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VIA ELECTRONIC CORRESPONDENCE

March 1, 2022

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**RE: Consent Decree (Case: No. 1:12-cv-24400-FAM),
Reference DOJ Case No. 90-5-1-1-4022/1,
Section IX – Reporting Requirements, Paragraph 34 – Annual Reports – 2021
Annual Report**

Dear Sir/Madam:

In accordance with the provisions of Paragraph 34 of the above referenced Consent Decree, on behalf of Miami-Dade County, the Water and Sewer Department (WASD) submits to both the United States Environmental Protection Agency (EPA) and the State of Florida Department of Environmental Protection (FDEP) the 2021 Annual Report. The 2021 Annual Report covers the period of time from January 1, 2021 through December 31, 2021.

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering such information, the information submitted is, to the best of my knowledge and belief, true, accurate and complete. I am aware that there are significant penalties

Should you have any questions regarding this matter, please call me at (786) 552-8894.

Sincerely,



Marisela J. Aranguiz, P.E.,
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Attachment: 2021 Annual Report

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2021 Annual Report

(Eighth Annual Report)

January 1, 2021 through December 31, 2021

Prepared for
United States Environmental Protection Agency and
Florida Department of Environmental Protection

Consent Decree

Case: No. 1:12-cv-24400-FAM

Prepared by
Miami-Dade County, Miami-Dade Water and Sewer Department and
the Consent Decree Program Management Construction Management
Team



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Acronyms and Abbreviations

AC	Asbestos Cement
BCC	Board of County Commissioners
BOD	Biological Oxygen Demand
BODR	Basis of Design Report
CMOM	Capacity, Management, Operations, and Maintenance
CD	Consent Decree
CDWWTP	Central District Wastewater Treatment Plant
CIP	Capital Improvement Project
CIPP	Cured in Place Pipe
CMOM	Capacity, Management, Operations and Maintenance
DIW	Deep Injection Well
EFT	Electronic Funds Transfer
EPA	United States Environmental Protection Agency
FOG	Fats, Oils, and Grease
FDEP	Florida Department of Environmental Protection
FSE	Food Service Establishment
GDO	Grease Discharge Operations
GPD	Gallons per Day
GPM	Gallons per Minute
GIS	Geographic Information Systems
GSSOMP	Gravity Sewer System Operations and maintenance System

Acronyms and Abbreviations (continued)

I/I	Inflow/Infiltration
IMS	Information Management System
LF	Linear Foot
MGD	Million Gallons per Day
MS	Metropolitan Services
NDWWTP	North District Wastewater Treatment Plant
NPDES	National Pollutant Discharge Elimination System
N/A	Not Applicable
OOL	Ocean Outfall Legislation
PCCP	Pre-stressed Concrete Cylinder Pipe
PDR	Public Document Repository
PS	Pump Station
PSOPMP	Pump Station Operations and Preventative Maintenance Program
RER-DERM	Department of Regulatory and Economic Resources-Division of Environmental Resources Management
RTC	Real Time Control
RTU	Remote Telemetry Unit
R & R	Repair and Replacement
SDWWTP	South District Wastewater Treatment Plant
SSO	Sanitary Sewer Overflow
SEP	Supplemental Environmental Project
SORP	Sewer Overflow Response Plan

Acronyms and Abbreviations (continued)

SCADA	Supervisory Control and Data Acquisition
SSAMP	Sewer System Asset Management Program
TSS	Total Suspended Solids
VFD	Variable Frequency Drive
VSCO	Volume Sewer Customer Ordinance
WASD	Water and Sewer Department
WCTL	Wastewater Collection and Transmission Line
WCTS	Wastewater Collection and Transmission System
WWTP	Wastewater Treatment Plant

1.0 Introduction

Miami-Dade County ("County") submits this Annual Report ("Report") to the Environmental Protection Agency ("EPA") and the State of Florida Department of Environmental Protection ("FDEP") for review and comment in accordance with the requirements of Paragraph 34 of the Consent Decree ("CD"). This Report includes a narrative of progress made, including key accomplishments and significant activities, under the CMOM Programs implemented or modified pursuant to the CD for the most recent Calendar Year (January 1, 2021 through December 31, 2021), and provides a trends analysis of the number, volume, average duration, and cause of Miami-Dade's SSOs for the previous two (2) Calendar Years.

On May 21, 2013, the County approved a Consent Decree (CD) with the United States of America, the State of Florida Department of Environmental Protection, and the State of Florida, in the case styled *United States of America et. al. v. Miami-Dade County, Florida*, No. 1:12-cv-24400-FAM. On June 6, 2013, the CD was lodged with the United States District Court for the Southern District of Florida ("Court"). The Effective Date of the CD is December 6, 2013 (six months after the date of lodging). On April 9, 2014, the Court approved the CD with the United States of America, the State of Florida Department of Environmental Protection, and the State of Florida.

2.0 Requirements

Beginning two (2) months after the first full Calendar Year following the Effective Date of the CD, and two (2) months after each subsequent Calendar Year until termination of the CD, Miami-Dade shall submit to EPA/FDEP for review and comment an Annual Report. Each Annual Report shall cover the most recent applicable Calendar Year and shall include, at a minimum:

1. "A narrative summary of progress made, including key accomplishments and significant activities, under the CMOM Programs implemented or modified pursuant to this Consent Decree for the most recent Calendar Year."
2. "A trends analysis of the number, volume, average duration, and cause of Miami-Dade's SSOs for the previous two (2) Calendar Years."

3.0 Implementation Progress (January 1, 2021 - December 31, 2021)

3.1 CD Reporting

The County submitted four (4) quarterly reports covering the most recent Calendar Year (January 1, 2021 through December 31, 2021). Quarterly reports include the date, time, location, source, estimated duration, estimated volume, receiving water (if any), and cause of all SSOs occurring during the reporting period.

Two (2) semi-annual reports were submitted covering the most recent Calendar Year (January 1, 2021 through December 31, 2021). Semi-annual reports contain a Gantt chart with description of projects and activities completed and milestones achieved during the reporting period, and those anticipated in the successive reporting period. The semi-annual reports include a description of the status of compliance or non-compliance with the requirements of this CD and, if applicable, the reasons for non-compliance. Also, the semi-annual reports contain the amount, recipient and the date of transfer or use during the reporting period of funds obtained by the County from the collection of sewer rates for any purpose not related to the management, operation or maintenance of the Sewer System or to any capital improvement needs of the Sewer System that is required to be tracked and reported pursuant to the Financial Analysis Program set forth in Subparagraph 19(j)(v) of the CD.

On March 18, 2014, the County approved a resolution of commitment not to transfer funds from the collection of sewer rates for purposes not related to the management, operation, or maintenance of the Sewer System or its capital improvement needs. During this reporting period, there were no transfers of funds from the Miami-Dade Water and Sewer Department ("WASD") that are required to be tracked and reported by Paragraph 19(j)(v) of the CD and the Policy Resolutions.

3.2 Continuation of CMOM Programs of the First Partial Consent Decree and Second and Final Consent Decree Paragraph 18

Refer to Table A-1 (Appendix A) for significant activities and key accomplishments on the Continuing CMOM Programs during the most recent Calendar Year. Below are descriptions and background for each program.

Adequate Pumping, Transmission and Treatment Capacity Program

The Adequate Pumping, Transmission and Treatment Capacity Program ensures adequate transmission capacity for its pump stations and adequate treatment capacity for its Wastewater Treatment Plants. Pursuant to Paragraph 18(a) of the CD, the County has incorporated the criteria in Appendix A of the CD into Section 24-42.3 of the Code of Miami-Dade County. The amendment was submitted to EPA/FDEP on May 20, 2014 - ahead of the CD compliance date of June 4, 2014. This program remains in compliance with the requirements of the CD and Section 24-42.3 of the Code of Miami-Dade County.

Pursuant to Appendix A of the CD, certifications are performed by the Department of Regulatory and Economic Resources-Division of Environmental Resources Management (“RER-DERM”) and kept on file by WASD. The EPA can have access to these reports upon request. Work on this Program is ongoing, and details can be found in the work progress tables in Appendix A.

Pump Station Remote Monitoring Program

The Pump Station Remote Monitoring Program involves the installation and operation of remote monitoring equipment in all Wastewater Collection and Transmission System (WCTS) pump stations within 6 months after the County becomes operationally responsible for a pump station. The pump station monitoring system shall continuously monitor, report, and transmit data.

Pump station remote monitoring equipment is installed during the pump station construction phase, prior to placing the pump station into operation. The pump station monitoring system provides the ability to continuously monitor, report, and transmit data. All the existing pump stations were upgraded with the latest technology, Supervisory Control and Data Acquisition (SCADA), Remote Terminal Units (RTUs), and operational software as part of CD Capital Improvement Project (CIP) 5.19 SCADA RTU Upgrades, which was completed in November 2015. Work on this Program is ongoing, and details can be found in the work progress tables in Appendix A.

WCTS Model

The WCTS Model was used in the development and implementation of CMOM Programs to optimize transmission capacity and to evaluate the impact of I/I rehabilitation projects; proposed modifications, upgrades, and expansions to the WCTS; and performance of the WCTS. The WCTS Model was used to simulate the manifolded force mains and private pump stations that manifold into the County's force main system. The calibration activities were completed and WCTS Model calibration report was completed on CD compliance date of December 6, 2018. Work on this Program is ongoing, and details can be found in the work progress tables in Appendix A.

Spare Parts Program

This program involves a spare parts inventory management program for the WCTS and WWTPs. The existing Spare Parts Inventory Management Program will be enhanced as the following new CMOM Programs are implemented: Gravity Sewer System Operations and Maintenance Program; Pump Station Operations and Preventative Maintenance Program; Force Main Operations, Preventative Maintenance and Assessment/Rehabilitation Program; and the Wastewater Treatment Plants Operations and Maintenance Program. Work on this Program is ongoing, and details can be found in the work progress tables in Appendix A.

Volume Sewer Customer Ordinance (“VSCO”) Program

The purpose of the VSCO Program is to eliminate or otherwise control SSOs from the WCTS and the collection and transmission systems of present and future VSCOs.

The amendment to the VSCO, pursuant to Paragraph 18(e)(ii), was submitted to the EPA/FDEP on March 14, 2014. Also, pursuant to Paragraph 18(e)(iii), a draft was written to include scheduling requirements and an approved VSCO Plan of Compliance as defined in Appendix B of the CD.

These proposed changes to amend the VSCO were submitted to the EPA/FDEP on April 4, 2014. RER-DERM revisions to the proposed amended VSCO were submitted to EPA/FDEP on February 23, 2015. On June 30, 2015, the proposed ordinance was read before the Board of County Commissioners (BCC). The proposed ordinance was adopted on first reading and scheduled for public hearing before the Metropolitan Services (MS) Committee on Wednesday, August 26, 2015. The MS Committee forwarded the VSCO to BCC with a favorable recommendation. The VSCO was presented before the BCC for the second reading and adopted on September 1, 2015. Work on this Program is ongoing, and details can be found in the work progress tables in Appendix A.

