COMBINED SEWER OVERFLOW OPERATIONAL AND MAINTENANCE PLAN SUMMARY

Revised: April 2014

Village of Wilmette, Illinois
NPDES – CSO Permit No. ILM580012

Chapter 1
Introduction

This Operational and Maintenance Plan was developed in compliance with the requirements of the Village of Wilmette's National Pollutant Discharge Elimination System (NPDES) Combined Sewer Overflow (CSO) General Permit No. ILM580012. The Environmental Protection Agency has issued an NPDES/CSO permit which requires implementation of Nine Minimum Controls (NMC). The NMC are measures designed to reduce combined sewer overflows (CSOs) and their effects on the quality of the receiving body of water. The Nine Minimum Controls are as follows:

1. **Proper operation and regular maintenance programs for the combined sewer system and CSO outfalls.** Elements of a Proper Operations & Maintenance (O&M) Program include:
    - Established organizational structure
    - Budget adequate funds and personnel
    - Identify critical facilities
    - Procedures for routine maintenance
    - Emergency procedures
    - Inspection schedule
    - Employee Training program
    - Review of O&M program

2. **Maximum use of the collection system for storage**
    - Collection system inspections
    - Retard inflows
    - Removal of obstructions to flow

3. **Review and modification of pretreatment requirements to ensure that CSO impacts are minimized**
    The Metropolitan Water Reclamation District of Greater Chicago (MWRDGC) implements the pretreatment plan.

4. **Maximization of flow to the treatment plant**
    Use of O&M Collection System Plan

5. **Elimination of CSO during dry weather**
    - Downspout disconnection
    - Detain rainfall locally
    - Sewer cleaning
    - Sewer repair

6. **Control of solids and floatable materials in CSOs**
    - Catch Basin Modifications
    - Prevention and removal of street litter

7. **Pollution prevention program to reduce contaminants in CSOs**
    - Program attached

8. **Public Notification to ensure that the public receives adequate notification of CSO occurrences and CSO impacts.**
    - Plan attached

9. **Monitoring to characterize impacts and efficiency of CSO controls**
    - Identify/inventory local combined sewer system
    - Document/record CSO occurrences and frequency at individual CSO points
    - Cooperation with the MWRDGC

The primary objective of this plan is to provide information needed to operate and maintain the Combined Sewer and Relief Sewer Systems and storm water runoff control facilities to minimize the occurrence of system surcharge resulting in basement backups and CSOs. The plan has been developed by the Village to comply with the following eight NPDES permit requirements:

1. Collection system inspection on a regular scheduled basis.
2. Sewer, catch basin, manhole, and regular cleaning and maintenance on a regular scheduled basis.
3. Inspections are made and preventive maintenance is performed on all pump/lift stations (not applicable).
4. Collections system replacement, where necessary.
5. Detection and elimination of illegal connections.
6. Detection, prevention and elimination of dry weather overflows.
7. The collection system is operated to maximize storage capacity and the combined sewer portions of the collection system are operated to delay storm water entry into the system.
8. The collection system is operated to maximize treatment.

Chapter 2
DETAILED DESCRIPTION AND OPERATION

The Village of Wilmette is served by a combined sewer system east of Ridge Road. The area served by the system is approximately 1,240 acres of fully developed residential (mostly 2 to 4 single family homes per acre) and commercial areas.

DOWNSPOUT DISCONNECTION ORDINANCE

No downspouts or roof drains shall be connected to the sanitary or combined sewer systems.

STREET STORAGE FACILITIES

The structures comprising a typical street storage system include:

- A constructed berm on the street.
- Two or more street inlets/ catch basins.
- A restrictor device to control the storm water release rate from the street storage facility to the combined sewer system.

RESTRICTOR DEVICES

The flow restrictor devices have orifice openings that allow a predetermined amount of storm water discharge through the outlet pipe from the catch basin. Under design storm flow conditions, the orifice will cause the water level in the catch basin to rise to the street ponding level. Street berms store peak volumes of storm water runoff. The storm water stored on the streets and in the catch basins is released to the combined sewer system at a controlled rate that does not exceed the capacity of the sewer system.

COMBINED SEWER SYSTEM

The combined sewer system consists of about 39.36 miles of clay and reinforced concrete pipe ranging in size from 8" to 96" in diameter. The system conveys sanitary sewage and storm water runoff through the Village-owned truck sewers to MWRDGC (also known as "the District") interceptors at several locations along Green Bay Road and Sheridan Road, and an interceptor east of the North Shore Channel. The interceptors flow to the District's North Side Water Reclamation Plant on Howard Street in the Village of Skokie.

RELIEF SEWER SYSTEM

Relief sewers have been constructed in the combined sewer area to provide additional capacity. The relief sewer is placed at an elevation below the combined sewer. When the combined sewer reaches capacity, it overflows into the manhole and the combined sewage flows out through the relief sewers. All of the relief sewers flow to a 96" pipe beneath Greenleaf Avenue. The relief system only functions during large storm events and drains to TARP with a connection near Sheridan Road.

