Florida Department of Environmental Protection

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3900 Commonwealth Boulevard
Tallahassee, Florida 32399-3000

Rick Scott
Governor

Carlos Lopez-Cantera
Lt. Governor

Jonathan P. Steverson
Interim Secretary

July 1, 2015

The Honorable Rick Scott
Governor, State of Florida
The Capitol
400 South Monroe Street
Tallahassee, Florida 32399-0001

The Honorable Andy Gardiner
President, Florida Senate
Room 409, The Capitol
404 South Monroe Street
Tallahassee, Florida 32399-1100

The Honorable Steve Crisafulli
Speaker, Florida House of Representatives
Room 420, The Capitol
402 South Monroe Street
Tallahassee, Florida 32399-1300

Dear Governor Scott, President Gardiner and Speaker Crisafulli:

Pursuant to Section 403.086(9), Florida Statutes, the Florida Department of Environmental Protection (DEP) hereby submits the enclosed report related to domestic wastewater ocean outfalls.

If you have any questions, please feel free to contact me or Frederick L. Aschauer, Jr., Director of DEP's Division of Water Resource Management, at (850) 245-8035.

Sincerely,

Jonathan P. Steverson
Interim Secretary

Enclosure

Implementation of Chapter 2008-232, Laws of Florida
Domestic Wastewater Ocean Outfalls
2015 Progress Report

Division of Water Resource Management
Department of Environmental Protection

July 2015

3900 Commonwealth Boulevard, MS 3540
Tallahassee, Florida 32399-3000
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Contents

Executive Summary

Chapter 2008-232, Laws of Florida, created the Leah Schad Memorial Ocean Outfall Program that prohibits the construction of new domestic wastewater ocean outfalls and expansion of existing outfalls. The law also requires the discharge of domestic wastewater through ocean outfalls to meet advanced wastewater treatment and management (AWTM) requirements by December 31, 2018, and establishes a timeline for the elimination of existing discharges of domestic wastewater except as a backup discharge during periods of reduced reclaimed water demands or as a result of peak flows from other wastewater management systems. In addition, dischargers are required to reuse 60 percent of their "baseline flow" for beneficial purposes.

Section 403.086(9), Florida Statutes (F.S.), requires the Florida Department of Environmental Protection (DEP) to submit a report to the Governor and Florida Legislature by July 1, 2015, summarizing the implementation progress to date, including the increased amount of reclaimed water provided and potable water offsets achieved, and identifying any obstacles to continued progress, including all instances of substantial noncompliance.

Each of the seven ocean outfall permit holders are currently in compliance with the reporting requirements of Section 403.086(9), F.S., and are making progress toward implementation. Between 2008 and 2013, the total amount of reclaimed water provided increased from 32.0 million gallons per day (mgd) to 36.4 mgd and the potable water offset (i.e., the amount of potable quality water saved through the use of reclaimed water) increased from 27.5 mgd to 31.3 mgd.

The detailed plans submitted by affected utilities in July 2013 indicated that each utility should be able to comply with all requirements of Section 403.086(9), F.S., by December 31, 2025. However, in the progress reports submitted in December 2014, the Miami-Dade Water and Sewer Department (MDWASD) and City of Hollywood identified potential obstacles associated with providing economically feasible and environmentally efficient reuse projects to meet the 60 percent reuse requirement.

MDWASD indicated injecting 27.5 mgd of reclaimed water to recharge the Floridan Aquifer, as proposed in the detailed plan, does not fulfill a specific water supply need and provides questionable benefits at tremendous costs. MDWASD indicated that, at the time of the original ocean outfall legislation, forecasted regional water supply demands were expected to increase substantially for the foreseeable future, but instead forecasted water demands have dropped. MDWASD indicated the drop is likely the long-term benefit of state and national efforts to conserve water and requested that finished water demand reductions achieved through conservation measures receive reuse credit.

The City of Hollywood indicated that the 20.4 mgd Floridan Aquifer recharge project proposed in the detailed plan is overly costly because of the advanced treatment technology required to meet local regulatory standards. The City is currently formulating a new strategy to meet the 60 percent reuse requirement including concepts to: maximize reuse at the Hollywood Southern Regional Wastewater Treatment Facility; provide a contractual reuse agreement with a western Broward community; receive reuse credits for implementation of water conservation measures; receive reuse credits for the City's 8 mgd Floridan Aquifer reverse osmosis water treatment plant; allocate 30 percent of the required reuse capacity to back up disposal and only require reuse as needs emerge; and exclude brackish water (infiltration/inflow) in the collection system from the baseline flow to reduce the 60 percent reuse requirement.

DEP and the South Florida Water Management District (SFWMD) will continue to work with MDWASD and the City to help identify and ensure the most environmentally, economically and technically feasible options are implemented in advance of December 31, 2025 for these 27.5 mgd and 20.4 mgd reuse requirements.

Each permit holder is required to submit an updated detailed plan by July 1, 2016, and another progress report by December 31, 2019. DEP's next report to the Governor and Florida Legislature will be submitted by July 1, 2020.

Section 403.086(9), Florida Statutes

Section 403.086(9), F.S., finds that the discharge of domestic wastewater through ocean outfalls wastes valuable water supplies that should be reclaimed for beneficial purposes to meet public and natural systems' demands and that such discharge compromises the coastal environment, quality of life and local economies that depend on those resources. The section further declares that more stringent treatment and management requirements for such domestic wastewater and the subsequent, timely elimination of ocean outfalls as a primary means of domestic wastewater discharge are in the public interest.

