

ENVIRONMENTAL Fact Sheet



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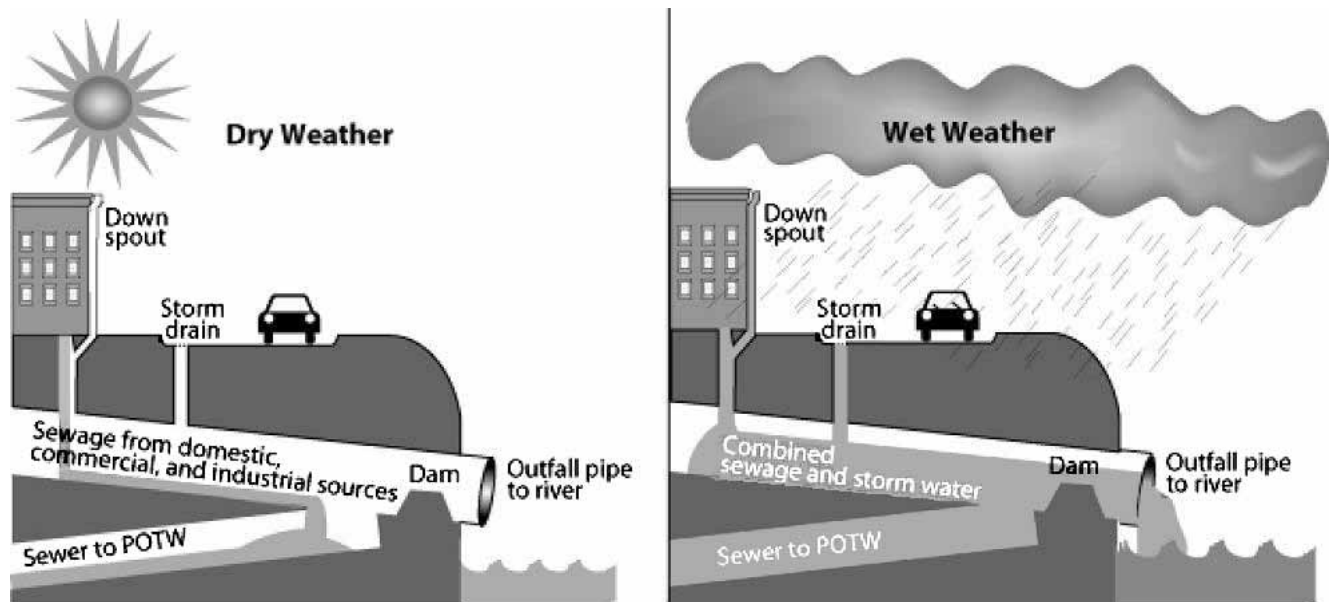
WD-WEB-09

2010

Combined Sewer Overflows

What are Combined Sewers and a Combined Sewer Overflow?

A combined sewer collects municipal wastewater or sewage, as well as storm water runoff, in a single pipe system. Storm water runoff enters the combined sewer system through catch basins, and from downspouts or roof leaders connected to the system. During dry weather and small wet weather events, combined sewers transport all flows to a municipal wastewater treatment facility (WWTF) where it is treated before being discharged to a nearby water body, such as a river or a stream. During heavy rains, the storm water combined with sewage may overwhelm the collection system, causing an overflow into the nearest stream or river. The locations where these discharges occur, as well as the discharge events themselves, are called combined sewer overflows or CSOs. CSOs are located at various locations along combined sewers, and are unique to each system.



Why are CSOs a concern?

CSOs are a potential source of water pollution as they discharge a combination of untreated domestic sewage, industrial wastewater, and storm water. These pollutants may pose a risk to public health, stress the aquatic environment and/or impact water uses such as swimming, fishing or shellfish harvesting for consumption. Typical pollutants present in CSOs include:

- Bacteria from human and animal fecal matter, which could cause illness.
- Oxygen demanding pollutants that may deplete the concentration of dissolved oxygen in the receiving water to levels that may be harmful to aquatic life.
- Suspended solids that may increase turbidity or damage benthic communities.
- Nutrients that may cause eutrophication.
- Toxics that may persist, bioaccumulate, or stress the aquatic environment.
- Floatable litter that may either harm aquatic wildlife or become a health and aesthetic nuisance to swimmers and boaters.