3.3 New CMOM Programs

Refer to Table A-2 (Appendix A) for significant activities and key accomplishments on the New CMOM Programs during the most recent Calendar Year. The CMOM Programs Consolidated Schedule of Implementation Activities was submitted on the CD compliance date of August 6, 2018 and is pending EPA's and FDEP's review and approval. Currently, it has been agreed for the County to provide an updated Consolidated Schedule of Implementation activities for EPA's and FDEP's review and approval. Below are descriptions and background for each program.

Fats, Oils and Grease ("FOG") Control Program

This program requires the County to regulate industrial and commercial sources of oil and grease. In addition, this program involves a review, evaluation, and revision of the County's previous program. RER-DERM has organized the FOG Control Program into the following three projects: Project 1: FOG Characterization, Control Device Design, and Management, Operation and Maintenance Standards; Project 2: FOG Control Inspections, Enforcement, Compliance and Outreach; and Project 3: FOG Ordinance and Enforcement Management.

The deliverable was submitted to EPA/FDEP on the CD compliance date June 8, 2015. RER-DERM received comments on the Program from EPA/FDEP on December 28, 2016. Response to EPA and FDEP comments on the FOG Control Program was submitted on May 1, 2017. The FOG Control Program and FOG Ordinance were approved by the EPA/FDEP on September 7, 2017. On June 30, 2021, the County submitted the Fourth Annual FOG Control Program Review Report. Work on this Program is ongoing, and details can be found in the work progress tables in Appendix A.

Sewer Overflow Response Plan ("SORP")

The SORP is a program for identifying and reporting SSOs. The plan will establish timely and effective methods and means of responding to, cleaning up, and/or minimizing the impact of SSOs; timely reporting of the location, volume, cause, impact, and other pertinent SSO information to the appropriate regulatory agencies; and timely and effective notification of SSOs to potentially impacted public. In addition, the plan involves a re-evaluation of the County's previous program.

The SORP deliverable was submitted to EPA/FDEP on July 2, 2015, ahead of the CD compliance date of July 6, 2015. EPA/FDEP issued comments on the Program on January 24, 2017. Response to EPA/FDEP comments on the SORP was submitted on March 28, 2017. The SORP

was approved by the EPA/FDEP on August 15, 2017. Work on this Program is ongoing, and details can be found in the work progress tables in Appendix A.

Information Management System (“IMS”) Program

The IMS program will aid County managers and field supervisors to adequately track scheduled operational and maintenance activities; evaluate operations, maintenance, customer service, and sewer system rehabilitation activities; and improve overall sewer system performance.

The IMS program deliverable was submitted to EPA/FDEP on December 4, 2015, ahead of the CD compliance date of December 7, 2015. EPA/FDEP issued comments on the Program on February 28, 2017. Response to EPA/FDEP comments on the IMS was submitted on May 17, 2017. The IMS program was approved by the EPA/FDEP on October 17, 2017. Work on this Program is ongoing, and details can be found in the work progress tables in Appendix A.

Sewer System Asset Management Program (“SSAMP”)

The SSAMP is designed to maintain a desired level of service for the County's Sewer System and considers the life cycle cost to ensure compliance with regulatory requirements and the CD.

The Sewer SSAMP was submitted to EPA/FDEP on the CD compliance date of October 6, 2015. EPA/FDEP issued comments on the Program on January 24, 2017. Response to EPA/FDEP comments on the SSAMP was submitted on the CD compliance date of March 28, 2017. The SSAMP was approved by the EPA/FDEP on October 17, 2017. Work on this Program is ongoing, and details can be found in the work progress tables in Appendix A.

Gravity Sewer System Operations & Maintenance Program (“GSSOMP”)

The GSSOMP will address SSOs, particularly those caused by FOG, roots and/or debris obstructions. The program will facilitate proper operation and maintenance activities associated with gravity mains in the WCTS.

The GSSOMP was submitted to EPA/FDEP on the CD compliance date of February 6, 2015. WASH received comments on the Program from EPA/FDEP on July 1, 2016. WASH corrected all comments in the Program identified by EPA/FDEP and submitted responses to the comments on August 12, 2016. The GSSOMP was approved by the EPA/FDEP on October 17, 2017. Work on this Program is ongoing, and details can be found in the work progress tables in Appendix A.

Pump Station Operations & Preventative Maintenance Program (“PSOPMP”)

The PSOPMP will facilitate proper operation and maintenance activities associated with the pump stations within the WCTS.

The PSOPMP was submitted to EPA/FDEP on April 2, 2015, ahead of the CD compliance date of April 6, 2015. WASH received comments on the Program from EPA/FDEP on June 24, 2016. WASH addressed all comments and answered all questions provided by EPA/FDEP and submitted responses to the comments on July 29, 2016. The PSOPMP was approved by the EPA/FDEP on October 17, 2017. Work on this Program is ongoing, and details can be found in the work progress tables in Appendix A.

Force Main Operations, Preventative Maintenance & Assessment/Rehab Program ("FMOPMARP")

The FMOPMARP will facilitate proper operation and maintenance activities associated with force mains within the WCTS. A criticality assessment will also be performed of the structural integrity of the force mains and the risk of force main critical failure.

WASD has conducted condition assessments of pre-stressed concrete cylinder pipe force mains. The FMOPMARP was submitted to EPA/FDEP on the CD compliance date August 6, 2015. EPA/FDEP issued comments on the Program on February 23, 2017. Response to EPA/FDEP comments on the FMOPMARP was submitted on May 17, 2017. The FMOPMARP was approved by the EPA/FDEP on October 17, 2017. The prioritization assessment activities were completed, and Force Main Criticality Assessment and Prioritization Report was completed on CD compliance date of July 17, 2018. The Force Main Assessment and Prioritization Report was submitted on July 17, 2018 ahead of the CD compliance date of July 20, 2018 and is pending EPA's and FDEP review and approval. Work on this Program is ongoing, and details can be found in the work progress tables in Appendix A.

Force Main Rehabilitation/Replacement Program ("FMRRP")

The FMRRP includes standard procedures for repairing, rehabilitating, and replacing force mains.

The FMRRP was submitted to EPA/FDEP on December 4, 2015, ahead of the CD compliance date of December 7, 2015. EPA/FDEP issued comments on the Program on February 23, 2017. Response to EPA/FDEP comments on the FMRRP was submitted on May 17, 2017. The FMRRP was approved by the EPA/FDEP on September 28, 2017. Work on this Program is ongoing, and details can be found in the work progress tables in Appendix A.

WWTP Operations and Maintenance Program ("WWTP OMP")

The WWTP OMP is being developed in accordance with Paragraph 19(h) in the CD. This program will facilitate proper operation, maintenance and equipment replacement activities associated with the WWTPs.

The WWTP OMP was submitted to EPA/FDEP on May 5, 2015, ahead of the CD compliance date of May 6, 2015. WASD received comments on the Program from EPA/FDEP on August 22, 2016. WASD corrected all comments in the Program identified by EPA/FDEP and submitted responses to the comments on November 21, 2016. On November 20, 2017, EPA/FDEP conditionally approved the WWTP OMP and requested additional information. Response to EPA/FDEP Request for Additional Information was submitted on January 29, 2018. On October 31, 2017, RER-DERM submitted the Hauled Waste Guidance Manual to EPA/FDEP. EPA/FDEP sent comments on the Manual on November 27, 2017. Response to EPA/FDEP comments on the Hauled Waste Guidance Manual was submitted on February 13, 2018. The WWTP OMP and the Hauled Waste Guidance Manual were approved by the EPA/FDEP on April 19, 2018 and June 4, 2018, respectively. The final WWTP OMP was submitted to EPA/FDEP on August 6, 2018. Work on this Program is ongoing, and details can be found in the work progress tables in Appendix A.

Specific Capital Improvement Projects (“CIPs”)

Based on previous investigations, the County has identified certain rehabilitation projects that are intended to address conditions currently causing SSOs or contributing to NPDES permit violations. These specific capital improvement projects are identified and described in the Work Plan set forth in Appendix D of the CD. The County shall complete each of these capital improvement projects in accordance with the schedules set forth in Appendix D.

The following CIPs were completed during the most recent Calendar Year (January 1, 2021 through December 31, 2021):

Wastewater Treatment Plant (WWTP)

- Chlorine Contact Chamber Structure at South District WWTP (CIP 1.12) was completed on April 5, 2021.
- Oxygenation Trains Plant 2 at Central District WWTP (CIP 2.6) was completed on September 28, 2021.
- Effluent Pump Station at Central District WWTP (CIP 2.11) was completed on July 1, 2021.
- Ventilation Improvements at Central District WWTP (CIP 2.25) was completed on August 23, 2021.
- Oxygen Production at Central District WWTP (CIP 2.27) was completed on September 28, 2021.
- Plant Wide General Electrical at North District WWTP (CIP 3.8) was completed on March 2, 2021.

Financial Analysis Program (“FAP”)

The purpose of the FAP is to effectively establish and track the sufficiency of funds for operations and maintenance, capital projects financing, and debt service coverage associated with the Sewer System, including, without limitation, the continued work pursuant to the CD.

The FAP was completed and submitted to EPA/FDEP on December 4, 2014, ahead of the CD compliance date December 8, 2014. WASD received comments on the Program from EPA/FDEP on November 25, 2015. WASD corrected all comments in the Program identified by EPA/FDEP and submitted responses to the comments on January 29, 2016. The FAP was approved by the EPA/FDEP on October 17, 2017. Work on this Program is ongoing, and details can be found in the work progress tables in Appendix A.

The County continues to be fully engaged with the successful implementation and compliance of the CD. First with the continued development and implementation of the nine new CMOM Programs (CD Section VI, Paragraph 19). Second with the execution of the eighty-one (81) capital improvement projects included in Appendix D which have an approximate total cost of \$1.93 billion, and the Supplemental Environmental Project (SEP) included in Appendix E. Despite the significant efforts and progress to date, the County encountered challenges that delayed the completion of certain capital improvement projects. In addition, on December 22, 2017, the County submitted correspondence detailing the challenges being encountered during program execution and a request for non-material schedule modifications of 43 projects. The modifications of these project schedules were approved by EPA/FDEP on April 11, 2018.

As of this reporting period, fifty-one (51) projects with a total cost of \$643 million have reached substantial completion and thirty (30) projects with a cost of \$173 million in the planning and procurement phases, and \$1,143 million in the construction phase. All CD requirements were met during the most recent calendar year, except for meeting the final deadlines for two Appendix D Capital Improvement projects (CIP):

- 1) CIP 1.11(1.2) at SDWWTP (Compliance Date: March 26, 2021). On January 15, 2021, the County reported additional delays during the Procurement Phase of CD 1.11(1.2) for the Generator Repairs. The additional delays occurred due to the County rescinded their Recommendation for Award on December 24, 2020, as a result of post-bid conditions being required by the second lowest bidder that were inconsistent with the terms and conditions of the bid solicitation. On March 17, 2021, the County provided a Failure to Meet the Compliance Date Notification for CD CIP 1.11 to EPA and FDEP. The Compliance Date for this project was March 26, 2021, and the County anticipates being able to reach construction completion in 2022.
- 2) CIP 2.1 Electrical Improvements at CDWWTP (Compliance Date: June 14, 2021). On June 14, 2021, the County provided a Failure to Meet the Compliance Date Notification for CD CIP 2.1 for the Electrical Improvements to EPA and FDEP. The Compliance Date for this project was June 14, 2021, and the County anticipates being able to reach construction completion in the first quarter of 2022.