Major provisions of Section 403.086(9), F.S., include:

- Prohibiting the construction of new wastewater ocean outfalls for domestic wastewater discharge and the expansion of existing ocean outfalls;
- Requiring the discharge of domestic wastewater through ocean outfalls to meet AWTM requirements by December 31, 2018;
- Requiring utilities that held a DEP permit for a domestic wastewater discharge through an ocean outfall on July 1, 2008, to install or cause to be installed, a reuse system that provides a minimum of 60 percent of a facility's "baseline flow"[1] for beneficial purposes by December 31, 2025; and
- Prohibiting the discharge of domestic wastewater through ocean outfalls after December 31, 2025, except as a backup discharge during periods of reduced reclaimed water demands, such as periods of wet weather, or as a result of peak flows from other wastewater management systems.

Additionally, Section 403.086(9), F.S., includes reporting requirements associated with implementation of the section. Among others, these provisions:

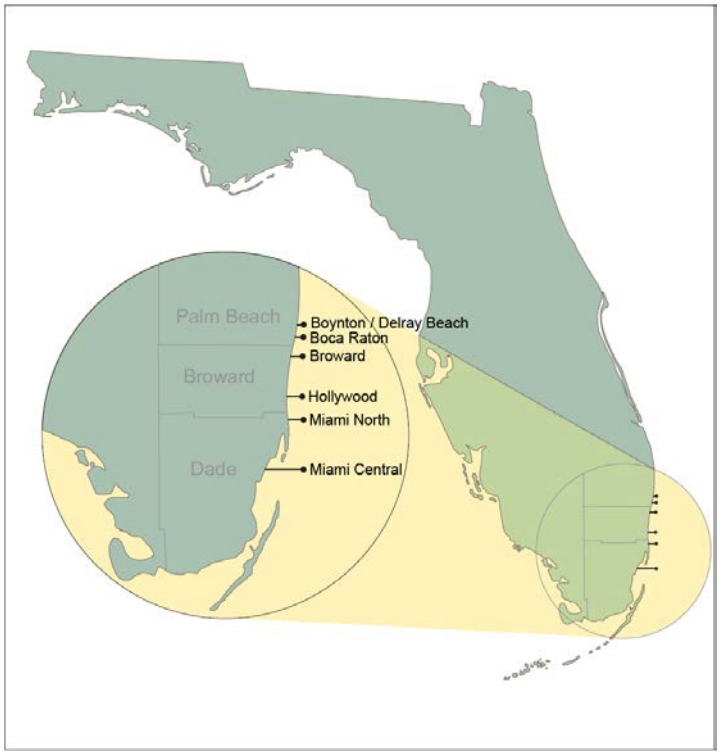
- Require utilities that held a DEP permit for a domestic wastewater discharge through an ocean outfall on July 1, 2008, to submit a progress report to DEP summarizing the actions accomplished to date and the actions remaining and proposed to meet the requirements of Section 403.086(9), F.S., by December 31, 2014; and
- Require DEP to submit a report on the implementation of Section 403.086(9), F.S., to the Governor and Florida Legislature by July 1, 2015. The report must summarize the progress to date, including the increased amount of reclaimed water provided and potable water offsets achieved, and identify any obstacles to continued progress, including all instances of substantial noncompliance.

Permit Holders with Ocean Outfall Discharges

Six ocean outfalls, located along the Florida's Southeast coastline, are subject to the provisions in Section 403.086(9), F.S.

[1] Section 403.086(9)(c), F.S., defines "baseline flow" to mean the annual average flow of domestic wastewater discharging through the facility's ocean outfall, as determined by DEP using monitoring data available for calendar years 2003 through 2007.

Figure 1. Location of Ocean Outfalls in Florida



The Hollywood outfall is shared by three National Pollutant Discharge Elimination System (NPDES) permit holders (City of Hollywood, City of Cooper City and Town of Davie) and two of the outfalls are utilized by the MDWASD. Because of this, seven different permit holders with ocean outfall discharges are discussed in this report. The names of the ocean outfalls, treatment facilities and associated permit holders are provided in geographical order (north to south) in Table 1 below.

Table 1. Ocean Outfalls, Treatment Facilities and Permit Holders

Ocean Outfall	Treatment Facility	Permit Holder
Boynton/Delray Beach	South Central Regional Wastewater Treatment Plant (DEP Permit #FL0035980)	South Central Regional Wastewater Treatment and Disposal Board
Boca Raton	City of Boca Raton Wastewater Treatment Facility (DEP Permit #FL0026344)	City of Boca Raton
Broward	Broward County North Regional Wastewater Treatment Plant (DEP Permit #FL0031771)	Broward County Water and Wastewater Services
Hollywood	Hollywood Southern Regional Wastewater Treatment Facility (DEP Permit #FL0026255)	City of Hollywood
Hollywood	Cooper City Wastewater Treatment Plant (DEP Permit #FL0040398)	City of Cooper City

Ocean Outfall	Treatment Facility	Permit Holder
Hollywood	Town of Davie 76th Avenue Wastewater Treatment Facility (DEP Permit #FL0040541)	Town of Davie
Miami North	MDWASD North District Wastewater Treatment Plant (DEP Permit #FL0032182)	MDWASD
Miami Central	MDWASD Central District Wastewater Treatment Plant (DEP Permit #FLA024805)	MDWASD

Brief summaries of each treatment facility are provided below.

