



United States Environmental Protection Agency
Office of Enforcement and Compliance Assurance
Office of Criminal Enforcement, Forensics and Training

National Enforcement Investigations Center

NEIC

NEICVP1631E01

NEIC CIVIL INVESTIGATION REPORT

Miami-Dade County PCI
Miami, Florida (Virginia Key)

Investigation Dates:

February 3-7, 2025

MICHAEL
LUKOWICH

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B	MDWASD CDWWTF NPDES Permit Number FL0024805 (62 pages)
C	CDWWTP UIC Wells Capacity-Status (1page)
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**This Contents page shows all the sections contained in this report
and provides a clear indication of the end of this report.**

INVESTIGATION OVERVIEW

PROJECT OBJECTIVE

U.S. Environmental Protection Agency (EPA) Region 4 (Region) requested that EPA's National Enforcement Investigations Center (NEIC) conduct a pretreatment compliance inspection (PCI) of the Miami Dade Water and Sewer Department (MDWASD) Central District Wastewater Treatment Facility (CDWWTF) (facility) located at 3989 Rickenbacker Causeway (Virginia Key) in Miami, Florida. The PCI assessed the MDWASD Control Authority's (CA) approved pretreatment program and compliance with the National Pollutant Discharge Elimination System (NPDES) permit pretreatment requirements. The PCI focused on the operations and ocean discharge of the CDWWTF which includes inspecting the CDWWTF and select industrial users sending industrial wastewater to the facility for indirect discharge. **Table 1** lists the project team members.

Table 1. PROJECT TEAM MEMBERS		
Team Member	Organization	Project Role
Mike Lukowich P.E.	NEIC	Project Manager
REGIONAL AND OTHER CONTACTS		
Brad Ammons	EPA Region 4	Regional Inspector
Trent Rainey	EPA Region 4	Regional Inspector
Jairo Castillo	EPA Region 4	Regional Supervisor

FACILITY CONTACT INFORMATION

Table 2 lists the primary facility contacts for MDWASD.

Table 2. FACILITY CONTACT INFORMATION		
Name, Title	Phone No.	Email Address
Amanda Kinnick, Interim Director	786-552-8515	Amanda.Kinnick@miamidade.gov
Cynthia Doyon, P.E., Permitting and Regulatory Compliance Section Chief	786-552-8369	Cynthia.Doyon@miamidade.gov
Kevin Gallagher, Manager – Delegated Programs Section	305-372-6748	Kevin.Gallagher@miamidade.gov

MDWASD overview slides which include an organizational chart and pertinent capital improvement projects were presented at the opening conference and are found in **Appendix A**.

FACILITY OVERVIEW

MDWASD CDWWTF is comprised of two parallel treatment plants which are authorized to discharge 143 million gallons per day (MGD) to the Atlantic Ocean based on an annual average daily flow (AADF) under NPDES permit No. FL0024805. The permit was issued and effective

May 27, 2021, with minor revisions issued on March 29, 2022, June 19, 2024, and July 10, 2024, and expires on December 31, 2025. A copy of the permit and revisions are in **Appendix B**.

According to EPA's Enforcement and Compliance History Online (ECHO) website, the facility was last inspected for CWA requirements on May 21, 2024, which is listed as a state inspection pretreatment audit. No formal enforcement actions for the CWA were listed in ECHO in the last five years. MDWASD is subject to consent decree (CD) 1: 12-cv-24400-FAM entered April 16, 2014. The CD addresses sanitary sewer overflows and capital improvements at all three of MDWASD's WWTFs. This investigation did not directly cover compliance with the CD.

According to the EPA ECHO website, this facility has the following North American Industry Classification System (NAICS) and/or Standard Industrial Classification (SIC) codes (**Table 3**):

Table 3. APPLICABLE NAICS CODES	
NAICS/SIC Code	Description
4952 (SIC)	Sewerage Systems
221320 (NAICS)	Sewage Treatment Facilities

CWA REGULATORY SUMMARY

The NPDES permit is issued under the provisions of Chapter 403, Florida Statutes (F.S.), and applicable rules of the Florida Administrative Code (F.A.C.). The NPDES Permit authorizes the discharge of treated domestic wastewater effluent from the CDWWTF into the Atlantic Ocean.

The following reuse or disposal options for CDWWTF are currently authorized under individual NPDES permit No. FL0024805 as outlined in **Table 4**. According to the NPDES permit, the reuse or disposal options described below shall be limited and monitored by the permittee as specified in the permit and reported in accordance with permit condition I.D.6.

Table 4. NPDES INDIVIDUAL PERMIT NO. FL0024805 – Disposal/Reuse Options			
Disposal or Reuse	Design Flow (MGD)	Disposal Description	Receiving Water
D-001	143 AADF	An existing 143 MGD annual average daily flow (AADF) temporary discharge to Atlantic Ocean, Class III Marine waters, (WBID# 8091) which is approximately 18,800 feet in length and discharges at a depth of approximately 100 feet. Based on the 2003-07 baseline flow data, the MDWASD CDWWTF baseline flow as documented in the attached administrative order is 114.8 MGD, AADF, of treated effluent through the ocean outfall. After 2025, the Permittee discharge to the ocean shall not exceed 5 percent of the baseline flow volume during high flow periods which may occur at very infrequent periods. A total of 68.9 MGD of additional reuse (over the 2003-2007 reuse baseline) must be provided for no later than 2025, representing the reuse requirement for the Central District	Atlantic Ocean

Table 4. NPDES INDIVIDUAL PERMIT NO. FL0024805 – Disposal/Reuse Options			
Disposal or Reuse	Design Flow (MGD)	Disposal Description	Receiving Water
		plant. Combining the reuse requirement for the North District plant, the total reuse requirement for both plants shall be 117.5 MGD. The point of discharge is located approximately at latitude 25°44' 46" N, longitude 80°8' 49" W.	
U-001	39.8 AADF	An existing 39.8 MGD AADF permitted capacity industrial underground injection well system consisting of 2 Class I underground injection wells permitted under Department permit number(s) 0317749-001-UC, 0317749-002-UC, 0317749-002-AU and 0317749-003-004-UC/1X discharging to Class G-IV ground water. Underground Injection Well System U-001 is located approximately at latitude 25°44' 55.5" N, longitude 80°8' 50.2" W.	Class G-IV ground water
U-00X	future	According to the permit, the Permittee plans to apply for a domestic underground injection disposal option to replace the discharge to the ocean. A copy of the proposed underground injection well system is in Appendix C .	Ground water
R-001	7.88 AADF	An existing 7.88 MGD AADF permitted capacity industrial reuse system sending reclaimed water to plant water. There is no separate ground water or surface water discharge associated with this disposal except for unspecified amounts discharged to the other disposal methods. R-001 is located at latitude 25°44' 46" N, longitude 80°8' 49" W.	In-plant reuse water

A site map and block flow diagram of the treatment units, monitoring locations, outfalls, and disposal options listed above are contained in **Appendix D**.

The permit also has requirements which address biosolids management, reuse and land application, operation and maintenance, compliance schedules, industrial pretreatment program, and other specific and general conditions.

According to the permit, in addition to the MDWASD CDWWTF, the following facilities are also covered by the MDWASD pretreatment program:

- MDWASD North District WWTF (NDWWTF) (permit number FL0032182)
- MDWASD South District WWTF (SDWWTF) (permit number FLA042137)

Summary of Administrative Order MDWASD Central District WWTF

NPDES permit No. FL0024805 for CDWWTF is accompanied by an Administrative Order (AO), pursuant to paragraphs 403.088(2)(e) and (f), F. S.. Compliance with Administrative Order, AO-

20-006 DW 13 SED, is a specific requirement of the permit. A copy of the AO is contained in **Appendix E**.

Background & Purpose

The Florida Department of Environmental Protection (FDEP) has issued AO-20-006-DW-13-SED to the MDWASD regarding the CDWWTF. This order establishes a compliance schedule for wastewater treatment and reuse in accordance with Section 403.088(2)(f), F.S.

