# Chapter 6: Regulations and Permits

## 6.1 Introduction

This chapter summarizes federal and state regulations and permit conditions that pertain to operation of the Milwaukee Metropolitan Sewerage District (MMSD) wastewater conveyance system. Because MMSD collects and treats wastewater from both sanitary and combined sewer systems, the applicable regulations for each type of system are addressed.

## 6.2 Sanitary Sewer Overflow Regulations

There is little definitive federal guidance on sanitary sewer overflows (SSOs) beyond the Clean Water Act (CWA), which prohibits the discharge of any pollutants to surface waters unless authorized by a permit issued by either the U.S. Environmental Protection Agency (USEPA) or by an approved state permitting program. The MMSD operates under a Wisconsin Pollutant Discharge Elimination System (WPDES) permit issued by the Wisconsin Department of Natural Resources (WDNR), which prohibits SSOs, subject to certain exceptions. These exceptions mirror language required under applicable federal regulations to be in the permit.(1) In general, the exceptions to the SSO prohibition apply when SSOs occur that are beyond the control of the permittee. The exceptions, as stated in the current MMSD permit, are:

> Any unscheduled bypass or overflow of wastewater at the treatment works or from the collection system is prohibited,…unless: (a) The bypass was unavoidable to prevent loss of life, personal injury, or severe property damage; or (b) There were no feasible alternatives to the bypass, such as the use of auxiliary treatment facilities, retention of untreated wastes, or maintenance during normal periods of equipment downtime. This condition is not satisfied if adequate back-up equipment should have been installed in the exercise of reasonable engineering judgment to prevent a bypass which occurred during normal periods of equipment downtime or preventive maintenance… (2)

For bypasses resulting from excessive wet weather flows, the determination of what are "feasible alternatives to the bypass" is usually made during the facilities planning process. State law prohibits MMSD or any publicly owned treatment works (POTW) owner from constructing any significant new infrastructure without WDNR approval.(3) The WDNR regulations require completion of a facility plan before WDNR approval of a system expansion.(4) These regulations require that facility plans be cost-effective and that sewerage facilities be designed to carry the "peak design flow," which is defined as the "largest anticipated infrequent wastewater discharge to a sewage treatment facility."(5,6) Neither federal nor Wisconsin regulations specify the exact method by which the peak design flow is estimated. The peak design flow is often defined for a specified "level of protection." The level of protection for wastewater treatment facilities is typically defined in terms of a recurrence interval for a design rainfall event or a wastewater flow event recurrence interval.

In the absence of definitive federal or state criteria for sizing sanitary sewer systems to accommodate peak wet weather flows, and taking into account past approvals by the WDNR under the current WDNR facility planning rules in Wis. Admin Code NR 110, Wis., the 2020

facilities planning approach for sizing sanitary sewer system facilities is to evaluate wastewater facility needs to meet five- and 10-year levels of protection against SSOs from MMSD facilities. The level of protection that will actually be used for sizing facilities will be determined through the alternatives evaluation process. The determination will be made in the course of comparing the alternatives and will be based on water quality impacts, costs, public goals and objectives, and other evaluation factors.

Please note that additional discussion on this topic can be found in the *Facilities Plan Report*, Chapter 9, Sections 9.6.3, and 9.6.5 through 9.6.9.

## 6.3 Combined Sewer Overflow Statute and Regulations

The USEPA's Combined Sewer Overflow (CSO) Control Policy (7) is intended to provide a consistent approach to controlling CSOs through the NPDES permitting program. This USEPA Policy became a statutory requirement when it was incorporated into the federal CWA by the Wet Weather Water Quality Act of 2000, which amended Section 402 of the Act (33 U.S.C. sec. 1342) to require that all discharge permits conform with the policy, thus requiring the development and implementation of long-term control plans so that municipalities will come into compliance with CWA requirements. The CSO Control Policy is composed of four key principles that were implemented to meet the objectives of the CWA. These key principles are the following:

- Clear levels of control to meet health and environmental objectives
- Flexibility to consider the site-specific nature of CSOs and find the most cost-effective way to control them
- Phased implementation of CSO controls to accommodate a community's financial capability
- Review and revision of water quality standards during the development of CSO control plans to reflect the site-specific wet weather impacts of CSOs