- **South Central Regional Wastewater Treatment Plant:** The South Central Regional Wastewater Treatment and Disposal Board provides service to, among others, the cities of Boynton Beach and Delray Beach. The South Central Regional Wastewater Treatment Plant has a permitted capacity of 24.0 mgd annual average daily flow (AADF). Currently, the facility disposes of its treated wastewater through deep injection wells or through irrigation reuse. The Boynton/Delray Beach ocean outfall currently is used only to handle peak flows during wet weather, during mechanical integrity testing of its deep wells, to exercise ocean outfall pump stations or as an emergency backup disposal method. Only small amounts of treated wastewater have been discharged through the ocean outfall since 2009.
- **City of Boca Raton Wastewater Treatment Facility:** The City of Boca Raton owns and operates the City of Boca Raton Wastewater Treatment Facility, which has a permitted capacity of 17.5 mgd AADF. The reclaimed water facility, expanded to 17.5 mgd, is co-located next to the wastewater treatment facility. Effluent from the reclaimed water facility that is not reused is discharged via the Boca Raton ocean outfall.
- **Broward County North Regional Wastewater Treatment Plant:** Broward County Water and Wastewater Services operates the Broward County North Regional Wastewater Treatment Plant, which is permitted at 95.0 mgd AADF. The plant currently discharges most of its treated wastewater through a combination of the Broward ocean outfall and deep injection wells, with small amounts of treated wastewater used for a variety of reuse activities.
- **Hollywood Southern Regional Wastewater Treatment Facility:** The City of Hollywood owns and operates the Hollywood Southern Regional Wastewater Treatment Facility, which has a permitted capacity of 55.5 mgd AADF. The plant currently discharges most of its treated wastewater through a combination of the Hollywood ocean outfall and deep injection wells with small amounts reused for plant site uses and irrigation at local golf courses. The City of Hollywood, Town of Davie and City of Cooper City all own and operate wastewater treatment facilities that hold NPDES permits for discharge of wastewater through the Hollywood ocean outfall.
- **Cooper City Wastewater Treatment Plant:** The City of Cooper City owns and operates the Cooper City Wastewater Treatment Plant, which has a permitted capacity of 3.1 mgd AADF. Treated effluent from the plant is currently disposed through the City's deep injection well or pumped to the Hollywood Southern Regional Wastewater Treatment Facility for reuse or discharge through the Hollywood ocean outfall during mechanical integrity testing of the City's deep injection wells or during emergency situations.
- **Town of Davie 76th Avenue Wastewater Treatment Facility**: The Town of Davie owns and operates the Town of Davie 76th Avenue Wastewater Treatment Facility, which has a permitted capacity of 5.0 mgd AADF. The Town also owns and operates the recently constructed Town of Davie Water Reclamation Facility, which has a permitted capacity of 3.5 mgd AADF (DEP Permit #FLA706736). Treated effluent from the 76th Avenue facility is currently transferred to the

Hollywood Southern Regional Wastewater Treatment Facility for reuse or discharge through the Hollywood ocean outfall. Treated effluent from the Town of Davie Water Reclamation Facility is disposed via the Town's deep injection well or reused via the Town's public access reuse system.

- **MDWASD North District Wastewater Treatment Plant:** MDWASD operates the North District Wastewater Treatment Plant, which has a permitted capacity of 120.0 mgd AADF. Most of the treated wastewater from the North District plant is currently discharged through a combination of the Miami North ocean outfall and deep injection wells, with small amounts reused for a variety of reuse activities.
- **MDWASD Central District Wastewater Treatment Plant:** MDWASD operates the Central Wastewater Treatment Plant, which has a permitted capacity of 143.0 mgd AADF. Most of the treated wastewater from the Central District plant is currently discharged through the Miami Central ocean outfall with small amounts reused in the plant.

Progress Summary

Each of the seven ocean outfall permit holders submitted a detailed plan[2] for meeting the requirements set forth in Section 403.086(9), F.S., to DEP by July 1, 2013 and the required progress report by December 31, 2014. Based on the information provided, below is a summary of each permit holder's progress in meeting these requirements.

AWTM Management Requirements

Facilities that discharged domestic wastewater through an ocean outfall on July 1, 2008, are required to significantly decrease the amounts of nutrients discharged by December 31, 2018, through implementation of AWTM. Section 403.086(9)(b), F.S., allows AWTM requirements to be met using the following options:

1. Providing advanced wastewater treatment (AWT) as set forth in Section 403.086(4), F.S., (5 mg/L Carbonaceous Biochemical Oxygen Demand; 5 mg/L Total Suspended Solids; 3 mg/L total nitrogen (TN); and 1 mg/L total phosphorus (TP));
2. Achieving a reduction in outfall baseline TN and TP loadings equivalent to that which would be achieved by AWT;
3. Achieving a reduction in the cumulative TN and TP outfall loadings occurring between December 31, 2008 and December 31, 2025, which is equivalent to that which would be achieved if the AWT requirement were fully implemented beginning December 31, 2018, and continued through December 31, 2025; or
4. Installing a fully operational reuse system comprising 100 percent of the facility's baseline flow on an annual basis.

