



Capacity, Management, Operation and Maintenance (CMOM) Program Annual Report for 2010

Milwaukee Metropolitan
Sewerage District

June 2011

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SECTION 1: PROGRAM OVERVIEW

The Milwaukee Metropolitan Sewerage District (District) developed and submitted to the Wisconsin Department of Natural Resources (WDNR) documentation of its Capacity, Management, Operation and Maintenance (CMOM) Program in June 2007. To oversee and assist with efforts related to the CMOM Program development and implementation, a CMOM Program Committee consisting of District Staff from the Technical Services, Legal Services, and Water Quality Protection Divisions was created. This committee now also includes staff from the Planning, Research and Sustainability Division, which was split from the Technical Services Division in 2009. Changes to the Program are made through consensus of the committee. The CMOM Committee also provides oversight on the preparation of the CMOM Program Annual Reports.

The District determined that it would implement its CMOM Program for its three main areas of operations: wastewater conveyance, treatment and watercourse systems. Further, the District viewed the CMOM Program implementation as an opportunity to (1) audit its practices and documentation, (2) bring the documentation under one umbrella to ensure consistent practices, and (3) improve its management of capital assets.

The CMOM Program is used as a method for the District to document current and proposed activities that are intended to help the District achieve goals related to overflows, effluent quality, and watercourse flooding. In addition, through the annual reporting and auditing effort, it is a way to periodically assess its practices and make systematic improvements. As part of this effort, the District has completed this fourth review of the Program in conjunction with evaluating the performance measures defined in the Program. The details of the Program changes resulting from the review are described further in the appropriate section below.

1.1 REPORT PURPOSE

The CMOM Program Annual Report provides summary descriptions of CMOM Program activities (past and planned) and is intended to be a communication tool. The report is intended for District staff, regulatory authorities, customers, and the general public. The report serves four general purposes:

1. To provide an overview of the activities completed under the CMOM Program on an annual basis;
2. To describe and document changes to the CMOM Program documentation on an annual basis, which may include changes to objectives, strategies, tactics, and performance measures;
3. To describe the activities that are planned or currently being undertaken under the CMOM Program; and
4. To continue compliance with the 2002 Stipulation Agreement between the District and the State of Wisconsin, which requires that “On a regular basis the District shall report to the Department on the implementation and performance of the CMOM program.”

The report consists of this Program Overview section plus one section for each of the CMOM Program Plans which are summarized below.

1.2 PROGRAM SUMMARY BY PLAN

The District's CMOM Program includes a Management Plan, Asset Management Plan (AMP), Overflow Response Plan (ORP), System Evaluation and Capacity Assurance Plan (SECAP), Communication Plan and Audit Plan. A general description of each of these plans is included immediately below. Significant activities that took place in 2010 under each of these plans are discussed below in Section 1.3. Additional details are discussed in the individual chapters devoted to each plan. Performance measures are included in the CMOM Program under the Management Plan, but are discussed separately below.

Management Plan

The Management Plan describes the goals and objectives of the District related to conveyance, treatment plant and watercourse systems, the strategies and tactics the District is employing to achieve the goals, and the performance measures being used to assess attainment of the goals.

The goals of the CMOM Program for the District are divided into four areas: 1) Overall; 2) Conveyance; 3) Treatment; and 4) Watercourse

The goal and objectives for each of the four areas are listed below.

Overall Goal

By June 2007, MMSD will develop and implement a cost-effective CMOM Program based upon best practices for wastewater conveyance, wastewater treatment and watercourse management, which results in maximizing the capacity of the existing and planned facilities to convey and treat wastewater, providing flood management, and improving water quality in the MMSD service area. The program must be consistent with goals from other MMSD policies and facilities plans.

Overall Objectives

1. Enable implementation of the CMOM Program within the District organizational structure
2. Communicate the goals and objectives of the CMOM Program to internal and external stakeholders, monitor the CMOM Program implementation, and institute program modifications
3. Continue to maintain adequate financial planning
4. Continue to comply with regulatory requirements
5. Establish a regional CMOM program
6. Continue to maintain a safe work environment and sustain a competent workforce

Conveyance Goal

By June 30, 2007, MMSD will implement a CMOM Program with the intent of eliminating all SSOs except those caused by circumstances as defined by Title 40 of the Code of Federal Regulations (CFR) §122.41 (m) (4), and minimizing CSOs in accordance with the current discharge permit.

Conveyance Objectives

1. Establish CMOM program elements specific to minimizing the number and volume of CSOs
2. Address peak wet weather flows from satellite systems that impact the District's system
3. Where possible, establish additional practices to prevent SSOs, maintain or improve system performance, and avoid preventable failures
4. Continue to establish and document level of protection, design, and performance standards for new conveyance assets constructed in the District service area
5. Minimize the cost of conveyance asset ownership while maintaining necessary stewardship of assets and achieving defined protection levels
6. Enhance District level of knowledge and understanding of wet weather flows and system response to precipitation and other factors
7. Provide information receipt, response activity, and feedback regarding customer inquiries

Treatment Goal

By 2007, the MMSD will implement a CMOM Program for cost-effective wastewater treatment that will achieve and sustain:

- Effluent, biosolids, and air emissions quality meeting or better than regulatory and permit requirements
- Sustain operational readiness, reliability, and redundancy for liquid and solids processing
- Achieve asset management implementation
- Improve coordination of wastewater treatment plant operations with collection system facilities and staff
- Improve proper work management related to maintenance

Treatment Objectives

1. Continue to provide effluent quality that meets or exceeds WPDES permit requirements and effluent quality goals
2. Continue to optimize effectiveness of wet weather treatment capacity
3. Continue to manage bio-solids in a manner that maximizes beneficial reuse
4. Continue to document level of protection, design and performance standards for new treatment plant assets
5. Minimize the cost of wastewater treatment asset ownership while maintaining necessary stewardship of assets and achieving defined protection levels

Watercourse Goal

MMSD will implement a CMOM Program intended to minimize the risk of flooding associated with the one percent probability flood event to habitable structures along jurisdictional streams in an environmentally responsible and cost-effective manner, through updating and implementing its Watercourse Management Plan.

Watercourse Objectives

1. Within jurisdictional streams, cost-effectively remove or reduce the consequences to habitable structures from flooding associated with the District's one-percent probability flood event
2. Reduce the likelihood of new habitable structures being added to the District's one-percent probability floodplain
3. Establish and document level of protection, design, and performance standards for new assets in the watercourse system
4. Minimize the cost of watercourse asset ownership while maintaining necessary stewardship of assets and achieving defined protection levels
5. Continue to be a leader in the effort to improve the area's water quality
6. Provide information receipt, response activity, and feedback regarding customer inquiries on the watercourse systems

Performance Measures

A complete list of the performance measures and the value/status for 2007 through 2010 is included in Attachment 1. The purpose of the performance measures is to track District activities over time and gauge achievement of District objectives.

Some of the performance measures have been selected as key performance measures to be used to quickly gauge the overall performance of the District in the areas of Organization, System Performance, Satellite Municipalities, and Customer Service. These key performance measures are shown below in Table 1.

Asset Management Plan

The Asset Management Plan describes the objectives, strategies, and tactics specifically related to asset management in more detail than is described in the Management Plan. These objectives are related to asset information, asset maintenance, asset rehabilitation and replacement, levels of service, and cost minimization.

The District has a 10-year agreement (Agreement) with Veolia Water Milwaukee (Veolia) for the operation and maintenance of the conveyance and treatment facilities that went into effect on March 1, 2008 and expires on February 28, 2018. Because of their responsibilities outlined in the Agreement, many of the District's asset management objectives related to these facilities were and are being met by Veolia.

Overflow Response Plan

The Overflow Response Plan describes the measures the District has put in place to be aware of, respond to, and provide notification of, overflows from the District system.

Veolia has the equipment and personnel, and is required by the District (through the Agreement for operation and maintenance services), to be the first responder for emergencies and overflows from the conveyance system. As the Agreement was developed during 2007, language was included that requires Veolia to have emergency, sanitary sewer overflow (SSO), and combined sewer overflow (CSO) response plans in place. In 2008, Veolia submitted their overflow and emergency response plans to the District and has been updating these plans annually.

Veolia is not responsible for responding to watercourse issues beyond the stormwater pumping station. In 2009, the District completed a watercourse emergency response

plan, which is put into place when there is the threat of severe rain, flooding, or issuance of a flood watch by the National Weather Service.

System Evaluation and Capacity Assurance Plan (SECAP)

The SECAP describes the actions that the District has taken and will take to determine capacity requirements, evaluate system capacity, and undertake capacity enhancement measures.

The District completed and submitted the 2020 Facilities Plan (2020 FP) to the WDNR in June of 2007. The 2020 FP was a broad-scope effort and looked not only at the facilities required for the District to provide services, but also at methods of improving the quality of the region's water resources. As part of the 2020 FP development process, an analysis of the capacity requirements and available storage and capacity was performed to determine additional facilities needed through the year 2020. The 2020 FP recommended additional treatment and conveyance facilities that may be needed, depending on several factors, including population growth, additional monitoring and analysis, success of I/I reduction efforts, etc. The District continues to perform individual capacity analyses and studies in the conveyance and treatment system as described in Chapter 5.

The District also has previously completed Watercourse System Plans that outlined the efforts needed to provide flood flow conveyance and protect habitable structures from flood flows.

Communication Plan

The Communication Plan serves to document the types and frequency of communications that will be prepared and distributed regarding the implementation of the CMOM Program.

Audit Plan

The Audit Plan serves to define the method, responsibilities, timeline, and documentation that will be used to complete an audit of the District CMOM Program.

Table 1: Key Performance Measures

Performance Measure	2010 Value/Status	Evaluation
Organization		
1 <i>Organizational Best Practices Index</i> ¹	27	District is better than 75 th percentile in benchmark survey (25.5) ²
2 <i>Bond Ratings</i>	AAA (Fitch), Aaa (Moody's), AA+ (S&P)	Fitch and Moody's are at top grade, S&P is one step below top grade
3 <i>Employee Health and Safety Severity Rate</i> ³	8.1	Increase from 2009 value of 5.7
System Performance		
4 <i>Volume of wet weather SSOs where the event-generated flow is less than the WDNR approved Level of Protection</i>	0.61 MG ⁴	8-21-10 overflow at Richards & Congress is listed as an SSO in permit but discharged combined sewer overflow
5 <i>Percent of time effluent is in compliance with WPDES permit limits</i>	100%	
6 <i>Conveyance System Integrity</i> ⁵	0	No pipe or equipment failures causing a loss of capacity
7 <i>Annual number of habitable structures removed from the District's one-percent probability floodplain</i>	1	
8 <i>Number of building backups caused by the loss of capacity or function of a District facility</i>	Undetermined ⁶	
Satellite municipalities		
9 <i>Satellite CMOM & WWPFPMP development</i>		
2010 <i>Review of annual satellite CMOM reports</i>	Yes	
<i>District action taken for satellite reporting issues</i>	Yes	
<i>Review of monitoring data</i>	Yes	
<i>District action taken with respect to peak flow performance standards</i>	Yes	Letters sent to municipalities
Customer Service		
10 <i>Percent of inquiry documentation completed (conveyance and watercourse)</i>	99%	

¹ Benchmark is defined in *Benchmarking Performance Indicators for Water and Wastewater Utilities*.

² Value of 25.5 is from *Benchmarking Performance Indicators for Water and Wastewater Utilities* (2007 survey report)

³ Benchmark is defined in *Benchmarking Performance Indicators for Water and Wastewater Utilities*.

⁴ The August 21st, 2010 wet weather event caused an overflow at one location (Richards & Congress) in the District system. While the event occurred during wet weather, an equipment malfunction was identified as the cause of the overflow.

