



**FLORIDA DEPARTMENT OF  
ENVIRONMENTAL PROTECTION**

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RICK SCOTT  
GOVERNOR

CARLOS LOPEZ-CANTERA  
LT. GOVERNOR

JONATHAN P. STEVERSON  
SECRETARY

February 13, 2015

The Honorable Rick Scott  
Governor, State of Florida  
Plaza Level 05, The Capitol  
Tallahassee, Florida 32399-0001

The Honorable Andy Gardiner  
President, Florida Senate  
Room 409, The Capitol  
Tallahassee, Florida 32399-1100

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

Dear Governor Scott, President Gardiner and Speaker Crisafulli:

The Florida Department of Environmental Protection (DEP) is required to submit a report by February 15, 2015, containing recommendations for any changes necessary to the requirements of Section 403.086(9), Florida Statutes. Enclosed is the required report related to domestic wastewater ocean outfalls.

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

Sincerely,

A handwritten signature in blue ink, appearing to read "Jonathan P. Steverson". The signature is fluid and extends to the right with a long, sweeping line.

**Jonathan P. Steverson**  
Secretary

Enclosure

cc: Paula Cobb, Deputy Secretary for Regulatory Programs, DEP  
Mark Thomasson, Director, Division of Water Resource Management, DEP  
Andrew Ketchel, Legislative Affairs Director, DEP

***Recommendations for Changes to the Requirements of  
Section 403.086(9), Florida Statutes -  
Domestic Wastewater Ocean Outfalls***

**Division of Water Resource Management  
Department of Environmental Protection**

**February 2015**

3900 Commonwealth Boulevard, MS 3540  
Tallahassee, Florida 32399-2400  
[www.dep.state.fl.us](http://www.dep.state.fl.us)



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## **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. 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 containing recommendations for changes necessary to requirements of the Section 403.086(9), F.S., to the Governor and Florida Legislature by February 15, 2015. It further requires DEP, the South Florida Water Management District (SFWMD) and affected utilities to consider the information in the detailed plans that were submitted to DEP on or before July 1, 2013, for the purpose of adjusting the reuse requirements.

The detailed plans submitted by affected utilities indicate that each utility should be able to comply with all of the requirements of the ocean outfall statute by December 31, 2025. However, Miami-Dade County and the City of Hollywood have identified some challenges associated with providing economically feasible and environmentally efficient reuse projects to meet the 60 percent reuse requirement.

At this time, DEP does not have any recommendations for changes to subsection 403.086 (9), F.S. However, based on input received from the detailed plans and affected utilities, DEP has identified two issues of note regarding the 60 percent reuse requirement and plans to move forward as follows:

- Compliance with the 60 percent reuse requirement should be determined using the wastewater treatment facility’s capacity to treat the reclaimed water and the delivery capacity of the reclaimed water distribution infrastructure to deliver reclaimed water to end users or other reuse activities and projects, whichever is less; and
- DEP and the SFWMD will continue to work with Miami-Dade County and the City of Hollywood to help identify and ensure the most environmentally, economically and technically feasible reuse options are implemented in advance of December 31, 2025.

## **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.:

- Prohibit the construction of new wastewater ocean outfalls for domestic wastewater discharge and the expansion of existing ocean outfalls;
- Require the discharge of domestic wastewater through ocean outfalls to meet AWTM requirements by December 31, 2018;

- Require 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"<sup>1</sup> for beneficial purposes by December 31, 2025; and
- Prohibit the discharge of domestic wastewater through ocean outfalls after December 31, 2025, except as a backup discharge during periods of reduced reclaimed water demand, such as periods of wet weather, or as a result of peak flows from other wastewater management systems.

