce adverse health and/or environmental impacts may be appropriate. EPA requests comment on potential health and/or environmental impacts or benefits of long-term PEFTF use, and on the treatment efficiency of various technologies used for PEFTFs, and how such treatment efficiencies compare to biological treatment systems operating under peak flow conditions.

EPA would apply the following principles for permittees wanting, or needing, PEFTFs:

- The permittee would develop and implement a CMOM program, including a system evaluation and capacity assurance plan and CMOM program audit, which identified specific plans to fix causes of SSOs. Where, based on this evaluation, the permittee demonstrates that a PEFTF would reduce adverse health and/or environmental impacts of untreated SSOs during peak excess flow events, the permittee would notify the NPDES authority and provide the NPDES authority with appropriate analysis, including the system evaluation and capacity assurance plan and program audit report.
- The CMOM program audit and system evaluation and capacity assurance plan of any permittee proposing interim use of a PEFTF would need to demonstrate that no timely feasible alternatives to the PEFTF exist for managing SSOs. Public participation should be used in evaluating feasible alternatives. The approach may take watershed considerations into account.
- Proposals for interim use of PEFTFs to treat peak excess flows would be addressed in an enforcement action unless discharges from the PEFTF could meet all secondary treatment and water quality-based requirements, in which case the discharges could be authorized under the standard permit process. EPA or the State enforcement agency would issue an administrative order (AO) to the facility to ensure plans are implemented. For a permittee proposing interim use of a PEFTF for a period longer than three years, EPA or the State enforcement agency would seek a judicial order (on consent or otherwise). Either the AO or judicial order will identify a date by which discharges from the PEFTF would need to be eliminated. Any remaining discharges after that date would be addressed in the context of applicable permit language (e.g., the prohibition on SSO discharges (based on proposed 40 CFR 122.42(f)). Under the enforcement order from EPA or an authorized NPDES State, the permittee would provide its formal commitment and schedule to carry out the plan to correct problems. The order would also provide a mechanism for stipulating penalties, which may be reduced as appropriate.
- Provisions and requirements of the PEFTFs not meeting effluent limits for secondary treatment and applicable water quality-based requirements could be included in the AO or judicial order. These provisions and requirements could be developed on a case-by-case basis because they would be interim mitigative requirements. The PEFTF would need to be designed to provide protection of public health and, at a minimum, sensitive environmental concerns.
- The appropriate components of CMOM program should be reassessed at least every five years to assess the progress of implementing the CMOM program and determine whether use of the PEFTF should continue and, if so, whether it should be subject to modified conditions.

Any permittee proposing to utilize a PEFTF that will not comply with effluent limits for secondary treatment and any more stringent limits necessary to meet water quality standards could only do so in the context of the above procedures. These procedures would provide for a fixed date for correction of SSOs related to inadequate peak flow capacity at which point the PEFTF would no longer be needed. Existing permitted PEFTFs could remain under permit until expiration of the permit. Upon expiration of such permits, the permittee could enter into the above process and be covered with an enforcement order if more time is needed to phase out the PEFTF or issued a permit that included effluent limitation for secondary treatment and applicable water quality-based requirements.

J. What is Adequate Capacity for a Municipal Sanitary Sewer Collection System?

In today's proposed rule, the proposed standard permit condition that prohibits SSO discharges contains criteria for evaluating the circumstances related to SSO discharge events that are caused by severe natural conditions. Under the proposed prohibition provision, the NPDES Director may take enforcement action against the permittee for a prohibited SSO discharge caused by natural conditions unless the permittee demonstrates: (1) the discharge was caused by severe natural conditions; (2) there were no feasible alternatives to the discharge; and (3) the permittee complies with the specified notice requirements. This regulatory framework would be used for evaluating if a municipal sanitary sewer collection system provides adequate capacity.

EPA is not proposing minimum numeric criteria for adequate capacity for sanitary sewer collection systems in today's proposed rule. As discussed elsewhere in today's preamble, EPA believes that at this time it is not appropriate for the Agency to develop national minimum numeric criteria for sizing sanitary sewer collection systems or for defining severe natural conditions on which to base sanitary sewer design. Rather, the design capacity for sanitary sewer collection systems should be established based on system-specific considerations, and should be evaluated periodically to ensure that feasible alternatives are being employed.

EPA intends to retain the ability to enforce where SSOs are caused by severe natural conditions for the instances where additional investments in feasible alternatives are warranted by health or environmental risks. This approach retains the Agency's ability to address health and environmental risks associated with discharges that may occur as the result of severe natural conditions.

The Agency believes that some State and industry guidelines were that historically used for sizing new sanitary sewer components may not be adequate to prevent SSOs under all conditions. In part, this is because the Agency believes these guidelines, particularly when applied to sewers that were built with materials other than those available today, have in some cases used I/I allowances that have underestimated actual levels of I/I that occur under various conditions. This has been due in part to an incomplete or inaccurate understanding of I/I, particularly how I/I changes with changing conditions, and overly optimistic projections of I/I removal. The engineering criteria used for designing older sewers appear to have based on unrealistic expectations on how I/I would impact a complex sanitary sewer collection system and how well I/I could be removed. For these reasons, the Agency does not believe that some sanitary sewers that were originally sized to meet State and industry guidelines, particularly

those built to serve older sewers, would necessarily satisfy today's proposed requirements to provide adequate capacity if those sanitary sewers continue to experience high levels of I/I.

K. Should There Be an Alternative CMOM Special Permit Condition For Small Municipal Sanitary Sewer Collection Systems?

In the United States, a relatively few large sanitary sewer collection systems serve a large percentage of the total population served The distribution of service populations for municipal sanitary sewer collection systems is described in Table 13. Some highlights from the distribution are:

- Municipal sanitary sewer collection systems with service populations of 50,000 or more serve 49 percent of the population that is served by sanitary sewers. There are only about 450 of these systems, however; this is only 2 percent of the number of municipal sanitary sewer systems.
- The remaining 98 percent of municipal sanitary sewer systems, or about 18,500 collection systems, have service populations of less than 50,000.
- About 16,500 or 86 percent of all municipalities with sanitary sewer collection systems have service populations of less than 10,000. These municipalities account for only 20 percent of the U.S. population served by municipal sanitary sewer collection systems.

Table 13. Distribution of Municipal Sanitary Sewer Collection Systems by Size

Service population of system	Rough equivalent flow (mgd)	Number of systems	Population served	Percent of total service population	Percent of all systems	Cumulative percentage of total service population	Cumulative percentage of all systems
<1,000	<0.1 mgd	7,466	3,100,000	2%	39%	2%	39%
1,000 - 2,499	0.1 - 0.25 mgd	4,411	6,300,000	4%	23%	6%	62%
2,500 - 4,999	0.25 - 0.5 mgd	2,582	7,900,000	6%	14%	12%	76%
5,000 - 9,999	0.5 - 1 mgd	1,900	11,700,000	8%	10%	20%	86%
Total < 10,000	< 1 mgd	16,359	29,000,000	20%	86%	20%	86%
10,000 - 24,999	1 - 2.5 mgd	1,626	25,300,000	17%	9%	37%	95%
25,000 - 49,999	2.5 - 5 mgd	606	21,100,000	14%	3%	51%	98%

all systems under 50,000	all systems under 5 mgd	18,591	75,400,000	51%	98%	51%	98%
All system 50,000 or more	all systems 5 mgd or more	449	72,600,000	49%	2%	100%	100%
TOTAL number of systems		19,040	148,000,000	100%	100%	100%	100%

Source: 1996 Clean Water Needs Survey (CWNS) Database

1. As a rule of thumb, a residential service population of 10,000 generates an average of 1 million gallon per day (mgd) of wastewater

An important underlying principle to the CMOM requirements in today's proposed rule is that a permittee's program would be tailored to the size and complexity of its collection system. The Agency recognizes that the CMOM programs of small municipalities may be different from those of large municipalities in terms of the types and frequencies of activities. The Agency believes, however, that all municipal sanitary sewer collection systems should be properly managed, operated and maintained, and provide adequate capacity, and that permittees should take all feasible steps to stop and mitigate the impacts of SSOs and to provide appropriate notification.

During the development of today's proposal, EPA held fact finding discussions with selected representatives from 14 small governments. Most small government representatives participating in the fact-finding discussions supported the general principles behind the CMOM provision, but a number of the representatives raised concern about the amount of paperwork associated with the approach and the time needed to prepare the paperwork.

1. Major Options for CMOM Standard Permit Conditions for Small Municipal Sanitary Sewer Collection Systems

EPA requests comment on the following options for establishing a CMOM standard permit condition for small municipal sanitary sewer collection systems.

Option 1 - Same CMOM standard permit condition for all municipal sanitary sewer collection systems

Under this option, EPA would use the same CMOM standard permit condition for all municipal sanitary sewer collection systems regardless of size or occurrence of an SSO discharge. As described above, a permittee would be able to tailor program requirements to the size and complexity of the collection system. In addition, if a permittee believed that any element listed in the CMOM standard condition were not appropriate for the permittee's CMOM program, the program would not have to address that element. For any element listed in the standard condition that was not included in the permittee's CMOM program, the permittee would be required to give an explanation of why that element was not applicable.

Option 2 - Less-detailed CMOM standard permit conditions for small municipal sanitary sewer collection systems

Under this option, the CMOM standard permit condition for specified small municipalities would not be as detailed as the CMOM standard permit condition for other municipalities. Under this approach, the permittee's CMOM program would still have to address appropriate and applicable measures and activities; however, the standard permit condition for small municipalities would not list certain elements. EPA does not propose that this method of drafting would change the substantive requirements of the CMOM provision, but rather would reflect the underlying principle in today's proposal that a permittee's program is to be tailored to the size and complexity of the collection system. While this approach would not change the way CMOM programs were implemented, it may clarify requirements for small systems. An example of how the provision may be written under this approach is provided in the attached text box. EPA seeks comment on how well Option 2 would satisfy the objective of proposing less-detailed CMOM standard permit conditions for small municipalities.

OPTIONS 2 AND 3. Capacity, Management, Operation and Maintenance Programs for Small Sanitary Sewer Systems

(1) General Standards - You, the permittee, must:

(i) properly manage, operate and maintain, at all times, all parts of collection system that you own or over which you have operational control;

(ii) provide adequate capacity to convey base flows and peak flows for all parts of the collection system you own or over which you have operational control;

(iii) take all feasible steps to stop, and mitigate the impact of, sanitary sewer overflows in portions of the collection system you own or over which you have operational control; and

(iv) provide notification to parties with a reasonable potential for exposure to pollutants associated with the overflow event.

(v) if an SSO that discharges to waters of the United States occurs from your collection system during the term of the permit, you must develop a written summary of your CMOM program and make it, and the audit under section (5), available to any member of the public upon request.

(2) **Management Program** - You must develop a capacity, management, operation and maintenance (CMOM) program to comply with paragraph (1). If you believe that any element of this section is not appropriate or applicable for your CMOM program, your program does not need to address it, but your written summary must explain why that element is not applicable. The Director will consider the quality of the CMOM program, its implementation and effectiveness in any relevant enforcement action, including but not limited to any enforcement action for violation of the prohibition of any municipal sanitary sewer system discharges described at 40 CFR 122.42(f). The program must:

(i) **Goals**: Identify with specificity the major goals of your CMOM program, consistent with the general standards identified above.

(ii) **Organization**: Identify:

(A) administrative and maintenance positions responsible for implementing measures in your CMOM program; and

(B) the chain of communication for reporting SSOs under 122.42(g) from receipt of a complaint or other information to the person responsible for reporting to the NPDES authority.

(iii) **Legal Authority:** Include legal authority, through sewer use ordinances, service agreements or other legally binding documents, to implement your CMOM program.

(iv) **Measures and Activities**. Your CMOM program must address appropriate measures and activities and identify the person or position in your organization responsible for each measure and activity.

(v) **Collection System Map** - You must maintain a map of your collection system.

(vi) **Monitoring, Measurement and Program Modifications**. You must monitor the implementation and, where appropriate, measure the effectiveness of your CMOM program. You must update your program as appropriate based on monitoring or performance evaluations.

(3) **Overflow Response Plan**: You must develop and implement an overflow response plan that identifies measures to protect public health and the environment by including mechanisms to:

(i) ensure that you are made aware of all overflows (to the greatest extent possible);

(ii) ensure that overflows are appropriately responded to, including ensuring that reports of overflows are immediately dispatched to appropriate personnel for investigation and appropriate response;

(iii) ensure appropriate immediate notification to the public, health agencies, other impacted entities (e.g., water suppliers) and the NPDES authority pursuant to 40 CFR 122.42(g). The CMOM should identify the public health and other officials who will receive immediate notification;

(iv) ensure that appropriate personnel are aware of and follow the plan and are appropriately trained; and

(v) provide emergency operations.

OPTION 2. Capacity, Management, Operation and Maintenance Programs for Small Sanitary Sewer Systems (continued)

(4) **System Evaluation and Capacity Assurance Plan**: You must prepare and implement a plan for system evaluation and capacity assurance if peak flow conditions are contributing to an SSO discharge or to noncompliance at a treatment plant unless you have either (1) already taken steps to correct the hydraulic deficiency or (2) the discharge meets the criteria of 122.42(f)(2). At a minimum the plan must include:

(i) **Evaluation**: Steps to evaluate those portions of the collection system which you own or over which you have operational control which are experiencing or contributing to an SSO discharge caused by hydraulic deficiency or to noncompliance at a treatment plant. The evaluation must provide estimates of peak flows (including flows from SSOs that escape from the system) associated with conditions similar to those causing overflow events, provide estimates of the capacity of key system components, identify hydraulic deficiencies, including components of the system with limiting capacity, and identify the major sources that contribute to the peak flows associated with overflow events.

(ii) **Capacity Enhancement Measures**: Establish short and long term actions to address each hydraulic deficiency including prioritization, alternative analysis, and a schedule.

(iii) **Plan updates**: The plan must be updated to describe any significant change in proposed actions and/or implementation schedule. The plan must also be updated to reflect available information on the performance of measures that have been implemented.

(5) **CMOM Program Audits** - If an SSO that discharges to waters of the U.S. occurs from your collection system during the term of this permit, you must conduct an audit, appropriate to the size of the system and the number of overflows, and submit a report of such audit, evaluating your CMOM and its compliance with this subsection, including its deficiencies and steps to respond to them.

(6) **Communication -** The permittee should communicate on a regular basis with interested parties on the implementation and performance of its CMOM program to allow input as the CMOM program is developed and implemented.

Option 3 - Limit documentation requirements for small municipal sanitary sewer collection systems that meet specified criteria

Under this option, the CMOM standard permit condition for small municipalities would contain the general standards and management program sections that are proposed for other municipalities. Some of the documentation requirements in the CMOM standard permit condition for small municipalities would only apply if specified criteria were met, however. For example, the standard permit condition could be written so as to not require a small municipality to either provide a written program summary or conduct a program audit if the permittee has not experienced an SSO that discharges to waters of the United States during the permit term. Another option would be to exempt a small municipality from these documentation requirements even if it did experience an SSO discharge to waters of the U.S. Under such approaches, if appropriate, the NPDES authority could include more stringent requirements in a permit, or require a written program and/or an audit pursuant to other authorities such as the information-gathering authorities under CWA section 308 or analogous State law. EPA seeks comment on the appropriateness of such approaches.

Option 4 - Only permits for targeted small municipal sanitary sewer collection systems contain CMOM requirements

Under this approach, not all permits for municipal sanitary collection systems would have to contain CMOM provisions. The NPDES authority would not have to include the CMOM provision in a permit for a small municipal collection system if the NPDES authority determined the system met specified criteria. The criteria could include the performance of the collection system or the presence of an alternative State requirement determined to be either the functional equivalent of the proposed CMOM provision or otherwise determined to be effective.

2. Approach Favored in Today's Proposal

In today's proposed rule, EPA is proposing that the CMOM standard permit conditions for small collection systems would differ in two ways from the CMOM standard permit condition for larger collection systems. First, EPA is proposing that a collection system with an average daily flow of less than 2.5 million gallons per day (mgd) would not be required to develop a written CMOM program summary or a CMOM program audit until it experiences an SSO discharge to waters of the United States from its collection system. The permit would specify the time period after the SSO discharge during which the CMOM program summary and the CMOM program audit would need to be completed. Section III.L.3 of today's preamble discusses recommendations for such timing. The Agency requests comment on these timing recommendations.

The second proposed difference for small collection systems is that the CMOM standard permit condition could be less detailed in permits for municipal sanitary sewer collection systems with an average daily flow of less than 1 mgd. EPA is proposing that the CMOM condition in permits for municipal systems with an average daily flow of 1.0 million gallons per day or less need not specifically list the following elements from the proposed standard permit condition for other municipalities:

- (e)(2)(iii)(A): Specific legal authority to control inflow and connections from inflow sources;
- (e)(2)(iii)(B): Specific legal authority to require proper design and construction or sewers and connections;
- (e)(2)(iii)(C): Specific legal authority to ensure proper installation, testing, and inspection of new and rehabilitated sewers (such as new or rehabilitated collector sewers and new or rehabilitated service laterals);
- (e)(2)(iii)(D): Specific legal authority to address flows from municipal satellite collection systems;
- (e)(2)(iii)(E): Specific legal authority to implement the general and specific prohibitions of the national pretreatment program;
- (e)(2)(iv)(A): Identification of how the permittee will provide adequate maintenance facilities and equipment;
- (e)(2)(iv)(C): Management of information and use of timely, relevant information to establish and prioritize appropriate CMOM activities and identify and illustrate trends in overflows;
- (e)(2)(iv)(D): Routine preventive operation and maintenance activities;

- (e)(2)(iv)(E): A program to assess the current capacity of the collection system and treatment facilities;
- (e)(2)(iv)(F): Identification and prioritization of structural deficiencies and identification and implementation of short-term and long-term rehabilitation actions to address each deficiency;
- (e)(2)(iv)(G): Appropriate training on a regular basis; and
- (e)(2)(iv)(H): Equipment and replacement parts inventories including identification of critical replacement parts.

EPA believes that this less detailed language will be less confusing and will help smaller municipalities understand the flexibility provided by the proposed approach.

In addition, EPA is proposing that the NPDES authority be able to modify or exclude the requirements at proposed paragraph (e)(2)(v) of this section, which would require the permittee to establish requirements and standards for the installation and testing of new sewers, pumps and other appurtenances; and rehabilitation and repair projects, in cases where small collection systems are not expected to have significant new installations of sewers, pumps and other appurtenances. EPA requests comments on whether these or other simplifications are appropriate.

Under the proposal, all permittees, regardless of their size and whether the system has experienced an SSO, would be required to develop an overflow emergency response plan. EPA believes that overflow emergency response plans should be required for all municipal sanitary sewer collection systems, including those which have not experienced an overflow, because of the permittee's potential role and responsibilities in responding to overflow events.

When characterizing the average daily flow, flows for an entire year should be considered since the average daily flow can vary significantly from season to season due to different levels of I/I or other seasonal factors (e.g., high seasonal tourism). For this reason, at least one year of flow information should be considered in determining the average daily flow.

3. What Thresholds are Appropriate for Defining the Applicability of the CMOM Standard Permit Condition for Small Municipal Sanitary Sewer Collection Systems?

EPA believes that a number of factors are generally important for identifying small municipalities including the number and type of staff assigned to collection system operations and size of the resource base. In general, the Agency believes that average daily flow is an appropriate parameter for defining such a threshold, as it is an appropriate indicator of the size of the system. The Agency is concerned about using residential service populations as a threshold because such a criterion would not adequately characterize any additional industrial contributions to the collection system. EPA believes that flows can be characterized at pump stations and treatment facilities. EPA requests comments on whether permittees, particularly operators of small municipal satellite collection systems, will have difficulty in characterizing the average daily flow.

EPA is considering a number of alternatives for defining the various thresholds for CMOM requirements for small municipal sanitary sewer collection systems and requests comments on those and other alternatives. Potential thresholds could include average daily

flows of 7.5 mgd, 5 mgd, 2.5 mgd, and 1 mgd. In particular, the Agency requests comment on administrative and technical aspects of managing a collection system that should be considered in developing threshold criteria. For example, what are typical staff sizes and engineering capabilities for the different size thresholds?

For the purpose of these thresholds, the average daily flow of the permittee's collection system would include flows from portions of the collection system that are not under direct operational control of the permittee. For example, where the permittee only has operational control over major interceptors and receives flow from satellite collection systems that are owned and operated by another entity, the average daily flow of the permittee's collection system would include the average daily flows of any satellite collection system conveying wastewater to the permittee's interceptor.

An average daily flow of 7.5 mgd is roughly equivalent to a residential service population of 75,000. EPA used a population threshold of 75,000 in the Combined Sewer Overflow (CSO) Control Policy to provide guidance on the applicability of certain long-term planning requirements (see 59 FR 18688 (April 19, 1994)). Under the CSO Control Policy, the NPDES authority has discretion to not require jurisdictions with populations under 75,000 to complete all the formal steps for long-term control plans described in the policy (e.g., characterization, monitoring and modeling of the collection system, evaluation of alternatives, cost/performance considerations).

An average daily flow of 5 mgd is roughly equivalent to a residential service population of 50,000. Five mgd is used as one of the criteria for determining when a POTW must develop and implement a pretreatment program (see 40 CFR 403.8). The 5-mgd criterion is also consistent with the Regulatory Flexibility Act, which uses a population threshold of 50,000 to define small governments.

An average daily flow for 2.5 mgd is roughly equivalent to a residential service population of 25,000. EPA is proposing that 2.5 mgd be used as the threshold for defining the applicability of the CMOM standard permit condition for small municipal sanitary sewer collection systems.

An average daily flow of 1 mgd is roughly equivalent to a residential service population of 10,000. The 1-mgd criterion would be consistent with the Agency's major/minor classification scheme which is used in prioritizing enforcement and permitting approaches. The Agency has found this threshold to provide a workable distinction for NPDES authorities in establishing such priorities. EPA is proposing to use 1 mgd as the threshold for triggering streamlined aspects of CMOM requirements. The Agency does not propose to alter the existing programmatic thresholds under the NPDES program, regardless of final action on today's proposal.

L. Timing of CMOM Program Implementation

The NPDES permit would specify requirements for a permittee to properly operate and maintain its collection system and take steps to mitigate the impacts of SSOs. As discussed above, at a minimum, NPDES permits already must contain the "duty to mitigate" and "proper operation and maintenance" standard permit conditions at 40 CFR 122.41(d) and (e),

respectively. In today's proposed rule, EPA is proposing comprehensive CMOM requirements that, when included in a permit, would clarify requirements for proper operation and maintenance of the permittee's collection system and for responding to SSOs.

1. Immediate Compliance with General Performance Standards

After the new CMOM language is first added to a permit, the permittee would be expected to immediately comply with four of the general standards proposed under 40 CFR 122.41(e)(1), including the requirement to develop and implement a program to ensure compliance with these standards. These general standards are a continuation of existing NPDES requirements.

2. Notification of Parties with a Reasonable Potential for Exposure

Another CMOM general standard would require the permittee to provide notification that would be available to parties with a reasonable potential for exposure to pollutants associated with the overflow event. In permits where this would be a new requirement, it may be appropriate to coordinate the implementation of the fifth general standard with the development of an overflow emergency response plan.

3. Deadlines for CMOM Documentation Requirements

The proposed CMOM standard permit condition contains a number of documentation requirements. The first permit for a collection system that contains a CMOM condition would establish specific deadlines for the initial completion of:

- A written summary of the CMOM program;
- A map of the collection system;
- A written overflow emergency response plan;
- The CMOM program audit report;
- A report summarizing the results of a program audit; and
- Where necessary, a written system evaluation and capacity assurance plan.

Deadlines for these activities in the first permit containing a CMOM provision could be established on a case-by-case basis. General recommendations for deadlines are provided in Table 14. While EPA is providing general recommendations for deadlines, the Agency expects that other factors, such as the severity of SSO problems, the degree of health and/or environmental risks, and the similarity of existing State requirements for collection systems also would play a role in the NPDES authority's establishing of initial compliance deadlines for new documentation requirements in a specific permit.

Today's proposed CMOM standard permit condition would require a permittee to submit a CMOM program audit report with its permit application. As proposed, this requirement would not initially become effective until the CMOM provision was incorporated into a facility's permit. Thus, a program audit would not be required for the permit application that proceeded the permit that initially contained the CMOM standard permit condition. This approach allows for the permittee's program audit to be coordinated with the initial development and implementation of the permittee's CMOM program.

After the CMOM audit provision is incorporated into a permit for the first time, EPA recommends that the permit should require development of an audit report relatively early after permit issuance. An audit at this time would provide a detailed assessment of the permittee's existing program and identify any deficiencies early in the term of the first permit with CMOM program requirements. The Agency believes an early program assessment will be important for guiding the development and implementation of the permittee's CMOM program. To maintain consistency with today's proposed CMOM standard permit condition, the first permit with CMOM program requirements could provide that the audit report would be submitted with the permit renewal application. This submittal would give the NPDES authority the opportunity to review the audit during the permit renewal process. Where the first permit with CMOM program provisions requires the permittee to prepare an audit report early in the permit term, the permit authority could either allow the permittee to submit the initial audit report with the permit application (which is due four and one half years after permit issuance) or require the permittee to update the audit report prior to submission with the permit application.

EPA requests comment on an alternative approach for the timing of audit submission which would incorporate the CMOM program audit as a permit application requirement under proposed 40 CFR 122.38(c)(3). If the requirement to submit an audit was included in the proposed permit application requirements at 122.38(c)(3), it would impact the timing of the permittee's first audit after the promulgation of these proposed regulations. Under this alternative approach, the permittee would have to conduct a CMOM program audit after the regulation is promulgated, but before the CMOM standard permit condition is incorporated into their permit. The Agency is concerned about the possible confusion among the regulated community that might arise under this approach.

The Agency recommends that CMOM program summaries either be prepared within the same time frames as CMOM program audit reports or before audit reports are due. The Agency believes that accurate CMOM program summaries are generally necessary for conducting comprehensive program audits. If the audit is conducted after the program summary is complete, the program summary should be modified to reflect recommendations stemming from the audit.

The Agency is recommending earlier dates for submission of program audits for larger municipalities. This approach recognizes that larger municipalities generally have more resources, compared to other municipalities, to conduct an audit. The approach also is intended to encourage larger municipalities to take a leadership role in developing audit protocols and to work with smaller municipalities to give them a better understanding of how to conduct an audit and the benefits of the audit process.

Overflow emergency response plans would require coordination with other entities such as public health agencies, drinking water suppliers and others. While the Agency recommends that the coordination process begin as soon as possible, the recommended time frames are intended to recognize that such coordination may require significant time.

System evaluation and capacity assurance plans are expected to require a significant amount of data gathering and analysis as well as public involvement. The development of plans could be phased to allowing focusing on priority areas of the collection system first.

In addition to the documentation discussed above, today's proposed CMOM program would call for permittees to maintain a map of the collection system. Many municipalities are expected to have an adequate map of the collection system in place, and this requirement would focus on their maintenance (updating) of the map. Other municipalities will not currently have an adequate map of their collection system. In this case, the NPDES authority could consider establishing a deadline in the permit for initial upgrade of the collection system map on a case-by-case basis.

EPA requests comments on the recommended general deadlines for different CMOM program documentation requirements and the role system-specific factors could play in establishing deadlines in the initial permit containing a CMOM condition. One approach upon which EPA requests comments is to consider performance of the permittee's collection system and general level of compliance when developing deadlines for CMOM requirements. This approach may provide additional incentives to permittees with strong performance records by reducing administrative costs associated with the timing for development of CMOM programs.