4.0 CMOM Programs Subject to Reporting Requirements

4.1 Continuation of Capacity, Management, Operations and Maintenance ("CMOM") Programs of the First Partial Consent Decree and Second and Final Partial Consent Decree – Paragraph 18

A narrative summary of the continuing CMOM Programs and their significant activities for the previous calendar year can be found in Appendix A Table A-1.

4.2 New CMOM Programs – Paragraph 19(a) through (h) and (j)

A narrative summary of the New CMOM Programs and their significant activities for the previous calendar year can be found in Appendix A Table A-2.

As of June 4, 2018, all the nine new CMOM Programs were approved by the EPA/FDEP. The Force Main Criticality Assessment and Prioritization Report was prepared in accordance with the CD Section VI, Paragraph 19(g)(ii) and submitted on July 17, 2018. The EPA and FDEP review and approval of the Force Main Criticality Assessment and Prioritization Report is pending. The status of the CMOM Programs submitted to EPA/FDEP for review and comment are listed below in Table 1-1.

Implementation schedules are required to be included in CMOM Program deliverables. However, these programs are interrelated, and one program directly affects another. At the January 22, 2015 CD Program Monthly Progress Meeting with EPA/FDEP, WASD recommended that a consolidated implementation schedule be developed once all the CMOM Program deliverables have been submitted.

On March 19, 2015, EPA/FDEP agreed to allow the County to submit a consolidated implementation schedule for all CMOM programs once all program documents have been submitted. At the September 17, 2015 CD Program Monthly Progress Meeting with EPA/FDEP, Miami-Dade requested a deadline of March 2016 for the submittal of the CMOM Programs Consolidated Schedule of Implementation Activities. EPA and FDEP agreed to the requested deadline. On March 31, 2016, the CMOM Programs Consolidated Implementation Schedule was submitted to EPA and FDEP for review and approval.

On March 28, 2017, WASD, EPA and United States Department of Justice ("DOJ") held a teleconference. At that teleconference, it was agreed that an updated CMOM consolidated schedule will be submitted 30 days after all CMOM Programs have been approved. The WWTP OMP and the Hauled Waste Guidance Manual were approved by the EPA and FDEP on April 19, 2018 and June 4, 2018, respectively.

Subsequently, the CMOM Programs Consolidated Schedule of Implementation Activities was submitted on CD compliance date of August 6, 2018. The County has progressed with program elements included within the Consolidated Schedule as reported in semi-annual and annual reports.

At the June 18, 2020, CD Program Update meeting between EPA, FDEP, and the County, FDEP suggested for the County to provide an updated CMOM Programs Consolidated Schedule of Implementation Activities, the County made the necessary adjustments to the schedule and submitted for review and approval on March 19, 2021. Report on the progress is being documented in the semi-annual and annual reports as required by the CD.

4.2.1 Specific Capital Improvement Projects (“CIPs”) Program – Paragraph 19(i)

The County has identified certain rehabilitation projects that are intended to address conditions currently causing SSOs or contributing to NPDES permit violations. In accordance with Paragraph 19(i), these specific capital improvements are identified and described in the Work Plan set forth in Appendix D of the CD. A narrative summary of these CIPs and their significant activities for the previous calendar year can be found in Tables A-3.1, A-3.2, and A-3.3 for the WWTPs; Tables A-4.1 and A-4.2 for the WCTLs; and Table A-5 for the Sewer Pump Station Systems included in Appendix A.

Table 4-1 EPA/FDEP Submittals of CD CMOM Programs

CD CMOM Programs	CD Reference	CD Deadline	Completion or Submittal Date	EPA/FDEP Comments	County Response Date	EPA/FDEP Approval
Financial Analysis Program	Section VI, para 19(j)	12/8/2014	12/4/2014	11/25/2015	1/29/2016	10/17/2017
Fats, Oils and Grease (FOG) Control Program	Section VI, para 19(a)	6/8/2015	6/8/2015	12/28/2016	5/1/2017	9/7/2017
Sewer Overflow Response Plan	Section VI, para 19(b)	7/6/2015	7/2/2015	1/24/2017	3/28/2017	8/15/2017
Information Management System	Section VI, para 19(c)	12/7/2015	12/4/2015	2/28/2017	5/17/2017	10/17/2017
Sewer System Asset Management	Section VI, para 19(d)	10/6/2015	10/6/2015	1/24/2017	3/28/2017	10/17/2017
Gravity Sewer System Operations and Maintenance Program	Section VI, para 19(e)	2/6/2015	2/6/2015	7/1/2016	8/12/2016	10/17/2017
Pump Station Operations and Preventative Maintenance Program	Section VI, para 19(f)	4/6/2015	4/2/2015	6/24/2016	7/29/2016	10/17/2017
Force Main Operations, Preventative Maintenance and Assessment/Rehabilitation Program	Section VI, para 19(g)	8/6/2015	8/6/2015	2/23/2017	5/17/2017	10/17/2017
Force Main Criticality Assessment and Prioritization Report	Section VI, para 19(g)(ii)	7/17/2018	7/17/2018	Pending	N/A	Pending
Force Main Rehabilitation/Replacement Program	Section VI, para 19(g)(iv)	12/7/2015	12/4/2015	2/23/2017	5/17/2017	9/28/2017
WWTP Operations and Maintenance Program	Section VI, para 19(h)	5/6/2015	5/5/2015	8/22/2016 11/20/2017 (RAI) 11/27/2017 (Hauled Waste Manual)	11/21/2016 1/29/2018 (RAI) 2/13/2018 (Hauled Waste Manual)	4/19/2018 6/4/2018 (Hauled Waste Manual)

5.0 Sanitary Sewer Overflow Analysis

A trends analysis of the number, volume, average duration, and cause of the County's Sanitary Sewer Overflow (SSO) and Building Backup (BBU) events was conducted for the previous two Calendar Years and the current reporting period (January 1, 2021 through December 31, 2021). The data gathered in accordance with the CD quarterly reporting requirements since the effective date of the CD are also depicted in the figures below.

5.1 Number of Sanitary Sewer Overflows

Figure 5.1 provides a summary of the number of SSO and BBU events by year.

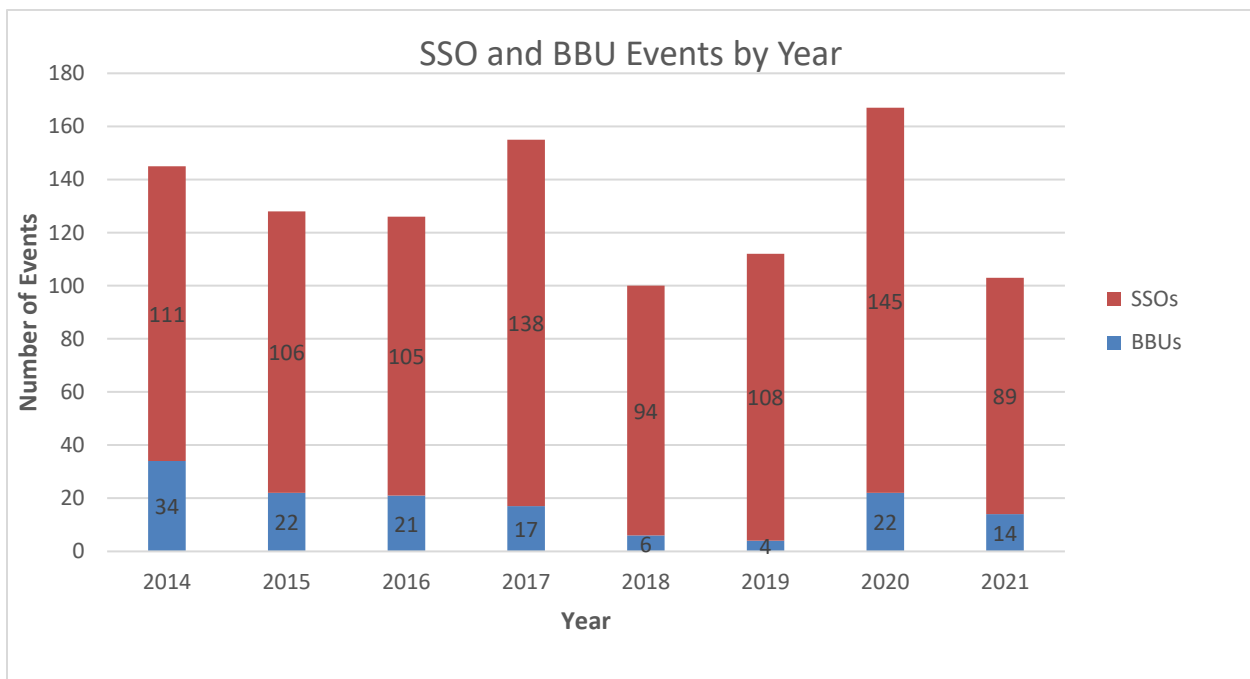


Figure 5.1 – SSO and BBU Events by Year

As shown in Figure 5.1, there was a decrease in the number of SSOs during the reporting period. In 2021, the County experienced 89 SSOs, 56 less than in 2020, a decrease of 63%. There were 19 SSOs less than in 2019 which is a decrease of 21%. To date, the total number of SSOs reported in 2020 remains the highest number of events during a reporting period since the inception of these annual reports. It should be noted that 2020 brought unique challenges that impacted WASD's operations and corresponding number of SSO's during the calendar year. During the year 2020, Miami-Dade County experienced multiple storms with rainfall amounts exceeding design return frequency storm criteria and higher ground water table elevations leading to urban flood advisories; street flooding, associated with inability of stormwater drainage and canal systems to convey stormwater; and numerous SSO's associated with increases in inflow and infiltration into the gravity sanitary sewer collection systems operated by the County and by the other Volume Sewer Customers. A remarkably high amount of rainfall (~80 inches) was

experienced over the course of 2020, significantly higher than the historical average of approximately 60 inches. The Calendar Year 2020 may be considered an outlier year in the overall progressive reduction of SSOs in the County since the inception of the CD.

However, the total volume of sewage discharged from SSOs in 2021 decreased considerably when compared to 2020, as will be shown in Sections 5.2 and 5.4.

The number of BBUs in 2021 was 14 events, 6 less than in 2020, a decrease of 57%. When compared to 2019, 10 more events occurred, an increase of 71%.

The following figures and graphs are intended to provide the causes and volumes of the events.

Figure 5.2 provides a summary of the number of SSO and BBU events by year and source.