⁵ Benchmark is defined in *Benchmarking Performance Indicators for Water and Wastewater Utilities*

⁶ The District is finalizing an investigation into the 12 basement backups that may be attributed to the interceptor system owned by the District

1.3 SIGNIFICANT ACTIVITIES

Included here is a discussion of some significant activities that the District has completed, arranged by the CMOM Program plan under which they fall.

Management Plan

One of the conveyance objectives of the CMOM Program is to address peak wet weather flows from satellite systems that impact the District's system. Excess Infiltration and Inflow (I/I) is the most significant cause of SSOs in the District's system.

The District developed the Wet Weather Peak Flow Management Program (WWPFMP) to proceed with addressing wet weather peak flow management activities, including implementing the Chapter 3 Rule, which lists peak flow performance standards for satellite municipalities. This Program is guided by a committee made up of members of the Technical Advisory Team (TAT). The TAT consists of both District and satellite municipality representatives.

In 2010, the WWPFMP analyzed the options for purchasing new flow monitors and selected monitors that will be purchased in 2011. There are 72 new metering locations and 48 existing sites that will be upgraded in contracts that are expected to begin in 2011.

The District serves 29 municipalities (including Milwaukee County) and divides the service area up into metersheds (areas tributary to flow metering stations). There are approximately 200 metersheds currently defined. In 2010, thirty-one of the metersheds in the District's service area were analyzed using area-velocity flow data (as opposed to level only data) to determine if they comply with the performance standards established by sec. 3.201 of MMSD Rules. The results of the analysis are:

- Eight metersheds were found to comply
- Twenty-three metersheds were found to be in noncompliance

In September 2010, letters were sent to the 14 municipalities in which the 31 metersheds that were analyzed are located. The letters informed the elected officials of the compliance status of these metersheds. Ten of the 14 municipalities had at least one metershed with noncompliance issues and were required to submit a schedule of actions to be taken to achieve compliance. These schedules were all submitted by the municipalities in 2010.

Asset Management Plan

One of the fundamental items of a good asset management plan is to know all of the assets owned by the organization and have a good system for naming and organizing the assets. The District maintains maps and information on the conveyance, storage, and watercourse systems in its Geographical Information System (GIS) and a list of the conveyance, storage and treatment plant equipment in the maintenance management system used by Veolia.

Geographical Information System

In 2010, the District undertook several small data quality reviews. Specifically, in the conveyance system, duplicate pipe names and pipes that had not been named were identified and then properly named. In the watercourse system, a review was taken to compare the defined jurisdictional limits with the limits shown in the map system. The District maps and language defining the limits were then matched up. The District will continue in 2011 to quality check and update the data and mapping of both of these systems for internal business needs.

Equipment Assets and Work Management System

In 2010, Veolia undertook an extensive audit of the equipment assets at both of the treatment plants. The results of this audit will be used to update Veolia's and the District's asset databases so that they both have the most current listing of assets available.

Veolia currently uses two maintenance management systems for tracking preventive, predictive and corrective maintenance work done on assets. One system is used for equipment assets (OWAM) and one is used for underground assets (ICOM3), each one geared toward the type of asset being tracked. Veolia is continually improving and upgrading OWAM. Towards the end of 2010, Veolia and the District also began a process to improve ICOM3 with the goals of: 1) Providing better maps for field personnel; 2) Improving the tracking of work against defined assets; and 3) Feedback of field information into the GIS. This process is expected to continue in 2011.

Overflow Response Plan

Root Cause Analyses

The District has been documenting and analyzing the causes of system issues, such as overflows, pipe breaks, equipment problems, and diversions in the conveyance system and at the treatment plants. The analyses that began during 2010 were related to: 1) An overflow that occurred on December 9th, 2009 at S Chase Ave & W Rosedale Ave; 2) Overflows that occurred on June 15th, 2010 at N 27th St & W Silver Spring Dr, N 35th St & W Roosevelt Dr, and N 32nd St & W Hampton Rd; 3) A gate closure at diversion chamber DC0507 on July 15th, 2010; and 4) An overflow that occurred on August 21, 2010 at N Richards St & W Congress Dr.

Emergency Response Plan Review

In 2010, the District and Veolia began a review of actual emergency responses, comparing the actions that were taken during an event to those described in the documented plans. The purpose of the review is to determine if the documentation needs

to be updated so that the District is in a better position to respond to emergency situations for protecting public health and the quality of the region's water resources.

System Evaluation and Capacity Assurance Plan

2020 Facilities Plan Advanced Planning Activities

The 2020 FP, completed and submitted to the WDNR in June 2007, was approved by the WDNR in December 2007. Advanced planning has been ongoing through 2010 on a number of capacity-related issues. Discussion of individual initiatives is included below in Section 5.

Communication Plan

CMOM Conference

During 2010, the District held its fourth annual CMOM conference with a main theme of emergency response. The conference included presentations on overflow reporting, preparing for wet weather overflows, preparing for dry weather overflows, and documenting basement backups, among others.

SECTION 2: MANAGEMENT PLAN

This section of the report discusses the changes to the defined performance measures and the evaluation of the District's performance using the defined measures. The review of the performance using the defined measures is intended to be an evaluation of the District's status with respect to achieving its goals and objectives. The review then provides impetus to continue existing strategies and tactics or to modify them to better achieve the objectives.

2.1 PERFORMANCE MEASURES

Performance measures were originally defined in section 2.2.6 of the CMOM Program documentation submitted to the WDNR in June 2007. There were modifications to the performance measures that were included in the annual reports submitted to the WDNR on June 30th, 2008 and June 30th, 2009.

2.1.1 CHANGES TO THE DEFINED PERFORMANCE MEASURES

There were no changes to the wording of any of the defined performance measures. However, for the evaluation of the performance measure "Number of Open Work Orders older than 90 days (sewers)," it was determined in 2010 to include only intercepting structure inspections and siphon inspections, activities that are sensitive to time, and exclude CCTV inspections, manhole inspections, etc., activities that are not sensitive to the 90 day timeframe. The 90 day time frame is still applied in the same way to conveyance equipment and treatment plant equipment, which are separate performance measures.

2.1.2 EVALUATION OF 2010 PERFORMANCE BASED ON THE DEFINED MEASURES

All of the individual performance measures and the value or status for the years 2007 through 2010 is included in Attachment 1 to this report. A review of these indicates that the District is continuing to meet its objectives related to overflows, managing the use of the Inline Storage System, treatment plant effluent quality, and the use of in-plant diversions. The District has also made improvements related to condition monitoring (percent of conveyance assets with a defined condition and management method), completing root cause analyses in a timely manner, reuse of biosolids (percent of biosolids that are beneficially reused), and customer service (percent inquiry documentation completed). In addition to continuing the work on these objectives, the District needs to focus some effort on: 1) Developing the guidelines for conducting business case analysis; 2) Maintaining the monitoring system; 3) Quality checking the monitoring data in a timely manner; and 4) Achieving the annual target for removing habitable structures from the floodplain.

2.2 MANAGEMENT PLAN REVISIONS

There were no changes made to the District's objectives, strategies, tactics or performance measures during 2010.

SECTION 3: ASSET MANAGEMENT PLAN

The District has determined that a key component of its CMOM Program will be the development and implementation of an Asset Management Program. To oversee and assist with the efforts related to the Asset Management Program, an Asset Management Team has been developed. The Asset Management Team includes personnel from the areas of Planning, Accounting, Facilities Information, Contract Compliance, and Capital Program Business Administration as well as staff from Veolia.

The District has been working with Veolia throughout the term of its contract on implementing the near-term and long-term objectives of the Asset Management Plan related to conveyance and treatment facilities. The bulk of this work is related to maintaining the asset listing and work management (preventive, predictive, and corrective maintenance work).

Veolia is responsible for maintaining the single stormwater pumping station (located at 42nd & Mt Vernon in the City of Milwaukee) that is owned by the District, but they do not otherwise have responsibility for watercourse assets. As of the end of 2007, the District had developed a watercourse inspection and maintenance program and an information and management system for tracking complaints, inspections, and maintenance related to the watercourse assets. The District used this system in 2010 to refine the list of watercourse assets, schedule and track watercourse inspections, and track issues related to the watercourse systems. The District also continued to refine the watercourse GIS in 2010. This GIS shows the watercourse systems and watercourse assets (such as culverts, gabion walls, retaining walls, and drop structures) in an easy to use intranet-based mapping system.

Objectives were identified in the Asset Management Plan and are discussed below. They were grouped into immediate, near-term, and long-term objectives. Discussed first are the immediate objectives.

3.1 IMMEDIATE OBJECTIVES

The District's immediate asset management objectives include: 1) Vision and Support; 2) Plan Organization; 3) Plan Communication; 4) Plan Development; and 5) Immediate Gains. Each objective is discussed below.

Vision and Support

The key objectives include gaining understanding and obtaining support from District management and the Commission, and establishing relationships between levels of protection and costs. All of these objectives were met by the end of 2007. The District has received support from District management and the Commission, and the relationship between Level of Protection and cost has been addressed in the recently completed 2020 FP.

Plan Organization

This objective required the establishment of the Asset Manager position and chartering the Asset Management Team, both of which occurred prior to the end of 2007.

Plan Communication

This objective required the identification and interests of key stakeholders, which has mostly occurred. In 2008, the District's internal CMOM web page was implemented and used to post information related to the documentation and implementation of the CMOM Program. This continued in 2010 with the posting of additional information and reports on the internal and external web pages.

Plan Development

This objective dealt with developing an Asset Management Plan (AMP). By virtue of the CMOM Program documentation submitted in 2007, this objective has been completed. Being part of the CMOM Program, the AMP is set up to be continually practiced and improved, and to receive periodic reviews for updates to the documentation.

Immediate Gains

Immediate gains are expected to be realized through utilizing the Business Case Analysis (BCA) process, which defines objectives and drivers for each project and alternative approaches to meet objectives. The ultimate outcome of applying BCA process is to ensure that the projects that are undertaken have valid business objectives, that the project will meet the objectives, and that it is completed cost-effectively. The BCA process is expected to be developed in the future as part of the capital improvement program.

3.2 NEAR-TERM AND LONG-TERM OBJECTIVES

The District's near-term and long-term objectives include asset knowledge, planning, refurbishment and replacement, asset development, condition monitoring, operations and maintenance, financing, financial reporting, and the asset information management system (AIMS). The foundation for addressing these objectives was laid in 2007 through the development and documentation of the AMP, as well as including language in the Agreement with Veolia. These objectives were under various states of activity in 2010 that are discussed under the following areas: Asset hierarchy, Asset criticality, Asset maintenance, and Asset inventory.

Asset Hierarchy

The District has organized its assets by location and class (type). The location hierarchy includes buildings and treatment processes at the treatment plants, subsystems in the conveyance system, and watersheds and sub-watersheds in the watercourse system. The class hierarchy includes equipment types (i.e. pumps, conveyors, gates, valves), sewer types (i.e. interceptor sewers, collector sewers, storage tunnels, outfalls), and channel types (i.e. non-concrete, concrete lined, enclosed culvert). In 2008, in implementing asset management and the use of their new CMMSs, Veolia also grouped the District's assets into functional systems. In the conveyance system, this is the same as the location hierarchy. In the treatment plants, it somewhat mimics the location hierarchy, but is different in some significant ways, mainly where portions of systems are located in different buildings. For example, the primary sludge pumping system has assets located in both the primary clarifier gallery and in the preliminary treatment facility (where the sludge is processed). The system hierarchy allows for straightforward viewing of the

functional group of assets and performing subsequent reviews related to criticality and failure modes.

Asset Criticality

Grouping the assets into functional systems was the first step in performing a criticality review of assets. The District began a study of criticality in the conveyance systems in 2007. The effort involved refining the factors used to determine criticality (or consequence of failure) and going through practice exercises with a team. This effort was completed in 2009 and is now used as part of the conveyance prioritization system.

