

4.1 Overflow Response Plan Development

The Overflow Response Plan (ORP) developed and documented here is a requirement of the 2002 Stipulation Agreement (Stipulation) (1) between the State of Wisconsin and the Milwaukee Metropolitan Sewerage District (MMSD or District). The ORP describes the measures in place to become aware of, respond to, and provide notification regarding overflows from District facilities.

Overflow Emergency Response Plan principles were proposed by the United States Environmental Protection Agency (USEPA) as a part of the draft Sanitary Sewer Overflow (SSO) rule (2) that was subsequently withdrawn. The withdrawn SSO rule, although never formally adopted, was considered, in the absence of other guidance, in developing the District ORP. However, the Stipulation requirements and District Capacity, Management, Operation, and Maintenance (CMOM) Program Objectives were the primary considerations.

This Overflow Response Plan is a further development of the Overflow Response Plan Strategy that was documented in the *MMSD CMOM Readiness Review and Implementation Strategy Development (CMOM Strategic Plan)* (3) completed in December 2005. There are many items that were identified during the readiness review and strategy development and documented in the *CMOM Strategic Plan* that have been partially or completely addressed as of the completion of this document. These items are still included to provide background information and continuity to the evolution of the Overflow Response Plan from readiness review to strategy development to final plan. In addition, the activities described in this Plan will be subject to change and refinement as the District continues implementing and gains experience with the CMOM Program.

The Stipulation requirements, withdrawn SSO rule, and CMOM objectives are discussed below.

4.1.1 Stipulation Requirements

The Wisconsin Department of Natural Resources (WDNR) has outlined certain requirements for the District ORP within the Stipulation language. The District ORP has been developed to comply with the Stipulation requirements.

The Stipulation states:

“7. While sanitary sewer overflows in the District’s system have been significantly reduced, there are still sanitary sewer overflows within the District’s and its satellite municipalities’ sanitary sewer systems. To continue the District’s program to reduce with the goal of eliminating all non-permitted sanitary sewer overflows, the District shall implement the regional Capacity, Management, Operation and Maintenance (CMOM) program. The regional CMOM shall be comprised of four integrated components:”

The second component listed is:

“B. *Overflow Response Plan*. An overflow response plan that identifies measures to protect public health and the environment. This plan will outline the public

notification, permit reporting, measuring and monitoring steps to be taken during an overflow event.”

The items listed are all addressed in this District ORP.

4.1.2 Principles from Withdrawn SSO rule

In the withdrawn SSO rule that had been proposed by the USEPA in 2001, an Overflow Emergency Response Plan is required as part of a CMOM program. The following is the text of §122.42 (2) (vii) of the proposed rule:

“Overflow Emergency Response Plan. You must develop and implement an overflow emergency response plan that identifies measures to protect public health and the environment. The plan must include mechanisms to:

- A. Ensure that you are made aware of all overflows, to the greatest extent possible;
- B. Ensure that overflows (including those that do not discharge to waters of the U.S.) are appropriately responded to, including ensuring that reports of overflows are immediately dispatched to appropriate personnel for investigation and appropriate response;
- C. Ensure appropriate immediate notification to the public, health agencies, other impacted entities (e.g. water suppliers) and the NPDES [National Pollutant Discharge Elimination System] authority. The CMOM program should identify the public health and other officials who will receive immediate notification;
- D. Ensure that appropriate personnel are aware of and follow the plan and are appropriately trained; and
- E. Provide emergency operations.”

Although the withdrawn SSO rule was never promulgated, these principles were considered, in the absence of other guidance, in the development of this ORP.

4.1.3 District Objectives

In addition to the regulatory requirements, the District has the additional goals of:

- 1) Employee safety
- 2) District contractor safety
- 3) Protection of District assets

These items are also all addressed in the District ORP.

