

Wastewater and Storm Water

Existing Programs and Future Efforts

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MDEQ

Protect and Monitor

- 4 Great Lakes
- 3,288 miles of Great Lakes shoreline
- 11,000 inland lakes
- 36,000 river miles
- 6.5 million acres of wetlands
- 70,000 acres of critical dunes



for swimming, fishing, drinking water, and aquatic ecosystems

Wastewater Program

Current Efforts

- ▶ Construction Permits (Part 41)
- ▶ NPDES Permits (Part 31), Asset Management Plans
- ▶ Storm Water

New Efforts

- ▶ Capacity Management Operation and Maintenance
- ▶ Water Resource Recovery Facility
- ▶ Michigan Water Strategy
- ▶ 21st Century Infrastructure Commission

Part 41 Permits

- ▶ Construction permits are needed for any alterations that serve the public
- ▶ Ten States Standards provides design guidance
- ▶ Redundancy required in wastewater treatment
- ▶ Flow capacity and ability to treat
 - Handle the 25-yr/24-hr storm without bypass
 - Meet NPDES effluent limits
- ▶ Correct SSOs/CSOs, prevent backups
- ▶ Require facilities to be properly operated and maintained

MDEQ's Posture on Asset Management (AM)

- Governor's 2011 Infrastructure Message - sustainability and AM for sewer and water
- DEQ is supportive of AM for sewer (and water)
- DEQ has started an NPDES regulatory initiative for WWTPs/collection systems, and now has a state grant program for AM with the potential for a grant
- Assistance for AM program development

Wastewater Asset Management Plans

- ▶ A program for maintaining a desired level of service for what you want the assets to provide at the lowest life-cycle cost. Lowest life-cycle cost refers to the best appropriate cost for rehabilitating, repairing, or replacing an asset.
- ▶ In a wastewater system, an "asset" is a component of a facility with an independent physical and functional identity and age (e.g., pump, motor, clarifier, etc.).

MDEQ's Efforts to Include AM in NPDES Permits

- In FY 2013 started adding AM program requirements to all reissued major municipal WWTP permits.
- The first with this requirement was Detroit WWTP - 33% of treated municipal discharge in MI, history of poor equipment maintenance. Appropriate to be first with AM requirements.
- Summary of core requirements – current state, level of service, critical assets, minimum life-cycle costs, and long-term funding.
- Will add AM requirements to minor permits that receive AM grants.

Proposed AM Permit Language

- ▶ Permit language requires AM Plan to develop program that addresses:
 - Maintenance Staffing
 - Mapping Collection System
 - Inventory and Assessment/Criticality of Fixed Assets
 - Budget and Rate Sufficiency
 - Annual Report

DEQ/SAW Program

- ▶ Great Lakes Water Quality Bond 2002
- ▶ 2012 PA 562 authorized money for Stormwater, Asset Management, and Wastewater (or SAW) Program
- ▶ \$450M allocated to provide grants and loans for SAW; \$97M available for FYs 2014, 2015, and 2016
- ▶ Grants are available up to \$2M per municipality.
- ▶ Applications were accepted starting December 2, 2013, on a first-come first-served basis.
- ▶ On December 2, 2013, 673 applications totaling \$541M were received.

Lessons Learned

- ▶ Lots of tools out there
- ▶ Time consuming but doesn't have to be expensive
- ▶ AM is a long-term program – incremental steps
- ▶ NPDES permit language adjustments
- ▶ Regulations in place – NPDES, State Part 41, SAW, and assistance

Wastewater Asset Management Plans

Five Core Questions of Asset Management

1. What is the current state of my assets?
2. What is my required "sustainable" level of service?
3. Which assets are critical to sustained performance?
4. What are my minimum life-cycle costs?
5. What is my best long-term funding strategy?

Storm Water

- ▶ We don't oversee construction of storm water conveyance systems
- ▶ We oversee regulated MS4s
 - Address maintenance of BMPs
 - Require postconstruction controls that address runoff quality and quantity (rate and volume)
 - Otherwise, the permit generally deals with education and water quality
- ▶ Municipalities have a hard time funding MS4
- ▶ Most storm sewers are not inventoried for condition
- ▶ Storm sewers are not designed to handle the largest events
- ▶ Green Infrastructure may help some, but these large events overwhelm Green Infrastructure

CMOM

- ▶ Capacity Management Operation and Maintenance
 - Capacity evaluation (testing, inspection, flow monitoring)
 - Management (organizational structure, training, customer service, legal authority)
 - Operation (budget, emergency response, mapping, construction)
 - Maintenance (budget, maintenance, cleaning schedules, parts and equipment inventory)
 - Rehabilitation (SSO elimination, infiltration/inflow reduction)

Water Resource Recovery Facility

In a 2011 Position Statement on Renewable Energy Generation From Wastewater, the Water Environment Federation stated:

“WEF believes that wastewater treatment plants are not waste disposal facilities, but rather water resource recovery facilities that produce clean water, recover nutrients (such as phosphorus and nitrogen), and have the potential to reduce the nation’s dependence upon fossil fuel through the production and use of renewable energy.”

Water Resource Recovery Facility

- ▶ In 2015 an interagency work group composed of the National Science Foundation, United States Department of Energy, and United States Environmental Protection Agency published a report on an [Energy-Positive Water Resource Recovery Workshop](#), which stated:

“As water treatment facilities, pipes, and related infrastructure in cities around the country approach the end of their expected service life, a unique window of opportunity exists to replace the aging infrastructure with the *WRRF of the Future*—reducing stress on energy systems, decreasing air and water pollution, building resiliency, and driving local economic activity.”

Additional New Efforts

- ▶ 21st Century Infrastructure Commission
- ▶ Water Strategy – Invest in Water Infrastructure

Questions/Discussion