Miami-Dade

Water and Sewer Department

Miami-Dade Consolidated PWS
Water Use Permit No. 13-00017-W

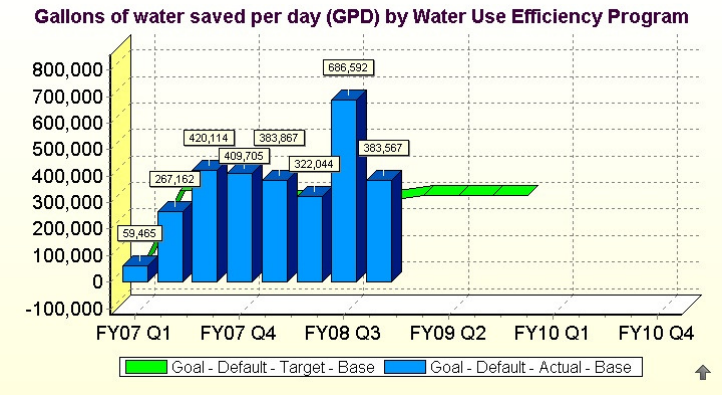
Compliance Highlights
January 2009

Miami-Dade Water and Sewer Department
P.O. Box 33-0316
Miami, FL 33233-03

On November 15, 2007, the South Florida Water Management District Governing Board approved the Miami-Dade Consolidated Public Water Supply Water Use Permit (WUP). Below are the highlights of Miami-Dade County's efforts to comply with the WUP during this Report period.

WATER CONSERVATION

On May 7, 2007, the District approved the Twenty-Year Water Use Efficiency (WUE) Plan. The approved Plan is a condition of the 20-Year WUP. The quantifiable water saving data for each of the Plan's implemented Best Management Practices (BMPs) provides an estimated cumulative savings of over 19.6 million gallons a day (MGD) by 2026. The program's first year's water saving goal was established at 963,000 GPD, the goal was exceeded by 193,446 GPD for a total first year savings of 1,156,446 GPD.



On January 1, 2009, Miami-Dade County's ordinances for Water Use Efficiency Standards for new residential and commercial developments became effective. The ordinances serve to strengthen the requirements of the Florida Building Code, to meet the County's water conservation goals, and to provide the public with information and education on all water use efficiency standards and water conservation programs. The ordinances consist of a technical amendment to the Building Code, which requires maximum water conservation flow rates for plumbing fixtures (such as showerheads, water closets, dishwashers, and washing machines), and the publication of a "Water Use Efficiency Standards Manual" on January 1, 2009, with annual updates each year thereafter. The new requirements will represent up to a 31 percent reduction of indoor water use in newly constructed residential units. The ordinance also requires evaluations of applications for "Developments of Regional Impact" with a projected water demand of one million gallons per day or more, to determine the feasibility of an alternative water supply project. Additionally, beginning January 1, 2009, all multi-family residential developments are required to include a sub-meter for each individual unit.

Outdoor water use efficiencies are being addressed by Miami-Dade County through proposed amendments to the current Landscape Irrigation Ordinance, and a new proposed ordinance addressing Public Rights-of-Way and a two-day a week irrigation ordinance.

At the Fall Conference of the Florida Section of the AWWA, Miami-Dade County's Water Use Efficiency Program was recognized with four *Water Conservation Awards for Excellence.*

More details about the program and the documents referenced above are available at: http://www.miamidade.gov/conservation/home.asp

ALTERNATIVE WATER SUPPLIES AND WATER RECLAMATION PROJECTS

Hialeah Floridan Aquifer Reverse Osmosis (RO) Water Treatment Plant
On June 5, 2008, the City of Hialeah held a non-mandatory Pre-Request for Qualifications (Pre-RFQ) meeting for interested firms for the design, construction, start–up, testing, commissioning and operation of the Reverse Osmosis Water Treatment Plant and Wellfield System. On September 3, 2008, the Blue Ribbon Committee met to rank the companies who responded to the Request for Qualifications. On September 5, 2008 City of Hialeah Mayor Julio Robaina recommended that the City Council select three responding companies, American Water-Pridesa, LLC, Inima USA Corp. and Veolia Water North American-South, LLC, as sufficiently qualified to respond to the forthcoming Request for Proposal when advertised.

On November 19, 2008, the City of Hialeah received the Request for Proposals for Drilling, Construction, and Testing of the Floridan Test Wells. The contract was approved by the City Council on December 23, 2008, to Diversified Drilling Corporation. On January 22, 2009, the Miami-Dade Board of County Commissioners (BCC) approved Amendment 1 to the Joint Participation Agreement between Miami-Dade County and the City of Hialeah.