NORTH SHORE CHANNEL OUTFALLS

The connection to the TARP drop shaft on the west side of the North Shore Channel has a capacity of 340 cubic feet per second (cfs). Inflow to the TARP system can be prevented by the District if they have reason to close the inflow gates. These gates may be closed if the TARP system has reached its maximum capacity or if volume must be conserved for other drainage areas to use. When the TARP system is closed by the MWRDGC, the relief system overflows at the North Shore Channel outfall located near the TARP connection.

There are a total of six potential CSO locations along the North Shore Channel (NSC) in the Village of Wilmette. The MWRDGC has one CSO location numbered #101 near Sheridan Road.

The other five potential CSO locations are visually monitored by the Public Works Department whenever there is an accumulation of at least 0.2 inches of rain. The Village has posted caution signs at each of the potential CSO locations listed below:

- West side of the NSC at Sheridan Road 42° 04.508N / 087° 41.138W
- East side of the NSC at Sheridan Road 42° 04.502N / 087° 41.111W
- East side of the NSC at Girard 42° 04.207N / 087° 41.173W
- East side of the NSC at Laurel Avenue 15" 42° 04.356N / 087° 41.166W
- East side of the NSC at Laurel Avenue 12" 42° 04.353N / 087° 41.169W

Flows from the combined Village sewers drop into a 15" MWRDGC interceptor sewer that runs along the east side of the NSC. When the capacity of the system is exceeded, flows are directed to TARP.

Chapter 3
MAINTENANCE PROCEDURES

The Village of Wilmette Department of Public Works is responsible for maintaining the combined sewer system. Proper maintenance is required for the system to perform at an optimum level with a minimum occurrence of CSO and basement flooding. An effective preventive maintenance program attempts to predict the problems that will be encountered and what preventive measures must be scheduled. Schedules must be flexible and should be periodically modified based on their effectiveness and the ability to accomplish maintenance objectives.

STREET STORAGE FACILITIES

Street berm maintenance is more critical than that required for other street areas. Street ponding areas are located behind constructed street berms and natural low areas. Street cleaning reduces debris that may be washed into the combined sewer system.

Maintenance of bituminous, brick, concrete berm, and ponding areas include repair of deteriorated areas in street ponding and roadway berm areas in the same manner as typical street areas. Particular care should be taken in preparing these areas to the grades specified in the contract documents.

RESTRICTOR DEVICES

Restrictors are critical to the operation of the street storage berm. These are the procedures for a clogged restrictor:

- If a street area is flooded because of a plugged regulator, dewater the area and catch basins with a pump.
- Clear the clogged trap by removing and replacing it, or by removing the plug in the tee and rodding.

COMBINED SEWER SYSTEMS

All sewers, catch basins, and manholes are inspected and cleaned on a regular basis. Problem areas that are addressed during inspection will be cleaned more frequently and needed repairs made.

The interceptors are operated and maintained by the District; the Village is not allowed access to these sewer lines or manholes. The connection to the TARP drop shaft and the control structure are also maintained by the District.

Chapter 4
INSPECTION AND MONITORING PROCEDURES

The inspection program is an important means to ensure that the collection system is operated as to optimize transport of wastewater flows and minimize CSO discharges. Inspection procedures are an essential part of preventive maintenance, which is the primary means of implementing the Nine Minimum Controls required in the NPDES CSO permit.

STREET STORAGE FACILITIES

Street storage facilities must be routinely inspected since they must be maintained at their design grade to function properly. The Village has a large number of brick streets that are a least 100 years old. Most of these streets have already settled to the maximum extent and have “locked” into place. The Village additionally has bituminous and concrete streets berms and ponding areas that all need to be closely monitored for settlement and deterioration of the pavement.

SEWERS

As the sewers systems become older, the pipes are subject to deterioration and damage. 20% of the sewer systems are inspected annually. All sewer openings in a manhole can be visually inspected for signs of obstruction, roots, sediments deposits and other defects.
Inspection procedures include: televising, walk-through, and dye water testing

CATCH BASINS AND MANHOLES

The Village owns, operates, and maintains Vactor and Vac-Con combination catch basin cleaners to clean catch basins and other drainage structures. Manholes are routinely inspected and the results of the inspections are documented for necessary repairs.

FLOW REGULATORS

Flow regulators are subject to clogging over time, thus prohibiting storm water runoff from properly entering into the system. The most common sources of blockage may be leaves and/or debris washed into the inlets during a previous storm. All flow regulators are inspected and maintained every five years and during each catch basin cleaning activities.

INSPECTION FORMS

The Village documents and maintains inspection forms for combined sewer main inspections, manhole inspections, catch basin inspections, flow restrictor inspections, and maintenance records.

Chapter 5
RECORD KEEPING

Records are maintained regarding collapsed and blocked sewers, basement backups, street flooding, street berms, collection system complaints, inspection logs, and occurrences at combined sewer overflows. Records are maintained either in the Village's database or in centralized binders.

Chapter 6
SAFETY

The Village maintains a Safety Manual with standard procedures to be followed when performing maintenance on the storm water runoff control facilities. Topics of concern that should be reviewed by all workers performing maintenance procedures include, but are not limited to the following:

- Traffic control
- Worksite safety
- Confined space entry
- Safety equipment
- Emergencies, first aid, and hygiene

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