



Regulatory Overview

DWSD Regulation

May 18, 2015

Primary Federal Statutes Governing DWSD

- **Safe Drinking Water Act of 1974, as amended**

An Act to protect public health by the governance of the treatment and distribution of potable water from a reliably operated system through inspection and monitoring Federal Clean Water Act of 1972, as amended

- **Clean Water Act of 1972, as amended**

An Act to provide for water pollution control over the Nation's waters. To prevent, reduce and eliminate pollution ultimately protecting our water resource by authorizing discharge through a permitting process

- **Clean Air Act of 1970, as amended**

An Act designed to control air pollution on a national level protecting the public from airborne contaminants known to adversely affect human health

- **Occupational Safety and Health Act of 1970, as amended**

An Act to develop national workplace health and safety standards

Michigan has adopted Statutes, Rules and Regulations and has been granted Primacy for enforcement of each of these Federal Statutes



Michigan Safe Drinking Water Act 1976

PA 399 Major Provisions

- Act 399 Permit (construction, alteration, addition, etc)
- Enhanced Surface Water Treatment Rule – requires surface water systems to disinfect and filter
- Public Notification Rule – exceedance of contamination limits
- Filter Backwash Recycling Rule
- Certified Laboratories
- Monthly Operational Reports
- Operator Training and Certification
- Consumer Confidence Report (CCR)
- Cross Connection



Michigan Safe Drinking Water Act 1976

PA 399 Contaminant-Specific Rules

- Microbial - Total Coliform Rule
- Disinfectant By Product Rule – State 1 and Stage 2
- Chemical Phase Rules
 - Organic chemicals – Synthetic Organic Compounds (SOC)
 - Inorganic chemicals – (IOC)
 - Volatile Organic Chemical (VOC)
- Lead and Copper Rule
- Unregulated Contaminants – UCRM3
- Radionuclides
- Interim Enhanced Surface Water Treatment Rule, LT2-cryptosporidium

The Federal Safe Drinking Water Act requires periodic development of a Contaminant Candidate List for potential additional regulatory consideration



Michigan Safe Drinking Water Act Current Compliance Status

- DWSD is in Compliance with all State and Federal Safe Drinking Water Act Rules
- DWSD has had No Maximum Contaminant Level Violations and No Treatment Technique Violations in the Past Decade
- DWSD has 82 certified operators (with 106 certificates in Water Treatment and Distributions) in Water Operations



Water Compliance Program Focus

- Water Operations CIP - focus on Water Quality Improvement Processes:
 - SP-563: Springwells 1958 Filter Rehabilitation and Aux. Facilities Improvements. The rehabilitation work on the filter underdrains for 19 of 59 filters has been completed
 - DWS-874: Booster Stations and Reservoirs inspection, Rehabilitation and Inspection Repair Program Management. There were 19 of 31 internal inspections completed
 - DWS-898: Sludge Removal & Disposal project for the removal of sludge from 12 basins at Northeast and Springwells



Michigan Safe Drinking Water Act – GLWA / DWSD Implication

- GLWA and DWSD may obtain separate water supply serial numbers (“WSSNs”) for their respective systems
- GLWA and DWSD are required to obtain/maintain separate S1 (water distribution) licenses and an appropriate number of backup licenses
- GLWA will be required to maintain existing levels of F1 (water filtration) licenses which exceed regulatory requirements



Clean Water Act (Part 31 of Michigan Act 451)

Federal Water Pollution Control Act Major Provisions

- Establishes the National Pollutant Discharge Elimination System (NPDES) Permit - Administered by Michigan Department of Environmental Quality (“MDEQ”) – Regulates discharges to waters of the state
 - Industrial Waste Pretreatment Program (“IPP”)
 - Combined Sewer Overflow Program
 - NPDES Stormwater Discharge Permit
 - Part 41 Wastewater Construction Permit
 - Biosolids Land Application Program and Permits
 - MS4 Stormwater Permit