For some facilities that plan to use Options 2 or 3 to meet the AWTM requirements, baseline and target nutrient loadings must be tracked to ensure compliance. DEP calculated baseline and target nutrient loadings for each wastewater facility that discharged through an ocean outfall on July 1, 2008. Baseline loadings were calculated using each facility's AADF and the baseline concentrations for TN and TP. Target loading reductions were calculated using the AADFs and the amount of TN and TP that would have been discharged if only 3 mg/L of TN and 1 mg/L of TP had been discharged during the 2003 to 2007 period. Table 2 provides the baseline and target nutrient loadings for the eight wastewater facilities that discharged domestic wastewater though an ocean outfall on July 1, 2008.

[2] Section 403.086(9), F.S., required utilities that discharged domestic wastewater through an ocean outfall on July 1, 2008 to submit detailed plans to meet the requirements of the Section to DEP by July 1, 2013.

Table 2. Baseline and Target Nutrient Loadings for Wastewater Facilities That Discharged Through an Ocean Outfall on July 1, 2008

Treatment Facility	Actual AADF (mgd)	Baseline TN Load (lb/day)	Target TN Load (lb/day)	Baseline TP Load (lb/day)	Target TP Load (lb/day)
South Central Regional	12.9	1,895	323	164	108
City of Boca Raton	10.3	1,591	257	69	86
Broward County North	37.4	7,027	936	550	312
Hollywood Southern Regional	34.0	4,480	851	359	284
Cooper City	1.5	197	37	16	12
Town of Davie	1.9	260	48	21	16
MDWASD North	81.0	10,951	2,028	1,119	676
MDWASD Central	114.8	17,354	2,872	1,651	957

Table 3 provides a brief summary of each permit holder's actions (taken and planned) to meet the AWTM requirements based on information provided in the July 1, 2013, detailed plans and the December 31, 2014 progress reports.

Table 3. Summary of How Each Permit Holder Plans to Meet the AWTM Requirement

Permit Holder	AWTM Option	Summary
South Central Regional	2	Deep injection wells have been installed that can handle the wastewater treatment plant flow; only small amounts of treated wastewater have been discharged through the Boynton/Delray outfall since 2009. The permit holder is currently achieving a reduction in outfall baseline TN and TP loadings equivalent to that which would be achieved by AWT.
City of Boca Raton	4	A fully operational reuse system comprising well over 100 percent of the facility's baseline flow (10.3 mgd) on an annual basis has been installed. The City's treatment plant and reclaimed water facility are permitted at 17.5 mgd; the City's reclaimed water distribution system has the ability to deliver 17.5 mgd of reclaimed water to end users.
Broward County	3	The selected option involves diversion of secondary effluent from the outfall to deep injection wells to limit the total pounds of TN and TP discharged. Between 2009 and 2013, Broward County discharged 24.9 and 12.0 percent of its total allowable cumulative TN and TP loadings, respectively, and is on target to meet the AWTM requirement using this strategy.
City of Hollywood	3	The selected option involves maximizing the use of existing deep injection wells for disposal to limit the cumulative nutrient loadings of TN and TP. As of January 1, 2009, the City incorporated this plan into its

Permit Holder	AWTM Option	Summary
		daily operating strategy and satisfactory nutrient reductions have been made and documented.
City of Cooper City	3	Since 2009, all of the City's effluent has been disposed through a deep injection well located on Cooper City's wastewater treatment plant site, except for 1.7 mgd that is pumped to the Hollywood Southern Regional Wastewater Treatment Facility to supply Hollywood's reuse program as part of a large user agreement between the City of Cooper City and the City of Hollywood. TN and TP loadings from Cooper City to the Hollywood ocean outfall are minimal.
Town of Davie	3	The Town constructed a new 3.5 mgd water reclamation facility that includes two new deep injection wells (11.39 mgd peak hourly flow) and a new 2.0 mgd public access reuse system. The Town plans to divert sufficient flows from its 76th Avenue Wastewater Treatment Facility to the new water reclamation facility to achieve the TN and TP reduction requirements. The Town reported diverting 1.2 mgd at the time the progress report was submitted.
MDWASD	3	The selected option involves maximizing the use of the existing deep injection well system at the North District plant for disposal to limit the cumulative nutrient loadings of TN and TP. The progress report indicates that as of October 2014, 10,177,200 pounds of TN and 761,420 pounds of TP have been diverted from the North District plant to the existing deep injection well system. MDWASD also plans to construct pumping stations and deep injection well systems at each of the MDWASD plants for disposal of sludge dewatering centrifuge concentrate to help reduce the TN and TP concentrations in the effluent discharged through the ocean outfall. The progress report included the additional mechanism of continued diversion of influent flows away from both the North District and Central District plants to the South District plant.

60 Percent Reuse Requirement

In order to determine each treatment facility's 60 percent reuse requirement, DEP calculated each wastewater treatment facility's "baseline flow" using flow data submitted by each permit holder for calendar years 2003 through 2007. Based on this data, the additional amount of reuse each treatment facility is required to provide to meet the 60 percent reuse requirement was calculated. Data from the 2008 Reuse Inventory was used to establish each treatment facility's 2008 reuse flow and then added to each treatment facility's 60 percent reuse requirement to determine the total amount of reuse each facility is required to provide by December 31, 2025. Table 4 provides reuse requirements for the eight facilities that discharged domestic wastewater through an ocean outfall on July 1, 2008 plus the MDWASD South District plant[3].

