



Miami-Dade
Water and Sewer Department

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

**Water Conservation Plan
2009 Annual Report**

January 1, 2009 Through December 31, 2009

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

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INTRODUCTION

On November 15, 2007, the South Florida Governing Board (SFWMD) approved the Miami-Dade Consolidated PWS Water Use Permit (WUP).

To comply with the Permit requirements MDWASD developed a 20-year Water Use Efficiency (WUE) Plan using the Florida Department of Environmental Protection Conserve Florida Guide (Guide). The Guide is a web-based application for goal-based water conservation planning. MDWASD was the first utility in the State to use the Guide to develop, administer and report its water conservation program.

The implementation of the Best Management Plans (BMPs) included in the Conserve Florida Plan guarantees that MDWASD will meet the projected 19.8 million gallons a day (MGD) by 2026 as required by the Permit. Current water savings have surpassed the projected 2009 cumulative savings of 3.53 MGD.

MDWASD hereby submits the third Water Conservation Plan Annual Progress Report detailing the County's actions and efforts to comply with Limiting Condition 45 of the WUP.

SUMMARY

Miami-Dade County's Water Use Efficiency (WUE) Program was implemented utilizing the Florida Department of Environmental Protection (DEP) Conserve Florida Guide. The web-based guide for public water suppliers was used for developing, implementing, and now reporting on the water conservation measures and best management practices (BMPs) of Miami-Dade's WUE program. Miami-Dade Water and Sewer Department (MDWASD) is the first utility in the State to use the Guide in the development and administration of its conservation program.

The implementation of the WUE program has achieved unprecedented water use efficiency in all sectors of Miami-Dade County. The quantifiable BMPs and measures have ensured that the planned savings proposed in the conservation plan are a reality.

The Miami-Dade Board of County Commissioners (BCC) has taken an active role in the promotion and implementation of the Water Use Efficiency Plan. On January 1, 2009, Miami-Dade County's ordinances for Water Use Efficiency Standards for new residential and commercial developments became effective. The standards serve to strengthen the requirements of the Florida Building Code, to both 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. It is estimated that 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 new multi-family residential developments are required to include a sub-meter for each individual unit.

Outdoor water use efficiencies were also addressed in 2009. On April 7, 2009, the BCC approved the Permanent Landscape Irrigation Restrictions Ordinance limiting landscape irrigation to two days a week. On May 5, 2009, the BCC approved the Miami-Dade County Right of Way Landscape Ordinance. Also on May 5, 2009, the BCC adopted an amendment to the Miami-Dade County Landscape Ordinance requiring the use of Florida Friendly landscaping and compliance with more efficient water use guidelines for all new construction.

Miami-Dade County is currently experiencing actual finished water demands 34 MGD lower than what was anticipated in the WUP. The lower demands are the result of the County's irrigation restrictions and the successful implementation of the Water Use Efficiency Plan. As a result of the lower demands and updated population projections, MDWASD has re-evaluated the County's water demand projections and the AWS project schedule, which will result in significant cost savings to the County.

In December 2009, Miami-Dade County's Water Conservation Program received recognition for their efforts by earning five awards from the American Water Works Association's Florida chapter. The Program earned praise for the *Every Drop Counts* children's poster contest, the rebate and incentive programs, and for the development of the Water Use Efficiency Standards Manual for Industry.

SECTION I - PLAN IMPLEMENTATION

The Conserve Florida BMPs that MDWASD included in the Water Use Efficiency Plan are shown in this Report in Appendix A with planned projected water savings, actual water savings and the cost effectiveness calculation for each BMP. In almost every instance the water savings have exceeded projections (Figure 1).

