



2. REGULATORY BACKGROUND

2.1 General

CSOs are point source discharges to waters of the United States and are therefore subject to regulation under the Clean Water Act:

- Section 301(a) prohibits the discharge of pollutants not in compliance with the Act;
- Section 301(b) requires compliance with both technology-based and water quality-based effluent limitations;
- Section 402(a) allows the issuance of National Pollutant Discharge Elimination System (NPDES) permits that allow pollutant discharges that meet the requirements of the Act; and,
- Section 402(b) allows the States to administer the NPDES permit program.

Implementation of the NPDES permit program is regulated under Title 40, Chapter I, Subchapter D of the Code of Federal Regulations.

The U.S. Environmental Protection Agency (EPA) has delegated responsibility for clean water programs to the State of Missouri. Missouri's Clean Water Law and its implementing regulations contain language similar to the Clean Water Act relative to point source discharges to waters of the State.

2.2 CSO Control Strategy

On August 10, 1989, EPA issued its National Combined Sewer Overflow (CSO) Control Strategy (54 Federal Register 37370) with three objectives:

- To ensure that if CSOs occur, they are only as a result of wet weather;
- To bring all wet weather CSO discharge points into compliance with the technology-based and water quality-based requirements of the Clean Water Act (CWA); and
- To minimize the impact of CSOs on water quality, aquatic biota, and human health.

The National CSO Control Strategy also charged the States with developing statewide permitting strategies designed to reduce, eliminate, or control CSOs. Missouri's CSO Strategy, which mirrored the federal strategy, was approved by EPA on July 13, 1990. On July 24, 1991, the Missouri Department of Natural Resources (MDNR) notified MSD that MSD would need to develop a plan to meet the objectives of the State's CSO Strategy. In response, MSD initiated CSO management planning projects in its two service areas containing combined sewers in 1991 and 1992.

2.3 CSO Control Policy

EPA began developing its CSO Control Policy in mid-1991 to elaborate on the CSO Control Strategy and to expedite compliance with the Clean Water Act. The final policy (59 Federal Register 18688) was signed by the U.S. EPA Administrator on April 11, 1994. The Clean Water Act was amended in 2000 to require that all NPDES permits issued after December 21, 2000 conform to the CSO Control Policy [33 U.S.C. §1342(q)(1)].

The CSO Control Policy represents a comprehensive national strategy to ensure that municipalities, permitting authorities, water quality standards authorities and the public engage in a comprehensive and coordinated planning effort to achieve cost effective CSO controls that ultimately meet appropriate health and environmental objectives. The Policy recognizes the site-specific nature of CSOs and their impacts and provides the necessary flexibility to tailor controls to local situations, including the development of phased long-term control plans. Major elements of the Policy ensure that communities



are provided with sufficient flexibility to establish cost-effective CSO controls that meet the objectives and requirements of the CWA.

The CSO Control Policy requires permittees to characterize their combined sewer systems and discharges, implement the nine minimum controls, and develop long-term CSO control plans to meet the technology-based and water quality-based requirements of the Clean Water Act.

2.4 Technology-Based Requirements

The technology-based requirements for CSOs have been a matter of significant dispute during the development of MSD's Long-Term Control Plan.

2.4.1 Federal Interpretation

From the Federal perspective, the minimum technology-based requirements for CSOs are the nine minimum controls (see Table 2-1), as determined by the NPDES authority on a site-specific basis using best professional judgment. The establishment of site-specific controls must take into consideration the reasonableness of the relationship between the costs of attaining a reduction in the effluent and the effluent reduction benefits derived, the age of the equipment and facilities involved, the process employed, the engineering aspects of the various types of control techniques, process changes, and non-water quality environmental impact (including energy requirements). MSD implemented the nine minimum controls with appropriate documentation before January 1, 1997, and submits annual update reports to MDNR.

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

Table 2-1 The Nine Minimum Controls for CSOs

2.4.2 State Interpretation

State effluent regulations presently exist that MDNR interprets as technology-based limits applicable to CSO outfalls. For receiving waters in St. Louis, paragraphs (2)(B)3.E and (8)(B)3.E of 10 CSR 20 7.015 establish weekly average effluent limits of 45 mg/l five-day biochemical oxygen demand (BOD₅) and 45 mg/l non-filterable residue (NFR), and pH limits of 6 to 9, for discharges from "POTW wastewater treatment facilities providing at least primary treatment during a precipitation event and discharging on a non-continuous basis." A higher NFR limit may be allowed for CSO treatment devices if organic solids are demonstrated to be an insignificant fraction of total inorganic storm-generated solids and the permittee can demonstrate that achieving the 45 mg/l limit is not cost-effective. During the mid-1990s, MDNR came to interpret these regulations as requiring either secondary treatment for all CSOs or their elimination by sewer separation.

2.4.3 MSD Response

MSD developed and submitted its original Long-Term Control Plan in June 1999. That plan was based on the federal CSO Control Policy and supporting EPA guidance documents. The 1999 plan was



ultimately not approved by MDNR as it did not provide for meeting secondary treatment requirements at all CSO outfalls in accordance with the State's technology-based requirements, as described above.