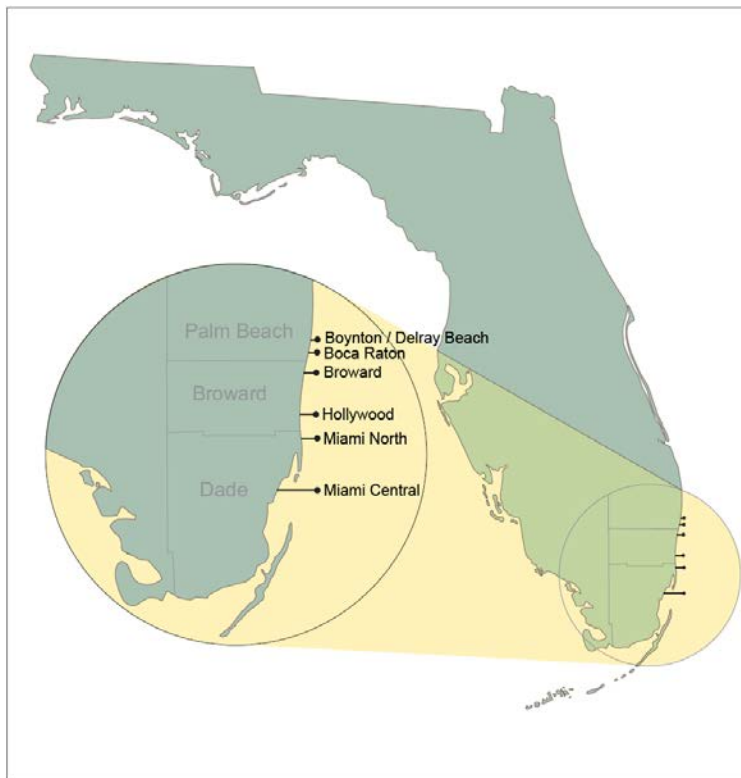
Additionally, Section 403.086(9), F.S., includes reporting requirements associated with implementation of the subsection. Among others, these provisions:

- Require utilities that held a DEP permit for a domestic wastewater discharge through an ocean outfall on July 1, 2008 to submit a detailed plan to meet requirements of Section 403.086(9), F.S., to DEP by July 1, 2013 and an updated plan by July 1, 2016; and
- Require DEP to submit a report containing recommendation for changes necessary to requirements of the Section 403.086(9), F.S., to the Governor and Florida Legislature by February 15, 2015. The paragraph further requires DEP, the SFWMD, and affected utilities to consider the information in the detailed plans for the purpose of adjusting the reuse requirements as necessary.

### **Permit Holders with Ocean Outfall Discharges**

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

**Figure 1: Location of Existing Ocean Outfalls in Florida**



<sup>1</sup> Paragraph (c) of Section 403.086(9), 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.

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 Miami-Dade Water and Sewer Department (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 the associated permit holders are provided in geographical order (north to south) in Table 1 below.

**Table 1. Existing Ocean Outfalls, Treatment Facilities and Permit Holders**

<b>Ocean Outfall</b>	<b>Treatment Facility</b>	<b>Permit Holder</b>
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
Hollywood	Town of Davie 76 <sup>th</sup> 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 million gallons per day (mgd) annual average daily flow (AADF). Currently, the facility disposes of its treated wastewater through deep injection wells or for 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, 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 is permitted at 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.
- **Town of Davie 76<sup>th</sup> Avenue Wastewater Treatment Facility:** The Town of Davie owns and operates the Town of Davie 76<sup>th</sup> 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 76<sup>th</sup> Avenue facility is currently disposed through the Town's deep injection well or pumped to the Hollywood Southern Regional Wastewater Treatment Facility. Treated effluent from the 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.

### **Summary of Detailed Plans by Facilities to Meet Ocean Outfall Requirements**

Pursuant to Section 403.086(9), F.S., each of the seven ocean outfall permit holders submitted a detailed plan to DEP by July 1, 2013. Below is a summary of how each facility plans to meet the requirements of the statute as well as problems identified in the detailed reports associated with meeting the requirements.

#### ***Meeting the 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 advanced wastewater treatment and management requirements (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 (CBOD); 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 with the statute. 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 wastewater 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 existing wastewater facilities discharging through an ocean outfall.

**Table 2: Baseline Nutrient and Target Nutrient Loadings for Existing Wastewater Facility Discharging Through an Ocean Outfall**

<b>Treatment Facility</b>	<b>Actual AADF (mgd)</b>	<b>Baseline TN Load (lb/day)</b>	<b>Target TN Load (lb/day)</b>	<b>Baseline TP Load (lb/day)</b>	<b>Target TP Load (lb/day)</b>
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 <sup>2</sup>	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 how each permit holder plans to meet the AWTM requirements based on information provided in the July 1, 2013 detailed plans.