Table 14. Recommended Deadlines for CMOM Documentation Requirements for Initial Permit to Contain CMOM condition

Average daily flow	Summary of CMOM program	Overflow Emergency Response Plan	Completion of Program Audit Report	Submission of Program Audit Report	System Evaluation and Capacity Assurance Plan (if required)
5 mgd or more	Within 18 months of permit issuance	Within 1 year of permit issuance	Within 18 months of permit issuance	Within 18 months of permit issuance	Initial subbasins within 3 years of permit issuance. All subbasins with 5 years of permit issuance
Less than 5 mgd but more than 1 mgd	Within 2 years of permit issuance	Within 1 year of permit issuance	Within 2 years of permit issuance	With permit renewal application	Initial subbasins within 3.5 years of permit issuance. All subbasins with 5 years of permit issuance
1 mgd or less	Within 3.5 years of permit issuance	Within 1 year of permit issuance	Within 3.5 years of permit issuance	With permit renewal application	Within 5 years of permit issuance

NOTE: For the purpose of this table, the total service population of the permittee's collection system includes service populations that are not under direct operational control of the permittee. For example, where the permittee only has operational control over major interceptors and receives flow from satellite collection systems that are owned and operated by another entity, the service population of the permittee's collection system would include service populations of any satellite collection system conveying wastewater to the permittee's interceptor.

NOTE: The NPDES authority retains the authority to request an audit report prior to submission with the permit application.

4. Timing of Significant Capital Investments

Under the proposed CMOM standard permit condition, two provisions specifically address situations that may require significant capital investment by the permittee:

- Rehabilitation actions - Permittees would be required to implement an ongoing program to identify and prioritize structural deficiencies and identify and implement short-term and long-term rehabilitation actions to address each deficiency.

- Capacity enhancement measures - Where peak flow conditions contribute to an SSO discharge, the permittee would need to prepare a plan, including a proposed implementation schedule, for system evaluation and capacity assurance, including short and long-term actions to address each hydraulic deficiency identified.

Appropriate sewer rehabilitation is necessary to maintain the structural integrity of a sewer system and to reduce the hydraulic loads of the system. Capacity enhancement, which can include rehabilitation as well as other structural modifications to the collection system, is necessary where peak flow conditions contribute to an SSO discharge or cause compliance problems at the treatment plant. Structural and hydraulic problems are often closely related. Both rehabilitation and capacity enhancement typically involve a complex, dynamic process of identifying problems, evaluating the system, identifying appropriate measures, and implementing those measures. EPA requests comment on whether this approach provides the permittee with adequate time to develop information on the number, location and volume of SSO events to be able to develop an effective response.

Under today's proposal, EPA would require the CMOM program to include a description of the permittee's proposed schedule for implementing short- and long-term rehabilitation and capacity assurance measures. In the absence of a previously-existing enforcement order that includes a schedule for capital improvement measures, the permittee's schedule for short-term and long-term rehabilitation actions and capacity enhancement measures would initially reflect logical engineering sequencing and normal construction practices, with modifications to accommodate system-specific factors such as:

- Health risks - Overflows (or potential overflows) that pose the highest health risks should be addressed first;
- Use impairment;
- The permittee's financial capability;[34]

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[34]Financial capability may include a consideration of median household income; total annual water pollution control costs per household as a percent of median household income; overall net debt as a percent of full market property value; property tax revenues as a percent of full market property value; unemployment; and bond rating. Combined Sewer Overflows-Guidance for Financial Assessment and Schedule Development, EPA, 1997 provides guidance on assessing financial capacity in the context of schedule development. While the guidance was developed to help permittees schedule capital improvements to control combined sewer overflows, the concepts in

- Grant and loan availability;
- Previous and current residential, commercial and industrial sewer use fees and rate structures;
- Other viable funding mechanisms and sources of financing;
- Previous and current expenditures on collection systems;
- Whether the municipality has assumed responsibility for portions of the collection system from another municipality and the time frame under which such responsibility accrued; and
- Other water pollution control obligations of the municipality.

Other considerations for schedules include:

- Schedules should provide time for conducting appropriate evaluations, surveys and studies;
- Different schedules can be provided for activities within different portions of the collection system. Where a permittee proposes different schedules for different sewersheds, the different schedules should generally reflect the different health risks posed;
- Where the schedule for investments in the sanitary sewer collection system is altered by consideration of funding for other water pollution control projects (e.g., addressing deficiencies with treatment plants, CSO control, replacing septic systems; storm water control; restoration of aquatic habitat or flow regimes), the permittee should consider the relative health risks being addressed by the various projects; and
- Schedules may allow for conducting pilot studies of innovative approaches.

EPA requests comment on the factors that should be considered in developing capital improvement schedules for short- and long-term remedial activities and capacity assurance.

The permittee should provide appropriate documentation of the rationale used to develop the proposed schedule, particularly where the proposed schedule includes time to address individual watershed priorities, financial capability, difficult institutional issues or innovative approaches. The extent and degree to which the permittee has employed these factors in developing its CMOM schedules would be taken into account in any NPDES enforcement action.

M. How Could the Watershed Alternative be Integrated into NPDES Permit CMOM Program Requirements?

EPA believes that today's proposed CMOM program requirements should allow for integration of certain aspects of the approach outlined in the 1998 Watershed Alternative along with risk management classifications used by the sewer industry. Industry and EPA guidance recognize prioritizing collection system management activities based on risk. These approaches involve classifying sewers based on the risks to human health or the environment that the sewer presents. Risk-based sewer classifications include the "critical sewer" approach and the

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the guidance are generally applicable for scheduling capital improvements for municipal sanitary sewer collection systems.

"reliability class" approach.[35] These approaches prioritize collection system measures in portions of the collection system whose failure would have a particularly significant impact on public health or the surrounding environment.

In today's proposed rule, EPA is proposing that permittees be made responsible for developing and implementing CMOM programs for their municipal sanitary sewer collection systems. EPA supports the assessment of overall health and environmental risks from SSOs and other urban wet weather sources to inform the development of CMOM programs. CMOM programs can reflect watershed considerations in two general ways: (1) CMOM activities may be prioritized based on risk; and (2) other water quality improvement projects in the permittee's capital improvement plan may be considered when developing schedules for long-term measures. These include addressing deficiencies with treatment plants, combined sewer systems, replacing septic systems with sanitary sewer collection systems; assuming responsibility for inadequate privately owned treatment works and collection systems; storm water control; and restoration or protection of aquatic habitat or flow regimes.

1. Prioritization of CMOM Activities

In general, public health and watershed considerations are expected to play a role in setting system-specific priorities in CMOM programs. Risk-based prioritizing schemes, such as the critical sewer and/or reliability class approaches, can be reflected in various aspects of a CMOM program, such as the extent of backup equipment and power, frequency and type of preventive maintenance activities, procedures to evaluate structural integrity and hydraulic capacity, and in phasing of long-term activities. EPA requests comment on the appropriate relationship of water quality objectives identified in a watershed plan to performance objectives for the municipal sanitary sewer collection system and the phased implementation of those performance objectives. The Agency also requests comment on how NPDES authorities should relate water quality objectives to the criteria in today's proposed prohibition standard condition (e.g., exercise of reasonable control, no feasible alternatives), and on whether the proposed prohibition should be modified to accommodate a greater role for water quality and watershed considerations in the SSO planning process.

2. Role of Other Water Quality Improvement Projects in the Permittee's Capital Improvement Plan in Developing Priorities for Long-Term Activities

Under today's proposed CMOM program requirements, permittees would be required to identify long-term actions they have planned to address hydraulic and structural deficiencies and CMOM schedules for the actions (see proposed 122.42(e)(2)(iv)(F) and 122.42(e)(4)(ii)).

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[35]For examples, see "Existing Sewer Evaluation & Rehabilitation," WEF Manual of Practice FD-6, ASCE Manual and Report on Engineering Practice no. 62, 1994; Construction Grants 1985, EPA, 1984, EPA/430/9-84/004; "Sewerage Rehabilitation Manual" Water Research Centre, 1994; Combined Sewer Overflow Screening and Ranking Guide, EPA, 1995, EPA/882/B/95/004.

Where long-term actions are needed to address SSO problems, EPA would allow municipalities to consider other water quality improvement projects when developing CMOM schedules for long-term capital improvements. General principles that apply to this approach would be that:

- The operator of the collection system would need to implement a capital improvement plan that would be expected to result in substantial investment in water quality improvements (which may include projects other than sanitary sewer measures) during and after the planning process. The capital improvement plan would need to be developed consistent with EPA's accepted scheduling principles and prioritization schemes, including financial capability, and generally reflect health and environmental risks;[36]
- The operator of the collection system would need to effectively implement a CMOM program for the collection system, including a process for comprehensive assessment of the management, operation and maintenance of the collection system, and identifying and prioritizing capital needs associated with structural and hydraulic deficiencies;
- Comprehensive watershed planning that takes into account a variety of pollutant sources should not delay the response to ongoing SSOs that cause or contribute significantly to public health or water quality problems. Whenever public health or water quality problems are clearly attributable to ongoing SSOs and the actions needed to address them are also clear, then remedial actions to address the SSOs should proceed as soon as physically and financially possible. These overflows would not be addressed in the context of watershed plans. Overflows that should not be subject to delays for investment because of other water quality improvements include:
    - o Wastewater backups into buildings;
    - o Overflows to waters of the U.S. that occur in high public use or public access areas;
    - o Overflows that impact sensitive receiving waters (such as public drinking water supplies and their source waters, swimming beaches and waters where swimming occurs, shellfish beds, designated Outstanding National Resource Waters, National Marine Sanctuaries, waters within Federal, State, or local parks, and water containing threatened or endangered species or their habitat).
- Other SSOs could, upon approval of the NPDES authority and notice to other stakeholders, be prioritized in the context of watershed plans. The watershed planning process can be used to identify and prioritize pollutant sources that are causing or contributing to public health or water quality problems. The watershed planning process should be used to identify priorities for measures to address these problems, including long-term actions. This in turn should result in appropriate modification to

[36] See Combined Sewer Overflows-Guidance for Financial Capability Assessment and Schedule Development, March 1997. While the guidance was developed to assist permittees in scheduling capacity improvements for combined sewers, the concepts in this guidance are generally applicable for scheduling capital improvements for municipal sanitary sewer collection systems.

capital investment plans. Where possible, investment strategies for water quality improvements should be prioritized in a manner that provides the greatest opportunities for health and environmental improvements as early in the process as possible. A watershed plan does not provide any additional liability protection or change the legal status of discharges to waters of the United States, but could affect the timing of remedies.

- The schedule for long-term actions in the CMOM program for the municipal sanitary sewer collection system should be accompanied by a description of other water quality improvement projects identified in the permittee's capital improvement plan, the costs and schedules for those projects and available information on the relative health risks addressed by the various projects identified in the plan.

This approach is intended to provide municipalities with flexibility to implement comprehensive water quality improvement efforts in the most efficient manner.

As discussed elsewhere in today's proposed rule, the permittee's schedule for long-term activities in its CMOM program would not provide any additional liability protection or change the legal status for SSOs that occur. Rather, the status of a specific discharge would be evaluated according to the permit prohibition language and the circumstances under which the discharge occurred. The purpose of the CMOM schedule would be to provide the NPDES authority and other reviewers with information related to how and when sanitary sewer activities (and possibly other water quality improvement projects) would be implemented. Including additional information regarding other water quality improvement projects would allow the NPDES authority to evaluate the permittee's overall investments in water quality improvement. Enforcement mechanisms such as administrative or judicial orders are more likely to provide the necessary flexibility to implement watershed management concepts.

In individual judicial actions where a municipality is negotiating in good faith, injunctive relief sought should be comprehensive in addressing wet weather CSO, SSO, and storm water problems (and potentially other municipal compliance problems) within the municipality's watershed. These global settlements of wet weather violations may only be possible if a municipality has a final watershed plan. Enforcement remedies should not be delayed by watershed plan development. Watershed plans can be taken into account when developing enforcement schedules for bringing unauthorized or unpermitted discharges into compliance with the CWA, but watershed plans (including the planning process) are not a bar to enforcement for violations of the CWA.

The Agency requests comment on the role of watershed considerations in CMOM program implementation. In addition, the Agency requests comment on whether specific language supporting these approaches should be incorporated into today's proposed CMOM and prohibition standard permit conditions.

N. How Would NPDES Authorities Evaluate Compliance with These Requirements?

NPDES compliance and enforcement authorities primarily would be concerned with whether a permittee is fulfilling the obligations established by its permit conditions —

e.g., whether reports are submitted as required, or whether the facility is undertaking required activities. The Agency recognizes that the permittee's selection of measures should be tailored to the size and complexity of the collection system and based on site-specific considerations including the specific characteristics of the sewer system. With respect to compliance with the general standards in today's proposed CMOM provision and implementation of various related program requirements, an underlying principle guiding today's rule is that NPDES authorities would use generally accepted industry and State practices as guidelines for evaluating whether a permittee is in compliance. Table 15 provides a limited summary of sample references to generally accepted industry practices and guidelines for different classes of measures. Table 15 is not all-inclusive and in general does not address State practices and guidelines.

Table 15. Summary of Major Industry Technical References

Measure	Technical References
Identify and track discharges	Sewer System Infrastructure Analysis and Rehabilitation Handbook, EPA, 1991
Overflow emergency response plans	Guidebook for Local Governments: Preparing Sewer Overflow Response Plans, APWA 1999
Public notification	Combined Sewer Overflows - Guidance for Nine Minimum Controls, EPA, May 1995, E 832-B-95-003
General management, operation and maintenance	Wastewater Collection Systems Management, Manual of Practice No 7, Water Environment Federation, fifth edition, 1999. Operation and Maintenance of Wastewater Collection Systems, a field study training program, Fourth edition, California State University, Sacramento, 1993. Control of Infiltration and Inflow in Private Building Sewer Connections - Monograph Water Environment Federation, 1999. Manual of Practices- Wastewater Collection Systems, NASSCO, 1995 Detection, Control and Correction of Hydrogen Sulfide Corrosion in Existing Wastew Systems, EPA-832-R-92-001, Sept, 1992

Capacity evaluations, actions to ensure adequate capacity and rehabilitation	Sewer System Infrastructure Analysis and Rehabilitation Handbook, EPA, 1991 Existing Sewer Evaluation & Rehabilitation, WEF manual of practice FD-6, ASCE Mar and report on engineering practice no. 62, 1994 Sewerage Rehabilitation Manual, 3rd ed., Water Research Centre, 1994. Inspector Handbook for Sewer Collection System Maintenance and Rehabilitation, NASSCO, 1993 Manhole Inspection and Rehabilitation, ASCE Manuals and Report on Engineering Practice No. 92, 1997 Specification Guidelines for Wastewater Collection Systems Maintenance and Rehabilitation, 9th ed., NASSCO, 1996 Monograph: Control of Infiltration/Inflow (I/I) In Private Sewer Service Connections, WEF, 1999 Demonstration of Service Lateral Testing and Rehabilitation Techniques, EPA, 1985 Handbook for Sewer System Evaluation and Rehabilitation, EPA, 1975, EPA/430/9-75/
Sewer use ordinance - Testing of new sewers	Demonstration of Service Lateral Testing and Rehabilitation Techniques., EPA, 1985 Gravity Sanitary Sewer Design and Construction, ASCE manual and report on enginee practice no. 60 and WPCF manual of practice no FD-5, 1982.
Performance indicators	Collection Systems: Methods for Evaluating and Improving Performance, California S University, Sacramento, 1998. Optimization of Collection System Maintenance Frequencies and System Performance ASCE, 1999. Benchmarking Wastewater Operations-Collection, Treatment, and Biosolids Managen WERF, Project 96-CTS-5, 1997 Benchmark '95: Wastewater Collection Agencies: An Analysis of Survey Data Charl Mecklenberg Utility Department, 1995 Stalnaker, R. and M. Rigsy, "Evaluating the Effectiveness of Wastewater Collection System Maintenance." Water Engineering Management, January 1997

General design issues	Construction Grants 1985, EPA, 1984, EPA/430/9-84/004 Recommended Standards for Wastewater Facilities, 1990, A report of the wastewater committee of the Great Lakes-Upper Mississippi River Board of State Public Health an Environmental Managers. Technical Report 16 - Guides for the Design of Wastewater Treatment Works, 1998, N England Interstate Water Pollution Control Commission. Pumping Station Design, 2nd ed, Sanks, 1998 Design of Wastewater and Stormwater Pumping Stations - MOP FD-4. WEF, 1993. Wastewater Engineering: Collection and Pumping of Wastewater. Metcalf & Eddy, In McGraw-Hill, 1981. Design and Construction of Sanitary & Storm Sewers - MOP 9. Water Pollution Contr Federation , 1969. Design Manual for Odor and Corrosion Control in Sanitary Sewerage Systems and Treatment Plants, EPA/625/1-85/018, October 1985

The Agency is in the process of developing guidance for NPDES compliance and enforcement authorities to assist in evaluation of CMOM programs. The guidance is expected to identify a variety of areas to be examined during an inspection or other fact-finding exercise. EPA requests comments on the role of performance indicators to track system performance and key activities in evaluating compliance.

O. Does Meeting CMOM Requirements of a Permit Limit Liability for SSOs that Occur?

Compliance with CMOM permit requirements generally would not limit liability for sanitary sewer overflow discharges. The legal status of a specific discharge is related to the permit language and the circumstances under which the discharge occurs. Today EPA is proposing a standard permit condition which would clarify that SSOs that discharge to waters of the United States are prohibited. The proposed prohibition also would provide a framework for identifying the limited circumstances when the NPDES authority would not bring an enforcement action or when the permittee may establish an affirmative defense. While compliance with CMOM program requirements would not in itself limit liability for SSO discharges, the Director would consider the quality of the CMOM program, its implementation, and effectiveness when exercising prosecutorial discretion and developing enforcement priorities for prohibited SSO discharges.

P. Would the NPDES Authority Approve CMOM Programs Developed Under the Standard Permit Condition?

EPA is not proposing that NPDES authorities approve entire CMOM programs developed under the standard permit condition. The Agency is concerned that an approval

process would focus on specific measures in a permittee's CMOM program, such as a sewer cleaning frequency, rather than on the process the permittee has in place for developing, implementing, evaluating and modifying its program. The Agency believes that approval of the entire CMOM program is generally not appropriate because approval by the NPDES authority may reduce the flexibility of the approach and may be inconsistent with a program's need to evolve and modify to reflect changing conditions and new information. Program approval may also limit the Agency's discretion in seeking enforcement remedies. In addition, approval of programs by the permitting authority may introduce significant delays in CMOM program implementation if a permittee waits on program approval prior to implementing the program.

The Agency requests comments on how lack of CMOM program approval might impact the permittee's implementation of its program. In particular, would the proposed approach impact the ability of the permittee to obtain funding? The Agency invites comment on whether any specific aspects of a CMOM program, such as a determination of adequate capacity, should be approved under the permit process and whether there are any circumstances when the regulatory agency should formally approve aspects of the permittee's CMOM program.

Q. Would the Proposed Standard Condition Provide Enough Flexibility to the NPDES Authority?

EPA is aware that a number of States currently provide extensive regulatory oversight over sanitary sewer collection systems either under the NPDES program or an alternative State program. Where appropriate, the authorized NPDES States may omit or modify standard permit conditions to impose more stringent requirements (see 40 CFR 123.25). In other cases, EPA believes that authorized NPDES States with existing collection system oversight efforts can modify those efforts to fit the CMOM framework.

R. Would the Existing Operation and Maintenance Standard Conditions Still Apply to Municipal Sanitary Sewer Collection Systems After EPA Takes Final Action on This Proposed Regulation?

The requirements for a permittee to properly operate and maintain its collection systems are specified in the NPDES permit. As discussed above, all existing permits should, at a minimum, contain the "proper operation and maintenance" standard condition at 40 CFR 122.41(e) and the "duty to mitigate" standard permit condition at 40 CFR 122.41(d). Finalization of today's proposed requirements would not change permit requirements until the permit is reissued. Permittees remain obligated to comply with their existing permits until the permits are modified. After EPA takes final action on this regulation, permits for POTWs and other sanitary sewer collection systems that are issued or reissued would need to incorporate the newly-promulgated CMOM standard permit conditions. In portions of the reissued permit where CMOM applies, the new CMOM standard condition would supercede the existing standard condition. In portions of the permit where CMOM does not apply, the existing standard conditions for "proper operation and maintenance" and "duty to mitigate" would remain in effect.

IV. PROPOSED PROHIBITION OF DISCHARGES FROM MUNICIPAL SANITARY SEWER COLLECTION SYSTEMS

A. What Would the Proposed SSO Prohibition Standard Permit Condition Do?

Today's proposed standard permit conditions for municipal sanitary sewer collection systems include a prohibition provision. The proposed language would clarify that discharges to waters of the United States from a municipal sanitary sewer collection system that occur prior to a publicly owned treatment works (POTW) treatment facility are prohibited. In proposing this standard condition,the Agency notes that even municipal collection systems that are operated in an exemplary fashion may experience unauthorized discharges under exceptional circumstances. Therefore, today's proposed prohibition provides a framework for evaluating the specific circumstances of overflows from a municipal sanitary sewer collection system that result in a discharge to waters of the U.S. and consideration of those circumstances to excuse those discharges, either though the exercise of enforcement discretion or through establishment of an affirmative defense. Today's proposed prohibition standard condition would not require that all potential discharge locations (e.g., manholes, areas where cracks may develop) in a permittee's collection system be identified in the permit application or in the permit itself.

EPA believes that the proposed prohibition provision is one way of ensuring that:

- Clear, detailed records describing the specific circumstances of an event are available for evaluating a permittee's claims to limit liability;
- Frivolous or undocumented claims to limit liability are avoided;
- Appropriate factors are demonstrated by the permittee and considered by the NPDES authority when evaluating overflows caused by exceptional circumstances;
- Claims to limit liability under the provision are made in a timely manner while the factual basis is still fresh; and
- The permittee uses feasible alternatives to prevent discharges, such as the use of auxiliary treatment facilities, retention of untreated wastewater, reduction of inflow and infiltration, use of adequate backup equipment, and an increase in the capacity of the system.

The Agency also anticipates that this proposed provision may result in additional dialogue between the permittee and NPDES authority on issues associated with performance expectations, the need for and location of emergency overflow structures, and proper CMOM program implementation. SSO discharges caused by severe natural conditions (e.g., wet weather capacity concerns) could be excused through the proposed codification of enforcement discretion, and SSO discharges arising due to other reasons (e.g., related to accidents or emergencies) beyond the reasonable control of the operator could be excused through establishment of an affirmative defense. As noted above, neither would require pre-identification of the SSO discharge location (in a permit application or in the permit itself) because, unlike most industrial discharges, the location of most SSO discharges cannot be anticipated prior to completion of a comprehensive system evaluation. Of course, if the SSO discharge occurred through an emergency overflow structure, that conclusion may not hold. EPA invites comments on the reasonableness of not requiring pre-identification of SSO

discharge locations prior to excusing such discharges from the proposed prohibition against SSO discharges.

B. What is the Basis for the Proposed Prohibition Standard Condition?

Today's proposal uses the term "prohibition" to describe how discharges from a sanitary sewer collection system that occur prior to the treatment facility would be regulated. The Agency's use of the term "prohibit" reflects its interpretation of the statute as imposing an affirmative obligation to prevent. The prohibition in today's proposal would be a technology-based limitation that is based, in part, on CWA section 301(a), which prohibits a discharge to waters of the United States except in compliance with other provisions of the CWA. Today's proposal also would clarify that discharges from a separate sanitary sewer system need to meet effluent limitations based upon secondary treatment as defined by the Administrator (see 33 U.S.C. §1311(b)(1)(B)) and any more stringent limitation necessary to meet water quality standards. EPA has defined effluent limitations based upon secondary treatment in regulations at 40 CFR Part 133. Because, as a practical matter, a discharge of municipal sewage cannot meet such limitations unless treated, sewer collection systems convey municipal sewage to a treatment facility. EPA believes that a properly designed, well-operated municipal sanitary sewer collection system should deliver sewage for treatment under all but severe natural conditions or conditions beyond the control of the system operator. For this reason, EPA believes discharges from a sanitary sewer collection system should not be authorized except from outfalls at a treatment facility. EPA recognizes, however, that some overflows are unavoidable, even at the best run systems. Thus today's proposal contains two provisions, one codifying the use of enforcement discretion and the other providing an affirmative defense, to address such unavoidable discharges. Discharges meeting the conditions of the affirmative defense would not be considered violations of the CWA.

Under EPA policy, different technology-based pollutant control standards from the statute apply to discharges from combined sewer systems. A combined sewer system is a wastewater collection system owned by a State or municipality (as defined by section 502(4) of the CWA) that was designed to collect and convey sanitary wastewaters (domestic, commercial and industrial wastewaters) and storm water through a single-pipe system to a POTW treatment plant (as defined in 40 CFR 403.3(p)). A combined sewer overflow (CSO) is the discharge from a combined sewer system at a point prior to the POTW treatment plant. In the United States, combined sewer systems were primarily built between 1870 and 1940. Since that time governmental authorities generally have not sponsored the construction of combined sewers. Combined sewers were built with intentional inflow connections (e.g., street drainage, roof drainage) so that they could be the primary conveyance for wet weather runoff as well as for sanitary wastewaters. The design intention for combined sewer systems differs from the design intention for sanitary sewers, where intentional inflow connections are typically prohibited. As a result of this difference in design, combined sewers, which typically collect 30-40 percent[37] of the total volume of a rainfall event, generally have much greater volume wet

[37] EPA estimated the percentage of rainfall volume entering combined sewer systems as part of a model to estimate the costs of addressing CSOs as part of the 1996 Clean Water Needs Survey Report to Congress (CWNS),

weather flows than sanitary sewers, which typically collect under 5 percent of rainfall volume[38]. Given the challenges associated with handling the large volume of wet weather flow, combined sewer systems have historically had different performance objectives during wet weather than have sanitary sewer systems. Most combined sewers were originally designed to discharge directly into surface waters. Interceptor sewers were added later (usually alongside the receiving water). Usually, the primary objective of early interceptors for combined sewers was to convey dry weather flows from the combined sewers to wastewater treatment plants, and therefore they were designed to collect only two to three times the volume of dry weather flows. CSO structures were built into the system to discharge the majority of wet weather flows. Wet weather CSO discharges are not subject to secondary treatment requirements applicable to POTWs. EPA's April 19, 1994, CSO Control Policy (59 FR 18688) provides guidance on technology- and water quality-based requirements for CSOs under the NPDES program.

As described in EPA's September 8, 1989, CSO Control Strategy (54 FR 37370), which was supplemented by the 1994 Policy, EPA has taken the position that "[s]anitary sewer systems must adhere to the strict design and operational standards established to protect the integrity of the sanitary sewer system and wastewater treatment facilities. Discharges from separate sanitary sewer systems with less than secondary treatment are prohibited." (54 FR 37370, 37371.) The Agency further explained that "[f]lows to the treatment works (POTW), including dry weather and wet weather flows, are subject to secondary treatment regulations, water quality standards, and the National Municipal Policy. Dry weather discharges from CSOs, which are also subject to this [1989] strategy, are illegal and must be expeditiously eliminated. . . ." (54 FR at 37371 note 1).