There are two other major components of the CSO Control Policy. The first is the implementation of minimum technology-based controls. These controls are referred to as the "nine minimum controls"(8) and are defined as "measures that can reduce the prevalence and impacts of CSOs and are not expected to require significant engineering studies or major construction."(9)

The nine minimum controls are the following:

- Proper operation and regular maintenance programs for the sewer system and the CSOs
- Maximum use of the collection system for storage
- Review and modification of pretreatment requirements to assure CSO impacts are minimized
- Maximization of flow to the publicly owned treatment works for treatment
- Prohibition of CSOs during dry weather
- Control of solid and floatable materials in CSOs

- Pollution prevention
- Public notification to ensure that the public receives adequate notification of CSO occurrences and CSO impacts
- Monitoring to effectively characterize CSO impacts and the efficacy of CSO controls

The CSO control measures already implemented by MMSD during the 1980s as part of the Milwaukee Water Pollution Abatement Program (MWPAP) essentially meet the nine minimum controls. This is documented in a report entitled *Documentation of the Implementation of the Nine Minimum Combined Sewer Overflow Controls*, which was submitted to the WDNR in September 2004, in accord with the requirements of the current MMSD discharge permit.

The other major component of the CSO Control Policy is the development of long-term CSO control plans (LTCP), which are to include the following elements:

- Characterization, monitoring, and modeling of the combined sewer system
- Public participation
- Consideration of sensitive areas
- Evaluation of alternatives to meet CWA requirements using either the "presumption approach" or the "demonstration approach"
- Cost/performance considerations
- An operational plan
- Maximizing treatment at the existing POTW treatment plant
- An implementation schedule
- A post-construction compliance monitoring program

All communities with combined sewer systems are expected to develop and implement LTCPs that will eventually afford full compliance with the CWA. As a result of the construction of the inline storage system (ISS) under the MWPAP, MMSD has met the required LTCP control level under the presumptive approach described in the USEPA CSO Control Policy. However, CSO long–term control planning was integrated into the 2020 facilities planning process and the results are documented in a separate report entitled *Combined Sewer Overflows - Long-Term Control Plan*.(10)

## 6.4 Current Permit Requirements

The MMSD 2003 WPDES permit lists the requirements to which MMSD must adhere in order to remain in compliance with WDNR and USEPA regulations.(11) Sections 3 and 4 of the permit focus on CSO and SSO requirements. Section 6 addresses operating requirements for the ISS. In addition, there are certain elements of Section 8 – *Schedules of Compliance*, that address CSO and SSO requirements. Specifically, the *CSO Long-Term Control Plan* noted above was prepared in accord with the requirements of Section 3 and the compliance schedule listed in Section 8.

### 6.4.1 Combined Sewer Overflow Requirements

The MMSD may not discharge from CSO points during dry weather and must provide records to verify that no discharges are occurring from outfalls where the gate to the corresponding dropshaft is open, unless the capacity of the near surface collector associated with the dropshaft has been exceeded.

Wet weather CSO discharges are not permitted except to prevent the ISS capacity from being exceeded or to relieve the associated near surface collector sewers when their capacities have been exceeded.

The ISS must be operated and maintained to meet *either* of the following two performance standards relative to CSOs:

1) No more than six combined sewer overflow discharge events per year; **or**
2) The capture and delivery of no less than 85% by volume, of the combined sewage collected in the combined sewer system resulting from precipitation events on a system-wide annual average basis to either Jones Island or South Shore Wastewater Treatment Plants.

The MMSD must notify, by telephone, the WDNR's Southeast Regional Office of a CSO occurrence and its anticipated duration within 24 hours of initiating discharge from listed CSO outfalls. A written report including the following information must be submitted to the Southeast Regional Office within five days of initiating discharge from listed CSO outfalls:

- Estimated duration
- Estimated volume
- Reason for discharge
- Operational actions taken to maximize capture and treatment
- Measures being taken to prevent another discharge

A quarterly report must be submitted detailing all discharges that took place that quarter, including the results of analytical testing required for wastewater sampling at dropshaft junction chambers. Details pertaining to information that must be included in the report, as well as an inventory of all CSO outfall locations, can be found in Section 3.2.7 of the WPDES permit. Technology-based requirements for CSOs are also listed in Section 3.2.6 of the MMSD WPDES permit; these requirements are identical to the nine minimum controls set out in USEPA's National CSO Control Policy.