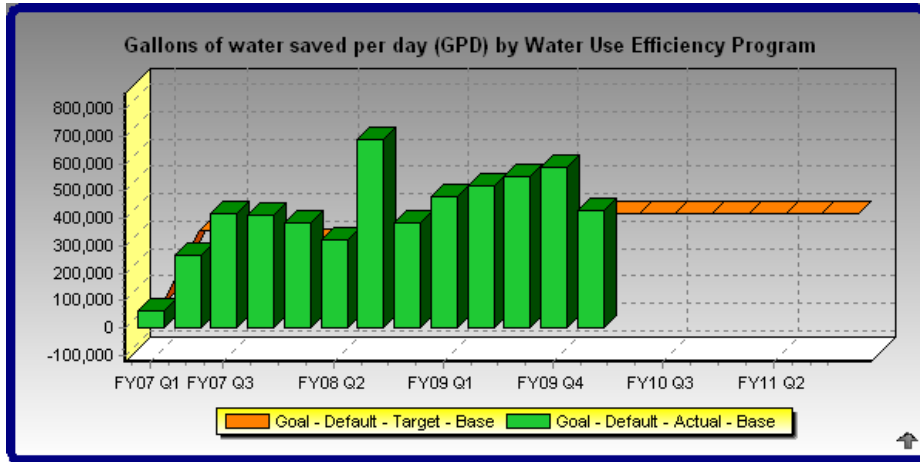


Figure 1

As a result of the implementation of the BMPs and the landscape irrigation measures, Miami-Dade County has seen decreasing per capita water consumption. Figure 2 reflects the historical systemwide per capita, showing the effectiveness of all of MDWASD's water efficiency strategies.

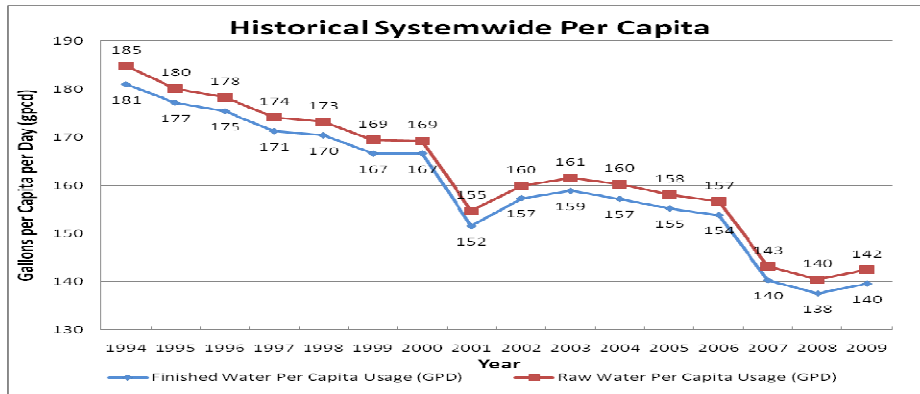


Figure 2

Table 1, the Conserve Florida Water Savings Projections Table, shows both the actual and projected water saving information generated from the Guide's Reporting Module. This Table also includes population and per capita projections for the 20-year Plan horizon.

Water Savings Projection Report Summary

Year	Water Savings (mgd)		Demand (mgd)				Population		Per Capita Demand (gpcd)				% Reduction			
	Planned	Reported	Without Conservation	With Conservation			Forecasted	Actual	Without Conservation	With Conservation			Demand or Per Capita		Demand	Per Capita
				Planned	Reported	Actual				Planned	Reported	Actual	Planned	Reported	Actual	Actual
2007	1.51135	1.770508	348.89	347.37865	347.119492	315.8		2250944	155	154.33	154.21	140.3	0.43 %	0.51 %	9.48 %	9.49 %
2008	3.047809	5.430608	345.78	342.732191	340.349392	306.9		2230895	155	153.63	152.56	137.57	0.88 %	1.57 %	11.24 %	11.25 %
2009	4.738678	7.584201	325.51	320.771322	317.925799	312.5	2238700	--	145.4	143.28	142.01	139.6	1.46 %	2.33 %	4.0 %	3.98 %
2010	6.690612		329.12	322.429388		--	2263566	--	145.4	142.44		--	2.04 %		--	--
2011	8.492076		332.74	324.247924		--	2288432	--	145.4	141.69		--	2.55 %		--	--
2016	15.207716		352.86	337.652284		--	2426789	--	145.4	139.14		--	4.30 %		--	--
2021	19.177636		371.58	352.402364		--	2555596	--	145.4	137.89		--	5.16 %		--	--
2026	23.132556		390.31	367.177444		--	2684404	--	145.4	136.78		--	5.93 %		--	--