All documents issued by the City of Hialeah may be found at:
http://www.hialeahfl.gov/watertreatmentInfo.html

Upper Floridan Blending at Alexander Orr Water Treatment Plant
Starting in 2006, MDWASD began blending water from the Floridan aquifer with Biscayne aquifer water at the Alexander Orr Water Treatment Plant. Concerns about the finished water quality arose during blending. Sodium and chloride levels nearly tripled, and the total dissolved solids (TDS) doubled. This change in water quality impacted the water distribution system that is serviced by 40 to 60 year old 2" galvanized water mains. The baseline number of water quality complaints rose from an average of 27 complaints per month before blending, to 107 complaints per month during blending. The number of complaints for the Hialeah/Preston service area, which was not blending, remained unchanged at an average of 17 per month.

Based on the complaints, MDWASD hired Carollo Engineers to evaluate the water quality impacts of the blending. On November 12, 2008 MDWASD presented the results of the investigation to the SFWMD. Based on the

presentation, the SFWMD administratively approved reduction of blending at Alexander Orr.

Upper Floridan Aquifer Blending at Hialeah/Preston Water Treatment Plant
MDWASD has completed design of the wells for Upper Floridan aquifer blending. However this project, if implemented, may also result in adverse water quality impacts in the potable water distribution system. On December 5, 2008, MDWASD requested that the project be postponed until an alternative plan can be submitted to the District for approval. At this time, water demands are significantly lower than the Biscayne aquifer water use limitation in the WUP. MDWASD estimates that with a two-day per week irrigation Ordinance, potable water demand per capita will remain near the current level. On January 6, 2009, the SFWMD granted a postponement for the completion of milestones associated with the Florida aquifer blending project, while the District evaluates the water quality situation.

High Level Disinfection (HLD)
On April 1, 2008, Miami-Dade County's High Level Disinfection (HLD) Project at the County's South District Wastewater Treatment Plant, kicked off with a groundbreaking for the 14 projects that compose the HLD project. All contracts are either on, or ahead of the contract schedule.

South District Water Reclamation Plant
The consultant is on schedule and is currently developing the preliminary design of the South District Water Reclamation Plant (SDWRP). The SDWRP will be constructed west of the South District Wastewater Treatment Plant. On November 20, 2008 the BCC approved the purchase of the property and also approved a resolution authorizing the construction of the SDWRP on the property.

A&P Consulting, the contractor hired to design the pipeline from the SDWRP to the Miami Metrozoo, has submitted a Basis of Design Report (BODR) for the pipeline and an alternative for the pipeline route has been selected. Use of the SFWMD canal right-of-way, or a portion of the right-a-way for the pipeline route, will result in significant cost savings to MDWASD.

The consultant has completed a Phase 1 Environmental Site Assessment (ESA) at the recharge area at Miami Metrozoo, and a Phase 2 ESA at the water reclamation plant site is currently underway. A conceptual site plan has also been completed by the consultant.

The geotechnical field work and surveying work, which are required to support the preliminary design of the recharge facilities and the groundwater modeling at the Miami Metrozoo site, has been completed. The groundwater flow model and

the development of design criteria for the different recharge options are nearing completion.

Preparations are underway for pilot testing the treatment technology. On October 23, 2008, MDWASD requested that the Florida Department of Environmental Protection (FDEP) waive the pilot testing requirements for the Aquifer Recharge Pilot. On December 31, 2008, FDEP responded to the request and asked that MDWASD complete a plan of study for the pilot testing, and submit the plan to FDEP for permitting evaluation. FDEP has indicated that they have not been able to review the plan of study to date, but have stated that as long as the water quality meets Part V of FAC 62-610, the pilot may move forward.

On-site irrigation and in-plant use of reclaimed water resulted in 5.106 MGD of water reclamation at the SDWWTP in FY2008.

West District Water Reclamation Plant

MDWASD has conducted basic site screening of potential locations for the West District Water Reclamation Plant (WDWRP). On July 10, 2008, ERM Southeast, Inc. was selected to assist in the site screening. On July 23, 2008, the consultant was approved to establish evaluation criteria and methodology, and to evaluate and rank potential sites for the West District plant. The consultant has met with various federal, state and local agencies as part of the site evaluation process. The site selection recommendation from the consultant is scheduled for June 2009.

MDWASD staff continues to work on preliminary sizing and design for the proposed WDWRP. Currently various alternatives, including plant capacity associated with reclaimed water opportunities, are being developed in conjunction with system-wide wastewater transmission and treatment facilities planning and the ocean outfall legislation implementation.

