

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

2010 Annual Report

Submitted to:

Honorable Charlie Crist, Governor

Honorable Jeff Atwater, President, Florida Senate

Honorable Larry Cretul, Speaker, Florida House of Representatives

Prepared by:



This report is required by ss. 403.086(9)(g), Florida Statutes.

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EXECUTIVE SUMMARY

Chapter 2008-232, Laws of Florida, established the Leah Schad Memorial Ocean Outfall Program (the Act) that prohibits the construction of new domestic wastewater ocean outfalls, sets out a timeline for the elimination of existing domestic wastewater ocean outfalls by 2025, and requires that a majority of the wastewater previously discharged be beneficially reused.

The Act requires the Department of Environmental Protection (Department) to submit a progress report no later than July 1, 2010, and every five years thereafter to the Governor, the President of the Senate, and the Speaker of the House of Representatives summarizing progress to date, including the increased amounts 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 ocean outfall permit holders submitted a report on their progress in complying with the requirements of the Act to the Department prior to December 31, 2009. All permit holders are taking steps to meet the requirements of the Act. A review of the permit holders' reports identified several noteworthy items of interest:

- Several utilities have proposed revising the reuse requirements of the Act to allow existing reuse projects to count towards the 60 percent requirement or allow reuse conducted at facilities other than an ocean outfall facility to be counted. The utilities were notified that the Act, as currently written, does not allow existing reuse projects to count towards meeting the 60 percent reuse requirement since one of the primary goals of the Act is to beneficially reuse wastewater flows that are discharged through the outfalls and therefore increase of amount of new reuse in Southeast Florida.
- Although Cooper City submitted a progress report, the City believes that it is “not governed by this law” in part because of its contractual obligation with the City of Hollywood over wastewater management. Wastewater from the City of Hollywood, Cooper City, and Town of Davie all discharge through a common outfall. Cooper City has been notified it is subject to the Act since it holds a permit authorizing discharge of wastewater through an outfall. The Department has encouraged these three entities to

work together to meet the ocean outfall legislation requirements by leveraging resources and taking advantage of economies of scale.

- Because all three of the Miami Dade Water and Sewer Department wastewater plants are interconnected (two of which discharge through ocean outfalls and one that discharges to deep injection wells), they would like for all three plants to be considered as one system and therefore be allowed to meet the Act's reuse requirement on a system-wide basis. The Department has committed to exploring their suggestions, along with those from the other affected utilities to provide greater flexibility, cost effectiveness, and avoidance of negative side-effects in meeting the overall goals of the Act.

THE OCEAN OUTFALL ACT

Chapter 2008-232, Laws of Florida, established the Leah Schad Memorial Ocean Outfall Program (the Act) that prohibits the construction of new domestic wastewater ocean outfalls and establishes a timeline for the elimination of existing discharges of domestic wastewater. The Act noted 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. The discharge of domestic wastewater through ocean outfalls compromises the coastal environment, quality of life, and local economies that depend on those resources. The Legislature declared 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 the Act include:

- Prohibition on the construction of new wastewater ocean outfalls and expansion of existing outfall capacity.
- Requirement that by 2018 the existing outfall discharges meet advanced wastewater treatment and management requirements.
- Requirement that by 2025, 60 percent of the facility flows be reused for beneficial purposes, and use of the outfalls for wastewater disposal be restricted to wet weather flows from permitted reuse systems.
- Authorization for the department to establish legally enforceable compliance schedules for treatment upgrades and timely outfall elimination.
- Requirement for utilities to submit detailed plans by 2013 related to meeting the wastewater treatment, management, and elimination requirements. The utilities are also required to submit progress reports to DEP on a five year cycle beginning December 31, 2009; DEP is required to submit a report to the Governor, the President of the Senate, and the Speaker of the House of Representatives on a similar five year cycle beginning July 1, 2010.

- Providing incentives within Department and Water Management District regulatory and funding programs to assist in the elimination of ocean outfalls and the establishment of a funding mechanism to support the elimination of ocean outfalls.

The Act also directs the Department to work with the United States Environmental Protection Agency to ensure a similar schedule for the one ocean discharge under their jurisdiction.

PERMIT HOLDERS WITH OCEAN OUTFALL DISCHARGES

Six existing ocean outfalls, located along the Southeast coastline, are subject to the provisions of the Act.

