

# FLORIDA DEPARTMENT OF Environmental Protection

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Jeanette Nuñez Lt. Governor

Noah Valenstein Secretary

August 21, 2020

The Honorable Ron DeSantis Governor, State of Florida Plaza Level 05, The Capitol 400 South Monroe Street Tallahassee, Florida 32399-0001

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

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

Dear Governor DeSantis, President Galvano, and Speaker Oliva:

Chapter 2008-232, Laws of Florida, created the Leah Schad Memorial Ocean Outfall Program, which prohibits the construction of new domestic wastewater ocean outfalls and expansion of existing outfalls. The law also required the discharge of domestic wastewater through ocean outfalls to meet advanced wastewater treatment and management requirements by December 31, 2018, as well as established 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 were required to reuse 60 percent of their "baseline flow" for beneficial purposes.

Section 403.086(9), Florida Statutes, requires the Florida Department of Environmental Protection (DEP) to submit a report to the Governor and Florida Legislature every five years (beginning in 2010), summarizing the implementation progress to date, including the increased amount of reclaimed water provided and potable water offsets achieved, and identifying any

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obstacles to continued progress, including all instances of substantial noncompliance. Enclosed is the progress report for 2020.

If you have any questions, please contact me or Benjamin Melnick, Director of DEP's Division of Water Resource Management, at 850-245-8340.

Sincerely,

Noah Valenstein Secretary

Enclosure

cc: John Truitt, Deputy Secretary of Regulatory Programs, DEP John Schrader, Director, Office of Legislative Affairs, DEP

# Implementation of Chapter 2008-232, Laws of Florida Domestic Wastewater Ocean Outfalls 2020 Progress Report

**Division of Water Resource Management** 

**Department of Environmental Protection** 

July 2020



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#### **Executive Summary**

Upon taking office in January 2019, Governor DeSantis committed to taking bold action to expedite water quality improvements and increase protections for our water resources, including those to benefit our treasured coral reefs. In his first week, Governor DeSantis signed Executive Order 19-12, which called for a \$2.5 billion investment over the next four years for Everglades restoration and the protection of our valuable water resources. Unprecedented investments are also being made to improve coastal resiliency, prepare the state for the effects of sea level rise and for the protection of Florida's coral reefs. In his Executive Order, Governor DeSantis created the Blue-Green Algae Task Force, whose recommendations provided the framework for the Clean Waterways Act (SB 712), focused on remedial action and improvements to Florida's waters including regulations regarding wastewater infrastructure. Governor DeSantis also made enforcement of the state's environmental laws a top priority as exhibited in the unanimous passage of House Bill (HB) 1091 during the 2020 legislative session. This bill called for an increase of all environmental fines by 50 to 100 percent.

The Department provides the following summary of the compliance history and status of Southeast Florida utilities in meeting the requirements of Chapter 2008-232, Laws of Florida. Chapter 2008-232, Laws of Florida, created the Leah Schad Memorial Ocean Outfall Program, which prohibits the construction of new domestic wastewater ocean outfalls and expansion of existing outfalls. The law also required the discharge of domestic wastewater through ocean outfalls to meet advanced wastewater treatment and management (AWTM) requirements by December 31, 2018, and established 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, requires the Florida Department of Environmental Protection (DEP) to submit a report to the Governor and Florida Legislature every five years, beginning in 2010. The report is to summarize the implementation progress to date, including the increased amount of reclaimed water provided and potable water offsets achieved. It is also to identify any obstacles to continued progress, including all instances of substantial noncompliance. Enclosed is the progress report for 2020. As the final report before the compliance year of 2025, this report notes several areas of concern where utilities may not comply with the statutory requirements.

To date, each of the seven ocean outfall permit holders have met the reporting requirements of section 403.086(9), F.S., and are making progress toward implementation. Between 2008 and 2018, the total amount of reclaimed water provided increased from 32.0 to 43.5 million gallons per day (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 to 37.3 mgd.