How has New Hampshire addressed the CSO problem?

To address the CSO problem in New Hampshire, the Department of Environmental Services developed a CSO control strategy in 1989. This strategy consists of a two-step process. The first step is to determine the volume and strength of CSO discharges and their impact on the water quality of the receiving waters. Where it is determined that CSOs violate New Hampshire's surface water quality regulations (NH Administrative Rules, Env-Wq 1700), the community must then develop a comprehensive CSO facility plan to determine the most cost-effective solution to abate CSO pollution and achieve compliance with water quality standards as soon as practicable.

How much will it cost New Hampshire communities to abate CSO pollution?

Nationwide, the cost to abate CSO pollution has been estimated to cost tens of billions of dollars and may run into the hundreds of millions of dollars in New Hampshire.

Which New Hampshire communities have CSOs and what are they doing to abate their pollution?

A total of 35 CSOs have been identified in the communities of Portsmouth, Manchester, Nashua, Lebanon, Berlin and Exeter. The following is a brief status report on the efforts underway in each community to control CSOs.

Portsmouth – The city of Portsmouth has three remaining CSOs. CSOs 10a and 10b are located at South Mill Pond, a tidal pond that outlets to the Piscataqua River, and are activated when system flows exceed the capacity of the collection system and the Mechanic Street Pump Station. CSO 13 is located near the Deer Street Pump Station and is activated when flows exceed the capacity of the Deer Street Pump Station. CSO 13 discharges directly to the Piscataqua River. In September 2009, Portsmouth entered into a consent decree with EPA and DES to provide secondary treatment for its collected wastewater and elimination of its remaining CSOs. Among other deliverables, Portsmouth is required to submit by November 2010 its proposed schedule for all facility upgrades and improvements to achieve NPDES permit compliance.

Manchester – There are 15 CSOs remaining in the city of Manchester. Of the 15 remaining CSO outfalls, two discharge to the Piscataquog River, adjacent to Bass Island and immediately upstream of the river's confluence with the Merrimack River; two discharge to the Merrimack River from the west side of the city; and 11 discharge to the Merrimack River from the east side

of the city. In March 1999, EPA issued an administrative order (amended May 2002) to Manchester to eliminate its CSOs. The city spent \$58 million in its Phase I (1999 to 2009) Program, eliminating 13 CSOs, and reducing its overall CSO discharges to the west side of the Merrimack River by 99 percent. In addition, the CSO elimination efforts provided the city with a valuable environmental infrastructure upgrade, including 53 miles of new or rehabilitated drain, sewer and water piping. In November 2009, Manchester submitted its final report for its Phase I (1999 to 2009) CSO Abatement Program, and in March 2010 submitted its revised Long-Term Control Plan for CSO Abatement for its Phase II objectives. Manchester's proposed \$165 million 20-year Phase II CSO Abatement Program is currently under federal and state review. The proposed Phase II program is designed to substantially reduce CSO discharges on the city's east side through system optimization, WWTP improvements, brook removal and sewer separation. In addition, it will address aging and failing infrastructure, which continues to result in extensive sewer backups and flooding problems. For more information on Manchester's CSO program, please see the city's website at www.manchesternh.gov/epd.