### 6.4.2 Sanitary Sewer Overflow Requirements

MMSD must notify the WDNR's Southeast Regional Office by telephone of an SSO occurrence within 24 hours of initiation of the overflow. A written report including the following information must be submitted to the Southeast Regional Office within five days of the conclusion of the overflow occurrence:

- Reason the overflow occurred. If overflow is associated with wet weather, data on the amount and duration of the rainfall or snow melt is to be provided.
- Date of overflow

- Location of overflow
- Duration of overflow and estimated volume
- Steps taken or proposed corrective action to prevent similar future occurrences
- Other information the permittee believes is relevant

In addition to the 24-hour telephone notice and five-day reporting requirements for SSOs, MMSD is required to provide a quarterly bypass report for all SSO points in the system, which are listed in Section 4 of the permit. Quarterly reports must be filed within 45 days from the calendar quarter end and must describe the bypass events for that quarter, including all sanitary sewer overflows and bypasses, and the listed SSO discharge points. All discharges reported for each quarter must be accompanied by a description including the following information:

- Approximate duration
- Estimated volume per incident
- The reason for the discharge

The permit prohibits bypasses and overflows of wastewater from sanitary (separate) sewer systems, except under certain circumstances as described in Sections 9.2.6 and 9.2.7 of the permit. Grab samples from three of the listed SSO locations must be taken during a wet weather event in the years 2003, 2004, and 2005. Each sample must be analyzed for biochemical oxygen demand (BOD), total suspended solids (TSS), total phosphorus, fecal coliform, and E. coli; results are to be submitted with the quarterly report.

### 6.4.3 Inline Storage System Operating Requirements

The permit includes the following requirements with respect to operation of the ISS:

> The ISS is to be operated in a manner such that it is not filled above the crown of the ISS main tunnel at its upstream terminus, which is at an elevation of -177.17 feet, MMSD Datum. If the ISS is filled above this elevation, MMSD must notify the WDNR's Southeast Regional Office within 24 hours and provide written notification of such occurrences to the WDNR within 72 hours.
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> The ISS is to be operated in a manner that ensures a net positive head, which may be demonstrated by maintaining a net positive head in adjacent wells or piezometers. A well or piezometer is defined to have a net positive head if the hydraulic head in the well or piezometer is greater than the hydraulic head of the ISS. Operation of the ISS in a manner other than as described above is prohibited except in the following cases:
>
> 1) When equipment damage or temporary power interruption does not allow the operational requirements to be met
> 2) When the ISS is not being used to store or transport wastewater

Section 6.3 of the permit also contains detailed requirements for monitoring groundwater in permanent monitoring wells along the ISS alignment and reporting of the monitoring results.

## References


(1) Code of Federal Regulations, Title 40, sec. 122.41(m) (4)

(2) Wisconsin Pollutant Discharge Elimination System Permit No. WI-0036820-1, sec. 9.2.6, p. 70, State of Wisconsin, Department of Natural Resources

(3) Wisconsin Statute sec. 281.41

(4) Wisconsin Administrative Code Natural Resources (NR) 110.08-110.13

(5) Wisconsin Administrative Code Natural Resources (NR) 110.08 (6) (requiring selection of most cost-effective alternative)

(6) Wisconsin Administrative Code Natural Resources (NR) 110.13(1) (c), NR 110.03 (24) (peak design flow requirement)

(7) U.S. Environmental Protection Agency, *Combined Sewer Overflow (CSO) Control Policy,* 59 FR 18688 (April 19, 1994)

(8) U.S. Environmental Protection Agency, *Combined Sewer Overflows, Guidance for Nine Minimum Controls*, EPA 832-B-95-003 (May 1995)

(9) Ibid.

(10) Milwaukee Metropolitan Sewerage District, *Combined Sewer Overflows– Long–Term Control Plan,* DRAFT version (March 2006)

(11) Wisconsin Pollutant Discharge Elimination System Permit No. WI-0036820-02-0, State of Wisconsin, Department of Natural Resources, (January 1, 2003)