EPA recognizes, however, that notwithstanding the best design and optimal operation and maintenance efforts, some discharges may yet occur that are beyond the reasonable control of the system operator. Today's proposal would recognize these exceptional circumstances and EPA has drafted the proposed "prohibition" to recognize these circumstances. As noted above, SSO discharges caused by severe natural conditions could be excused from the prohibition based on a codification of enforcement discretion (and judged according to the severity of the natural condition coincident with the discharge), while SSO discharges due to accidents and emergencies could be excused from the prohibition based on establishment of an affirmative defense (and judged according to the reasonableness of the POTW's efforts to prevent, and then subsequently to stop, and mitigate the impact of, the discharge). These components of the proposal are described more fully later.

EPA, September 1997.

[38] Based on an evaluation of five municipal separate systems, EPA estimated that between 0.5 and 5 percent of rainfall from a storm event may enter a typical sanitary sewer system (see draft SSO Needs Report, EPA, May 2000). The percent of rainfall entering a portion of a system (e.g. a sewershed) with significant I/I problems can be higher (see draft SSO Needs Report, EPA May 2000, and Rainfall Induced Infiltration Into Sewer Systems: Report to Congress, EPA, August 1990.)

C. Potential Alternatives to Prohibiting Sanitary Sewer Overflows -- Authorized Discharges at Less than Secondary

The purpose of the prohibition on untreated sanitary sewer overflow as proposed above is to assure that raw sewage (human excrement and other pollutants) does not go into rivers and streams. That measure is important to protect human health and the environment. EPA is soliciting comments on an alternative approach that the Agency believes may well result in less treatment of sewage prior to discharge. The alternative approach would allow municipalities in limited circumstances, to divert some of the sewage to peak excess flow treatment facilities (at satellite locations) that may provide less than secondary treatment, before discharging to rivers and streams.

EPA is proposing the "prohibition and excuse" approach because the Agency believes that a well-designed, well-operated POTW should deliver sewage for treatment to meet limits based on secondary treatment under all but severe natural conditions or certain conditions beyond the control of the system operator. This is consistent with EPA's longstanding interpretation of Clean Water Act requirements and regulatory requirements that apply to discharges of domestic sewage from separate sanitary sewers. In addition, this approach was unanimously supported by the SSO Subcommittee, which included EPA, as reflected in today's proposal. If EPA were to change its interpretation and propose a different legal framework by which NPDES permits could "authorize" discharges from separate sewer systems under a statutory theory other than secondary treatment, such a framework would need to derive from CWA sections 301(b) and 304. Permit authorization under a statutory theory other than secondary treatment would represent a change in EPA's interpretation of the applicability of regulatory standards as well as a change from the approach supported by the SSO Subcommittee. Because sanitary sewers are designed to deliver all flows for treatment, capacity-related discharges (except those caused by severe natural conditions) are the result of inadequate planning for growth, or inattention to design, construction, operation, or maintenance of the system. Permit authorization under the approach described below could, in some cases, result in a relaxation in regulatory standards. For these reasons, EPA has serious legal concerns about whether the CWA can be interpreted to "authorize" SSO discharges with this alternative approach. Such an alternative approach would be at odds with EPA's historic interpretation, which is that the Clean Water Act is designed to assure secondary treatment of sewage from POTWs, and that all separate sewers in a municipal sanitary sewer collection system are part of the POTW. The Department of Justice expressed similar concerns during interagency review of the proposed rule.

EPA is also concerned that an approach that would "authorize" SSO discharges based on a BAT/BCT theory may allow more SSOs, or at a minimum, result in delays in the remedial actions to address existing SSOs, particularly those related to system capacity. As discussed previously, EPA is concerned that such an approach might legitimize SSOs, which could result in more incidents of insufficiently treated sewage being discharged to the nation's waters. If a separate sewer collection system is well-designed and well-operated, discharges from such sewers should be rare.

For the above reasons, EPA also have serious concerns about whether the Clean Water Act should be interpreted to "authorize" SSO discharges under this alternative approach. Thus, EPA believes the "prohibition and excuse" framework is more appropriate than an "authorization" framework. The Agency nonetheless invites comment on the legal and practical implications if EPA were to support a BAT/BCT "authorization" alternative. EPA recognizes that any such change involves complex issues that will involve additional data collection and analysis as well as a more detailed articulation of potential approaches. Pursuing an alternative approach would therefore require additional notice and comment.

EPA interprets the CWA as requiring that permits for discharges from sanitary sewer collection systems need to include effluent limitations based on the secondary treatment regulation (40 CFR Part 133) and any more stringent limitations necessary to meet water quality standards. This interpretation considers the discharge from a sanitary sewer collection system to be a discharge from a "publicly owned treatment works" (POTW) within the meaning of section 301(b)(1)(B) of the CWA. The NPDES regulations define POTW to include "pipes, sewers, or other conveyances only if they convey wastewater to a POTW providing treatment" See 40 CFR 122.2, 125.2, 125.3(a)(1)(i). CWA section 301(b)(1)(B) requires permits for discharges from POTWs to include effluent limitations "based upon secondary treatment" as defined by EPA under CWA section 304(d)(1), or more stringent water quality-based requirements.

EPA does not interpret discharges from a POTW, within the meaning of section 301(b)(1)(B), to include discharges from CSOs. Combined sewers are sewer systems designed to convey storm water runoff (including large volumes of runoff from street curb inlets and area drains) in addition to domestic sanitary sewage and commercial and industrial wastewater. Due to this design difference, combined sewer systems are generally subject to significantly larger increases in flow due to either rainwater or snowmelt that enters the system than are typical of sanitary sewer systems, although some sanitary sewer systems may also experience large flow increases during wet weather. During wet weather, combined systems are generally operated to convey the maximum amount of combined wastewater and storm water to the treatment works. Any excess flow is generally discharged from the system at designed overflow points before reaching the continuously operating treatment plant.

The storm-related increase in flow in combined sewer systems associated with the intentional collection of large volumes of inflow, the associated flow management challenges, and the resulting design of overflow points led to EPA's application of the BAT/BCT framework to CSOs, as well as other distinctions for combined sewer overflows in the NPDES regulations (see 133.103(a), January 27, 1989, (54 FR 4225)). This approach recognizes that during wet weather conditions, CSO overflow structures do not, nor were they designed or constructed to, convey wastewater to a POTW plant providing secondary treatment. As such, wet weather discharges from CSO discharge structures are not subject to limitations based on secondary treatment. In contrast, EPA has historically considered sanitary sewers to be

conveyances that convey wastewater to a POTW providing treatment, and hence applied secondary treatment requirements.

Permits for CSO discharges need to include effluent limitations based on the application of best available technology economically achievable (BAT) for toxic pollutants and for pollutants that are neither toxic nor conventional pollutants. For conventional pollutants, the interpretation results in the application of best conventional control technology currently available (BCT). Additionally, like all discharges, if necessary, permits authorizing discharges from CSO structures need to include any more stringent water quality-based requirements if necessary to meet water quality standards. EPA's interpretation of the applicable technology-based standards for wet weather CSO discharges was upheld in *Montgomery Environmental Coalition v. Costle*, 646 F. 2d 568 (DC Cir. 1980). Consistent with the Agency's CSO policies and strategies, the BAT/BCT requirements are applied on a best professional judgment (BPJ) basis within the framework described in those policies and strategies. The factors used for applying the BAT and BCT technology-based standards are described in 40 CFR 125.3. This approach provides regulatory flexibility for establishing requirements for CSOs and allows addressing CSO discharges in the context of comprehensive controls addressing the collection system.

EPA provided guidance on the planning, selection and implementation of CSO controls in the National CSO Control Strategy (September 8, 1989 (54 FR 37370)) and the CSO Control Policy (April 19, 1994 (59 FR 18688)). These documents describe provisions for developing appropriate requirements for several categories of CSOs. The National CSO Control Strategy and CSO Control Policy provide that permits are to prohibit CSOs that occur during dry weather. Such a discharge would be considered a discharge from a POTW because combined sewer systems were designed and constructed to deliver flows to a POTW plant for treatment during dry weather. The National CSO Control Strategy also clarifies that discharges from locations or points within a combined sewer system that are not permitted are prohibited. This would include discharges from locations within a combined sewer system other than designed overflow points (e.g. line breaks, backups through manholes or catch basins). The 1994 CSO Control Policy provides comprehensive guidance for developing site-specific NPDES permit requirements for combined sewer systems to address wet weather CSO discharges from designed overflow points. Under the CSO Control Policy, permittees with combined sewer systems that have CSOs are to immediately undertake a process to accurately characterize their sewer systems, to demonstrate implementation of nine minimum controls identified in the Policy and to develop and implement a long-term CSO control plan that will ultimately result in the compliance with the requirements of the CWA.

Under an alternative that would incorporate a BAT/BCT approach to discharges from separate sanitary collection systems, EPA would need to change its current interpretation of the term POTW, specifically, the interpretation of "conveyances only if they convey wastewater to a POTW providing treatment." While changing to the BAT/BCT standard might allow NPDES authorities to authorize discharges from PEFTFs serving sanitary sewer collection systems through permits at a treatment level less than secondary treatment, EPA is concerned that such

an "authorization" could legitimize less than secondary treatment of SSO discharges that, although prohibited under applicable standards, are currently occurring. Under this alternative, effluent limitations in permits for discharges from PEFTFs would need to include effluent limitations based on BAT/BCT and any more stringent limitations necessary to meet water quality standards. While the requirements for such discharges would not be based on secondary treatment, the approach might reduce some risks presented by SSO discharges by reducing uncontrolled wet weather overflows and ensuring some non-biological treatment (e.g., suspended solids removal, disinfection) for the controlled, wet weather overflows that remained. This alternative, however, which would not require all domestic sewage flows in a separate system to be delivered for treatment at the secondary treatment plant, would weaken currently applicable standards. EPA requests comment on the relative health and environmental benefits associated with applying the secondary treatment regulations at 40 CFR Part 133 or the application of a BAT/BCT framework to intermittent, peak flow discharges from sanitary sewer collection systems. Comments on such alternatives should be mindful of the need to assure that SSO discharges (authorized under either a secondary treatment or BAT/BCT framework) remain subject to the water quality-based requirements of the Act.

If EPA were to apply the BAT/BCT approach to SSO discharges, the Agency would still promulgate standard permit conditions that were similar to the CMOM program, prohibition, and reporting, record keeping and public notification standard permit conditions proposed in today's notice. The CMOM program standard permit condition would not be explicitly modelled on the nine minimum controls and long-term control plan of the CSO Control Policy, but rather would be based on the framework proposed in today's notice. These standard permit conditions could provide a framework for permitting authorities to determine the technology-based and water quality-based requirements needed to comply with the CWA. As a result, they would provide a parallel planning framework to the nine minimum controls and long-term control plan described in the 1994 CSO Control Policy. Many of the principles of the CMOM standard permit condition proposed in today's notice are consistent with the principles identified for the nine minimum controls and long-term control plans called for in the CSO Control Policy. The planning and operating requirements of the CSO Control Policy (i.e., the nine-minimum controls and long-term control plan) and the planning and operating requirements proposed for SSOs in today's notice (i.e., CMOM program requirements), are similar in that they provide flexible frameworks for the consideration of system-specific factors and the selection and implementation of specific measures that may ultimately provide for compliance with the CWA. EPA believes that most aspects of the nine minimum controls and long-term control plan generally should be reflected in a CMOM program. The Agency notes that specific measures that would be identified by a permittee and the manner in which they are implemented can vary significantly between combined sewers and sanitary sewers, depending on system specific factors.

EPA requests comments on this approach and on how the standard permit conditions for CMOM programs and the prohibition on SSO discharges that are proposed in today's notice would need to be modified if the Agency were to adopt such an approach. The Agency also requests comments on how the factors associated with the BAT and BCT standards

should be used to identify measures necessary to come into compliance with various parts of the CMOM program standard permit condition, such as the determination of adequate system capacity (i.e., capacity for delivery of flows for treatment prior to discharge).

If a BAT/BCT approach were adopted, a modification to the CMOM requirements proposed in this notice would be necessary to address the possibility that a permittee's system evaluation and capacity assurance plan and program audit indicates that the use of a PEFTF to reduce adverse health or environmental impacts may be appropriate. Since a BAT/BCT framework would provide more flexibility for authorizing discharges from PEFTFs under an NPDES permit, the Agency believes that if this approach were adopted, it would be necessary to build a comprehensive process for analyzing the need of a PEFTF into the CMOM provision. EPA requests comment on what information should be considered in such a comprehensive process and how it should be incorporated into the CMOM approach.

An additional consideration associated with this approach is the costs of addressing SSOs and the framework for considering those costs. As noted in the draft *SSO Needs Report* and also in Table 8 in Section I.K. of this notice, the incremental costs of controlling SSOs caused by wet weather increase significantly as the control objective for frequency of overflows is decreased. In addition, as noted in the draft *SSO Needs Report* and section I.K of today's preamble, some municipalities facing some of the most significant I/I problems in their collection system, may significantly reduce costs by incorporating a limited number of treated discharges into a comprehensive control strategy that may also include expanding collection system and/or treatment plant capacity, and reducing peak flows. The Agency requests comments on the consideration of these costs under an approach based on a system-wide application of BAT/BCT and more stringent water quality-based requirements as well as under the secondary treatment framework proposed in today's notice.

A BAT/BCT approach would alter the framework for issuing permits for discharges from PEFTFs. Rather than require permits for discharges from PEFTFs to include effluent limitations based on the secondary treatment regulations at 40 CFR Part 133, a BAT/BCT framework also might be useful to identify a system-wide comprehensive set of measures to manage peak flow (e.g., removal of sources of peak flow, improved conveyance capacity, improved treatment plant capacity, and additional storage or equalization), establish management, operation and maintenance requirements for the collection system and, if still necessary, establish treatment requirements for discharges. If EPA pursued a BAT/BCT approach, the Agency could develop criteria and procedural guidelines to ensure a closely circumscribed framework that would only authorize discharges from a PEFTF as part of a comprehensive control strategy. The guidelines would describe, for example:

- A screening process and criteria that would be evaluated by the NPDES authority prior to permit issuance; and
- Criteria for permit conditions for peak excess flow treatment facilities.

Screening Process

If the final rule was premised on a theory to "authorize" PEFTF discharges through permits, the NPDES authority would conduct a screening process prior to permit issuance to determine whether discharges from a PEFTF could be authorized in the permit in the first instance. The screening process would support the determination of whether issuing a permit to conditionally authorize discharges from the peak excess flow treatment facility is appropriate or not. If the Director determined that a permit for discharges from the facility could be issued at all, the application information and screening criteria would support the development of appropriate permit conditions.

The permit applicant would provide the information to be used in this process in a permit application (Form 2A) and a companion engineering report that, at a minimum, contains the information described below. Where the applicant could not demonstrate all applicable criteria would be met, a permit for discharges from a peak excess flow treatment facility could only be issued in conjunction with an enforcement order that provides a compliance schedule.

Form 2A requires the submittal of specific facility, process and effluent information and data and other specified information. The companion engineering report would include an assessment of peak flows in the collection system including a description of the results of work to characterize and project peak flows; the source of extraneous flows contributing to peak flows, including estimates of the percentage of inflow and rainfall induced infiltration that comes from portions of the collection system other than the portions that are owned by the permittee; and continuous planned evaluation activities.

The applicant would identify cost-effective alternatives in the companion engineering report. The description of alternatives would include a detailed assessment of the current physical condition of the portion of the collection system that will contribute flows to the proposed peak excess flow treatment facility; and an identification and evaluation of a comprehensive set of reasonable alternatives to the excess flow treatment facility. The engineering report would, at a minimum, include a demonstration that increased storage of untreated wastewater during peak flow conditions, additional reduction of inflow and infiltration, increased capacity of the system, or other alternatives specified by the Director are not practical and not cost-effective. EPA requests comments on other criteria for evaluating alternatives (e.g., measures are not feasible, remaining I/I is not excessive).

As part of the demonstration, the identification of alternatives would need to include consideration of: 1) additional I/I removal; 2) increased storage and/or flow equalization of peak flows; 3) increased capacity of the collection system and/or continuously operating treatment facility. At least one alternative that would need to be considered would be additional measures to reduce extraneous flows from portions of the collection system that are not owned by the permittee. The permit applicant would provide estimates of performance ranges of the different control techniques considered, as well as a description of the technical limitations of control techniques. The alternatives description would need to include estimates of the percentage of inflow and rainfall induced infiltration that comes from portions of the

collection system other than those portions owned and operated by the permittee; and a description of the steps that have been taken to reduce inflow and rainfall induced infiltration and options for additional controls of these sources.

The description of alternatives would need to include a detailed cost estimates of alternatives and a summary of the overall costs of the sewer system assessment effort, measures to reduce I/I and measures to convey (including temporary storage) and treat flows at a continuously operating plant that provides biological treatment. The evaluation of costs would specify the planning period used in the analysis, which can be based on considerations of the design life of the facility, the duration of bonds or other financial instruments expected to finance the project and the 5-year permit period. The analysis would need to project the economic impacts of alternatives, including impacts on user fees.

The cost effectiveness analysis curves described in section 4.6 of "Sewer System Infrastructure Analysis and Rehabilitation", EPA, 1991, includes a cost/flow curve that identifies the optimal point for sewer rehabilitation. The cost curve provides estimates of the total cost needed for corrective actions. The engineering report would include the supporting cost and flow curves used to develop the cost/flow curve with the optimal point for sewer rehabilitation; and cost/performance curves to demonstrate the relationships between various discharge frequencies. This should include an analysis to determine where the increment of pollution reduction achieved diminishes compared to the increase costs.

The applicant would need to provide a description of the management, operational, and maintenance program for the collection system as well as a summary of major remediation projects that have been completed, including a description of the effectiveness of remediation measures. This description would also describe how the delivery of flows during peak flow conditions would be maximized to a continuously operating POTW treatment plant(s) that serves the collection system.

The applicant would need to demonstrate that the proposed treatment facility would be able to provide credible treatment under a wide range of operating conditions, including variable influent concentrations. The demonstration would include a description of the location of proposed discharges from the treatment facility; the treatment process to be used, included projected performance data and a description of operational requirements; available or projected information regarding effluent quality and frequency of discharge; descriptions of the technical limitations of the proposed treatment facility; and estimates of the effectiveness of treatment by the existing biological unit at the existing treatment facility (or as modified by proposed alternatives) under peak flow conditions relative to the effectiveness of the proposed treatment of in-system discharges. EPA requests comment on whether it should evaluate the appropriateness of providing guidance on minimum treatment requirements, and if so what minimum treatment requirements for PEFTFs should be (e.g. high-efficiency sedimentation, primary treatment, etc.).

The engineering report would also include a risk assessment where applicants would identify downstream uses which may potentially be impaired by the discharge as well as the major risks associated with other alternatives. The applicant would specifically identify any sensitive waters that would be downstream of the proposed peak excess flow treatment facility. Sensitive waters are to be identified by the NPDES authority in coordination with Federal, State and local agencies. Minimum criteria for sensitive waters could be provided. Examples of sensitive waters could include public drinking water intakes and their designated protection areas, swimming beaches and waters where swimming occurs, shellfish beds, designated Outstanding National Resource Waters, National Marine Sanctuaries, waters with federal, state and local parks, and waters containing threatened or endangered species and their habitat. Except where such action would provide less protection of human health or the environment, peak excess flow treatment facilities that discharge to sensitive waters should be prohibited, eliminated or moved wherever physical possible and economically achievable. Where a prohibition, elimination, or relocation is not physically possible or economically achievable, or would provide less protection to human health. Treatment requirements would be consistent with attainment of designated uses of receiving waters.

As part of the engineering report, the applicant would have to show that the affected public has been provided an opportunity to actively participate in the decision-making process, including review and comment on alternatives. The affected public includes persons who reside downstream from the proposed treatment facility, persons who use and enjoy these downstream waters, rate payers, and any other interested persons. The applicant would provide a summary of major concerns raised by the public, describe the extent of support for the proposed facility, and how the concerns have or have not been addressed.

Permit Criteria

Under this approach, a permit for discharges from a peak excess flow treatment facility would have to, at a minimum provide for:

1) **Conditions defining when discharge may occur** - Permits would restrict the conditions under which discharges may occur. This can be done in a number of ways, including specifically prohibited discharges where the flows in the sewer system are less than a specified threshold flowrate (which would be based on the capacity of the collection system) and/or limiting the frequency of discharge.
2) **Technology-Based Effluent Limitations** - Permits would be required to provide appropriate technology-based effluent limitations.
3) **Water Quality-Based Effluent Limitations** - Permits would require any more stringent water quality-based effluent limitations (WQBELs) necessary to achieve water quality standards.
4) **Continuing Impacts Evaluation** - Permits would require the permittee to implement a post-construction human health and water quality assessment program including requirements to monitor and collect sufficient information to demonstrate compliance with water quality standards and protection of designated uses.
5) **Continuing Alternatives Evaluation** - Permits would require the permittee to continue to evaluate if, based on current conditions, increased storage of untreated

wastewater during peak flow conditions, additional reduction of inflow and infiltration, increased capacity of the system, or other alternatives are not practical and not cost-effective. The continuing assessment should evaluate progress made in rehabilitating the collection system, new or improved techniques to minimize overflows or changing circumstances that influence cost effectiveness.

6) **Monitoring and Reporting** - Monitoring and reporting requirements would be established on a case-by-case consistent with 40 CFR 122.44(i).

7) **Reopener** - The permit most likely would contain a reopener clause that authorizes the NPDES authority to reopen and modify the permit upon determining that the treatment facility fails to meet water quality standards or protect designated uses.

The Director would have to evaluate the criteria listed above when reissuing a subsequent permit in light of changing circumstances, progress made in rehabilitating the collection system, and planning criteria such as the duration of financial instruments used to finance the project.

EPA requests comment on other alternatives to the "prohibition and excuse" framework proposed today, such as approval of CMOM programs or defining *de minimis* thresholds for SSO discharges, and how such alternatives would appropriately protect human health and the environment.

D. How Does the Proposed Standard Condition Address Discharges Caused by Severe Natural Conditions?

The proposed provision would clarify that the Director may take enforcement action against the permittee for a prohibited municipal sanitary sewer system discharge to waters of the United States caused by natural conditions unless the permittee demonstrates through properly signed, contemporaneous operating logs, or other relevant evidence that:

- The discharge was caused by severe natural conditions (such as hurricanes, tornados, widespread flooding, earthquakes, tsunamis, and other similar natural conditions);
- There were no feasible alternatives to the discharge, such as the use of auxiliary treatment facilities, retention of untreated wastewater, reduction of inflow and infiltration, use of adequate backup equipment, or an increase in the capacity of the system; and
- The permittee submitted a claim to the NPDES authority within 10 days of the date of the discharge that the discharge meets the criteria of the permit prohibition provision.

The proposed prohibition would clarify that all sanitary sewer system discharges to waters of the U.S. are prohibited, but specifies that in very limited circumstances, NPDES authorities would not bring an enforcement action for a specific discharge.

The Agency requests comment on the general approach of addressing discharges caused by severe natural conditions by codifying criteria for enforcement discretion as well as alternative approaches such as using the proposed criteria to establish a framework for an affirmative defense. The manner in which an affirmative defense provision could be used, including limitations on its use, is discussed below.

1. What Criteria Should Be Used When Evaluating Discharges Caused by Severe Natural Conditions?

Today's proposed rule provides three general criteria in a closely circumscribed framework for evaluating the specific circumstances of a discharge caused by severe natural conditions. The Agency believes that general criteria are appropriate to maintain enforcement discretion and the ability of the NPDES permitting and enforcement authorities to establish remedies on a case-by-case basis.

The proposed "no feasible alternatives" criterion is intended to promote improvement in a manner that is consistent with and retains enforcement discretion. The Agency believes that the feasible alternatives standard allows for consideration of changing conditions, and promotes the necessary investment where discharges caused by severe natural conditions may occur. The proposed prohibition is not intended to be a static design or performance standard or criterion.

The proposed CMOM provision would clarify that the NPDES authority would consider the quality of the CMOM program, its implementation, and effectiveness in relevant enforcement actions. EPA intends that the proposed requirement for system evaluation and capacity assurance plans that is part of the CMOM standard permit condition would provide a framework for permittees with peak flow conditions that contribute to an SSO discharge to identify, evaluate, and implement feasible alternatives (see section III.I.4.) The Agency requests comments on whether and how the feasibility criterion should be applied, including whether it should be applied in addition to the "severe natural conditions" criterion.

The proposed standard condition provides several examples of severe natural conditions to clarify that claims should be limited to extreme conditions. The examples listed are not intended to reflect design or performance standards or criteria, but rather are common-sense examples of severe natural conditions. The Agency requests comments on whether these examples clarify the term "severe natural conditions," whether they generally represent technically feasible levels of control, whether they represent a reasonable range of examples relative to the performance of sanitary sewer collection systems, and whether they should be coupled with the "no feasible alternatives" criterion or stand independently.

2. How Would the Proposed Standard Condition Address Discharges Caused by Severe Natural Conditions that Cause or Contribute to Non-Attainment of a Water Quality Standard?

Under today's proposed rule, the same three general criteria (i.e., severe natural conditions, no feasible alternatives, compliance with notification requirements) would be used to evaluate the specific circumstances of a discharge caused by severe natural conditions even if the discharge caused or contributed to an exceedance of a water quality standard.

E. How Would the Proposed Standard Condition Address Discharges Caused by Factors Other Than Severe Natural Conditions?

The proposed standard condition would also provide a defense for discharges caused by factors other than severe natural conditions. Under the proposed prohibition standard permit condition, a permittee could establish an affirmative defense to an action brought for

noncompliance with technology-based permit effluent limitations if the permittee demonstrates through properly signed, contemporaneous operating logs or other relevant evidence that:

- The permittee identified the cause of the discharge event;
- The discharge was exceptional, unintentional, temporary and caused by factors beyond the reasonable control of the permittee;
- The discharge could not have been prevented by the exercise of reasonable control, such as proper management, operation and maintenance; adequate treatment facilities or collection system facilities or components (e.g., adequately enlarging treatment or collection facilities to accommodate growth or adequately controlling and preventing I/I; preventive maintenance; or installation of adequate backup equipment);
- The permittee submitted a claim to the NPDES authority within 10 days of the date of the discharge that the discharge met the conditions of this provision; and
- The permittee took all reasonable steps to stop, and mitigate the impact of, the discharge as soon as possible.

The proposed framework for raising an affirmative defense is similar to the existing upset standard permit condition at 40 CFR 122.41(n) except that the proposed prohibition has been adapted to specifically address discharges that are not caused by severe natural conditions. One focus of this approach is that in order to raise an affirmative defense, a discharge must arise from factors beyond the reasonable control of the permittee. The proposed language explains that reasonable controls are generally viewed as adequate measures. Where possible, permittees wishing to raise an affirmative defense should use generally accepted industry or State practices and guidance as guidelines for demonstrating that they had instituted reasonable controls (or adequate measures). The Agency requests comment on what factors should be considered in demonstrating "beyond the reasonable control" of the permittee or "adequate measures" and whether and how the proposed prohibition should be clarified. However, as discussed in section III.H, the Agency does not believe that it should develop national minimum levels for reasonable control or adequate measures.

The Agency requests comment on whether the term "unintentional" should be retained in this provision. In general, the term "unintentional" is not intended to preclude a permittee from raising an affirmative defense for a discharge from an emergency overflow structure that arises from an unforeseen event such as a blockage. A claim of an affirmative defense for such an event would be considered in light of the proposed criteria in the provision. The Agency believes that intentional discharges would rarely be considered beyond the reasonable control of the permittee. The Agency requests comment on specific situations where a permittee may claim an affirmative defense for an intentional action.