North District Water Reclamation Plant

As part of the planning and design phases of the 7 MGD North District Water Reclamation Plant (NDWRP), several meetings were held with representatives from the cities of North Miami and North Miami Beach. Both Cities have indicated that they are unable to provide the previously agreed upon reclaimed water distribution facilities from MDWASD's proposed point of delivery on the west side of Biscayne Boulevard, even if MDWASD provides reclaimed water at no cost. Additionally, MDWASD is evaluating water reclamation projects for the North District Wastewater Treatment Plant (NDWWTP) in light of the recently enacted ocean outfall legislation.

For these reasons MDWASD requested that the SFWMD approve a modification to the NDWWTP project. On September 16, 2008, the SFWMD approved the implementation of a 3.5 MGD reclaimed water project at NDWWTP, to be completed by January 1, 2012, and requested that MDWASD submit additional information addressing a larger reuse project at the NDWWTP, to the SFWMD no later than March 15, 2009.

On August 27, 2008, the consultant submitted a technical memo to MDWASD, on the design of a 3.5 MGD water reclamation plant. The Department has decided to proceed with optimizing the existing reclaimed water plant and staff is revising the pipeline design. Staff is also evaluating whether the project can be completed in advance of the December 2011 construction deadline.

In FY2008, 2.88 MGD of wastewater was treated and reused for in-plant processes at NDWWTP. Irrigation at Florida International University's Biscayne Bay campus accounted for an additional 0.092 MGD of reuse from the NDWWTP.

Central District Water Reclamation Plant

The consultant for the Central District Water Reclamation Plant (CDWRP) has submitted a "Regulatory and Practical Reviews" technical report, along with technical memorandums discussing distribution pipe diameter, plant storage and treatment options. The consultant is currently working on the BODR. Geotechnical work has been completed. In order to initiate early procurement of the microfiltration membranes, a Request for Information was forwarded to the various membrane manufacturers to determine if equipment complies with design parameters and the membrane procurement process is underway.

The CDWRP pipeline consultant has completed 90% design, and pipe alignment has been selected based on the BODR recommendations. Lining of the existing pipe for the Bear Cut crossing was not successful and authorization by the Department for directional drilling of a new pipe, is underway.

The reclaimed water piping in the Village of Key Biscayne has been installed.

Reclaimed water from the CDWWTP is currently substituted for potable water for in-plant processes. The average annual flow of reuse water at CDWWTP was 5.9 MGD for FY2008.

Biscayne Bay Coastal Wetlands Rehydration Pilot Project

The recommendation for consultant selection for this project was approved by the BCC on January 22, 2009 and the first Task Authorization was issued on February 2, 2009. The Agreement with FIU for ecological and aquatic toxicity testing is being scheduled for BCC Committee review in February.

FPL Turkey Point

MDWASD staff is meeting monthly with representatives from Florida Power and Light (FPL). Four (4) main alternatives were considered for providing the reuse water. MDWASD developed cost estimates for these alternatives, and the selected alternative will provide up to 90 MGD of HLD-treated water from the SDWWTP for FPL use. Additionally, MDWASD will build and operate a pipeline which will deliver the water to Turkey Point. The construction of the pipeline is scheduled to be complete in 2017.

RAW WATER ACCOUNTING

As part of the Interim Agreement, MDWASD installed meters at each individual production well. To comply with Limiting Condition 48 of the WUP, MDWASD submitted a Report detailing the actions that MDWASD had taken to compare the current wellhead flow data with previously used methods of determining flow from the Hialeah-Preston and Alexander Orr Water Treatment Plants (WTP). In a response dated September 16, 2008, the SFWMD asked MDWASD to continue the comparative analysis and associated investigations for another year.

To further this effort, MDWASD has hired Malcolm Pirnie to assess the Venturi meters at both WTPs and address water accounting at the WTPs. On February 11, 2009, Malcolm Pirnie will be at the Alexander Orr plant to begin verification of flows from the Venturi meters.

Additionally, MDWASD is currently evaluating pumpage rates of each production well and associated piping. Well motors are being assessed, piping is being replaced and wells are being acid washed, as needed. This type of evaluation and preventive maintenance will be a continual process as MDWASD seeks to improve wellfield operations and water accounting. MDWASD will also continue to assess and where possible, improve the accuracy of the individual well meters.

A final report of these activities and the comparative flow analysis will be provided to the SFWMD by September 2009.

TWENTY-YEAR WATER SERVICE AGREEMENTS

On August 1, 2008, MDWASD forwarded a copy of the fully executed water service agreement, between Miami Beach and Miami-Dade County, to the SFWMD. To date, the City of Hialeah has not signed the Hialeah 20-year water service agreement; however the Mayor of Hialeah reports that he has been holding the service agreement while the County prepares conveyance of County-owned property to the City as part of the site for the RO plant. This is scheduled for BCC action in April, after which MDWASD expects the City to submit the agreement.