The treatment plant equipment underwent a criticality review in 2008, undertaken by Veolia. The starting point for the criticality review was the system hierarchy, discussed immediately above. Each system was evaluated based on consequences of failure.

The District began but did not finish the criticality reviews on watercourse assets in 2010. The current plan is to finish these reviews in 2011. The purpose of performing the criticality reviews is to determine which systems have unacceptable or major consequences of failure and to generally rank the systems by criticality.

Refining the asset hierarchy and determining system criticality ultimately result in better knowledge of the assets and asset systems. This allows for more proactive planning of preventive and predictive maintenance, reduction of failure risks and more efficient operations.

Asset Condition Monitoring and Maintenance

Veolia currently uses the Pipeline Assessment Certification Program (PACP) defect coding devised by the National Association of Sewer Service Companies (NASSCO) when inspecting the District's conveyance system. This defect coding method is being used to assign a condition and probability of failure for sewer line assets, which can lead to rescheduling and reprioritization of maintenance and inspection activities, as well as the subsequent rehabilitation or replacement as necessary to keep the risk of sewer failures at or below acceptable levels. Between 2008 and 2010, Veolia has inspected approximately 80% of the District's conveyance pipes. Additionally, in 2010, the District inspected one of its longer combined sewer outfalls (CSO145).

The maintenance management system used by Veolia for above-ground equipment (OWAM) generates preventive and predictive maintenance work orders for treatment plant and conveyance equipment generally in line with the maintenance recommended by the manufacturer. In 2010, Veolia completed nearly all of the preventive maintenance work orders that were generated and maintained the backlog of work orders (those more than 90 days past due) at an acceptable level.

Corrective maintenance work orders, which are generated by Veolia staff, are also tracked in OWAM. Tracking all of the work orders and associated information allows the cost of asset maintenance and asset ownership to be rolled-up, viewed, and analyzed in various ways, including by system, by location, and by asset type. This information can then be used to determine rehabilitation and replacement schedules, as well as which assets are using the most resources.

In the watercourse system, the District uses a custom-built maintenance management system that includes the asset listing, schedules inspection work orders, tracks inspection results, tracks asset issues and is used to log complaints from citizens and municipal representatives. In 2010, the District completed nearly all of the scheduled watercourse, culvert, detention basin, and trash rack inspections.

Asset Inventory

In 2010, Veolia conducted a physical inventory of the treatment plant equipment and compared it to the asset listing in the maintenance management system. The inventory identified many assets that were not yet in the maintenance management system (mostly due to new construction) and many assets that had been physically removed that were still in the maintenance management system. Veolia is planning to have all of the records corrected during 2011.

This asset inventory will also be used by the District to update the Fixed Asset (Accounting) List. The District is planning to complete the reconciliation of the Veolia asset audit with the Fixed Asset List in 2011.

The procedures used for getting asset information into both Veolia's and the District's systems (Fixed Asset SOPs) was updated in 2010. With the update of these procedures, occurrences of assets not included in the maintenance management system or not being removed should decrease.

The District, in 2010, continued to review the maps and data available in the GISs that are used for its conveyance and watercourse facilities. There were numerous updates of new and corrected information to both of the systems.

In 2010, the District also performed a review of miscellaneous equipment that is in the conveyance system, such as flap gates and isolation gates. Some of this equipment is not currently in the maintenance management system and was not receiving regular maintenance. The initial purpose of this review was to obtain a complete list of flap gates in the system, but for efficiency sake, it was decided to prepare a list of all field equipment.

SECTION 4: OVERFLOW RESPONSE PLAN

The overflow response plan (ORP) included with the CMOM Program documentation has listings of constructed overflow points (both SSO and CSO), as well as the methods in place for knowing there is an overflow, response procedures, analysis, and public notifications. These plans are in place and are implemented when responding to overflows and emergencies.

4.1 CONSTRUCTED OVERFLOW POINTS

In 2010, there were no physical changes to any of the CSO or SSO points listed in Appendix 4-1 of the CMOM Program documentation. However, after careful review of documentation of existing CSOs, it was determined that outfalls 110A and 179, that are listed in the CMOM Program documentation and in the District's WPDES permit do not physically exist and have never existed. It is likely that there were thought to be outfalls at these locations because of confusion in the differences between construction plans and record drawings. The SSO and CSO tables, included in this report as Attachments 3 and 4 show the most up-to-date listing of the District's constructed overflow points.

Additionally, three outfalls that are currently in the table of sanitary sewer outfalls (Attachment 2) were identified as also discharging combined sewage (Richards & Congress, 6th & Oklahoma, 59th & Trenton). The District has requested that these be transferred to the list of combined sewer outfalls in the next WPDES permit.

4.2 CONTACT LISTS

The District's list of municipal phone numbers for emergency situations has been updated. The updated list is included as Attachment 5 to this report. The District's situational contact list has been updated and sent out to the satellite municipalities. The contact list is included as Attachment 6 to this report.

4.3 EMERGENCY RESPONSE PREPAREDNESS

In 2008, Veolia submitted an overflow response plan and an emergency response plan. The overflow response plan details the steps to be taken when an overflow is identified, whether it is an SSO or CSO. The steps include notifications, dispatch of crews, containment, and feedback. The emergency response plan includes actions to be taken during various emergency situations, including severe weather, spills of hazardous substances into the conveyance system, power failures, and other treatment plant and conveyance system emergencies that impact the collection, conveyance, and treatment of sewage.

During 2010, Veolia responded to 6 reported spills, 7 odor issues, and 5 reports of damage to system equipment among the various items that were reported to them. They also responded to numerous basement backup and flooding complaints during the wet weather events of June and July 2010.

In 2010, the District began a review of the actual responses to: 1) The flooding of the Beach Driver pump station that occurred on June 7, 2008; 2) Sewage escaping from the Underwood Creek force main on June 25th, 2009; 3) The overflow at South Chase Ave and West Rosedale Ave that occurred on December 9th, 2009; 4) A flap gate that became dislodged from its hinges on July 15, 2010; and 5) An overflow that occurred at N Richards St & W Congress Dr (ext'd) on August 21, 2010. This review will be completed in 2011. The review of the actual responses will be used to update the existing plans as appropriate.

With the transition of the operating contract from United Water to Veolia in 2008, the District removed the duties related to watercourse maintenance and responding to watercourse issues and emergencies. With this change, the District began using the watercourse CMMS to track watercourse related emergencies and complaints. In 2010, the District responded to numerous complaints regarding debris and sediment in the watercourse systems, as well as complaints about clogging of the trash racks, among the various items that were reported.

4.4 INCIDENT ANALYSIS

The District has been preparing documentation on pipe breaks, equipment problems, overflows, and in-plant diversions that are not consistent with the WPDES permit, generally called root cause analyses (RCAs).

2010 Root Cause Analyses

1. On December 9th, 2009, an overflow occurred from a District manhole at the intersection of S Chase Ave and W Rosedale Ave in the City of Milwaukee. The RCA was begun in 2009 and was completed in 2010 on this incident to determine the sequence of events that resulted in the overflow and potential actions the District can take to reduce the probability of a similar overflow occurring in the future. The District has modified procedures related to flow control during construction to address this issue.
2. On June 15th, 2010, an overflow occurred from three separate overflow sites; 35th & Roosevelt (SSO), 32nd & Hampton (CSO); and 27th & Silver Spring (SSO). During this wet weather event, the Inline Storage System (ISS) was not closed to separate sewage. Additionally, the 32nd & Hampton CSO was not expected to operate during this event. Therefore, an analysis was begun to determine the cause of each of these sites operating. These RCAs are in the process of being finalized at the time of preparation of this report.
3. On July 15th, 2010, modulating gates at diversion chamber DC0507 automatically closed when the ISS filled to capacity. An analysis was begun on this site to determine the cause and impact of the gate closures. This RCA is still in the analysis phase.
4. On August 21, 2010, during a wet weather event, the bypass at Richards & Congress activated even though the ISS drop shaft just upstream of the site was still open and accepting flow. An analysis was begun on this site to determine the causes that triggered the overflow. This RCA is still in the analysis phase.

Prior Root Cause Analyses

1. The root cause of the gate closure on June 7, 2008, in diversion chamber DC0408, located at North Green Bay Road and West Fairy Chasm Drive is in litigation and still under investigation by the parties.
2. A wet weather SSO occurred on April 26th, 2009 at the constructed overflow at Green Tree Rd and the Milwaukee River (permit number 263). The District contracted with Brown and Caldwell to conduct a RCA and prepare a memorandum. A definitive cause of the overflow was not identified. There was a recommendation to modify or expand the monitoring equipment in the area to obtain more information on the hydraulics in the District sewers near this location. Data collection is ongoing at this site and the data is being evaluated as part of the wet weather peak flow monitoring program.

SECTION 5: SYSTEM EVALUATION AND CAPACITY ASSURANCE PLAN

The District completed the 2020 FP in June 2007, with the plan being approved by the Wisconsin Department of Natural Resources in December 2007. This plan addresses the long-term, overall evaluation of the capacity requirements and available capacity of the wastewater system. A number of advanced planning items were identified in the 2020 FP that address specific capacity evaluations. Short descriptions of these and other capacity-related programs and projects that are being undertaken by the District are included below.

The Wet Weather Peak Flow Management Program (WWPFMP)

The objective of the WWPFMP is to manage peak wet weather flows in the tributary municipal sewer systems to levels at or below the performance standards listed in Chapter 3 of the District's Rules. In addition to changing the District rules to require management within the identified performance, the District, working in collaboration with the satellite municipalities, is in the process of developing a Program that will ensure continued long-term compliance with the peak flows identified for the satellite municipalities.

Efforts that were underway in 2010 include:

- Continuing the design effort related to upgrading the flow metering systems and sites to be used for both permanent and portable metering locations
- Performing analysis on thirty-one metersheds using area-velocity data
- Notifying municipal officials of the eight metersheds that are in compliance and the twenty-three metersheds that are out of compliance with the peak flow performance standards and requiring a schedule of actions that will be taken to achieve compliance
- Reviewing the schedule of actions to achieve compliance with peak flow performance standards

Flow Metering for Potential Conveyance Relief Projects

Investigation of locations and types of meters that will be used to evaluate the timing and need for potential conveyance relief projects was continued in 2010.

Evaluation of the ISS Head Tanks and Discharge System

The planning for a hydraulic analysis commenced in 2010 that involves the impact of upgrading the capacity of the Inline Storage System (ISS) Pump Station on the Jones Island and South Shore Head Tank and discharge system, and the South Shore Force Main.

Real-Time Control Set-point Study

This evaluation began in 2008. The purpose of this study is to determine if flow can be reverted (sent back to Jones Island) at different set points during events to optimize the use of District facilities for preventing overflows. The analysis was completed in 2009 and the final report was delivered in February 2010.

Collector System and CSO Evaluation

The purpose of this study, which began in 2008, is to evaluate whether inactive combined sewer outfalls are necessary for the operation of the conveyance system. It includes an evaluation of the near-surface collector sewers associated with the inactive combined sewer outfalls. The collector sewers deliver flow to the inline storage system. The study continued in 2010 and will continue in 2011.

Combined Sewer Outfall CSO145 Analysis

The purpose of this study was to perform a hydraulic evaluation of the combined sewer outfall system that is the relief when the District closes the combined sewer gates at ISS dropshaft NS12. The evaluation included an alternatives analysis of providing outfall capacity equal to the capacity of the dropshaft. The evaluation was begun in 2010 and is expected to be completed in 2011.