EPA is proposing today's prohibition standard condition as a technology-based limitation. The proposed language would clarify that the affirmative defense for discharges caused by factors other than severe natural conditions would be limited to noncompliance with technology-based permit effluent limitations. This approach is consistent with the existing upset provision at 40 CFR 122.41(n). The existing upset provision recognizes that no pollution control technology works perfectly all the time, and that EPA sets technology-based standards without lowering the standard to accommodate occasional failures of control technologies. Under the proposal, an affirmative defense could not be raised for noncompliance with a water

quality-based effluent limitation, such as a general prohibition on discharges causing or contributing to an excursion from a water quality standard. EPA notes that this type of water quality-based general prohibition has been included in many NPDES permits, particularly permits issued by authorized States (which are both an NPDES permitting authority and a water quality standards authority). EPA believes the Act does not require the Agency to establish an affirmative defense for water quality-based permit limitations (see Natural Resources Defense Council v. EPA, 859 F.2d 156 (D.C. Cir. 1988). Rather, the Agency believes it is more appropriate to address noncompliance of water quality-based permit limitations using case-by-case prosecutorial discretion.

The Agency requests comment on the general approach of using an affirmative defense to address discharges caused by factors other than severe natural conditions as well as alternative approaches such as codifying criteria for enforcement discretion.

F. What Is the Proposed Timing for Notifying the NPDES Authority?

EPA is proposing that, where the permittee wants to raise a claim that a specific sanitary sewer discharge meets the limited criteria of the proposed prohibition, the permittee would need to notify the NPDES authority within ten days of the date of the discharge. The proposed ten-day deadline is intended to ensure that claims under this provision would be submitted while information about the event is still fresh and would prevent a permittee from raising claims after the NPDES authority could respond with a timely investigation. The Agency requests comment on this proposed time period.

EPA is aware that in some cases a permittee raising a claim under the prohibition might be in the position of submitting this ten-day notification even in cases where the discharge itself did not warrant noncompliance reporting through 24-hour or 5-day reports – i.e., where the discharge was not likely to imminently and substantially endanger human health. The Agency seeks comment on ways to provide more consistency between the two types of reporting, particularly the criteria that trigger each type of report.

V. PROPOSED PERMIT REQUIREMENTS FOR MUNICIPAL SATELLITE COLLECTION SYSTEMS

A. What are Municipal Satellite Collection Systems?

Many municipal sanitary sewer collection systems are not entirely owned or operated by a single municipal entity. A municipal entity that operates a treatment plant may be responsible for conveying and/or treating wastewater from sewers of other municipalities. The term "municipal satellite collection system" refers to a collection system that is owned or operated by a municipality other than the municipality that provides treatment for wastewater added throughout the system. The term "regional collection system operator" refers to a collection system operator who is responsible for the treatment plant(s) that receives wastewater from municipal satellite collection systems. Regional municipal collection system operators who provide wastewater treatment may only operate a relatively small portion of the collection system, such as major interceptors or collector sewers in certain areas.

B. How Many Municipal Satellite Collection Systems Are There?

For the purpose of this rulemaking, EPA estimates that there are about 4,800 municipal satellite collection systems in the United States, based on the 1996 Needs Survey.[39] At this time, EPA is unable to estimate the size distribution of these systems. The Agency believes that most municipal satellite collection systems are small, although the Agency is aware that some large municipal collection systems are satellite systems, particularly where municipal authorities (e.g., wastewater districts) have been formed solely to assume wastewater responsibilities. EPA believes that most municipal satellite collection systems that are composed of sanitary sewers currently do not have NPDES permit coverage. The Agency believes that most municipal satellite collection systems composed of combined sewers currently do have NPDES permit coverage, but recognizes that some currently do not. EPA requests comments on the number of municipal satellite collection systems in the United States, and estimates of their size distribution. Such estimates are important in determining the national impact of today's proposed rule.

C. Why Would EPA Expand NPDES Permit Coverage to Municipal Satellite Collection Systems?

EPA believes it is important to ensure that the NPDES program effectively addresses municipal satellite collection systems. Municipal satellite collection systems can make up a significant percentage of the total sewer length in a municipal collection system. In some cases, the regional sewerage authority or district that is responsible for operating the treatment plants of a sewerage system, and which is the traditional NPDES permit holder, may only own or operate a limited segment of the collection system, such as the main interceptors. In extreme cases, the regional authority or district (and traditional NPDES permit holder) does not own or operate any part of the collection system, only the treatment plant.

The Agency believes that poorly performing municipal satellite collection systems can be major contributors to peak flow problems in regional collection systems. In addition, the Agency believes that the investment in maintenance, repair and enhanced capacity of municipal satellite collection systems has often historically lagged behind that for regional municipal collection systems. This lag in investment is generally due to institutional issues such as lack of responsibility by municipal satellite collection system operators for problems downstream in the collection system or at a treatment plant, even where the municipal satellite collection system may have been a significant source of capacity problems downstream. In addition, direct oversight by EPA and NPDES States has been limited.[40]

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[39]To develop this estimate, the Agency subtracted the estimated number of municipalities that are NPDES permittees from the estimated total number of municipalities identified in the Clean Water Needs Survey as having wastewater responsibilities.

[40]A 1997 ASIWPCA survey in which 34 States responded indicated that 2 States issued NPDES permits for all municipal satellite collection systems within the State, 5 States issued NPDES permits to some, and 26 States do not issue permits to these systems. Of the 26 States that do not issue NPDES permits for these systems, 17 establish alternative State measures; 10 provide for local regulation, and 4 States used alternative means. Two States indicated that municipal satellite collection systems are not regulated at all.

Municipal satellite collection systems can also experience overflows. The Agency believes it is important to clarify who is required to report these events to the NPDES authority and how they should be reported, in order to protect human health and the environment. The objective of today's proposal is to ensure that requirements are clear for: reporting discharges to the NPDES authority; notifying the public, health authorities, and other affected entities; and responding to overflow events.

Today's proposed rule recognizes the complex institutional challenges that underlie management of municipal collection systems. EPA believes that while most regional collection system operators have entered into service agreements with operators of their municipal satellite collection systems, existing service agreements in most cases do not address peak flow conditions or set specific requirements for managing, operating, and maintaining the municipal satellite collection systems. Several municipal representatives participating on the SSO Subcommittee indicated that existing State law may limit the ability of some regional collection system operators to use service agreements to require municipal satellite collection system operators to maintain their portion of the collection system, report SSOs occurring in the satellite system to the regional system, or limit wastewater flows into the regional system. Other representatives indicated that political factors may impede efforts to ensure proper operation and maintenance within municipal satellite collection systems.

D. How Would Municipal Satellite Collection Systems be Regulated Under Today's Proposed Rule?

EPA is proposing to clarify the framework for regulating municipal satellite collection systems under the NPDES permit program. The clarification would result in application of the standard permit conditions in today's proposed rule (e.g., reporting, public notification, and recordkeeping; capacity, management, operation and maintenance requirements; and prohibition) along with other standard permit conditions throughout municipal collection systems including satellite portions. Under the proposal, permit conditions could apply to municipal satellite collection systems in one of two ways:

(1) The owner (or operator) of the municipal satellite collection system would need to obtain NPDES permit coverage and would be directly responsible for implementing permit requirements; or

(2) Where sufficient arrangements have been made and are supported by service agreements or other similar mechanisms, the NPDES permit for the regional collection system would hold the operator of the regional collection system responsible for implementation of permit conditions in the municipal satellite collection system.

EPA expects that most owners or operators of municipal satellite collection systems would need to obtain NPDES permit coverage that would hold them directly responsible for implementing permit requirements for the portions of the collection system for which they have operational control. Today's proposal, however, would allow the owner or operator of a regional collection system to work with its satellite collection systems and propose to the NPDES authority that it assume responsibility for implementing permit conditions in designated municipal satellite collection systems. Regional systems already may have the equipment, expertise, and trained staff for implementing CMOM programs for their own collection systems,

so expansion to satellite systems may be more cost-effective from the satellite's perspective. In this situation, the NPDES permit would clarify which party is responsible for implementing permit conditions in each municipal satellite collection system.

EPA is also proposing that, where a municipal satellite collection system does not have permit coverage and experiences an SSO that discharges to waters of the U.S., the owner or operator of the municipal satellite collection system would need to submit a permit application within 180 days of the discharge. This provision would complement the proposed permit reporting requirements to ensure that SSOs from a municipal satellite collection system that result in a discharge to waters of the U.S. are reported to the NPDES authority. The 180-day application requirement, however, would not relieve the discharger from liability for the unauthorized discharge.

The NPDES authority would have discretion to decide whether to issue NPDES permits as individual permits or general permits or whether co-permittees are appropriate for a given collection system.

1. Regional Implementation of Measures in Municipal Satellite Collection Systems

Today's proposal provides some flexibility in clarifying the responsibilities for implementing permit requirements, such as CMOM program requirements and reporting, public notification and recordkeeping, within service areas of municipal satellite collection systems. Where a regional collection system operator makes the necessary arrangements with a municipal satellite collection system to conduct the required activities in the satellite system, the NPDES authority could include conditions in the regional system's permit to specify the regional system's obligations within the satellite system. In this situation, the owner/operator of the satellite system would not have to be an NPDES permittee. This arrangement, however, would not remove the liability for discharges from a satellite system, from the owner/operator of the satellite system who would retain liability for discharges from its system to waters of the U.S.

The Agency recognizes that some regional collection systems do not have sufficient legal authority or jurisdiction over the satellite collection systems that send it flow to ensure the satellite collection system fully implements an adequate CMOM program. Therefore, today's proposal is not intended to mandate that regional collection systems must implement CMOM activities in municipal satellite collection systems where the regional system does not have sufficient authority. Rather, regional collection systems should only be assigned such responsibilities where the regional collection systems has sufficient legal authority to implement such an approach. The Agency requests comments on when this flexibility is appropriate and the legal and institutional barriers associated with holding regional collection systems responsible for municipal satellite collection systems.

2. Scope of Coverage

The intent of today's proposed rule is to ensure that the responsibility under the NPDES program to report sanitary sewer overflows, provide public notification, provide adequate capacity, and properly operate and maintain municipal satellite collection systems is clear. While the Agency recognizes that not all municipal satellite collection systems have

discharges, or have I/I that creates capacity problems for regional collection systems, the Agency believes that all municipal satellite collection systems should be subject to a comprehensive regulatory framework under the NPDES program, regardless of the performance of their collection systems and the existence of alternative State requirements. The Agency believes this is the most comprehensive approach, would tend to level the playing field, and would ensure the basis for Federal enforcement if necessary. The Agency requests comment on whether the framework for requiring NPDES permit coverage for municipal satellite collection systems should provide criteria for targeting specific municipalities (e.g. only targeted municipal satellite collection systems would need NPDES coverage), and if so, what targeting mechanism should be used (e.g., occurrence of overflow events, whether or not they resulted in a discharge to waters of the U.S., problems identified by the regional collection system, service population/size threshold).

Today's proposal regarding municipal satellite collection systems would expand NPDES coverage for collection systems composed of either sanitary sewers or combined sewers, or a combination of both types of sewers. The Agency requests comments on whether the provision should apply to both municipal satellite collection systems composed of combined sewers and municipal satellite collection systems composed of separate sanitary sewers (as well as systems composed of both sanitary and combined sewers).

Today's proposal defines municipal satellite collection systems in terms of systems that convey wastewater to a POTW treatment facility that has an NPDES permit or is required to apply for a permit under 40 CFR 122.21(a). The Agency notes that many "no discharge" POTWs currently do not have NPDES permits. This group of facilities may include biological treatment facilities that apply treated wastewater to land rather than discharge to a receiving water, publicly owned community septic systems, and other types of publicly owned decentralized facilities. "No discharge" facilities tend to be smaller systems, although some large facilities are no discharge facilities. NPDES authorities have issued permits to some "no discharge" POTWs for a variety of reasons, including clarifying the regulatory framework for periodic, unplanned discharges (e.g., upset and bypass). "No discharge" NPDES permits would be especially appropriate to address SSOs from collection systems that are part of "no discharge" POTWs and to establish CMOM program requirements. Some such POTWs already have NPDES permits, but only to address the beneficial use and disposal of biosolids (sewage sludge). EPA requests comments on this aspect of the proposal, specifically, whether (and how) to ensure NPDES permit coverage for municipal satellite collection systems that convey wastewater to a "no discharge" POTW treatment facility.

EPA is also proposing to define municipal satellite collection systems as a municipal collection system that conveys wastewater to a publicly owned treatment works. EPA requests comments on whether this provision should be expanded to address municipal satellite collection systems that convey wastewater to privately owned treatment works.

E. What is the Legal Authority for These Proposed Requirements?

Legal authority for the proposed requirements for municipal satellite collection systems derives from the definition of "publicly owned treatment works." CWA section 212(2)(A) defines "treatment works" to include "any devices and systems used in the storage, treatment,

recycling, and reclamation of municipal sewage or industrial wastes of a liquid nature . . . including . . . intercepting sewers, outfall sewers, sewage collection systems . . . ." EPA regulations define the term "publicly owned treatment works" similarly at 40 CFR 122.2 and 403.1. To date, EPA and authorized States have issued NPDES permits to entities that operate POTW treatment plants, specifically, because such plants discharge directly to waters of the U.S. and/or because they generate sewage sludge. In developing today's proposal, which is intended to clarify EPA expectations about proper management, operation and maintenance (among other things), the Agency recognized that capacity, management, operation and maintenance are system-wide concerns and are not always within the control or authority of the POTW treatment plant operator. Today's proposal would ensure that these necessary system-wide controls would be implemented throughout the entire "POTW" as defined to include the POTW treatment plant and the collection system. It would provide the NPDES authority with flexibility in determining who will be subject to the NPDES permit requirement to implement CMOM in the satellite collection system.

F. What Are the Proposed Permit Application Requirements for Municipal Satellite Collection Systems?

If the owner/operator of a municipal satellite collection system needed to obtain NPDES permit coverage, he or she would either submit an individual permit application or obtain coverage under a general permit. The requirements for individual permit applications for POTWs are established at 40 CFR 122.21(j) and would be used for today's proposal unless the POTW was covered by a general permit (see 40 CFR 122.28). These requirements are incorporated into Form 2A, which is the application form EPA uses for POTWs. EPA modified POTW application requirements and Form 2A on August 4, 1999 (64 FR 42434). Authorized NPDES States typically use their own individual permit application forms, but the State form must at least require the information required under the regulation at 40 CFR 122.21(j).

Today, EPA is proposing that application requirements for municipal satellite collection systems would be the information required under 122.21(j) (i.e., information required in Form 2A) except for the following regulatory provisions: (1)(viii)(B), (1)(viii)(C), (1)(viii)(E), (2)(ii), (2)(iii), (3)(iii), (4), (5), (6) and (7). In terms of the numbering system used on Form 2A, the applicant would not have to submit the following information required in Form 2A: A.8.b, A.8.c, A.8.e, B.2.(a)-(f), B.3, A.11(a)-(c), A.12, B.6, D, E.(1)-(4), F(2)-(8), F(9)-(15), but would have to submit the rest of the information on the form. In essence, the Agency is proposing to use the Form 2A permit application requirements for municipal satellite collection system except for provisions that apply only to treatment plants. EPA requests comments on whether these are adequate and appropriate application requirements for municipal satellite collection systems.

Application or notice of intent requirements for general permit coverage would be established by the general permit.

G. What Would Be the Deadlines for Submitting Permit Applications?

EPA is proposing the following deadlines for the owner or operator of a municipal satellite collection system to submit a permit application where required:

- If on [date 2 years from date of publication of the final rule], a permit application for the regional collection system that receives flows from the municipal satellite collection system has been submitted to the NPDES authority and is currently pending (i.e., the permit for the regional system has not been reissued), the owner or operator of the municipal satellite collection system must submit a permit application by [date 3 years from date of publication of the final rule];
- If on [date 2 years from date of publication of the final rule], a permit application for the regional collection system that receives flows from a municipal satellite collection system is not pending, the owner or operator of the municipal satellite collection system must submit a permit application by the date that the treatment facility is required to submit the permit renewal application;
- Where a municipal satellite collection system that does not have permit coverage experiences a sanitary sewer overflow that discharges to waters of the U.S., the owner or operator of the satellite system must submit a permit application within 180 days of the discharge; and
- Where the Director requires the owner or operator of the municipal satellite collection system to submit a permit application on a case-by-case basis, the owner or operator of the satellite system must submit a permit application within 180 days of notification by the Director, unless the Director establishes an alternative deadline.

EPA seeks comment on these deadlines.

Note that the permit application deadline would not relieve the municipal satellite collection system of liability for an unpermitted discharge.

H. What Types of Permit Conditions Would Be in Permits for Municipal Satellite Collection Systems?

As discussed above, municipal satellite collection systems may comprise either sanitary sewers or combined sewers (or a combination of both types of sewers). The NPDES permit requirements for these different types of collection systems would be different because of the different standards and regulatory frameworks imposed.

At a minimum, NPDES permits for municipal satellite collection systems would contain the standard permit conditions for reporting, recordkeeping, public notification, and CMOM programs and the prohibition on SSO discharges and other standard conditions provided in the NPDES regulations. As indicated in the proposed prohibition language, the bypass and upset provisions at 40 CFR 122.41(m) and (n), respectively, would be retained in the permit but would only apply to discharges from a treatment plant and not to SSOs. If a satellite system had a permit that included the prohibition in today's proposed rule, the enforcement discretion and affirmative defense associated with such a permit would be available.

NPDES permits for municipal satellite collection systems that are composed of combined sewers would contain technology-based requirements (best available technology economically achievable (BAT)/best conventional pollutant control technology (BCT)) and any

more stringent water quality-based requirements and applicable standard permit conditions. In other words, such permits would implement the Combined Sewer Overflow Control Policy (April 19, 1994)). Permits for satellite systems that are combined sewer systems would not be required to contain the standard permit conditions for reporting, public notification, and recordkeeping; the CMOM program; and the prohibition on SSO discharges proposed today. As discussed elsewhere, EPA is requesting comment on whether the standard permit condition for reporting, public notification, and recordkeeping should apply to relevant noncompliance events associated with combined sewers. If, based on comment, EPA determines in the final rule to apply this condition to such discharges, the condition would be included in permits for combined sewer systems. Permits for combined sewer systems, however, would be required to contain other applicable existing standard conditions, including non-compliance reporting requirements at 40 CFR 122.41(l)(6) and (7), which require reporting any non-compliance event (e.g., dry weather discharges from permitted CSO outfalls, unauthorized discharges from manholes or other locations not authorized by the permit).

VI. PROPOSED STANDARD PERMIT CONDITIONS FOR REPORTING, PUBLIC NOTIFICATION, AND RECORDKEEPING FOR MUNICIPAL SANITARY SEWER COLLECTION SYSTEMS AND SSOs

A. Background Information

1. What are the Existing Standard Permit Conditions for Reporting, Public Notification, and Recordkeeping for SSOs?

a. Noncompliance Reporting

At a minimum, all NPDES permits must contain the standard permit conditions at 40 CFR 122.41(l)(6) and (7) for noncompliance reporting. When incorporated into a permit, these standard conditions require permittees to report any instance of noncompliance to the NPDES authority. SSOs that result in discharges to waters of the United States constitute noncompliance, which the permittee must report under these provisions. The existing requirements in 40 CFR 122.41(l)(6) and (7) require the permittee to report orally to the NPDES authority within 24 hours after the permittee becomes aware of the event if the noncompliance may endanger health or the environment. A written submission must follow within 5 days of the time the permittee becomes aware of the noncompliance, unless the Director waives the written report. The standard permit condition at 40 CFR 122.41(l)(7) requires the permittee to report all other instances of noncompliance in writing at the time discharge monitoring reports are submitted.

b. Public Notification

The existing NPDES standard permit conditions do not establish public notification requirements for SSOs. NPDES permits may have established public notification requirements for SSOs on a case-by-case basis, however.

c. Recordkeeping

At a minimum, all NPDES permits must contain the standard permit condition at 40 CFR 122.41(j)(2) for recordkeeping. When incorporated into a permit, this provision,

among other things, requires permittees to retain copies of all reports required by the permit for a period of at least 3 years from the date of the report. This requirement includes retaining records of the required noncompliance reports of SSO events that result in discharges to waters of the U.S. The retention period may be extended by the request of the Director at any time. Additional reporting and recordkeeping requirements may have been included in a permit on a case-by-case basis.

d. Public Availability

The NPDES standard permit conditions do not specifically address public availability of information. Section 308(b) of the Clean Water Act, however, provides that records, reports or other information required by an NPDES permit must be available to the public upon request unless considered confidential. EPA expects that most if not all information associated with reporting discharges from municipal collection systems would not be considered confidential under 40 CFR 122.7 and analogous State law.

2. Overview of Today's Proposed Standard Permit Condition

Today's proposal would broaden minimum permit requirements to establish a comprehensive framework for reporting, public notification, and recordkeeping for SSOs from municipal sanitary sewer collection systems. The requirements would derive from CWA sections 304(i), 308 and 402(a). The proposed standard condition for reporting, public notification, and recordkeeping for SSOs identifies five classes of requirements:

(1) **Reporting to the NPDES authority.** The proposed standard permit conditions would require the permittee to provide --

  (a) **Immediate reports** - The permittee would have to report SSOs (including SSOs that do not reach waters of the U.S.) that may imminently and substantially endanger human health to the NPDES authority as soon as practicable but no longer than 24 hours after becoming aware of the discharge.

  (b) **5-day reports** - The permittee would have to follow up each 24-hour report with additional information within five days of becoming aware of the discharge.

  (c) **Discharge Monitoring Reports** - The permittee would have to report SSOs that discharge to waters of the United States in discharge monitoring reports (DMRs). The intervals for submitting DMRs would be established in the permit on a case-by-case basis

(2) **Immediate notification to the public and other affected entities.** The permittee would be required to provide immediate notification to the public, health agencies, drinking water suppliers, and other affected entities of SSOs (including SSOs that do not reach waters of the U.S.) that may imminently and substantially endanger human health.

(3) **Annual reports** - The permittee would be required to submit an annual summary of all SSOs to the NPDES authority, regardless of whether the overflows discharge to waters of the U.S. or may imminently and substantially endanger human health. Systems serving fewer than 10,000 people would be exempt if they experienced no

SSOs during the 12 month reporting period. The permittee would be required to notify the public of the availability of the annual report.

(4) **Recordkeeping** - The permittee would be required to retain records on all overflows, regardless of whether they discharge to waters of the U.S. or may imminently and substantially endanger human health.

(5) **Posting of overflow locations.** The permittee would be required to provide notification in locations where overflows have a potential to affect human health.

The proposed requirements are a combination of new, simplified, and expanded requirements:

(1) New requirements for immediate notification to the public, health agencies, drinking water suppliers, and other affected entities;

(2) New requirements for posting of locations where overflows have a potential to affect human health;

(3) New requirements for annual reports;

(4) Simplified requirements for DMRs; and

(5) Expanded requirements for recordkeeping.

The reporting, recordkeeping, and public notification requirements would be important elements of the permittee's overflow emergency response plan, which is in turn an element of the capacity, management, operation and maintenance (CMOM) program. Table 16 summarizes these elements. The proposed requirements for the CMOM program and overflow emergency response plan are described in section III.I of today's proposal. EPA intends the overflow emergency response plan to provide a framework for identifying and describing the specific procedures for implementing notification requirements.

Table 16. Summary of Proposed Reporting, Public Notification, and Recordkeeping Requirements

Type of Requirement	Criteria	Information provided	Provision
1. Reporting to NPDES authority			
Noncompliance reporting as expeditiously as possible, but no later than 24 hours after permittee becomes aware	SSOs that may imminently and substantially endanger human health	• SSO location • SSO volume • Receiving water	122.42(g)(2)(ii)
Follow-up noncompliance reporting within 5 days after permittee becomes aware (May be waived on case-by-case basis)		• SSO location • Receiving water • SSO volume • Sewer component where release occurred • Date/time SSO began/ended • Cause of SSO • Steps to respond to cause • Steps to mitigate impacts	122.42(g)(2)(iii)

Discharge monitoring report	SSOs that discharge to waters of the U.S.	• Number of SSOs • # capacity-related SSOs • # non-capacity-related SSOs • # locations with non-capacity-related SSOs	122.42(g)(3)
Annual report Notify public of availability of annual report	All SSOs (not required for systems serving < 10,000 people with no SSOs to waters of U.S. during reporting period)	• Dates of SSOs • Locations of SSOs • Potentially affected receiving waters • Estimated SSO volumes	122.42(g)(4)

2. Immediate notification to public and other affected entities

Immediate notification to public	SSOs that may imminently and substantially endanger human health	Identified in overflow emergency response plan	122.42(g)(2)(i)
Immediate notification to health authorities	SSOs that may imminently and substantially endanger human health	Identified in overflow emergency response plan	122.42(g)(2)(i)
Immediate notification to drinking water providers	SSOs that may imminently and substantially endanger human health	Identified in overflow emergency response plan	122.42(g)(2)(i)

3. Recordkeeping

Retain all records for past 3 years	All SSOs	• Information required by (g)(2)(iii) • Work orders for SSO investigation • Customer complaints • Documentation of performance and implementation measures	122.42(g)(5)

4. Other public notification

Additional public information (e.g., posting)	Locations where SSOs have potential to affect human health	Developed in consultation with potentially affected entities	122.42(g)(6)

3. Use of Tiered Approach

Today's proposal would tier the framework for reporting, public notification and recordkeeping based on the nature of SSO events. Under the proposal:

- All SSOs, including SSOs that do not reach waters of the U.S. and do not imminently and substantially endanger human health, would be identified in annual reports and subject to recordkeeping requirements;
- SSOs that result in a discharge to waters of the U.S. would be identified in DMRs;

- SSOs that may imminently and substantially endanger human health would be subject to noncompliance reporting and public notification requirements regardless of whether they result in a discharge to waters of the U.S.; and
- Locations where SSOs have the potential to affect human health would be subject to additional public notification requirements, such as posting.

EPA believes that annual reports and recordkeeping requirements should address all SSOs, including those that do not result in a discharge to waters of the U.S., for the following reasons:

- Requiring permittees to report overflows that do not reach waters of the U.S. would provide a consistent basis for reporting and evaluating the effectiveness of operation and maintenance measures and collection system performance.
- Overflows that do not reach waters of the U.S. may be an indicator of an NPDES permit violation (e.g., violation of the standard permit condition requiring proper operation and maintenance).
- The Agency believes that many SSOs that do not involve an overflow structure to waters of the U.S. may still result in discharges to waters of the U.S. For example, sewage from an overflowing manhole in a street may flow into a storm drain and be conveyed to waters of the U.S., particularly during a rain event. A more wide-reaching reporting requirement is more likely to identify these situations and less likely to have the effect of creating reporting disparities between permittees that aggressively report SSO events and those that do not.

In addition, the Agency believes that triggers for immediate notification should be based on public health risks, and should not be based on an arbitrary distinction between SSOs that do and do not go to waters of the U.S.