The revised detailed plans submitted by affected utilities in July 2016 indicated that some utilities may not comply with the requirements of section 403.086(9), F.S., by December 31, 2025. The Department has provided written notice to utilities regarding potential noncompliance based on interim reports and will continue to explore all potential avenues to ensure full compliance with all statutory requirements.

Despite the 17-year compliance glidepath provided by the legislature to meet the 60 percent reuse requirement, Miami-Dade Water and Sewer Department (MDWASD) and the City of Hollywood, in correspondence, meetings, and progress reports, identified potential obstacles associated with providing a functioning reuse system to meet the 60 percent reuse requirement through traditional reuse such as irrigation or non-traditional reuse such as special projects or gray water flushing.

MDWASD planned to provide 90 mgd of reclaimed water to Florida Power and Light's (FPL) Turkey Point power plant for use as cooling water for two new nuclear reactors, but construction of the reactors was postponed in 2018, leaving MDWASD seven years to develop a new use for this reclaimed water. A new agreement being developed with FPL will provide a significantly reduced volume of reclaimed water to Turkey Point.

Furthermore, after almost a decade of planning, MDWASD has removed its previously proposed 102mgd West District plant mentioned in DEP's 2015 report from its 2025 planning horizon and extended it to 2035. In earlier reports, the West District plant was proposed as a more technologically advanced treatment plant located farther inland, which could allow retirement of an older facility located on a barrier island on the north end of Biscayne Bay. Based on current reports, MDWASD will forego the newer inland plant until 2035 and rely on smaller improvements to the existing older plant on Virginia Key. As of this report, MDWASD currently claims that their 117.4 mgd reuse requirement is not environmentally, economically and technically feasible; however, with five years remaining until the final compliance deadline, the Department supports MDWASD's efforts to continue finding additional reuse options to satisfy the legislative mandate.

In 2015, the City of Hollywood proposed that, due to high chlorides in Hollywood's effluent, it could not provide an environmentally, economically and technically feasible reuse system to meet its statutory requirement of 20.4 mgd. In a January 13, 2016, letter, DEP agreed with the City that, at that time, only 10 mgd of feasible reuse could be achieved by the City through maximization of existing reuse systems and contracting with other entities to provide reuse. As it did in 2016, the Department continues to encourage the City to find additional reuse opportunities to fulfill the statutory requirements.

MDWASD's 2019 progress report, after multiple changes from their initial planned projects, indicates that while some current projects are on schedule, construction and permitting delays could affect completion of the 14 new deep injection wells MDWASD elected to use to meet statutory requirements by December 31, 2025. Also, in early 2020, DEP issued a warning letter to Broward County regarding possible vertical migration from existing deep injection wells as well as saline water collecting at the wellheads of two newly constructed industrial deep injection wells. Broward County's plan to eliminate ocean outfall discharges is dependent on its deep injection wells.

DEP and the South Florida Water Management District (SFWMD) will continue to work with MDWASD and the City of Hollywood to ensure compliance with the 60 percent reuse requirement 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.:

- Prohibits the construction of new wastewater ocean outfalls for domestic wastewater discharge and the expansion of existing ocean outfalls;
- Requires the discharge of domestic wastewater through ocean outfalls to meet AWTM requirements by December 31, 2018;
- Requires 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;
- Prohibits 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; and
- Provides a 17-year glidepath to reach compliance.

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, 2019; and

<sup>&</sup>lt;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.

• 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, 2020. 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 Florida's southeast coastline, are subject to the provisions in section 403.086(9), F.S.



#### 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 the associated permit holders are provided in geographical order (north to south) in Table 1 below.

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
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

Table 1	Ocean	Outfalls	Treatment	Facilities	and	Permit	Holders
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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, which also has a capacity of 17.5 mgd, is co-located next to the

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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 for discharge through the Hollywood ocean outfall during mechanical integrity testing of the City's deep injection wells or during emergency situations.
- 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 transferred to the Hollywood Southern Regional Wastewater Treatment Facility, where a portion is reused and a portion is disposed through the Hollywood ocean outfall. The Town also recently completed infrastructure in 2013 to divert flow from the 76<sup>th</sup> Avenue facility to the Water Reclamation 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 in the plant.