<sup>2</sup> The baseline and target nutrient loadings for the Hollywood Southern Regional Wastewater Treatment Facility were based on a baseline flow of 36.7 mgd. This flow has been adjusted to 34.0 mgd as described in Footnote 5 below, and the baseline and target nutrient loadings for the facility have been adjusted accordingly.



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

Permit Holder	AWTM Option	Status
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 of Boca Raton'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 over 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. According to the detailed plan, between 2009 and 2012, Broward County discharged 20.5 and 9.7 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 of Hollywood incorporated this plan into its daily operating strategy and, according to the detailed plan, satisfactory nutrient reductions have been made and documented.
City of Cooper City	2	Since 2009, all of Cooper 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	Upon submittal of the detailed plans, the Town of Davie was in the process of constructing a new 3.5 mgd water reclamation facility that will include 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 76 <sup>th</sup> Avenue Wastewater Treatment Facility to the new water reclamation facility to achieve the TN and TP reduction requirements. Construction of the new 3.5 mgd facility has been completed.
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 detailed plan indicates that as of December 2012, 6,954,437 pounds of TN and 548,778 pounds of TP have been diverted from the North District plant to the existing deep injection well system. MDWASD also plans to construct a pumping station and deep injection well system at the Central District for disposal of sludge dewatering centrifuge concentrate to help reduce the TN and TP concentrations in the effluent discharged through the ocean outfall. DEP has requested MDWASD to provide more detailed calculations associated with ensuring the AWTM requirements will be met.

### **Meeting the 60 Percent Reuse Requirements**

In order to determine each treatment facility’s 60 percent reuse requirement, DEP calculated each wastewater treatment facility’s “baseline flow” (i.e. the annual average flow of domestic wastewater discharging through the facility’s ocean outfall) 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 reuse each facility is required to provide by December 31, 2025. Table 4 provides reuse requirements for nine facilities that discharged domestic wastewater through an ocean outfall on July 1, 2008.

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

<b>Treatment Facility</b>	<b>Ocean Outfall Baseline Flow (mgd)</b>	<b>60 Percent Reuse Requirement (mgd)</b>	<b>2008 Reuse Flow (mgd)</b>	<b>Total Reuse Required (mgd)</b>
South Central Regional	12.9	7.7	5.6	13.3
City of Boca Raton	10.3	6.2	5.6 <sup>3</sup>	11.8
Broward County North <sup>4</sup>	37.4	22.4	4.5	26.9
Hollywood Southern Regional	34.0 <sup>5</sup>	20.4	2.3	22.7
Cooper City	1.5	0.9	0	0.9
Town of Davie	1.9	1.1 <sup>6</sup>	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 <sup>7</sup>	0	0	5.1	5.1

Table 5 provides a brief summary of how each of the seven permit holders plan to meet the 60 percent reuse requirement based on information provided in the July 1, 2013 detailed plans<sup>8</sup>.

<sup>3</sup> On October 16, 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.

<sup>4</sup> Broward County’s report 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 supporting documentation if they want to revise the baseline flow.

<sup>5</sup> The 2010 Annual Report to the Legislature titled “Implementation of Chapter 2008-232, Laws of Florida, Domestic Wastewater Ocean Outfalls” indicates a baseline flow of 36.7 mgd. This flow included 2.7 mgd of flow from the City of Miramar which was diverted from the ocean outfall during the 2003 to 2007 period. The baseline flow for the Hollywood Southern Regional treatment facility has been adjusted accordingly.

<sup>6</sup> The 2010 Annual Report to the Legislature indicates 1.2 mgd as the 60 percent reuse requirement; Administrative Order No. AO-11-006-DW-06-SED indicates 1.1 mgd. The discrepancy in the documents is due to rounding; 1.1 mgd will be used in future reports.

<sup>7</sup> The amount of reuse at the MDWASD South District wastewater treatment facility is provided in Table 3 even though the facility does not discharge to an ocean outfall; the 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.