4. How Many SSOs Will be Reported Under the Proposed Requirement?

EPA has prepared an information collection request (ICR) document for today's proposed rule in accordance with the Paperwork Reduction Act. The ICR estimates the number of overflows that have to be reported under existing standard permit conditions and under the standard permit conditions proposed today. The ICR analysis estimates that about 40,000 overflow events per year associated with municipal sanitary sewers will have to be reported, based on assumptions that: (1) as a rough average, municipal sanitary sewer collection systems experience 75 SSOs (excluding building backups) per year per 1,000 miles; (2) sanitary sewers serve 148 million people in the U.S.; and (3) the average length of a sanitary sewer system is 18 ft/person served. The Agency anticipates that the number of overflow events should decrease with time as municipalities increase their investment in maintaining and remediating their collection systems. (The reduction in the actual number of events, however, may be offset by more efficient identification and reporting efforts. The ICR also estimates the number of hours for permittees to report and for NPDES authorities to respond to reports, including cost and burden for developing reports.)

The Agency recognizes that today's rulemaking would address a significant number of SSO events. EPA intends to structure reporting, recordkeeping and public notification requirements in a workable manner to recognize the variation in health and environmental risks

associated with different types of events. EPA seeks comment on alternative approaches to structuring these requirements besides those proposed here.

5. Request for Comments on Application to Combined Sewers

EPA requests comment on whether the standard condition for reporting, public notification, and recordkeeping proposed today should be applied to combined sewers as well as sanitary sewers. The CSO Control Policy (April 19, 1994) describes how NPDES requirements are established for CSO discharges. The CSO Control Policy focuses on NPDES permit requirements for discharges from designed CSO outfall locations identified in the permit. In general, the CSO Control Policy is silent on reporting requirements for unauthorized overflows (e.g. dry weather overflows from permitted outfalls or overflows from other locations, such as manholes). Currently, permits for CSO discharges are to contain the standard conditions at 40 CFR 122.41(l)(6) and (7) which requires reporting of non-compliance events such as unauthorized discharges from manholes or dry weather overflows. Permits for CSO discharges also must contain the standard permit condition at 40 CFR 122.41(j)(2) for recordkeeping.

The Agency is concerned that somewhat different reporting, recordkeeping, and public notification requirements for combined sewers and sanitary sewers will create unnecessary confusion. This is a particular concern where a single collection system is composed of both combined sewers and sanitary sewers. Applying the reporting, public notification, and recordkeeping requirements proposed today to combined sewers would: (1) clarify reporting, public notification, and recordkeeping requirements for unauthorized overflows from combined sewers; (2) tailor noncompliance reporting requirements to overflows, including expanding reporting requirements to address some overflows that do not discharge to waters of the United States; (3) provide one uniform framework for reporting, public notification, and recordkeeping requirements for overflows from municipal collection systems that happen to originate in differently designed sewers; and (4) ensure the public has access to comprehensive information regarding collection system overflows.

B. Summary of Proposed Requirements

1. Proposed Reporting Requirements

Today's proposal would create new requirements at 122.42(g) that adapt the existing noncompliance reporting requirements at 40 CFR 122.41(l)(6) and (7) to SSOs. In cases where an overflow may cause imminent and substantial endangerment to human health, proposed standard conditions at 122.42(g)(2) would require notification to the NPDES authority as expeditiously as possible but in no case more than 24 hours after the permittee becomes aware of the SSO. A written submission would need to follow within five days of the time the permittee becomes aware of the noncompliance, unless the Director waives the written report.

New 122.42(g)(3) would clarify and simplify minimum requirements for reporting SSOs in DMRs. New 122.42(g)(4) would require preparation of an annual report summarizing information on SSOs.

a. Immediate Notification of the NPDES Authority

EPA is proposing that the permittee be required to notify the NPDES authority as soon as practicable but within 24 hours of the time the permittee becomes aware of the overflow for overflows that may cause imminent and substantial endangerment to human health. The definition of "as soon as practicable" would be expected to vary based on the circumstances and fact pattern associated with an SSO event, but would in no case exceed 24 hours after discovery of the event. Under the proposal, this report would have to identify the location, estimated volume, and receiving water, if any, of the overflow.

The Agency is also proposing that the permittee describe, in its overflow emergency response plan, procedures and protocols for ensuring that appropriate information is made available to the public, public health authorities, and drinking water providers as promptly as necessary to avoid public health impacts and foster the necessary response and coordination among participating agencies. The Agency recognizes that the exact time needed to provide immediate notification may vary somewhat given the nature of the event. When responding to an SSO event, the permittee's crew may have a number of immediate responsibilities including taking steps to stop the event, limit public exposure, and characterize the event sufficiently to support appropriate notification. EPA is not proposing a definition of "immediate" in today's proposed rule but seeks comment on whether additional clarification is appropriate, and the relationship between "immediate" notification and 24-hour reporting to NPDES authorities. In general, EPA does not favor imposing a uniform period for notification, which could suggest that it is acceptable to wait the entire designated time period before providing notification – e.g., waiting until hour 23 of a 24-hour period.

Today EPA is proposing to require reporting for all SSOs that may imminently and substantially endanger human health. The Agency recognizes that reporting to NPDES authorities may not be necessary for certain low-risk SSOs that are of low volume, stopped immediately, and contained and addressed without a discharge to waters of the U.S. or exposure to the public. EPA is concerned that requiring the permittee to report all SSO events to the NPDES authority may require the NPDES authority to expend limited resources responding to minor events. Today's proposal would require permittees to report overflows that may imminently and substantially endanger human health. EPA believes that this criterion would be an appropriate threshold because it would allow for prioritization of SSOs. EPA requests comments on using other criteria for requiring reporting to the NPDES authority, such as "may endanger health or the environment" or thresholds based on the estimated volume of an SSO.

b. Five-Day Follow-Up Notification of the NPDES Authority

Under the proposal, the permittee would also be required to provide the NPDES authority a written report within five days of the time it became aware of the overflow unless the Director waives the requirement for the written report. The written report would have to describe:

- The location of the overflow;
- The receiving water;
- An estimate of the volume of the overflow;

- A description of the sewer system component from which the release occurred (e.g., manhole, constructed overflow pipe, crack in pipe);
- The estimated date and time when the overflow began and stopped or will be stopped;
- The cause or suspected cause of the overflow;
- Steps taken or planned to reduce, eliminate, and prevent reoccurrence of the overflow and a schedule of major milestones for those steps; and
- Steps taken or planned to mitigate the impact(s) of the overflow and a schedule of major milestones for those steps.

EPA believes that these are the minimum information components required to screen events in order to make an initial estimate of the risk. The NPDES authority could then establish additional requirements for immediate and follow up reports. The Agency also believes that the information generally should be available to the permittee within an immediate response period and within five days. The Agency expects that the immediate and follow-up reporting would be based on observations made when responding to the overflow, and generally should not require detailed analysis or evaluation.

The Agency requests comments on whether these proposed minimum information requirements satisfy the needs of NPDES authorities for immediate and follow-up reports. EPA also requests comments on whether they are all necessary in light of the NPDES authority's ability to require additional reporting in permits or to use other authorities to request information about a specific incident after it has occurred. EPA can use the authority of section 308 of the CWA to require additional information. Authorized NPDES States can use parallel or additional State authorities.

The Agency also requests comments on whether today's proposal would provide NPDES authorities with flexibility to establish requirements to report priority discharges from collection systems in a manner consistent with the responsibilities of the NPDES authority. The Agency requests comments on difficulties permittees may encounter when trying to provide the information within the proposed time periods.

c. Discharge Monitoring Reports (DMRs)

i. What is the Purpose of Reporting SSO Information in DMRs?

Discharge monitoring reports (DMRs) are a primary source of data used in the EPA information management system to support the NPDES program, specifically, in the areas of permitting, compliance and enforcement tracking. EPA believes that, at a minimum, NPDES authorities should incorporate a tiered approach to managing information on SSOs, given the large number of municipal sanitary sewer collection systems and the complex nature of SSOs. Under today's proposal, EPA would clarify minimum requirements for reporting SSOs in DMRs. In general, these proposed DMR requirements would simplify reporting requirements and reduce the burdens of reporting for SSOs to the NPDES authority.

The proposed requirements focus on providing summary information on SSO events to the NPDES authority. This information can be used as a screening tool to evaluate whether additional information is necessary to support an in-depth evaluation of system performance and to support baseline and benchmark comparisons of compliance and operational trends. Written reports also would provide third parties with basic information about SSO discharges.

ii. What Information Would Be Included in DMRs?

Today's proposal would modify existing DMR requirements for SSOs to require reporting of the following information for the specified reporting period:

(1) The total number of SSOs discharging to waters of the United States;

(2) The number of locations at which SSOs discharging to waters of the U.S. resulted from flows exceeding the capacity of the collection system;

(3) The number of SSOs discharging to waters of the U.S. that were unrelated to the capacity of the collection system; and

(4) The number of locations at which SSOs discharging to waters of the U.S. were unrelated to the capacity of the collection system; and

(5) If the operator wants to raise a defense, whether the operator believes the discharge satisfies the requirements for the affirmative defense.

The Agency believes that summary information on the number of overflows that discharge to waters of the U.S. is the minimum information an NPDES authority needs to support initial screening of compliance and operational trends and to determine whether a more detailed evaluation is appropriate.

Under the proposal, permittees would have to distinguish SSOs that are unrelated to capacity (e.g., blockages, equipment failures) from those that are related to capacity. EPA believes this provides useful screening information because SSOs that are unrelated to capacity tend to indicate a different set of deficiencies and the overflows can be somewhat different in nature (e.g., capacity-related SSOs can be caused by wet weather events, have larger volume, may be diluted, and generally occur at different locations). In practice, however, distinguishing between capacity-related SSOs and other SSOs often is difficult. In part this difficulty is a matter of definition; wet weather-related SSOs are typically caused by a combination of factors, such as undersized design capacity, high levels of I/I, and factors that reduce the "effective" or "operating" capacity of the system, such as tree roots or deposition of solids or grease deposits. EPA requests comments on whether the distinction between capacity-related SSOs and other SSOs is clear and would provide useful information. The Agency requests comments on other potential classifications, such as SSOs caused by wet weather.

Under the proposal, permittees would have to identify the number of locations where SSOs occurred. This information is intended to indicate to the NPDES authority whether repeated SSOs are occurring at the same location. An understanding of whether repeated SSOs occur at the same location may shed light on the effectiveness of the permittee's program to respond to SSOs and address deficiencies within its system. EPA requests comments on whether this requirement would provide useful information.

During a widespread wet weather event, SSOs may occur at the same time at multiple locations in a collection system. Under the proposed requirements, each SSO discharge would have to be counted separately, even if multiple SSOs occurred at the same time. In other words, if a system experienced SSO discharges at several locations at the same time, the permittee would not count these discharges as one overflow. Such reporting would be consistent with the existing NPDES framework where each discharge from a separate location is a distinct violation. EPA requests comments on whether this is clear in the proposed language.

EPA requests comment on whether two additional reporting elements should be added to the proposed requirements:

(1) Reporting the number of locations where SSOs occur. This would allow NPDES authorities to identify if a permittee is not reporting correctly; and

(2) The cumulative number of days of duration of SSO discharges during a reporting period (e.g., if sewage spilled at six different locations and each spill lasted for two days, then the permittee would report a total of twelve days of spills). The Agency requests comments on how days of duration would be defined under this element (e.g., would an SSO that started at 11:50 p.m. and stopped at 12:01 a.m the next day count as one or two days?). Alternately, should the operator be required to report the actual duration (i.e., 11 minutes in the above example), rather than days?

The proposed standard permit condition would establish minimum DMR requirements. NPDES authorities would be able to establish more frequent reporting requirements in permits. In addition, the NPDES authority may use other authorities to require more specific information. EPA requests comments on the content of the proposed DMR requirements.

The frequency for submitting DMRs is established in specific permits on a case-by-case basis. NPDES permits for major facilities typically require DMRs to be submitted monthly, bimonthly, or quarterly. At a minimum, DMRs must be submitted once a year (see 40 CFR 122.44(i)(2)).

d. Proposed Requirements for Annual Reports

Today's proposed standard condition for reporting, public notification, and recordkeeping would require permittees to prepare an annual report of all overflows in the sewer system, including the date, the location of the overflow, any potentially affected receiving water, and the estimated volume of the overflow. EPA is proposing to allow the permittee to summarize information regarding overflows of less than approximately 1,000 gallons. The permittee would be required to provide the report to the Director and notify the public of its availability.

Under today's proposal, permittees that serve fewer than 10,000 people and have had no overflows in the past year would be exempt from the annual report requirement. The Agency believes that it is not necessary, from a health or environmental perspective, to require small municipalities that do not have overflows to notify the public of the availability of reports. The Agency requests comment on whether other municipalities that do not have overflows should be required to notify the public of the availability of a report and whether there are other situations where a report should not be necessary. The Agency also requests comment on whether the service population threshold is appropriate.

Other alternative approaches upon which the Agency requests comments are:

(1) Requiring all permittees to submit annual reports regardless of whether they have had an SSO. This may facilitate recordkeeping by NPDES authorities.

(2) Requiring annual reports only from permittees whose collection systems provide service for a certain population size or above.

(3) Requiring annual reports only if a trigger threshold is exceeded, such as: (a) a specified number of overflows per system or service area; (b) a specified

number of overflows per mile of sewer collection line; or (c) a specified number of overflows per capita of service population;

(4) Giving the Director of the NPDES authority discretion to identify criteria for submittal of annual reports;

(5) Giving the Director discretion as to when to require such reports below the trigger thresholds referred to in (3), but requiring annual reports if these trigger thresholds are exceeded; or

(6) Not requiring annual reporting requirements for any permittees.

EPA invites comment on limiting the proposed annual report provision to overflows that go to waters of the U.S.

i. Why are Publicly Available Annual Reports Important?

EPA is proposing annual reporting requirements in order to ensure public awareness of the availability of information on SSO trends. Annual reporting also would supplement the information provided in DMRs by requiring reporting of all overflows, including those SSOs that do not discharge to waters of the U.S. Annual reports would provide summary information about specific overflow events, including the location, cause, and characteristics of overflows.

Improving public awareness of SSOs is important because the public can play a key role in improving sanitary sewer collection system performance. The public is a key stakeholder that should have an opportunity to identify its concerns and expectations regarding the performance of collection systems and potential public health and environmental risks.

Requiring permittees to provide information about overflows also should encourage POTWs to develop other long-range education strategies that would not otherwise be required under today's proposal.

ii. How Would the Public Be Notified of the Availability of the Annual Report?

EPA is not proposing specific guidelines for notification to the public of the availability of the annual report. EPA expects, however, that the protocol for public notification would be identified in the permittee's CMOM program. A number of options would be available for providing notification to the public. Options include direct mail, an insert to a water/sewer bill, publishing a notice in a local newspaper, or an addendum to other, existing printed materials or notices such as signs or public health advisories posted at recreation areas. The Internet is likely to be an increasingly desirable medium not only for providing notification of the report's availability but also for making the report available to the public.

2. Proposed Requirements for Immediate Public Notification

Among the requirements for standard permit conditions being proposed today is a framework for providing immediate notification to the public and other appropriate entities. The philosophy underlying the proposal is that the proposed reporting, public notification, and recordkeeping standard permit condition would provide a general framework for immediate notification, and the permittee would provide system-specific details in their overflow response plan as to how the requirement would be implemented. EPA requests comment on the general approach of clarifying implementation details in an overflow response plan.

a. Why is Immediate Notification Important?

One of the most critical steps in responding to SSOs that may imminently and substantially endanger human health is providing notification to the potentially affected public and to entities that must take steps to mitigate health risks and minimize the effects of the overflow. Prompt and effective notification of members of the public that are potentially exposed to pathogens in an overflow is necessary to reduce actual exposure. Additionally, depending on the nature and location of an overflow, a number of entities can also be potentially affected or have roles in reducing public exposure. Rapid and effective notification allows these entities to take the appropriate steps necessary to reduce public exposure, mitigate other impacts, and assist in a response.

b. Which SSOs Would Be Subject to Immediate Notification Requirements?

EPA believes that immediate notification is a critical part of responding to SSOs that may imminently and substantially endanger human health. The Agency recognizes, however, that immediate notification of the public and other entities may not be necessary for lower-risk events such as overflows of relatively small volume that are stopped immediately and contained and addressed without exposure to the public. The Agency also believes that the need for immediate notification varies depending on factors such as the nature and location of the SSO event, the responsibilities of health agencies, and the role of the NPDES authority in immediate response. The Agency is concerned that requiring immediate notification of all SSO events may cause health officials, NPDES authorities, and other entities to expend limited resources responding to minor events. In addition, the Agency believes that the initial screening for the appropriateness of notification should be based on first-hand observations from the field. The Agency is also concerned that if all SSOs were immediately reported to the public, minor events may receive disproportionately high attention.

Under today's proposal, permittees would have to provide immediate notification of overflows that may imminently and substantially endanger human health. EPA believes that the criterion "may imminently and substantially endanger human health" is an appropriate threshold because it would allow for prioritization of SSOs. EPA requests comments on using other criteria for requiring immediate notification, such as "may endanger health or the environment" or thresholds based on the estimated volume of an SSO.

SSOs that are generally expected to meet the "may imminently and substantially endanger human health" criterion for immediate notification include: major line breaks; overflow events that result in fish kills or other significant harm; and overflow events that occur in sensitive waters and high-exposure areas, such as protection areas for public drinking water intakes and swimming beaches and waters where primary contact recreation occurs (see Chapter X of the Enforcement Management System Guide, EPA, March 7, 1996). NPDES authorities may identify other areas or overflows of specific concern in guidance.

EPA encourages NPDES authorities to work with health authorities to develop and distribute to municipal permittees State-specific and/or watershed-specific guidance that:

- Clarifies the requirements for reporting overflows from sanitary sewer collection systems; and

- Assists permittees with key implementation issues, such as determining when overflows may imminently and substantially endanger human health.

This guidance would assist permittees in developing detailed protocols for immediate notification in overflow emergency response plans.

c. Which Entities Would Receive Immediate Notification?

The permittee would be required to provide immediate notification about the overflow event to members of the public and other entities that are potentially affected. Immediate notification should be based on a coordinated effort between the permittee, State and/or local health officials, and others. Immediate notification procedures should fit local needs and be delineated in the permittee's overflow emergency response plan. The Agency recognizes that the specific circumstances associated with immediate notification, including which entities are notified, would depend on the circumstances of the overflow event.

i. Immediate Notification to the Public

Appropriate public notification of overflows that may imminently and substantially endanger human health can significantly reduce potential public exposure to raw or partially treated sewage. Under today's proposal, permittees would have to immediately notify the public of overflows that may imminently and substantially endanger human health in accordance with the overflow emergency response plan developed under the CMOM standard permit condition. EPA requests comments on implementation issues associated with public notification as well as on the clarity of today's language. Concerns are discussed in more detail in section III.I of today's preamble (overflow emergency response plans).

ii. Immediate Notification to Public Health Authorities

Public health authorities play an important role in protecting the public from environmental and disease-causing agents. They develop policies and plans to meet local community needs, monitor and disseminate information on community health, provide health-based services and education, and enforce health and safety laws.

EPA requests comments on how the language in the proposed standard condition addresses health authorities. The Agency wants to strengthen health authorities' involvement in SSO response in a flexible, workable manner. The Agency requests comment on whether there are situations where a permittee should not be required to notify health authorities of overflows that may imminently and substantially endanger human health (e.g., if some communities do not have an appropriate health authority who can target local concerns or provide an immediate response if an overflow occurs).

iii. Immediate Notification to Drinking Water Suppliers

Exposure to pathogens in drinking water is a compelling public health issue in this country and worldwide, and thus drinking water providers exert considerable control over this route of public exposure to pathogens. To the extent a release from a municipal sanitary sewer system has the potential to contaminate public drinking water supplies, it is essential that the operator of the drinking water system be notified immediately and have the opportunity to

respond with stepped-up or targeted monitoring, additional disinfection, or limiting or controlling access to drinking water (e.g., issuing a boil-water advisory).

EPA is proposing that public water systems be among the entities receiving immediate notification in the event of an overflow that may imminently and substantially endanger human health. The Agency would only expect public water systems to be notified if there was potential for affecting a drinking water supply.

EPA seeks comment on whether a final SSO rule should provide guidance on how the overflow emergency response plan should identify which public water systems to notify and under what circumstances. The service areas for a region's public water systems may differ substantially from the service area for the wastewater authority. For example, the same collection system could serve different water districts or customers such as retirement homes and trailer parks that have their own drinking water systems. EPA does not believe that different SSOs should trigger the same notification to all drinking water providers. Rather, which drinking water provider to notify should depend on the location of the overflow, its proximity to receiving waters and ground water (particularly source waters, which will be identified under the system's source water assessment), and the likelihood of cross-contamination through leaky drinking water pipes.

iv. Immediate Notification to Other Entities

Today EPA is proposing requirements for immediate notification to "other affected entities" in the event of an SSO that may imminently and substantially endanger human health.

"Other affected entities," for example, may include beach monitoring authorities who do not already receive notification in a role as public health authorities. Such notification might be triggered by an SSO to waters (or their tributaries) within a certain distance of a swimming beach, or an SSO to storm drains that flow to such tributaries.

"Other affected entities" could also include people who are not served by public water systems, downstream food processors with water intakes, and local fire or police departments. The permittee's overflow emergency response plan would identify mechanisms to provide this notification and identify the entities to be notified. The identification of appropriate entities is discussed in more detail in section III.I of today's preamble.

EPA's intent is to ensure that public health is protected in the most expeditious and coordinated fashion in the event of a potential public health threat. Although EPA is proposing to explicitly require notification of the public, public health authorities, and drinking water providers, the Agency wants to ensure that permittees have the flexibility to develop public notification procedures that best meet site-specific needs. For this reason EPA would require the permittee's overflow emergency response plan to identify other affected entities requiring notification but would provide the permittee with discretion on how those entities are identified and notified.

d. How Does the Timing for Immediate Public Notification Relate to the Timing for Noncompliance Reporting?

Whereas the proposed noncompliance reporting requirements described in Section IV.B.1 would require initial reporting to the NPDES authority as soon as practicable but within

24 hours after becoming aware of the overflow, the public notification requirements described in this section would require notification to occur "immediately." The discrepancy in timing requirements is intentional. EPA believes that once an overflow is identified, protection of public health is the most urgent priority and should occur well before a 24-hour period has elapsed.

As described in Section III.I.2, EPA is proposing that the permittee's overflow emergency response plan identify procedures and protocols for ensuring noncompliance reporting to NPDES authorities and immediate notification to the public, public health authorities, and drinking water providers. EPA is not proposing more specific timing considerations today but believes that these should be identified in the overflow emergency response plan.

The Agency seeks comment on the discrepancy in timing requirements between "immediate" notification and 24-hour noncompliance reporting. Does the distinction have practical value, or should more consistency be provided in order to reduce confusion?

3. Proposed Recordkeeping Requirements

Maintaining detailed records of overflows and performance indicators is necessary to support:

(1) CMOM program implementation. As discussed in section III.G of today's proposed rule, timely, relevant information plays a critical role in an effective CMOM program. Industry guidance highlights the need for effective information handling and management methods for proper operation of sanitary sewer collection systems and failure analysis. A dynamic CMOM program focuses on planning, implementing, reviewing, evaluating, and taking appropriate actions in response to available information. Recordkeeping is the basis for an effective predictive management program, without which even the best guesswork will not produce desired results. A comprehensive record of system performance and documentation of problems is needed to effectively identify and address deficiencies through appropriate improvements.

(2) NPDES authority oversight of CMOM program implementation. Evaluating the performance of sanitary sewer collection systems is a complex task. Broad performance indicators, including the number of overflows, can assist in this evaluation. Detailed information on specific overflow events can help NPDES authorities identify program deficiencies. Evaluation of other program indicators allows for a consideration of effort as well as a comparison with industry best practices. The proposed recordkeeping requirements, coupled with today's proposed requirements for reporting and for implementing and documenting the permittee's CMOM program, would give NPDES authorities better information for identifying permitting, enforcement, and compliance assistance responses. The proposed recordkeeping provision is expected to provide technical information to support evaluation of performance trends and the factual circumstances associated with specific events. This understanding would promote informed enforcement responses.

(3) Litigation addressing unauthorized discharges. Litigation by the NPDES authority or citizens addressing unauthorized discharges can involve a number of factual questions,

including determining the number of SSO discharges that occur during the time period under consideration. The specific circumstances of events and system performance may also be considered when developing remedies or if the operator raises a defense to particular events. EPA's litigation experience indicates that POTW operators often do not have complete and accurate records by the time litigation arises to provide clear information to support litigation.

a. For What Data Describing Overflows Would a Permittee Be Responsible?

Under today's proposal, the permittee would be responsible for obtaining and recording the following information for each SSO, including overflows that did not discharge to waters of the U.S.:

(1) The location of the overflow and the receiving water, if any;
(2) An estimate of the volume of the overflow;
(3) A description of the sewer system component from which the release occurred (e.g., manhole, constructed overflow pipe, crack in pipe);
(4) The estimated date and time when the overflow began and when it stopped;
(5) The cause or suspected cause of the overflow; and
(6) Steps that have been and will be taken to prevent the overflow from recurring and a schedule for those steps.

The Agency assumes that most of this information would be readily available from crews responding to overflow events. The cause or suspected cause of the overflow, along with the identification of the system component from which the release occurred, would be available from the normal overflow investigation process. The Agency believes that rough estimates of overflow volume can be made by visual observations by an experienced crew. Given the unplanned nature of overflows, the Agency does not expect overflow volumes to be monitored in most situations. The Agency requests comments on the types and accuracy of various methods to estimate overflow volumes.

b. For What Additional Data Would a Permittee Be Responsible?

EPA is proposing that in addition to information describing overflows, permittees develop and record the following information:

(1) Work orders from the previous three years that are associated with investigation of system problems related to SSOs;
(2) A list and description of complaints of SSOs, backups, and related problems from customers or others from the previous three years; and
(3) Documentation of performance and implementation measures describing the previous three years.

The proposed recordkeeping provision would require the permittee to retain specified information for a minimum of three years. The proposed three-year time period would cover the time period extending back either three years or to the effective date of the first NPDES permit or other enforceable mechanism issued containing the recordkeeping requirement, whichever is less. The permittee would still be required to comply with any existing recordkeeping requirements in a currently-effective NPDES permit or other enforceable

mechanism. EPA seeks comment on whether the regulatory language should be modified to clarify this issue.

Work orders and customer complaints can give the NPDES authority information to check that the permittee is accurately reporting overflows. In addition, evaluation of information such as the time taken to complete work orders can be a useful performance indicator.[41]

The Agency requests comments on whether the proposed requirement to maintain records of documentation of performance and implementation measures should be clarified by providing specific measures. In general, the Agency intends record retention to include selected performance measures (as identified in the CMOM program) and key implementation measures. For example, if a POTW operator required restaurants to install improved grease interceptors to reduce blockages in a collection system line identified as being prone to SSOs due to grease blockages, that POTW operator should retain a record of this measure for three years. The POTW should also keep records of follow-up measures taken to ensure the effectiveness of this step, such as inspections of the problem line to ensure lack of grease build-ups or inspections of the newly installed grease interceptors.

4. Additional Public Notification

The Agency is proposing that permittees be required to notify the public of overflows that have a potential to affect human health. Such overflows typically would be recurring overflows at known locations. This provision is intended to complement the proposed requirement to provide immediate notification to the public of overflows that may imminently and substantially endanger human health. The additional public notification requirement for overflows with a potential to affect human health is intended to address more routine activities associated with responding to a overflow as well as long-term activities such as permanent posting of overflow structures[42] at pump stations and other locations.