AO-20-006-DW-13-SED replaces a previous administrative order (AO-09-008-DW-13-SED) and aims to bring the facility into compliance with the state's ocean outfall elimination and wastewater reuse requirements. These requirements are contained in 2014 F.S. 403.086 (**Appendix F**).

Key Requirements for MDWASD CDWWTF

1. Wastewater Treatment, Reuse and Ocean Outfall Reduction

- The CDWWTF, located at 3969 Rickenbacker Causeway, Miami, FL, currently discharges treated wastewater into federal jurisdictional waters (ocean discharge).
- The facility must implement advanced wastewater treatment by December 31, 2018 (already past) or equivalent as allowed by the statute and outlined in AO-20-006-DW-13-SED.
- MDWASD must achieve at least 60% reuse of its baseline flow by December 31, 2025. The total additional reuse requirement for the CDWWTF is 68.9 MGD and, when combined with the NDWWTF (81 MGD baseline flow), the total required additional reuse for both plants is 117.5 MGD. The 2008 baseline reuse established for CDWWTF is 5.9 MGD and for NDWWTF is 3.0 MGD. The 60% additional reuse requirement is in addition to the established 2008 baseline reuse capacity. A “functioning reuse system” means an environmentally, economically and technically feasible system.
- By December 31, 2025, the facility must eliminate ocean outfalls except as a backup system within a functioning reuse framework. According to F.S. 403.086 (7)(a) & (b) the backup discharge shall be limited to 30% of the permitted reuse capacity on an annual basis. The discharge shall meet Advance Wastewater Treatment (AWT) requirements as outlined in F.S. 403.086(4). A backup discharge is defined as “a surface water discharge that occurs as part of a functioning reuse system which has been permitted under department rules and which provides reclaimed water for irrigation of public access areas, residential properties, or edible food crops, or for industrial cooling or other

acceptable reuse purposes. Backup discharges may occur during periods of reduced demand for reclaimed water in the reuse system.

- F.S. 403.086(9)(d) states “Peak flow backup discharges from other wastewater management systems may not cumulatively exceed 5% of a facility’s baseline flow, measured as a 5-year rolling average, and are subject to applicable secondary waste treatment and water-quality-based effluent limitations specified in department rules. If peak flow backup discharges are in compliance with the effluent limitations, the discharges are deemed to meet the advanced wastewater treatment and management requirements of this subsection.” That backup discharge is limited to 5% of the facility’s baseline flow (114.8 MGD). 5% of the baseline flow is 5.74 MGD.

2. Compliance with Nutrient Loading Limits

- Based on 2003-2007 baseline data, the facility discharged 114.8 MGD (baseline flow). AWT defined in Florida Statute 403.086 requires a maximum concentration of total nitrogen of 3 milligrams per liter (mg/l) and a concentration of total phosphorous of 1 mg/l, annual average daily flow. The daily loadings at the baseline flow (114.8 MGD) and AWT concentrations would allow a total loading as detailed below for CDWWTF. Those loadings would apply between December 31, 2018, and continue through December 31, 2025.
 - Nitrogen: 2,872 pounds per day (lb/day) annual average (AWT Standard)
 - Phosphorus: 957 lb/day annual average (AWT Standard)

Order AO-20-006-DW-13-SED outlines four acceptable methods for reducing nutrient loadings (nitrogen and phosphorus) in compliance with Section 403.086(10)(b), Florida Statutes. These methods ensure that wastewater treatment meets advanced treatment standards while eliminating ocean outfall discharges.

1. After December 31, 2018, provide 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)); or
2. After December 31, 2018, through December 31, 2025, achieve a reduction in outfall baseline TN and TP loadings equivalent to that which would be achieved by AWT; or
3. Achieve 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. Install a fully operational reuse system comprising 100% of the facility's baseline flow on an annual basis by December 31, 2018.

A copy of the Cumulative Outfall Loading Reductions report as of the end of 2023 is contained in **Appendix G**.

3. Compliance Reporting Schedule

- Submit a comprehensive progress report detailing completed actions, remaining tasks, and timelines by December 31, 2024, for:
 - Reuse and disposal evaluations
 - Permit applications
 - Construction milestones and operation schedules
- Annual Reports (March 1 of each year): Provide updates on compliance with nutrient loading reductions and reuse implementation.
- Ongoing monitoring: The facility must track and report on water quality parameters such as arsenic, copper, nickel, zinc, and cyanide.

4. Interim Water Quality Limits (Valid for Three Years)

Based on the application for renewal, some parameters were reported to have exceeded appropriate water quality standards for Arsenic, Copper, Nickel, Zinc and Cyanide. Since the monitoring showed water quality violations, a limit is included in the permit. However, EPA requested local limit evaluation to determine whether the local limits are practical to be reduced in order to comply with water quality standards. Therefore, the AO includes a report only requirement until the local limit evaluation is completed. The facility was given interim limits for three years from the permit issuance date (May 27, 2021) for the parameters outlined below:

Parameter	Monitoring Site	Interim Limit
Enterococci (90th Percentile)	EFF-001	Report Only

Parameter	Monitoring Site	Interim Limit
Total Residual Chlorine (TRC) (for dechlorination)	EFF-001	3.25 mg/l
Copper	EFF-001	Report Only
Nickel	EFF-001	Report Only
Zinc	EFF-001	Report Only
Cyanide	EFF-001	Report Only

Note: Extensions may be granted if MDWASD submits a permit revision.

AO-20-006-DW-13-SED sets a strict timeline for MDWASD's CDWWTF to eliminate ocean outfall discharges (except in the case of a backup to a functioning reuse system or to discharge peak flows), come into compliance with advanced wastewater treatment requirements or equivalent, and expand wastewater reuse. A copy of the Ocean Outfall Legislation (OOL) Program Status Report: Progress through August 2024 is contained in **Appendix H**.

FACILITY OPERATIONS SUMMARY

Central District Wastewater Treatment Facility

The CDWWTF consists of two parallel treatment plants. Combined, the two plants (Plant 1 and Plant 2) can treat a maximum annual average daily flow of 143 MGD. The two plants do not have the same treatment capacity with Plant 1 rated for 60 MGD and receiving on average 40% of incoming wastewater. Plant 2 has a rated capacity for 83 MGD and receives on average 60% of the incoming flow. Incoming flow can be diverted entirely to Plant 1 or Plant 2, up to the treatment capacity of each plant.

The treatment train for Plant 1 begins with fine screening, followed by an aerated grit chamber. There are no equalization tanks or offline storage in the system. Settled grit and sand is deposited in a dumpster and sent to a landfill for disposal. The influent wastewater proceeds from grit removal to activated sludge secondary treatment. The activated sludge system consists of a High Pure Oxygen (HPO) aeration system with three separate trains. The aeration tanks are fully enclosed. The target dissolved oxygen concentration is 7 to 8 mg/l and the mixed liquor suspended solids concentration is maintained in the range of 2000 to 2200 mg/l. Settling is performed in 6 rectangular clarifiers. Each clarifier uses a chain and flight system for

removing settled solids and skimming the surface of the tank. Approximately 13.1 MGD of return activated sludge (RAS) goes back to the aeration tanks. Supernatant from the secondary clarifiers is disinfected with sodium hypochlorite. Final disposition of treated effluent is in-plant reuse, injection into industrial injection wells, or disposal through an ocean outfall.

Waste activated sludge (WAS) is taken off the RAS line and sent to 4 sludge concentrators. The concentrators partially dewater the WAS, with the supernatant returned to secondary treatment. The concentrated solids are stabilized in 8 dual-stage anaerobic digesters. Gas generated by the fermentation process in the digesters is collected in 2 gas spheres or sent to a co-generation plant to produce electricity and steam. Stabilized solids are further dewatered in 8 centrifuges. The dewatered solids are land applied as class B biosolids or landfilled.

The treatment train for Plant 2 is very similar in configuration to Plant 1 but has greater treatment capacity. It has 4 aeration trains and 10 rectangular clarifiers. It uses 4 concentrators for solids thickening and 16 anaerobic digesters. Solids handling is the same as with Plant 1. The final effluent is combined with that of Plant 1, prior to disinfection and ultimate reuse or discharge.