4.1.4 Components of the Overflow Response Plan

The goals of the District Overflow Response Plan are a melding of the guidelines from the withdrawn SSO Rule, the Stipulation requirements and District Objectives. They are to ensure that:

- A. The District knows about all overflows from its system (4.2.1)
- B. All District overflows are appropriately responded to (4.2.2)

- C. The public, health protection agencies and other interested parties are promptly notified (4.2.3)
- D. District personnel and District contractors are trained in and follow the plan (4.2.4)
- E. District personnel and District contractors follow safety procedures during emergency responses (4.2.4)
- F. District assets are protected (4.2.4)
- G. The plan is distributed and updated regularly (4.2.5)

Each of these goals will be addressed in the plan in the section identified below:

Overflow Identification (section 4.2.1)

Overflow Response (section 4.2.2)

Overflow Notification (section 4.2.3)

Plan Distribution and Training (section 4.2.4)

Overflow Response Plan Updates (section 4.2.5)

4.2 Overflow Response Plan

The overflow response plan (ORP) provides documentation of the methods that are and will be used to ensure that the District is aware of, responds to, and provides notification of all overflows of sewage from District facilities. To this end, the ORP is divided into sections on overflow identification (4.2.1), overflow response (4.2.2), and notification (4.2.3). In addition to these primary activities, the ORP documents the training requirements to ensure the plan is executed properly (4.2.4) and regularly updated (4.2.5). The District is including diversions (blending) at the treatment plants as equivalent to an overflow for the identification and notification portions of the ORP.

4.2.1 Overflow Identification

Overflows and diversions are usually at locations that were constructed to protect the system in separate sanitary sewer systems, in combined sewer systems, and at the treatment plants. The District presently monitors all of these sites in one form or another. In addition to this, the District distributes phone lists to the satellite system owners so they can notify the District in the event of an overflow at a location other than a constructed site. Lastly, the District maintains a 24-hour number so that the public can call in an overflow or other issue with the sewerage system. Each of these items is discussed in further detail below.

4.2.1.1 Identification by the District

The District identifies overflows through its extensive monitoring capabilities and through field investigations that occur during and after wet weather events. These are discussed for constructed sanitary sewer outfalls, combined sewer outfalls, and plant diversions below.

4.2.1.1.1 Sanitary Sewer Outfalls

There are 35 sanitary sewer outfall (SSO) points listed for the District (Appendix 4-1). 33 of the SSO points are listed in the District's current Wisconsin Pollutant Discharge Elimination System (WPDES) permit (5). Two of the SSO points have been added to the District's system since the writing of the last permit and were not listed. Two of the points listed in the permit (205 and 208) are presently abandoned and cannot actually overflow. There are therefore, 33 potentially active SSO points in the District system that must be monitored.

These 33 potentially active SSO points can either operate by gravity, as the water level in the sewer rises, or with the aid of pumps. Presently 17 SSO points are continuously monitored by the Supervisory Control and Data Acquisition (SCADA) system and have the information relayed to the Central Control System (CCS), which is staffed 24 hours per day, every day of the year. These are indicated in Appendix 4-1 by a Yes in the current SCADA column.

Of the remaining 16 sites, eight have portable meters installed in the outfall pipes and are checked by District field crews after wet weather events to determine if an overflow occurred. These are indicated in Appendix 4-1 by a Yes in the Current Portable column.

Of the other eight sites, two have gates that must be manually activated (214 and 244), one will either be abandoned or monitored if it cannot be abandoned (207), two are cooling water discharges at Jones Island wastewater treatment plant that are sampled monthly (248 and 249) and the remaining three will be monitored by December 31, 2007 (237, manholes 02140 and 02141 in NS3 collector system).

Therefore, by 12/31/2007, all of the 33 active SSO points will be monitored. Some will be monitored in real-time by the CCS, some will be monitored with portable metering that is checked by field crews, some will be sampled monthly and some have to be manually activated.

4.2.1.1.2 Combined Sewer Outfalls

There are 117 combined sewer outfall points listed in the District's WPDES permit, as shown in Appendix 4-2. For the purposes here, the sewers that divert flow from one combined sewer system to another or to a diversion structure are called combined sewer overflows. The combined sewer segments that lead to a river or the lake and allow sewage out of the system are called combined sewer outfalls.

Of the 117 combined sewer outfall points, one (174A) has been abandoned, one (179) has been reconfigured and joins another (178), and one (143) is a duplicate of another (018). There are therefore 114 potentially active combined sewer outfall points that must be monitored.