Nashua – The city of Nashua has nine remaining CSOs, five of the CSOs discharge to the Nashua River (CSOs 006-009 and 012) and four of the CSOs discharge to the Merrimack River (CSOs 002-005). Nashua is undergoing a wet weather pollution control program in lieu of a complete separation program. In December 2005, Nashua entered into a consent decree with EPA and DES to reduce its CSO discharges, and included milestones for the design and construction of wet weather storage facilities for CSO 003 and CSO 004; and the design and construction of screening and disinfection facilities for CSO 005 and CSO 006. In 2009, Nashua completed the construction of its high-rate wet weather flow treatment facility (WWFTF). In dry weather, the Nashua WWTF provides full secondary treatment for approximately 13 mgd, and can handle up to 38 mgd additional flow through its primary process during wet weather events. The WWFTF is able to handle an additional 60 mgd. Approximately 25 percent of Nashua's 300 miles of collection system is combined, or 75 miles, meaning one pipe is utilized to collect both sanitary sewage and storm water runoff. In December 2006, EPA issued Nashua a 308 Request to obtain information on Nashua's collection system including information on dry weather overflows at CSO and non-authorized discharge locations, wet weather overflows at non-authorized discharge locations, building/private property back-up incidents, and schedules for collection system improvements as identified in previous engineering reports such as infiltration/inflow studies and sanitary sewer evaluation survey reports. For more information on Nashua's CSO Program and a map of CSO locations go to:

www.gonashua.com/CityGovernment/Departments/PublicWorks/EngineeringDepartment/tabid/514/Default.aspx.

Lebanon – The city of Lebanon has six remaining CSOs, five of which discharge to the Mascoma River, and one that discharges to the Connecticut River. In the spring of 1996, EPA issued an administrative order to the city to complete a CSO facility plan, the purpose of which was to identify the least cost alternative to abate CSOs to meet water quality standards. EPA reviewed and approved the CSO Facility Plan and issued an administrative order in June 2000 requiring the city to eliminate their then seven remaining CSO outfalls by December 31, 2012. In 2007, the city requested that the date to eliminate its CSOs be extended to December 31, 2020. In August 2009, Lebanon entered into a consent decree with EPA and DES. Under the terms of the decree, the city is to eliminate its six remaining CSOs by December 31, 2020. This is to be accomplished by completing specific sewer separation projects in several phases with each phase to be completed by November 1, 2011 (CSOs #22 and #10 eliminated), 2015 (CSO #24 eliminated), 2018 (CSOs #23 and ZZ eliminated), and 2020 (CSO #26 eliminated). Note: CSO

ZZ is a manhole in vicinity of Mechanic Street, where the interceptor sewer crosses the Mascoma River, which overflows during storm events. Also under the terms of the decree, the city will complete an assessment of its wastewater collection system's capacity, management, operation and maintenance practices to identify sources of infiltration/inflow and elimination of sanitary sewer overflows. For more information on Lebanon's CSO Program go to www.engineering.lebnh.net.

Berlin – The city of Berlin has one remaining CSO located at the Watson Street Pump Station, the main station that pumps wastewater across the Androscoggin River to the treatment facility. Although it is technically a CSO, it functions as an emergency relief. That is, whenever storm flows exceed the capacity of the pumps, the excess wastewater/storm water overflows to the Androscoggin River to prevent flooding of the pump station. The city completed an extensive sewer separation project in the early 1990s to separate their combined sewers. More recently, in April 2007 EPA issued a 308 Request for information on the city's collection system, WWTF, LTCP Update for Phase II CSO abatement, dry weather overflows, wet weather overflows and property back-ups.

Exeter – The town of Exeter has eliminated all of its CSOs, except one, through a separation program. The remaining CSO overflows during storm events to Clemson Pond, which outlets to the Squamscott River. In September 2010, EPA issued an administrative order to Exeter. Under the terms of the order, the town is to develop a long-term CSO abatement program to include a plan and schedule for addressing all remaining CSO outfall discharges to result in full NPDES permit compliance. The town is to assess its wastewater collection system's CMOM practices to identify sources of infiltration/inflow and elimination of sanitary sewer overflows, including preparing a CMOM corrective action plan.

Where to obtain more information?

For more information, contact Tracy Wood of the DES Wastewater Engineering Bureau at (603) 271-1497 or tracy.wood@des.nh.gov .

EPA's National Pollutant Discharge Elimination System Combined Sewer Overflow Program website can be found at www.epa.gov/npdes/; the EPA New England address is http://cfpub.epa.gov/npdes/home.cfm?program_id=5.