For the purposes of this 2009 update to MSD's original 1999 Long-Term Control Plan, MSD has assumed that the applicable technology-based requirements for CSOs are the Nine Minimum Controls as defined in the CSO Control Policy, and that Missouri's Effluent Regulations will ultimately be modified such that they are in alignment with the Clean Water Act requirements for CSOs.

2.5 Water Quality-Based Requirements

Discharges that remain after the implementation of CSO controls must not interfere with the attainment of water quality standards. Applicable water quality standards for the receiving streams in MSD's combined sewer area are defined in Missouri's Code of State Regulations, at 10 CSR 20 7.031. These water quality standards consist of designated beneficial uses, general or "narrative" requirements, specific or "numeric" water quality criteria for various parameters and pollutants, and anti-degradation requirements. The applicable water quality standards are described further in Section 3.3 of this report.

In 2001, EPA issued guidance¹ to address questions on how the development of long-term control plans should be integrated with water quality standards review. This guidance clarified that water quality standards could be changed, as appropriate, to ensure that communities could implement cost-effective CSO controls that would meet Clean Water Act requirements.

2.6 NPDES Permits (Missouri State Operating Permits)

MSD's CSO outfalls are permitted under two Missouri State Operating Permits:

- MO-0025178 for the Bissell Point Wastewater Treatment Plant, and
- MO-0025151 for the Lemay Wastewater Treatment Plant

Each permit authorizes MSD to discharge from the CSO outfalls listed in that permit. Since April 30, 1993, MSD's operating permits have contained requirements relative to CSOs:

Permit Date	CSO Requirement	Submitted by MSD	Approved by MDNR
April 30, 1993	Submission of CSO management plan in accordance with the Missouri CSO Strategy by June 30, 1993, followed by implementation of the plan	June 30, 1993	November 9, 1993
November 8, 1996	Immediate implementation of the nine minimum controls	N/A	April 17, 1997
November 8, 1996	Submit documentation demonstrating compliance with the nine minimum controls by January 1, 1997	December 23, 1996	April 17, 1997
November 8, 1996	Completion of CSO Characterization, Monitoring and Modeling Program by January 1, 1997	December 23, 1996	April 17, 1997
November 8, 1996	Submission of CSO Control Plan by June 30, 1999	June 30, 1999	Not Approved

¹ *Guidance: Coordinating CSO Long-Term Planning with Water Quality Standards Reviews*, EPA-833-R-01-002, July 31, 2001.



2.7 Phased Long-Term Control Plan

As noted previously, the June 1999 Long-Term Control Plan submitted by MSD was determined to be “not approvable” by MDNR in February 2002, as it did not provide for all CSO discharges to meet secondary treatment requirements in accordance with MDNR’s interpretation of its effluent regulations. Following this disapproval, MSD and MDNR negotiated an agreement whereby MSD would prepare a CSO control plan in several phases, each of approximately a 5-year duration. MSD submitted a scope of work for preparing the phased plan on April 29, 2003. This scope of work, approved by MDNR on June 2, 2003, included an initial phase focusing on sewer separation, in lieu of secondary treatment, for up to 53 CSOs located primarily along urban streams. The initial phase of this plan was submitted to MDNR on June 23, 2004 and approved by MDNR on September 29, 2004. MSD immediately began implementing this plan.

2.8 EPA Section 308 Request for Information and Subsequent Litigation

During the same time that the “phased plan” was being developed, MSD began meeting with EPA as part of that agency’s efforts to place all CSO communities under enforceable mechanisms (e.g., consent decrees). While the “phased plan” was still being reviewed by MDNR in 2004, MSD received a Section 308 Request for Information from EPA. This request directed MSD to update its 1999 Long-Term Control Plan in accordance with the federal CSO Control Policy. It also established various interim submittals that were to be made. These submittals have been made according to the schedule submitted by MSD in response to the Section 308 request and approved extensions.

MSD was therefore simultaneously preparing two different CSO control plans:

- For MDNR, MSD was preparing a “phased plan” consistent with Missouri’s interpretation of CSO technology-based requirements. This plan’s initial phase required separation of portions of the combined sewer system regardless of cost-performance considerations.
- For EPA, MSD was preparing a Long-Term Control Plan consistent with the federal CSO Control Policy, which does not mandate combined sewer separation. The CSO Control Policy instead strives to ensure that CSO controls are cost-effective and meet the requirements of the Clean Water Act.

MSD’s State Operating Permits, when they were revised on January 27, 2006, included a requirement for MSD to update its Long-Term Control Plan by August 17, 2006. An update to the “phased plan” then being implemented for the State was prepared and submitted to MDNR on August 16, 2006. This plan was rejected by EPA; no formal approval or rejection of the plan was made by MDNR. On June 11, 2007, the United States filed a complaint in U.S. District Court alleging, among other things, that MSD had failed to submit a Long-Term Control Plan in accordance with its operating permits and the Section 308 Request, and praying for injunctive relief and civil penalties. The State of Missouri joined the suit as a plaintiff. As of the publication date of this Long-Term Control Plan, the parties were attempting to resolve the issues through mediation.