

NACWA UTILITY MANAGEMENT COMMITTEE

Miami-Dade Water and Sewer
Department

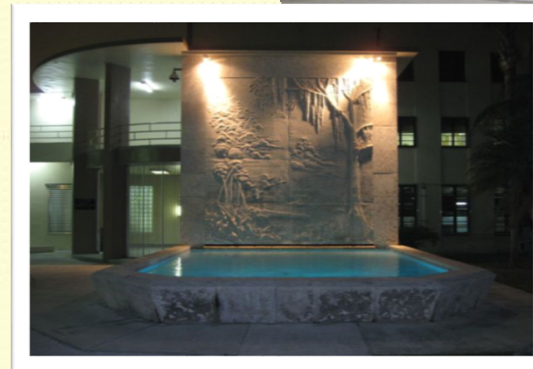
Preparedness, Resiliency, Recovery
February 5, 2013

MDWASD Overview

Largest water and sewer utility in Florida, serving more than 2.2 million residents

Water System:

- 3 large regional and 5 small water treatment plants
- Supplying an average of 306 million gallons per day
- 90% of the County's public water supply
- Per capita water use 134 gpcd
- 15 wholesale customers
- 422,016 retail customers
- 100 water supply wells
- 7,739 miles of pipes (from 2" to 96")
- 38,331 fire hydrants
- 124,000 valves (from 2" to 96")