Collector System CT0506 Analysis

The purpose of this study, which was in response to surface flooding and basement backups during the extreme events of July 2010, is to perform a hydraulic evaluation of the City of Milwaukee's combined sewer systems and the District's collector system that discharge into ISS dropshaft CT0506. The evaluation was begun in 2010 and is expected to be completed in 2011.

Conveyance Analysis of Overflow Relief for the MIS

The purpose of this study was to size overflow relief points on the District's MIS system to keep water levels below known critical elevations (municipal connections, basement elevations, etc.). The overflow points in particular that were studied were at N 59th St & W State St and at the District's drop shaft to the ISS located at W Riverwoods Pkwy & the Milwaukee River (NS3). This study was completed in 2011 and provided the hydraulic design guidance for the design of the overflow pump stations.

Capacity Analyses of the Jones Island and South Shore Water Reclamation Facilities

Consistent with the recommendations of the 2020 FP, a detailed capacity analysis of the Jones Island and South Shore Water Reclamation Facilities was initiated in 2008. The study includes process and hydraulic modeling to determine the upper limit of treatment capability. This analysis was continued in 2010 and is expected to be completed in 2011.

Demonstration and Installation Projects for Increasing Capacity of the South Shore Water Reclamation Facility

This project consists of developing and pilot testing a biological/physical-chemical process for the treatment of wet weather flows at the South Shore Water Reclamation Facility. This project follows the Capacity Analyses mentioned directly above and was initiated in 2010. The information obtained from the demonstration project pilot testing will be used for the design of the full-scale wet weather treatment facilities, should they be necessary.

Milwaukee River Flood Management - Main stem

The evaluation portion of this project was completed in December 2010. The purpose of this part of the project is to determine the one-percent flood flows along the main stem of the Milwaukee River and the areas where the flood-flows impact habitable structures. A District-funded study by SEWRPC was completed outlining the floodplain and the habitable structures within it. Three alternatives were evaluated and the recommended solution involved floodproofing, elevation, or acquisition/demolition of 393 residential structures for an estimated cost of \$38.2 million. Voluntary implementation of the recommended plan is proposed for the future for reducing the impacts to habitable structures.

Kinnickinnic River Flood Management - Main stem

The preliminary engineering phase of the flood management project was completed in 2010 and an alternative selected to move to the design phase of the project. In the alternative selected, approximately 83 properties with residential structures were identified for acquisition to facilitate the construction of the flood management project.

SECTION 6: COMMUNICATION PLAN

The Communication Plan documents the types and frequency of communications that are prepared and presented or distributed regarding the implementation of the CMOM Program.

The District conducted several activities during 2010 to communicate the status of its CMOM Program to various stakeholders. The activities included the CMOM conference, which is attended by satellite municipalities, presentations to District staff, submitting the CMOM Program Annual Report to the WDNR, and updating CMOM Program information on the District's web site (both internal and external).

Discussed below are the activities of the communication plan that have been completed during 2010:

- Presentations were given to District staff on February 17th and March 18th, 2010.
- The District held a CMOM conference on March 4th, 2010. Public works and engineering staff from the District's satellite municipalities attended. The topics included overflows and basement backups and there were presentations on overflow reporting, preparing for wet weather overflows, preparing for dry weather overflows, and documenting basement backups, among others.
- The CMOM Program Annual Report for 2009 was submitted to the WDNR on June 30, 2010.
- Staff submitted a memorandum to the Commission on September 20th, 2010, which provided a summary and description of the 2009 CMOM Program Annual Report.
- The District's publicly accessible CMOM web page was updated to include the 2009 CMOM Program Annual Report.
- The District updated its internal CMOM web page with to include the 2009 CMOM Program Annual Report.

SECTION 7: AUDIT PLAN

The Audit Plan is comprised of three sections: (1) Annual updating, which is completed through the Annual Report; (2) Program audit, which is completed through the Program Audit Report and undertaken on a five year cycle, with the first anticipated in 2012, and (3) Program change procedures, which will be implemented following the Program Audit.

The 2009 CMOM Program Annual Report was completed in 2010 and included some updating and clarifications to the language of some of the objectives and performance measures that are in the Management Plan. There were no other activities related to the Audit Plan that occurred in 2010.

ATTACHMENT 1 – CMOM PERFORMANCE MEASURES

Service Area	Functional Area	Measure * indicates the measure is also a benchmark	Reference Objective	2008 Status/Value	2009 Status/Value	2010 Status/Value
Overall	Program Organization	Organizational Best Practices Index*	2.2.1.1.1 – Enable implementation of the CMOM Program within the District organizational structure	27	27	27
Overall	Program Organization	CMOM Manager responsibilities assigned	2.2.1.1.1 – Enable implementation of the CMOM Program within the District organizational structure	Yes	Yes	Yes
Overall	Program Organization	CMOM work team established and functioning	2.2.1.1.1 – Enable implementation of the CMOM Program within the District organizational structure	Yes	Yes	Yes
Overall	Program Organization	Asset Manager responsibilities assigned	2.2.1.1.1 – Enable implementation of the CMOM Program within the District organizational structure	Yes	Yes	Yes
Overall	Program Organization	Asset Management Team established and functioning	2.2.1.1.1 – Enable implementation of the CMOM Program within the District organizational structure	Yes	Yes	Yes
Overall	Communication	CMOM page on the District’s internal web site updated annually to include new reports and communications	2.2.1.1.2 – Communicate the goals and objectives of the CMOM Program to internal and external stakeholders, monitor the CMOM Program implementation, and institute program modifications	Yes	Yes	Yes
Overall	Communication	CMOM page on the District’s public web site updated annually to include new reports and communications	2.2.1.1.2 – Communicate the goals and objectives of the CMOM Program to internal and external stakeholders, monitor the CMOM Program implementation, and institute program modifications	Yes	Yes	Yes
Overall	Communication	Annual TAT briefing completed	2.2.1.1.2 – Communicate the goals and objectives of the CMOM Program to internal and external stakeholders, monitor the CMOM Program implementation, and institute program modifications	No	No	No

ATTACHMENT 1 – CMOM PERFORMANCE MEASURES

Service Area	Functional Area	Measure * indicates the measure is also a benchmark	Reference Objective	2008 Status/Value	2009 Status/Value	2010 Status/Value
Overall	Communication	Annual Commission memorandum completed	2.2.1.1.2 – Communicate the goals and objectives of the CMOM Program to internal and external stakeholders, monitor the CMOM Program implementation, and institute program modifications	Yes	Yes	Yes
Overall	Communication	Annual staff briefing completed	2.2.1.1.2 – Communicate the goals and objectives of the CMOM Program to internal and external stakeholders, monitor the CMOM Program implementation, and institute program modifications	Yes	Yes	Yes
Overall	Communication	Percent of annual reports completed on time	2.2.1.1.2 – Communicate the goals and objectives of the CMOM Program to internal and external stakeholders, monitor the CMOM Program implementation, and institute program modifications	100%	100%	100%
Overall	Program Organization	Annual cost for the implementation of the regional CMOM Program activities	2.2.1.1.2 – Communicate the goals and objectives of the CMOM Program to internal and external stakeholders, monitor the CMOM Program implementation, and institute program modifications	\$121,289.58	\$130,205.82	\$119,273.78
Overall	Finance	Percent of cash financing (six-year average)	2.2.1.1.3 – Continue to maintain adequate financial planning	28%	27%	25%
Overall	Finance	Outstanding Debt	2.2.1.1.3 – Continue to maintain adequate financial planning	1.36%	1.44%	1.59%
Overall	Finance	Six-year capital financing plan is updated and revised annually	2.2.1.1.3 – Continue to maintain adequate financial planning	Yes	Yes	Yes

ATTACHMENT 1 – CMOM PERFORMANCE MEASURES

Service Area	Functional Area	Measure * indicates the measure is also a benchmark	Reference Objective	2008 Status/Value	2009 Status/Value	2010 Status/Value
Overall	Finance	Bond Ratings*	2.2.1.1.3 – Continue to maintain adequate financial planning	AAA (Fitch Ratings), Aa1 (Moody's), AA+ (S&P)	AAA (Fitch Ratings), Aa1 (Moody's), AA+ (S&P)	AAA (Fitch Ratings), Aaa (Moody's), AA+ (S&P)
Overall	Communication	Percent of overflow and in-plant diversion events for which a public notification was issued	2.2.1.1.4 – Continue to comply with regulatory requirements	100%	100%	100%
Overall	System Performance	Percent of time effluent BOD is in compliance with WPDES permit limits	2.2.1.1.4 – Continue to comply with regulatory requirements	100%	100%	100%
Overall	System Performance	Percent of time effluent TSS is in compliance with WPDES permit limits	2.2.1.1.4 – Continue to comply with regulatory requirements	100%	100%	100%
Overall	System Performance	Percent of time effluent fecal coliform count is in compliance with WPDES permit limits	2.2.1.1.4 – Continue to comply with regulatory requirements	100%	100%	100%
Overall	System Performance	Percent of flow into system, resulting from wet weather, that is captured and treated	2.2.1.1.4 – Continue to comply with regulatory requirements	91%	97%	93%
Overall	System Performance	CMAR overall score*	2.2.1.1.4 – Continue to comply with regulatory requirements	JI = 3.91; SS = 3.76	JI = 3.81; SS = 3.05	JI = 3.91; SS = 3.46

ATTACHMENT 1 – CMOM PERFORMANCE MEASURES

Service Area	Functional Area	Measure <small>* indicates the measure is also a benchmark</small>	Reference Objective	2008 Status/Value	2009 Status/Value	2010 Status/Value
Overall	System Performance	Number of wet weather sanitary sewage overflows occurring more frequently than the WDNR approved Level of Protection ¹	2.2.1.1.4 – Continue to comply with regulatory requirements	Either zero or one ²	Either zero or one ³	One ⁴
Overall	Satellite systems	District has taken appropriate action for each satellite system that has not submitted a Management Plan, Overflow Response Plan, Communication Plan, Audit Plan, System Evaluation and Capacity Assurance Plan (where required) and I/I management plan by June 2009	2.2.1.1.5 – Establish a regional CMOM program	N/A for 2008	Yes	Yes
Overall	Satellite systems	Percent of sewer plans reviewed by the District within deadlines established by the sewer plan review process	2.2.1.1.5 – Establish a regional CMOM program	100%	100%	100%
Overall	Satellite systems	Percent of municipal sewer construction projects receiving QA inspection as defined by the QA program	2.2.1.1.5 – Establish a regional CMOM program	100%	100%	100%

¹ Level of Protection is defined as the 5-year wastewater recurrence interval, as stated in the approved 2020FP

² The April 10th, 2008 event caused an overflow at one location (KK/St Francis) in the District system. The recurrence interval for the event in the vicinity of the overflow is unknown. The Warnimont Relief Sewer is a stipulated project that provides relief at this location and was put on-line after the 4-10-08 event

³ The April 26th, 2009 event caused an overflow at Green Tree/Milwaukee River. The recurrence interval for the event in the vicinity of the overflow is unknown

⁴ The August 21st, 2010 event caused an overflow at Richards & Congress. The overflow occurred during wet weather but was caused by an equipment malfunction



ATTACHMENT 1 – CMOM PERFORMANCE MEASURES

Service Area	Functional Area	Measure * indicates the measure is also a benchmark	Reference Objective	2008 Status/Value	2009 Status/Value	2010 Status/Value
Overall	Personnel & Safety	Annual regulatory training completed	2.2.1.1.6 – Continue to maintain a safe work environment for District employees and sustain a competent District workforce	Yes	Yes	Yes
Overall	Personnel & Safety	Annual training hours per employee*	2.2.1.1.6 – Continue to maintain a safe work environment for District employees and sustain a competent District workforce	11.4 hrs per employee	15.8 hrs/employee	7 hrs/employee
Overall	Personnel & Safety	Employee Health and Safety Severity Rate*	2.2.1.1.6 – Continue to maintain a safe work environment for District employees and sustain a competent District workforce	9.9 injury hours per 100 FTEs	5.7 injury hours per 100 FTEs	8.1 injury hours per 100 FTEs
Conveyance	System Performance	Number of wet weather CSOs	2.2.1.2.1 – Establish CMOM Program elements specific to minimizing the number and volume of CSOs	3	2	4
Conveyance	System Performance	Ratio of unused volume of the ISS to the wet weather CSO volume for each event	2.2.1.2.1 – Establish CMOM Program elements specific to minimizing the number and volume of CSOs	4/10/08 17%; 6/7/08 0%; 12/27/08 >100%	4/26/09 13%; 6/19/09 2%	6/15/10 >100%; 7/7/10 >100%; 7/15/10 1%; 7/22/10 0%
Conveyance	Asset Management	Percent completion of post-overflow review process within one year	2.2.1.2.3 – Where possible, establish additional practices to prevent SSOs, maintain or improve system performance, and avoid preventable failures	60%	33%	100%
Conveyance	System Performance	Number of building backups caused by the loss of capacity or function of a District facility	2.2.1.2.3 – Where possible, establish additional practices to prevent SSOs, maintain or improve system performance, and avoid preventable failures	Undetermined ⁵	3 ⁶	Undetermined ⁷

⁵ The District is evaluating the impacts of gate closure at diversion chamber DC0408 on June 7, 2008

⁶ Building backups were caused by the flooding of the control cabinet for the bypass station at Honey Creek and Wisconsin

⁷ The District is finalizing an investigation into the 12 basement backups that may be attributed to the interceptor system owned by the District.

