


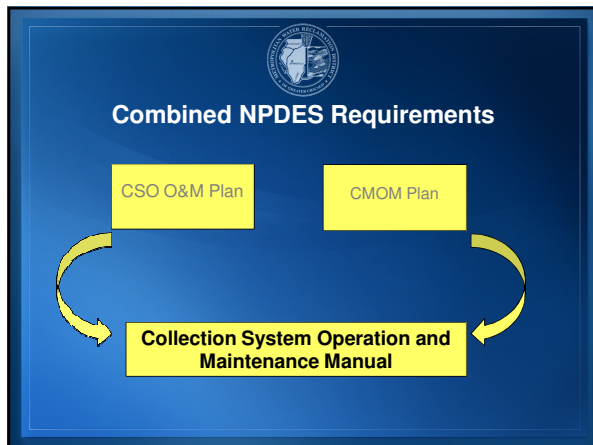



Metropolitan Water Reclamation District of
Greater Chicago (District)
Collection System Operation and
Maintenance Manual
September 18, 2014
Public Hearing
David St. Pierre
Executive Director



National Pollutant Discharge Elimination System (NPDES) Permits Requirements

- NPDES permits require District to develop Combined Sewer Overflow Operation and Maintenance (CSO O&M) Plan with public input
 - Stickney WRP (NPDES Permit No. IL0028053) Special Condition 13.10
 - Calumet WRP (NPDES Permit No. IL0028061) Special Condition 13.10
 - O'Brien WRP (NPDES Permit No. IL0028088) Special Condition 8.10
 - Kirie WRP (NPDES Permit No. IL0047741) Special Condition 14.9 (DRAFT)
 - Lemont WRP (NPDES Permit No. IL0028070) Special Condition 14.8
- NPDES permits require District to develop Capacity Management Operation and Maintenance Plan (CMOM) within 12 months of permit effective date – Applies to Separate Sewer Area
 - Stickney WRP (NPDES Permit No. IL0028053) Special Condition 17
 - Calumet WRP (NPDES Permit No. IL0028061) Special Condition 18
 - O'Brien WRP (NPDES Permit No. IL0028088) Special Condition 18
 - Kirie WRP (NPDES Permit No. IL0047741) Special Condition 18 (DRAFT)
 - Egan WRP (NPDES Permit No. IL0041141) Special Condition TBD
 - Hanover Park WRP (NPDES No. IL0036137) Special Condition TBD
 - Lemont WRP (NPDES Permit No. IL0028070) Special Condition TBD

Collection System Operation and Maintenance Manual

The purpose of this manual is to describe the means by which the District accomplishes two of its primary objectives: to avoid contamination of the Chicago Area Waterways (CAWS) and to protect the health and safety of the public in its service area. The District serves an area of 883.6 square miles which includes the City of Chicago and 128 suburban communities. Of the total service area, approximately 375 square miles have combined sewers and 508.6 square miles have separate sewers. Managing combined sewer overflows (CSOs) within the combined areas and separate sewer overflows (SSOs) within the separate areas are key to the District accomplishing its above primary objectives.

Collection System Operation and Maintenance Manual Contents

This manual describes the Infrastructure Management, End of Pipe Management, Public Outreach and Education, Technology Testing, and associated Standard Operating Practices necessary to achieve our stated objectives.

- 1.0 Management
- 2.0 Infrastructure Management
- 3.0 End of Pipe Management
- 4.0 Public Education and Outreach
- Appendices
 - 2A Capital Asset Management Plan (CAMP)
 - 3A Ambient Water Quality Monitoring (AWQM) Quality Assurance Project Plan (QAPP)
 - 3B Continuous Dissolved Oxygen Monitoring (CDOM) QAPP
 - 3C Pump Station Sampling Protocols
 - 3D Lake Michigan Backflow Sampling Protocols
 - 3E TARP Status Report June 2014
 - 3F List of Monitored and Unmonitored Combined Sewer Overflows (CSOs)
 - 3G Fish Kill Procedures



Management - Organization


- Maintenance and Operations Department
 - Waterways Control (Channel Operations and Control and Lockport Powerhouse)
 - Collection Systems (North, Central, and South)
 - Technical Administration (Technical Services and Contract Administration)
- Engineering Department (Infrastructure Management)
 - Collection Facilities/TARP
 - Local Sewer Systems
 - Stormwater Management
- Monitoring & Research
 - Environmental Monitoring and Research (Microbiology and Aquatic Ecology and Water Quality)
 - Analytical Laboratories
 - Industrial Waste (User Charge, Enforcement, and Field Services)



Infrastructure Management - Pollution Prevention Control

- Local Sewers
 - Watershed Management Ordinance (WMO)
 - Technical Guidance Manual
 - Inflow and Infiltration Control Program (Article 8 of WMO)
- Industrial Waste
 - Sewage and Waste Control Ordinance
 - User Charge Ordinance
 - Pretreatment Program Administration and Enforcement
 - Field Services (Sampling, Inspections, Emergency Response)
- Sewer Maintenance Unit
 - Detection and Elimination of Illegal Connections and Dry Weather Overflows