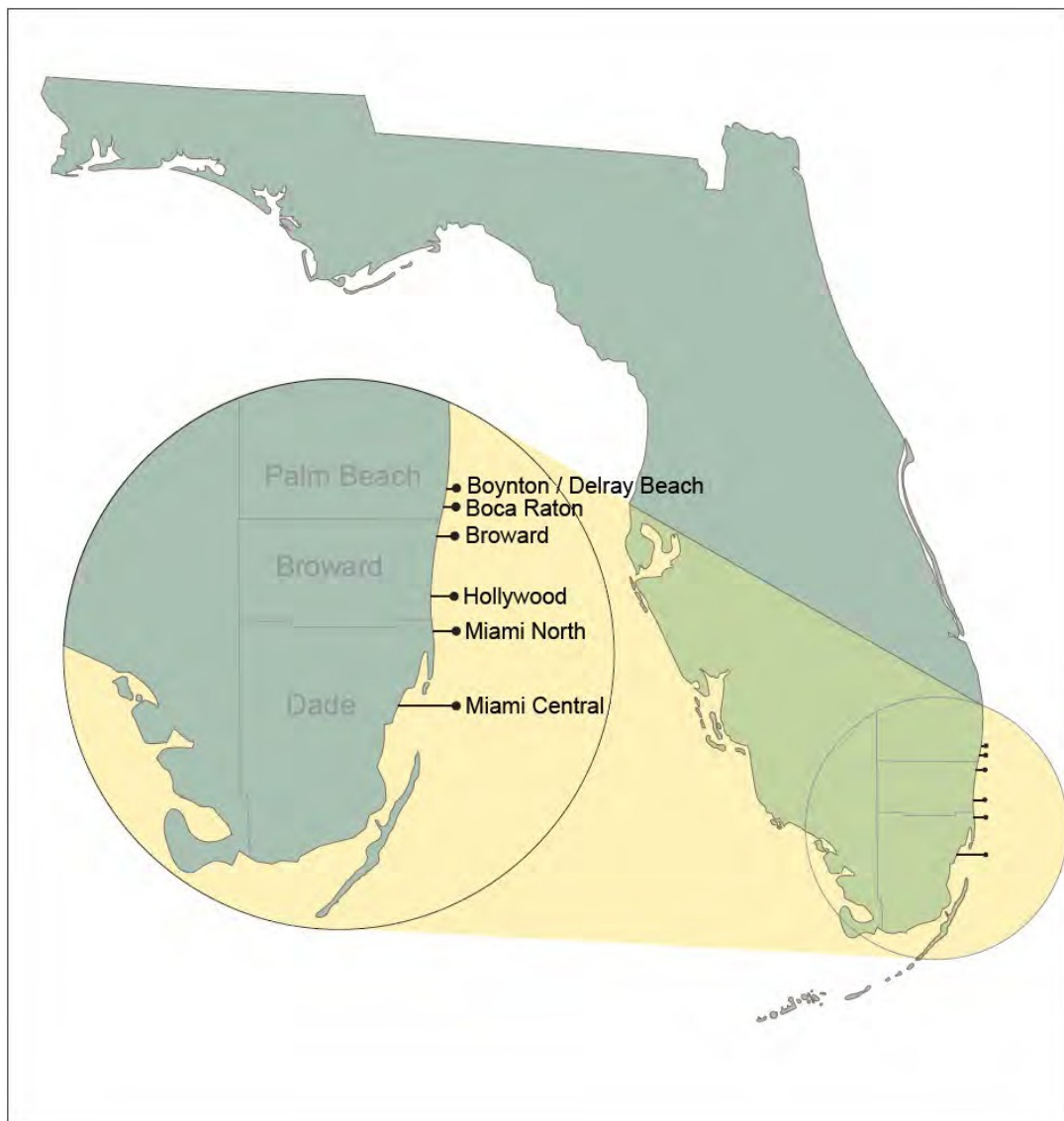


Figure 1: Location of Existing Ocean Outfalls in Florida

The Hollywood outfall is shared by three 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

Ocean Outfall Name	Treatment Facility Name	Permit Holder
Boynton/Delray Beach	South Central Regional Wastewater Treatment Facility	South Central Regional Wastewater Treatment and Disposal Board
Boca Raton	City of Boca Raton Wastewater Treatment/Water Reclamation Facility	City of Boca Raton
Broward	Broward County North Regional Wastewater Treatment Plant	Broward County Office of Environmental Services
Hollywood	Hollywood Southern Regional Wastewater Treatment Facility	City of Hollywood
	Cooper City Wastewater Treatment Facility	City of Cooper City
	Town of Davie Wastewater Treatment Facility	Town of Davie
Miami North	MDWASD North District Wastewater Treatment Plant	MDWASD
Miami Central	MDWASD Central District Wastewater Treatment Plant	

Brief summaries of each permit holder’s treatment facility(s) is provided below:

- The South Central Regional Wastewater Treatment and Disposal Board provides service to the cities of Boynton Beach and Delray Beach. The South Central Regional Wastewater Treatment Facility has a permitted capacity of 24.0 million gallons per day (mgd). 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, or as an emergency backup disposal method. Only small amounts of wastewater were discharged through the ocean outfall during 2009.

