One Water, Infinite Possibilities

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Executive Director

Milwaukee Metropolitan Sewerage District
Milwaukee Metropolitan Sewerage District

We Serve:
- 1.1 Million Customers
- 28 Municipalities
- 411 Square Miles

We Protect the Public & Lake Michigan:
- Convey/Store/Reclaim Wastewater
- Manage Flooding

We Have:
- 300 Miles of Sewers (municipalities and individuals have 6,000 miles!)
- 521 MG Tunnel System
- 2 Water Reclamation Facilities
MMSD’s Water Reclamation Facilities (WRFs)

Jones Island

South Shore
Deep Tunnels

300 Feet Below ground
521 Million Gallons of Storage
28.5 Miles Long
17- to 32-feet In Diameter

Designed to minimize basement backups and for 1-2 overflows per year.
98.4% Capture & Clean Since 1993

Photo by: David Stefanik
MMSD’s 2035 Vision

(Integrated Watershed Management Goals:

- Zero sanitary sewer overflows
- Zero combined sewer overflows
- Zero homes in the 100-year floodplain
- Acquire an additional 10,000 acres of river buffers through Greenseams®
- Use green infrastructure to capture the first 0.5 inch of rainfall
- Harvest the first 0.25 gallons per square foot of area of rainfall

Energy Efficiency and Climate Mitigation & Adaptation Goals:

- Meet 100% of MMSD's energy needs with renewable energy sources
- Meet 80% of MMSD's energy needs with internal, renewable sources
- Use the Greenseams® Program to provide for 30% sequestration of MMSD's carbon footprint
- Reduce MMSD's carbon footprint by 90% from its 2005 baseline)
Milwaukee’s Resource Recovery Plant
Nutrient Recovery: Milorganite®

98% of all biosolids produced is used to make Milorganite®
MMSD Landfill Gas Project

While not recovered from WRF process, recovered from a landfill and used in the process…

• 19-mile, 16” LFG Pipeline
• Install new turbines capable of burning LFG
• Modify 8 dryer burners to burn LFG
• Save $ & Reduce Carbon Footprint
Jones Island Stationary Combustion Sources
Before and After Landfill Gas Project (based on 2007 fuel usage data)

GHG Emissions in Metric Tons of Equivalent CO$_2$

~95% Reduction
Digester Gas at South Shore WRF

8 Primary Digesters:

- 4 - 3.5 Million Gallon Capacity
- 2 – 1.5 Million Gallon Capacity
- 2 – 1.5 Million Gallon Digesters Used for Solids Storage

Input: Approximately 600,000 Gallons Of Sludge From Treatment Process Per Day
Water-Energy Nexus

• Energy potential in WW and biosolids/gases:
  – 10 times greater than energy used to treat it
  – could meet 10% of national energy demand

• Energy Efficiency Projects

• Renewable Energy Projects
High Strength Waste

• 1998 Collaborative Project With Marquette University, GMIA and MMSD

• Co-digested Glycol From Airport Deicing Operations In MMSD Digesters
Heat Recovery

South Shore WRF: Captured from engine generators and reused in digesters, heat buildings

Jones Island WRF: Captured from LFG turbines and used to preheat dryers, heat buildings
Solar Energy Installations at MMSD
Menomonee River Concrete Removal

COMPLETED
## Baseline Connection

**Flood relief for a better night's sleep**

<table>
<thead>
<tr>
<th>Service</th>
<th>2016</th>
<th>Program to Date</th>
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<tbody>
<tr>
<td>Inspection</td>
<td>205</td>
<td>9,700</td>
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<tr>
<td>Lateral Rehab</td>
<td>1,043</td>
<td>6,000</td>
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<tr>
<td>Foundation Drain Disconnect</td>
<td>69</td>
<td>600</td>
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</tbody>
</table>
Green Infrastructure

Funded in 2016 = 10,440,000 Gallons

Since 2002 31.9 Million Gallons
Green Roofs

FRESH COAST 740
MILWAUKEE, WISCONSIN

11.63 Acres Funded Since 2003

506,000 Gallons per storm

MMSD
PARTNERS FOR A CLEANER ENVIRONMENT

Northwestern Mutual®
Rain Barrels

22,280 since 2004 (Sold & Donated) = 1,225,400 Gallons
Green Summer 2016

St. Francis: 13,700 Gallons

Greenfield: 7,000 Gallons
Questions

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