<sup>8</sup> Section 403.086(9)(e), F.S., requires the detailed plan to identify technical, environmental and economic feasibility of various reuse options; identify each land acquisition and facility necessary to provide for reuse; analyze the costs to meet the requirements, including the level of treatment necessary to satisfy state water quality requirements and local water quality considerations and a cost comparison of reuse using flows from ocean outfalls and flows from other domestic wastewater sources; include a financing plan for meeting the requirements, including identifying any actions necessary to implement the financing plan, such as bond issuance or other borrowing, assessments, rate increases, fees, other charges or other financing mechanisms; evaluate reuse demand in the context of future regional water supply demands, the availability of traditional water supplies, the need for development of alternative water supplies, the degree to which various reuse options offset potable water supplies and other factors considered in the Lower East Coast Regional Water Supply Plan of the SFWMD; and include a detailed schedule for the completion of all necessary actions and be accompanied by supporting data and other documentation.

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

<b>Permit Holder</b>	<b>Summary</b>
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 3.923 mgd of reuse and Boynton Beach plans to provide an additional 4.949 mgd of reuse. Based on the detailed plan, 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 2.337 mgd of reuse required at a cost of \$7.86 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 required at a cost of \$12.2 million.
City of Boca Raton	Due to the City of Boca Raton's commitment to reuse, a fully operational reuse system comprising over the total amount of reuse required (11.8) mgd has already 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 over 17.5 mgd of reclaimed water to end users. 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 <sup>9</sup> of additional reuse to be implemented: 2.25 mgd 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 is estimated to be \$77 million. An additional \$40 million is estimated for construction of reuse transmission facilities within Palm Beach County.
City of Hollywood	Four reuse options were evaluated, in order of preference based on costs as follows: Floridan Aquifer recharge through direct injection (\$182-\$282 million construction cost), Biscayne Aquifer recharge through canal discharge (\$676-\$833 million construction cost), Biscayne Aquifer recharge through direct injection (\$715-\$872 million construction cost) and expansion of public access reclaimed water system (\$933 million construction cost). The selected option, Floridan Aquifer recharge through direct injection, includes treatment plant upgrades, an effluent pump station and nine deep injection wells located near the treatment plant. Concurrently, the City of Hollywood is pursuing contracting with other utilities in the area to assist with meeting the reuse requirement at lower costs as allowed by Section 403.086(9), F.S.

<sup>9</sup> Broward County assumed the outfall baseline flow would be adjusted to 35.75 mgd as discussed in Footnote 4 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.

<b>Permit Holder</b>	<b>Summary</b>
Cooper City	Nine reuse alternatives were evaluated. Partnering with the City of Sunrise to obtain 1 mgd of reuse credit was the top ranked alternative with an estimated capital cost of \$11.91 million. In this alternative, a force main between the Cooper City wastewater treatment plant and the City of Sunrise wastewater treatment plant would not be constructed, but the City of Cooper City would negotiate an agreement with the City of Sunrise to allow Cooper City to claim reuse credit for the production of an additional 1 mgd of reuse by the City of Sunrise as allowed by Section 403.086(9), F.S. The City of Cooper City would continue pumping 1.7 mgd of effluent to supply the City of Hollywood reuse system in perpetuity. Note, negotiations between the City of Cooper City and the City of Sunrise are in the preliminary stages and the City of Sunrise is still in the early planning stages of its reuse implementation capital plan. As other South Florida reuse systems become available for Cooper City’s consideration, Cooper City’s recommended compliance strategy may be revised as discussions with other utilities regarding partnering is ongoing.
Town of Davie	The Town of Davie is in the process of constructing a new 3.5 mgd water reclamation facility that will include 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	Several reuse options were evaluated. To meet the 117.5 mgd reuse requirement, the selected option includes: <ol style="list-style-type: none"> <li>1. Constructing a pipeline from the South District plant to supply 90 mgd of reclaimed water to Florida Power &amp; Light’s (FPL) Turkey Point facility at an estimated cost of \$95 million; and</li> <li>2. 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 (27.6 mgd total) to recharge the Floridan Aquifer at an estimated cost of \$77 million.</li> </ol>

***Eliminating the Ocean Outfall Discharge***

Table 6 provides a brief summary of how each permit holder plans to eliminate discharge through the ocean outfall by December 31, 2025, except as a backup discharge during periods of reduced reclaimed water demand 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**

<b>Permit Holder</b>	<b>Summary</b>
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 back-up 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 of Boca Raton 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 demand. 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 over 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 <sup>10</sup> . 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 of Hollywood'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.
Cooper City	Since 2009, all of the City of Cooper 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 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 of Davie is currently reviewing alternatives for effluent management of its existing 4.85 mgd permitted discharge from the 76 <sup>th</sup> 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: <ol style="list-style-type: none"> <li>1. Continuing the large user agreement with Hollywood to pump 2.3 mgd of effluent to supply Hollywood's reuse program;</li> <li>2. Constructing a new deep injection well system at the 76<sup>th</sup> Avenue Wastewater Treatment Facility; and</li> <li>3. Evaluating the feasibility of reuse at the 76<sup>th</sup> Avenue Wastewater Treatment Facility.</li> </ol>

<sup>10</sup> 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.