ATTACHMENT 1 – CMOM PERFORMANCE MEASURES

Service Area	Functional Area	Measure * indicates the measure is also a benchmark	Reference Objective	2008 Status/Value	2009 Status/Value	2010 Status/Value
Conveyance	System Performance	Percent of total flow entering the conveyance system that is captured and treated	2.2.1.2.3 – Where possible, establish additional practices to prevent SSOs, maintain or improve system performance, and avoid preventable failures	95.1%	98.3%	96.2%
Conveyance	System Performance	Number of dry weather overflows	2.2.1.2.3 – Where possible, establish additional practices to prevent SSOs, maintain or improve system performance, and avoid preventable failures	0	2	0
Conveyance	System Performance	Number of wet weather SSOs where the event generated flow is less than the WDNR approved level of protection	2.2.1.2.3 – Where possible, establish additional practices to prevent SSOs, maintain or improve system performance, and avoid preventable failures	Either zero or one ⁸	Either zero or one ⁹	One ¹⁰
Conveyance	System Performance	Number of wet weather SSOs	2.2.1.2.3 – Where possible, establish additional practices to prevent SSOs, maintain or improve system performance, and avoid preventable failures	2	2	4
Conveyance	System Performance	Volume of wet weather SSOs where the event generated flow is less than the WDNR approved level of protection	2.2.1.2.3 – Where possible, establish additional practices to prevent SSOs, maintain or improve system performance, and avoid preventable failures	Either zero or 0.18 MG. ¹¹	Either zero or 0.62 MG. ¹²	0.61 MG

⁸ The April 10th, 2008 event caused an overflow at one location (KK/St Francis) in the District system. The recurrence interval for the event in the vicinity of the overflow is unknown. The Warnimont Relief Sewer is a stipulated project that provides relief at this location and was put on-line after the 4-10-08 event

⁹ The April 26th, 2009 event caused an overflow at Green Tree/Milwaukee River. The recurrence interval for the event in the vicinity of the overflow is unknown.

¹⁰ The August 21st, 2010 event caused an overflow at Richards & Congress. The recurrence interval for the event appears to be below the defined Level of Protection. The overflow was caused by an equipment malfunction.

¹¹ The April 10th, 2008 event caused an overflow at one location (KK/St Francis) in the District system. The recurrence interval for the event in the vicinity of the overflow is unknown. The Warnimont Relief Sewer is a stipulated project that provides relief at this location and was put on-line after the 4-10-08 event.

¹² The April 26th, 2009 event caused an overflow at Green Tree/Milwaukee River. The recurrence interval for the event in the vicinity of the overflow is unknown.



ATTACHMENT 1 – CMOM PERFORMANCE MEASURES

Service Area	Functional Area	Measure <small>* indicates the measure is also a benchmark</small>	Reference Objective	2008 Status/Value	2009 Status/Value	2010 Status/Value
Conveyance	System Performance	Volume of wet weather SSOs	2.2.1.2.3 – Where possible, establish additional practices to prevent SSOs, maintain or improve system performance, and avoid preventable failures	686 MG	57 MG	326 MG
Conveyance	System Performance	Regulatory-approved Industrial Waste Pretreatment Program in operation	2.2.1.2.3 – Where possible, establish additional practices to prevent SSOs, maintain or improve system performance, and avoid preventable failures	Yes	Yes	Yes
Conveyance	Asset Management	Fixed Asset SOPs updated by December 31, 2010	2.2.1.2.4 – Continue to establish and document level of protection, design and performance standards for conveyance assets constructed in the District service area	N/A for 2008	In Progress	Completed
Conveyance	Asset Management	Percent of conveyance assets with defined condition and management method as documented in the Asset Information Management System	2.2.1.2.4 – Continue to establish and document level of protection, design and performance standards for conveyance assets constructed in the District service area	10%	37%	61%
Conveyance	Asset Management	Establish criteria and procedures for conducting Business Case Analysis on conveyance projects by June 30, 2009	2.2.1.2.4 – Continue to establish and document level of protection, design and performance standards for conveyance assets constructed in the District service area	In Progress	In Progress	In Progress ¹³
Conveyance	Asset Management	Percent of Business Case Analyses completed where required by District procedures	2.2.1.2.4 – Continue to establish and document level of protection, design and performance standards for conveyance assets constructed in the District service area	N/A for 2008	N/A for 2009	N/A for 2010

¹³ New completion date is June 30, 2011.



ATTACHMENT 1 – CMOM PERFORMANCE MEASURES

Service Area	Functional Area	Measure <small>* indicates the measure is also a benchmark</small>	Reference Objective	2008 Status/Value	2009 Status/Value	2010 Status/Value
Conveyance	Asset Management	Number of conveyance construction project updates to the GIS	2.2.1.2.4 – Continue to establish and document level of protection, design and performance standards for conveyance assets constructed in the District service area	34 contracts	9 contracts	4 contracts
Conveyance	Asset Management	Backlog of conveyance construction project updates to the GIS	2.2.1.2.4 – Continue to establish and document level of protection, design and performance standards for conveyance assets constructed in the District service area	0 contracts	6 contracts	4 contracts
Conveyance	Asset Management	Level of Protection defined and approved by the WDNR for the wastewater system	2.2.1.2.4 – Continue to establish and document level of protection, design and performance standards for conveyance assets constructed in the District service area	Yes	Yes	Yes
Conveyance	Capital Program Implementation	Facilities Plan implementation on schedule	2.2.1.2.4 – Continue to establish and document level of protection, design and performance standards for conveyance assets constructed in the District service area	Yes	Yes	Yes
Conveyance	Asset Management	Number of open PM work orders older than 90 days (sewers)	2.2.1.2.5 – Minimize the cost of conveyance asset ownership while maintaining necessary stewardship of assets and achieving defined protection levels	51	45	13 ¹⁴
Conveyance	Asset Management	Number of open PM work orders older than 90 days (conveyance equipment and pump stations)	2.2.1.2.5 – Minimize the cost of conveyance asset ownership while maintaining necessary stewardship of assets and achieving defined protection levels	65	70	67

¹⁴ The evaluation of this performance measure was defined in 2010 to include only intercepting structure inspections and siphon inspections, activities that are sensitive to time, and exclude CCTV inspections, manhole inspections, etc., activities that are not sensitive to the 90 day timeframe.



ATTACHMENT 1 – CMOM PERFORMANCE MEASURES

Service Area	Functional Area	Measure <small>* indicates the measure is also a benchmark</small>	Reference Objective	2008 Status/Value	2009 Status/Value	2010 Status/Value
Conveyance	Asset Management	Planned maintenance ratio: hours* (sewers)	2.2.1.2.5 – Minimize the cost of conveyance asset ownership while maintaining necessary stewardship of assets and achieving defined protection levels	67%	99%	97%
Conveyance	Asset Management	Planned maintenance ratio: cost* (sewers)	2.2.1.2.5 – Minimize the cost of conveyance asset ownership while maintaining necessary stewardship of assets and achieving defined protection levels	67%	99%	97%
Conveyance	Asset Management	Conveyance system integrity* [# of collection system failures/total miles in collection system]	2.2.1.2.5 – Minimize the cost of conveyance asset ownership while maintaining necessary stewardship of assets and achieving defined protection levels	0.56 failures per 100 miles of piping	0.56 failures per 100 miles of piping	0 failures per 100 miles of piping ¹⁵
Conveyance	Asset Management	Planned Maintenance ratio: count (sewers)	2.2.1.2.5 - Minimize the cost of conveyance asst ownership while maintaining necessary stewardship of assets and achieving defined protection levels	92%	95%	95%
Conveyance	Asset Management	Planned maintenance ratio: hours* (conveyance equipment and pump stations)	2.2.1.2.5 - Minimize the cost of conveyance asst ownership while maintaining necessary stewardship of assets and achieving defined protection levels	71%	73%	71%
Conveyance	Asset Management	Planned maintenance ratio: cost* (conveyance equipment and pump stations)	2.2.1.2.5 - Minimize the cost of conveyance asst ownership while maintaining necessary stewardship of assets and achieving defined protection levels	69%	65%	64%

¹⁵ No piping failures causing a loss of capacity of function identified in 2010.



ATTACHMENT 1 – CMOM PERFORMANCE MEASURES

Service Area	Functional Area	Measure <small>* indicates the measure is also a benchmark</small>	Reference Objective	2008 Status/Value	2009 Status/Value	2010 Status/Value
Conveyance	Asset Management	Planned maintenance ratio: count (conveyance equipment and pump stations)	2.2.1.2.5 - Minimize the cost of conveyance asst ownership while maintaining necessary stewardship of assets and achieving defined protection levels	86%	81%	79%
Conveyance	System Monitoring	Percent of portable flow monitors repaired within 5 business days after problems are identified	2.2.1.2.6 – Enhance District level of knowledge and understanding of wet weather flows and system response to precipitation and other factors	100%	100%	100%
Conveyance	System Monitoring	Percent of permanent monitoring sites with less than 30 consecutive days of missing or bad data	2.2.1.2.6 – Enhance District level of knowledge and understanding of wet weather flows and system response to precipitation and other factors	77%	72%	72% ¹⁶
Conveyance	System Monitoring	Percent of monitoring sites calibrated [check and adjustment as necessary] annually	2.2.1.2.6 – Enhance District level of knowledge and understanding of wet weather flows and system response to precipitation and other factors	100%	100%	100%
Conveyance	System Monitoring	Percent of rain gauges calibrated [check and adjustment as necessary] annually	2.2.1.2.6 – Enhance District level of knowledge and understanding of wet weather flows and system response to precipitation and other factors	94%	94%	94%
Conveyance	System Monitoring	Percent of data reviewed for QA within 30 days	2.2.1.2.6 – Enhance District level of knowledge and understanding of wet weather flows and system response to precipitation and other factors	90%	70%	70%

¹⁶ Sites with non-functioning equipment have not been repaired because they will be replaced or abandoned under the WWPFMP. Some sites have portable meters to cover gaps in data until permanent meters are functioning.