[3] The amount of reuse at the MDWASD South District wastewater treatment facility is provided in Table 4 even though the facility does not discharge to an ocean outfall; MDWASD has plans to route reuse flow among its major treatment facilities in the future. Section 403.086(9), F.S., allows utilities that are required to meet the 60 percent reuse requirement to provide the additional reuse at any facility within the utility's service area or by contract with a utility within Miami-Dade, Broward or Palm Beach County.

Table 4. Reuse Requirements for Facilities that Discharged Domestic Wastewater through an Ocean Outfall on July 1, 2008

Treatment Facility	Ocean Outfall Baseline Flow (mgd)	60 Percent Reuse Requirement (mgd)	2008 Reuse Flow (mgd)	Total Reuse Required (mgd)
South Central Regional	12.9	7.7	5.6	13.3
City of Boca Raton	10.3	6.2	5.6	11.8
Broward County North[4]	37.4	22.4	4.5	26.9
Hollywood Southern Regional	34.0	20.4	2.3	22.7
Cooper City	1.5	0.9	0	0.9
Town of Davie	1.9	1.1	0	1.1
MDWASD North	81.0	48.6	3.0	51.6
MDWASD Central	114.8	68.9	5.9	74.8
MDWASD South	0	0	5.1	5.1

Table 5 provides a brief summary of each permit holder's actions (taken and planned) to meet the 60 percent reuse requirement based on information provided in the July 1, 2013 detailed plans and the December 31, 2014 progress reports.

Table 5. Summary of How Each Permit Holder Plans to Meet the 60 Percent Reuse Requirement

Permit Holder	Summary
South Central Regional	The South Central Regional wastewater treatment plant has capacity to treat all of the facility's effluent to public access reuse standards. To meet the 60 percent reuse requirement of 7.7 mgd, Delray Beach plans to provide an additional 3.896 mgd of reuse and Boynton Beach plans to provide an additional 4.949 mgd of reuse. Delray Beach provided additional reuse of 1.586 mgd between 2007 and 2013 and plans to construct new reuse distribution facilities to provide the additional 2.31 mgd of reuse at a cost of $9.01 million; Boynton Beach provided additional reuse of 0.283 mgd between 2007 and 2013 and plans to construct new reuse distribution facilities to provide the additional 4.666 mgd of reuse at a cost of $11.6 million.
City of Boca Raton	The City's reclaimed water facility is currently permitted at 17.5 mgd, and the City's reclaimed water distribution system has the ability to deliver 17.5 mgd of reclaimed water to end users. The City is in the process of negotiating reuse agreements with future large users that will ensure the additional 60 percent reuse requirement will be

[4] Broward County's detailed plan stated that between 2003 and 2007, an average of 1.65 mgd of secondary effluent was diverted from the Broward outfall by the City of Pompano Beach for use at its reuse facility and requested the baseline flow be adjusted to 35.75 mgd. However, DEP records indicate that the 37.4 mgd baseline flow does not include the flow to the City and the 1.65 mgd should not be subtracted. DEP has requested that the County provide documentation supporting the requested revision to the baseline flow.

Permit Holder	Summary
	met. Between 2006 and 2013, the City spent more than $12.4 million to expand its reuse system.
Broward County	Broward County identified 21.45 mgd[5] of additional reuse to be implemented: 2.25 mgd of additional reuse at Pompano Beach, 3.7 mgd of large users in Broward County, 15.0 mgd of large users in Palm Beach County and 0.5 mgd of additional reuse customers to be identified. Negotiations are ongoing for Broward County to enter into an interlocal agreement with Palm Beach County to deliver 15.0 mgd for reuse by large users in Palm Beach County. Costs to construct new reuse treatment and transmission facilities within Broward County are estimated to be $77 million. An additional $40 million is estimated for construction of reuse transmission facilities within Palm Beach County.
City of Hollywood	The City is in the process of evaluating more environmentally beneficial reuse options than the Floridan Aquifer recharge project identified in the detailed plan. The City has proposed the following reuse strategies: maximize reuse at the Hollywood Southern Regional Wastewater Treatment Facility; provide a contractual reuse agreement with a western Broward community; receive reuse credits for implementation of water conservation measures; receive reuse credits for the City's 8 mgd Floridan Aquifer reverse osmosis water treatment plant; allocate 30 percent of the required reuse capacity to back up disposal and only require reuse as needs emerge; and exclude brackish water (infiltration/inflow) in the collection system from the baseline flow to reduce the 60 percent reuse requirement.
City of Cooper City	The City's master plan concluded that the most cost effective option to meet the 0.9 mgd reuse requirement is to contract with another utility as allowed by Section 403.086(9), F.S. The City sent letters to six neighboring utilities and met with four utilities that expressed interest (Town of Davie, City of Sunrise, City of Miramar and City of Pompano Beach). The City has received a proposal from the City of Miramar and is expecting proposals from the remaining three within the next few months. The City anticipates that a final agreement will include a maximum initial payment of $5 million by December 2016 and maximum annual payments of $500,000 starting December 2025. The City will continue pumping 1.7 mgd of effluent to supply the City of Hollywood reuse system in perpetuity.
Town of Davie	The Town constructed a new 3.5 mgd water reclamation facility that includes two new deep injection wells and a new 2.0 mgd public access reuse system. The Town is in final negotiations with users to accept the entire 2.0 mgd reuse flow.
MDWASD	MDWASD's detailed plan identified the following reuse options to meet the 117.5 mgd reuse requirement: constructing a pipeline from the South District plant to supply 90 mgd of reclaimed water to Florida Power & Light's (FPL) Turkey Point facility at an estimated cost of $95 million; and making treatment plant upgrades and constructing 9.2 mgd capacity injection well systems at each of the Central District, South District and West District plants (27.5 mgd total) to recharge the Floridan Aquifer at an estimated cost of $77 million.