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[41] See Benchmarking Wastewater Operations - Collection, Treatment, and Biosolids Management, Water Environment Research Foundation, 1997, which indicates that utilities that are able to complete work orders sooner have lower overall operating costs.

[42] Some industry guidelines recognize the limited use of emergency overflow structures for use during uncontrollable emergency conditions and periods of extensive power outages or mandatory power reductions (see Recommended Standards for Wastewater Facilities, 1990, A report of the wastewater committee of the Great Lakes-Upper Mississippi River Board of State Public Health and Environmental Managers.) Where appropriately sited, these structures can reduce health risks and property damage by relieving the hydraulic pressure in a failing system to avoid having overflows at manholes, backups into basements or other releases of sewage. However, poor siting of structures (e.g., near waters used for contact recreation or drinking water intakes) may result in greater health risks than if the structure were removed. Today's proposal does not directly address siting of emergency overflow structures, although an NPDES authority may, on a case-by-case basis, require permittees to evaluate the location and operation of specific constructed emergency overflow structures to determine if the structure is necessary to prevent loss of life, personal injury, or severe property damage during uncontrollable emergency conditions, and if there are feasible alternatives to the structure. However, any discharge from such a structure would be subject to the prohibition on SSO discharges being proposed today. Posting neither provides a defense to an enforcement action for an unauthorized SSO discharge nor extends the time frame for a municipality to remediate SSOs.

The permittee's overflow emergency response plan (required under the proposed CMOM provision) should specify procedures and protocols for this public notification. EPA requests comments on what types of public notification might be appropriate under this provision. In addition, the Agency requests comments on the clarity of this provision and how it should be further clarified, including the need for clarification of the criterion "potential to affect human health.".

EPA intends that the criterion "potential to affect human health" be interpreted differently from "imminently and substantially endanger human health." Whereas the latter criterion would trigger NPDES noncompliance reporting and immediate public notification in cases where overflows pose immediate health threats, the former would be intended to notify the public about the presence of overflows that may not meet the "imminent and substantial endangerment" trigger but that nevertheless warrant avoidance. EPA seeks comment on the scope of the "potential to affect human health" criterion. Although EPA intends proposed 122.42(g)(6) to cover a broader universe of potential exposures, the Agency would appreciate information indicating whether this criterion is too broad or whether EPA needs to clarify further how a permittee would be expected to implement this requirement through its overflow emergency response plan. In particular, the Agency requests comment on whether it should adopt a narrower criterion for this additional notification, such as "poses a significant risk to public health." Such a formulation would clarify that EPA intends this provision to apply to locations where recurring discharges may pose a significant risk, rather than to any discharge that could conceivably pose a risk, as is agruably the case for all discharges. The Agency does not intend this notification/posting provision to be interpreted to require posting of all discharges.}

Long-term posting might be appropriate in locations where releases from the collection system are likely to recur. Such locations would include constructed emergency overflow structures, pump stations experiencing releases, and locations of SSOs whose remediation would require capital planning and construction over an extended time period. Posting would also be appropriate at locations where public exposure is more likely, such as swimming areas or parks. Posting at selected public places (e.g., a public information center at a park or beach) might be appropriate in cases where a relatively narrow segment of the public is likely to be affected and can be reached via the public places selected for display.

Posting locations should be identified in consultation with other affected entities, such as local, State, or tribal public health officials; and parks and recreation officials. EPA expects that this consultation would occur as part of an integrated public outreach process identified in the CMOM program.

EPA expects that the information provided in posted areas would include information such as the following:

- When exposure at this location could pose risks (e.g., "during and immediately after heavy rains . . .");
- Where exposure may be a problem (e.g., "within 500 feet of this sign . . .");
- The nature of the problem (e.g., "this sewer may overflow and discharge raw sewage . . .");
- Why exposure should be avoided ("bacteria may cause illness. . . .");

- How to avoid exposure ("do not swim or wade in this area");
- Where to get more information;
- Request for public assistance in reporting discharges ("if you see a discharge from this pipe, please call [specified phone number]")

The information would need to be targeted to the potentially affected population, including consideration for non-English-speaking individuals. EPA seeks comment on whether the regulation should provide specific guidance on the information that should be provided in posted areas.

EPA seeks comment on whether the regulation should prescribe the posting criteria, locations, and information more specifically. EPA is also requesting comment on how to provide the greatest amount of flexibility for the permittee to address site-specific circumstances. For example, it may be appropriate to allow another agency, in coordination with the permittee and other affected entities, to assume responsibilities for posting – for example, the local public health authority or the local parks department. Should the regulatory language be broadened to provide this flexibility (e.g., "You must ensure the public is notified" rather than "You must notify")?

EPA would also like to provide permittees with the flexibility to coordinate the posting of SSO locations with posting for other environmental, public health, or safety risks. For example, a locality may already have a signage program to address shellfishing restrictions, hazardous swimming conditions, or public health risks from combined sewer overflows, storm drains, or treatment facilities. EPA seeks comment on how the regulation could be written to provide this flexibility.

C. Implementation Issues

1. Volume Estimates

Today's proposed standard permit condition would require that the permittee provide estimates of the volume of discharges and other overflows in five-day reports, annual reports, and the records it is required to maintain. The Agency believes that a rough estimate of overflow volume would be necessary to give some idea of the nature of the SSO and the potential risks it presents. The proposed provisions would not require permittees to measure the volume of a overflow, which would be impractical as most overflows occur at a location such as a pipe rupture or manhole. Such locations are generally unforeseen or are not appropriate for monitoring devices. Rather the permittee would be required to provide a description of the size or volume of the overflow to include rough estimates of the volume (e.g., less than 1,000 gallons, more than 1,000 gallons).

The Agency believes that rough estimates of SSO volume can be made through visual observations by an experienced crew. The Agency requests comments on the types and accuracy of various methods to estimates overflow volumes. The Agency also encourages NPDES authorities to develop guidance for permittees and systems on estimating overflow volumes. One approach would be to suggest a rough classification scheme for overflow volumes (e.g., class I - under 250 gallons; class II - between 250 and 1,000 gallons; class III - between 1,000 and 10,000 gallons; class 4 - between 10,000 and 250,000 gallons; and class 5 - over 250,000 gallons). The Agency requests comments on the different approaches that

States may currently recommend and whether such approaches would help to clarify the proposed requirements.

2. Reporting Drippage and Very Small Overflows

The Agency recognizes that very small releases of wastewater can be associated with maintenance activities or other events. Drippage or small amounts of paper or solids can be associated with removal of cleaning or inspection devices; removal of pumps for routine maintenance; use of sampling devices; removal of screens at pumps or other locations; and digging by backhoes around lines. Other minor releases can be caused by small leaks from pumps and equipment, spray from a malfunctioning air release valve, exfiltration from sewers with little or no soil cover during the plugging operation for a TV inspection, or leaks at manifolds or pipe couplings that occur when diverting sewage via pumping operations or at other couplings. The Agency believes that these overflows are not typically reported in the surveys and databases that are being used to estimate the national number of overflows occurring per year. Further, the Agency believes it is unable to develop credible estimates of the number of very minor overflows that occur nationally.

EPA is concerned that requiring reporting and public notification for such releases may cause confusion and inconsistency in reporting. The Agency is also concerned that requiring all overflows, no matter how small, to be subject to today's proposed requirements would create significant burdens on permittees and NPDES authorities and create significant public confusion. Aggressive identification of very small SSOs could dramatically skew the numbers of SSOs reported, resulting in inconsistent reporting nationwide.

The Agency requests comments on the appropriateness of requiring reporting, public notification, and recordkeeping for very small releases of wastewater such as those described above and whether the proposed standard permit conditions should specifically exempt very small releases from reporting, public notification, and recordkeeping requirements, and if so, how that should be done. One approach would be to establish a volume threshold such as less than 20 gallons per day. This approach is similar to the approach taken for reportable quantities of hazardous substances and oil that must be reported under section 311 of the CWA. The Agency requests comments on whether the threshold should depend on whether the overflow is contained and the spill area cleaned. Another approach would be to limit any exemption to specific activities (e.g., very small releases associated with maintenance activities).

The Agency also requests comments on other examples of very small releases of wastewater where it may not be appropriate to require reporting, public notification, or recordkeeping under the NPDES program. The Agency also requests comments on the prevalence of these small volume releases.

3. Exfiltration

Sanitary sewer systems are not completely watertight. Most, if not all, sanitary sewer systems experience some I/I through cracks, joints and other imperfections in the system. Depending on conditions such as the level of flow into sewers and the level of ground water, exfiltration can occur at the same type of imperfections that allow for I/I. The Agency requests comments on how exfiltration can be detected and characterized and how exfiltration should be

addressed under the proposed reporting, public notification and recordkeeping standard permit condition and the proposed definition of SSOs, if at all.

4. Reporting Overflows from Municipal Satellite Collection Systems

Some regional collection systems accept flows from municipal satellite collection systems that are owned and operated by a different municipal entity (these satellite systems are also called customer collection systems). Owners of municipal satellite collection systems typically do not operate a treatment plant for some or all drainage areas, but instead rely on the operator of the regional collection system to provide wastewater treatment and discharge the resulting effluent.

The reporting standard condition proposed today would not establish one uniform approach for reporting overflows from portions of the collection system that the permittee does not own or operate. Rather, the proposal highlights the issue for clarification in NPDES permits on a case-by-case basis. While EPA generally assumes that most operators of regional collection systems have or could obtain sufficient legal authority, through service contracts or other means, to be the "operator" of a satellite system (and thus be held responsible for reporting unpermitted releases in satellite systems), the Agency does not have information at this time to show that a uniform national approach is appropriate. Rather, the permit writer would be in the best position to clarify these reporting responsibilities among various permittees.

5. Strict Liability for Failure to Report

The CWA establishes a strict liability framework for unauthorized discharges to waters of the U.S. A permittee faces strict liability for failing to report any SSO discharge to waters of the U.S. from its collection system. Strict liability means that the plaintiff would not have to demonstrate that the permittee had actual knowledge of the discharge in a civil enforcement proceeding.

6. Reporting Anticipated Discharges

Most SSO events are not anticipated. In very limited circumstances, however, the permittee may anticipate that due to a planned activity or event, an SSO may occur. For example, a permittee may conduct a maintenance activity that it knows will result in an SSO. Today's proposed reporting, public notification and recordkeeping requirement would not require the permittee to notify in advance of an anticipated discharge. Advance notification, however, could allow for communication between the NPDES authority and the collection system operator that can lead to a better understanding of the facts surrounding the anticipated discharge, the availability of options to either eliminate or mitigate the release and potential regulatory consequences of the discharge. EPA requests comments on whether permittees should be required to report anticipated discharges.

A requirement to report anticipated discharges would not change the legal status of the anticipated discharge, which would be subject to the prohibition on SSO discharges in the permit. Rather, advance reporting of anticipated discharges would ensure notification in situations where the operator knows that some maintenance or other activity would result in a discharge. The notification would be intended to avoid the situation where the operator takes action that results in an overflow without notifying the Director, and then tries to claim after the

fact that the discharge was beyond its reasonable control. The Agency believes that anticipated discharges would rarely meet the criteria for an affirmative defense under the proposed prohibition on SSOs proposed today. In many cases, preventive maintenance on sewer collection systems can occur while equipment is in operation and does not require diversions of sewage. Where diversions are required, wastewater can be diverted to another portion of the collection system or into storage.

7. Flexibility to the NPDES Authority

EPA believes that nationwide, many municipalities have not made an adequate investment in replacing antiquated or deteriorated collection system components or in managing, operating and maintaining these systems. Given this situation, and the complexity of evaluating sanitary sewer collection system performance, the Agency believes that it is appropriate to propose a comprehensive set of reporting, public notification, and recordkeeping requirements. EPA also believes that making reporting and recordkeeping requirements more uniform nationally would assist the Agency in its oversight of different States. The Agency is also aware that State law in a number of authorized NPDES States prohibits establishment of NPDES provisions that are more stringent than those required by Federal law.

Today's proposal would provide NPDES authorities with flexibility in a number of areas:

- Content - Under Federal requirements, NPDES authorities can establish more stringent requirements as appropriate. (As noted above, some NPDES States have laws that restrict them from being more stringent than Federal law);
- Format - the NPDES authority establishes the format of written reports;
- Reporting Mechanism - The NPDES authority establishes the mechanism for reporting within 24 hours (e.g., by phone to specified phone number, to a specified e-mail address); and
- Submittal date - The NPDES authority can establish the date when DMRs and annual reports are submitted.

The Agency requests comments from NPDES authorities as to whether this provides enough flexibility in light of the increased burdens associated with the proposed requirements.

8. Applicability of Existing Reporting Standard Condition After This Regulation is Finalized

The requirement for a permittee to report overflows should already be specified in its NPDES permit. As discussed above, permits should, at a minimum, currently require that overflows be reported with the standard permit conditions at 40 CFR 122.41(l)(6) and (7). After EPA takes final action on today's proposal, permits for POTWs or municipal sanitary sewer systems that are issued or reissued would need to contain permit conditions based on the new standard permit conditions as well as the noncompliance reporting requirements at 40 CFR 122.41(l)(6) and (7) in order to comply with the NPDES regulations. After the new conditions are added to a permit, the reporting requirements for SSOs would be governed by the new conditions based on, or more stringent than, the newly promulgated standard permit conditions, and reporting requirements for other noncompliance events (e.g., noncompliance

events at the treatment works) would be governed by the permit condition based on 40 CFR 122.41(l)(6) and (7).

VII. COST-BENEFIT ANALYSIS

EPA has determined that the benefits of today's proposal justify the costs, taking into consideration qualitative as well as quantitative benefits and costs. The estimated monetized costs range from $93.5 million to $126.5 million annually while the corresponding monetized benefits range from $36 million to $97 million annually.

The proposed rule's cost and benefits estimates are annualized and presented in 1999 dollars. EPA developed detailed estimates of the costs and benefits of complying with each of the incremental requirements in the proposal. These estimates, including descriptions of the methodology and assumptions, are described in detail in the Economic Analysis of the Proposed Regulations Addressing NPDES Permit Requirements for Municipal Sanitary Sewer Collection Systems and Sanitary Sewer Overflows, which is included in the record of this proposed rule making. Table 17 summarizes the costs and benefits associated with today's proposal.

Table 17 - Comparison of Annualized Benefits to Costs for the Municipal Sanitary Sewer Collection System and SSO Proposed Rule

Monetized Benefits[43]	**Low ($ Million)**	**High ($ Million)**
Water Quality Benefits	$ 12	$ 73
Improved O&M/MOM Program	$ 24	$ 24
ESTIMATED BENEFITS	***$ 36***	***$ 97***
Costs	**Low ($ Million)**	**High ($ Million)**
Municipalities	$ 93	$ 126
State/ Federal Administration	$ 0.5	$ 0.5
ESTIMATED COSTS	***$93.5***	***$126.5***

A. Baseline

In developing today's proposal, EPA estimated the incremental costs and benefits associated with implementing the proposed regulations. This analysis estimated the incremental difference in costs and benefits between implementing the proposed regulations and baseline of implementing the existing NPDES regulations. The baseline used in estimating costs and benefits associated with today's proposal is consistent with EPA's interpretation of the existing

[43] Additional benefits, which have not been monetized, can be expected to result from the regulation.

NPDES regulations which prohibit discharges to waters of the U.S. from municipal sanitary sewer collection systems except for in very limited circumstances.

In addition, for information purposes, EPA has estimated costs and benefits associated with abating SSOs. Results of those analyses are presented in the draft Sanitary Sewer Overflow (SSO) Needs Report and Benefits of Measures to Abate Sanitary Sewer Overflows (SSOs). EPA estimates that the costs of achieving various SSO control objectives, ranging from one wet-weather SSOs per year to one wet-weather SSO every five years, and a reduced number of unavoidable dry-weather SSOs, range from $6.9 billion to $9.8 billion, while the benefits associated with eliminating all SSOs range from $1.07 billion to $6.07 billion. (Note that these costs and benefits estimates are not comparable because EPA has not estimated the marginal benefits associated with increasingly stringent control objectives, nor estimated the costs associated with eliminating all SSOs)

Today's proposal provides for a more efficient approach to controlling SSOs through better management, increased public notice and increased focus on system planning. EPA believes that the improved planning and management envisioned in today's proposal will result in fewer overflows. In estimating the portion of benefits from SSO abatement attributable to today's proposal, EPA has used a standard accounting principle to select a range of 1.2 percent to 1.4 percent of total benefits as an indicator of improved system performance from implementation of today's proposal. In addition, EPA believes that this rule may accelerate the pace of investments made in municipal sanitary sewer systems. There are costs and benefits associated with the possibility of accelerated investment, but at the present time EPA has not been able to quantify such costs or benefits. To the extent that EPA's current estimates do not reflect these possibilities, the Economic Analysis for today's rulemaking may understate the costs and benefits of the proposal. Due to this uncertainty, EPA requests comments on the costs and benefits associated with today's proposal.

B. Costs

EPA estimates that there are about 19,000 municipal systems that will be potentially regulated by today's proposal. Costs of the proposed new requirements were estimated by identifying specific compliance tasks associated with regulatory requirements for municipalities or oversight authorities. Estimates were developed based on the unit cost associated with each task and how frequently that task is expected to be accomplished. In most cases, available data indicated that the unit cost and/or the frequency with which the task must be performed increased with the size of the collection system. Ultimately, the nationwide total cost for a provision was calculated by multiplying the per-system cost for communities of a given size range by the number of potentially regulated systems in that size range and then aggregating across the nation. The cost estimates were adjusted to reflect instances in which some or all communities may already be performing an action in advance of Federal requirements. For such communities, no incremental costs are expected to result from compliance with today's proposal. A detailed description of these assumptions and the resulting cost estimates is reflected in Appendices B and C of the Economic Analysis accompanying this proposal. Both one-time (primarily capital costs) and annual (ongoing) costs are estimated and then combined through an annualization procedure to reflect the estimated costs of the proposal. EPA

estimates that annual compliance costs for both municipalities and State/Federal oversight agencies will range from $93.5 million to $126.5 million.

The cost estimates reflect assumptions about the timing and applicability of the proposed new requirements. The proposed new standard permit conditions will only become applicable to a permittee when they added to a permittee's permit. EPA assumed this will occur during the normal permit renewal process beginning after EPA takes final action. NPDES permits have a five-year permit term and nationally, permit expirations and renewals are assumed to occur at an even pace over each five-year period. The cost estimates also reflect the flexibility offered by the proposal. Permits can establish deadlines for compliance with various CMOM documentation requirements. Cost estimates assumed that these requirements were phased in accordance with the timing guidance in today's preamble (section III.L.3). Under this guidance, permits for smaller sanitary sewer collection systems would provide 1 to 5 years after a requirement is written into their permit for completion of various documentation requirements. The cost estimates also reflect waiving some requirements for systems that show an exemplary performance record; for example, a collection system with an average daily flow of 2.5 million gallons per day or less would not have to conduct an audit or prepare a written CMOM program summary unless it had an SSO that led to a discharge to waters of the United States. EPA estimates that up to 66 percent of communities with less than 25,000 population will qualify for this waiver, saving on average $2,557 per municipality.

C. Monetized Benefits

EPA also estimated the benefits associated with today's proposal. The proposed rule adds new administrative and procedural requirements and clarifies existing requirements, thus making it more certain that the existing prohibition on unauthorized discharges, specifically SSOs, will be achieved. Provisions addressing reporting and public notification will assure mitigation of potential public health impacts from SSOs, while provisions addressing information collection, planning, and analysis will help to improve decision-making. Implementation of a CMOM program is expected to increase efficient planning, operations and maintenance resulting in improved system management. In estimating the benefits for this proposal, EPA was able to partially monetize two major categories of benefits, water quality benefits and benefits associated with improved system planning and O&M (or MOM) programs.

1. Water Quality Benefits

Compliance with the existing standard and today's proposal will require that systems address both infrastructure costs related to the existing standard and these new provisions which improve planning, operations and maintenance of systems, in order to achieve the benefits of fewer SSOs and improved water quality. Therefore, in calculating the water quality benefits of today's proposal, EPA attributed to this proposal the share of total SSO reduction and water quality benefits equal to the proportion of the costs of this proposal to the total costs of SSO abatement.

The monetized water quality benefits of SSO abatement have been estimated in the Benefits of SSO Abatement Report as $0.95 to $5.4 billion annually. The cost of investments by sanitary sewer collection systems to increase capacity and improve maintenance as

necessary to abate virtually all SSOs is estimated in the SSO Needs Report as $6.9 billion (for a control objective of one wet weather SSO event per year) to $9.8 billion annually (for a control objective of one wet weather SSO event every five years). The incremental costs of this proposed rule, which is part of achieving SSO abatement, total $93.5 to $126.5 million annually. The proposed rule thus accounts for 1.2 to 1.4 percent of the total costs for sanitary sewer system infrastructure improvement. While the total benefits estimated in Benefits of SSO Abatement, are $1.07 to $6.1 billion, a portion of those are system benefits which are not affected by this rule. System benefits reflect eventual cost savings for collection systems as a result from increased spending on system maintenance. If a similar share of the estimated $0.95 to $5.4 billion in quantified water quality benefits of achieving SSO abatement is allocated to this rule, the estimated monetized water quality benefits range from $12 to $73 million annually.

2. Improved O&M Program Benefits

Today's proposal also creates benefits in the form of cost savings for municipal sanitary sewer collection systems associated with better, more targeted, more efficient operation and maintenance programs. This separate set of benefits is derived exclusively from the proposed rule and is obtained independent of the additional investment in collection system infrastructure needed for SSO abatement. The proposal encourages collection systems to redirect their existing O&M programs to optimize system efficiency and effectiveness. Benefits will result in the form of reductions in total spending on collection system operations and maintenance.

Municipal sanitary sewer collection systems currently spend an average of about $1.6 billion annually on operations and maintenance and the draft SSO Needs Report estimates that an additional $1.5 billion will be needed to minimize dry weather SSOs. Applying the findings of the Water Environment Research Foundation's 1997 collection system benchmarking study, it is estimated that "smarter" O&M practices as prompted by the proposed regulation could reduce total collection system operating costs by 0.77 percent. Based on both current O&M costs and the additional O&M costs identified in the draft SSO Needs Report, this results in an estimated national cost savings of about $24 million annually. "Smarter" O&M programs may also result in the longer term in as-yet-unquantified opportunities for savings in capital investments.

VIII. ADMINISTRATIVE REQUIREMENTS

A. Paperwork Reduction Act

The information collection requirements in this proposed rule have been submitted for approval to the Office of Management and Budget (OMB) under the Paperwork Reduction Act, 44 U.S.C. 3501 et seq. An Information Collection Request (ICR) document has been prepared by EPA (ICR No. 1932.01) and a copy may be obtained from Sandy Farmer by mail at Collection Strategies Division; U.S. Environmental Protection Agency (2822); Ariel Rios Building; 1200 Pennsylvania Ave., NW, Washington, DC 20460, by email at farmer.sandy@epa.gov, or by calling (202) 260-2740. A copy may also be downloaded off the Internet at http://www.epa.gov/icr.

The ICR presents paperwork burden and cost estimates associated with EPA's proposed NPDES regulations for municipal sanitary sewer systems and SSOs for the three-year period

immediately after the regulation is promulgated. The proposed regulations would establish, under authority of CWA sections 308(a)(1) and 304(i), mandatory recordkeeping, reporting, public notification, planning, and permit application requirements with resulting paperwork burdens and costs. Information provided through compliance with these requirements will improve the ability of NPDES authorities to assess permittee compliance, mitigate public health impacts from SSOs, and assess the status of collection system performance (including funding needs) on a national scale. Members of the public, including citizens and environmental groups, will use the information provided to understand and reduce the risks from SSO events. The data required under this information collection request are not confidential.

EPA estimates that there are about 19,000 collection systems would ultimately be affected by the proposed regulations. The 19,000 collection systems include 4,800 municipal satellite collection systems. The ICR assumes that, for the five year period following promulgation of regulations, one-fifth of all collection systems would have new standard permit conditions added to their permits.

In addition, 43 States and 1 Territory are authorized to administer the NPDES permitting program and would thus implement the proposed regulations. Nationally, these respondents would spend an average total of 86,462 hours per year for the three year period following promulgation of a final rule to meet the paperwork-related requirements of the proposed regulations. The recordkeeping and reporting burden includes time and resources for making 24-hour reports and 5-day follow-up reports; complying with paperwork-related provisions of the CMOM program (including program development); and complying with public notification requirements. The Agency is assuming that these requirements will be added to permits for 3,808 collection systems per year for each of the three years following promulgation of final regulations. The Agency makes additional assumptions regarding when various requirements become effective for permittees. Agency burden is estimated as 1,675 hours per year. Each respondent would spend an average of 7.5 hours per year to report and keep records of information required by the proposed SSO regulations, while States will on average spend 138 hours per year. Annualized capital/startup costs for equipment necessary to facilitate and manage the information collection would be approximately $1,731,164 per year and operating and maintenance costs would be $4,056,848 per year.

Burden means the total time, effort, or financial resources expended by persons to generate, maintain, retain, or disclose or provide information to or for a Federal agency. This includes the time needed to review instructions; develop, acquire, install, and utilize technology and systems for the purposes of collecting, validating, and verifying information; processing and maintaining information, and disclosing and providing information; adjusting the existing ways to comply with any previously applicable instructions and requirements; training personnel to be able to respond to a collection of information; searching data sources; completing and reviewing the collection of information; and transmitting or otherwise disclosing the information.

An agency may not conduct or sponsor, and a person is not required to respond to, a collection of information unless it displays a currently valid OMB control number. The OMB control numbers for EPA's regulations are listed in 40 CFR Parts 9 and 48 CFR Chapter 15.

Comments are requested on the Agency's need for this information, the accuracy of the provided burden estimates, and any suggested methods for minimizing respondent burden,

including the use of automated collection techniques. Send comments on the ICR to the Director of Collection Strategies Division, U.S. Environmental Protection Agency (2822), 1200 Pennsylvania Ave., NW, Washington, D.C. 20460; and to the Office of Information and Regulatory Affairs, Office of Management and Budget, 725 17th Street, NW, Washington, DC 20503, marked "Attention: Desk Officer for EPA." Include the ICR number in any correspondence. Since OMB is required to make a decision concerning the ICR between 30 and 60 days after **[insert date of publication in the FEDERAL REGISTER]**, a comment to OMB is best assured of having its full effect if OMB receives it by **[insert date 30 days after date of publication in the FEDERAL REGISTER]**. The final rule will respond to any OMB or public comments on the information collection requirements contained in this proposal.

B. Executive Order 12866

Under Executive Order 12866 [58 Federal Register 51735 (October 4, 1993)], the Agency must determine whether the regulatory action is "significant" and therefore subject to OMB review and the requirements of the Executive Order. The Order defines "significant regulatory action" as one that is likely to result in a rule that may:
(1) have an annual effect on the economy of $100 million or more or adversely affect in a material way the economy, a sector of the economy, productivity, competition, jobs, the environment, public health or safety, or State, local or tribal governments or communities;
(2) create a serious inconsistency or otherwise interfere with an action taken or planned by another agency;
(3) materially alter the budgetary impact of entitlements, grants, user fees, or loan programs or the rights and obligations of recipients thereof; or
(4) raise novel legal or policy issues arising out of legal mandates, the President's priorities, or the principles set forth in the Executive Order.