# **Progress Summary**

Since the July 2015 progress report to the Legislature, each of the seven ocean outfall permit holders submitted a revised detailed plan<sup>2</sup> for meeting the requirements of the statute to DEP by July 1, 2016, and the required progress report by December 31, 2019. 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:

 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));

<sup>&</sup>lt;sup>2</sup> 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, and revised detailed plans by July 1, 2016.

- 2. Achieving a reduction in outfall baseline TN and TP loadings equivalent to that which would be achieved by AWT;
- 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.

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 <sup>3</sup>	35.84	6,717	895	526	298
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

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

<sup>&</sup>lt;sup>3</sup> Broward County's baseline flow was adjusted to 35.75 mgd based on flow diverted to Pompano Beach during 2003-2007 (see footnote 5). On June 27, 2016, Administrative Order (AO) Number AO-17-007-DW-06-SED revised the baseline flow, the reuse required, and the mass loadings of nutrients equivalent to advanced wastewater treatment to 895 lb/day of Nitrogen and 298 lb/day of Phosphorus.

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)
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, 2016, revised detailed plans and the December 31, 2019 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 and the City has reuse agreements with end users totaling 12.86 mgd.
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 progress report, between 2009 and 2018, Broward County discharged 51.1 and 22.2 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 daily operating strategy and through 2018, has only discharged 28 percent of the allowable TN discharges and 26 percent of the allowable TP discharges although 59 percent of the time until the end of 2025 has elapsed.

Permit Holder	AWTM Option	Summary
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. Although the effluent sent to the City of Hollywood is not under the City of Cooper City's control, tracking of the TN and TP loadings related to this effluent demonstrates the required reduction is being met.
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 began diverting flow in 2013 to the new Water Reclamation Facility instead of sending it to its 76 <sup>th</sup> Avenue Wastewater Treatment Facility and continues to divert enough flow to achieve the TN and TP reduction requirements.
MDWASD	3	MDWASD's current chosen path 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. Additionally, MDWASD plans to further limit nutrient loadings by using the two recently constructed industrial deep injection wells at the Central District plant to discharge in-plant wastes with high nutrient concentrations currently returned to the plant's headworks. The progress report indicates that as of September 2019, 19,594,990 pounds of TN and 1,784,367 pounds of TP have been diverted to the deep injection well systems. MDWASD's calculated diversion goals are 59,900,000 pounds of TN and 2,900,000 pounds of TP. MDWASD predicts meeting the TN goal near, but prior to, the December 31, 2025, compliance date.

#### **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<sup>4</sup>.

Table 4. Reuse Requirements for Facilities	that Discharged Domestic V	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 <sup>5</sup>	35.75	21.45	4.5	25.95
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, 2016, revised detailed plans and the December 31, 2019, progress reports.

<sup>&</sup>lt;sup>4</sup> 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.

<sup>&</sup>lt;sup>5</sup> Broward County's baseline flow and reuse requirement were adjusted because 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 between 2003 and 2007. On June 27, 2016, Florida Administrative Order (AO) Number AO-11-011-DW-06-SED was revised to acknowledge a new additional reuse requirement of 21.45 mgd and a total reuse requirement of 25.95 mgd.