The existing solids handling facilities are undergoing upgrade or replacement. A new dewatering facility has been constructed and is expected to enter service in August 2025. The digesters and sludge concentrators have all received or are receiving upgrades to improve efficiency.

Pretreatment Program

NPDES Permit Number FL0024805 contains requirements for the industrial pretreatment program such as:

- Implement and enforce the approved pretreatment program
- Implement the necessary legal authority to ensure all standards are met
- Provide the required funding, equipment, and personnel to implement the program
- Develop local limits that protect the wastewater facilities
- Complete and submit annual reports for pretreatment activities
- Monitor influent, effluent, and residuals from the wastewater treatment facilities

The pretreatment program covers MDWASD's three WWTFs; NDWWTF, CDWWTF, and SDWWTF.

The County established its Industrial Pretreatment Program in 1983 upon approval by the EPA and was one of the first local programs to be approved in Florida. The creation of this program required the adoption of the pretreatment regulations (i.e., 40 C.F.R. Part 403) in the Miami-Dade County, Florida Code of Ordinances. As a result, the implementation and ongoing administration, including enforcing the provisions of the federal regulations, became the responsibility of MDWASD Division of Environmental Resources Management (DERM) as CA through the permitting, compliance and enforcement provisions in the Miami-Dade County, Florida Code of Ordinances under the oversight of the EPA as the program's Approval Authority which has since been delegated to the FDEP.

Local Limits

According to the "local Limits Evaluation for Miami-Dade County Wastewater Treatment Plants" (**Appendix I**) and as part of ongoing efforts to maintain an up-to-date Industrial Pretreatment Program, MDWASD initiated the re-evaluation of local limits. Each WWTF accepts flow from significant industrial users. The list of all MDWASD industrial users is in **Appendix J**.

Selection of the Pollutants of Concern was based on requirements of the FDEP, presence in the County's current discharge permits, and potential local concerns. Local limits for the treatment plants were calculated using the FDEP's Local Limit Information and Development System (LLIDS) using data that were site-specific to each plant and a representative background, nonindustrial sample location. Since the collection and transmission system is inter-connected, there is the potential for wastewater to be treated by any of the three wastewater treatment plants. Therefore, when calculating the proposed local limits, the most stringent calculation from the three wastewater plants was used.

Several criteria were evaluated in calculating the proposed limits. These criteria included pass-through, inhibition of activated sludge and anaerobic digestion, and sludge quality for composting. The CDWWTF, which operates as two distinct plants, has a combined permitted flow of 143 MGD. The NDWWTF has a permitted flow of 120 MGD while the SDWWTF is permitted for 112.5 MGD. Values for pollutant parameters were established via site-specific monitoring data, with literature and/or assumed values used when such data were not available. Allocations were carried out using the Uniform Allocation Method with a minimum headworks loading safety factor of 10%.

Results of this re-evaluation are summarized in Table 6-19 (**Appendix K**) of the report. For those pollutants with existing limits where the pollutant load was largely from the background, nonindustrial location, the existing local limit is proposed to remain the same. If there is no existing local limit and the pollutant load was largely from the background, nonindustrial location, then a local limit is not proposed.

For the pollutants with existing local limits where the pollutant load was low in the background, nonindustrial location, a local limit was proposed based on the LLIDS calculations, either more or less strict. For the pollutants without an existing local limit where the pollutant load was low in the background, nonindustrial location, then local limits are being proposed based on the LLIDS calculations. The strictest limits are generally associated with Surface Water, Class III Marine, discharge requirements.

MDWASD submitted the proposed local limits to FDEP. FDEP requested additional information on September 13, 2022, which MDWASD responded to. A copy of the response is in **Appendix L**. FDEP approved the pretreatment program modification incorporating the new local limits in a letter dated February 6, 2023 (**Appendix M**).

FDEP Pretreatment Audit

FDEP conducted a pretreatment audit of the MDWASD pretreatment program May 21-23, 2024. As a result of the audit, FDEP sent MDWASD a letter dated July 18, 2024, offering compliance assistance as a means of resolving potential non-compliance matters. MDWASD responded by letter, dated August 17, 2024, to address the potential non-compliance matters. A copy of the letter is in **Appendix N**. Based on the MDWASD response to the compliance assistance offer, FDEP determined MDWASD was in compliance with the pretreatment requirements of Chapter 62-625.401(4)(e), F.A. C. A copy of the letter is in **Appendix O**.

Industrial User File Evaluation

NEIC inspectors conducted an industrial user (IU) file review for two industrial facilities for the following characteristics: issuance of IU control mechanism (permit), CA application of the IU pretreatment standards, CA compliance monitoring, CA enforcement activities, and IU compliance status. NEIC also conducted site visits at the two industrial users during the PCI. The facilities and their operations are summarized in **Table 5**:

Table 5. INDUSTRIAL USER FILES REVIEWED					
Permit Number	Facility Name	Address	Facility Type	Maximum Discharge Amount (gallons per day)	Categorical Industrial User (CIU)
IWP-000108-2024/2025	Cliff Berry Inc.	3033 NW North River Drive Miami, Florida 33142	Centralized Waste Treatment (oil recovery)	210,040	Yes (40 CFR 437)

Table 5. INDUSTRIAL USER FILES REVIEWED					
Permit Number	Facility Name	Address	Facility Type	Maximum Discharge Amount (gallons per day)	Categorical Industrial User (CIU)
IWP-000102-2024/2025	AIRCO Plating Co., Inc.	3650 NW46th Street Miami, Florida 33142	Metal plating & Ground water remediation	80,000 Total 40,000 (Metal plating) 40,000 (remediation)	Yes (40 CFR 413)

Cliff Berry Inc.

The Cliff Berry Inc. (Cliff Berry) Miami Facility serves as Cliff Berry's main processing facility for wastewater and used oil. The facility operates under EPA regulations as a Wastewater Pretreatment Subpart D Multiple Wastestream Subcategory Centralized Waste Treatment (CWT) Facility for metals, oils and organics. The average daily wastewater discharge rate is approximately 100,000 gallons per day (GPD). The maximum daily discharge flow is 210,040 GPD. Daily batches are to be discharged within the limitations in Table 1 of the Industrial Waste Pretreatment Annual Operating Permit (**Appendix P**). The facility is permitted by the Miami-Dade County Permitting, Environment and Regulatory Affairs and discharges to the MDWASD publicly owned treatment works (POTW) through a private onsite lift station.

After wastewater is treated through the plant, the treated water is pumped to cone bottomed tanks 10A & 10B. When a batch of pre-treated wastewater is ready for discharge to the private lift-station on-site, Cliff Berry personnel take a sample of the pre-treated wastewater and run in-house tests on some key parameters. At least monthly, a third-party lab is hired to test the full list of parameters as a quality control measure. Once testing is complete, the pre-treated wastewater is routed from the tank (10A or 10B) to the onsite lift station.

A process flow diagram is in **Appendix Q**.

AIRCO Plating Co., Inc.

AIRCO Plating Co., Inc. (AIRCO) operates an 80,000 GPD pretreatment system for a plating facility regulated under 40 CFR 413.14(c). AIRCO's main plating business focuses on airplane landing gear. The facility is permitted to discharge up to 40,000 GPD of treated process wastewater.

The facility has groundwater contamination from past operations and are currently registered as a superfund site. AIRCO is permitted to discharge up to 40,000 GPD of remediated ground

water. The groundwater is pumped as needed and remediated with air towers for volatile organic compound (VOC) treatment. The water from the remediation system is reused in the plating process as needed.

A copy of the permit is contained in **Appendix R**. A process flow diagram is in **Appendix S**.

FIELD ACTIVITIES SUMMARY

NEIC conducted the field inspection from February 3-7, 2025. EPA Region 4 and NEIC inspectors, along with two FDEP state inspectors, arrived at the facility at approximately 9 a.m. on February 3, 2025, at which time credentials were presented to the facility contacts listed in **Table 2** of this report. NEIC conducted an opening conference that explained the purpose and scope of the inspection.

During the inspection, the NEIC inspector reviewed compliance reports, discharge monitoring reports (DMRs), laboratory data, process flow diagrams, and self-reported noncompliance notifications. Inspectors also interviewed personnel at the facility.