Infrastructure Management – Facility Maintenance

- District's interceptor system
 - Over 550 miles in length
 - 883.6 square mile service area
 - City of Chicago and 128 Suburban Communities

	North	Central	South
Sewer Pipe 4" to 96"	178.5 miles	115.3 miles	167 miles
Sewer Pipe greater than 96"	15.9 miles	64.6 miles	27.9 miles
Local Sewer / Interceptor Connections	580+	900+	440+
Intercepting Structures	821	355	146
Tide Gates	111	273	81
Tarp Control Structures	60	143	99
TARP Shafts (1)	72	135	52
Pumping Stations	7	6	9
Reservoirs	22	4	9

(1) Excludes access or construction shafts



Infrastructure Management – Facility Maintenance

- Standard Inspections and Procedures
 - Utilize Maintenance Management System for asset inventory and scheduling of maintenance work
 - In the process of transitioning to a "risk-based" frequency inspection cycle
 - Routine inspections (current frequencies) of
 - Pump and Lift Stations (Weekly and succeeding a rain event)
 - Reservoirs and Dam Structures (2 times per year)
 - TARP Control Structures (4 times per year)
 - Tide Gates (2 times per year)
 - Inverted Siphons (4 times per year)
 - Drop Manholes and Connecting Structures (4 times per year)
- Interceptor Cleaning (as-needed)
 - Multi-year cleaning contracts
 - Jetting or vacuuming
 - Root removal or chemical treatment




Infrastructure Management - Capital Asset Management Plan (CAMP)

- Objectives:
 - Accurately identify infrastructure rehabilitation needs
 - Accurately prioritize rehabilitation work







Infrastructure Management - CAMP

- Inspection Methods
 - CCTV
 - Digital Scanning
 - Laser Profiling
 - Sonar
 - Multi-Sensored Technologies
 - Pigging
 - Manned Entry and Visual Inspections
- Assessment and Prioritization
 - National Association of Sewer Service Companies Pipeline Assessment Certification Program (MAASCO PACP)
 - Manhole Assessment and Certification Program (MACP)
- Corrective Actions
 - Point Repair
 - Full Structure Replacement
 - Cure-in-Place Pipe (CIPP)
 - Spray Applied Products
 - Open Cut Removal and Replacement





Infrastructure Management - CAMP

- Preventive Maintenance
 - Gate/Stem and Mechanical Lubrication
 - Replacement and Repair of Hardware
 - Testing and Resetting of Communication Alarms
 - Cleaning of Screens and Removal of Blockages
 - Interior and Exterior Facility Maintenance

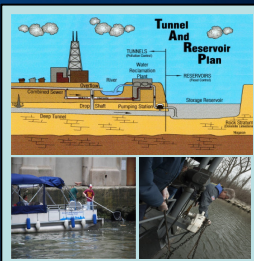






End of Pipe Management

- Water Quality Monitoring
 - Ambient Water Quality
 - Waterway Dissolved Oxygen
 - Pump Station Discharge
 - Lake Michigan Backflow
- Combined Sewer Overflows (CSOs)
 - Tunnel and Reservoir Plan (TARP)
 - Consent Decree – Issued January 6, 2014
 - CSO Monitoring and Reporting
 - TARP Post Construction Monitoring Plans
- Waterway Maintenance
 - Enhanced Floatables Plan
 - Channel Maintenance
 - Fish Kill Procedure
 - Sidestream Elevated Pool Aeration (SEPA)
 - Instream Aeration Stations



Public Education and Outreach

- CSO Public Notification Plan (Waterway Map)
- CSO Email Notification
- CSO Signage
- Notification of Potable Water Supply Agencies
- Sanitary Sewer Overflows (SSOs)
 - Palos Hills Pump Station
 - Monitor location during rain events
 - Notify regulatory agencies and local municipalities
 - Secure and clean area
 - TARP Thornton Composite Reservoir will reduce risk of future discharges
 - District will monitor and address future issues
- Telephone Hotline
 - 1.800.332.DUMP



District's Green Infrastructure (GI) Initiatives

- Rain Barrel Program
- Green Infrastructure Collaboration, Partnership, and Community Assistance
- Comprehensive Land Use Policy
- WMO GI Requirements (100% Credit with Consent Decree Requirements)



Collection System Operation and Maintenance Manual - Appendices

- Capital Asset Management Plan (CAMP)
- Ambient Water Quality Monitoring – Quality Assurance Plan
- Continuous Dissolved Oxygen Monitoring – Quality Assurance Plan
- Pump Station Sampling Protocols
- Lake Michigan Backflow Sampling Protocols
- TARP Status Report June 2014
- List of Monitored and Unmonitored CSOs
- Fish Kill Procedure