ATTACHMENT 1 – CMOM PERFORMANCE MEASURES

Service Area	Functional Area	Measure * indicates the measure is also a benchmark	Reference Objective	2008 Status/Value	2009 Status/Value	2010 Status/Value
Conveyance	Customer Service	Percent of documented inquiries with a documented response	2.2.1.2.7 – Provide information receipt, response activity, and feedback regarding customer inquiries	97%	100%	96%
Treatment	System Performance	Volume of in-plant diversions not consistent with permit requirements	2.2.1.3.1 – Continue to provide effluent quality that meets or exceeds WPDES permit requirements and effluent quality goals	0	0	0
Treatment	System Performance	Number of in-plant diversions not consistent with permit requirements	2.2.1.3.1 – Continue to provide effluent quality that meets or exceeds WPDES permit requirements and effluent quality goals	0	0	0
Treatment	System Performance	Receipt of NACWA Peak Performance Award	2.2.1.3.1 – Continue to provide effluent quality that meets or exceeds WPDES requirements and effluent quality goals	Yes	Yes	Yes ¹⁷
Treatment	System Performance	Percent of time effluent BOD is in compliance with WPDES permit	2.2.1.3.1 – Continue to provide effluent quality that meets or exceeds WPDES requirements and effluent quality goals	100%	100%	100%
Treatment	System Performance	Percent of time effluent TSS is in compliance with WPDES permit	2.2.1.3.1 – Continue to provide effluent quality that meets or exceeds WPDES requirements and effluent quality goals	100%	100%	100%
Treatment	System Performance	Percent of time effluent fecal coliform count is in compliance with WPDES permit	2.2.1.3.1 – Continue to provide effluent quality that meets or exceeds WPDES requirements and effluent quality goals	100%	100%	100%

¹⁷ Qualified, not yet received

ATTACHMENT 1 – CMOM PERFORMANCE MEASURES

Service Area	Functional Area	Measure * indicates the measure is also a benchmark	Reference Objective	2008 Status/Value	2009 Status/Value	2010 Status/Value
Treatment	System Performance	Percent of time effluent Phosphorous is in compliance with WPDES permit	2.2.1.3.1 – Continue to provide effluent quality that meets or exceeds WPDES requirements and effluent quality goals	100%	100%	100%
Treatment	System Performance	Percent of time effluent Ammonia is in compliance with WPDES permit	2.2.1.3.1 – Continue to provide effluent quality that meets or exceeds WPDES requirements and effluent quality goals	100%	100%	100%
Treatment	System Performance	Volume of SSOs due to closure of the ISS separate sewer gates where the event generated flow is below the approved Level of Protection	2.2.1.3.2 – Continue to optimize effectiveness of wet weather treatment capacity	0	0	0
Treatment	System Performance	Volume of SSOs due to closure of the ISS separate sewer gates	2.2.1.3.2 – Continue to optimize effectiveness of wet weather treatment capacity	686 MG ¹⁸	56 MG	326 MG ¹⁹
Treatment	System Performance	Number of SSO events due to closure of the ISS separate sewer gates where the event generated flow is below the approved Level of Protection	2.2.1.3.2 – Continue to optimize effectiveness of wet weather treatment capacity	0	0	0
Treatment	System Performance	Number of SSOs due to closure of the ISS separate sewer gates	2.2.1.3.2 – Continue to optimize effectiveness of wet weather treatment capacity	1	1	2

¹⁸ This is the total overflow volume for the event where the ISS was closed to separate sewage. It is not an actual determination of the specific overflow volume that was directly caused by the closing of the ISS separate sewer gates.

¹⁹ This is the total overflow volume for the event where the ISS was closed to separate sewage. It is not an actual determination of the specific overflow volume that was directly caused by the closing of the ISS separate sewer gates



ATTACHMENT 1 – CMOM PERFORMANCE MEASURES

Service Area	Functional Area	Measure <small>* indicates the measure is also a benchmark</small>	Reference Objective	2008 Status/Value	2009 Status/Value	2010 Status/Value
Treatment	System Performance	Percent of produced biosolids that are beneficially reused	2.2.1.3.3 – Continue to manage biosolids in a manner that maximizes beneficial reuse	91% ²⁰	96.8% ²¹	98.4% ²²
Treatment	Asset Management	Fixed Asset SOPs updated by December 31, 2010	2.2.1.2.4 – Continue to establish and document level of protection, design and performance standards for conveyance assets constructed in the District service area	N/A for 2008	N/A for 2009	Completed
Treatment	Asset Management	Percent of treatment plant assets with defined condition and management method as documented in the Asset Information Management System	2.2.1.3.4 – Continue to establish and document levels of protection, design and performance standards for treatment plant assets	0%	0%	0%
Treatment	Asset Management	Establish criteria and procedures for conducting Business Case Analysis on treatment plant projects by June 30, 2009	2.2.1.3.4 – Continue to establish and document levels of protection, design and performance standards for treatment plant assets	In Progress	In Progress	In Progress ²³
Treatment	Asset Management	Percent of Business Case Analyses completed where required by District procedures	2.2.1.3.4 – Continue to establish and document levels of protection, design and performance standards for treatment plant assets	N/A for 2008	N/A for 2009	N/A for 2010
Treatment	Asset Management	Level of Protection is defined (by the 2020 Facilities Plan) and approved by the WDNR for the Wastewater	2.2.1.3.4 – Continue to establish and document levels of protection, design and performance standards for treatment plant assets	Yes	Yes	Yes

²⁰ Remainder was PCB contaminated biosolids and sludge from the bottom of the digester removed during cleaning.

²¹ All biosolids not beneficially reused were from cleaning of digesters.

²² All biosolids not beneficially reused were from cleaning of digesters.

²³ New completion date is June 30, 2011.



ATTACHMENT 1 – CMOM PERFORMANCE MEASURES

Service Area	Functional Area	Measure <small>* indicates the measure is also a benchmark</small>	Reference Objective	2008 Status/Value	2009 Status/Value	2010 Status/Value
		System				
Treatment	Capital Program Implementation	Facilities Plan implementation on schedule for treatment plant studies and projects	2.2.1.3.4 – Continue to establish and document levels of protection, design and performance standards for treatment plant assets	Yes	Yes	Yes
Treatment	Asset Management	Number of PM work orders older than 90 days (plant equipment)	2.2.1.3.5 – Minimize the cost of wastewater treatment plant asset ownership while maintaining necessary stewardship of assets and achieving defined protection levels	564	481	349
Treatment	Asset Management	Planned maintenance ratio: count of work orders	2.2.1.3.5 – Minimize the cost of wastewater treatment plant asset ownership while maintaining necessary stewardship of assets and achieving defined protection levels	79%	72%	73%
Treatment	Asset Management	Percent of PM tasks completed	2.2.1.3.5 – Minimize the cost of wastewater treatment plant asset ownership while maintaining necessary stewardship of assets and achieving defined protection levels	89%	99%	99%
Treatment	Asset Management	Number of CM work orders older than 90 days (treatment plant equipment)	2.2.1.3.5 – Minimize the cost of wastewater treatment plant asset ownership while maintaining necessary stewardship of assets and achieving defined protection levels	257	528	276

ATTACHMENT 1 – CMOM PERFORMANCE MEASURES

Service Area	Functional Area	Measure <small>* indicates the measure is also a benchmark</small>	Reference Objective	2008 Status/Value	2009 Status/Value	2010 Status/Value
Treatment	Asset Management	Planned maintenance ratio: cost*	2.2.1.3.5 – Minimize the cost of wastewater treatment plant asset ownership while maintaining necessary stewardship of assets and achieving defined protection levels	47%	38%	37%
Treatment	Asset Management	Planned maintenance ratio: hours*	2.2.1.3.5 – Minimize the cost of wastewater treatment plant asset ownership while maintaining necessary stewardship of assets and achieving defined protection levels	56%	52%	52%
Treatment	Asset Management	O&M cost per MG treated*	2.2.1.3.5 – Minimize the cost of wastewater treatment plant asset ownership while maintaining necessary stewardship of assets and achieving defined protection levels	\$920/MG	\$1,040/MG	\$1,036/MG
Watercourse	Capital Program Implementation	Annual number of habitable structures removed from the District's one-percent probability floodplain	2.2.1.4.1 – Within jurisdictional streams, cost-effectively remove habitable structures from flooding associated with the one-percent probability flood event	2	0	1
Watercourse	Capital Program Implementation	Percent of annual habitable structures removal goal achieved.	2.2.1.4.1 – Within jurisdictional streams, cost-effectively remove habitable structures from flooding associated with the one-percent probability flood event	33%	0%	5%

ATTACHMENT 1 – CMOM PERFORMANCE MEASURES

Service Area	Functional Area	Measure <small>* indicates the measure is also a benchmark</small>	Reference Objective	2008 Status/Value	2009 Status/Value	2010 Status/Value
Watercourse	System Performance	Number of habitable structures impacted (low water entry into a habitable building) by the District's one-percent probability flood	2.2.1.4.1 – Within jurisdictional streams, cost-effectively remove habitable structures from flooding associated with the one-percent probability flood event	861 structures ²⁴	1,093 structures ²⁵	1,035 structures ²⁶
Watercourse	System Conservation	Percent of stormwater management plans reviewed within the timeframe allowed	2.2.1.4.2 –Reduce the likelihood of new habitable structures being added to the District's one-percent probability floodplain	100%	100%	100%
Watercourse	System Conservation	Area of property protected/preserved through District ownership or conservation easement	2.2.1.4.2 –Reduce the likelihood of new habitable structures being added to the District's one-percent probability floodplain	228 acres ²⁷	187 acres ²⁸	220 acres ²⁹
Watercourse	Asset Management	Number of presentations by District personnel that included information on stormwater runoff reduction practices	2.2.1.4.2 - Reduce the likelihood of new habitable structures being added to the District's one-percent probability floodplain	60 presentations	119 presentations	53 presentations
Watercourse	Asset Management	Number of rain barrels sold by the District	2.2.1.4.2 - Reduce the likelihood of new habitable structures being added to the District's one-percent probability floodplain	2,854 rain barrels ordered	2,814 rain barrels ordered	1,782 rain barrels ordered
Watercourse	Asset Management	Number of stormwater runoff reduction projects with District financial participation	2.2.1.4.2 - Reduce the likelihood of new habitable structures being added to the District's one-percent probability floodplain	5 projects	9 projects	6 projects

²⁴ The number increased due to analysis conducted by SEWRPC on the Milwaukee and Kinnickinnic Rivers.

²⁵ The number increased due to analysis conducted on the Kinnickinnic River.

²⁶ The number decreased due to review and analysis on several watercourse systems.

²⁷ 1,849 acres to date

²⁸ 2,036 acres to date

²⁹ 2,256 acres to date



ATTACHMENT 1 – CMOM PERFORMANCE MEASURES

Service Area	Functional Area	Measure <small>* indicates the measure is also a benchmark</small>	Reference Objective	2008 Status/Value	2009 Status/Value	2010 Status/Value
Watercourse	Asset Management	Linear feet of jurisdictional streambank with a current condition assessment	2.2.1.4.3 – Establish and document level of protection, design and performance standards for new assets in the watercourse system	15% (corrected from 2008 report)	20%	51%
Watercourse	Asset Management	Fixed Asset SOPs updated by December 31, 2010	2.2.1.2.4 – Continue to establish and document level of protection, design and performance standards for conveyance assets constructed in the District service area	N/A for 2008	N/A for 2009	Completed
Watercourse	Asset Management	Percent of watercourse assets with defined condition and management method documented in the Asset Information Management System	2.2.1.4.3 – Establish and document level of protection, design and performance standards for new assets in the watercourse system	13%	24%	44%
Watercourse	Asset Management	Establish criteria and procedures for conducting Business Case Analysis on watercourse projects by June 30, 2009	2.2.1.4.3 – Establish and document level of protection, design and performance standards for new assets in the watercourse system	In Progress	In Progress	In Progress ³⁰
Watercourse	Asset Management	Percent of Business Case Analyses completed where required by District procedures	2.2.1.4.3 – Establish and document level of protection, design and performance standards for new assets in the watercourse system	N/A for 2008	N/A for 2009	N/A for 2010
Watercourse	Asset Management	Number of jurisdictional watercourse construction project updates to the GIS	2.2.1.4.3 – Establish and document level of protection, design and performance standards for new assets in the watercourse system	9 contracts	6 contracts	0 contracts

³⁰ New completion date is June 30, 2011.