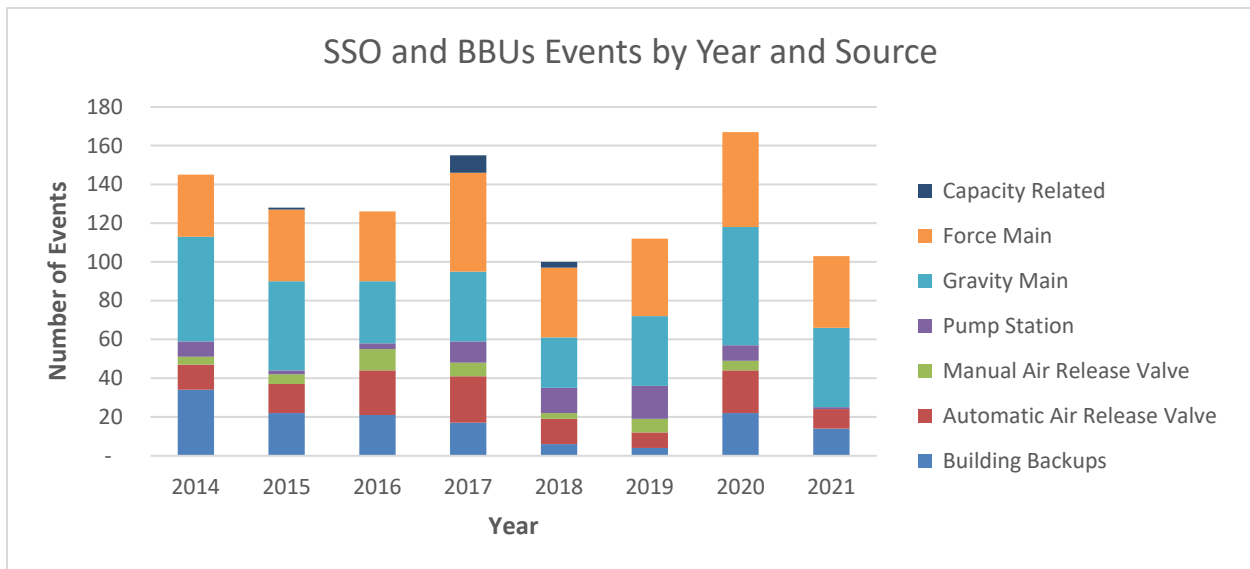


Figure 5.2 - SSO and BBUs Events by Year and Source

Figure 5.2 illustrates the distribution of SSOs and BBUs by source and how each source contributed to the total number for each year. As discussed above, BBUs decreased by 57% between 2020 and 2021.

Automatic air release valve (AARV) related incidents decreased from 22 in 2020 to 14 in 2021, which represented a decrease of 57%. The Wastewater Collection and Transmission Line Division (WWCTLD) determined that a considerable portion of the last years' failures were attributable to a manufacturer design defect. These AARVs were targeted and WWCTLD continues to phase them out of the Wastewater Collection and Transmission System (WCTS). Manual air release valve (ARV) incidents decreased from 5 in 2020 to 0 in 2021, a 100% reduction. Pump station (PS) related SSO incidents reduced from 8 in 2020 to 1 in 2021, representing a decrease of 94%. Gravity main related SSOs events decreased from 61 in 2020

to 37 in 2021, a 33% decrease. Force main SSOs events decreased from 49 in 2020 to 37 in 2021, a 24% decrease. Of the 37 force main events, 9 were contractor related.

5.2 Volume of Sanitary Sewer Overflows

Figure 5.3 shows the total SSO volume within each categorized source. A complete breakdown of all SSO volumes is available in Appendix B of this document.

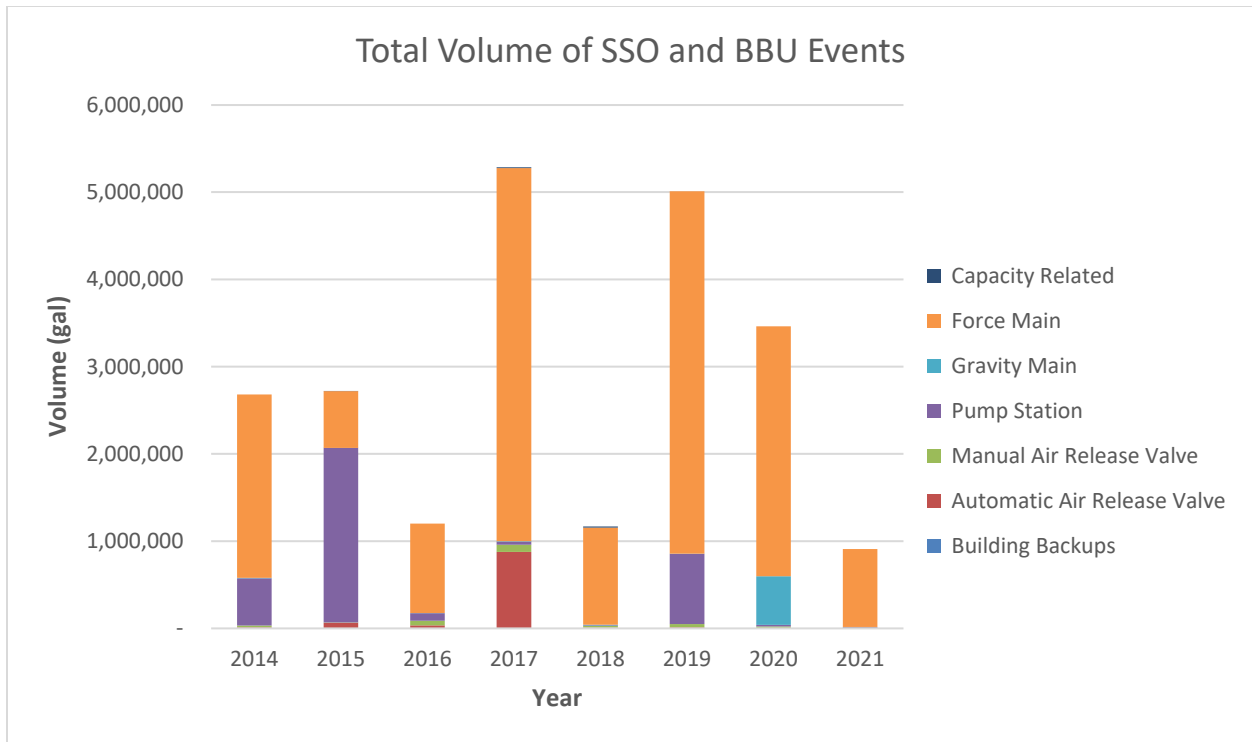


Figure 5.3 - Total Volume of SSO and BBU Events

Figure 5.3 illustrates the total SSO volume by source since 2014 and how much SSO volume was contributed by each source in the WCTS.

The volume released from all BBUs in 2021 was 80 gallons, 228% lower when compared to 262 gallons in 2020. Regarding AARVs, the volume released in 2021 was 12,520 and 4,660 gallons in 2020, a significant increase of 63% when compared to 2020. Manual air release valves volume discharge also decreased significantly from 16,234 gallons in 2020 to 0 gallon in 2021. Pump stations recorded a decrease in volume released from SSOs from 18,740 gallons in 2020 to 75 gallons in 2021. Gravity main SSO volume discharged between 2020 and 2021 decreased from 557,115 gallons to 2,806 gallons respectively, a significant amount of the total volume discharged in 2020 was contributed to heavy rain.

Section 5.4 provides a breakdown of the SSO causes and will convey how most SSO volume discharged in 2021 were contributed by force main related SSOs.

5.3 Average Duration of Sanitary Sewer Overflows

The average duration of SSO events can be viewed in Table 5.1. For BBUs, the “Time” and “Duration” parameters are seldom characteristically the same. As a result, BBUs have not been included in the calculations of average duration.

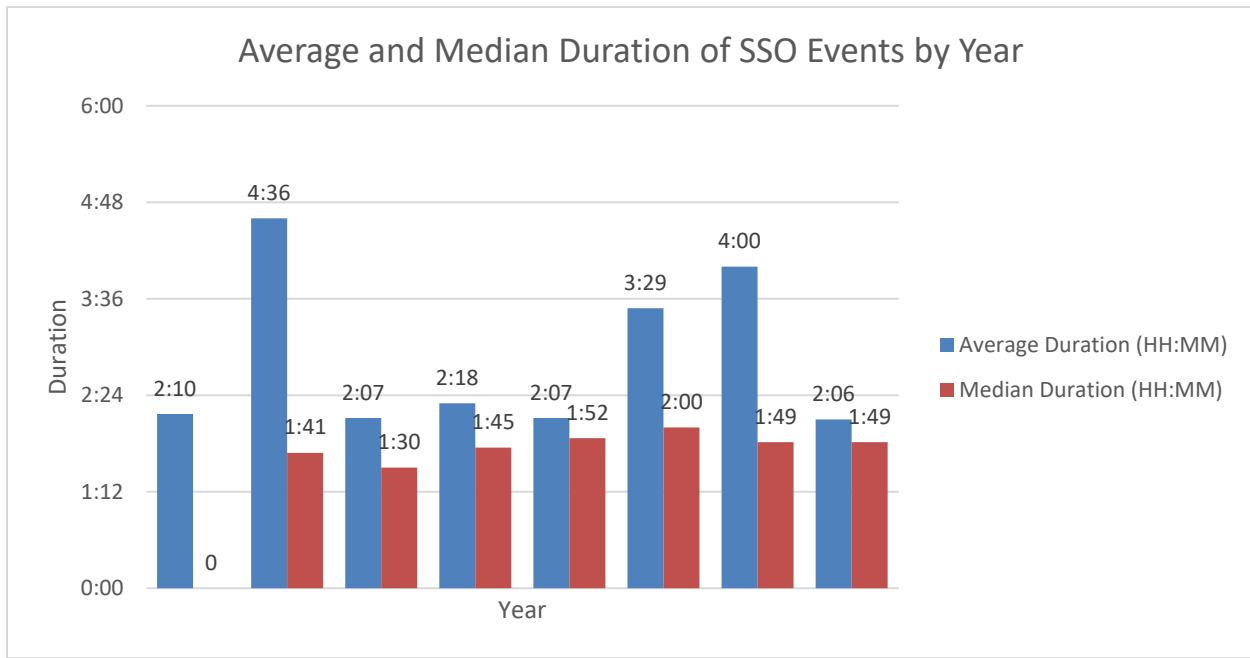


Figure 5.4 - Average and Median Duration of SSO Events by Year

Table 5.1 contains the average (arithmetic mean) and median (the number in the middle of the set of given numbers) for the duration of all SSOs in the reporting period. The average and median duration for all SSOs in the reporting period remained within the range of previous reporting periods.

Table 5.1 - Average and Median Duration of SSO Events

Year	Average Duration (HH:MM)	Median Duration (HH:MM)
2014	2:10	N/A
2015	4:36	1:41
2016	2:07	1:30
2017	2:18	1:45
2018	2:07	1:52
2019	3:29	2:00
2020	4:00	1:49
2021	2:06	1:49

5.4 Cause of Sanitary Sewer Overflows

A breakdown by cause of SSOs is shown in Figure 5.5. A complete breakdown of SSO causes is available in Appendix B of this document.

