



**U.S. House of Representatives**  
**Committee on Transportation and Infrastructure**  
**Washington, DC 20515**

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Chairman

**John L. Mica**  
Ranking Republican Member

David Heysfeld, Chief of Staff  
Ward W. McCarragher, Chief Counsel

James W. Coon II, Republican Chief of Staff

October 12, 2007

**SUMMARY OF SUBJECT MATTER**

**TO:** Members of the Subcommittee on Water Resources and Environment  
**FROM:** Subcommittee on Water Resources and Environment Staff  
**SUBJECT:** Hearing on the Raw Sewage Overflow Community Right-to-Know Act

**PURPOSE OF HEARING**

The Subcommittee on Water Resources and Environment is scheduled to meet on October 16, 2007 at 2:00 p.m., to receive testimony on the issue of public notification of sewer overflows. The Subcommittee will hear from representatives of the Environmental Protection Agency, State and local governments, public health officials, and other stakeholders.

**BACKGROUND**

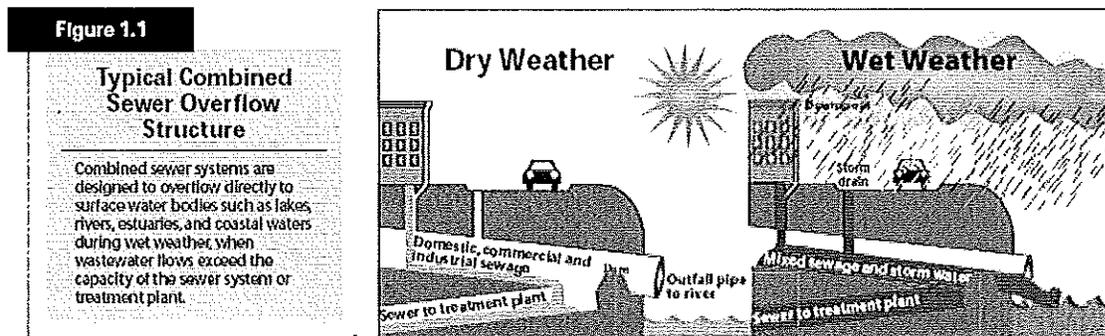
Municipal wastewater collection systems collect domestic sewage and other wastewater from homes and other buildings and convey it to wastewater treatment plants for proper treatment and disposal. These collection systems and treatment facilities are an extensive, valuable, and complex part of the nation's infrastructure. The collection and treatment of domestic sewage and other wastewater is vital to the nation's economic and public health and the protection of the environment.

Two types of public sewer systems predominate in the United States – combined sewer systems and separate sanitary sewer systems. Combined sewer systems utilize a joint-conveyance for the movement of wastewater (e.g., domestic sewage) and storm water to wastewater treatment facilities. Separate sanitary sewer systems have individual (separated) conveyances for the movement of domestic sewage and for storm water.

### *Combined Sewer Systems:*

Combined sewer systems were among the earliest sewer systems constructed in the United States, and were built until the first part of the 20<sup>th</sup> Century. During wet weather events (e.g., rainfall or snowmelt), the combined volume of wastewater and storm water runoff entering a combined sewer system often exceeds its conveyance capacity. To prevent damage to the infrastructure during wet weather events, combined sewer systems were intentionally designed to flow directly to surface waters when their capacity is exceeded, discharging large volumes of untreated or partially treated sewage wastes – an estimated 850 billion gallons annually – directly into local waters. These discharges are called combined sewer overflows, or CSOs.

CSOs are point source discharges, and are prohibited under the Clean Water Act unless authorized by a National Pollutant Discharge Elimination System (“NPDES”) permit. Section 402(q) of the Clean Water Act requires that any permit issued for the discharge from a combined sewer system conform to the Combined Sewer Overflow Control Policy, dated April 1994, including the implementation of the nine minimum controls and the development of a long-term CSO control plan.



Source: EPA Report to Congress on the Impacts and Control of CSOs and SSOs

Combined sewers are found in 33 States across the U.S. and the District of Columbia. The majority of combined sewers are located in communities in the Northeast or Great Lakes regions – where much of the oldest water infrastructure in the nation is found. However, combined sewer overflows have also occurred in the western United States, including the States of Washington, Oregon, and California. To eliminate combined sewer overflows, communities often must redesign their sewer systems to separate sewage flows from stormwater flows or provide significant additional capacity to eliminate the possibility that combined flows will exceed the limits of the infrastructure.