In addition, the NEIC inspector conducted a walk-through inspection of the CDWWTF and observed the treatment systems, along with the monitoring locations. NEIC also reviewed the Local Limits Evaluation for Miami-Dade County Wastewater Treatment Plants and inspected two significant industrial users that indirectly discharge through the CDWWTF. NEIC took photographs of the CDWWTF and associated areas, monitoring locations, and IU processes and treatment systems. A photo log is contained in **Appendix T**.

After completing the inspection, on February 7, 2025, the EPA inspectors and facility representatives had a closing conference and discussed initial observations. The NEIC inspector departed the closing conference at approximately 1 p.m. on February 7, 2025.

INVESTIGATION OBSERVATIONS

The following observations were identified during the CWA pretreatment compliance inspection. NEIC field team members discussed all observations with facility representatives during the closeout meeting unless otherwise noted in the observation description.

These observations are not final compliance determinations. EPA Region 4 will make the final compliance determinations based on its review of this report and other technical, regulatory, and facility information.

Observation: 1

Observation Summary: The facility had exceedances of the effluent limits at outfall D-001 for copper, nickel, and cyanide.

Citation:

PERMIT NUMBER: FL0024805

RECLAIMED WATER AND EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

A. Surface Water Discharges

1. During the period beginning on the effective date and lasting through the expiration date of this permit, the permittee is authorized to discharge effluent from Outfall D-001 to Atlantic Ocean. Such discharge shall be limited and monitored by the permittee as specified below and reported in accordance with Permit Condition I.D.6.

Parameter	Units	Max./Min	Limit	Statistical Basis	Frequency of Analysis	Sample Type	Monitoring Site Number	Notes
Copper	ug/L	Max	3.7	Single Sample	Weekly	Grab	EFF-01	See I.A.11.
Nickel	ug/L	Max	8.3	Single Sample	Weekly	Grab	EFF-01	See I.A.11.
Zinc	ug/L	Max	86.0	Single Sample	Weekly	Grab	EFF-01	See I.A.11.
Cyanide	ug/L	Max	1.0	Single Sample	Weekly	Grab	EFF-01	See I.A.11.

Administrative Order, AO-20-006 DW 13 SED

3. The following table of interim limits shall apply for a period of three years after issuance of the permit.

Parameter	Monitoring Site	Interim Limit
Enterococci (90th Percentile)	EFF-001	Report Only
TRC (for dechlorination)	EFF-001	3.25 mg/l
Copper	EFF-001	Report Only
Nickel	EFF-001	Report Only
Zinc	EFF-001	Report Only
Cyanide	EFF-001	Report Only

Observation: 1**Evidence:****Appendix B** - MDWASD CDWWTF NPDES Permit Number FL0024805**Appendix E** – Administrative Order MDWASD Central District WWTF**Appendix U** – Metals Sampling Results**Description of Observation:**

MDWASD CDWWTF is authorized to discharge 143 MGD to the Atlantic Ocean based on an annual average daily flow under NPDES permit No. FL0024805. The permit was issued and effective May 27, 2021, with minor revisions issued on March 29, 2022, June 19, 2024, and July 10, 2024, and expires on December 31, 2025. A copy of the permit and revisions are in **Appendix B**.

NPDES permit No. FL0024805 for CDWWTF is accompanied by an AO, pursuant to paragraphs 403.088(2)(e) and (f), Florida Statutes. Compliance with Order AO-20-006 DW 13 SED, is a specific requirement of the permit. A copy of the AO is contained in **Appendix E**.

The facility is subject to effluent limitations and monitoring requirements under the individual NPDES permit. “Metals Sampling Results”, submitted by MDWASD, for the July 2021 to December 2024 time frame is attached to this report (**Appendix U**). The report shows the results of sampling for the following metals on a weekly basis: copper, nickel, zinc, cyanide, and arsenic.

Interim limits of “Report only” existed from issuance date of the permit, May 27, 2021, and lasts for three years for copper, nickel, zinc, and cyanide. Copper, nickel, and cyanide had results above the effluent limit during the “Report only” period, as well as exceedances above the limit when the limit took effect three years from permit issuance date. The following table provides the number of weeks the metal exceeded the effluent limit when it was report only and the number of weeks the metal exceeded the effluent limit contained in the permit.

Metal	Weeks exceeded (report only)	Weeks exceeded (effluent limit)
	July 2021 – June 2024	July 2024 – December 2024
Copper	120	10
Nickel	93	16
Zinc	0	0
Cyanide	178	35
Arsenic	0	N/A

Observation: 1

MDWASD was required to evaluate existing pretreatment local limits to control the metals entering the treatment system from industrial users and meet final NPDES permit effluent limits. See observation #2 below for the local limits evaluation results.

The metal exceedances are not found in ECHO. The effluent limits may be still coded as "Report only". The limit in the permit became effective three years after the permit issuance date.

Observation: 2

Observation Summary: The pretreatment local limits evaluation conducted by MDWASD will not control the metal exceedances in Observation #1 and other means will be necessary to comply with effluent limits moving forward, such as a mixing zone or a metals translator.

Citation:**PERMIT NUMBER: FL0024805****VI. Schedules**

27. The following compliance schedule shall be completed according to the following schedule:

ITEM NUMBER	Improvement Action	Completion Date
a.	Submit a schedule to the Department's District Office with scope of the Evaluation of local limits for the Pretreatment Program in response to the monitoring of parameters in the Expanded Effluent Testing Date on Section 3.A.14. The local limit evaluation shall assure all parameters will be in compliance with appropriate water quality standards or justify a defensible water quality standard that there is no reasonable local limit is available to assure appropriate water quality standards are met.	July 1, 2022
b.	Respond to Department's comments	Within 30 days of the date of receipt of any Department comments
c.	Submit the final schedule and scope to the Department	Within 30 days of the date of receipt of the Department final comments
d.	Implement the detailed schedule and scope	As per the detailed schedule as covered in the plan
e.	The Permittee shall submit permit revision application with fee to cover any changes in the permit required by the final local limit evaluation	Within 90 days of receipt of the Department's final comments

Administrative Order, AO-20-006 DW 13 SED**II. Findings of Fact**

9. Based on the application for renewal, some parameters were reported to have exceeded appropriate water quality standards for Arsenic, Copper, Nickel, Zinc and Cyanide. Since the monitoring showed water quality violations, a limit is included in the permit. However, EPA requested local limit evaluation to determine whether the local limits is practical to be

Observation: 2

reduce in order to comply with water quality standards. Therefore, we will include a report only requirement until the local limit evaluation is completed. The discharge is eligible for a relax standard is like a mixing zone.

Evidence:

Appendix B - MDWASD CDWWTF NPDES Permit Number FL0024805

Appendix E – Administrative Order MDWASD Central District WWTF

Appendix I – Local Limits Evaluation for Miami-Dade County WWTP

Description of Observation:

MDWASD CDWWTF is authorized to discharge 143 MGD to the Atlantic Ocean based on an annual average daily flow under NPDES permit No. FL0024805. The permit was issued and effective May 27, 2021, with minor revisions issued on March 29, 2022, June 19, 2024, and July 10, 2024, and expires on December 31, 2025. A copy of the permit and revisions are in **Appendix B**.

NPDES permit No. FL0024805 for CDWWTF is accompanied by an AO, pursuant to paragraphs 403.088(2)(e) and (f), Florida Statutes. Compliance with Order AO-20-006 DW 13 SED, is a specific requirement of the permit. A copy of the AO is contained in **Appendix E**.

According to the “Local Limits Evaluation for Miami-Dade County Wastewater Treatment Plants” (**Appendix I**) and as part of ongoing efforts to maintain an up-to-date Industrial Pretreatment Program, MDWASD initiated the re-evaluation of local limits. MDWASD has three wastewater treatment plants: the CDWWTF, the NDWWTF, and the SDWWTF. Each WWTF accepts flow from significant industrial users.

One of the goals of the local limit reevaluation was to control metals (copper, nickel, zinc, cyanide, arsenic) entering the wastewater treatment plants from industrial sources that were shown to exceed water quality standards and potential effluent limits in the NPDES permit.