Table 1 - Water Savings Projection Report Summary

**APPENDIX A - BMP IMPLEMENTATION
THROUGH DECEMBER 31, 2009**

BMP Implementation for: BMP Template

Category: Indoors

Sector: Multi-Family – Showerhead Exchange

Year		Units	Cost/ Measure (\$/account)	Total Cost (\$)	Comments	Savings/ Measure (gpm/d)	Total Savings(gpd)	C/E
2007	Planned	1600	1.6	2,560		35	56,000	0.05
	Reported	4193	2.29	9,601.97		35	146,755	0.07
	Difference	2593		7,041.97			90,755	
2008	Planned	1600	1.6	2,560		35	56,000	0.05
	Reported	4000	2.88	11,520	Cost of \$5.75 per conservation Kit	35	140,000	0.08
	Difference	2400		8,960			84,000	
2009	Planned	2120	1.6	3392		35	74,200	0.05
	Reported	2130	2.35	5,005.5		35	74,550	0.07
	Difference	10		1,613.5			350	

BMP Implementation for: BMP Template

Category: Indoors

Sector: Multi-Family – Retrofit Kit

Year		Units	Cost/ Measure (\$/account)	Total Cost (\$)	Comments	Savings/ Measure (gpm/d)	Total Savings (gpd)	C/E
2007	Planned	1600	2.38	3,808		12	19,200	0.2
	Reported	4193	2.3	9,643.9		12	50,316	0.19
	Difference	2593		5,835.9			31,116	
2008	Planned	1600	2.38	3,808		12	19,200	0.2
	Reported	4000	2.38	9,520		12	48,000	0.2
	Difference	2400		5,712			28,800	
2009	Planned	2120	2.38	5,045.6		12	25,440	0.2
	Reported	2130	3.55	7,561.5		12	25,560	0.3
	Difference	10		2,515.9			120	

BMP Implementation for: BMP Template

Category: Indoors

Sector: Single Family - Showerhead Exchange

Year		Units	Cost/ Measure (\$/account)	Total Cost (\$)	Comments	Savings/ Measure (gpm)	Total Savings (gpd)	C/E
2007	Planned	1600	1.6	2,560		35	56,000	0.05
	Reported	4194	2.29	9,604.26		35	146,790	0.07
	Difference	2594		7,044.26			90,790	
2008	Planned	1600	1.6	2,560		35	56,000	0.05
	Reported	2437	2.88	7,018.56	Cost of \$5.75 per conservation kit	35	85,295	0.08
	Difference	837		4,458.56			29,295	
2009	Planned	1480	1.6	2,368		35	51,800	0.05
	Reported	2163	2.35	5,083.05		35	75,705	0.07
	Difference	683		2,715.05			23,905	

BMP Implementation for: BMP Template

Category: Indoors

Sector: Single Family - Retrofit Kit

Year		Units	Cost/ Measure (\$/account)	Total Cost (\$)	Comments	Savings/ Measure (gpm/d)	Total Savings (gpd)	C/E
2007	Planned	1600	2.38	3,808		12	19,200	0.2
	Reported	4194	2.3	9,646.2		12	50,328	0.19
	Difference	2594		5,838.2			31,128	
2008	Planned	1600	2.38	3,808		12	19,200	0.2
	Reported	2437	2.38	5,800.06		12	29,244	0.2
	Difference	837		1,992.06			10,044	0
2009	Planned	1480	2.38	3522.4		12	17,760	0.2
	Reported	1498	3.55	5,317.9		12	17,976	0.3
	Difference	18		1,795.5			216	