[5] Broward County assumed the outfall baseline flow would be adjusted to 35.75 mgd as discussed in Footnote 3 above, so that Broward County would only need to implement 21.45 mgd of additional reuse. DEP is working with Broward County to finalize the required reuse amount.

Permit Holder	Summary
	In the subsequent progress report, MDWASD stated: the Floridan Aquifer recharge project does not fulfill a specific water supply need, provides questionable benefits, negatively impacts the environment by higher energy use and is economically unfeasible; finished water demand reductions achieved through conservation measures should receive a commensurate reuse benefit; and reductions in water demands associated with MDWASD's goal-based best management practices have increased from about 1.2 mgd in 2007 to more than 11.2 mgd in 2013.

Eliminating the Ocean Outfall Discharge

Table 6 provides a brief summary of each permit holder's actions (taken and planned) to eliminate discharge through the ocean outfall by December 31, 2025, except as a backup discharge during periods of reduced reclaimed water demands or as a result of peak flows from other wastewater management systems.

Table 6. Summary of How Each Permit Holder Plans to Eliminate Discharge through the Ocean Outfall

Permit Holder	Summary
South Central Regional	Deep injection wells have been installed that can handle the entire wastewater treatment plant flow. Discharge through the Boynton/Delray ocean outfall has been eliminated, except as a backup discharge to handle peak flows during wet weather, during mechanical integrity testing of the facility's deep injection wells or as an emergency backup disposal method.
City of Boca Raton	The City plans to eliminate discharge through the ocean outfall, except as a backup discharge to the City's 100 percent reuse system during periods of reduced reclaimed water demands. The City's treatment plant and reclaimed water facility are permitted at 17.5 mgd; the City's reclaimed water distribution system has the ability to deliver 17.5 mgd of reclaimed water to end users.
Broward County	Six deep injection wells have been installed. Two additional injection wells and booster pump stations for all eight injection wells are proposed. The combined capacity of the existing and proposed injection wells will be able to handle the entire wastewater treatment plant flow, except for peak flow discharges which were calculated to be less than 5 percent of the facility's baseline flow.[6] Estimated construction costs for the two proposed injection wells and booster pump stations for all eight injection wells is $30 million.
City of Hollywood	Expansion of the City's deep injection well system is anticipated to maintain disposal capacities commensurate with the existing treatment plant permitted capacity of 55.5 mgd. Flow projections identify this capacity to be sufficient beyond the year 2030. The detailed plan indicates a $93.4 million cost for ocean outfall closure.
City of Cooper City	Since 2009, all of the City's effluent has been disposed through a deep injection well located on Cooper City's wastewater treatment plant site, except for 1.7 mgd that is pumped to the Hollywood Southern Regional Wastewater Treatment Facility to

[6] Section 403.086(9)(d), F.S., limits peak flow backup discharges to 5 percent of a facility's baseline flow, measured as a 5-year rolling average, and requires the discharge to meet applicable secondary waste treatment and water-quality based effluent limitations specified in DEP rules.

Permit Holder	Summary
	supply the City of Hollywood's reuse program as part of a large user agreement between the City of Cooper City and the City of Hollywood.
Town of Davie	The Town is currently reviewing alternatives for effluent management of its existing 4.85 mgd permitted discharge from the 76th Avenue Wastewater Treatment Facility to the Hollywood ocean outfall to ensure discharge through the outfall is eliminated. Coupled with the Town's new 3.5 mgd water reclamation facility, the Town is reviewing the following alternatives: continuing the large user agreement with Hollywood to pump 2.3 mgd of effluent to supply Hollywood's reuse program; constructing a new deep injection well system at the 76th Avenue Wastewater Treatment Facility; and evaluating the feasibility of reuse at the 76th Avenue Wastewater Treatment Facility.
MDWASD	MDWASD plans to construct new facilities to handle the projected 2035 system wide wastewater annual average daily flow of 358 mgd. These facilities include: constructing a new 102 mgd West District plant including a 205.8 mgd deep injection well system and a 9.2 mgd aquifer recharge reuse system; maintaining 85 mgd of treatment capacity at the North District plant and constructing new deep injection wells to increase the capacity of the deep injection well system to 127.5 mgd; maintaining 83 mgd of treatment capacity at the Central District plant and constructing a new 132 mgd deep injection well system and a 9.2 mgd aquifer recharge reuse system; and increasing treatment capacity to 131 mgd at the South District plant, constructing a new deep injection well to increase the capacity of the deep injection system to 295.8 mgd, constructing a 9.2 mgd aquifer recharge reuse system and constructing a pipeline to send 90 mgd of reclaimed water to the FPL Turkey Point facility for reuse. The combined capacity of the proposed reuse systems and disposal wells will be able to handle the projected 2035 system wide flow, except as a backup discharge to handle peak flows during wet weather, during mechanical integrity testing of the facility's deep injection wells or as an emergency backup disposal method. The estimated cost of these system- wide upgrades, including reuse costs, is $5.19 billion with $3.32 billion directly attributed to compliance with Section 403.086(9), F.S.