MDWASD replied by letter to FDEP’s request for additional information on the local limits’ evaluation with the following:

“Note that the current permit for the CDWWTP does not list Arsenic as a parameter with effluent limitations. The current local limit is 0.325 mg/l. The revised local limit will become 2.014 mg/l based on North District pass through to Class-III Marine Surface Water. All WWTPs showed potential to accept additional loading while still meeting the Class-III Marine Surface Water and Reuse discharge standards. The data collected support this proposed change and indicate that the local limit is practical to comply with water quality standards for Arsenic.

The local limits for Copper (0.5 mg/l) and Cyanide (0.5 mg/l) are maintained. In both cases, the SDWWTP showed potential to accept additional loading while still meeting the Reuse standard; however, the CDWWTP and the NDWWTP showed non-industrial loadings (based on background data)

Observation: 2

in excess, alone, of the allowable headworks loading based on Class-III Marine Surface Water discharge standards. This indicates that the local limits alone are not practical to comply with water quality standards for Copper and Cyanide.

The proposed local limits for Nickel and Zinc are made more stringent, reducing them from 0.39 mg/l to 0.26 mg/l and from 6.80 mg/l to 1.84 mg/l, respectively. The proposed local limits are based on the NDWWTP pass through to Class-III Marine Surface Water discharge standards. The data collected support this proposed change and indicate that the local limits are practical to comply with water quality standards for Nickel and Zinc.

The local limit study determined that the reduction in the pretreatment local limits would not eliminate nor significantly reduce the Central District WWTP effluent concentrations for the Copper, Nickel, and Zinc. Concentrations of these parameters, which are corrosion products of conventional plumbing, were found in the background domestic wastewater (wastewater from residential area).

Miami-Dade County is required to eliminate the non-beneficial surface water discharge in accordance with subsection 403.064(17), Florida Statutes (F.S) by December 31, 2025. The surface water discharges into Class III (Marine) FAC 62-302 surface waters with stringent standards for these parameters as shown in the following table 6

Table 6: summary of As, Cu, Cyanide, Ni, and Zn standards

Parameter	Existing (mg/l)	Proposed (mg/l)	Class III (Marine) Standard (µg/L)	Interim Limits
Arsenic	0.325	2.014	50	N/A
Copper	0.50	0.50	3.7	Report only
Cyanide	0.50	0.50	1	Report only
Nickel	0.39	0.26	8.3	Report only
Zinc	6.80	1.84	86	Report only

An initial reasonable potential evaluation following EPA guidance indicates effluent limits for arsenic and zinc are not needed. A follow up discussion with FDEP Southeast District Wastewater Permitting group will be scheduled for the near future to discuss modifying the permit to delete these metals. Additionally, Miami Dade will file Open Ocean mixing zone permit modification applications addressing each parameter (copper and nickel) for FDEP's consideration. The surface water discharge is eligible for a relaxed standards (20:1 dilution factor for mixing zone) which is based on the initial dilution of the effluent as the plume of effluent and seawater reaches the surface. A larger mixing zone of up to 502,000 square meters is available if the 20:1 dilution is not adequate to resolve the permitting problem. The mixing zone will require knowledge of the current regime, dilution characteristics and water column profiles which has been documented in the SEFLOE project. The SEFLOE project was a joint study with United State Environment Protection Agency, National Oceanographic and Atmospheric Agency (NOAA), Florida Department of Environment study, County Regulatory Agencies (Palm Beach, Broward and Miami Dade), and Southeast Florida utilities

Observation: 2

including Miami Dade Water and Sewer Department. Another data requirement for mixing zone is the ambient concentrations of the receiving of the receiving waters near the outfalls, FAC 62-4.244. This information may be available from the extensive literature such as the record of the EPA vessel the Anderson, numerous NOAA studies such as the dredging study of Government Cut and others and any other available studies. If the available literature is not sufficient, there may be a field effort. The field effort will require analytical techniques at the very low concentrations of seawater must be much lower than the conventional techniques for effluent monitoring and discussions with EPA and FDEP are needed.

For the metals EPA guidance also indicates a chemical translator study is appropriate. This approach recognizes the toxic form of the metal is the dissolved portion and provides the means of determining the dissolved, the suspended solids associated and the total recoverable forms. The NPDES permit is required to use the total recoverable form of the metal which is greater than the dissolved form.

Cyanide has several challenges including analytical interferences with false elevations of high concentrations even with approved methods. Resolving the interferences will require a site-specific study utilizing experts in the field. A mixing zone approach is also available for cyanide. However, the mixing zone will exceed the 20:1 and hence a farfield mixing zone is required. Addressing the analytical interference may reduce the dilution requirement to 20:1."

The pretreatment local limits evaluation conducted by MDWASD will not control the metal exceedances in Observation #1 and other means will be necessary to comply with effluent limits moving forward, such as a mixing zone or a metals translator.

Observation: 3

Observation Summary: The facility had exceedances of the effluent limits at outfall D-001 for BOD, Carbonaceous 5 day, 20C (CBOD) and Total Suspended Solids (TSS).

Citation:

PERMIT NUMBER: FL0024805

RECLAIMED WATER AND EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS**A. Surface Water Discharges**

1. During the period beginning on the effective date and lasting through the expiration date of this permit, the permittee is authorized to discharge effluent from Outfall D-001 to Atlantic Ocean. Such discharge shall be limited and monitored by the permittee as specified below and reported in accordance with Permit Condition I.D.6.

Parameter	Units	Max. /Min	Limit	Statistical Basis	Frequency of Analysis	Sample Type*	Monitoring Site Number	Notes
BOD, Carbonaceous 5 day, 20C	mg/l	Max Max Max Max	25.0 25.0 40.0 60.0	Annual Average Monthly Average Weekly Average Single Sample	Daily; 24 hours	24-hr FPC	EFF-01	See I.A.6
Solids, Total Suspended	mg/l	Max Max Max Max	30.0 30.0 45.0 60.0	Annual Average Monthly Average Weekly Average Single Sample	Daily; 24 hours	24-hr FPC	EFF-01	See I.A.6

*FPC – Flow Proportion Composite

Evidence:

Appendix B - MDWASD CDWWTF NPDES Permit Number FL0024805

Appendix V – CBOD and TSS Effluent Exceedances June 2021 through December 2024

Description of Observation:

MDWASD CDWWTF is authorized to discharge 143 MGD to the Atlantic Ocean based on an annual average daily flow under NPDES permit No. FL0024805. The permit was issued and effective May 27, 2021, with minor revisions issued on March 29, 2022, June 19, 2024, and July 10, 2024, and expires on December 31, 2025. A copy of the permit and revisions are in **Appendix B**.

The facility is subject to effluent limitations and monitoring requirements under the individual NPDES permit.

The CBOD and TSS effluent exceedances report obtained from EPA ECHO for the June 2021 to December 2024 time frame is attached to this report (**Appendix V**). The facility had fourteen exceedances for CBOD and fifty-two exceedances for TSS above the effluent limits.

Observation: 4

Observation Summary: The facility had exceedances of the effluent limits at outfall D-001 (monitoring site EFF-01) for Chlorine, Total Residual (TRC) (For Disinfection) and Chlorine, Total Residual (For Dechlorination).

Citation:

PERMIT NUMBER: FL0024805

RECLAIMED WATER AND EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

A. Surface Water Discharges

1. During the period beginning on the effective date and lasting through the expiration date of this permit, the permittee is authorized to discharge effluent from Outfall D-001 to Atlantic Ocean. Such discharge shall be limited and monitored by the permittee as specified below and reported in accordance with Permit Condition I.D.6.