ATTACHMENT 1 – CMOM PERFORMANCE MEASURES

Service Area	Functional Area	Measure * indicates the measure is also a benchmark	Reference Objective	2008 Status/Value	2009 Status/Value	2010 Status/Value
Watercourse	Asset Management	Backlog of jurisdictional watercourse construction project updates to the GIS	2.2.1.4.3 – Establish and document level of protection, design and performance standards for new assets in the watercourse system	0 contracts	1 contract	2 contracts
Watercourse	Asset Management	Level of Protection defined and accepted by Stakeholders	2.2.1.4.3 – Establish and document level of protection, design and performance standards for new assets in the watercourse system	Yes	Yes	Yes
Watercourse	Asset Management	Percent of scheduled jurisdictional watercourse inspections completed	2.2.1.4.4 – Minimize the cost of watercourse asset ownership while maintaining necessary stewardship of assets and achieving defined protection levels	100% ³¹	86%	95%
Watercourse	Asset Management	Percent of scheduled culvert and structure inspections completed	2.2.1.4.4 – Minimize the cost of watercourse asset ownership while maintaining necessary stewardship of assets and achieving defined protection levels	100%	100%	100%
Watercourse	Asset Management	Jurisdictional watercourse O&M costs	2.2.1.4.4 – Minimize the cost of watercourse asset ownership while maintaining necessary stewardship of assets and achieving defined protection levels	\$ 228,240	\$ 564,940	\$ 1,297,012
Watercourse	Asset Management	Jurisdictional watercourse O&M hours	2.2.1.4.4 – Minimize the cost of watercourse asset ownership while maintaining necessary stewardship of assets and achieving defined protection levels	2,776	2,093	4,218
Watercourse	System Conservation	Percent of jurisdictional watercourse with non-concrete streambeds	2.2.1.4.5 – Continue to be a leader in the effort to improve the area's waterways	82%	82%	82%

³¹ Schedule was not fully developed - inspections were scheduled on an as-needed basis and completed immediately.



ATTACHMENT 1 – CMOM PERFORMANCE MEASURES

Service Area	Functional Area	Measure * indicates the measure is also a benchmark	Reference Objective	2008 Status/Value	2009 Status/Value	2010 Status/Value
Watercourse	Customer Service	Percent inquiry documentation completed	2.2.1.4.6 – Provide information receipt, response activity, and feedback regarding customer inquiries on the watercourse system	44% ³²	100%	100%

³² District transitioned to in-house receipt and response to watercourse inquiries in 2008.

ATTACHMENT 2 – MODIFICATIONS TO THE MANAGEMENT PLAN

This Attachment intentionally left blank for the 2010 Report

ATTACHMENT 3 – CONSTRUCTED SANITARY SEWER OVERFLOW LOCATIONS

MMSD Site Number	WPDES Permit ID number	Location	Pump or Gravity	Current SCADA	Current Portable	Notes
BS0101	220	S Howell Ave at E Grange Ave (ext'd)	Gravity	No	Yes	Installed portable meter on 3/15/06
BS0302	233	W Fisher Pkwy at N 106th St	Gravity	Yes		
BS0303	247	W Oklahoma Ave, 100 feet w/o S 74th St	Pump	Yes		
BS0304	242	S 79th St (ext'd) & W Dickenson St (ext'd)	Gravity	No	Yes	
BS0401	235	N Honey Creek Pkwy & W Wisconsin Ave	Pump	Yes		
BS0402	237	N Menomonee River Pkwy, 300 feet e/o N 68th St	Gravity	No	Yes	Portable meter in outfall pipe
BS0403	234	N Honey Creek Pkwy & W Portland Ave	Gravity	No	Yes	
BS0404	263	W Green Tree Rd & Milwaukee River	Gravity	Yes		
BS0501	230	N Richards St & E Congress St	Gravity	Yes		Recently discovered information indicates combined sewage is tributary to this outfall. The District will request to transfer this outfall to the CSO list in the discharge permit re-issuance process.
BS0503	226	W Roosevelt Dr & N 35th St	Pump	Yes		
BS0504	214	W Hampton Ave & N Lydell Ave	Gravity	No	No	Manually activated gate
BS0505	223	W Villard Ave & N 27th St	Pump	Yes		
BS0506	231	N Range Line Rd & Milwaukee River (east side)	Pump	Yes		
BS0507	229	N 46th St & W State St	Gravity	Yes		
BS0508	213	W Hampton Ave at N Green Bay Rd (east side)	Gravity	No	Yes	Overflow was redirected to another MIS in 2009
BS0509	212	W Hampton Ave & N Green Bay Rd (west side)	Gravity	No	Yes	Site was abandoned on 1/29/09
BS0510	208	N 31st St (ext'd) & Lincoln Creek (north side)	Gravity	No	No	Site was abandoned with construction of Relief MIS in 2005

ATTACHMENT 3 – CONSTRUCTED SANITARY SEWER OVERFLOW LOCATIONS

MMSD Site Number	WPDES Permit ID number	Location	Pump or Gravity	Current SCADA	Current Portable	Notes
BS0511	207	N 31st St & W Fairmont Ave	Gravity	No	Yes	
BS0512	244	N Lydell Ave & W Lancaster Ave	Gravity	No	No	Manually activated gate
BS0513	245	N Lydell Ave & W Montclair Ave	Gravity	Yes	Yes	MS0508, and portable meter in overflow pipe
BS0514	209	N 27th St & W Silver Spring Dr	Gravity	No	Yes	
BS0515	N/A	200 E River Woods Parkway. [Manhole 02140 – s/o E Hampton Rd & N Lydell Ave, s/o Milwaukee River (formerly Pillsbury Silos)]	Gravity	No	No	Manholes modified as part of Northeast Side Flow Control Gates, level monitored at NS3 junction chamber
BS0516	N/A	4700 N Estabrook Parkway. [Manhole 02141 – s/o E Hampton Rd & N Lydell Ave, n/o Milwaukee River (formerly Pillsbury Silos)]	Gravity	No	No	Manholes modified as part of Northeast Side Flow Control Gates, level monitored at NS3 junction chamber
BS0601	225	S 35th St & W Manitoba St	Pump	Yes		
BS0602	232	S Kinnickinnic Ave & E St Francis Ave	Gravity	Yes		
BS0603	243	W Lincoln Ave, 565 feet w/o S 43rd St	Gravity	No	Yes	
BS0604	224	S 1st St & W Layton Ave	Gravity	No	Yes	Abandoned in 2008
BS0701	250	S Water St & E Bruce St	Gravity	Yes	No	Abandoned during 1990s
DC0103	260	S 6th St & W Oklahoma Ave	Gravity	Yes		Under wet weather operating conditions of the District system, this site acts as a CSO. The District will request to transfer this outfall to the CSO list in the discharge permit re-issuance process.
DC0402	262	N 59th St & W Trenton Pl	Gravity	Yes		Recently discovered information indicates combined sewage is tributary to this outfall. The District will request to transfer this outfall to the CSO list in the discharge permit re-issuance process.



ATTACHMENT 3 – CONSTRUCTED SANITARY SEWER OVERFLOW LOCATIONS

MS0409	206	RR Tracks 500' s/o Milwaukee/Ozaukee County border and 200' w/o Waverly Rd	Gravity	Yes		Level sensor in MS0409, which has a gravity overflow pipe
PS0402	264	Ravine Lift Station	Gravity	Yes		
N/A	205	W Roosevelt Dr & W Scranton Pl	Gravity	No	No	42 inch bypass pipe is currently bulkheaded; site is under evaluation

ATTACHMENT 4 – CONSTRUCTED COMBINED SEWER OVERFLOW LOCATIONS

Receiving water (of combined sewer overflow)	Combined Sewer Outfall Number	Diversions Structure Number	ISS Drop Shaft	Intercepting Structure Number	IS upstream of DS	Location	Notes
Burnham Canal	189	189	CT07	400	Yes	S 9th St	
Burnham Canal	190	190	CT07	400A	Yes	S 9th St	
Burnham Canal	191	191	CT07	399	Yes	S 11th St	
Burnham Canal	193	193	CT07	398	Yes	S 13th St	
Burnham Canal	194	194	CT07	396	Yes	S Muskego Ave	
Kinnickinnic River	019	85046	None	None	N/A	S 1st St at the Kinnickinnic River	MIS Overflow
Kinnickinnic River	148	148	CT08	369	Yes	E National Ave	
Kinnickinnic River	149	149	CT08	368A	Yes	S of E Walker St	
Kinnickinnic River	150	150	CT08	367	Yes	S of E Washington St	
Kinnickinnic River	151	151	CT08	346	Yes	E Greenfield Ave	
Kinnickinnic River	152	152	KK03	342	Same structure	S Kinnickinnic Ave	
Kinnickinnic River	153	153	KK03	339	Yes	S Kinnickinnic Ave	
Kinnickinnic River	154	154	KK03	341	Yes	S 1st St	
Kinnickinnic River	155	155	KK03	340	Yes	S 1st St	
Kinnickinnic River	156	156	KK03	345A	Yes	S 2nd St	
Kinnickinnic River	157	157	KK03	345/345A	Yes	W Rogers St	
Kinnickinnic River	158	158/159	KK03	343 & 344A	Yes	W Becher St	
Kinnickinnic River	159	158/159	KK03	343 & 344A	Yes	W Becher St	
Kinnickinnic River	160	160	KK04	None	Yes	E Lincoln Ave	
Kinnickinnic River	161	161	KK04	330	Same structure	W Lincoln Ave	
Kinnickinnic River	162	162	KK04	331	Same structure	W Lincoln Ave	
Kinnickinnic River	163	163	KK02	328	Yes	S Chase Ave	
Kinnickinnic River	164	164	KK02	327	Yes	S Chase Ave	
Kinnickinnic River	165	165	KK01	325	Same structure	W Cleveland Ave	
Kinnickinnic River	166	166	KK01	325	Same structure	W Cleveland Ave	
Kinnickinnic River	166A	KK1JC01	KK01	None	N/A	S 6th St at W Cleveland Ave	KK1 Junction Chamber overflow
Kinnickinnic River	167	167	KK01	City Manhole	Yes	S 8th St	