- The City of Boca Raton owns and operates the City of Boca Raton Wastewater Treatment/Water Reclamation Facility which is permitted at 17.5 mgd. The reclaimed water facility, permitted at 10.0 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.
- The Broward County Office of Environmental Services operates the Broward County North Regional Wastewater Treatment Plant which is permitted at 84.0 mgd. 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.
- The City of Hollywood owns and operates the Hollywood Southern Regional Wastewater Treatment Facility which has a permitted capacity of 48.75 mgd. The facility is permitted to discharge an annual average daily flow of 46.3 mgd through the Hollywood ocean outfall. The remainder of the plant flow is discharged via deep injection wells with moderate amounts reused for plant site uses and off-site irrigation at local golf courses. The City of Hollywood, the Town of Davie, and Cooper City all own and operate wastewater treatment facilities that hold NPDES permits for discharge of wastewater through the Hollywood ocean outfall.
- The City of Cooper City owns and operates the Cooper City Wastewater Treatment Facility which has a permitted capacity of 3.1 mgd. As of May 1, 2009, the City disposes all its treated wastewater through its deep injection well, except for 1.7 mgd that is pumped to the Hollywood Southern Regional Wastewater Treatment Facility to satisfy the City's contractual obligation to supply treated wastewater for the City of Hollywood's reuse program. However, some of the supplied wastewater that cannot be reused will be discharged via the Hollywood ocean outfall during times when reuse demands decrease due to wet weather.

- The Town of Davie owns and operates the Town of Davie Wastewater Treatment Facility which has a permitted capacity of 5.0 mgd. Treated effluent from the facility is currently transferred to the Hollywood Southern Regional Wastewater Treatment Facility where a portion is reused and a portion is disposed via the Hollywood ocean outfall. The Town is obligated to provide 2.3 mgd of treated wastewater for the City of Hollywood's reuse program.
- MDWASD operates two wastewater treatment facilities with permits allowing discharge through the Miami North and Miami Central ocean outfalls. The MDWASD North District Wastewater Treatment Plant has a permitted capacity of 112.5 mgd. The MDWASD Central Wastewater Treatment Plant has a permitted capacity of 143.0 mgd. 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. Most of the treated wastewater from the Central District plant is currently discharged through the Miami Central ocean outfall with small amounts reused.

PROGRESS SUMMARY

The Department developed a tracking spreadsheet of all implementation dates required by the Act to help ensure that steady progress is made toward implementation. Bi-monthly internal meetings are held to monitor progress and address any issues as they arise. As discussed below, the Department has established nutrient loading reduction and reuse obligations for each of the permit holders. The first major milestone of the Act will occur in July 2013, when each permit holder is required to submit a detailed plan, including an identification of all land acquisition and facilities necessary to provide for reuse of the domestic wastewater; an analysis of the costs; a financing plan that identifies actions such as bond issuance, assessments, rate increases, fees, other charges, or other financing mechanisms. Each plan will include a detailed schedule for the completion of all necessary actions and shall be accompanied by supporting data and other documentation.

Coordination with EPA

The Department has coordinated with EPA to ensure that the requirements of the Act are implemented in the NPDES permit for the MDWASD Central District Plant located on Virginia Key. EPA retains authority for this permit since this outfall terminates beyond the State's jurisdiction.

Permit Holder Progress Reports

Each of the seven ocean outfall permit holders submitted a progress report to the Department prior to December 31, 2009. The Department sent letters to each acknowledging receipt, reviewed each report, and provided comment letters to each permit holder identifying concerns.

Table 2 provides a brief summary of each progress report. The reports generally indicate that all permit holders are aware of and are making plans to meet the requirements of the Act. No instances of substantial non-compliance have been noted.