Parameter	Units	Max. /Min	Limit	Statistical Basis	Frequency of Analysis	Sample Type	Monitoring Site Number	Notes
Chlorine, Total Residual (For Disinfection)	mg/l	Min	0.5	Single Sample	Continuous	Meter	EFF-01	See I.A.3. and I.A.9.
Chlorine, Total Residual (For Dechlorination)	mg/l	Max	0.01	Single Sample	Daily; 24 hours	Grab	EFF-01	

Administrative Order, AO-20-006 DW 13 SED

3. The following table of interim limits shall apply for a period of three years after issuance of the permit.

Parameter	Monitoring Site	Interim Limit
Enterococci (90th Percentile)	EFF-001	Report Only
TRC (for dechlorination)	EFF-001	3.25 mg/l
Copper	EFF-001	Report Only
Nickel	EFF-001	Report Only
Zinc	EFF-001	Report Only
Cyanide	EFF-001	Report Only

Evidence:

Appendix B - MDWASD CDWWTF NPDES Permit Number FL0024805

Appendix E – Administrative Order MDWASD Central District WWTF

Appendix W – Chlorine Residual Effluent Exceedances June 2021 through December 2024

Description of Observation:

MDWASD CDWWTF is authorized to discharge 143 MGD to the Atlantic Ocean based on an annual average daily flow under NNPDES permit No. FL0024805. The permit was issued and effective May 27, 2021, with minor revisions issued on March 29, 2022, June 19, 2024, and

Observation: 4

July 10, 2024, and expires on December 31, 2025. A copy of the permit and revisions are in **Appendix B**.

NPDES permit No. FL0024805 for CDWWTF is accompanied by an AO, pursuant to paragraphs 403.088(2)(e) and (f), Florida Statutes. Compliance with Order AO-20-006 DW 13 SED, is a specific requirement of the permit. A copy of the AO is contained in **Appendix E**.

The facility is subject to effluent limitations and monitoring requirements under the individual NPDES permit.

TRC effluent exceedances report obtained from ECHO for the June 2021 to December 2024 time frame is attached to this report (**Appendix W**).

The facility had TRC effluent limitations at EFF-01 for both TRC (for disinfection) (0.5 mg/l) and TRC (for dechlorination) (0.01 mg/l). The facility also had interim limits for three years from the permit issuance date for TRC (for dechlorination) (3.25 mg/l).

According to the ECHO report, the facility was shown to exceed the maximum effluent limit for TRC dechlorination (0.01 mg/l), even though there was an interim limit of 3.25 mg/l in place. The facility had 50 exceedances for TRC.

After three years the interim limit no longer applies and reverted to the maximum limit of 0.01 mg/l. This resulted in two limits for TRC that apply at EFF-01:

TRC (for disinfection) – 0.5 mg/l (minimum)

TRC (for dechlorination) – 0.01 mg/l (maximum).

It is impossible to meet both limits at the same time.

Observation: 5

Observation Summary: MDWASD CDWWTF is not accounting for the sludge loading received from the NDWWTF when calculating CBOD and TSS percent removal.

Citation

PERMIT NUMBER: FL0024805

RECLAIMED WATER AND EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS**A. Surface Water Discharges**

1. During the period beginning on the effective date and lasting through the expiration date of this permit, the permittee is authorized to discharge effluent from Outfall D-001 to Atlantic Ocean. Such discharge shall be limited and monitored by the permittee as specified below and reported in accordance with Permit Condition I.D.6.

Parameter	Units	Max. /Min	Limit	Statistical Basis	Frequency of Analysis	Sample Type	Monitoring Site Number	Notes
CBOD, % Removal, 5-day	percent	Min	85	Monthly Average	Monthly	Calculated	CAL-01	See I.A.6
Solids, Total Suspended, % Removal	percent	Min	85	Monthly Average	Monthly	Calculated	CAL-02	See I.A.6

2. Effluent samples shall be taken at the monitoring site locations listed in Permit Condition I.A.1. and as described below:

Monitoring Site Number	Description of Monitoring Site
FLW-01	flow to the ocean flow meter after the Effluent Pump Station
EFF-01	EFFLUENT TO OCEAN OUTFALL at the effluent pump station
CAL-01	calculation, the percent removal of CBOD5: $\{[(CBOD5 \text{ at INF-01}) - (CBOD\% \text{ at EFF-01})] \text{ divided by } (CBOD5 \text{ at INF-01})\} \times 100$
CAL-02	Adjusted lb/day CBOD5 by taking the influent CBOD5 - CBOD5 from North District Sludge in Influent
CAL-03	Adjusted lb/day TSS by taking the influent TSS - TSS from North District Sludge in Influent
CAL-04	Calculate the mg/l CBOD5 by taking the lb/day of CBOD5 CAL-02 for the monthly Average Daily Flow FLW-11 - FLW - 10
CAL-05	Calculate the mg/l TSS by taking the lb/day of TSS CAL-03 for the monthly Average Daily Flow FLW-11 - FLW - 10

6. In accordance with subsections 62-600.420(1) and (2), F.A.C., the monthly average effluent CBOD5 and TSS concentrations shall not exceed 15% of their respective influent values (i.e., 85% removal). [62-600.420(1) and (2)]

Observation: 5**Evidence:**

Appendix B - MDWASD CDWWTF NPDES Permit Number FL0024805

Appendix X - Percent Removal Calculation September 2024

Interviews**Description of Observation:**

MDWASD CDWWTF is authorized to discharge 143 MGD to the Atlantic Ocean based on an annual average daily flow under NPDES permit No. FL0024805. The permit was issued and effective May 27, 2021, with minor revisions issued on March 29, 2022, June 19, 2024, and July 10, 2024, and expires on December 31, 2025. A copy of the permit and revisions are in **Appendix B**.

The facility is subject to effluent limitations and monitoring requirements under the individual NPDES permit.

The facility is subject to effluent limits for CBOD % Removal (85% minimum) and TSS % Removal (85% minimum). The facility accepts sludge (residuals, biosolids) directly from the NDWWTF into the CDWWTF at the headworks. It appears the permit requires the facility to subtract out the CBOD and TSS loadings from that waste stream. The facility is not subtracting out the loading from the sludge from the NDWWTF. A copy of the percent removal calculation for both CBOD and TSS for September 2024 is in **Appendix X**.

The table in the permit, as shown above, does not provide clear instructions on how to comply with the calculation requirement. In addition, CAL-03, CAL-04, and CAL-05 reference other parameters that are monitored at EFF-01.

Observation: 6

Observation Summary: MDWASD is not correctly calculating the nutrient load reduction required by the Florida Statute and Administrative Order.

Citation:**Administrative Order, AO-20-006 DW 13 SED****II. FINDINGS OF FACT**

5. Based on the 2003-07 baseline flow data, the COUNTY Central District wastewater treatment facility discharged 114.8 million gallons per day (mgd), annual average daily flow, of treated effluent through the ocean outfall. Based on this average flow, the mass loadings of nutrients equivalent to advanced wastewater treatment were calculated to be 2872 lb/day of Nitrogen and 957 lb/day of Phosphorous. The reuse requirement was calculated to be 68.9 mgd of additional reuse to be achieved by the end of 2025. Also, based on this average flow, the baseline loading for nutrients was calculated to be 17,354 lb/day of Nitrogen and 1,651 lb/day of Phosphorus.
6. As provided in the new legislation, Section 403.086(9)(b), F.S. defines the term “advanced wastewater treatment and management requirements” as either of the following four options: the advanced waste treatment requirements set forth in subsection Section 403.086 (4), F.S.; a reduction in outfall baseline loadings of total nitrogen and total phosphorus which is equivalent to that which would be achieved by the advanced waste treatment requirements; a reduction in cumulative outfall loadings of total nitrogen and total phosphorus occurring between December 31, 2008, and December 31, 2025, which is equivalent to that which would be achieved if the advanced waste treatment requirements were fully implemented beginning December 31, 2018, and continued through December 31, 2025; or install no later than December 31, 2018, a fully operational reuse system comprising 100 percent of the facility’s annual average daily flow for reuse activities authorized by the Department.

III. ORDER

Based on the foregoing findings of fact,
IT IS ORDERED,

2. By March 1, 2022, and by March 1 every year thereafter, the COUNTY shall submit to the Department a report with information on the status of compliance regarding the option of reducing the cumulative outfall loadings of total nitrogen and total phosphorus occurring between December 31, 2008, and December 31, 2025, which is equivalent to that which would be achieved if the advanced waste treatment requirements were fully implemented beginning December 31, 2018, and continued through December 31, 2025. The report should contain information up to the previous December 31.