One-hundred seven of the combined sewer outfalls are hydraulically connected to one of 20 drop shaft systems that allow combined sewage into the Inline Storage System (ISS). The water level is monitored continuously in all of the drop shafts and the associated junction chamber and is relayed to the CCS. By monitoring the water level in the junction chamber and also monitoring river and lake levels, it will be known if sewage is escaping from the system through a combined sewer outfall. In addition, combined sewer outfalls are activated when the gates in the drop shafts are closed to combined sewage to reserve room for separate sewage. If there is no intervention in the control of the District sewer system, the CCS operator receives a notification when the gates to the combined sewer system are shut. If there is intervention, then the procedure followed requires deliberate actions involving District or contract operator personnel. In either case District staff will be aware that an overflow is occurring.

Of the other seven combined sewer outfalls, one is the Emergency Wastewater Exit (061), which is continuously monitored for water level. The other six (010, 015, 016, 018, 019, and 197) combined sewer outfalls are all for relief of the District's Metropolitan Interceptor Sewer (MIS) system. These sites are all presently monitored for water level, either as an individual site in the SCADA system, by nearby SCADA sites, with portable meters, with surcharge level indicators, or a combination of the above. The portable meters and surcharge level indicators are checked after rain events by District monitoring staff, as discussed below in section 4.2.2.2.

At most combined sewer overflow/outfall locations, the intercepting structure (IS) is upstream of a diversion structure (DS). At these locations, if a gate malfunctions or the MIS or flow regulating device becomes clogged, the flow will reach the DS and be directed to the ISS. There are 15 locations where the structures are reversed and the IS is

downstream of the DS. These sites are considered critical, because issues such as malfunctioning gates and/or clogged regulating devices can result in an overflow. Because of this, they are presently checked on a weekly basis by field crews to spot potential maintenance issues. The District is also presently considering constructed solutions to eliminate these critical configurations.

4.2.1.1.3 Plant Diversions

Manually operated diversion gates at the South Shore wastewater treatment plant (SSWWTP) and Jones Island wastewater treatment plant (JIWWTP) are locked and supervisor approval is required to remove the locks and open the gates. Flow diversions resulting from overflow of weirs are alarmed both on a local level and at the CCS. Automatic diversion gates and flow resulting from opening any of the automated gates is continuously monitored via the plant wide SCADA systems. Therefore, contract operator staff should be immediately aware of all diversions, provided SOPs are followed and monitoring equipment is functioning properly.

4.2.1.2 Identification by Satellite System Owners

The satellite sewer system owners that discharge into the District system are annually provided a listing of District contacts for specific problems and the 24 hour number for reporting emergency problems. In addition, they are asked to verify the contact names and numbers that the District has for response in their systems and provide updated information if it should be changed (Appendix 4-3).

There are times when satellite system operators are performing work or investigating problems when they notice an issue caused by the MIS system. The purpose of providing District contact information to satellite system operators is so they can contact the appropriate party at these times.

4.2.1.3 Identification by the Public

The District's contract operator (presently United Water) is required to staff a 24-hour telephone number that is listed in the telephone book for the Milwaukee Metropolitan Sewerage District. District customers and the general public can call the main number during work hours or the 24-hour number during off-hours.

The District's main number is answered by a receptionist between the hours of 8:00am and 4:30pm, Monday through Friday excluding holidays. The receptionist has a list of issues that have come up in the past and where the call should be directed for each of those issues (Appendix 4-4). During off hours, a caller will get a message that includes the 24-hour number and directs callers to this number if it is a District-related emergency.

4.2.2 Overflow Response

The response of the District and its contract operator to a possible overflow includes three parts.

1. Receive and document the information and direct it to the proper personnel.
2. Respond to the possible overflow.
3. Complete an analysis of the overflow.

Each of these is discussed below. The process of identification, response and notification is also shown graphically on the chart provided in Appendix 4-5.

4.2.2.1 Information Receipt

Calls received by the District operator regarding possible overflows are routed to the 24-hour call center (CCS) maintained by the contract operator. However, some calls related to overflows will also be received by other District staff. Whether District staff or contract operator staff is the primary contact, the procedure is the same: The primary contact makes further contacts with District and contract operator staff, ensures a proper response, provides feedback and documents the issue and actions taken.