BMP Implementation for: High-Efficiency Clothes Washer Rebates

Category: Indoor

Sector: Single Family Home Washers – Rebate

Year		Units	Cost/ Account (\$/account)	Total Cost (\$)	Comments	Savings/ Account (gpad)	Total Savings (gpd)	C/E
2007	Planned	0	150	0		16.3	0	--
	Reported		150			16.3		
	Difference							
2008	Planned	150	150	22,500		16.3	2,445	9.2
	Reported	849	200	169,800	Cost for the initial project year was \$200/rebate	16.3	13,838.7	12.27
	Difference	699	50	147,300			11,393.7	3.07
2009	Planned	250	150	37,500		16.3	4,075	9.2
	Reported	937	150	140,550		16.3	15,273.1	9.2
	Difference	687		103,050			11,198.1	

BMP Implementation for: Non-residential Water-Use Evaluations/Implementations

Category: Evaluations without Rebates

Sector: Non-Residential – Green Restaurant Program

Year		Units	Cost/ Measure (\$/account)	Total Cost (\$)	Comments	Savings/ Measure (gpm)	Total Savings (gpd)	C/E
2007	Planned	0	40	0		100	0	--
	Reported		40			100		
	Difference							
2008	Planned	12	40	480		100	1,200	0.4
	Reported	14	40	560		100	1,400	0.4
	Difference	2		80			200	
2009	Planned	12	40	480		100	1,200	0.4
	Reported	12	40	480		100	1,200	0.4
	Difference	0						

BMP Implementation for: Non-residential Water-Use Evaluations/Implementations

Category: Evaluations without Rebates

Sector: Non-Residential – Green Lodging Project

Year		Units	Cost/ Measure (\$/account)	Total Cost (\$)	Comments	Savings/ Measure (gpm)	Total Savings (gpd)	C/E
2007	Planned	0	667	0		1,617	0	--
	Reported		667			1,617		
	Difference							
2008	Planned	12	667	8,004		1,617	19,404	0.41
	Reported	17	667	11,339		1,617	27,489	0.41
	Difference	5		3,335			8,085	
2009	Planned	12	667	8,004		1,617	19,404	0.41
	Reported	21	667	14,007		1,617	33,957	0.41
	Difference	9		6,003			14,553	

BMP Implementation for: Non-residential Water-Use Evaluations/Implementations

Category: Evaluations without Rebates

Sector: Non-Residential – County Owned Operating Facilities

Year		Units	Cost/ Measure (\$/account)	Total Cost (\$)	Comments	Savings/ Measure (gpm/d)	Total Savings (gpd)	C/E
2007	Planned	22	3,600	79,200		1,500	33,000	2.4
	Reported	22	1,600	35,200		1,500	33,000	1.07
	Difference		-2,000	-44,000				-1.33
2008	Planned	10	3,600	36,000		1,500	15,000	2.4
	Reported	38	3,600	136,800		1,500	57,000	2.4
	Difference	28		100,800			42,000	
2009	Planned	0	3,600	0		1,500	0	--
	Reported	0	3,600			1,500		
	Difference							

BMP Implementation for: Non-residential Water-Use Evaluations/Implementations

Category: Evaluations without Rebates

Sector: Non-Residential – Private Facilities (ICI)

Year		Units	Cost/ Measure (\$/account)	Total Cost (\$)	Comments	Savings/ Measure (gpm)	Total Savings (gpd)	C/E
2007	Planned	0	3,600	0		1,500	0	--
	Reported		3,600			1,500		
	Difference							
2008	Planned	0	3,600	0		1,500	0	--
	Reported		3,600			1,500		
	Difference							
2009	Planned	50	3,600	180,000		1,500	75,000	2.4
	Reported	50	3,600	180,000		1,500	75,000	2.4
	Difference	0						