Clean Water Act (continued)

- Requires states to establish water quality standards (“WQS”)
- Michigan’s WQS for microorganisms require disinfection (and usually dechlorination) of treated sewage
- Michigan WQS for toxics – Mercury and Polychlorinated Biphenyl (“PCB”) minimization program
- Requires elimination or adequate treatment of combined sewer overflows



Clean Water Act (continued)

- Requires Publicly Owned Treatment Works (“POTWs”) to regulate industrial discharges to POTW (industrial waste control/pretreatment program)
- Imposes requirements for the use and disposal of sewage sludge
- Imposes significant monitoring, recordkeeping and reporting requirements



DWSD NPDES Permit Requirements



- WWTP Discharges to Detroit River
- 930 MGD Secondary Capacity
- 1,700 MGD Peak Capacity (Wet Weather)
- Average Daily Flow 550 MGD
- Detroit River Outfall out of service or hydraulic constraints then discharge goes to Rouge River



Natural Resources and Environmental Protection Act – Compliance Status

- Since the first NPDES Permit was issued in 1976, the Wastewater Treatment Plant (“WWTP”) has had a cyclic compliance history
- For 35 years beginning in 1977, the WWTP operated under the jurisdiction of a Federal Consent Judgment
- The Federal Consent Judgment was amended twice and ultimately dismissed in 2013
- In addition to the NPDES permit, the WWTP is currently operating under an MDEQ Administrative Consent Order (ACO)



WWTP Compliance Permit Requirement

- Asset Management Program Implementation
 - Asset Management Team established, equipped and staffed
 - Computerized Maintenance Management System (CMMS) transitioned from EMPAC (no-longer supported) to Oracle Work Asset Management (WAM)
 - Completed Streamlined Reliability Centered Maintenance (SRCM) evaluations of all critical equipment
 - Developing and implementing predictive and preventive maintenance activities and procedures for all critical equipment
 - Continue to update detailed content of asset inventory



DWSD NPDES Permit Requirements

- Combined Sewer Overflow (“CSO”) control
 - Permit authorizes discharge of treated CSO via 6 retention treatment basins (“RTBs”) and 3 screening and disinfection facilities.
 - Permit provides “interim authorization” of discharge of untreated combined sewage through 36 outfalls to the Detroit River and 20 outfalls to the Rouge River.
 - Permit requires “elimination or adequate treatment” of all CSO discharges – addressed in Long Term CSO Control Program.



DWSD NPDES Permit Requirements

Affordability

- CSO Plan - 2004 NPDES permit required construction of a 200 million gallon Upper Rouge Tunnel (“URT”) that would control 17 CSO outfalls to the Rouge River
- 2008 project cost estimate ~\$1 billion
- 2009 MDEQ approved an “affordability waiver” based on DWSD showing the costs of wastewater treatment totals approximately 2.6% of the median Detroit household’s income (in excess of EPA 2% threshold)
- Added green infrastructure requirement (\$3 million/ year through 2019, \$2 million/year through 2029, goal to reduce 2.8 million gallons of flow into sewers by 2017)
- Long term viability of affordability waiver is uncertain



CSO Control - Permit Requirement

- Rouge River Outfall Disinfection Project \$30M – will provide for disinfection of all flows discharged from the WWTP, completes core CSO Control Program, and achieves high level of control
- Adaptive Management – minimize the occurrence, frequency and volume of CSO by maximizing use of the CSO Control Facilities in coordination with the WWTP
- Green Infrastructure Program - \$50M investment over 20 years will be focused toward projects that reduce the volume of stormwater entering sewers
- Long-Term CSO Control Program – update the Program to reflect capital improvements, system modelling, green infrastructure, and continued evolution of adaptive management



Administrative Consent Order

- In 2009, DWSD fell out of compliance with NPDES permit due to inability to remove/dispose of solids from the WWTP
- In 2010 MDEQ issued DWSD two notices of violation
- July 2011, DWSD and DEQ entered into an Administrative Consent Order (“ACO”)
- GLWA to be added to ACO