PUBLIC OUTREACH ACTIVITIES

In March 2008, a Water Use Permit Communications Plan was developed with the primary objective of increasing public understanding and awareness of Miami-Dade's WUP. The success of the WUP Communications Plan can be gauged by the numerous newspaper articles published, radio and television interviews produced and the positive feedback received from the general public.

In March 2008, a website designed to inform the public of the progress of the WUP projects and include news releases regarding any initiatives related to the WUP was created and is accessible at http://www.miamidade.gov/wasd/wup.asp.

Throughout the month of July 2008, Public Affairs staff promoted July as Smart Irrigation Month by publishing daily newspaper messages providing smart irrigation tips. From May through October, 2008, WASD Public Affairs staff participated in all of Miami-Dade County DERM's Adopt-a-Tree events to educate the thousands of participants on water use permit projects and exchange high-efficiency showerheads.

Monthly articles are submitted to local print media and a thrice-weekly column is published in the only Spanish-language daily newspaper, Diario las Américas. A steady stream of News Releases ensures that the media is kept aware of all Water Use Permit developments. Radio spots air throughout local radio stations and staff is interviewed regularly on local radio and television shows. Project updates are reported in WASD's quarterly customer newsletter, *The Pipeline*, which is mailed to 420,000 customers. Periodic updates are also included in the internal employee newsletter, *The Splash* as well as the Director's monthly message on the internal Water and Sewer Intranet site.

As the projects associated with the Water Use Permit continue to be implemented and each of the conditions fulfilled, Public Affairs will continue to implement communication and outreach efforts. The goal is to increase the understanding and awareness as to the importance of the successful implementation of the Water Use Permit projects over the next two decades.

STATUS OF ACTUAL WATER DEMANDS

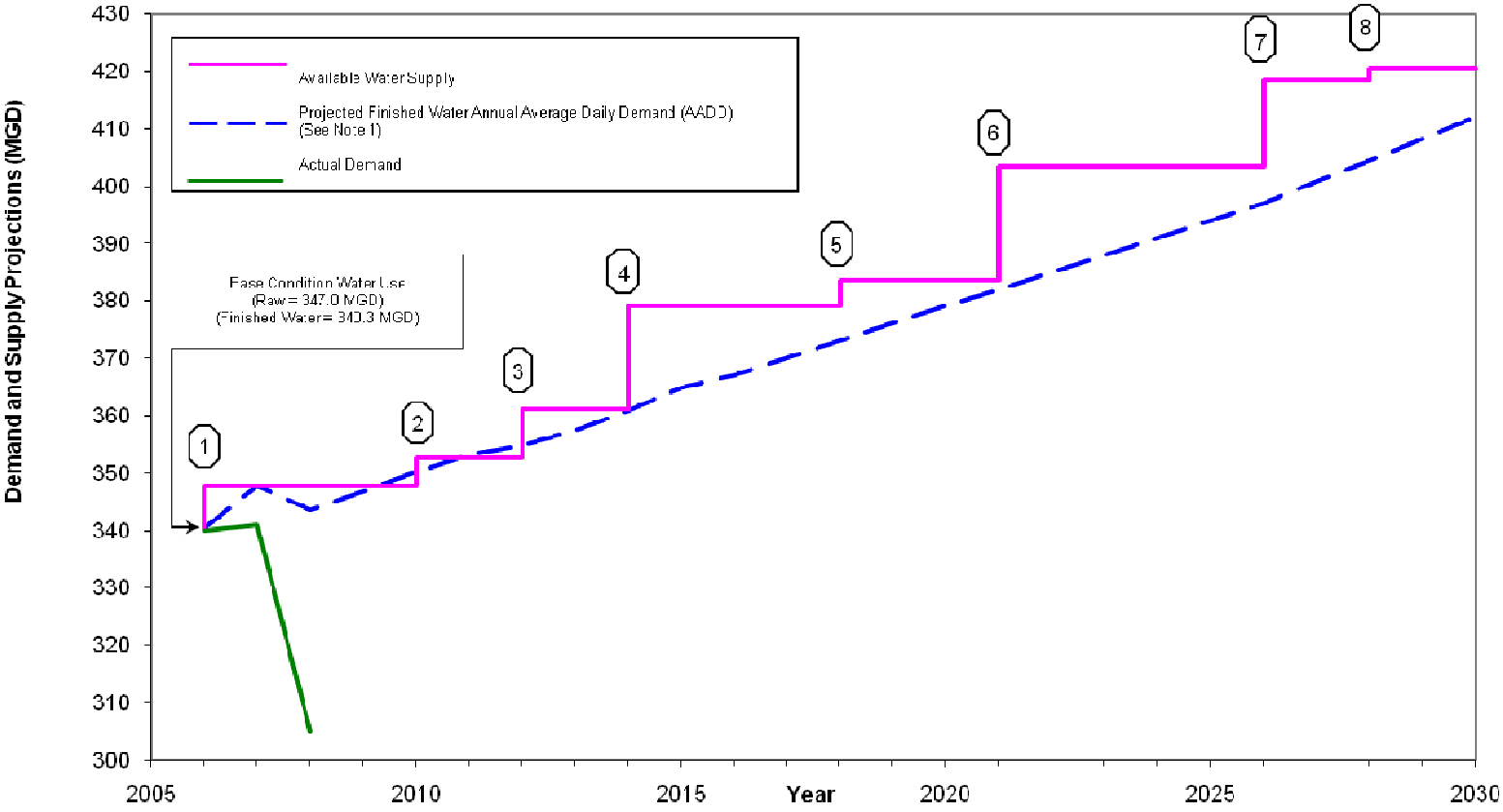
The following chart shows MDWASD's 20-year Alternative Water Supply Program, and the actual finished water demand as of the end of December 2008. The lower demands are the result of the water restrictions and the successful implementation of MDWASD Water Use Efficiency Program.