BMP Implementation for: Ultra Low Flush (ULF) Toilet Rebates

Category: Rebate

Sector: Single Family – High Efficiency Toilets Rebate Project

Year		Units	Cost/ Account (\$/account)	Total Cost (\$)	Comments	Savings/ Account (gpad)	Total Savings (gpd)	C/E
2007	Planned	750	100	75,000		29	21,750	3.45
	Reported	971	100	97,100		29	28,159	3.45
	Difference	221		22,100			6,409	
2008	Planned	750	100	75,000		29	21,750	3.45
	Reported	1253	100	125,300		29	36,337	3.45
	Difference	503		50,300			14,587	
2009	Planned	1000	100	100,000		29	29,000	3.45
	Reported	3478	100	347,800		29	100,862	3.45
	Difference	2478		247,800			71,862	

BMP Implementation for: Ultra Low Flush (ULF) Toilet Rebates

Category: Retrofit

Sector: Multi-Family – Retrofit Project (SIP)

Year		Units	Cost/Unit (\$/unit)	Total Cost (\$)	Comments	Savings/Unit (gpud)	Total Savings (gpd)	C/E
2007	Planned	0	150	0		64	0	--
	Reported					64		
	Difference		-150					
2008	Planned	0	150	0		64	0	--
	Reported					64		
	Difference		-150					
2009	Planned	310	150	46,500		64	19,840	2.34
	Reported	315	150	47,250		64	20,160	2.34
	Difference	5		750			320	

BMP Implementation for: Ultra Low Flush (ULF) Toilet Rebates

Category: Retrofit

Sector: Single Family – HET Senior Retrofit Project

Year		Units	Cost/ Account (\$/account)	Total Cost (\$)	Comments	Savings/ Account (gpad)	Total Savings (gpd)	C/E
2007	Planned	750	250	187,500		64	48,000	3.91
	Reported	890	250	222,500		64	56,960	3.91
	Difference	140		35,000			8,960	
2008	Planned	1000	250	250,000		64	64,000	3.91
	Reported	1124	250	281,000		64	71,936	3.91
	Difference	124		31,000			7,936	
2009	Planned	1000	250	250,000		64	64,000	3.91
	Reported	1000	250	250,000		64	64,000	3.91
	Difference	0						

BMP Implementation for: Water-Efficient Landscape and Irrigation Evaluations and Rebates

Category: Landscape and Irrigation Evaluations without Rebates

Sector: Non-Residential – HOA Landscape Evaluation with Soil Moisture Sensor

Year		Units (HOA)	Cost/ Account (\$/account)	Total Cost (\$)	Comments	Savings/ Account (gpad)	Total Savings (gpd)	C/E
2007	Planned	20	3,200	64,000		62,910	1258200	0.05
	Reported	20	3,200	64,000		62,910	1258200	0.05
	Difference							
2008	Planned	20	3,200	64,000		62,910	1258200	0.05
	Reported	50	3,200	160,000		62,910	3145500	0.05
	Difference	30		96,000			1887300	
2009	Planned	20	3,200	64,000		62,910	1,258,200	0.05
	Reported	25	3,200	80,000		62,910	1,572,750	0.05
	Difference	5		16,000			314,550	0.05

BMP Implementation for: Water-Efficient Landscape and Irrigation Evaluations and Rebates

Category: Landscape and Irrigation Evaluations without Rebates

Sector: Single Family – UCU

Year		Units	Cost/ Account (\$/account)	Total Cost (\$)	Comments	Savings/ Account (gpad)	Total Savings (gpd)	C/E
2007	Planned	0	260	0		233	0	--
	Reported		260			233		
	Difference							
2008	Planned	0	260	0		233	0	--
	Reported		260			233		
	Difference							
2009	Planned	200	260	52,000		233	46,600	1.12
	Reported	200	260	52,000		233	46,600	1.12
	Difference							