Table 2. Summary of December 31, 2009 Ocean Outfall Progress Reports

Statutory Requirement	South Central Regional	City of Boca Raton	Broward County	City of Hollywood	Cooper City	Town of Davie	MDWASD
<p>Advanced Wastewater Treatment and Management (AWTM) By December 31, 2018</p> <ol style="list-style-type: none"> 1. Provide advanced wastewater treatment (AWT) as set forth in Section 403.086(4), F.S., (5 mg/L CBOD; 5 mg/L TSS; 3 mg/L TN; and 1 mg/L TP); 2. Achieve a reduction in outfall baseline TN and TP loadings equivalent to that which would be achieved by AWT; 3. Reduce the cumulative TN and TP outfall loadings occurring between 12/31/2008 and 12/31/2025, which is equivalent to that which would be achieved if the AWT requirement were fully implemented beginning 12/31/2018, and continued through 12/31/2025; or 4. Implement a fully operational reuse system comprising 100 percent of the facility's annual average daily flow. 	<p>Installed new deep injection wells that can handle the entire ocean outfall flow. The ocean outfall is now virtually eliminated.</p> <p>See AWTM option 2.</p>	<p>Plans to increase capacity of its reclaimed water facility to provide 100 percent reuse.</p> <p>See AWTM option 4.</p>	<p>Plans to complete a Master Plan and implement the selected alternative.</p> <p>See AWTM options 1-4.</p>	<p>Plans to maximize disposal through its two existing deep wells.</p> <p>See AWTM option 3.</p>	<p>Disposes of effluent through its deep injection well except for 1.7 mgd that is pumped to the City of Hollywood .</p> <p>See AWTM option 2.</p>	<p>Plans to rely on the City of Hollywood to implement a reduction in cumulative outfall loadings.</p> <p>See AWTM option 3.</p>	<p>Preparing an Integrated Master Plan. Plans to maximize disposal through the existing North District treatment plant deep wells and construct deep wells at the Central District plant.</p> <p>See AWTM option 3.</p>

Table 2. Summary of December 31, 2009 Ocean Outfall Progress Reports (continued)

Statutory Requirement	South Central Regional	City of Boca Raton	Broward County	City of Hollywood	Cooper City	Town of Davie	MDWASD
<p>Reuse</p> <p>By December 31, 2025, install a functioning reuse system to provide a minimum of 60 percent reuse of the facility’s actual flow that occurred over the period 2003-2007.</p>	<p>The treatment plant has the capacity to treat all of the facility’s effluent to public access reuse standards. More users need to be identified.</p>	<p>Plans to increase capacity of its reclaimed water facility to provide 100 percent reuse.</p>	<p>Plans to complete a Master Plan and implement the selected alternative.</p>	<p>Evaluating alternatives.</p>	<p>Will evaluate options.</p>	<p>Has initiated planning for management of effluent.</p>	<p>Preparing an Integrated Master Plan. Shift average and peak flows to the South District plant to accommodate both the Florida Power and Light and Biscayne Bay Coastal Wetlands Rehydration Projects.</p>
<p>Outfall Elimination</p> <p>By December 31, 2025, eliminate discharge through the ocean outfall, except as a backup discharge that is part of a functioning reuse system.</p>	<p>Deep wells to be used. Ocean outfall use as a back-up would be minimal.</p>	<p>Outfall to be used for back-up discharge.</p>	<p>Plans to complete a Master Plan and implement the selected alternative.</p>	<p>Use of existing injection wells and construction of new injection wells “appear to be the most viable option.”</p>	<p>Will evaluate options.</p>	<p>Has initiated planning for management of effluent.</p>	<p>Preparing an Integrated Master Plan.</p>

Nutrient Loadings and Required Reductions

The ocean outfall utilities are required to significantly decrease the amounts of nutrients discharged by December 31, 2018 through implementation of advanced wastewater treatment and management requirements (AWTM) as specified in the Act.

A utility may meet AWTM by one of the following means:

1. Provide advanced wastewater treatment (AWT) requirements as set forth in Section 403.086 (4), F.S., (5 mg/L CBOD; 5 mg/L Total Suspended Solids; 3 mg/L Total Nitrogen; and 1 mg/L Total Phosphorus);
2. Achieve a reduction in outfall baseline total nitrogen and total phosphorus loadings equivalent to the reduction achieved by AWT;
3. Reduce the cumulative total nitrogen and total phosphorus outfall loadings occurring between December 31, 2008 and December 31, 2025, equivalent to the reduction achieved if the AWT requirement were fully implemented beginning December 31, 2018, and continued through December 31, 2025; or
4. Implement a fully operational reuse system comprising 100 percent of the facility's annual average daily flow.