Increased Amount of Reclaimed Water Provided

DEP's annual reuse inventories were used to track the increased amount of reclaimed water provided. These increases reflect the progress being made to implement the 60 percent reuse requirement. Table 7 lists the actual amount of reclaimed water provided for each ocean outfall permit holder's treatment facilities using data from the 2008 and 2013 reuse inventories. Between 2008 and 2013, the total amount of reclaimed water provided increased from 32.0 mgd to 36.4 mgd.

Table 7. Increased Amount of Reclaimed Water Provided

Treatment Facility	2008 Reclaimed Water Provided (mgd)	2013 Reclaimed Water Provided (mgd)	Increase in Reclaimed Water Provided (mgd)
South Central Regional	5.6	5.8	0.2
City of Boca Raton	5.6[7]	7.0	1.4
Broward County North	4.5	5.2	0.7
Hollywood Southern Regional	2.3	5.4	3.1
Cooper City	0.0	0.0	0.0
Davie	0.0	0.0	0.0
MDWASD North	3.0	3.2	0.2
MDWASD Central	5.9	4.8	-1.1
MDWASD South	5.1	5.0	-0.1
Totals	32.0	36.4	4.4

Increased Potable Water Offsets Achieved

The potable water offset achieved is an indication of the amount of water saved by the use of reclaimed water. Rule 62-610.200(42), Florida Administrative Code, defines "potable quality water offset" as the amount of potable quality water (Class F-I, G-I, or G-II ground water or water meeting drinking water standards) saved through the use of reclaimed water expressed as a percentage of the total reclaimed water used. To calculate the potable water offsets achieved, the offset percentages shown in Table 8 were multiplied by each reuse activity identified in DEP's 2008 and 2013 reuse inventories for each ocean outfall permit holder's treatment facility.

Table 8. Potable Water Offset Percentages[8]

Reuse Activity	Offset (%)	Justification Using Table 5 of Strategies Report
Golf Course Irrigation	75	Efficient landscape irrigation
Residential Irrigation	40	Rounded averages of efficient and inefficient residential irrigation
Other Public Access Areas	60	Rounded averages of efficient and inefficient landscape irrigation
Ground Water Recharge and Indirect Potable Reuse	0	High Desirability - rapid infiltration basins
Agricultural Irrigation	60	Rounded averages of efficient and inefficient agricultural irrigation
Industrial Uses, Toilet Flushing and Fire Protection	100	High Desirability – cooling towers, toilet flushing and fire protection

Table 9 shows the 2008 and 2013 potable water offsets achieved for each ocean outfall permit holder's treatment facilities; the potable water offset increased from 27.5 mgd in 2008 to 31.3 mgd in 2013.

[7] See footnote 9.
[8] Potable water offset percentages are based on Table 5 of the report, Water Reuse for Florida: Strategies for Effective Use of Reclaimed Water, Florida Department of Environmental Protection, Tallahassee, Florida, 2003, which was prepared by the Reuse Coordinating Committee.

Table 9. Potable Water Offsets Achieved

Treatment Facility	2008 Offset (mgd)	2013 Offset (mgd)	Increased Offset (mgd)
South Central Regional	4.0	3.9	-0.1
City of Boca Raton	3.6[9]	4.7	1.1
Broward County North	4.4	5.1	0.7
Hollywood Southern Regional	1.7	4.7	3.0
Cooper City	0.0	0.0	0.0
Davie	0.0	0.0	0.0
MDWASD North	2.9	3.1	0.2
MDWASD Central	5.9	4.8	-1.1
MDWASD South	5.0	5.0	0.0
Totals	27.5	31.3	3.8

Concerns with Meeting the Requirements of Section 403.096(9), F.S.

The July 1, 2013 detailed plans and the December 31, 2014 progress reports submitted by the following permit holders did not identify any concerns associated with meeting the requirements of Section 403.086(9), F.S.:

- South Central Regional Wastewater Treatment and Disposal Board
- City of Boca Raton
- City of Cooper City
- Town of Davie

Concerns expressed by the remaining permit holders are summarized in Table 10.

Table 10. Summary of Concerns with Meeting the Requirements of Section 403.086(9), F.S.

Permit Holder	Summary
Broward County	The County's detailed plan and progress report assume the ocean outfall baseline flow will be reduced to 35.75 mgd as discussed in footnote 3 above and that only 21.45 mgd of additional reuse will be needed to meet the 60 percent reuse requirement. DEP has asked Broward County to provide documentation supporting the County's request for a reduction in the baseline flow. If the baseline flow is not reduced, Broward County will need to provide 0.95 mgd more of reuse, above the 21.45 mgd currently planned, to meet the 60 percent reuse requirement.
City of Hollywood	The City is in the process of evaluating more environmentally beneficial and economically feasible reuse options than the Floridan Aquifer recharge project identified in the detailed plan. The City proposed several new reuse strategies in the progress report and plans to meet with DEP to discuss the strategies.