If the contract operator receives: 1) A call from the public through the 24-hour telephone line; 2) A call from District staff; 3) A notification indicating that there is a possible overflow from the conveyance system; or 4) A notification of a diversion at the treatment plant; the CCS Operator will begin the receipt and response process. The CCS operator records the necessary information on the “CCS Overflows/Bypasses” form (Appendix 4-6) and performs notifications according to District procedure MON-SPVS-070 (Appendix 4-7), which includes completing and sending out the “CCS Overflows-Bypasses” form. The notifications to District personnel include a phone call to the Monitoring Supervisor or Water Quality Protection manager and an e-mail that reaches staff in the Offices of Water Quality Protection, Contract Compliance, and the Executive Director.

If the overflow notice comes in through a phone call, the following information is collected from the caller:

- Location and other information enabling a field crew to quickly locate the problem
- Description/Observations (e.g. water flowing out of pipe, bubbling out of manhole)
- Date and time of observation, date and time of call
- Caller’s name and phone number (for providing feedback)

Issues that are not related to overflows that are phoned in to either District or contract operator staff are documented on Request for Assistance (RFA) forms (Appendix 4-8) and are considered separately for the purposes of the Overflow Response Plan.

4.2.2.2 Response Procedures

After the information regarding a possible overflow or other potential problem in the conveyance system is received, the contract operator follows their procedures. The CCS operator may direct control of the issue to the conveyance system manager or on-call supervisor depending on the issue. The person in charge then directs the response, which may include calling in staff, securing emergency resources, securing the site, stopping, containing or mitigating the overflow, and documenting the incident. In addition, the contract operator may complete a Request for Assistance Form and communicate with District staff during an incident to ensure the response is appropriate. If the person in charge determines that the situation is an emergency, the Emergency Response Plan is

implemented, which includes an incident command system and procedures for responding to natural disasters, spills into the system, power loss, and other emergencies.

In addition to the contract operator's response, District staff performs some field work. The District work includes field checks to confirm possible overflows, collecting samples where required by the WPDES permit and collecting monitoring data that is necessary for determining the extent of the overflow. The District has standard operating procedure MON-SPVS-060 (Appendix 4-9) in place that describes the procedures and data to be collected by District staff for various wet weather events.

4.2.2.3 Overflow Analysis

For each overflow, a storm event summary is prepared and reviewed by personnel in the District's Contract Compliance Office. District procedure SOC-CA-01 (Appendix 4-10) outlines the requirements of the Storm Event Summary and review procedure. In addition, a review may be done under the direction of the District's Technical Services Division Director to determine if conditions warrant a detailed analysis of the overflow. The main issues reviewed are: 1) Is there a pending project to address any known problems in the area; and 2) Is this a recurring overflow? If there is a project pending, the analysis will focus on whether the proposed project would have eliminated the overflow. If there is not, the analysis will focus on identifying all details of the cause of the overflow and possible solutions.

The analysis, generally termed a root cause of failure analysis (RCFA), is used for overflows, possible overflows, failures and other unusual events. The analysis includes an evaluation of the overflow, system, precipitation, operations and maintenance details as necessary according to the review checklist and summary sheet included as Appendix 4-11.

4.2.3 Overflow Notification

The District has a defined procedure for notifying various parties when there is a possible overflow, confirmed overflow, or plant diversion. The process of notification is discussed below and also shown graphically on the chart provided in Appendix 4-5.

4.2.3.1 Public Notification

The e-mail that is sent by the contract operator (per 4.2.2.1 above) will be received by the District's Public Information Manager in the Office of the Executive Director. The Public Information Manager then takes the following actions:

- 1) Places a notice on the District's publicly accessible storm update site (http://www.mmsd.com/news/storm_update.cfm) for possible and confirmed overflows (Appendix 4-12).
- 2) Issues a news release and places it on the District's public web site (<http://www.mmsd.com/news/index.cfm>) for confirmed overflows.
- 3) Sends an e-mail to approximately 1,500 interested parties in the community for confirmed overflows.
- 4) Notifies the media for confirmed overflows.

4.2.3.2 Health Department Notification

The City of Milwaukee Health Department is notified via the original e-mail from the contract operator (per section 4.2.2.1 above) for confirmed overflows and when the combined sewer overflow (CSO) gates close (see Appendix 4-6).