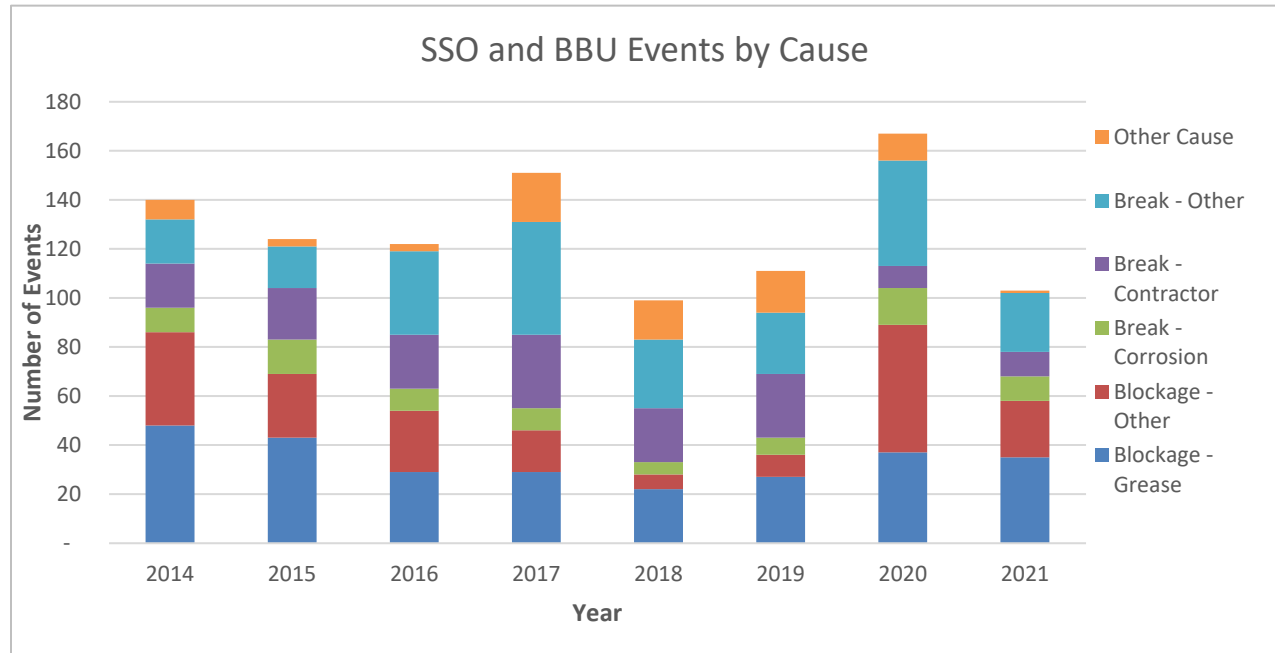


Figure 5 5 - SSO and BBU Events by Cause

The number of SSOs caused by grease blockages in the system decreased by 6% between 2020 and 2021, with 37 and 35 events, respectively. Blockages in the system caused by other means decreased by 126%, from 52 in 2020 to 23 in 2021. Broken equipment due to corrosion decreased between 2020 and 2021 by 50%. Contractor related breakages increased from 9 in 2020 to 10 in 2021. Breakages attributed to other causes decreased from 43 incidents in 2020 to 24 in 2021, a 79% decrease. These breakages include BBUs (laterals); Malfunction, Valve, and Vandalism related to AARV and ARVs; Force Mains broken due to vandalism and bedding settlement related causes; and Gravity and Force Mains broken by other than Contractor and/or Corrosion causes.

The amount of SSOs and BBUs classified as “Other Cause” may include PS related SSOs as FPL Service Outage, Pump, Pipe/Pump out, Electrical, Level/Bubbler, Bypass Operation, Contractor Involved, SCADA, and other issues; and Capacity Related SSOs as the ones caused by Rain, Surcharged Conditions and Pressure. These types of incidents decreased between 2020 and 2021 from 11 to 1.

Figure 5.6 shows the total volume of all SSOs broken down by the cause of the SSO. A full breakdown of all SSO volumes is available in Appendix B of this document.

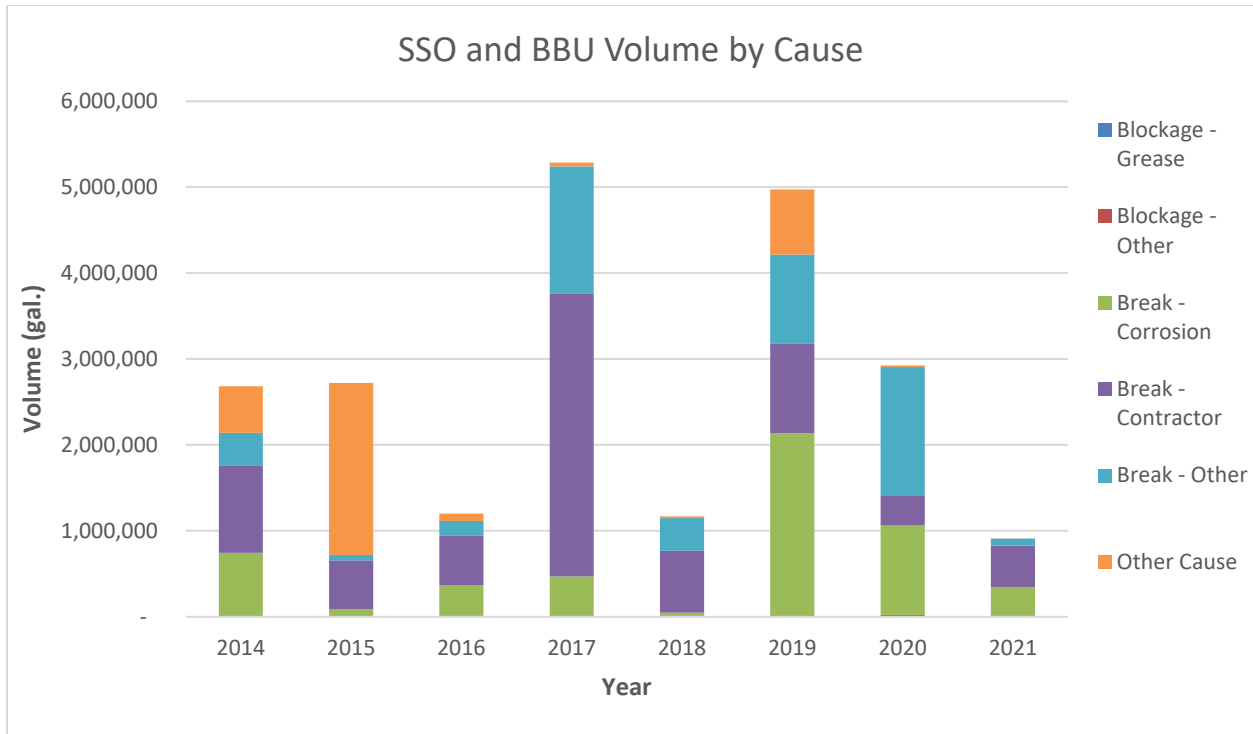


Figure 5.6 - SSO and BBU Volume by Cause

As Figure 5.6 shows, the total volume discharged from SSOs in 2021 significantly decrease in comparison with the previous year. In 2020, the volume reported for gallons of sewage discharged from the system was 3,461,152, compared to 908,973 gallons in 2021. This represents a decrease in volume of 281%.

Grease related blockages reported in 2021 decreased from 20,968 gallons, in 2020, to 1,577 gallons.

Spills due to blockages caused by other means decreased from 538,078 gallons in 2020 to 1,421 gallons in 2021. However, the volume discharged due to corrosion breakages in 2021 increased from 1,040,775 gallons in 2020 to 341,390 gallons in 2021.

Breakages attributed to contractors also increased from 351,688 gallons spilled in 2020 to 484,412 gallons in 2021, a 38% uptick in volume released. Breakages attributed to other causes decreased by 95% from 2020 to 2021.

Spills that occurred due to causes other than blockages and breakages in 2021 decreased from 18,806 gallons in 2020 to 75 gallons in 2021. It includes one pump station related SSOs.

6.0 Amendment to Last Annual Report

There are no amendments to the 2020 Annual Report.

Appendix A Work Progress Tables

Table A-1 Continuing CMOM Programs January 1, 2021 through December 31, 2021

CMOM Program	CMOM Program Status	CD Reference	Significant Activities / Key Accomplishments
Adequate Pumping, Transmission and Treatment Capacity Program	Work on the program is ongoing.	Section VI, Paragraph 18(a)	<p>1. Continued with the monitoring and tracking of the monthly Elapsed Time (ET) submittals by each Volume Sewer Customer Utility.</p> <p>2. Placed under Initial Moratorium (IM) Pump Station basins that exceeded the maximum 10 hours pursuant to the Nominal Average Pump Operating Time (NAPOT).</p> <p>3. Placed under Incomplete Moratorium (IN) Pump Station basins that failed to submit ET readings or not submitted by the 14th of the following month, as required by the Miami-Dade County Code.</p> <p>3.1 Used the PS Database to automatically generate and send Notification Letters to all Utilities and Private systems that failed to submit ETs.</p> <p>4. Continued to use the WEB application for the monthly submittal and tracking of the ET readings to automatically place pump station basins under Incomplete Moratorium (IN) every time a Triplicate Reading was detected.</p> <p>4.1 Used the PS Database to automatically generate and send Notification Letters to all Utilities and Private systems when TRIPLICATE ET readings were reported.</p> <p>5. Continued generating the monthly NAPOT Status & Sewer Allocation reports for all Utilities and Building Officials. All Utilities and Building Officials were notified how to access the NAPOT Status on the WEB, by using the PS Estimator WEB Application.</p> <p>6. Sewer Allocations were de-allocated manually for municipalities according to their monthly reports as submitted to RER-DERM.</p> <p>6.1 Completed automatic de-allocations of reserved flows for projects that are 10 yrs. or more in the system.</p> <p>7. Due the COVID-19 the Quarterly Utility Round Table (URT) Meetings were held virtually. The meeting scheduled for April 2021 was not held. Meetings were held on August 26, 2021 and December 15, 2021.</p> <p>8. Continued to use the PS system/database to track PS basins, new or upgraded with 26 HP or larger, required to submit ET readings for ALL-PUMPS ON and Midnight-to 5 am hours.</p> <p>9. Continued to review Sanitary Sewer System Evaluations, or Amendments, submitted by the utilities. PS moratoriums were reverted as the utilities demonstrated compliance with the SSES, Code requirement of 5,000 GPDIM for the 2nd Cycle.</p> <p>9.1 Continued the update of the 4th Cycle SSES Requirements / Guidelines. The 4th Cycle report is due by 11/12/2032 for all the public utilities. The 4th Cycle SSES Requirements / Guidelines may also be used for the 3rd Cycle due on 11/12/2022.</p> <p>10. Completed the review of the GIS Water & Sewer As-Built / Atlas submitted by the Utilities.</p> <p>10.1 DERM staff used the GIS Water & Sewer Atlases & As-Built layers to determine Adequate Pumping, Transmission and Treatment capacity, an other reviews/approvals requiring Water and Sewer information.</p> <p>10.2 DERM met with all Utilities to address / correct issues encountered in the review of the 2020 GIS Submittals.</p> <p>11. Updated Moratorium status of PS basins for which the utility completed and certified the Corrective Action Plan(s) (CAP) to bring basin Nominal Average Pump Operating Time (NAPOT) below the 10 hours.</p> <p>12. Continued Electronic reviews for construction permits pertaining to new or upgrades of Domestic Wastewater Collection and Transmission systems for ALL utilities within the Miami-Dade County service areas.</p> <p>13. Continued with the CONCURRENT review process for new projects or upgrades of Domestic Wastewater Collection and transmission systems under the jurisdiction of the County's Miami-Dade Water and Sewer Department.</p> <p>14. Continued coordination with IT to create a WEB Application to allow Building Officials to report the monthly De-Allocation report.</p>