Pursuant to the terms of Executive Order 12866, it has been determined that this rule is a "significant regulatory action." As such, this action was submitted to OMB for review. Changes made in response to OMB suggestions or recommendations will be documented in the public record.

C. Unfunded Mandates Reform Act

Title II of the Unfunded Mandates Reform Act of 1995 (UMRA), P.L. 104-4, establishes requirements for Federal agencies to assess the effects of their regulatory actions on State, local and tribal governments and the private sector. Under section 202 of the UMRA, EPA generally must prepare a written statement, including a cost-benefit analysis, for proposed and final rules with "Federal mandates" that may result in expenditures to State, local and tribal governments, in the aggregate, or to the private sector, of $100 million or more in any one year. Before promulgating an EPA rule for which a written statement is needed, section 205 of the UMRA generally requires EPA to identify and consider a reasonable number of regulatory alternatives and adopt the least costly, most cost-effective, or least burdensome alternative that achieves the objectives of the rule. The provisions of section 205 do not apply when they are inconsistent with applicable law. Moreover, section 205 allows EPA to adopt an alternative

other than the least costly, most cost-effective, or least burdensome alternative if the Administrator publishes with the final rule an explanation why that alternative was not adopted.

Before EPA establishes any regulatory requirements that may significantly or uniquely affect small governments, including tribal governments, it must have developed under section 203 of the UMRA a small government agency plan. The plan must provide for notifying potentially affected small governments, enabling officials of affected small governments to have meaningful and timely input in the development of EPA regulatory proposals with significant Federal intergovernmental mandates, and informing, educating, and advising small governments on compliance with the regulatory requirements.

EPA has developed a small government agency plan for this proposed rule in accordance with section 203. The plan describes the notification and consultation efforts EPA has used and will continue to use through its information network, small government outreach group, and Federal Advisory Committee and SSO subcommittee to notify small governments, Tribes, and other small entities and seek input on how EPA can assist them with guidance materials and compliance assistance. The plan describes EPA's compliance assistance "toolbox" and discusses how the information will be disseminated.

EPA has determined that this rule contains a Federal mandate that may result in expenditures of $100 million or more for State, local, and tribal governments, in the aggregate, in any one year. Accordingly, EPA has prepared under section 202 of the UMRA a written statement which is summarized in the following sections.

1. Statutory Authority

EPA proposes today's municipal sanitary sewer collection system and SSO regulation pursuant to Clean Water Act sections 301, 304(i), 308, 402, and 501(a). This proposal is in direct response to a Presidential directive to develop "a strong national regulation to prevent the over 40,000 annual sanitary sewer overflows from contaminating our nation's beaches and jeopardizing the health of our nation's families." Today's rule is not otherwise subject to a statutory or judicial deadline.

This proposal would improve management and maintenance of municipal sanitary sewer collection systems, reducing releases of raw sewage, which have significant health and environmental risks. In addition, sanitary sewer collection systems represent a major infrastructure investment for the nation. These systems typically represent the largest infrastructure assets in a community. This proposal is designed to protect the significant national investment by enhancing management, operation and maintenance of these systems.

2. Summary of Qualitative and Quantitative Cost-Benefits Analysis:

In the Economic Analysis of Proposed Regulations Addressing NPDES Permit Requirements for Municipal Sanitary Sewer Collection Systems and Sanitary Sewer Overflows (EA), EPA describes the qualitative and monetized benefits associated with today's proposal and then compares the monetized benefits with the estimated costs of the proposal. EPA developed detailed estimates of the costs and benefits of complying with each of the incremental requirements that would be imposed by the rule. These estimates, including descriptions of the methodology and assumptions used, are described in detail in the EA. The estimated monetized

costs range from $ 93.5 million to $126.5 million annually; of this amount, Federal, State, and Tribal governments would bear $0.5 million and municipalities the remainder. The corresponding monetized benefits range from $36 million to $97 million annually.

The Agency estimated two main categories of benefits from this proposal, water quality benefits and enhanced system planning and operation benefits. EPA has determined that the benefits of today's would proposal justify the costs, taking into consideration qualitative as well as quantitative benefits and costs. Some benefits from SSO control were not monetized, such as improved aesthetic quality of waters, benefits to wildlife and to threatened and endangered species, cultural values, and biodiversity benefits. Table 17 in Section VII of this preamble summarizes the costs and benefits associated with the basic elements of today's proposal.

Although Congress has not established a fund to fully finance implementation of this proposed rule, some Federal financial assistance is available for limited purposes. The primary funding mechanism under the CWA is the Clean Water State Revolving Fund (SRF) program, which provides low-cost financing for a range of water quality infrastructure projects, including certain projects related to sanitary sewer systems. (See Section I.J of today's preamble for additional discussion.) In addition to the SRF, Federal financial assistance programs include the Water Quality Cooperative Agreements under CWA section 104(b)(3) to support the creation of unique and innovative approaches to address requirements of the NPDES program, including SSOs. These funds can be used to conduct special studies, demonstrations, and outreach and training efforts, which will enhance the ability of the regulated community to deal with non-traditional pollution problems in priority watersheds. EPA will develop a list of potential funding sources as part of the toolbox implementation effort.

3. Macro-Economic Effects

In the economic analysis, EPA reviewed the expected effect of today's proposal on the national economy. The Agency determined that the proposal would have minimal impacts on the economy or employment. This is because this proposal is estimated to cost $93.5 million to $126.5 million annually, which is a small percentage of the national economy. Macro-economic effects tend to be measurable only if the economic impact of a regulation reaches 0.25 to 0.5 percent of Gross Domestic Product (in the range of $1.5 billion to $3 billion). In addition, this proposal would regulate municipalities, States, and EPA, not the typical industrial plants or activities that could directly impact production and thus those sectors of the economy.

EPA concludes that the effect of the proposal on the national economy, if any, would be minimal. The benefits of the proposal more than offset any potential cost impacts on the national economy.

4. Summary of State, Local and Tribal Input

Consistent with the intergovernmental consultation provisions of section 204 of the UMRA, EPA has already initiated consultation with the governmental entities affected by this rule. Today's proposal has been developed in conjunction with consultation activities that provided public input on potential approaches, including input from a Subcommittee to a Federal Advisory Committee, a small government outreach group, and representatives of authorized NPDES State programs and Tribes.

SSO Subcommittee of Urban Wet Weather Federal Advisory Committee. Between 1994 and 1999, the SSO Subcommittee of the Urban Wet Weather (UWW) Federal Advisory Committee met 12 times to provide input on how best to meet the SSO policy challenge. The SSO Subcommittee was comprised of representatives from a balanced group of stakeholders. Stakeholder organizations represented on the SSO Subcommittee include organizations representing elected local government officials (National Association of Counties, National Association of Towns and Townships, and National League of Cities); public works and sewer district officials (American Public Works Association, Association of Metropolitan Sewerage Agencies, Texas Association of Metropolitan Sewerage Associations, and Tri-TAC); State officials (Association of State and Interstate Water Pollution Control Administrators and National Association of Attorneys General); and State and local health agencies (National Environmental Health Association).

Between 1994 and 1999 the Agency explored a range of SSO issues with the SSO Subcommittee. Members reached general agreement on several important issues, such as the risks posed by SSOs, the need to eliminate avoidable SSOs, the need for proper operation and maintenance to preserve the value of the collection system infrastructure, and the need for regulatory agencies to develop a regulatory framework sensitive to real-world conditions. The Subcommittee developed a consensus document, entitled "SSO Management Flow Chart," outlining a potential approach for planning SSO management strategies, and it developed and discussed a series of issue papers, draft permit conditions, and draft guidance documents. The Subcommittee kept the UWW Federal Advisory Committee apprised of its activities. Information from these discussions was considered in developing the approach proposed today.

Municipalities and States raised major concerns and comments about the need for greater national clarity and consistency in the way NPDES requirements apply to SSOs. Particular concerns were raised regarding the legal liability for SSO discharges that would be considered beyond the reasonable control of an operator/permittee. Some State and municipal representatives noted that they believed different NPDES authorities were interpreting the applicability of the bypass and upset provisions (at 40 CFR 122.41(m) and (n)) to SSOs differently. Others noted that different treatment standards had been used to either issue permits for or disallow infrequent discharges from peak excess flow treatment facilities. The States and municipalities indicated that greater clarity and consistency would help ensure that enforcement actions under the CWA were consistent with engineering realities and the health and environmental risks of SSOs.

States. As part of the consultation with States, EPA included authorized NPDES State representatives on the Agency work group. EPA included representatives from 13 authorized NPDES State programs to provide input on SSO issues to the Agency. State representatives participated on the Agency work group from 1994 to October 1999. As part of that process, EPA discussed the proposed rulemaking, provided copies of the relevant documents, and notified all work group representatives that updated information on the proposed rule would be available on the SSO page on the Office of Wastewater Management (OWM) web site. In addition to this participation, as discussed above, the Association of State and Interstate Water Pollution Control Administrators (ASIWPCA) had two representatives on the SSO

Subcommittee. In addition to participating in the SSO Subcommittee, ASIWPCA provided comments to EPA from Vermont, South Carolina, Florida, and Nevada.

Most authorized NPDES State representatives participating on the Agency's work group raised concerns that permit requirements should not adversely impact the State's ability to enforce against violations. Some State representatives raised concerns about workability of the approach and implementation burdens on authorized NPDES State programs. Some raised concerns about the regulatory framework for issuing permits for discharges from peak excess flow treatment facilities. Some States raised concerns about the potential burden annual reporting requirements for permittees would place on the States. These concerns were also generally reflected by representatives on the SSO Subcommittee. Additional implementation concerns were raised by representatives of other States and are summarized in section I.E.3. These concerns included the amount of flexibility States would have, timing of requirements, and burdens on States.

The Agency believes that the proposed approach satisfactorily addresses the majority of concerns raised by the SSO Subcommittee, as well as municipal elected officials and other State and local government stakeholders and some of their representative national organizations.

In October, 1999, the SSO Subcommittee unanimously supported, when taken as a whole and recognizing that they are interdependent, basic principles in a draft approach for clarifying and establishing NPDES permit requirements for municipal sanitary sewer collection systems. The attached proposed rulemaking is consistent with the principles unanimously supported by the SSO Subcommittee. The State and local representatives on the SSO Subcommittee, through their support of the basic principles, demonstrated their acceptance of the proposal as addressing their concerns as much as possible.

Two provisions of today's proposal specifically address concerns raised by representatives of small communities:

- A collection system with an average daily flow of less than 2.5 million gallons per day (mgd) would not be required to develop a written CMOM program summary or a CMOM program audit until it experiences an SSO discharge to waters of the United States from its collection system; and
- The CMOM standard permit condition could be less detailed in permits for municipal sanitary sewer collection systems with an average daily flow of less than 1 mgd.

EPA believes that the approach proposed today, including the CMOM approach, the special requirements for small collection systems, language regarding enforcement protection from overflows that are beyond an operator's reasonable control, and the guidance on timing of implementation of CMOM requirements, adequately strikes a balance between concerns raised by State representatives and the need to address the SSO problem. The Agency is proposing standard permit conditions, which should significantly decrease the burdens on authorized NPDES States to write permit conditions, relative to solely giving guidance to the States regarding how permit conditions should be established. At the same time, EPA recognizes that this would reduce somewhat the flexibility of the permit writer to address site-specific circumstances, but believes it provides needed national consistency. EPA believes such an approach would not significantly constrain the flexibility of the permit writer to address site-

specific circumstances. The Agency is also developing a toolbox of items to help municipalities and States implement requirements in an effective and cost-efficient manner (see section II.C).

Tribes. Regarding consultation with Tribal Governments, EPA discussed the proposed rule with the Tribal Operations Caucus on a conference call on November 9, 1999. The Tribal Operations Caucus consists of 20 Tribes which represent the 565 recognized Tribes. In addition to the conference call, EPA provided copies of decision memos and draft regulatory language related to the proposed rulemaking for review and transmittal to all of the 565 recognized Tribes. No oral or written comments have been received from the Caucus or individual Tribes.

5. Selection of Least Costly, Most Cost-Effective or Least Burdensome Alternative that Achieves the Objectives of the Statute

EPA considered a number of alternatives in addressing municipal sanitary sewer collection systems. Today's proposal evolved over time and incorporated aspects of alternatives that responded to concerns presented by various stakeholders. EPA considered five alternatives. The first alternative would be to adopt a more prescriptive capacity, management, operation, and maintenance provision. The second alternative would involve extending the requirements of the proposed rule to privately owned satellite collection systems. The third alternative would be to change the technology-based standard for discharges from sanitary sewers from secondary treatment to best available technology economically achievable (BAT)/ best practicable control technology currently available (BCT). The fourth alternative is a no action alternative. The fifth alternative is the proposed approach.

The Agency compared the estimated annual range of costs imposed under today's proposal to the other major alternatives considered. The cost of today's proposal is estimated to range from $93.5 million to $126.5 million annually. Alternatives one and two generally involved higher regulatory costs and therefore were not selected. Alternative three would provide savings of $126 million per year. However, the approach may for some municipalities result a relaxation in regulatory standards that results in more discharges at treatment levels that are less than established in the secondary treatment regulations or to delays in remeidal action to address existing SSOs. For these reasons, EPA believes the chosen alternative is more appropriate than alternative three. In the case of the No Action Alternative, the Agency determined that such an alternative would not meet the goals of today's proposal in addressing SSOs, improving system management and clarifying existing regulations. A detailed analysis of these alternatives is included in the Economic Analysis that accompanies today's proposal.

Today's proposal reflects input from a number of State and municipal governments. It satisfies the requirement under UMRA that the Agency consider a number of regulatory alternatives and adopt "the least costly, most cost-effective, or least burdensome alternative that meets the objectives of the statute." EPA has selected the least costly alternative which meets the Agency's interpretation of the Clean Water Act. A cost comparison shows that alternatives one and two are substantially more costly ($278 million to $1.1 billion) than the approach proposed. The Agency believes that alternatives three and four would not meet the objectives of the Clean Water Act.

Small Government Consultation: In developing this rule, EPA consulted with small governments pursuant to its plan established under section 203 of the UMRA to address impacts of regulatory requirements in the rule that might significantly or uniquely affect small governments. In addition to the consultation with small government representatives on the SSO subcommittee, as described in section VIII.C.4, in the spring of 1999 EPA identified a number of potential participants for a Small Government Outreach Group related to the proposed SSO rule. Twenty-one individuals, representing communities from across the country, with populations of 50,000 or less were invited to participate; fourteen accepted. EPA held eight conference calls with the group between July and November 1999. The primary concerns raised by participants to the Small Government Outreach Group were:

a. In general, the principles behind the CMOM provisions are good basic guidelines. However, a number of the representatives on the outreach group raised concerns regarding the amount of paperwork associated with the draft CMOM provisions. Some commentors recommended that paperwork and administrative requirements associated with CMOM programs should only be required of governments that currently do not have well performing systems. Some felt that small governments who are currently undertaking aggressive programs do not have resources to add new staff for new program requirements. These commentors thought existing staff would have to be pulled off current day-to-day responsibilities in order to comply with the draft CMOM permit provision, resulting in less effective municipal programs. Most municipal representatives supporting this view thought the test for a well performing system should be "no SSOs" within the preceding few years. Others felt that even well-operated collection systems may experience periodic SSOs and that a "no SSO" test would be unrealistic.

b. Some small government representatives indicated that some of the language of the draft permit provisions should be clarified and not open to enforcement discretion. They were concerned about the potential for inconsistent application. Specific concerns focused on the following issues:

- How a small municipality can identify CMOM program elements that are "appropriate and applicable";
- The capability of small municipalities to identify adequate capacity to convey peak flows;
- Clarifying how "adequately enlarging" treatment systems would be seen as an example of reasonable control in the context of the prohibition and defense; and
- Clarifying the terms "severe natural conditions" and "all feasible alternative" in the prohibition on SSO discharges.

c. The CMOM program should be phased in over a minimum of three years.

d. The CMOM provisions identified in the rule should be considered as guidelines rather than specific mandatory requirements.

e. Some small government representatives were concerned that the draft prohibition provision could be interpreted by EPA officials as being more stringent than what some States required. Uncertainty was a particular concern for municipalities working under a State enforcement order because EPA can require retrofits to system expansions that have been recently completed or are underway. Others felt that the vague language in the draft approach would

create uncertainty in future negotiations with States on design requirements for their collection system.

f. Given the unpredictable nature of SSO events, the real health and environmental benefits from trying to eliminate all SSOs are small in comparison to the costs of compliance.

g. Municipal dollars for addressing water quality issues are limited. It is not clear from a water quality or regulatory perspective that municipalities should give SSO control a higher priority than areas such as storm water, treatment plant improvements, or compliance with TMDLs. Watershed approaches or unifying wet weather requirements may provide a better basis for establishing priorities.

As a result of EPA's discussions with the SSO Subcommittee and the Small Government Outreach Group, the Agency added two provisions to the proposal to specifically address the needs of small communities:

- A collection system with an average daily flow of less than 2.5 million gallons per day (mgd) would not be required to develop a written CMOM program summary or a CMOM program audit until it experiences an SSO discharge to waters of the United States from its collection system. An average daily flow of 2.5 mgd is roughly equivalent to a residential service population of about 25,000 people.
- The CMOM standard permit condition could be less detailed in permits for municipal sanitary sewer collection systems with an average daily flow of less than 1 mgd. An average daily flow of 1 mgd is roughly equivalent to a residential service population of about 10,000 people.

D. Executive Order 13132

Executive Order 13132, entitled "Federalism" (64 FR 43255, August 10, 1999), requires EPA to develop an accountable process to ensure "meaningful and timely input by State and local officials in the development of regulatory policies that have federalism implications." "Policies that have federalism implications" are defined in the Executive Order to include regulations that have "substantial direct effects on the States, on the relationship between the national government and the States, or on the distribution of power and responsibilities among the various levels of government."

Under Executive Order 13132, EPA may not issue a regulation that has federalism implications, that imposes substantial direct compliance costs, and that is not required by statute, unless the Federal government provides the funds necessary to pay the direct compliance costs incurred by State and local governments, or EPA consults with State and local officials early in the process of developing the proposed regulation.

EPA has concluded that this proposed rule may have federalism implications because it may impose substantial direct compliance costs on State and local governments, and the Federal government will not provide the funds necessary to pay those costs. As discussed in section IV.C., the proposed rule contains a Federal mandate that may result in the expenditure by State, local and tribal governments, in the aggregate, of $100 million or more in a year and the Federal government will not provide the funds necessary to pay those costs. Accordingly, EPA provides the following federalism summary impact statement (FSIS) as required by section 6(b) of Executive Order 13132.

EPA consulted with State and local officials early in the process of developing the proposed regulation to permit them to have meaningful and timely input into its development.

1. Description of the Extent of the Agency's Prior Consultation with State and Local Governments

Today's proposal has been developed in conjunction with consultation activities that provided public input on potential approaches, including input from a Subcommittee to a Federal Advisory Committee, a small government outreach group, and representatives of authorized NPDES State programs. Section VIII.C of this preamble discusses EPA's outreach efforts under the Unfunded Mandates Reform Act, including consultation with State and local elected officials.

Between 1994 and 1999, the SSO Subcommittee met 12 times to provide input on how best to meet the SSO policy challenge. The SSO Subcommittee comprised representatives from a balanced group of stakeholders. Stakeholder organizations represented on the SSO Subcommittee included organizations representing local elected officials (National Association of Counties, National Association of Towns and Townships, and National League of Cities). It also included representatives of local officials, some of whom are appointed by elected officials (American Public Works Association, Association of Metropolitan Sewerage Agencies, Association of State and Interstate Water Pollution Control Administrators, and the national Association of Attorneys General).

In the spring of 1999, EPA identified a number of potential participants for a Small Government Outreach Group related to the proposed SSO rule. Twenty-one individuals, representing communities from across the country, with populations of 50,000 or less were invited to participate; fourteen accepted. EPA held eight conference calls with the group between July and November 1999.

Representatives from 13 authorized NPDES State programs participated in an Agency work group that provided input on SSO issues to the Agency from 1994 to October 1999. As part of that input, the Agency work group reviewed draft regulatory proposals.

EPA distributed written materials describing the approach supported by the SSO Subcommittee at the National Conference of State Legislatures (NCSL) annual meeting in May 2000. The materials described how members of NCSL could provide comments on the approach to EPA.

For rules that the Agency determines may have federalism implications, EPA has committed to consulting with the National Association of Towns and Townships, the Country Executives of America, as well as with the seven national organizations often referred to as the "Big 7" and their national chairperson. The Big 7 is comprised of the National Governor's Association, National Conference of State Legislatures, U.S. Conference of Mayors, National League of Cities, Council of State Governments, International City/County Management Association, and National Association of Counties, These nine organizations offer the largest constituencies of elected and senior appointed officials in state and local government and are considered "representative national organizations" for purposes of the E.O. 13132. As noted above, three organizations (National Association of Counties, National Association of Towns and Townships, and National League of Cities), were represented on the SSO Subcommittee,

and EPA consulted directly with the National Conference of State Legislatures. During the public comment period, EPA will consult with the five remaining organizations. Consultation with these organizations will be in addition to consultations between EPA and individual state and local officials. During these consultations, EPA will answer any questions regarding what the proposed rule would accomplish if promulgated, the rule's quantitative and qualitative costs and benefits, and flexibility to accommodate local conditions or circumstances, and the effect on existing State and local authorities. EPA will also solicit input from State and local officials regarding any concerns they may have and potential ways of addressing those concerns.

2. Summary of the Nature of State and Local Government Concerns

Over the course of the twelve meetings held by the SSO Subcommittee, participants discussed a number of issues pertaining to the need for national clarity and consistency in the way NPDES requirements apply to SSOs.

Representatives of municipal organizations, including local elected officials, raised the following concerns:

- The legal liability for SSO discharges that would be considered beyond the reasonable control of an operator/permittee. These representatives noted that they believed different NPDES authorities were interpreting the applicability of the bypass and upset provisions (at 40 CFR 122.41(m) and (n), respectively), inconsistently to SSOs.
- Different treatment standards had been used to either issue permits for or disallow infrequent discharges from peak excess flow treatment facilities.
- Greater clarity and consistency would help ensure that enforcement actions under the CWA were consistent with engineering realities and the health and environmental risks of SSOs.

Representatives of small communities raised the following concerns:

- Paperwork and administrative requirements associated with the CMOM programs should only be required of governments that do not have well performing systems
- Permit provisions should have clear requirements and not be open to enforcement discretion
- The prohibition provision could be interpreted by EPA officials as being more stringent than what some States required. Municipalities working under a State enforcement order could be required to retrofit system expansions that have been recently completed or are underway
- Given the unpredictable nature of SSO events, the real health and environmental benefits from trying to eliminate all SSO s are small in comparison to the costs of compliance.

Representatives of authorized NPDES States also participated on the SSO Subcommittee and raised a number of concerns:

- Whether States would be given flexibility to use their existing requirements in lieu of the proposed requirements;
- That the level of detail in EPA's draft regulations may limit flexibility in how the proposed requirement would be applied;
- Timing issues associated with initial implementation of the proposed requirements;

- The extent of reporting that would be required under the proposed regulation; and
- Whether the approach sufficiently targeted priority municipalities.

Several States supported the general concepts behind the approach and elements to the draft provisions. Several States raised concerns that the draft capacity, management, operation and maintenance (CMOM) provision may be beyond the capability of most smaller municipalities. Several suggested that EPA consider targeting these requirements to municipalities with identified problems. One State indicated that the approach may damage its relationship with municipal permittees, which could in turn cause negative impacts in implementing environmental programs.

3. Summary of the Agency's Position Supporting the Need to Issue the Regulation.

SSOs result in releases of raw sewage that can create serious health and environmental risks. With today's proposal, EPA is responding to President Clinton's May 29, 1999, directive to: "Improve protection of public health at our Nation's beaches by developing, within one year, a strong national regulation to prevent the over 40,000 annual sanitary sewer overflows from contaminating our nation's beaches and jeopardizing the health of our nation's families." The proposed framework would protect public health and provide information to communities about health risks and water quality problems caused by SSOs. The current poor performance of the nation's municipal sanitary sewer collection systems indicates a need to increase regulatory oversight in order to protect and enhance the nation's collection system infrastructure. The sewer collection system typically represents one of the largest infrastructure assets in a community.

4. Extent to Which the Officials' Concerns Have Been Met

The Agency believes that the proposed approach satisfactorily addresses the majority of concerns raised by the SSO Subcommittee, as well as municipal elected officials and other State and local government stakeholders and some of their representative national organizations.

In October, 1999, the SSO Subcommittee unanimously supported, when taken as a whole and recognizing that they are interdependent, basic principles in a draft approach for clarifying and establishing NPDES permit requirements for municipal sanitary sewer collection systems. The attached proposed rulemaking is consistent with the principles unanimously supported by the SSO Subcommittee. The State and local representatives on the SSO Subcommittee, through their support of the basic principles, demonstrated their acceptance of the proposal as addressing their concerns as much as possible.

Two provisions of today's proposal specifically address concerns raised by representatives of small communities:

- A collection system with an average daily flow of less than 2.5 million gallons per day (mgd) would not be required to develop a written CMOM program summary or a CMOM program audit until it experiences an SSO discharge to waters of the United States from its collection system; and
- The CMOM standard permit condition could be less detailed in permits for municipal sanitary sewer collection systems with an average daily flow of less than 1 mgd.

EPA believes that the approach proposed today, including the CMOM approach, the special requirements for small collection systems, language regarding enforcement protection from overflows that are beyond an operator's reasonable control, and the guidance on timing of implementation of CMOM requirements, adequately strikes a balance between concerns raised by State representatives and the need to address the SSO problem. The Agency is proposing standard permit conditions, which should significantly decrease the burdens on authorized NPDES States to write permit conditions, relative to solely giving guidance to the States regarding how permit conditions should be established. At the same time, EPA recognizes that this would reduce somewhat the flexibility of the permit writer to address site-specific circumstances, but believes it provides needed national consistency. EPA believes such an approach would not significantly constrain the flexibility of the permit writer to address site-specific circumstances. The Agency is also developing a toolbox of items to help municipalities and States implement requirements in an effective and cost-efficient manner (see section II.C).

In the spirit of Executive Order 13132, and consistent with EPA policy to promote communications between EPA and State and local governments, EPA specifically solicits comment on this proposed rule from State and local officials.

In the spirit of Executive Order 13132, and consistent with EPA policy to promote communications between EPA and State and local governments, EPA specifically solicits comment on this proposed rule from State and local officials.

E. Executive Order 12898: "Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations"

The requirements of the Environmental Justice Executive Order are that "EPA will... review the environmental effects of major Federal actions significantly affecting the quality of the human environment. For such actions, EPA reviewers will focus on the spatial distribution of human health, social and economic effects to ensure that agency decisionmakers are aware of the extent to which those impacts fall disproportionately on covered communities." EPA has determined that this rulemaking is economically significant. However, the Agency does not believe this rulemaking will have a disproportionate effect on minority or low income communities. The proposed regulation will reduce the negative affects of sanitary sewer overflows in all municipalities which will benefit all of society, including minority communities.

F. Regulatory Flexibility Act (RFA), as amended by the Small Business Regulatory Enforcement Fairness Act of 1996 (SBREFA), 5 USC 601 et seq.

The RFA generally requires an agency to prepare a regulatory flexibility analysis of any rule subject to notice and comment rulemaking requirements under the Administrative Procedure Act or any other statute, unless the agency certifies that the rule will not have a significant economic impact on a substantial number of small entities. Small entities include small businesses, small organizations, and small governmental jurisdictions.