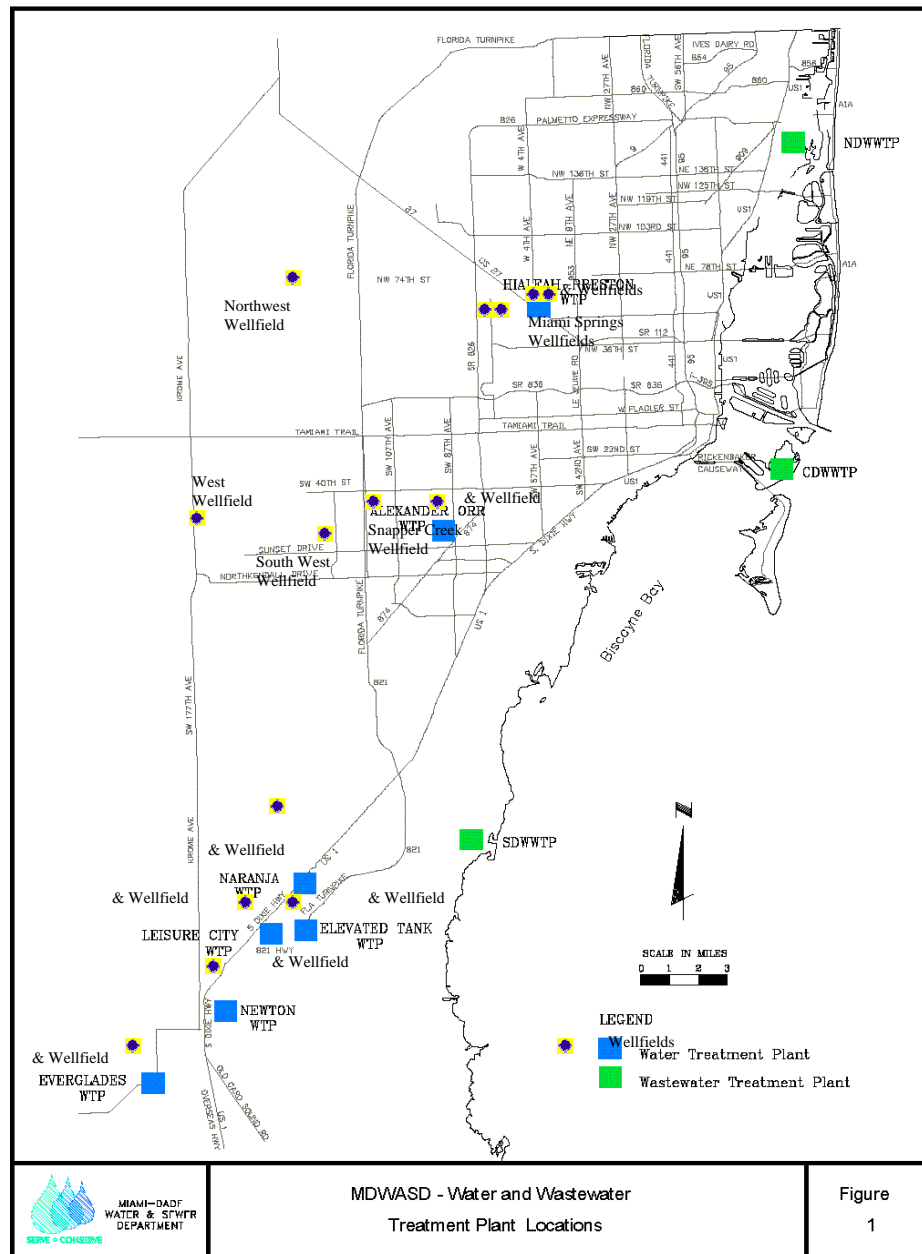


MDWASD Overview (continued)

Wastewater System:

- 3 wastewater treatment plants
- 2 ocean outfalls and 21 deep injection wells
- Collecting, treating, and disposing 288 MGD
- 339,927 retail customers
- 12 wholesale customers
- 6,271 miles of mains and laterals
- 1,039 sewer pumps stations (operated)
- Reusing 10.2 MGD





MDWASD Water & Wastewater Treatment Facilities

HURRICANE ANDREW-

August 24, 1992

- Category 4 Hurricane
- 16 ft. Storm Surge
- 140 mph winds
- Back in Service in Approximately 30 days
- Resulted in Revised Design approaches such as Construction of Enclosures for Standby Power Generation

RECOVERY STRATEGIES

- Emergency command center at Douglas (standby power, SCADA, telephone)
- Staff designated for County Emergency center.
- Availability of Damage Assessment teams

UTILITY PREPAREDNESS

- Standby pumps included at all pump stations.
- Emergency backup power at treatment plants and major pumping stations
- Parallel lines to wastewater plants and major transmission loop in the north and south water systems.
- Emergency ponds for discharge at the SDWWTP.
- SCADA at all major plants, pump stations with malfunction alarms.
- 24/7 call center for emergencies.

UTILITY PREPAREDNESS

(continued)

- Flow shifting capability in water and wastewater transmission systems.
- Current master planning to address climate change/sea level rise.
- Redundancy analysis in water and wastewater transmission systems in master planning.
- 2 or 3 parallel trains at all wastewater treatment plants.

RESILIENCY

- Large inventory of portable standby power generators.
- Large inventory of piping, valves and fittings for emergency repairs.
- Contracts with construction firms for emergency repairs.

ADDITIONAL PLANS

- **Continuity of Operations (COOP)**
The COOP establishes policy and guidance to ensure the continuation of the Department's essential mission functions in the event of natural or manmade disasters
- **Emergency Action Plan (EAP)**
Documented response efforts to Chlorine and other chemical releases
- **Emergency Response Plan (ERP)**
ERP for Plant Personnel and Senior Management use

ADDITIONAL PLANS (continued)

- Natural Disaster

Documented response efforts by Division to Flood and Hurricane type disasters

- Process Safety Management (PSM)

OSHA Plan for hazardous chemicals, eliminate hazards, accidents and consequences

- Risk Management (RMP)

Federal and State environmental plan for hazardous chemical release; The Risk Management Plan incorporates the Process Safety Management Plan

ADDITIONAL PLANS (continued)

- **Spill Prevention Control and Countermeasure Plan**
The SPCC plan includes requirements for oil spill prevention, preparedness, and response to prevent oil discharges to U.S. navigable waters and adjoining shorelines.
- **Unpermitted Discharges Contingency Plan**
Unpermitted Discharges Contingency Plan details the course of action for the Miami-Dade Water and Sewer Department (MDWASD) in the event of an unpermitted discharge from the wastewater collection and treatment systems to surface waters. Other MDWASD contingency plans address response actions specific to the Sludge Force Main and Miami Beach Force Main.