[9] On October 3, 2013, the City of Boca Raton submitted a revised 2008 Annual Reuse Report indicating a 2008 reuse flow of 5.6 mgd instead 6.4 mgd. DEP reviewed the revised report based on data in the agency's current WAFR database and concurs with the revised flow of 5.6 mgd. To update the 2008 offset achieved based on the revised 2008 reuse flow, the combined offset ratio was multiplied by 5.6 instead of 6.4. [i.e. (4.16/6.44)x5.6=3.6]

Permit Holder	Summary
MDWASD	MDWASD is working with DEP to provide calculations to show that diversion of effluent to the North District plant injection well system, diversion of sludge dewatering centrifuge concentrate and diversion of influent flows from the North District and Central District plants to the South District plant will meet the AWTM requirements. MDWASD has requested that DEP concur that the proposed 27.5 mgd Floridan Aquifer recharge project does not fulfill a specific water supply need, provides questionable benefits, negatively impacts the environment by higher energy use and is economically unfeasible. MDWASD further requested that finished water demand reductions achieved through conservation measures receive a commensurate reuse benefit.

Obstacles to Continued Progress

Each of the seven ocean outfall permit holders are currently in compliance with the reporting requirements of Section 403.086(9), F.S., and are making progress toward implementation. The detailed plans submitted by the ocean outfall utilities indicate that each utility should be able to comply with all of the requirements of Section 403.086(9), F.S., by December 31, 2025.

However, the City of Hollywood and MDWASD have identified some potential obstacles associated with providing economically feasible and environmentally efficient reuse projects to meet the 60 percent reuse requirement.

City of Hollywood

In the detailed plans, the City proposed injecting 20.4 mgd of reclaimed water to recharge the Floridan Aquifer as their most environmentally, economically and technically feasible reuse option. However, in the progress report, the City indicated that because local regulatory standards outlined in the Broward County Code are substantially more stringent than those of the State, the advanced treatment technology required to recharge the Floridan Aquifer is overly costly and accompanied by substantial carbon emissions.

The City is currently formulating a more feasible strategy to meet the 60 percent reuse requirement. Their proposed concepts include:

- Maximizing the use of the existing 4 mgd Hollywood Southern Regional Wastewater Treatment Facility reclaimed water capacity (target an additional 0.5 to 1.0 mgd);
- Implementing a contractual reuse agreement with a western Broward community (target 1 to 2 mgd);
- Receiving 1:1 reuse credits for water conservation measures implemented since passage of the original ocean outfall legislation with the credits based on all of Hollywood's outfall large users (combined credit for all large users is to be determined and estimated to be 3 mgd for Hollywood);
- Receiving reuse credit for the capacity of the City's 8 mgd Floridan Aquifer supply and reverse osmosis treatment facility on a 1:1 basis;

- Allocating 30 percent of the required reuse capacity to back up disposal classification[10] (subject to filtration, disinfection and deep well injection) and providing future reuse only as needs emerge and where feasible relative to other alternative water supply options (estimated backup disposal capacity is up to 6 mgd); and
- Excluding brackish groundwater (infiltration/inflow) in the collection system from the baseline flow to reduce the 60 percent reuse requirement which (estimated to reduce the reuse requirement by 4.7 to 7.3 mgd).

The City and DEP plan to meet to discuss the City's new reuse strategy.

MDWASD

In the detailed plans, MDWASD proposed injecting 27.5 mgd of reclaimed water to recharge the Floridan Aquifer as their most environmentally, economically and technically feasible reuse option. However, in the progress report, this proposed option does not fulfill a specific water supply need and provides questionable benefits at tremendous costs. The progress report further states that the proposed recharge project would have a negative environmental impact associated with carbon emissions when compared to use of deep injection wells and the extra energy costs of operating the unneeded recharge wells would generate an unnecessary financial burden on utility customers.

MDWASD stated that at the time of the original ocean outfall legislation, forecasted regional water supply demands were expected to increase substantially for the foreseeable future. MDWASD reported that such demands have not been seen and that water demands have dropped approximately 30 mgd since 2007. MDWASD stated that implementing the 60 percent reuse requirement through recharging the Floridan Aquifer serves only to achieve a narrow reading of compliance with Section 403.086(9), F.S., rather than its intent of supplying an alternative water supply. MDWASD requested DEP to agree that the current project to replenish the Floridan Aquifer with 27.5 mgd of reuse water does not fulfill a specific water supply need, provides questionable benefits, negatively impacts the environment by higher energy use and is economically unfeasible.

MDWASD indicated the large drop in water demands is likely the long-term benefit of state and national efforts to conserve water through more efficient appliances, limited irrigation and public education. MDWASD stated conservation measures deliver benefits superior to that of reuse of reclaimed water because they reduce the need for wastewater reclamation and the supply of raw water. MDWASD requested that finished water demand reductions achieved through conservation measures receive a commensurate reuse benefit. MDWASD indicated that reductions in water demands associated with goal-based best management practices have increased from about 1.2 mgd in 2007 to more than 11.2 mgd in 2013.

DEP will continue to work with MDWASD on issues related to their compliance with the 60 percent reuse requirement.

[10] The City based this concept on Section 403.086(7), F.S., which allows a backup discharge of 30 percent of the permitted reuse capacity on an annual basis. For purposes of this subsection, a "backup discharge" is a surface water discharge that occurs as part of a functioning reuse system which has been permitted under department rules and which provides reclaimed water for irrigation of public access areas, residential properties or edible food crops, or for industrial cooling or other acceptable reuse purposes.