Administrative Consent Order (cont'd)

- ACO requirements, largely incorporated into 2013 NPDES permit, include:
 - Must maintain 850 dry tons per day (DTPD) peak sludge dewatering capacity; maximum sludge inventories
 - ✓ Required replacement of all Complex I and II belt filter presses (PC-787)
 - ✓ Upgrades/replacement of conveyance equipment
 - Short-term and long-term solids management plans
 - ✓ Complex I and II Incinerator repairs (PC-791)
 - ✓ Central Off-Load Facility repairs
 - ✓ Sludge Dryer project (PC-792)
 - Preventative maintenance plan
 - Operations performance plan, with metrics
 - **Staffing plan**
 - Requirements for capital planning, purchasing

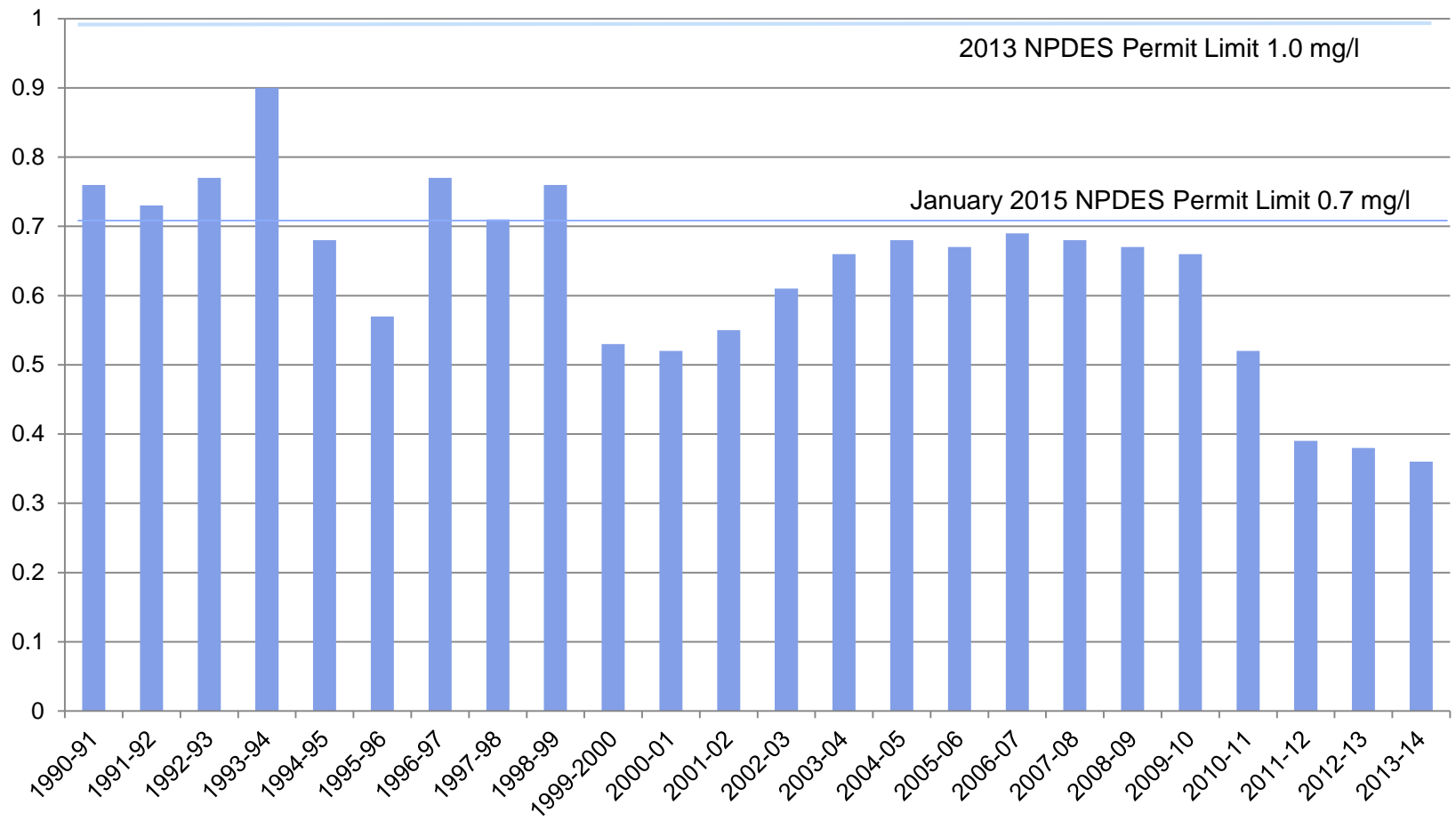


Natural Resources and Environmental Protection Act – Compliance Status

- DWSD is in compliance with the ACO requirements
- The WWTP has received the Silver Award for NPDES compliance from National Association of Clean Water Agencies (NACWA) for the past 3 consecutive years
- DWSD has significantly reduced the volume and occurrence of wet weather combined sewer overflows (98% capture and treatment for the past 2 fiscal years)
- The WWTP has reduced Phosphorus discharges by nearly 47% from the 2008 baseline year, with commensurate reduction in loadings to Lake Erie (Great Lakes Water Quality Initiative – Annex 4 - Nutrients)



Historical WWTP Phosphorus levels



Clean Water Act – GLWA/DWSD Implications

- NPDES permit - GLWA and DWSD may become co-permittees
- Part 41 permits – under lease, DWSD may:
 - ✓ Designate GLWA as its agent for all WWTP and common to all pump station projects.
 - ✓ Agree to designate GLWA as its agent on a project-specific basis for all CSO and sewage transportation and conveyance projects.



Clean Water Act – GLWA/DWSD Implications