The SFWMD has noted that 2 wellfields, Hialeah and Everglades Labor Camp, slightly exceeded their annual limits detailed in the wellfield operations plan, submitted by MDWASD to the District. It should be noted that although the annual total withdrawals from the Hialeah wellfield may exceed the 1,132 MG annual withdrawal in the plan, the total annual combined withdrawals from the Hialeah, Preston, and Miami Springs wellfield complex for the period ending December 31, 2008, was 20,480.48 MG, well below the 25,550 MG annual total in the wellfield operating plan, and below the 25,550 MGY withdrawal limit found in WUP Limiting Condition 28. To maintain this individual wellfield limit imposed by MDWASD's wellfield operations plan, MDWASD will need to operate only one (1) well at the Hialeah wellfield. MDWASD will more closely monitor these withdrawals, but asks the District to consider operational flexibility within the wellfield complex should MDWASD need to utilize more than one well at Hialeah to accommodate on-going preventative maintenance efforts.

The total annual combined withdrawals from the Everglades Labor Camp and the Newton wellfields for the period ending December 31, 2008 was 983.52 MG, below the 1,022 MG annual limit in both the wellfield operations plan, and below

the 1,497 MGY withdrawal limit found in WUP Limiting Condition 33. In December 2008, daily withdrawals at the Everglades Labor Camp exceeded 1 MGD on all but December 2, 3, 4, and 5, 2008. This brought the total annual withdrawal total for the Everglades Labor Camp to 270.22 MG for the period ending December 31, 2008; exceeding the 256 MG annual total found in the wellfield operations plan. MDWASD Operations staff has noted that a leak was discovered in the 12" line connecting Newton and Everglades Labor Camp and has been repaired. Since this wellfield is at the end of the system, increased pumpage at Everglades may be attributed to this leak. Additionally, because Newton and Everglades Labor Camp are at the end of the REX system, adequate pressures must be maintained at all times. Furthermore, this portion of the system serves customers, including a power plant, prison, and a labor camp, that have varying water use patterns and transient populations, making this portion of the system difficult to operate. MDWASD however will more closely monitor these withdrawals to ensure that the individual wellfield limitations contained in the wellfield operations plan, are not exceeded.

MDWASD Finished Water Demand and Water Supply Projections



Project Names:
1. Floridan Aquifer Blending at Alex-Orr WTP (7.2 MGD)
2. Floridan Aquifer Blending Wellfield at Hialeah/Preston (4.7 MGD)
3. New Upper Floridan RO WTP Phase 1 (8.5 MGD) (WTP Capacity = 10 MGD)
4. Phase 1 SDWRP Groundwater Recharge (SWH WTP) (13 MGD)
5. New Upper Floridan RO WTP Phase 2 (4.5 MGD) (WTP Capacity = 15.0 MGD)
6. Phase 2 WDWRP Canal Recharge (Alex-Orr WTP) (20 MGD)
7. Phase 3 WDWRP Canal Recharge (Alex-Orr WTP) (15 MGD)
8. New Upper Floridan RO WTP Phase 3 (2.0 MGD) (WTP Capacity = 17.5 MGD)