In order to ensure that required nutrient reductions are appropriately tracked, the Department calculated baseline and target nutrient loadings for each wastewater facility that discharged through an existing ocean outfall during the calendar years 2003 through 2007. The baseline and target nutrient loads were verified with the affected permittees.

Baseline loadings were calculated using each wastewater facility's actual daily flow on an annual basis (AADF) and the baseline concentrations for total nitrogen and total phosphorus. Target loading reductions were calculated using the AADFs and the amount of total nitrogen and total phosphorus that would have been discharged if only 3 mg/L of nitrogen and 1 mg/L of phosphorus had been discharged during the 2003 to 2007 period.

Table 3 provides the baseline and target nutrient loadings for existing wastewater facilities discharging through an ocean outfall. Comparing baseline loadings to future target loadings,

indicates that compliance with the Act will result in a reduction of 18.35 tons/day of total nitrogen and 0.75 tons/day of total phosphorus discharged through the outfalls to the Atlantic Ocean.

Table 3: Baseline Nutrient and Target Nutrient Loadings for Existing Wastewater Facility Discharging Through an Ocean Outfall

Treatment Facility	Actual AADF (mgd)	Baseline N Load (lb/day)	Target N Load (lb/day)	Baseline P Load (lb/day)	Target P 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	36.7	4,836	918	387	306
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
Totals	296.5	44,111	7,419	3,977	2,473
Totals (tons/day)	-	22.06	3.71	1.99	1.24
Reduction (tons/day)	-	-	18.35	-	0.75

60 Percent Reuse Requirements and Potable Quality Water Offsets

In order to track the Act’s reuse requirement, the Department calculated each wastewater facility’s actual daily flow on an annual basis using flow data submitted by each permit holder. Based on this data the additional amounts of reuse each facility will be required to provide to meet the 60 percent reuse requirement were calculated. Table 4 provides the calculated values for each wastewater facility.

Table 4: 2008 Actual Annual Average Daily Flow and 60 percent Reuse Requirement for Existing Wastewater Facility Discharging Through an Ocean Outfall

Treatment Facility	Actual Annual Average Daily Flow (mgd)	60 percent Reuse Requirement (mgd)
South Central Regional	12.9	7.7
City of Boca Raton	10.3	6.2
Broward County North	37.4	22.4
Hollywood Southern Regional	36.7	22.0
Cooper City	1.5	0.9
Town of Davie	1.9	1.2
MDWASD North	81.0	117.5
MDWASD Central	114.8	
Totals	296.5	177.9

The Department's annual reuse inventories will be used to track the increased amounts of reclaimed water provided by each wastewater facility to ensure that the additional 60 percent reuse requirements are met. The inventories will also be used to track the "potable quality water offsets", or the amount of potable water saved by substituting the use of reclaimed water.

Data from the 2008 Reuse Inventory was used to establish baseline reuse flows and baseline potable quality water offsets. Future reports by the Department will include the increased amount of reclaimed water provided and potable quality water offsets achieved. The baseline reuse flows and potable quality water offsets for calendar year 2008 are shown in Table 5.

Table 5: 2008 Baseline Reuse Flows and Potable Quality Water Offsets*

Treatment Facility	Reuse (mgd)	Offset (mgd)
South Central Regional	5.6	4.0
City of Boca Raton	6.4	4.2
Broward County North	4.5	4.4
Hollywood Southern Regional	2.3	1.7
MDWASD North	3.0	2.9
MDWASD Central	5.9	5.9
Totals	27.7	23.1
MDWASD South	5.1	5.0

* Rule 62-610.200(42), F.A.C., 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. Potable quality water offsets are calculated using values from Table 5 of the Reuse Coordinating Committee, Water Reuse for Florida: Strategies for Effective Use of Reclaimed Water, Florida Department of Environmental Protection, Tallahassee, Florida, 2003, as follows:

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 & 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

Flows from the City of Cooper City and the Town of Davie wastewater treatment facilities are not included separately in Table 5 because in 2008 all of the flow from these facilities was routed to the Hollywood Southern Regional wastewater treatment facility.

The amount of reuse at the MDWASD South District wastewater treatment facility is provided in Table 5 even though the facility does not discharge to an ocean outfall; the MDWASD has indicated that plans are to route reuse flow among its major treatment facilities in the future. Increases in reuse at each of MDWASD's major treatment facilities will be tracked by the Department.