Table A-1 Continuing CMOM Programs January 1, 2021 through December 31, 2021

CMOM Program	CMOM Program Status	CD Reference	Significant Activities / Key Accomplishments
Pump Station Remote Monitoring Program	Work on the program is ongoing.	Section VI, Paragraph 18(b)	Work on the program has been ongoing, completed Data Review & Data Configuration sections of the project plan. Currently completing the reporting components for the WWTP/WTP Custom Monthly Regulatory Reports. Configuration of the Pump Station data mapping is ongoing, as is sensor importing for Rain Vieux Data, USGS data and NOAA data.
Wastewater Collection and Transmission Model	Work on the Model is ongoing.	Section VI, Paragraph 18(c)	<p>An updated version of the WASD WCTS effective model incorporated all the changes to the system provide in the last quarter of FY2021. The effective hydraulic model submittal included:</p> <ol style="list-style-type: none"> 1. InfoWorks ICM Transportable Model Files 2. Model Changes Log 3. Transmittal Letter with summary of modifications 4. Dashboard – 2020 AADF 5. User Defined Flags – CSV File, TM, Changes Log 6. Inflows File <p>The model was updated to match field information after visits to CDWWTP and PS0001. The interceptors going to PS0001 were updated for elevation based on latest survey data that was performed by WASD. Extensive analysis was done to evaluate the capacity of PS0001 interceptors in order to plan for developments and growth in this area.</p> <p>The model also includes a Pump Station Dashboard that provides a detailed summary/overview of the pump station results for existing scenario annual average daily flow condition was delivered along with the effective model.</p> <p>The model update was completed through October, 2021.</p> <p>The modifications made to the calibration model networks were incorporated into the latest effective model version which is shared with WASD Planning Division and other consultants as required. The Effective Model version represents existing conditions of the system. This version of the model is validated recurrently with observed flow data for distribution at the wastewater treatment plants. In addition, based on findings from calibration and the latest effective model, the CD PMCM updated the model networks corresponding to planning horizons (2020, 2025, and 2035) previously developed by WASD Planning Division.</p> <p>A detailed report was developed which documents the calibration process, the latest calibration and validation results obtained, as well as main challenges of the overall WASD model calibration process. The report also included recommendations and steps to follow for the next 5-year hydraulic model calibration cycle. This report can be made available upon request as dictated in Section VI, Paragraph (18).(c).(iv) of the Consent Decree.</p>
Spare Parts Program	Work on the program is ongoing.	Section VI, Paragraph 18(d)	<p>This program is a continuing inventory management program for spare parts for the WCTS and WWTPs.</p> <p>The existing Spare Parts Inventory Management Program will be enhanced as the following new CMOM Programs are implemented: Gravity Sewer System Operations and Maintenance Program; Pump Station Operations and Preventative Maintenance Program; Force Main Operations, Preventative Maintenance and Assessment/Rehabilitation Program; and the Wastewater Treatment Plants Operations and Maintenance Program. The existing program will be enhanced as the new CMOM Programs are implemented. Work on the program is ongoing and will continue beyond 2021.</p>

Table A-1 Continuing CMOM Programs January 1, 2021 through December 31, 2021

CMOM Program	CMOM Program Status	CD Reference	Significant Activities / Key Accomplishments
<p>Volume Sewer Customer ("VSC") Ordinance Program</p>	<p>Work on the program is ongoing.</p>	<p>Section VI, Paragraph 18(e)</p>	<p>1. Monitored and tracked the monthly submittal of the Elapsed Time (ET) readings by each Volume Sewer Customer utility.</p> <p>2. Placed under Moratorium Pump Station (PS) basins under the jurisdiction of the Volume Sewer Customer utilities that exceeded the maximum 10 hours pursuant to the Nominal Average Pump Operating Time (NAPOT).</p> <p>3. Placed under Incomplete Moratorium (IN) Pump Station basins that failed to submit ET readings or not submitted by the 14th of the following month, as required by the Miami-Dade County Code.</p> <p>3.1 Used the completed automatization of the WEB ET Application to generate and send Notification Letters to all Utilities and Private systems when they fail to submit ETs.</p> <p>4. Updated Moratorium status of PS basins under the jurisdiction of the Volume Sewer Customer utilities for which the utility completed and certified the Corrective Action Plan(s) (CAP) to bring basin Nominal Average Pump Operating Time (NAPOT) below the 10 hours.</p> <p>5. Submitted to each Volume Sewer Customer Utility the monthly Certification of Nominal Average Pump Operating Time (NAPOT) Status Report. Moratoriums were placed accordingly.</p> <p>6. Continued to use the PS system/database to track PS basin Moratoriums related to SSOs.</p> <p>6.1 Coordinated with IT staff to enhance the PS Database to flag the PS if placed under moratorium for No Ets or Triplicate Readings.</p> <p>7. Issued enforcement letters or RFIs for SSO events reported or documented by DERM personnel, as needed.</p> <p>7.1 Placed Moratoriums on basins that experienced multiple SSOs, in order to minimize or prevent additional SSOs.</p> <p>8. Continued to review the Volume Sewer Customer's Sanitary Sewer System Evaluations (SSES), or Amendments, submitted by the Volume Sewer Customer utilities.</p> <p>8.1 Moratoriums status were reverted as the utilities demonstrated compliance with the SSES, Code requirement of 5,000 GPDIM.</p> <p>9. Followed-up on the enforcement action against utilities that reported SSOs during this period. Moratoriums were placed on repeat SSO to prevent future discharges subject to the utility implementation of corrective actions.</p> <p>10. Due to COVID-19 Virtual Meetings were held with the Utility/Municipal Officials during this period.</p> <p>11. Implemented automatic De-Allocations of reserved flows that have been in the database for 10 years or more. This process provided additional flow capacity for new/future developments.</p> <p>11.1 Performed manual De-Allocations of reserved flows that have been in the database for projects completed, expired, canceled or CO'ed.</p> <p>12. All Volume Sewer Customer utilities and/or representatives participated in a Virtual URT Meetings each Quarter in 2021.</p> <p>13. Reviewed Annual and Semi-annual reports submitted by the Volume Sewer Customer Utilities, which include Illicit Stormwater Connections, SSES and CMOM work related reports.</p> <p>14. Completed reviews of the GIS WASD As-Built / Atlases submitted by each Volume Sewer Customer Utility in January-2021 to assure compliance with Code requirements. Also, met with all Volume Sewer Customer Utilities about the GIS WASD As-Built / Atlases submitted.</p> <p>15. Completed an inspection program of all public and private sanitary sewer pump stations in the County.</p> <p>15.1 DERM initiated enforcement actions for violations/deficiencies identified during the inspections.</p> <p>16 Due to COVID and Staffing shortages the reviews of the Sanitary Sewer System Model Survey/Report received from each Volume Sewer Customer Utilities reviews could not be completed. Completed interviews of candidates for new staffing positions.</p> <p>17. Due to COVID-19 and staffing the review of televising reports received from the utilities having sanitary sewer collection and transmission systems within well field protection areas was not completed. However, DERM completed interviews of candidates for new staffing positions.</p>

Table A-2 New CMOM Programs January 1, 2021 through December 31, 2021

CMOM Program	CMOM Program Status	CD Reference	Significant Activities / Key Accomplishments
Fats, Oils and Grease (FOG) Control Program	Approved by EPA/FDEP on September 7, 2017	Section VI, Paragraph 19(a)	<p>The FOG Control Program and FOG Ordinance were approved by the EPA and FDEP on September 7, 2017. The FOG Control Program Ordinance was approved by the Board of County Commissioners on February 21, 2018 and became effective March 5, 2018. Work on the program was ongoing.</p> <ol style="list-style-type: none"> 1. Provided updated in-house training to FOG Control Technicians and Inspectors. 2. Updated and distributed FOG "Did You Know" flyers to Municipalities and posted on DERM webpage. Due to COVID-19 flyers were not distributed in person. 3. Continued FOG Outreach, including workshops. FOG and Utility Round Table meetings were held virtually via Microsoft Teams. 4. Continued to receive monthly hauled waste disposal data from WASD and Pompano/Broward using the eManifest system. Assigned FOG Inspectors to run eManifest Reports and schedule inspections based on findings. 5. Updated FSE FOG Operating Permit (GDO) conditions, and included training requirements. 6. Continued enforcement and compliance assistance with NGTs FSE. 100% of these facilities are under enforcement; however, due to COVID-19 compliance has only been reached for 94.82% of them. 7. Updates to the Liquid Waste Transporter (LWT) permit conditions were completed. 8. Monitoring of "NO COMMINGLING of FOG" (implemented April 1, 2017) at the South District Wastewater Treatment Plant has been put on hold because of COVID-19 and other program priorities due to limited personnel. Assistance provided to treatment plant personnel for seven (7) days at the request of WASD. 9. Continued to receive eManifest from LWTs. LWTs not submitting eManifest were advised that their operating permit would not be renewed. 10. Continued to perform and track FOG Construction Inspections, and to document inspection results to improve FOG Plan Review procedures. 11. Continued to track FOG Hot Spots and identify source(s) and root cause(s). Continued to collect monthly accelerated FOG maintenance reports from utilities. 12. Continued to work with equipment manufacturers to get FOG Control Devices approved for FOG2.0. 13. Implemented FOG related tasks associated with LW-ST2.0 Liquid Waste Transportation & Disposal Guidance Manual, including reviewing random/flagged/other waste sampling reports and cross-referencing eManifest records to identify potential sources of non-complying waste. Also, reviewed monthly FOG facility effluent sampling data for parameter trends. Updated training requirements for disposal facilities. 14. Continued to track/record Key Performance Indicators and Performance Measures to evaluate and improve the FOG Control Program, to be used for the 5th FOG Control Program Annual Review Report. 15. Developed or approved training programs for 2022 permitting cycle for LWTs and Disposal Facilities. Pending implementation by WASD. 16. Continued the Public Outreach program in collaboration with WASD. Some events scheduled for the last two years were cancelled because of COVID-19. 17. Contacted local business improvement districts (BIDs) to improve the outreach for businesses. Invited to quarterly virtual outreach events.