4.2.3.3 Water Treatment Plant Notification

The Water Treatment Plants are notified via the original e-mail from the contract operator (per section 4.2.2.1 above) for confirmed overflows and when the CSO gates close (see Appendix 4-6).

4.2.3.4 Permit Required Notification

The WPDES administrator at the WDNR is notified via the original e-mail from the contract operator (per section 4.2.2.1 above) for confirmed overflows, CSO gate closure, and plant diversions (see Appendix 4-6). A letter providing detail for each specific overflow is sent to the WDNR within five days after the overflow. A quarterly report is also submitted that summarizes all of the overflows that occurred in the quarter and is considered the final documentation of the overflows. The Compliance Maintenance Annual Report (CMAR) that is submitted by June 30th each year also includes a summary of the overflows that occurred during the past year.

For the permit required notifications (5-day letter, quarterly report, and CMAR), the following information is included for each overflow as applicable:

- Estimated volume
- Estimated duration
- Location
- Reason and contributing circumstances
- Operational actions taken to maximize capture and treatment
- Steps being taken to prevent another discharge
- Precipitation intensity and totals (if caused by precipitation)
- Other relevant information

The District's Water Quality Protection Manager is responsible for completing and transmitting the 5-day letter, quarterly report and CMAR.

4.2.4 Plan Distribution and Training

Many of the elements of the ORP have already been implemented at the District. However, to ensure that they are all being implemented in accordance with the ORP, there will be an initial implementation that will include targeted training with the staff involved. Thereafter, there will be annual reviews of the plan elements, which may result in modifications to the plan. Whether there are modifications or not, there will be annual targeted awareness training and presentations given as necessary to ensure implementation of the ORP.

4.2.4.1 Initial Plan Implementation

The overflow response plan will initially be distributed to the following:

- WDNR
 - WPDES Permit Administrator for the District
- District
 - Executive Director
 - Technical Services Division Director
 - Contract Compliance Manager
 - Water Quality Protection Manager
 - CMOM Program Manager
 - Public Information Manager
- Contract Operator
 - Project Manager
 - Technical Services Director

After the distribution is complete, the CMOM Program Manager will ensure the elements of the plan are implemented properly. The targeted training will be with:

- District telephone operators to ensure that the phone call routing is clear
- CCS operators to be sure the division of responsibility and lines of communication are clear
- Contract operator management to ensure response procedures are adequate, properly followed and documentation is completed
- District monitoring staff to ensure proper data collection and documentation of results
- District Contract Compliance staff to ensure internal response and documentation of actions

4.2.4.2 Annual Awareness Training

Annual awareness training will be conducted after the annual review is completed. The training will review the responsibilities of personnel at the District and the contract operator and highlight changes that have been made. District and contract operator staff that will be included are those listed above in the initial plan implementation targeted training.

4.2.5 Overflow Response Plan Updates

There will be an annual review of:

- Overflows, failures and other emergencies
- Responses to and notifications of overflows, failures and other emergencies
- Issues encountered that affected timely response and notification
- Methods of addressing the issues
- Implementation of the methods
- The contract operator's Emergency Response Plan or Overflow Response Control Plan (required in the operation and maintenance (O&M) contract agreement beginning March 2008).

The CMOM Program manager, along with an internal Overflow Response Plan review team will review: 1) The above items; 2) The District ORP; 3) The contract operator's Emergency Response Plan and/or Overflow Response Control Plan; and 4) Documentation of past overflows. The review will occur during February of each year. From this review, the team may recommend changes to the District ORP. Any action items required, due to changes recommended during the review, will be completed, including additional training, by the end of March of the same year.

The CMOM program manager will be responsible for:

- Planning the review
- Gathering the necessary information
- Coordinating team input
- Documenting updates to the ORP
- Implementing updates to the ORP
- Completing training as required

The documentation of changes to the ORP will be included in the CMOM Program Annual Report, which will be submitted by June 30th of each year, beginning in 2008.

For further information, see the Communication Plan (Chapter 6, section 6.2.1.2 of this document) and the Audit Plan (Chapter 7, section 7.2.1 of this document).