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 2.087 between 2007 and 2019 and has scheduled plans to construct new reuse distribution facilities to provide the additional 1.809 mgd of reuse prior to December 31, 2025; Boynton Beach provided additional reuse of 0.679 mgd between 2007 and 2019 and plans to construct new reuse distribution facilities to provide additional reuse of a facilities to provide the additional reuse of 0.679 mgd between 2007 and 2019 and plans to construct new reuse distribution facilities to provide the additional 4.270 mgd prior to December 31, 2025.
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 has reuse agreements for a flow of 12.96 mgd, which exceeds their 60 percent reuse requirement of 10.3 mgd and their total reuse flow requirement of 11.8 mgd. Between 2006 and 2013, the City spent more than \$12.4 million to expand its reuse system.
Broward County	Broward County identified 23.51 mgd <sup>6</sup> of additional reuse to be implemented: 2.25 mgd of additional reuse at Pompano Beach, 6.0 mgd of large users in Broward County, and 15.26 mgd of large users in Palm Beach County. A draft Interlocal Agreement between Broward County and Palm Beach County to deliver 15.0 mgd for reuse by large users in Palm Beach County has been approved by the Broward County Board of County Commissioners. Costs to construct new reuse treatment and transmission facilities within Broward County were estimated to be \$77 million. An additional \$40 million was estimated for construction of reuse transmission facilities within Palm Beach County.

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

<sup>&</sup>lt;sup>6</sup>Broward County's outfall baseline flow was adjusted to 35.75 mgd as discussed in Footnote 3 above, so Broward County only needs to implement 21.45 mgd of additional reuse.

Permit Holder	Summary
City of Hollywood	In a January 13, 2016 letter to the City, DEP agreed the City could only feasibly reuse a total of 10 mgd of its 20.4 mgd statutory reuse requirement, and that the remaining 10.4 mgd of required reuse was not environmentally, economically, and technically feasible at that time. The City's effluent's high level of chlorides prevents cost-effective reuse in any conventional manner. To achieve 10 mgd, the City committed to in-plant reuse of 4.0 mgd, maximizing current reuse by an additional 1.5 mgd, and contracting with other entities to provide 4.5 mgd. For maximizing current reuse, the City has identified 1.083 mgd of reuse for which the transmission infrastructure is in place, and an estimated 0.45 mgd that requires interconnecting infrastructure. The City identified the City of Miramar and City of Sunrise as promising candidates for contract reuse. A draft Interlocal Agreement with Miramar is awaiting execution, to provide a minimum of 2.0 mgd of contracted reuse for a lump sum payment of \$7 million. DEP continues to encourage Hollywood to pursue additional reuse beyond the agreed upon 10 mgd.
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. On November 11, 2017, the City contracted with the City of Miramar at a cost of \$3,500,000 to expand Miramar's reuse system and credit Cooper City with 1.0 mgd by December 31, 2025. The City reported that Miramar's expansion is scheduled to be completed by December 2020. 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 delivered 0.358 mgd of reclaimed water in 2018 and is continuing to negotiate with potential end users to reach the 1.1 mgd required reuse flow.
MDWASD	MDWASD's initial plan, which relied on a decade long construction schedule by a third-party, to provide 90 mgd of reclaimed water to Florida Power & Light's (FPL) Turkey Point Facility as cooling water to two new proposed nuclear reactors fell through when the construction was postponed in 2018. MDWASD is working on a new agreement with FPL to provide reclaimed water to Turkey Point but at a significantly reduced volume. MDWASD continues to evaluate other types of projects, including ones not traditionally considered "reuse." In their December 2019 progress report issued 6 years prior to final compliance and 17 years after the initial plan, MDWASD proposes it cannot technically, environmentally, and economically meet the statutorily required reuse, and further claims reuse efforts will be delayed beyond the 2025 compliance date. The Department will continue to explore all options to ensure compliance with statutory requirements.

#### 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	s 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 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 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 and the City's reclaimed water distribution system has the ability to deliver 17.5 mgd of reclaimed water to end users. The City has reuse agreements totaling 12.96 mgd.
Broward County	Six deep injection wells have been installed. Two additional injection wells and booster pump stations for all eight injection wells were recently constructed. 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 five percent of the facility's baseline flow <sup>7</sup> . Estimated construction costs for the two new injection wells and booster pump stations for all eight injection wells was \$30 million. However, DEP noted possible vertical migration from the existing deep injection wells and saline water pooling around the two newly constructed deep injection wells. Depending on the results of utility investigations, the ability of Broward County to eliminate discharges to the ocean outfall as well as to meet the AWTM requirements may be affected.