Table A-2 New CMOM Programs January 1, 2021 through December 31, 2021

CMOM Program	CMOM Program Status	CD Reference	Significant Activities / Key Accomplishments
Fats, Oils and Grease (FOG) Control Program	Approved by EPA/FDEP on September 7, 2017	Section VI, Paragraph 19(a)	<p>18. Continued working in collaboration with municipalities to reduce FOG impact in the Collection system, including sharing information and resources. Specifically City of Miami Beach, Town of Medley, North Miami, Coral Gables, and Opa-Locka.</p> <p>19. Continued quarterly coordination meetings with the disposal facility (WASD) for the Liquid Waste Transporters program.</p> <p>20. Continued enforcement (and compliance assistance) with FSEs to procure compliance with the current regulations. This includes unpermitted facilities, as well as existing facilities with FOG discharges over the minimum allowed, or not complying with operating permit conditions.</p> <p>21. Planned to implement annual routine inspections to the current 7,578 Grease Discharge Operating (GDO) permitted facilities.</p> <p>22. Collected data for Hot Spots from utilities and continued to perform complaints inspections. Due to COVID-19 these inspections are on hold.</p> <p>23. Planned to implement inspections to residential areas identified by the Utilities as potential sources of FOG blockages.</p> <p>24. Due to COVID-19 and staffing, confirmation inspections to facilities reported as closed were not started.</p> <p>25. Continued reviewing OL/CU/LBTR applications for FSEs. To assure compliance with FOG Control Program regulations.</p> <p>26. Continued reviewing construction plans for FSEs, to assure compliance with current regulations codified under 24-42.6(8) and (9).</p> <p>27. FOG Accelerated Maintenance Application was completed and implemented. Pending further testing by Municipalities.</p> <p>28. Performed inspections in response to SSOs due to grease.</p>
Sewer Overflow Response Plan (SORP)	Approved by EPA/FDEP on August 15, 2017	Section VI, Paragraph 19(b)	<p>The SORP was approved by the EPA and FDEP on August 15, 2017. On August 15, 2017, EPA/FDEP also sent comments on the Standard Operating Procedures for Calculating the Recovered SSO Volume. The letter was received by WASD on August 18, 2017. WASD submitted the Response to EPA/FDEP Comments on the Standard Operating Procedures for Calculating the Recovered SSO Volume on October 17, 2017. Work on the program was ongoing.</p> <ol style="list-style-type: none"> Continued all required SSO reporting Continued holding monthly SSO evaluation meetings Continued use of the Consolidated SSO Database Continue development of the Building Backup Application.
Information Management System (IMS) Program	Approved by EPA/FDEP on October 17, 2017.	Section VI, Paragraph 19(c)	<p>The IMS program was approved by the EPA and FDEP on October 17, 2017. Work on the program was ongoing.</p> <ol style="list-style-type: none"> Continued working on transitioning PCTS software from Proliance to e-Builder, to enhance Construction Contracts Management project close-out business practices. Continued the development of CMOM performance measures and KPI tracking. Continued enhancements of EAMS to improve maintenance processes and activities, including implementation of PFAC codes, maintenance checklists, incorporating monitored data for automating schedules, and deployment of mobile devices. Procured SCADA Watch

Table A-2 New CMOM Programs January 1, 2021 through December 31, 2021

CMOM Program	CMOM Program Status	CD Reference	Significant Activities / Key Accomplishments															
Geographic Information Systems (GIS) Program	Approved by EPA/FDEP on October 17, 2017.	Section VI, Paragraph 19(c)(x)	<p>1. Manhole rim and pipe inverts and their inclusion into GIS - Completed. Updates continue as part of the GIS data maintenance process.</p> <p>2. Streamlining the manual as-built to GIS process to satisfy 90 day requirement – Completed. Improvements continue as opportunities arise.</p> <p>3. GIS to Hydraulic Model Integration to satisfy 90 day requirement from GIS to Model – Completed. Updates continue</p> <p>4. GIS Training Refresher Program - Completed.</p> <p>5. Electronic As-Built Submittal - Completed.</p> <p>6. eBuilder CIP GIS integration.</p> <p>As agreed on May 25, 2017, during the EPA/FDEP/WASD Monthly Teleconference Meeting, WASD has been tracking all water and wastewater assets as-builts and Active As-built Supplemental Information System (“AAS IS”) forms, including new and corrected water and wastewater asset attribute data to GIS since June 6, 2017. See the tracking metrics for these requirements below:</p>															
			<p style="text-align: center;">Approved Projects by Time Unit (Quarter vs. Percent)</p> <table border="1"> <caption>Approved Projects by Time Unit (Quarter vs. Percent)</caption> <thead> <tr> <th>Year / Quarter</th> <th>Under 90 Days (%)</th> <th>Over 90 Days (%)</th> </tr> </thead> <tbody> <tr> <td>2021 Q1</td> <td>51</td> <td>3</td> </tr> <tr> <td>2021 Q2</td> <td>55</td> <td>19</td> </tr> <tr> <td>2021 Q3</td> <td>66</td> <td>15</td> </tr> <tr> <td>2021 Q4</td> <td>47</td> <td>11</td> </tr> </tbody> </table>	Year / Quarter	Under 90 Days (%)	Over 90 Days (%)	2021 Q1	51	3	2021 Q2	55	19	2021 Q3	66	15	2021 Q4	47	11
Year / Quarter	Under 90 Days (%)	Over 90 Days (%)																
2021 Q1	51	3																
2021 Q2	55	19																
2021 Q3	66	15																
2021 Q4	47	11																
Sewer System Asset Management Program (SSAMP)	Approved by EPA/FDEP on October 17, 2017.	Section VI, Paragraph 19(d)	<p>The SSAMP was approved by the EPA and FDEP on October 17, 2017. Work on Program is ongoing.</p> <p>1. Work with WASD staff and outside consultants to develop scope for the capture of asset inventory and condition assessment for the Pump Stations Division.</p> <p>2. Work with WASD staff and outside consultants to capture of asset inventory at the Wastewater Treatment Plants</p> <p>3. Work with EAMS Division to facilitate input of asset inventory and conditions assessments within the department's asset management systems.</p>															
Gravity Sewer System Operations and Maintenance Program (GSSOMP)	Approved by EPA/FDEP on October 17, 2017.	Section VI, Paragraph 19(e)	<p>The GSSOMP was approved by the EPA and FDEP on October 17, 2017. Work on the program was ongoing.</p> <p>1. Continued to deploy Smart Covers to "hot spots" to closely monitor and prevent SSOs.</p> <p>2. CCTV contract to inspect for gravity sewer mains for Pump Station 0001 is ongoing and 80 percent complete in June 2021.</p> <p>3. CCTV inspection for all WPO station was scheduled for implementation.</p>															

Table A-2 New CMOM Programs January 1, 2021 through December 31, 2021

CMOM Program	CMOM Program Status	CD Reference	Significant Activities / Key Accomplishments
Pump Station Operations and Preventative Maintenance Program (PSOPMP)	Approved by EPA/FDEP on October 17, 2017.	Section VI, Paragraph 19(f)	<p>The PSOPMP was approved by the EPA and FDEP on October 17, 2017. Work on the Program was ongoing.</p> <ol style="list-style-type: none"> 1. Implementation of upgrades to the Pump Station Division's electronic asset management system to include Problem, Failure, Action, and Cause codes, and Preventative Maintenance schedules. 2. Finalized implementation and deployment of electronic tablets for field staff for their use in accessing the asset management system remotely. 3. Started inter-departmental discussions (Pump Station Division, EAMS Division and Quality Assurance & Quality Control Division) for the development of the SOPs for all internal processes within the Pump Stations Division (Electrical, Mechanical, Structural, Wet-Well Rehabilitation and Diesel Maintenance).
Force Main Operations, Preventative Maintenance and Assessment/Rehabilitation Program (FMOPMARP)	Approved by EPA/FDEP on October 17, 2017.	Section VI, Paragraph 19(g)	<p>The FMOPMARP was approved by the EPA and FDEP on October 17, 2017.</p> <ol style="list-style-type: none"> 1. The Force Main Assessment Program is pending approval of the Criticality Assessment and Prioritization Report (submitted to the EPA/FDEP on July 17, 2018). 2. Re-inspection cycle for 60-inch and 66-inch PPCP pipes in the south area of the County was completed. 3. Convened working group to discuss and establish SOPs for the evaluation of soils, develop specifications for the use of inert materials, and develop standards for corrosion control options. 4. ARV program is ongoing.
Force Main Rehabilitation/Replacement Program (FMRRP)	Approved by EPA/FDEP on September 28, 2017.	Section VI, Paragraph 19(q)(iv)	<p>The FMRRP was approved by the EPA and FDEP on September 28, 2017. Work on the program was ongoing.</p>
WWTP Operations and Maintenance Program (WWTP OMP)	Pending EPA/FDEP approval.	Section VI, Paragraph 19(h)	<p>EPA/FDEP sent comments on the Manual on November 27, 2017. Response to EPA/FDEP comments on the Hauled Waste Guidance Manual was submitted on February 13, 2018. The WWTP OMP and the Hauled Waste Guidance Manual were approved by the EPA/FDEP on April 19, 2018 and June 4, 2018, respectively. The final WWTP OMP was submitted to EPA/FDEP on August 6, 2018. Work on the program was ongoing.</p> <ol style="list-style-type: none"> 1. Continued random collection of hauled waste as a standard practice. The random sample collection practice and procedures used at the SDWWTP are in general accordance with EPA's Handbook Guidance Manual for Control of Hauled Wastes EPA 833 B 98 003, Section 24-42.4 of the Miami-Dade Code, and the Hauled Waste Guidance Manual. 2. RER-DERM/WASD Coordination Meetings were held via Microsoft Teams on February 24, 2021, May 12, 2021, August 4, 2021 and on November 8, 2021 to discuss Hauled Waste Program and any issues or concerns related to illicit hauled waste or discharges to the plant or collection system. 3. Spotter training was held as part of the continuous training to be held each quarter. 4. Work with WASD staff and outside consultants to capture of asset inventory at the Wastewater Treatment Plants.
Specific Capital Improvement Projects (CIP)	Ongoing	Section VI, Paragraph 19(i)	<p>A summary of these CIPs and their significant activities for the previous calendar year can be found in Tables A-3.1, A-3.2, and A-3.3 for the WWTPs; Tables A-4.1 and A-4.2 for the WCTLs; and Table A-5 for the Sewer Pump Station Systems included in Appendix A.</p>
Financial Analysis Program (FAP)	Approved by EPA/FDEP on October 17, 2017.	Section VI, Paragraph 19(j)	<p>The FAP was approved by the EPA and FDEP on October 17, 2017. Work on the program was ongoing. Financial Analysis Program Report, which includes the expenditures for both operating and capital from FYTD October 2020 to September 2021 can be found in Appendix C of the 2021 Semi-Annual Report No. 2 submitted to EPA and FDEP on January 31, 2022.</p>

Table A-3.1 South District WWTP Capital Improvement Projects January 1, 2021 through December 31, 2021