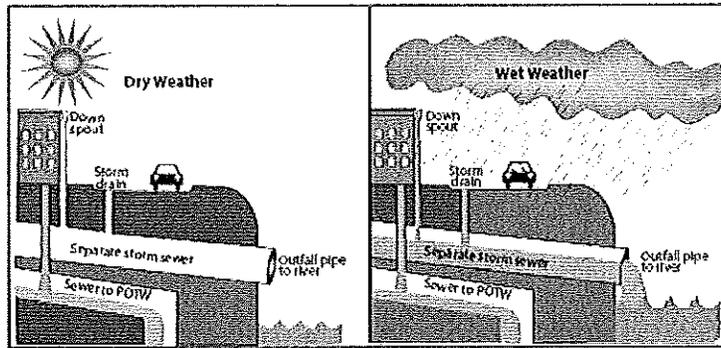
### *Sanitary Sewer Systems:*

Since the first part of the 20<sup>th</sup> Century, municipalities in the United States have generally constructed separate sanitary and storm water sewer systems. Sanitary sewer systems are specifically designed to carry domestic sewage flows and storm water runoff from precipitation events through different conveyances.

**Figure 2.2**

### Typical Separate Sanitary and Storm Sewer Systems

Sanitary sewer systems are designed to collect and convey wastewater mixed with limited amounts of infiltration and inflow to a treatment plant. A separate storm sewer system is used in many areas to collect and convey storm water runoff directly to surface waterbodies.



Source: EPA Report to Congress on the Impacts and Control of CSOs and SSOs

While sanitary sewer systems are designed to be separate sewage from storm water sewers, sewer overflows still may occur. These untreated or partially treated discharges from sanitary sewer systems are commonly referred to as sanitary sewer overflows, or SSOs.<sup>1</sup> SSOs have a variety of causes including sewer line blockages, line breaks, or sewer defects that allow excess storm water and groundwater to infiltrate and overload the system (also called infiltration and inflow), lapses in sewer operation and maintenance, inadequate sewer design and construction, power failures, and vandalism.

Unlike CSOs, which are typically designed with a specific outfall for overflows, SSOs can occur at any point in a separate sewer system and during dry or wet weather. EPA estimates that 72 percent of all SSOs reach the waters of the United States, but SSOs also include overflows out of manholes and onto city streets, sidewalks, and other terrestrial locations, including backups in buildings and private residences.<sup>2</sup> When sewage backups are caused by problems in the publicly-owned portion of a sanitary sewer system, they are considered SSOs.

EPA estimates that between 23,000 and 75,000 SSOs occur per year in the United States, discharging a total volume of three to 10 billion gallons per year.<sup>3</sup> Individual SSOs can range in volume from one gallon to millions of gallons. The majority of SSO events are caused by sewer blockages that can occur at any time, but the majority of SSO volume appears to be related to events caused by wet weather events and excessive inflow and infiltration.

<sup>1</sup> The Environmental Protection Agency defines an SSO as an untreated or partially treated sewage release from a separate sewer system.

<sup>2</sup> SSOs that reach the waters of the United States are point source discharges within the definition of the Clean Water Act, and like other point source dischargers, are prohibited unless authorized by a National Pollutant Discharge Elimination System (NPDES) permit. Moreover, SSOs, including those that do not reach the waters of the United States, may be indicative of improper operation and maintenance of the sewer system, and thus may violate NPDES conditions.

<sup>3</sup> According to EPA, this estimate does not account for discharges occurring after the headworks of the treatment plant or backups into buildings caused by problems in the publicly-owned portion of a sanitary sewer system, both of which would increase the annual total volume of SSOs.

## IMPACTS OF SEWER OVERFLOWS

Sewer overflows, whether from combined sewer systems or sanitary sewer systems, can pose significant environmental impacts, as well as cause or contribute to human health impacts.

According to its 2000 National Water Quality Inventory Report, EPA has determined that three pollutants are most often associated with impaired waters<sup>4</sup> in the United States – solids, pathogens, and nutrients. All three pollutants are contained in CSO and SSO discharges. Therefore, according to EPA, at a minimum, CSOs and SSOs contribute to the loadings of these pollutants in the receiving waters where they occur. Although EPA was not able to quantify a direct relationship in every state, in those states where EPA could identify an assessed segment of a particular waterbody located within one mile downstream of a CSO outfall, 75 percent of these waterbodies were listed as impaired.<sup>5</sup>

States have identified CSOs and SSOs as the direct or a contributing cause of documented environmental impacts, including aquatic life impairments, fish kills, shellfish bed closures, and continuing discharges of toxic chemicals, such as polychlorinated biphenyls (“PCBs”) and other priority pollutants.