<sup>&</sup>lt;sup>7</sup> Section 403.086(9)(d), F.S., limits peak flow backup discharges to five percent of a facility's baseline flow, measured as a five-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
City of Hollywood	Expansion of the City's deep injection well system is underway to maintain disposal capacities commensurate with the existing treatment plant permitted capacity of 55.5 mgd. In January 2019, DEP issued Underground Injection Control Permit No. 156419-008-0090UC/IX for construction and operation of two new Class 1 injection wells. A bid of \$39.94 million for the wells is being evaluated and the cost of other elements such as the effluent pumps stations is estimated at approximately \$60 million.
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 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	<ul> <li>The Town continues to review alternatives for effluent management of its existing</li> <li>4.85 mgd permitted discharge from the 76<sup>th</sup> Avenue Wastewater Treatment Facility</li> <li>to the Hollywood ocean outfall to ensure discharge through the outfall is eliminated.</li> <li>Coupled with the Town's new 3.5 mgd water reclamation facility, the Town is</li> <li>reviewing the following alternatives:</li> <li>1. Initiate discussions with the City of Hollywood regarding the agreement to send</li> <li>effluent to Hollywood – the agreement requires the Town of Davie to send 2.3</li> <li>mgd of effluent for Hollywood's reuse program;</li> <li>2. Routing current influent flow for the 76<sup>th</sup> Avenue Wastewater Treatment Facility</li> <li>to the Water Reclamation Facility;</li> <li>3. Routing effluent from the 76<sup>th</sup> Avenue Wastewater Treatment Facility to the Water Reclamation Facility; and</li> <li>4. Constructing a new deep injection well system at the 76<sup>th</sup> Avenue Wastewater Treatment Facility.</li> </ul>

Permit Holder	Summary
MDWASD	<ul> <li>MDWASD's current plan, after multiple deviations, is to construct new facilities to handle the projected flows to eliminate discharges to the ocean outfall with consideration of the allowance to discharge peak flows up to five percent of baseline flows. These facilities include:</li> <li>1. At the North District plant, constructing five new municipal deep injection wells and the associated facilities such as pump stations and high-level disinfection facilities to add to the capacity of the existing four deep injection wells; and,</li> <li>2. At the Central District plant, constructing nine new municipal deep injection wells; and, associated facilities such as pump stations and high-level disinfection facilities to add to the two recently constructed industrial wells.</li> </ul>
	MDWASD projects construction of these to be complete prior to December 2025, with the schedules for the associated facilities (e.g., pump stations and high-level disinfection facilities) running through December 31, 2025. Although the legislature provided a 17-year glidepath to compliance, MDWASD suggests their chosen construction schedule may not meet the December 31, 2025, deadline. Notes: MDWASD has removed its previously proposed 102-mgd West District plant mentioned in DEP's 2015 report. Related to the injection well projects, MDWASD has also proposed a reclassification and an exemption of an aquifer from Safe Drinking Water Act standards as a method of meeting the statutory obligations imposed in 2008.

#### **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 2018 reuse inventories. Between 2008 and 2018, the total amount of reclaimed water provided form 32.0 mgd to 43.5 mgd.

Table 7. Increased Amount of Reclaimed Water Provided

Treatment Facility	2008 Reclaimed Water Provided (mgd)	2018 Reclaimed Water Provided (mgd)	Increase in Reclaimed Water Provided (mgd)
South Central Regional	5.6	6.7	1.1
City of Boca Raton	5.6 <sup>8</sup>	9.9	4.3
Broward County North	4.5	3.8	-0.7

<sup>&</sup>lt;sup>8</sup> See Footnote 9.