Evidence:

Appendix B - MDWASD CDWWTF NPDES Permit Number FL0024805

Appendix E – Administrative Order MDWASD Central District WWTF

Appendix G – 2023 MDWASD Cumulative Outfall Loading Reductions Report

Description of Observation:

MDWASD CDWWTF is authorized to discharge 143 MGD to the Atlantic Ocean based on an annual average daily flow under NPDES permit No. FL0024805. The permit was issued and effective May 27, 2021, with minor revisions issued on March 29, 2022, June 19, 2024, and July 10, 2024, and expires on December 31, 2025. A copy of the permit and revisions are in **Appendix B**.

Observation: 6

NPDES permit No. FL0024805 for CDWWTF is accompanied by an AO, pursuant to paragraphs 403.088(2)(e) and (f), Florida Statutes. Compliance with Administrative Order, AO-20-006 DW 13 SED, is a specific requirement of the permit. A copy of the AO is contained in **Appendix E**.

According to the 2023 MDWASD Cumulative Outfall Loading Reductions Report
(Appendix G):

“The Miami-Dade Water and Sewer Department (WASD) will meet the advanced wastewater treatment (AWT) and management requirements of the Ocean Outfall Legislation (OOL), Section 403.086(9) Florida Statutes, by reducing cumulative nutrient loadings discharged to their outfalls between December 31, 2008 and December 31, 2025. The nutrient loadings reduction will be equivalent to what would be achieved if AWT were implemented from December 31, 2018 through December 31, 2025. The target reductions during this period are 59,900,000 pounds total nitrogen (TN) and 2,900,000 pounds total phosphorus (TP).

The North District Wastewater Treatment Plant (NDWWTP) and Central District Wastewater Treatment Plant (CDWWTP) have Administrative Orders (AOs) attached to their current operating permits to implement the OOL. Section III, Paragraph 3 in both AOs requires submittal of an annual cumulative load reduction report by March 31 of each year beginning in 2013. Because the OOL applies to WASD outfalls inclusively, the target nutrient reductions combine the results for the NDWWTP and CDWWTP. This report shows the estimated reductions in the outfall loadings of TN and TP occurring between December 31, 2008 through December 31, 2023.

Currently, load reductions from the outfalls are accomplished primarily by using the existing injection wells at the NDWWTP for the disposal of treated effluent, with some additional load reduction accomplished during the testing of the CDWWTP Industrial Injection Well Facility (IIWF). This will continue and the OOL Compliance Plan documents additional injection wells that will be added before the end of 2025 to eliminate outfall discharge during normal operating conditions.”

And

“Flow in million gallons per day (mgd) are from the Monthly Operating Reports data for the North District injection wells and the nutrient concentrations in milligrams per liter (mg/l) are from the NDWWTP UIC MORs through 2013 and from the values reported in the NDWWTP NPDES DWF monthly DMR data for the surface water effluent thereafter are used to calculate nutrient loads diverted from the ocean outfall discharge to the injection wells.

Flow in million gallons per day (mgd) and the nutrient concentrations in milligrams per liter (mg/l) from the CDWWTP NPDES DMRs was used to calculate nutrient loads that diverted from the ocean outfall discharge to the CDWWTP industrial injection wells, and the total pounds of nutrients reported in the CDWWTP NPDES monthly DMRs for the industrial injection wells.

Observation: 6

Aspects of the basis of estimate follow:

- *Load to wells (lb/month) is computed by: Flow (mgd) x Concentration (mg/l) x 8.34 x Number of Days per Month. Monthly values are rounded to the nearest pound. Annual Loads to Wells is the summed monthly values.*
- *Annual diverted load from outfalls (tons/year) is computed by: (Annual Load to Wells in pounds minus the Baseline Adjustment in pounds per year) divided by 2,000 tons/pound rounded to the nearest tenth of a ton.*
- *The Cumulative total is the sum of the baseline adjusted annual diverted loads in pounds each year divided by 2,000 tons/pound rounded to the nearest tenth of a ton."*

MDWASD is calculating the nutrient load reduction for each year based on the flow and nutrients that are diverted to the underground injection control wells, not the actual reduction in loading from baseline flow discharged through the outfalls each year.

MDWASD was given a baseline flow and baseline nutrient loading based on the actual 2003-2007 calendar years data. MDWASD was also given an AWT loading based on the baseline flow and AWT concentration requirements in the F.S. The difference between those two calculated annual nutrient loadings is the reduction (or addition) required to meet the OOL. MDWASD is not calculating the cumulative annual loading reduction in the outfall discharge, compared to the baseline loading. MDWASD is calculating effluent flow and nutrients (loading) that is diverted to the injection wells.

Observation: 7

Observation Summary: The CDWWTF is experiencing foaming problems throughout the treatment train that may contribute to the effluent limit exceedances for CBOD and TSS.

Citation:

PERMIT NUMBER: FL0024805

VIII. General Conditions

7. The permittee shall at all times properly operate and maintain the facility and systems of treatment and control, and related appurtenances, that are installed and used by the permittee to achieve compliance with the conditions of this permit. This provision includes the operation of backup or auxiliary facilities or similar systems when necessary to maintain or achieve compliance with the conditions of the permit. [62-620.610(7)]

Evidence:

Appendix T - Photolog Miami Dade PCI VP1631

Appendix I - Local Limits Evaluation for Miami-Dade County WWTPs

Interviews**Description of Observation:**

The CDWWTF has a history of permit limit exceedances for CBOD and TSS (observation #3). Facility operators stated that the plant also has a history of excessive foaming and nocardia/filamentous bacteria in the activated sludge. As part of its process improvement program, CDWWTF is emphasizing training in microbial examination of the activated sludge to identify aberrations in the microbial population that could contribute to permit limit exceedances. During the site inspection of the facility, EPA inspectors noted large amounts of foam in the wastewater from the HPO aeration basins and the secondary clarifiers

(Appendix T: Photograph P2040001.JPG, Photograph P2040002.JPG, Photograph P2040004.JPG, Photograph P2040005.JPG, Photograph P2040006.JPG).

In June 2022, Tetrattech prepared a Local Limits Evaluation for Miami Dade's Wastewater Treatment Facilities (**Appendix I**). The evaluation calculated the Total Allowable Headworks Loading (TAHL) for a variety of parameters and compared it to the existing non-industrial concentrations in the wastewater sampled in the sanitary sewer. For oil and grease, the TAHL for the CDWWTF was calculated at 4473.47 pounds per day (lb/d). Samples collected from the collection system indicated that the average loading received by the CDWWTF was 7479.6 lb/d, exceeding the allowable loading by 67%.

Observation: 7

HPO systems that treat wastewater with high concentrations of oil and grease are especially susceptible to foaming and filamentous bacteria outbreaks. Oil and grease can behave as surfactants, causing the formation of air bubbles leading to foaming. The presence of high concentrations of oil and grease can also contribute to growth of filamentous bacteria. Filamentous bacteria can inhibit settling in the clarifier as well as reduced treatment efficiency. Both conditions may contribute to effluent limit exceedances, especially CBOD and TSS.

Observation: 8

Observation Summary: The CDWWTP digesters are only operating at 62.5% of the design capacity.

Citation:

PERMIT NUMBER: FL0024805

VIII. General Conditions

7. The permittee shall at all times properly operate and maintain the facility and systems of treatment and control, and related appurtenances, that are installed and used by the permittee to achieve compliance with the conditions of this permit. This provision includes the operation of backup or auxiliary facilities or similar systems when necessary to maintain or achieve compliance with the conditions of the permit. [62-620.610(7)]

Evidence:

Appendix Y – CDWWTF Digester Status Report
Interviews

Description of Observation:

The CDWWTF has 24 anaerobic digesters. There are 8 serving Plant 1 and 16 serving Plant 2. As part of a plant upgrade all had floating roofs installed. These are intended to be supported by the gases generated during the stabilization of waste solids in the digesters. Either due to design or construction failures, the digesters are failing to produce or retain enough gas from the fermentation process to support the roofs. In one digester, the roof had fallen into the digester. At the time of the inspection, and according to the CDWWTF Digester Status Report (**Appendix Y**), the digesters were reportedly operating at 62.5% of their total capacity (15 of 24 digesters were in service). This limits the ability of the CDWWTF to adequately stabilize waste solids generated from the activated sludge system. This ability is further constrained as the waste sludge coming from the NDWWTF is introduced at the headworks to the CDWWTF. When the new dewatering facility comes online in August 2025, the waste solids from the NDWWTF will go directly to the dewatering building. MDWASD representatives reported they were seeking an engineering firm to assess the current state of the digesters and design a repair or replacement for the digester roofs.