- Industrial Waste Pretreatment Program (IPP)
 - ✓ Under lease, DWSD may contract with GLWA to run DWSD's IPP until GLWA adopts and MDEQ approves a GLWA IPP program.
 - ✓ DWSD may remain the control authority until GLWA adopts and MDEQ approves own IPP.
 - ✓ GLWA to use reasonable best efforts to submit to MDEQ an approvable program by 10/1/17.



Clean Air Act (Part 55 of Michigan Act 451)

- Air Pollution Control - Permit to Install (PC-791/792)
- Air Pollution Control - Renewable Operating Permit applicable to GLWA facilities
- Sewage Sludge Incinerator MACT
- Emission Guidelines for Existing Sewage Sludge Incinerators (“SSI”)
 - Effective March 21, 2016, existing SSIs must meet new, stringent emission limitations.
 - Requires significant upgrades to Complex II incinerators (8) to meet new limitations.
 - Complex I incinerators (6) to be shut down and replaced with Sludge Dryer.



Michigan Occupational Safety and Health Act 1974 PA 154

- Recording and Reporting of Occupational Injuries and Illnesses
- Hazard Communication Standard
- Personal Protective Equipment (PPE)
- Process Safety Management
- MIOSHA Inspections, Hearings, Appeals
- Employee Training Program (Confined Space Entry, Lock Out/Tag Out, Respiratory Protection, Job Hazard Analysis, Hot Work, Infectious Diseases)



Employee Training Focus

- Employee Training Program (partial listing)
 - ✓ Confined Space Entry
 - ✓ Hot Works
 - ✓ Bloodborne Pathogens and Infectious Disease
 - ✓ Lock Out/Tag Out
 - ✓ General Safety and Accident Prevention
 - ✓ Hazard Communication
 - ✓ 40-hour Hazardous Material Emergency Response
 - ✓ Respiratory Protection
 - ✓ Process Safety Management
 - ✓ Excavation/Shoring/Trenching
 - ✓ Supervisor's Health and Safety Training



DWSD

Questions and Discussion