Treatment Facility	2008 Reclaimed Water Provided (mgd)	2018 Reclaimed Water Provided (mgd)	Increase in Reclaimed Water Provided (mgd)
Hollywood Southern Regional	2.3	4.9	2.6
Cooper City	0.0	0.0	0.0
Davie	0.0	0.4	0.4
MDWASD North	3.0	4.8	1.8
MDWASD Central	5.9	8.2	2.3
MDWASD South	5.1	4.8	-0.3
Totals	32.0	43.5	11.5

#### **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. Section 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. To calculate the potable water offsets achieved, the offset percentages shown in Table 8 were multiplied by each reuse activity identified in the Department's 2008 and 2018 reuse inventories for each ocean outfall permit holder's treatment facility.

#### Table 8. Potable Water Offset Percentages<sup>9</sup>

Reuse Activity	Offset (Percent - %)	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

<sup>&</sup>lt;sup>9</sup> 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 shows the 2008 and 2018 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 37.3 mgd in 2018.

Treatment Facility	2008 Offset (mgd)	2018 Offset (mgd)	Increased Offset (mgd)
South Central Regional	4.0	4.6	0.6
City of Boca Raton	3.6 <sup>10</sup>	6.6	3.0
Broward County North	4.4	3.7	-0.7
Hollywood Southern Regional	1.7	4.3	2.6
Cooper City	0.0	0.0	0.0
Davie	0.0	0.3	.3
MDWASD North	2.9	4.8	1.9
MDWASD Central	5.9	8.2	2.3
MDWASD South	5.0	4.8	-0.2
Totals	27.5	37.3	9.8

Table 9. Potable Water Offsets Achieved

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

The July 1, 2016, detailed plans and the December 31, 2019, 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 Cooper City; and
- Town of Davie.

For the remaining permit holders, concerns are summarized in Table 10.

<sup>&</sup>lt;sup>10</sup> 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]

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

Permit Holder	Summary
Broward County	<ul> <li>DEP Warning Letter #WL20-00032UIC06SED, dated February 25, 2020, noted signs of vertical fluid migration in monitoring wells for the deep injection well system, as well as the collection of saline water at the wellheads of two recently constructed injection wells. The investigation of these issues may affect the ability of Broward County to use these wells to meet some of the requirements of section 403.086(9), F.S.</li> <li>1. The diversion of nutrients from the ocean outfall depends on the continued functioning of the existing deep injection wells.</li> <li>2. The elimination of discharges to the ocean outfall and limiting peak discharges to the ocean outfall are dependent on the functionality of the two new deep injection wells.</li> </ul>
Hollywood	In a January 13, 2016 letter, DEP acknowledged that, at that time, only 10 mgd of Hollywood's 20.4-mgd required reuse was feasible. The City's effluent contains high levels of chlorides limiting reuse opportunities. DEP encouraged Hollywood to continue to evaluate other options that may become available in the future.
MDWASD	<ol> <li>MDWASD's schedule for the construction and operation of new injection wells at the CDWWTP and the NDWWTP runs through December 25, 2025, which leaves no room for delay. The multi-agency permitting required for the North District plant's new injection wells on undeveloped land containing wetlands may also result in delays.</li> <li>MDWASD is currently on schedule to meet the AWTM requirements. However, final compliance with the TN diversion rate is expected to occur close to December 31, 2025, and any significant variability of operations could potentially impact the final compliance date.</li> <li>MDWASD lost their primary reuse project when FPL's new nuclear reactors at Turkey Point were postponed. MDWASD anticipates a new agreement with FPL to provide reclaimed water, but at a lesser amount of reclaimed water than the original project. MDWASD claims the statutorily required 117.5 mgd of reuse unfeasible but continues to evaluate other potential options for feasibility.</li> </ol>

## **Obstacles to Continued Progress**

Each of the seven ocean outfall permit holders have currently met all reporting requirements and are making progress toward implementation. The original detailed plans submitted by the ocean outfall utilities indicated that each utility could potentially comply with all of the requirements of the statute by December 31, 2025. Subsequent reports have indicated some utilities may fail to meet the statutory requirements.