ADDITIONAL PLANS (continued)

- Overflow Prevention Plan (OPP)

The Overflow Prevention Plan (OPP) is designed to mobilize the Division's personnel to effectively and efficiently respond to any emergency condition, which may adversely affect the proper operation of the Miami-Dade Water and Sewer Department's wastewater

CLIMATE CHANGE RESILIENCY-REGIONAL

- Southeast Florida Regional Climate Change Compact
 - Joint Commitment of Palm Beach, Broward, Miami-Dade and Monroe Counties
 - Climate Change Mitigation and Adaptation
 - Ratified on January 10, 2010
 - Developed the following:
 - Southeast Florida Regional Action Plan
 - Implementation Guide

CLIMATE CHANGE RESILIENCY- REGIONAL (continued)

Southeast Florida Regional Climate Change Compact (continued)

- Supporting Documentation
 - Policy and Advocacy Implementation Report
 - A unified Sea Level Rise Projection for Southeast Florida-White Paper on sea level rise projections for use in Compact Planning by the SLR Technical Ad Hoc Working Group
 - Regional Greenhouse Gas Emissions Inventory: Baseline Period 2005-2009

CLIMATE CHANGE RESILIENCY- REGIONAL (continued)

Southeast Florida Regional Climate Change Compact (continued)

o Analysis of the Vulnerability of Southeast Florida to Sea Level Rise

Analysis of the Vulnerability of Southeast Florida to Sea Level Rise



Water Treatment Plants	More Likely (acres)	Possible (acres)	Total Inundation (acres)	Total Area within Land Use Category (acres)	Percent Inundation
1-foot Sea Level Rise	0.38	0.16	0.54	210.37	0.26%
2-foot Sea Level Rise	0.85	0.64	1.49	210.37	0.71%
3-foot Sea Level Rise	2.58	1.6	4.18	210.37	1.99%

Wastewater Treatment Plants	More Likely (acres)	Possible (acres)	Total Inundation (acres)	Total Area within Land Use Category (acres)	Percent Inundation
1-foot Sea Level Rise	11.1	5.32	16.42	460.14	3.57%
2-foot Sea Level Rise	19.91	6.15	26.06	460.14	5.66%
3-foot Sea Level Rise	36.47	8.33	44.8	460.14	9.58%

CLIMATE CHANGE RESILIENCY-COUNTY LEVEL

MDWASD Participated with Miami-Dade County in developing “GreenPrint:Our Design for a Sustainable Future”.

Participants:

- The Mayor’s Sustainability Advisory Board
- Interdepartmental Sustainability Partners
- Miami-Dade County Climate Change Advisory Task Force
- Core Planning Team
- Cities
- Stakeholders, Partners, and Collaborators
- Southeast Florida regional Climate Change Compact

CLIMATE CHANGE RESILIENCY- COUNTY LEVEL (continued)

Greenprint plan steps:

- Conduct Sustainability Assessment
- Set Sustainability goals
- Develop a Sustainability Plan
- Implement the Sustainability Plan
- Monitor and Evaluate Progress

CLIMATE CHANGE RESILIENCY- COUNTY LEVEL (continued)

One of Greenprint Goals:

Use less water and energy

Reduce per capita non-renewable energy use to 20 percent below 2007 baseline by 2015. Reduce water consumption by 1.5 million gallons a day. Reduce government electricity use by 20 percent from 2007 to 2014 in accordance with Board of County Commissioners legislation.

CLIMATE CHANGE RESILIENCY-m MDWASD LEVEL

- Integrated Water, Wastewater, Reclaimed Water Master Plan
 - “Hardening “ Study of WWTPs
 - Evaluation of new WWTP in West
 - Surface Water/groundwater model for Biscayne Aquifer-future conditions
 - Florida Aquifer Model-sea level rise future scenarios
 - Salt Water Intrusion Assessment, possible Aquifer recharge, water supply planning.