In addition, CSOs and SSOs often contain microbial pathogens (e.g., bacteria, viruses, and parasites) that cause or contribute to human health impacts, including vomiting, diarrhea, respiratory infections, fever, and, in rare cases, death. Although the potential for human exposure can come in many forms, EPA and public drinking water agencies have expressed specific concern about the potential for direct contamination of public drinking water sources from sewer overflows.<sup>6</sup>

For example, in the spring of 1993, more than 400,000 people in the City of Milwaukee, Wisconsin, were infected by a microscopic parasite, *cryptosporidium parvum*, that entered the public drinking water supply for the city. This outbreak resulted in more than 100 deaths. Although the exact source of the parasite was not discovered, studies suggest that untreated wastewater leaks in the Milwaukee area may have discharged the parasite to Lake Michigan, which serves as the primary drinking water source for the metropolitan region.<sup>7</sup> Although impacts as large as the Milwaukee *cryptosporidium* outbreak are rare, similar parasitic outbreaks have contaminated drinking water sources in other U.S. cities, such as Brushy Creek, Texas (1998), Island Park, Idaho (1995), Las Vegas, Nevada (1993), Cabool, Missouri (1990), and Braun Station, Texas (1985).

Finally, EPA estimates that CSOs and SSOs cause between 3,448 and 5,576 individual cases of illness annually from direct exposure to pollutants at the nation’s recognized recreational beaches. However, EPA believes that this range under-represents the likely number of annual illnesses attributable to CSO and SSO contamination of recreational beaches, and that a significant number

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<sup>4</sup> Under the Clean Water Act, a waterbody is “impaired” if it fails to meet water quality standards for a particular use for the water (e.g. drinking, fishing, recreation). EPA includes the following sub-categories of waterbodies in its National Water Quality Inventory Report: rivers and streams; lakes, reservoirs, and ponds; estuaries and bays; ocean shoreline; and Great Lakes shoreline.

<sup>5</sup> EPA was only able to complete this analysis for 19 of the 32 states with active CSO permits.

<sup>6</sup> EPA has identified 59 CSO outfalls in seven states located within one mile upstream of a drinking water intake.

<sup>7</sup> EPA Report to Congress on the Impacts and Control of CSOs and SSOs (2004).

of additional illnesses not captured in this range occur for exposed swimmers at inland and other coastal beaches.<sup>8</sup>

### PUBLIC NOTIFICATION

The most reliable way to prevent human illness from waterborne diseases and pathogens is to eliminate the potential for human exposure to the discharge of pollutants from CSOs and SSOs. This can occur either through the elimination of the discharge, or, in the event that a release does occur, to minimize the potential human contact to pollutants. Currently, Federal law does not provide uniform, national standards for public notification of combined and sanitary sewer overflows. Currently, public notification of sewer overflows is governed by a variety of Federal regulations, state laws, and local initiatives aimed at limiting human exposure to discharges.

Potential human exposure to the pollutants found in sewer overflows can occur through several pathways. According to EPA, the most common pathways include direct contact with waters receiving CSO or SSO discharges, drinking water contaminated by sewer discharges, and consuming or handling contaminated fish or shellfish. However, humans are also at risk of direct exposure to sewer overflows, including sewer backups into residential buildings, city streets, and sidewalks.

The cost of eliminating CSOs and SSOs throughout the nation is staggering. In its most recent Clean Water Needs Survey (2000), EPA estimated the future capital needs to address existing CSOs at \$50.6 billion. In addition, EPA estimates that it would require an additional \$88.5 billion in capital improvements to reduce the frequency of SSOs caused by wet weather and other conditions (e.g., blockages, line breaks, and mechanical/power failures).

In the 110<sup>th</sup> Congress, the Committee on Transportation and Infrastructure has approved two bills – H.R. 720, the Water Quality Financing Act and H.R. 569, the Water Quality Investment Act – to reauthorize appropriations for the construction, repair, and rehabilitation of wastewater infrastructure. H.R. 720 authorizes appropriations of \$14 billion over four years for the Clean Water State Revolving Fund, which is the primary source of Federal funds for wastewater infrastructure. H.R. 569 authorizes appropriations of \$1.7 billion of Federal grants over five years to address combined sewers and sanitary sewers. The House of Representatives passed both bills in March 2007. To date, the Senate has not taken action on the bills.

However, in the event that a release does occur, the most effective way to prevent illness is to provide timely and adequate public notice to minimize human exposure to pollutants.

Although, public notification of sewer overflows is not uniformly required, some Federal statutes do provide specific requirements for the timely public notification of potential human health risks from waterborne contaminants.

For example, section 1414 of the Safe Drinking Water Act requires public water systems to notify the persons served by the system of any failure to comply with applicable Federal or State drinking water standards, the existence of any drinking water variance to safe drinking water standards, and the presence of any “unregulated contaminants” that pose a public health threat. The Act also requires public water systems to implement notification procedures to ensure that any

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<sup>8</sup> EPA Report to Congress on the Impacts and Control of CSOs and SSOs (2004).

violation of a drinking water standard with potential serious adverse effects on human health be made public as soon as practicable, but not later than 24 hours after the violation. Finally, the Act requires public water systems to provide written notice and annual reports to Federal and State agencies, as well as to the public.