Broward County, the City of Hollywood, and MDWASD each have situations potentially affecting compliance with one or more of the statutory requirements by December 31, 2025.

#### **Broward County**

A file review of the Broward County North Regional Wastewater Treatment Plant Injection Well System, WACS ID Number 53313, found possible violations of Chapter 403, F.S., and Chapter 62-528, F.A.C. DEP Warning Letter No. WL20-00032UIC06SED, dated February 25, 2020 to Broward County noted signs of vertical fluid migration into the Underground Source of Drinking Water (USDW) in monitoring wells, primarily the lower monitoring zone. Also noted was the collection of saline water at the wellheads of injection wells IW-7 and IW-8. The results of investigations of these issues may affect the ability of Broward County to fully utilize the wells to meet some of the requirements of section 403.086(9), F.S.

If future operation of Broward's deep injection wells is affected, this could impact Broward County's ability to comply with the AWTM requirements since nutrients are being diverted from the ocean outfall to the wells. Also, compliance with the elimination of discharges to the ocean outfall may be affected if the operation of the deep injection wells is impacted past December 31, 2025. It is currently unknown if the issues noted in the warning letter will result in any impacts to the operation of Broward County's deep injection wells.

#### **City of Hollywood**

The high chlorides in the City of Hollywood's effluent presents challenges for reuse. The City explored various options, but has been unable to find an environmentally, economically and technically feasible way to fully meet their 20.4-mgd statutory reuse requirement. After demonstrating their situation, DEP

agreed in a January 13, 2016, letter to the City that, at that time, 10 mgd of reuse was feasible. The 10 mgd included maximizing the City's exiting reuse system by an additional 1.5 mgd, utilizing 4 mgd of in-plant reuse, and contracting with other entities to provide 4.5 mgd of reuse. DEP encouraged the City of Hollywood to continue to explore reuse possibilities that may become available in the future.

#### **MDWASD**

MDWASD faces a number of challenges to comply with the major requirements of section 403.086(9), F.S., by December 31, 2025.

For the elimination of discharges to the ocean outfall, MDWASD's construction schedule contains 13 major construction projects, with several projects having final close-out dates after the December 31, 2025, deadline. The elimination of discharges is dependent on the timely construction and operation of 14 new municipal deep injection wells, five at the North District plant and nine at the Central District plant, and consideration of a reclassification and exemption of an aquifer from Safe Drinking Water Act requirements. MDWASD notes the construction timeline of these wells is very close to the required deadline and would exceed December 31, 2025, should MDWASD experience any delays. Additionally, the construction of the five wells at the North District plant require multiple permits from multiple agencies since the wells and associated facilities will be constructed on undeveloped wetlands.

For MDWASD's AWTM option of nutrient diversion, MDWASD alleges they expect to meet the TN diversion near the end of 2025 if normal operations continue. However, they also note that the blending necessary for the centrate to meet secondary standards for disposal in the industrial injection wells could potentially reduce the projected diversion amounts and affect when the TN diversion is met.

MDWASD alleges it is not feasible to achieve 117.5 mgd of reuse at the end of the 17-year timeframe provided by the Legislature. Since 2008, MDWASD has conducted various pilot projects and studies of potential reuse projects and concluded most require expensive technologies and extraordinary amounts of energy. With the postponement of FPL's new reactors, MDWASD is negotiating a new agreement with FPL to provide reclaimed water to Turkey Point, but at a substantially reduced volume. Although MDWASD has claimed that no other significant projects are currently feasible under the statutory requirements, MDWASD has identified a placeholder, project XR-1, on their schedule for future development of additional reuse capacity as demands and feasible alternatives arise.