ATTACHMENT 4 – CONSTRUCTED COMBINED SEWER OVERFLOW LOCATIONS

Receiving water (of combined sewer overflow)	Combined Sewer Outfall Number	Diversions Structure Number	ISS Drop Shaft	Intercepting Structure Number	IS upstream of DS	Location	Notes
Kinnickinnic River	168	168	KK01	City Manhole	Yes	S 14th St	
Kinnickinnic River	169	169	KK01	City Manhole	Yes	S 27th St	
Lake Michigan	195	195	LMN	338	Same structure	E Bay St	
Lake Michigan	196	196	LMS	335, 336 & 337	Yes	E Russell Ave	
Lincoln Creek	145	145	NS12	500	Yes	N 35th St & W Congress St	
Lincoln Creek	197	BS0502	None	None	N/A	Hampton Ave at 32nd St	
Menomonee River	010	85047	None	None	N/A	W Canal St at 8th St	MIS Overflow
Menomonee River	170	170	CT08	404	Yes	S 2nd St	
Menomonee River	474	474	CT07	390	Same structure	N Ember La	Abandoned in 2007
Menomonee River	172	172	CT07	197B & 197C	Yes	N Ember La	Upsized in 2007
Menomonee River	173	173/174	CT07	388	Yes	N 15th St	
Menomonee River	174	173/174	CT07	388	Yes	N 15th St	
Menomonee River	174A	174	CT07	384B	Yes	N 16th St & Pittsburg St	Abandoned
Menomonee River	175	175	CT07	387	Yes	N 17th St	
Menomonee River	176	176	CT5/6	380	Yes	N 25th St	
Menomonee River	177	177	CT5/6	380	Yes	N 26th St	
Menomonee River	177A	CT5/6	CT5/6	None	N/A	123 N 25th St (CT5,6)	
Menomonee River	178	178	CT5/6	358 & 359A	Yes	S 27th St	
Menomonee River	179	179	CT5/6	359A	Yes	S 27th St	Outfall 179 was never built
Menomonee River	180	180	CT5/6	381 & 357	No	S 35th St	
Menomonee River	181	181	CT3/4	377	Same structure	W Wisconsin Ave	
Menomonee River	182	182	CT3/4	193A, 372 & 372A	Yes	N 43rd St	
Menomonee River	182A	C182A01	CT3/4	None	Yes	4251 W State St (CT3,4)	54" flow balance overflow

ATTACHMENT 4 – CONSTRUCTED COMBINED SEWER OVERFLOW LOCATIONS

Receiving water (of combined sewer overflow)	Combined Sewer Outfall Number	Diversions Structure Number	ISS Drop Shaft	Intercepting Structure Number	IS upstream of DS	Location	Notes
Menomonee River	183	183	CT3/4	183	Yes	N 45th St	IS183 goes to City of Milwaukee sanitary sewer
Menomonee River	184	DG08-03	CT02	188	Yes	N Hawley Rd	
Menomonee River	185	185	CT07	386	Yes	N 9th St (Ext'd)	
Milwaukee River	015	85043	None	None	N/A	N Marshall St at the Milwaukee River	MIS Overflow
Milwaukee River	016	85042	None	None	N/A	W Vliet St ext'd, east of N 3rd St	MIS Overflow
Milwaukee River	017	105/017	NS08	None	N/A	N Van Buren St at E Brady St	MIS Overflow
Milwaukee River	018	BS0701	None	None	N/A	S Water St at E Bruce St	Siphon protection
Milwaukee River	051	51	NS07	208	Yes	Point 300' west of N Humboldt Ave & N Weil ext'd	
Milwaukee River	089	NS11JC01	NS11	134	Yes	E Capitol Dr	
Milwaukee River	090	90	NS04	135A	Yes	E Keefe Ave	
Milwaukee River	091	91	NS04	73 & 74A	Yes	E Edgewood Ave	
Milwaukee River	092	92	NS05	135	Yes	E Auer Ave	
Milwaukee River	094	94	NS05	Unknown	Yes	E Burleigh St	
Milwaukee River	096	NS5A02	NS05	None	Yes	E Locust St	
Milwaukee River	097	97	NS06	136	Yes	E Park Pl	
Milwaukee River	098	98	NS06	228	Yes	E Bradford Ave	
Milwaukee River	099	99	NS07	141 & 228A	Yes	E Boylston St	
Milwaukee River	101	101	NS07	230	Yes	N Pulaski St	
Milwaukee River	102	102	NS07	207	Yes	N Humboldt Ave	
Milwaukee River	103	103	NS07	231	Yes	N Marshall St	
Milwaukee River	103A	NS7	NS07	None	N/A	1944 N Commerce St	NS07 Junction Chamber
Milwaukee River	104	104	NS07	199/200A	Yes	N Holton St	



ATTACHMENT 4 – CONSTRUCTED COMBINED SEWER OVERFLOW LOCATIONS

Receiving water (of combined sewer overflow)	Combined Sewer Outfall Number	Diversions Structure Number	ISS Drop Shaft	Intercepting Structure Number	IS upstream of DS	Location	Notes
Milwaukee River	105	105/017	NS08	232	No	E Brady St	
Milwaukee River	106	106	NS08	209	Yes	N of E Pleasant St	
Milwaukee River	107	107	NS08	210	Yes	E Walnut St	
Milwaukee River	108	108	NS08	233	Yes	E Pleasant St	Abandoned in 2007
Milwaukee River	108A	NS8B01	NS08	None	N/A	E Pleasant St at N Water St	96" flow balance overflow Abandoned in 2007
Milwaukee River	108B	108	NS08	233	Yes	E Pleasant St at N Water St	Constructed in 2007 to replace 108 and 108A
Milwaukee River	109	109	NS08	211	Same structure	N of W Cherry St	
Milwaukee River	110	110	NS08	201 & 201A	Yes	W Cherry St	
Milwaukee River	110A	110A	NS08	212	Same structure	W Cherry St	Outfall 110A does not exist
Milwaukee River	111	111	NS08	234	Yes	E Lyon St	
Milwaukee River	112	112	NS09	235	Same structure	E Ogden Ave	
Milwaukee River	113	113	NS09	213	Yes	W McKinley Ave	
Milwaukee River	113A	113A	NS09	214A	Yes	W Juneau Ave (Park West Freeway)	
Milwaukee River	114	114	NS09	215	No	W Juneau Ave	
Milwaukee River	115	115	NS09	216	No	W Highland Ave	
Milwaukee River	116	116	NS09	237	No	E Highland Ave	
Milwaukee River	117	117	NS09	217	No	W State St	
Milwaukee River	118	118	NS09	238A	No	E State St	
Milwaukee River	119	119	NS09	218	Yes	W Kilbourn Ave	
Milwaukee River	120	120N/120S	NS09	239, 239A & 239B	No, Same, Same	E Kilbourn Ave	
Milwaukee River	121	121	NS09	219 & 219A	Yes	N of W Wells St	
Milwaukee River	122	122	NS09	220	No	W Wells St	
Milwaukee River	123	123	NS09	240	No	E Wells St	
Milwaukee River	124	124	NS09	221	Yes	N of W Wisconsin Ave	

ATTACHMENT 4 – CONSTRUCTED COMBINED SEWER OVERFLOW LOCATIONS

Receiving water (of combined sewer overflow)	Combined Sewer Outfall Number	Diversion Structure Number	ISS Drop Shaft	Intercepting Structure Number	IS upstream of DS	Location	Notes
Milwaukee River	125	125	NS09	222	No	W Wisconsin Ave	
Milwaukee River	126	126	NS10	241	Same structure	E Wisconsin Ave	
Milwaukee River	127	127	NS10	223	No	W Michigan St	
Milwaukee River	128	128	NS10	242	No	E Michigan St	
Milwaukee River	129	129	NS10	224	Yes	N of W Clybourn St	
Milwaukee River	130	130	NS10	225	Yes	W Clybourn St	
Milwaukee River	131	131	NS10	243	No	E Clybourn St	
Milwaukee River	133	NS10F05	NS10	227	Yes	W St. Paul Ave	
Milwaukee River	134	134	NS10	244	No	E St. Paul Ave	
Milwaukee River	135	135	NS10	245	Yes	E Buffalo St	
Milwaukee River	136	136	NS10	246	Same structure	E Chicago St	
Milwaukee River	137	137	CT08	405	Same structure	S 1st Pl	
Milwaukee River	139	139	CT08	406	Yes	E Pittsburgh Ave	
Milwaukee River	140	140	NS10	247	Yes	N Broadway	
Milwaukee River	141	141	CT08	403 & 403A	Yes	E Florida St	
Milwaukee River	142	142	NS10	248A	Yes	E Polk St	
Milwaukee River	143	143	CT08	370	Same structure	E Bruce St	
Milwaukee River	144	144	NS08	234A	Yes	E Lyon St	
Milwaukee River	146	146	NS07	142A	Yes	N Arlington Pl	
Milwaukee River	147	147	NS09	236	No	E Juneau Ave	
South Menomonee Canal	061	EWWE	None	None	N/A	3 rd & Seeboth	Emergency Wastewater Exit
South Menomonee Canal	187	187	CT08	401 & 402	Yes	S 4th St	
South Menomonee Canal	188	188	CT08	384	Yes	S 6th St	

ATTACHMENT 5– SATELLITE MUNICIPALITY PHONE LIST

Municipality	Business Hours	After hours / weekends
Bayside	414-351-8811	414-351-8800
Brookfield	262-782-0199	262-782-0199
Brown Deer	414-357-0120	414-371-2900
Butler	262-783-2525	262-783-2525
Caledonia	262-835-7765	262-835-4423
Cudahy	414-769-2216	414-769-2260
Elm Grove	262-782-6700	262-786-4141
Fox Point	414-351-8900	414-351-8914
Franklin	414-421-2613	414-425-2522
Germantown	262-250-4721	262-253-7780
Glendale	414-228-1710	414-228-1753
Greendale	414-423-2133	414-423-2121
Greenfield	414-761-5374	414-761-5300
Hales Corners	414-529-6161	414-529-6140
Menomonee Falls	262-532-4800	262-532-1700
Mequon	262-236-2919	262-242-3500
Milwaukee	414-286-2489	414-286-2489
Muskego	262-679-4128	262-679-4130
New Berlin	262-786-7086	262-782-6640
Oak Creek	414-768-7060	414-768-7060
River Hills	414-352-0080	414-247-2300
St. Francis	414-481-2300	414-481-2232
Shorewood	414-847-2650	414-847-2610
Thiensville	262-242-3720	262-242-2100
Wauwatosa	414-471-8422	414-471-8422
West Allis	414-302-8800	414-302-8000
West Milwaukee	414-645-6238	414-645-2151
Whitefish Bay	414-962-6690	414-962-6690

ATTACHMENT 6 – DISTRICT SITUATIONAL CONTACT LIST

Situation	Urgency	Direct to	Phone number
Water in basement	Critical	Central Control Operator (Veolia)	282-7200 (internal x3491)
Sewage overflow	Critical	Central Control Operator (Veolia)	282-7200 (internal x3491)
Spill of a hazardous substance into the sewer system	Critical	Central Control Operator (Veolia)	282-7200 (internal x3491)
Clogged MIS or structure	Critical	Central Control Operator (Veolia)	282-7200 (internal x3491)
Illegal dumping into a sewer	Urgent	Central Control Operator (Veolia)	282-7200 (internal x3491)
Illegal dumping into catch basin	Urgent	Central Control Operator (Veolia)	282-7200 (internal x3491)
Contractor hit District facility	Urgent	Debra Jensen (District) (Backup is Larry Anderson)	225-2143 (Backup 617-1429)
Manhole cover missing	Urgent	Central Control Operator (Veolia)	282-7200 (internal x3491)
Blockage/major debris in the river	Urgent	Dave Fowler (District) (Backup is Patrick Elliot)	277-6368 (Backup 225-2168)
Facility ownership question	Non-emergency	Debra Jensen (District)	225-2143
Municipal request regarding sewer system	Non-emergency	Debra Jensen (District)	225-2143
How much water is in the deep tunnel	Non-emergency	District Public web site	www.mmsd.com – click on storm update
How much rainfall have we received	Non-emergency	District Public web site	www.mmsd.com – click on storm update
Odor complaint	Non-emergency	Central Control Operator (Veolia)	282-7200 (internal x3491)
Maintenance of a District conveyance facility	Non-emergency	Central Control Operator (Veolia)	282-7200 (internal x3491)
Watercourse maintenance issue (e.g. grass cutting, graffiti, snow plowing)	Non-emergency	Dave Fowler (District)	277-6368
Construction site complaint	Non-emergency	Tom Zimmerman (District)	225-2147
Notice of Intent to Discharge into MMSD system	Non-emergency	Peter Topczewski (District)	225-2176

Note: All phone numbers are (414)