Similarly, section 406 of the Clean Water Act authorizes funding for State and local governments to implement coastal recreational water quality monitoring and notification programs. This authority, enacted as part of the Beaches Environmental Assessment and Coastal Health ("BEACH") Act of 2000, requires, as a Federal grant condition, that State and local governments identify measures for the prompt communication of contamination of coastal water quality, as well as measures for the posting of appropriate public notice (e.g., beach signs) that the coastal waters fail to meet water quality standards.

Typically, the presence of waterborne contaminants in drinking water and surface waters utilized for recreation is detected through direct water quality sampling or national reports of waterborne illness outbreaks, coordinated through the Centers for Disease Control and Prevention's National Center for Infectious Diseases. The likelihood for detection of potential waterborne contaminants in drinking water and recreational waters would dramatically increase if local governmental officials and the public were provided with direct notification in the event of a sewer overflow, rather than waiting for the results of local water sampling or epidemiological studies.

Over the past decade, EPA has taken several administrative steps to encourage local governmental agencies, including sewerage agencies, to report sewer overflows to Federal and State agencies and the public.

In April 1994, EPA issued the Combined Sewer Overflow Control Policy – a national framework for control of CSOs through the Clean Water Act's permitting program. This policy requires owners and operators of combined sewer systems to implement minimum technology-based controls ("nine minimum controls") that can reduce the prevalence and impacts of CSOs without significant engineering studies or major construction. These controls include a requirement for the public disclosure of CSOs. The policy does not require any particular methodology for notification, but identifies potential methods, including posting appropriate notices in affected use areas or public places, newspaper, radio, or television news programs, and direct mail contact for affected residents. The requirements of the control policy are limited to CSOs.<sup>9</sup>

For SSOs, there is no Federal requirement for public notification. However, in January 2001, EPA issued a draft SSO rule that would have implemented a program for reporting, public notification, and recordkeeping for sanitary sewer systems and SSOs. This draft rule would have required owners and operators of sanitary sewer systems to develop an overflow emergency plan describing how the owner/operator would immediately notify the public, public health agencies, and other similar entities (e.g., drinking water suppliers and beach monitoring authorities), of overflows that may imminently and substantially endanger human health. In addition, the draft SSO rule would have required owners/operators to provide the appropriate Federal or State agencies with

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<sup>9</sup> In 2001, the Clean Water Act was amended to require that permits for combined sewer systems conform to the Combined Sewer Overflow Control Policy. Section 402(q) of the Clean Water Act requires that each permit issued for a discharge from a municipal combined sewer system conform to the Combined Sewer Overflow Control Policy. This was included as part of the Consolidated Appropriations Act, 2001 (Pub. L. 106-554).

information on the magnitude, duration, and suspected cause of the overflow, as well as actions necessary to avoid future overflows. EPA's draft SSO rule not finalized, but was withdrawn. No additional regulatory proposals for public notification of SSOs have been issued.

#### LEGISLATIVE PROPOSAL

On May 23, 2007, Representative Timothy Bishop introduced H.R. 2452, the Raw Sewage Overflow Community Right-to-Know Act. This legislation amends the Clean Water Act, to provide a uniform, national standard for public notification of both combined sewer overflows and sanitary sewer overflows.

H.R. 2452 requires owners and operators of publicly owned treatment works to provide timely notification to Federal and State agencies, public health officials, and the public of sewer overflows. Specifically, this legislation requires municipalities, as part of their Clean Water permit, to develop and implement methodologies or technologies to alert the treatment works in the event of a sewer overflow, to notify the public in any area where the overflow has the potential to affect public health, to immediately notify public health authorities and other affected entities (including public water systems) of overflows that may imminently and substantially endanger human health, and to provide the appropriate Federal and State agencies with information on the magnitude, duration, and suspected cause of the overflow, as well as actions necessary to avoid future overflows.

Finally, this legislation authorizes funds from the Clean Water State Revolving Fund to be used to monitor, report, and notify the public of combined and sanitary sewer overflows.

EXPECTED WITNESSES

Panel I

**The Honorable Benjamin H. Grumbles**  
Assistant Administrator for Office of Water  
United States Environmental Protection Agency  
Washington, DC

**Dr. Robert Summers**  
Deputy Secretary  
Maryland Department of the Environment  
Baltimore, MD

**Mr. Stuart S. Whitford, R.S.**  
Water Quality Program Manager  
Kitsap County Health District  
Bremerton, WA

Panel II

**Ms. Katherine Baer**  
Director, River Advocacy  
American Rivers  
Washington, DC

**Ms. Erin K. Lipp, Ph.D.**  
Associate Professor  
Department of Environmental Health Science  
University of Georgia  
Athens, GA

**Mr. Kevin L. Shafer**  
Executive Director  
Milwaukee Metropolitan Sewerage District  
Milwaukee, WI