Observation: 9

Observation Summary: The NPDES permit requires that, after 2025, the Permittee's discharge to the ocean shall not exceed 5% of the baseline flow volume during high flow periods which may occur at very infrequent periods. At the time of inspection, CDWWTF does not have alternative disposal and/or reuse options available in the NPDES permit to comply.

Citation:

PERMIT NUMBER: FL0024805

RECLAIMED WATER AND EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

A. Surface Water Discharges

12. After 2025, the Permittee discharge to the ocean shall not exceed 5 percent of the baseline flow volume during high flow periods which may occur at very infrequent periods. The pumps maybe exercise once during the month running period of two hours per pair of pumps. If during the previous 30 days, the pump station was operational due to high flows are other reasons besides exercising the pumps, pump exercise in not allowed for those pumps that operated during the last month (not including exercising the pumps). The flows during exercising the pumps shall not be calculated towards the ocean discharge limit of 5 percent of base line flow volume. It is expected that testing will be required on a specific day of the month proposed by the Permittee. [62-4.070 (1) and (3)]

2014 Florida Statutes

403.086 Sewage disposal facilities; advanced and secondary waste treatment.

(9)(d) The discharge of domestic wastewater through ocean outfalls is prohibited after December 31, 2025, except as a backup discharge that is part of a functioning reuse system or other wastewater management system authorized by the department. Except as otherwise provided in this subsection, a backup discharge may occur only during periods of reduced demand for reclaimed water in the reuse system, such as periods of wet weather, or as the result of peak flows from other wastewater management systems, and must comply with the advanced wastewater treatment and management requirements of paragraph (b). Peak flow backup discharges from other wastewater management systems may not cumulatively exceed 5 percent of a facility's baseline flow, measured as a 5-year rolling average, and are subject to applicable secondary waste treatment and water-quality-based effluent limitations specified in department rules. If peak flow backup discharges are in compliance with the effluent limitations, the discharges are deemed to meet the advanced wastewater treatment and management requirements of this subsection.

Evidence:

Appendix B - MDWASD CDWWTF NPDES Permit Number FL0024805

Appendix C – CDWWTP UIC Wells Capacity-Status

Appendix H – OOL Program Status Report through August 2024

Interviews

Observation: 9**Description of Observation:**

MDWASD CDWWTF is authorized to discharge 143 MGD to the Atlantic Ocean based on an annual average daily flow under NPDES permit No. FL0024805. The permit was issued and effective May 27, 2021, with minor revisions issued on March 29, 2022, June 19, 2024, and July 10, 2024, and expires on December 31, 2025. A copy of the permit and revisions are in **Appendix B**.

At the time of inspection and as outlined in **Table 4. NPDES INDIVIDUAL PERMIT NO.**

FL0024805 – Disposal/Reuse Options of this report, CDWWTF currently has the following disposal options in the NPDES permit:

D-001 - discharge to the Atlantic Ocean – 143 MGD annual average daily flow

U-001 – two industrial underground injection wells – 39.8 MGD (peak hourly rate)

R-001 – industrial reuse sending reclaimed water to plant water – 7.88 MGD

The NPDES permit and F.S eliminate the discharge through the ocean outfall D-001 after December 31, 2025, except as a backup discharge for peak flows. The backup discharge is limited to 5% of the baseline flow. The baseline flow for CDWWTF is 114.8 MGD. The backup discharge is then limited to 5.74 MGD AADF (as a 5-year rolling average).

U-001 is two existing industrial underground injection (deep well) wells. These wells are rated as 19.9 MGD AADF (peak hourly) disposal capacity each.

According to the NPDES permit;

“Domestic underground injection (future): The permittee plans to apply for another disposal option to replace discharge to ocean.”

A proposed domestic deep well injection system for CDWWTF is contained in **Appendix C**. CDWWTF plans to add nine Class I municipal wells for disposal. Each well is rated at 18.65 MGD AADF (peak hourly). This would provide an additional 167.85 MGD of disposal. At the time of inspection, these wells have not been included in the permit.

CDWWTF operators stated the plant can receive and operate at over 300 MGD (peak hourly) during the wet season due to inflow and infiltration in the collection system. CDWWTF has no effluent storage capabilities. Effluent that exceeds peak hourly flow limitations of the injection wells will need to be discharged through D-001, the ocean outfall discharge.

Observation: 9

R-001 is “rated” as 7.88 MGD. This water is reclaimed water that is returned to the CDWWTF for in plant use. Since this is an internal recycle there really is no disposal capacity associated with the reclaimed water.

Per the OOL, MDWASD is required to provide 60% of baseline flow future reclaimed water reuse capacity. The 60% reuse capacity for CDWWTF is 68.9 MGD. The 60% reuse capacity for NDWWTF is 48.6 MGD. The total additional 60% reuse capacity for the MDWASD WWTFs is 117.5 MGD. **Appendix H**, OOL Program Status Report through August 2024, Section 4.3 discusses the reuse possibilities.

According to the report,

“WASD entered a partnership with FPL to reuse up to 15 mgd of treated effluent from the SDWWTP at FPL’s Turkey Point Energy Center for cooling of the Unit 5 combined cycle plant. Effluent from the SDWWTP will be conveyed through an 8-mile pipeline to the Turkey Point Energy Center, where a new water resource recovery facility to further treat the reclaimed water for the cooling towers has been built. This new facility is called the Clean Water Recovery Center (CWRC). The agreement between WASD and FPL included the construction and operation of the pipeline and plant by FPL, while the County provides the required water and pays FPL a yearly fee to help support the O&M cost of the facility. The CWRC process is shown in Figure 4-3. The CWRC will be substantially completed and operational by the end of 2025.”

And

“The industrial reuse strategy hinges on the definition of water reuse per the Florida Administrative Code, where it states that water reuse is the deliberate use of water for a beneficial purpose. In the case of WASD, its WWTPs have substantial cooling loads for many of the processes at the plants. These cooling demands can be addressed by using the lower temperature effluent from the WWTPs to implement the industrial reuse strategy, WASD WWTPs will be adding Effluent Energy Recovery

Systems (EERS) at each site. Figure 4-4 shows the general concept utilized for the EERS. absorb heat and provide the required cooling through the use of heat exchangers.

The EERS for each plant will function by using the heat absorbed from within buildings or processes through water source heat pumps. This heat will be transferred to a cooling loop, which will convey the heated water back to the EERS building where heat exchangers reside. Effluent reuse will be pumped through the other side of the heat exchanger allowing the transfer of heat from the cooling loop onto the treated effluent from each plant, which is then disposed of through deep injection wells. Table 4-6 lists the projected reuse flow capacity at each WWTP. CDWWTP may be included later. Actual use will vary by relative temperatures (heat loads) and humidity, but the OOL regulation is based on the capacity of the system. WASD will maximize its use for the inherent benefits.”

“The EERS system for each WWTP is described below. While this strategy will be implemented at CDWWTP in the future, the schedule for implementation is not set at this time so reuse credit for this plant is not included at this time.”

The FPL’s reuse of 15 MGD will provide additional disposal capacity by sending reclaimed cooling water from SDWWTF to FPL for further treatment, reuse in the cooling system, and finally onsite injection wells for disposal.

Observation: 9

The EERS system proposed at NDWWTF and SDWWTF, and maybe in the future for CDWWTF, will provide no additional disposal capacity for CDWWTF as internal recycled cooling water (treated effluent) will be sent for disposal to existing/proposed onsite injection wells.

The NPDES permit requires that after 2025, the Permittee's discharge to the ocean shall not exceed 5% of the baseline flow volume during high flow periods which may occur at very infrequent periods. At the time of inspection, CDWWTF does not have alternative disposal and/or reuse options available in the NPDES permit to comply.