<b>Permit Holder</b>	<b>Summary</b>
MDWASD	<p>MDWASD plans to construct new facilities to handle the projected 2035 system-wide wastewater annual average daily flow of 358 mgd. These facilities include:</p> <ol style="list-style-type: none"> <li>1. 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;</li> <li>2. 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;</li> <li>3. 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</li> <li>4. 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.</li> </ol> <p>The combined capacity of the proposed reuse and disposal systems wells will be able to handle the projected 2035 system-wide flow, except as a back-up 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 the ocean outfall statute.</p>

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

The detailed plans submitted by the following permit holders and DEP's review of the plans submitted did not identify any concerns associated with meeting the requirements of Section 403.086(9), F.S., or a need to adjust the 60 percent reuse requirement:

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

Detailed plans submitted by the remaining permit holders identified some concerns associated with meeting the 60 percent reuse requirement which are summarized in Table 7. DEP believes we will be able to work through these concerns.

**Table 7. Summary of Concerns with Meeting the Requirements of Section 403.096(9), F.S.**

<b>Permit Holder</b>	<b>Summary</b>
Broward County	<ol style="list-style-type: none"> <li>1. The detailed plan assumes the ocean outfall baseline flow would be reduced to 35.75 mgd as discussed in Footnote 4 above and that only 21.45 mgd of additional reuse would be needed to meet the 60 percent reuse requirement. DEP has requested that Broward County to provide supporting documentation if the County wants the agency to reduce 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.</li> <li>2. The detailed plan identified numerous large reuse users. DEP will continue to coordinate with the County to ensure that reuse values in the plan are consistent with values in the DEP-issued wastewater permits for Broward County, Palm Beach County and Boca Raton.</li> </ol>
Hollywood	<ol style="list-style-type: none"> <li>1. The detailed plan indicates that no land acquisition is expected as adequate land is available at the existing Hollywood Southern Regional Wastewater Treatment Facility site for the facilities necessary for the anticipated level of treatment and for the reuse wells. In lieu of all wells being located at the treatment facility site, the City of Hollywood may want to explore distribution of the wells over a larger area to minimize arsenic mobilization in the recharge zone.</li> <li>2. Project schedules in the detailed plan do not include the construction of groundwater monitoring well(s) and/or exploratory well(s) to determine the aquifer's total dissolved solids (TDS) characterization, the natural background ground water quality, etc. The effluent limitations and costs are contingent on the TDS concentration in the receiving ground water. DEP will continue to coordinate with the City regarding the permitting requirements of exploratory well(s) and/or groundwater monitoring well(s).</li> </ol>
MDWASD	<ol style="list-style-type: none"> <li>1. The draft agreement between Miami-Dade County and FPL specifies a transport up to 90 mgd of reclaimed water to FPL on a maximum daily basis and 75 mgd on an average daily basis. The County needs to document that they have the capacity to treat and deliver 90 mgd of reclaimed water on an annual average basis to the FPL Turkey Point facility and that FPL has the capacity to accept the same amount. If this documentation is not made, future plans should address how this additional 15 mgd of required reuse will be met. Also, an alternative should be considered in future plans in case the proposed FPL reuse project of 75 mgd does not come to fruition.</li> <li>2. The detailed plan indicates that a total nitrogen waiver is needed for Floridian Aquifer recharge. Future plans should provide more details on why a waiver is needed.</li> </ol>

Additional concerns were raised at a September 30, 2014, meeting between representatives from DEP, the SFWMD, cities of Boca Raton and Hollywood and Broward, Palm Beach and Miami-Dade counties. The following is summary of concerns raised by affected utilities:

1. The statute's 60 percent reuse requirement was based on statewide reuse capacity, not percentage of actual reuse, which varies based on seasonal irrigation needs and other factors. Because there is no expectation that any reuse system actually reuses 100 percent of its capacity, the utilities recommend DEP interpret the 60 percent reuse requirement based on treatment and delivery capacity;
2. As a result of conservation programs, irrigation restrictions, building code changes and possibly the recession of 2008, future water supply needs in Palm Beach, Broward and Miami-Dade counties have dropped since the statute was initially passed, thus reducing the need for reclaimed water. The utilities recommend that DEP concur with individual utility findings that reuse projects that do not fulfill a specific water supply need more cost-effectively than other alternative water supply opportunities are economically unfeasible under the statute, prior to finalization of compliance plans and investment of resources; and
3. The statute requires utilities to reuse a set amount of reclaimed water regardless of the availability of more cost-effective alternative water supplies which the utilities believe is not consistent with the SFWMD's Water Availability Rule that allows utilities discretion when evaluating alternative water supply options. The utilities recommend that DEP and the SFWMD work with the utilities to require new water supply permittees to evaluate the use of reclaimed water and other alternative water supplies.

### **Recommendations for Changes to Section 403.086(9), F.S.**

At this time, DEP does not have any recommendations for changes to subsection 403.086 (9), F.S. However, based on input received from the detailed plans and affected utilities, DEP has identified two issues of note regarding the 60 percent reuse requirement and plans to move forward as follows:

1. **Compliance with the 60 percent reuse requirement should be determined using the wastewater treatment facility's capacity to treat the reclaimed water and the delivery capacity of the reclaimed water distribution infrastructure to deliver reclaimed water to end users or other reuse activities and projects, whichever is less.**

Current law would not prevent DEP from making this interpretation or require changes to the statute for implementation. DEP has already made a similar interpretation associated with using the 100 percent reuse requirement to meet the AWTM requirements of Section 403.086(9)(b), F.S., in the Administrative Order issued with the City of Boca Raton's current wastewater facility permit.

This interpretation would benefit Miami-Dade County if they demonstrate that the MDWASD South District plant has the capacity to treat and deliver 90 mgd of reclaimed water on an annual average basis to the FPL Turkey Point facility and that FPL has the capacity to accept the same amount. However, the draft agreement between Miami-Dade County and FPL submitted with the detailed plan indicates FPL would only accept up to 90 mgd of reclaimed water on a maximum daily basis and 75 mgd on an average daily basis.

2. **The detailed plans submitted by the ocean outfall utilities indicate that each utility should be able to comply with all of the requirements of the ocean outfall statute by December 31, 2025. However, Miami-Dade County and the City of Hollywood have identified some challenges associated with providing economically feasible and environmentally efficient reuse projects to meet the 60 percent reuse requirement.**



Miami-Dade County has limited economically feasible slow rate land application reuse opportunities at this time largely due to infrastructure that is built out. Note, this may change in the future if MDWASD constructs the proposed West District plant.

The MDWASD Central District and City of Hollywood wastewater treatment plant effluent chloride levels exceed threshold levels that can be tolerated by most vegetation and make the effluent unsuitable for irrigation applications unless desalination technology is used which makes the option economically infeasible.

Certain local water standards are more stringent than State standards for certain receiving waters. This directly impacts the economic and technical feasibility of several reuse options, including aquifer replenishment and strategies to increase fresh water supply levels. These local standards limit reuse options unless more costly and energy intensive treatment such as reverse osmosis is provided.

In the detailed plans, the County proposed injecting 27.6 mgd and 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, affected utilities indicate that there has been no determination that withdrawals from the Floridan aquifer are constrained at this time and replenishment would meet no additional need. Because it makes sense to ensure that projects selected are environmentally appropriate, the County and City should be encouraged to evaluate other more beneficial options to meet the 60 percent reuse requirement for this 27.6 mgd and 20.4 mgd of reuse. Other options include saltwater intrusion barriers and coastal wetlands rehydration, both currently constrained by level of treatment uncertainties related to local water standards, among other factors. Regardless, DEP and the SFWMD will continue to work with Miami-Dade County and the City of Hollywood to help identify and ensure the most environmentally, economically, and technically feasible options are implemented in advance of December 31, 2025, for these 27.6 mgd and 20.4 mgd reuse requirements.