IMPLEMENTATION ISSUES

Although all permit holders are aware of the requirements of the Act and submitted progress reports that provide information on how they plan to meet the requirements, several items of interest were noted.

The City of Hollywood and Broward County Office of Environmental Services assumed that reuse projects that were in use during 2003 through 2007 can be applied to the 60 percent reuse requirement. The Department has informed all ocean outfall permit holders that such existing reuse projects do not count toward meeting the reuse requirement. One of the primary goals of the Act was to increase of amount of new reuse in Southeast Florida and to specifically beneficially reuse wastewater flows that were discharged through the outfalls.

MDWASD and Broward County Office of Environmental Services have expressed an interest in revising the reuse requirements of the Act to allow existing reuse projects to count towards the 60 percent requirement or to allow reuse conducted at facilities other than an ocean outfall facility to be counted. The Department has committed to exploring their suggestions.

Although the City of Cooper City submitted a progress report, the City believes that it is "not governed by this law" in part because of its contractual obligation with the City of Hollywood over wastewater management.

Because the City of Hollywood, City of Cooper City, and Town of Davie all discharge through a common outfall and have various contractual relationships over its use, the Department has encouraged these three entities to work together to meet the ocean outfall legislation requirements by leveraging resources and taking advantage of economies of scale.

MDWASD plans to divert flows from the North and Central District wastewater treatment plants to the South and proposed new West District wastewater treatment plants to support reuse projects located near these sites. The Department will have further discussions with MDWASD to determine which of these projects can count toward the minimum 60 percent reuse requirement.

Over the last year, the Department worked with the cities of Hollywood and Cooper City to draft a revision to the Act to address the situation in which an entity may divert its raw or treated wastewater flows away from a permit holder's facility making it more difficult or impossible for the permit holder to meet the 60 percent reuse requirement. The revision would require the diverting entity to meet the 60 percent reuse requirement, and the permit holder's reuse requirement would be adjusted accordingly. This revision was contained in SB 550 which was signed into law by the Governor on June 4, 2010 as Chapter 2010-205, Laws of Florida.

REFERENCES

1. Chapter 2008-232, Laws of Florida.
2. Hazen and Sawyer, SEFLOE II Final Report: Broward County Office of Environmental Services North Regional Wastewater Treatment Plant; City of Hollywood Utilities Department Southern Region Wastewater Treatment Plant; Miami-Dade Water and Sewer Department North District Wastewater Treatment Plant; Miami-Dade Water and Sewer Department Central District Wastewater Treatment Plant, Submitted to National Oceanic and Atmospheric Administration, 1994.
3. Letter dated December 11, 2009 with Exhibits from Dennis L. Coates, Executive Director, South Central Regional Wastewater Treatment and Disposal Board to Mike Sole, Secretary, Florida Department of Environmental Protection.
4. Letter dated December 8, 2009 with Attachments from Christopher R. Helfrich, Director, City of Boca Raton Utility Services to Mike Sole, Secretary, Florida Department of Environmental Protection.
5. Broward County's Water and Wastewater Ocean Outfall Rule Summary Status Report, submitted by Alan W. Garcia, Director, Broward County Water and Wastewater Services to Mike Sole, Secretary, Florida Department of Environmental Protection. December 15, 2009.
6. City of Hollywood, Florida Southern Regional Wastewater Treatment Plant Ocean Outfall Compliance Report, submitted by Albert L. Perez, Director of Public Utilities, City of Hollywood and J. Phillip Cooke, Senior Associate, Hazen and Sawyer to Mike Sole, Secretary, Florida Department of Environmental Protection. December 17, 2009.
7. Letter dated December 16, 2009 from Michael F. Bailey, Director of Utilities/City Engineer, City of Cooper City to Mike Sole, Secretary Florida Department of Environmental Protection.
8. Letter dated December 31, 2009 from Bruce Taylor, Utilities Director, Town of Davie to Mike Sole, Secretary Florida Department of Environmental Protection.
9. Letter dated December 30, 2009 from John W. Renfrow, Director, Miami-Dade Water and Sewer Department with Progress Report to Michael W. Sole, Secretary, Florida Department of Environmental Protection.
10. Florida Department of Environmental Protection, 2008 Reuse Inventory, Florida Department of Environmental Protection, Tallahassee, Florida, 2010.
11. Reuse Coordinating Committee, Water Reuse for Florida: Strategies for Effective Use of Reclaimed Water, Florida Department of Environmental Protection, Tallahassee, Florida, 2003.
12. Florida Legislature, Senate Bill 550, 2010.