For purposes of assessing the impact of today's proposed rule on small entities, small entity is defined as: (1) a small business, based on SBA size standards; (2) a small governmental jurisdiction that is a government of a city, county, town, school district, or special district with a

population of less than 50,000; and (3) a small organization that is any not-for-profit enterprise which is independently owned and operated and is not dominant in its field.

After considering the economic impacts of today's proposed rule on small entities, EPA certifies that this action will not have a significant economic impact on a substantial number of small entities. EPA has determined that this proposal will only regulate governmental jurisdictions. In addition, EPA has determined that only 927, fewer than five percent of the potentially affected small governments (i.e., municipalities), are expected to experience annual costs of more than 0.5 percent of revenues. No small governmental jurisdictions are expected to bear annual costs greater than one percent of revenues.

For purposes of evaluating the economic impact of this rule on small governmental jurisdictions, EPA used a "revenue test." This compared annual compliance costs with annual government revenues obtained from the 1992 Census of Governments, using State-specific estimates of annual revenue per capita for municipalities in three population size categories (fewer than 10,000, 10,000–25,000, and 25,000–50,000).

EPA estimates that there are about 19,000 municipalities that would be regulated by the SSO proposed rule, of which 18,595 are small municipal entities. EPA estimates that in no case would compliance costs exceed one percent of annual revenues. A sensitivity analysis estimates that only five percent of regulated small municipalities may experience cost greater than 0.5 percent but less than one percent of annual revenues. EPA concluded that this does not represent a significant economic impact on a substantial number of small entities.

Although this proposed rule will not have a significant economic impact on a substantial number of small entities, EPA nonetheless has tried to reduce the impact of this rule on very small entities by offering targeted flexibility. Of potentially regulated municipalities, 16,359 or 86 percent have populations of less than 10,000. EPA has proposed options for flexibility for these very small municipalities in meeting certain proposed requirements. Most significantly, these municipalities would not need to file annual reports on their systems or perform systems audits, unless they have experienced an SSO discharge during their permit term. In addition, EPA engaged in outreach with potentially regulated small governments as described in Section C, UMRA.

EPA continues to concerned about the potential impacts of the proposed rule on small entities and welcomes comments on issues related to such impacts.

G. National Technology Transfer and Advancement Act

Section 12(d) of the National Technology Transfer and Advancement Act of 1995 ("NTTAA"), Pub L. No. 104-113, § 12(d) (15 U.S.C. 272 note) directs EPA to use voluntary consensus standards in its regulatory activities unless to do so would be inconsistent with applicable law or otherwise impractical. Voluntary consensus standards are technical standards (e.g., materials specifications, test methods, sampling procedures, and business practices) that are developed or adopted by voluntary consensus standards bodies. The NTTAA directs EPA to provide Congress, through OMB, explanations when the Agency decides not to use available and applicable voluntary consensus standards.

This proposed rulemaking would not require the use of specific technical standards. Today's preamble does refer, however, to certain technical standards developed by a variety

of consensus standards organizations that municipalities might find helpful or illustrative in developing and implementing certain provisions of the proposal. Table 15 in section III.N of this preamble lists, for reference purposes, major industry technical references, including manuals of practice and handbooks for sewer design, operation, and maintenance.

EPA welcomes comments on this aspect of the proposed rulemaking and, specifically, invites the public to identify other potentially-applicable voluntary consensus standards and to comment on whether and how the proposed rule should "use" or otherwise rely on technical standards.

H. Executive Order 13045

Executive Order 13045 — "Protection of Children from Environmental Health Risks and Safety Risks" (62 F.R. 19885, April 23, 1997) — applies to any rule that: (1) is determined to be "economically significant" as defined under E.O. 12866, and (2) concerns an environmental health or safety risk that EPA has reason to believe may have a disproportionate effect on children. If the regulatory action meets both criteria, the Agency must evaluate the environmental health or safety effects of the planned rule on children, and explain why the planned regulation is preferable to other potentially effective and reasonably feasible alternatives considered by the Agency.

This proposed rule is not subject to E.O. 13045 because the Agency does not have reason to believe that it concerns an environmental health or safety risk that may have a disproportionate effect on children. The proposal would expand the scope of the existing NPDES permitting program to require municipally-owned sanitary sewer systems to improve operation of systems resulting in a reduction of sanitary sewer overflows. To the extent that the proposal does address a health problem that may affect children, expanding the scope of the permitting program would have a corresponding benefit to children to protect them from such problems.

I. Executive Order 13084

Under Executive Order 13084, EPA may not issue a regulation that is not required by statute, that significantly or uniquely affects the communities of Indian Tribal governments, and that imposes substantial direct compliance costs on those communities, unless the Federal government provides the funds necessary to pay the direct compliance costs incurred by the Tribal governments, or EPA consults with those governments. If EPA complies by consulting, Executive Order 13084 requires EPA to provide to the Office of Management and Budget, in a separately identified section of the preamble to the rule, a description of the extent of EPA's prior consultation with representatives of affected Tribal governments, a summary of the nature of their concerns, and a statement supporting the need to issue the regulation. In addition, Executive Order 13084 requires EPA to develop an effective process permitting elected officials and other representatives of Indian Tribal governments "to provide meaningful and timely input in the development of regulatory policies on matters that significantly or uniquely affect their communities."

Today's rule would not significantly or uniquely affect the communities of Indian Tribal governments. Even though the Agency is not required to address Tribes under the Regulatory

Flexibility Act, EPA used a similar revenue test and analysis as was used for municipalities under the RFA to assess the impact of the rule on communities of Tribal governments and determined that Tribal governments would not be significantly affected. Of the 102 reservations potentially affected by the rule, only five would be expected to experience ecoonomic impacts slightly greater than one percent of cost over revenue. In addition, the rule would not have a unique impact on the communities of Tribal governments because they are treated the same as municipal governments covered by this rule. Accordingly, the requirements of section 3(b) of Executive Order 13084 do not apply to this rule. Nevertheless, EPA tried to consult with Tribal governments as outlined in section VIII.C. of the Unfunded Mandates Reform Act.

J. Plain Language Directive

Executive Order 12866 and the President's memorandum of June 1, 1998, require each agency to write all rules in plain language. We invite your comments on how to make this proposed rule easier to understand. For example:

- Have we organized the material to suit your needs?
- Are the requirements of the rule clearly stated?
- Does the rule contain technical language or jargon that isn't clear?
- Would a different format (grouping and order of sections, use of headings, paragraphing) make the rule easier to understand?
- Would more (but shorter) sections be better?
- Could we improve the clarity by adding tables, lists, or diagrams?
- What else could we do to make the rule easier to understand?

List of Subjects

40 CFR Part 9

Environmental protection. Reporting and recordkeeping requirements.

40 CFR Part 122

Administrative practice and procedure. Confidential business information. Environmental protection. Reporting and recordkeeping requirements. Waste treatment and disposal. Water pollution control.

40 CFR Part 123

Administrative practice and procedure. Confidential business information. Environmental protection. Reporting and recordkeeping requirements. Waste treatment and disposal. Water pollution control.

Authority: Clean Water Act, 33 U.S.C. 1251 et seq.

National Pollutant Discharge Elimination System (NPDES) Permit Requirements for Municipal Sanitary Sewer Collection Systems, Municipal Satellite Collection Systems, and Sanitary Sewer Overflows (Page 402 of 426)

Dated:

/s/ January 3, 2001
Carol M. Browner,
Administrator.

PART 122--EPA ADMINISTERED PERMIT PROGRAMS; THE NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM

1. The authority citation for part 122 continues to read as follows:
Authority: The Clean Water Act, 33 U.S.C. 1251 et seq.

2. Add § 122.38 to subpart B to read as follows:

§ 122.38 Municipal Satellite Collection Systems (applicable to State programs, see § 123.25)

(a) NPDES Jurisdiction. (1) A permit must establish, at a minimum, standard permit conditions at 40 CFR 122.41 and 122.42, which apply to municipal satellite collection systems that convey municipal sewage or industrial waste to a POTW treatment facility, which in turn discharges pursuant to an NPDES permit.

(2) The Director of the NPDES authority must either:

(i) Issue a permit to the owner or operator of the municipal satellite collection system that requires the implementation of standard permit conditions throughout the municipal satellite collection system; or

(ii) Where the operator of the POTW treatment facility has adequate legal authority, issue a permit to the operator of the POTW treatment facility which receives wastewater from the municipal satellite collection system that requires implementation of the standard permit conditions throughout the municipal satellite collection system.

(b) Definition of Municipal Satellite Collection System. Municipal Satellite Collection System means any device or system that meets each of the following criteria:

(1) Is owned or operated by a "State" or "municipality" as these two terms are defined at § 122.2;

(2) Is used to convey municipal sewage or industrial waste to a POTW treatment facility that has an NPDES permit or is required to apply for a permit under § 122.21(a); and

(3) The owner or operator is not the owner or operator of the POTW treatment facility that has an NPDES permit or has applied for an NPDES permit.

(c) Permit Applications. (1) Which Owners or Operators of Municipal Satellite Collection Systems Must Submit an NPDES Permit Application?

(i) All owners or operators of a municipal satellite collection system must submit an NPDES permit application unless the NPDES permit for the POTW treatment facility that receives wastewater from the municipal satellite collection system includes NPDES permit conditions that apply within the municipal satellite collection system.

(ii) Where the NPDES permit for the municipal collection system that receives wastewater from the municipal satellite collection system requires the implementation of permit conditions throughout the municipal satellite collection system, the Director may require the owner or operator of the municipal satellite collection system to submit a permit application on a case-by-case basis.

(2) What are the Deadlines for Submitting Applications? Where an owner or operator of a municipal satellite collection system must submit an application under paragraph (c)(1) of this section, the application must be submitted by the following dates:

(i) If on [date 2 years from publication of final rule], a permit application for the treatment facility that receives flows from the municipal satellite collection system has been submitted to the NPDES authority and is currently pending, the owner or operator of the municipal satellite collection system must submit a permit application by [date 3 years from date of publication of final rule];

(ii) If on [date 2 years from publication of final rule], a permit application for the treatment facility that receives flows from a municipal satellite collection system is not pending, then the owner or operator of the municipal satellite collection system must submit a permit application by the date that the treatment facility is required to submit its next permit application;

(iii) Where a municipal satellite collection system that does not have NPDES permit coverage experiences a sanitary sewer overflow that discharges to waters of the United States, the owner or operator of the municipal satellite collection system must submit a permit application within 180 days of the discharge; and

(iv) Where the Director requires the owner or operator of the municipal satellite collection system to submit a permit application on a case-by-case basis, the owner or operator of the municipal satellite collection system must submit a permit application within 180 days of notification by the Director, unless the Director grants permission for a later date (except the Director shall not grant permission for a submission later than the expiration date of the existing permit).

(3) Application requirements. Any owner or operator or proposed owner or operator of a municipal sanitary sewer collection system that is required to submit an application under paragraph (c)(1) of this section must submit the information required under § 122.21(j) on a Form 2A except for the following

regulatory provisions: §122.21(j)(1)(viii)(B), (1)(viii)(C), (1)(viii)(E), (2)(ii), (2)(iii), (3)(iii), (4), (5), (6) and (7).

3. Section 122.41 is amended by adding a phrase to paragraph (d), adding a phrase to paragraph (e), adding a phrase to paragraph (l)(6), and revising paragraph (l)(7), as follows: revising paragraph (l)(6) by adding a phrase to the beginning of the paragraph, by revising paragraph (l)(7) to read as follows:

§ 122.41 Conditions applicable to all permits (applicable to State programs, see § 123.25)

* * * * *

(d) Duty to mitigate. Except for sanitary sewer overflows addressed in § 122.42(e), * * *

(e) Proper operation and maintenance. Except for municipal sanitary sewer collection systems addressed in § 122.42(e), * * *

* * * * *

(l) * * *

(6) Twenty-four hour reporting. (i) Except for overflows from municipal sanitary sewer collection systems addressed in §122.42(g), * * *

(7) Other noncompliance. The permittee shall report all instances of noncompliance not reported under paragraphs (l)(4), (5), and (6) of this section and for municipal sanitary sewer collection systems, § 122.42(g), at the time monitoring reports are submitted. The reports shall contain the information listed in paragraph (l)(6) of this section.

* * * * *

4. Section 122.42 is amended by adding paragraphs (e), (f) and (g) to read as follows:

§ 122.42 Additional conditions applicable to specified categories of NPDES permits (applicable to State NPDES programs, see § 123.25)

* * * * *

(e) Municipal Sanitary Sewer Systems - Capacity, Management, Operation and Maintenance Programs. (1) General Standards. You, the permittee, must:

(i) Properly manage, operate and maintain, at all times, all parts of the collection system that you own or over which you have operational control;

(ii) Provide adequate capacity to convey base flows and peak flows for all parts of the collection system you own or over which you have operational control;

(iii) Take all feasible steps to stop, and mitigate the impact of, sanitary sewer overflows in portions of the collection system you own or over which you have operational control;

(iv) Provide notification to parties with a reasonable potential for exposure to pollutants associated with the overflow event; and

(v) Develop a written summary of your CMOM program and make it, and the audit under paragraph (e)(2)(ix) of this section, available to any member of the public upon request.

(2) Components of CMOM Program. You must develop and implement a capacity, management, operation and maintenance (CMOM) program to comply with paragraph (e)(1) of this section. If you believe that any element of this section is not appropriate or applicable for your CMOM program, your program does not need to address it, but your written summary must explain why that element is not applicable. The Director will consider the quality of the CMOM program, its implementation and effectiveness in any relevant enforcement action, including but not limited to any enforcement action for violation of the prohibition of any municipal sanitary sewer system discharges described at paragraph (f) of this section. The program must include the following components, with the exception of non-applicable components as discussed above:

(i) Goals. You must specifically identify the major goals of your CMOM program, consistent with the general standards identified above.

(ii) Organization. You must identify:

(A) Administrative and maintenance positions responsible for implementing measures in your CMOM program, including lines of authority by organization chart or similar document; and

(B) The chain of communication for reporting SSOs under paragraph (g) of this section from receipt of a complaint or other information to the person responsible for reporting to the NPDES authority, or where necessary, the public.

(iii) Legal Authority. You must include legal authority, through sewer use ordinances, service agreements or other legally binding documents, to:

(A) Control infiltration and connections from inflow sources;

(B) Require that sewers and connections be properly designed and constructed;

(C) Ensure proper installation, testing, and inspection of new and rehabilitated sewers (such as new or rehabilitated collector sewers and new or rehabilitated service laterals);

(D) Address flows from municipal satellite collection systems; and

(E) Implement the general and specific prohibitions of the national pretreatment program that you are subject to under 40 CFR 403.5.

(iv) Measures and Activities. Your CMOM program must address the following elements that are appropriate and applicable to your system and identify the person or position in your organization responsible for each element:

(A) Provide adequate maintenance facilities and equipment;

(B) Maintenance of a map of the collection system;

(C) Management of information and use of timely, relevant information to establish and prioritize appropriate CMOM activities (such as the immediate elimination of dry weather overflows or overflows into sensitive waters such as public drinking water supplies and their source waters, swimming beaches and waters where swimming occurs, shellfish beds, designated Outstanding National Resource Waters, National Marine Sanctuaries, waters within Federal, State, or local parks, and water containing threatened or endangered species or their habitat), and identify and illustrate trends in overflows, such as frequency and volume;

(D) Routine preventive operation and maintenance activities;

(E) A program to assess the current capacity of the collection system and treatment facilities which you own or over which you have operational control;

(F) Identification and prioritization of structural deficiencies and identification and implementation of short-term and long-term rehabilitation actions to address each deficiency;

(G) Appropriate training on a regular basis; and

(H) Equipment and replacement parts inventories including identification of critical replacement parts.

(v) Design and Performance Provisions. You must establish:

(A) Requirements and standards for the installation of new sewers, pumps and other appurtenances; and rehabilitation and repair projects; and

(B) Procedures and specifications for inspecting and testing the installation of new sewers, pumps, and other appurtenances and for rehabilitation and repair projects.

(vi) Monitoring, Measurement, and Program Modifications. You must:

(A) Monitor the implementation and, where appropriate, measure the effectiveness of each element of your CMOM program;

(B) Update program elements as appropriate based on monitoring or performance evaluations; and

(C) Modify the summary of your CMOM program as appropriate to keep it updated and accurate.

(vii) Overflow Emergency Response Plan. You must develop and implement an overflow emergency response plan that identifies measures to protect public health and the environment . The plan must include mechanisms to:

(A) Ensure that you are made aware of all overflows (to the greatest extent possible);

(B) Ensure that overflows (including those that do not discharge to waters of the U.S.) are appropriately responded to, including

ensuring that reports of overflows are immediately dispatched to appropriate personnel for investigation and appropriate response;

(C) Ensure appropriate immediate notification to the public, health agencies, other impacted entities (e.g., water suppliers) and the NPDES authority pursuant to paragraph (g) of this section. The CMOM program should identify the public health and other officials who will receive immediate notification;

(D) Ensure that appropriate personnel are aware of and follow the plan and are appropriately trained; and

(E) Provide emergency operations.

(viii) System Evaluation and Capacity Assurance Plan. You must prepare and implement a plan for system evaluation and capacity assurance if peak flow conditions are contributing to an SSO discharge or to noncompliance at a treatment plant unless you have already taken steps to correct the hydraulic deficiency or the discharge meets the criteria of paragraph (f)(2) of this section. At a minimum the plan must include:

(A) Evaluation. Steps to evaluate those portions of the collection system which you own or over which you have operational control which are experiencing or contributing to an SSO discharge caused by hydraulic deficiency or to noncompliance at a treatment plant. The evaluation must provide estimates of peak flows (including flows from SSOs that escape from the system) associated with conditions similar to those causing overflow events, provide estimates of the capacity of key system components, identify hydraulic deficiencies (including components of the system with limiting capacity) and identify the major sources that contribute to the peak flows associated with overflow events.

(B) Capacity Enhancement Measures. Establish short- and long-term actions to address each hydraulic deficiency including prioritization, alternatives analysis, and a schedule.

(C) Plan Updates. The plan must be updated to describe any significant change in proposed actions and/or implementation schedule. The plan must also be updated to reflect available information on the performance of measures that have been implemented.

(ix) CMOM Program Audits. As part of the NPDES permit application, you must conduct an audit, appropriate to the size of the system and the number of overflows, and submit a report of such audit, evaluating your CMOM and its compliance with this subsection, including its deficiencies and steps to respond to them.

(3) Communications. - The permittee should communicate on a regular basis with interested parties on the implementation and performance of its CMOM program. The communication system should allow interested parties to provide input to the permittee as the CMOM program is developed and implemented.

(4) Small Collection Systems. - The Director of the NPDES authority may make the following modifications when establishing the CMOM program permit condition for:

(i) Municipal sanitary sewer collection systems with an average daily flow of 1.0 million gallons per day or less, the CMOM permit provision may omit the following paragraphs: (e)(2)(iii)(A) through (E); (e)(2)(iv)(A), and (e)(2)(iv)(C) through (H) of this section. In addition, the requirements in paragraph (e)(2)(v) of this section may be modified for municipalities that are not expected to have significant new installations of sewers, pumps and other appurtenances.

(ii) Municipal sanitary sewer collection systems with an average daily flow of 2.5 million gallons per day or less, the requirement to develop a written summary of the permittee's CMOM plan ((e)(1)(v)) and the requirement to conduct an audit and prepare a written audit report ((e)(2)(ix)) may be omitted unless triggered by the occurrence of an SSO that discharges to waters of the United States from the permittee's collection system during the term of the permit.

(f) Municipal Sanitary Sewer Systems – Prohibition of Discharges. (1) General Prohibition. Municipal sanitary sewer system discharges to waters of the United States that occur prior to a publicly owned treatment works (POTW) treatment facility are prohibited. The term POTW treatment facility means an apparatus or device designed to treat flows to comply with effluent limitations based on secondary treatment regulations or more stringent water quality-based requirements. Neither the bypass or the upset provisions at §(m) and (n), respectively, apply to these discharges.

(2) Discharges Caused by Severe Natural Conditions. - The Director may take enforcement action against the permittee for a prohibited municipal sanitary sewer system discharge caused by natural conditions unless the permittee demonstrates through properly signed, contemporaneous operating logs, or other relevant evidence that:

(i) The discharge was caused by severe natural conditions (such as hurricanes, tornados, widespread flooding, earthquakes, tsunamis, and other similar natural conditions);

(ii) There were no feasible alternatives to the discharge, such as the use of auxiliary treatment facilities, retention of untreated wastewater, reduction of inflow and infiltration, use of adequate backup equipment, or an increase in the capacity of the system. This provision is not satisfied if, in the exercise of reasonable engineering judgment, the permittee should have installed auxiliary or additional collection system components,

wastewater retention or treatment facilities, adequate back-up equipment or should have reduced inflow and infiltration; and

(iii) The permittee submitted a claim to the Director within 10 days of the date of the discharge that the discharge meets the conditions of this provision.

(3) Discharges Caused by Other Factors. - For discharges prohibited by paragraph (f)(1) of this section, other than those covered under paragraph (f)(2) of this section, the permittee may establish an affirmative defense to an action brought for noncompliance with technology based permit effluent limitations if the permittee demonstrates through properly signed, contemporaneous operating logs, or other relevant evidence that:

(i) The permittee can identify the cause of the discharge event;

(ii) The discharge was exceptional, unintentional, temporary and caused by factors beyond the reasonable control of the permittee;

(iii) The discharge could not have been prevented by the exercise of reasonable control, such as proper management, operation and maintenance; adequate treatment facilities or collection system facilities or components (e.g., adequately enlarging treatment or collection facilities to accommodate growth or adequately controlling and preventing infiltration and inflow); preventive maintenance; or installation of adequate backup equipment;

(iv) The permittee submitted a claim to the Director within 10 days of the date of the discharge that the discharge meets the conditions of this provision; and

(v) The permittee took all reasonable steps to stop, and mitigate the impact of, the discharge as soon as possible.

(4) Burden of Proof. In any enforcement proceeding, the permittee has the burden of proof to establish that the criteria in this section have been met.

(g) Municipal Sanitary Sewer Systems - Reporting, Public Notification and Recordkeeping. This condition establishes recordkeeping, reporting and public notification requirements for your municipal sanitary sewer system and sanitary sewer overflows from your municipal sanitary sewer system. You do not have to report sanitary sewer overflows under § 122.41(l) if the sanitary sewer overflows are reported under this section.

(1) Definition of Sanitary Sewer Overflow. A sanitary sewer overflow (SSO) is an overflow, spill, release, or diversion of wastewater from a sanitary sewer system. SSOs do not include combined sewer overflows (CSOs) or other discharges from the combined portions of a combined sewer system. SSOs include:

(i) Overflows or releases of wastewater that reach waters of the United States;

(ii) Overflows or releases of wastewater that do not reach waters of the United States; and

(iii) Wastewater backups into buildings that are caused by blockages or flow conditions in a sanitary sewer other than a building lateral. Wastewater backups into buildings caused by a blockage or other malfunction of a building lateral that is privately owned is not an SSO.

(2) Immediate Notifications and Follow-Up Reports. You must provide the following additional reports for sanitary sewer overflows (including overflows that do not reach waters of the United States) that may imminently and substantially endanger human health:

(i) You must immediately notify the public, health agencies and other affected entities (e.g., public water systems) of overflows that may imminently and substantially endanger human health. The notification should be in accordance with your CMOM overflow emergency response plan (see paragraph (e)(2)(vii) of this section);

(ii) You must provide to the NPDES authority either an oral or electronic report as soon as practicable within 24 hours of the time you become aware of the overflow. The report must identify the location, estimated volume and receiving water, if any, of the overflow; and

(iii) You must provide to the NPDES authority within 5 days of the time you become aware of the overflow a written report that contains:

(A) The location of the overflow;

(B) The receiving water (if there is one);

(C) An estimate of the volume of the overflow;

(D) A description of the sewer system component from which the release occurred (e.g., manhole, constructed overflow pipe, crack in pipe);

(E) The estimated date and time when the overflow began and stopped or will be stopped;

(F) The cause or suspected cause of the overflow;

(G) Steps taken or planned to reduce, eliminate, and prevent reoccurrence of the overflow and a schedule of major milestones for those steps; and

(H) Steps taken or planned to mitigate the impact(s) of the overflow and a schedule of major milestones for those steps.

(iv) The Director may waive the written report required by paragraph (g)(2)(iii) of this section 122.42(g)(2)(iii) on a case-by-case basis.

(3) Discharge Monitoring Reports. You must report sanitary sewer overflows that discharge to waters of the United States on the discharge monitoring report (DMR), including the following information:

(i) The total number of system overflows that discharge to waters of the United States that occurred during the reporting period;

(ii) The number of locations at which sanitary sewer overflows that discharge to waters of the United States occurred during the reporting period that resulted from flows exceeding the capacity of the collection system;

(iii) The number of sanitary sewer overflows that discharge to waters of the United States that are unrelated to the capacity of the collection system that occurred during the reporting period; and

(iv) The number of locations at which sanitary sewer overflows that discharge to waters of the United States that occurred during the reporting period that are unrelated to the capacity of the collection system.

(4) Annual Report. (i) You must prepare an annual report of all overflows in the sewer system, including overflows that do not discharge to waters of the United States. The annual report must include the date, the location of the overflow, any potentially affected receiving water, and the estimated volume of the overflow. The annual report may summarize information regarding overflows of less than approximately 1,000 gallons. You must provide the report to the Director and provide adequate notice to the public of the availability of the report.

(ii) Systems serving fewer than 10,000 people are not required to prepare an annual report if all DMRs for the preceding 12 months show no discharge to waters of the United States from overflows.

(5) Recordkeeping. You, the permittee, must maintain a record of the following information for a period of at least 3 years from the date of the overflow or other recorded event:

(i) For each sanitary sewer overflow, including overflows that did not discharge to waters of the United States, which occurred in your collection system or as a result of conditions in a portion of the collection system which you own or over which you have operational control:

(A) The location of the overflow and the receiving water if any;

(B) An estimate of the volume of the overflow;

(C) A description of the sewer system component from which the release occurred (e.g., manhole, constructed overflow pipe, crack in pipe);

(D) The estimated date and time when the overflow began and when it stopped;

(E) The cause or suspected cause of the overflow; and

(F) Steps that have been and will be taken to prevent the overflow from recurring and a schedule for those steps.

(ii) Work orders which are associated with investigation of system problems related to sanitary sewer overflows;

(iii) A list and description of complaints from customers or others; and

(iv) Documentation of performance and implementation measures.

(6) Additional Public Notification. You must notify the public of overflows, including overflows that do not discharge to waters of the United States, in areas where an overflow has a potential to affect human health. The criteria for notification should be developed in

consultation with potentially affected entities. The notification should be in accordance with your CMOM overflow emergency response plan (see paragraph (e)(2)(vii) of this section.).

PART 123 – STATE PROGRAM REQUIREMENTS

1. The authority citation for part 123 continues to read as follows:

Authority: The Clean Water Act, 33 U.S.C. 1251 et seq.

2. Amend § 123.25 by renumbering paragraphs (a)(39) through (a)(45) to (a)(12) through (a)(18), renumbering paragraphs (a)(12) through (a)(38) as (a)(20) through (a)(46), and adding a new paragraph (a)(19) to read as follows:

§ 123.25 Requirements for permitting.

(a) * * *

(19) § 122.38 – (Municipal Satellite Collection Systems).

*** * ***