MDWASD continues to report that projected future water demands are now lower than projected in 2008, that they have implemented numerous and effective water conservation measures since 2008, and that other types of water supply-related projects should be considered "reuse" under a more holistic definition of reuse. However, MDWASD anticipates their reclaimed water program to grow over the long term as lower cost water supplies are exhausted. MDWASD will continue to regularly assess and evaluate needs and cost-effective alternatives as part of their planning efforts.

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

#### Challenges After December 31, 2025

The ocean outfall requirements do not end on December 31, 2025. With the normal five-year permit duration for surface water dischargers, DEP is evaluating how to ensure compliance after 2025.

#### **Elimination of Ocean Outfall Challenges**

Allowable ocean outfall discharges after December 31, 2025, include the following:

- Backup discharges from functioning reuse systems during periods of reduced demand;
- Peak flow backup discharges from other wastewater management systems limited to 5 percent of baseline flows on a five-year rolling average;
- Maintenance activity discharges on pumping systems and other equipment related to the ocean outfall system; and,
- Industrial wastewater discharges.

Determining the allowable quantity for each type of discharge may be a challenge. The statute allows reclaimed water to be discharged through the ocean outfall after December 31, 2025, during periods of reduced demand. Traditional reuse systems, such as irrigation programs, do not always use the amount of reclaimed water provided during periods of wet weather. Also, user choice may result in reduced demand and users cannot be forced to use their full allotment of reclaimed water. Significant quantities of reclaimed water are expected to be discharged after 2025 as a result of "reduced demand." Discriminating between reclaimed water discharged as a result of "reduced demand" and other potential

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discharges may be difficult, and reporting requirements will need to be determined to ensure compliance.

Peak flow backup discharges from other wastewater management systems may not cumulatively exceed five percent of a facility's baseline flow, measured as a five-year rolling average. Since peak flow backup discharges are not limited until 2025, the beginning of required compliance, a facility may essentially discharge a total of up to 25 percent of one year's baseline flow spread out over the next five years as peak flow backup discharge. DEP will need to be able to identify the running five-year average and total of the peak flow backup discharges.

Maintenance discharges would be limited to reasonable amounts necessary for maintenance. The maintenance activities would need to be approved by DEP and the quantities discharged would need to be reported.

There is no statutory limit to industrial discharges through the ocean outfall after 2025; however, the quantities of these discharges will need to be reported to DEP.

#### **AWTM Requirement Challenges**

The discharges allowed after December 31, 2025, must comply with the AWTM requirements of the statute outlined earlier in this report. The statute further specifies that peak flow backup discharges that meet secondary standards and water quality-based effluent limitations satisfy the AWTM requirements.

While some of the statute's AWTM options would remain valid after 2025, some may not. Discharges from a facility providing 100 percent reuse under the statute's AWTM options would continue to comply with the AWTM requirements. However, many facilities chose the AWTM option of reducing the discharge of nutrients from 2008 to 2025 by an equivalent amount as if the facility met AWT effluent limits starting at the end of 2018. This appears to be a time-limited option that would not be valid after 2025. Because facilities are not installing equipment to provide AWT-level treatment, AWT effluent limits cannot be met.

Maintenance discharges need to meet the AWTM requirements as peak flow backup discharges or backup discharges to functioning reuse systems. Industrial wastewater discharges are not subject to the statute and would not need to meet an AWTM option.

#### **60 Percent Reuse Challenges**

For the 60 percent reuse requirement, facilities will need to demonstrate their level of reuse and justify any levels below the total required amount of reuse determined for each facility. Reuse capacity is being based on three factors, as follows:

- Treatment capacity to provide the necessary amount of reclaimed water;
- Distribution capability to deliver the necessary amount of reclaimed water; and,
- Reuse user agreements for connected users totaling the required amount of reclaimed water.

The statute allows reclaimed water to be discharged through the ocean outfall after December 31, 2025, during periods of reduced demand. These potential discharges may affect the ability to determine if 60 percent reuse is being maintained. Some facilities may not meet the 60 percent reuse requirement by the end of December 31, 2025; however, the law requires these facilities to continue to pursue this goal.