Project Number	Project Name	Project Description	Significant Activities /Key Accomplishments
1.1	Headworks	The SDWWTP Headworks project will be performed pursuant to Paragraph 19(i) and Appendix D. This project involves routine repairs on existing bar screen mechanisms in headwork structure prior to aerated grit chambers. Failure of bar screen mechanism could result in the blinding of the bar screen and cause an overflow of raw sewage from the plant headworks structure towards nearby surface waters, especially during peak wet weather.	This project was completed on November 6, 2019, ahead of the February 23, 2020 CD compliance date of.
1.2	Oxygen Production	The SDWWTP Oxygen Production project will be performed pursuant to Paragraph 19(i) and Appendix D. The purpose of this project is to construct a new electrical equipment, procure and install a new compressor #4 and retrofit existing air compression unit #3.	On July 14, 2021, the County notified EPA and FDEP of a Potential Delay for CD CIP 1.2 – Oxygen Production at SDWWTP due to delays in the field conditions, equipment manufacturing delays and system integration of this project during the construction phase. The Compliance Date is February 25, 2022 and construction continued.
1.3	Oxygenation Trains	The SDWWTP Oxygen Trains project will be performed pursuant to Paragraph 19(i) and Appendix D. The purpose of this project is to retrofit aeration mixers and rehabilitate and apply surface coating to the structure. This project was split into three child projects: 1.3(1) the structural rehab of the trains; 1.3(2) the Mixer Upgrades and the Electrical Building Expansion (OOL ST-1B) managed by OOL; and 1.3(3) for Substations 5/6 and 15/16 (OOL ST-2D) managed by OOL	1.3(1) Construction Train 4 Oxygenation Tanks Structural Rehab completed July 31, 2020. 1.3(2) Permitting for Electrical Building Expansion and Oxygenation Trains Mixer Upgrades was completed and procurement commenced. 1.3(3) Procurement continued train - SS 5/6 and SS 15/16. Construction continued.
1.4	Chlorine Building	The SDWWTP Chlorine Building project will be performed pursuant to Paragraph 19(i) and Appendix D. This project involves replacement of motor control centers, relocation of electrical panels and roof repairs of the old chlorine building where flushing water pumps are to remain.	
1.5	Effluent Pump Station	The SDWWTP Effluent Pump Station project will be performed pursuant to Paragraph 19(i) and Appendix D. This project involves an upgrade of the existing obsolete pump control systems, upgrade of the pumps drives and motors, and structural rehabilitation of pump station wet well, i.e. chambers 2 through 4. This project has been split into three separate child projects: 1.5(1) structural rehabilitation of the effluent pump wet wells; 1.5(2) the building improvements and equipment for the remaining pumps (1-6); and 1.5(3) the electrical equipment associated with pumps 7, 8 and 9.	1.5(1) This child project reached substantial completion on May 26, 2020. 1.5(2) On October 29, 2021, the County notified EPA and FDEP of a Potential Delay for CD CIP 1.5 – Effluent Pump Station at SDWWTP due to COVID-19 Pandemic caused delays in equipment repairs, and the unforeseen site conditions during construction. The Compliance Date is April 7, 2022. 1.5(3) Completed on January 23, 2016.
1.6	Gravity Sludge Thickeners	The SDWWTP Gravity Sludge Thickeners project will be performed pursuant to Paragraph 19(i) and Appendix D. The objective of this project is to provide a combined Thickening and Dewatering facility under one common building. The existing sludge concentrators will be abandoned and a centrifuge thickening system will be utilized. This project has been combined as one Thickening and Dewatering project for the South and Central District Wastewater Treatment Plants (Projects 1.6, 1.8, 2.12, 2.13, 2.16 & 2.18(2)) and will move forward under a design-build delivery method.	Design Build project Notice to Proceed was issued on July 6, 2020. Currently the project is in design-build phase, transitioning from 60% design towards 100% NFC and construction started with building's foundation and shell work.
1.7	Digesters and Control Buildings	The SDWWTP Digester and Control Buildings project will be performed pursuant to Paragraph 19(i) and Appendix D. The project involves the rehabilitation or replacement of digester roofs for Clusters 1 and 2; digester tank cleaning, structural rehabilitation and coating, sludge mixers improvement. This will prevent the loss of digestion capacity and the decline in biogas/methane production for power generation. In addition, it will decrease the amount of unstabilized sludge that will require landfill disposal. This project also includes the construction of a new Substation 7 & 8, a new Acid Phase building, and new Gas Flares.	Construction continued.

Table A-3.1 South District WWTP Capital Improvement Projects January 1, 2021 through December 31, 2021

Project Number	Project Name	Project Description	Significant Activities /Key Accomplishments
1.8	Dewatering Facility	The SDWWTP Dewatering Facility project is being performed pursuant to Paragraph 19(i) and Appendix A. The purpose of this project is to replace the existing interim dewatering building with a new permanent dewatering facility. This will improve sludge dewatering and decrease solids accumulation in the secondary treatment process and prevent effluent limit violations. This project has been combined as one Thickening and Dewatering project for the South and Central District Wastewater Treatment Plants (Projects 1.6, 1.8, 2.12, 2.13, 2.16 & 2.18(2)) and will move forward under a design-build delivery method.	Design Build project Notice to Proceed was issued on July 6, 2020. Currently the project is in Design-Build phase, transitioning from 60% design towards 100% NFC and construction started with building's foundation and shell work.
1.9	FOG Removal Facility	The SDWWTP FOG Removal Facility project is being performed pursuant to Paragraph 19(i) and Appendix D. The current FOG separation tank is not capable of adequately handling solids load, resulting in excess odors and unanticipated manual labor to remove large amounts of grit, settled soils and hardened grease. The purpose of this project is to make modification to the existing FOG Removal Facility to provide short term improvements to the efficiency of operations associated with the processing of the combined flows of septage and grease and improve separation operations to the recently constructed FOG removal facility. This will result in the conveyance of oils and floating grease to a beneficial use option process and the removal of excess grit and settled solids.	This project was substantially completed on March 26, 2019, ahead of the CD compliance date May 24, 2019.
1.10	Odor Control	The SDWWTP Odor Control project is being performed pursuant to Paragraph 19(i) and Appendix D. The purpose of this project is to upgrade the odor control facilities serving Headworks Plant 1 and Plant 2.	Construction continued.
1.11	General Electrical	The SDWWTP General Electrical project is being performed pursuant to Paragraph 19(i) and Appendix D. This project involves the rehabilitation and replacement of electrical controls and wiring as needed throughout the plant. This project schedule has been broken down into multiple child/sub projects to better reflect the way the work is being executed: 1.11(1.1) SDWWTP Substation 9-12; 1.11(1.2) Generator Repairs; 1.11(2) Replacement of primary feeders from Main Switchgear A & B to Effluent Pump Station Pumps 1-6 (Part of CD 1.5(2))	1.11(1.1) Notice to Proceed was issued on September 08, 2020. Construction continued. 1.11(1.2) Award was rescinded due to unacceptable bid. Procurement (Re-bid) completed. Construction started. 1.11(2) Construction continued.
1.12	Chlorine Contact Chamber Structural	The SDWWTP Chlorine Contact Chamber Structural project is being performed pursuant to Paragraph 19(i) and Appendix D. This project involves the structural rehabilitation and coating of chlorine contact chambers 1 through 4. This project has been split into two separate child/sub projects: 1.12(1) Actuator Replacement and 1.12(2) Structural Rehabilitation.	1.12(1) Actuator Replacement reached substantial completion on June 5, 2018. 1.12(2) Structural rehab. of Contact Chambers # 3 and #4 continued completed July 9, 2020. Procurement for Structural rehab. of Contact Chamber #2 completed, NTP issued on November 30, 2020. Project reached substantial completion April 5, 2021.

Table A-3.2 Central District WWTP Capital Improvement Projects January 1, 2021 through December 31, 2021

Project Number	Project Name	Project Description	Significant Activities / Key Accomplishments
2.1	Electrical Improvements	The CDWWTP Electrical Improvements project is being performed pursuant to Paragraph 19(i) and Appendix D. This project involves the rehabilitation and replacement of electrical controls and wiring as needed throughout the plant. This project schedule has been broken down into multiple components to reflect more accurately the way the work is being executed: 2.1(1) CDWWTP General Electric In-house Construction - Substations 1, 2, 7A, 8A, 9A & 10A 2.1(2) Substations 3, 4A, 4B, 5 & 6 – This work is part of Project 2.27. 2.1(3) Substations 9 & 10 - This work is part of Project 2.10. 2.1(4) Substations 11 & 12 – This work is part of project 2.11. 2.1(5) Substations 15 & 16 – This work is part of Project 2.15. 2.1(6) Substations 17 & 18 – This work is part of Project 2.19. 2.1(7) Substations 7A, 8A, 9A & 10A	Note: The majority of this work will be done in conjunction with other CD projects. 2.1(1) Construction was completed on May 5, 2016. 2.1(2) Construction continued. 2.1(3) Construction continued. 2.1(4) Construction completed. 2.1(5) Construction completed. 2.1(6) Construction was completed on October 4, 2019. 2.1(7) Construction completed.
2.2	Building Improvements	The CDWWTP Building Improvements project is being performed pursuant to Paragraph 19(i) and Appendix D. The project involves the repair of maintenance, operations control and administration buildings at the plant. It includes the repair of the roofs and the staff facility. This project was split into four child projects: 2.2(1a) administration building and asbestos abatement; 2.2(2b) administration building interior renovations; 2.2(1c) miscellaneous roof repairs; and 2.2(2) remodeling of bathrooms, locker rooms, and showers.	This project reached substantial completion on January 17, 2020. 2.2(1a) Completed on June 1, 2015. 2.2(1b) Construction was completed on January 17, 2018. 2.2(1c) Construction was completed on October 19, 2016. 2.2(2) Construction was completed on January 17, 2020.
2.3	Headworks Plant 1	The CDWWTP Headworks/Grit Basin Plant 1 project is being performed pursuant to Paragraph 19(i) and Appendix D. The existing screening facilities at the CDWWTP influent pump station are inefficient. This results in the accumulation of rags and plastics in plant processes which sometimes leads to pump, mixer and clarifier collection mechanism failure. This project involves the addition of influent screens and a new electrical building with upgraded electrical and instrumentation equipment.	This project reached substantial completion on March 7, 2019, ahead of the CD Compliance Date of March 16, 2019.
2.4	Headworks Plant 2	The CDWWTP Headworks/Grit Basin project is being performed pursuant to Paragraph 19(i) and Appendix D. The existing screening facilities at the CDWWTP influent pump station are inefficient. This results in the accumulation of rags and plastics in plant processes which sometimes leads to pump, mixer and clarifier collection mechanism failure. This project involves the addition of influent screens and a new electrical building with upgraded electrical instrumentation equipment.	This project was completed on August 13, 2019, ahead of the August 23, 2019 CD compliance date.
2.5	Oxygenation Trains Plant 1	The CDWWTP Oxygenation Trains Plant 1 project is being performed pursuant to Paragraph 19(i) and Appendix D. The project involves the retrofitting of the aeration mixers, structural rehabilitation and surface coating application.	This project was completed on June 22, 2018, ahead of the April 12, 2019 CD compliance date.
2.6	Oxygenation Trains Plant 2	The CDWWTP Oxygenation Trains Plant 2 project is being performed pursuant to Paragraph 19(i) and Appendix D. The project involves the retrofitting of the aeration mixers, structural rehabilitation and surface coating application.	Construction completed.
2.7	Secondary Clarifiers Plant 1	The CDWWTP Secondary Clarifiers Plant 1 project is being performed pursuant to Paragraph 19(i) and Appendix D. The purpose of this project is to rehabilitate the structure and replace the sludge collection mechanisms in the plant. This project has been split into three separate child/sub projects: Project 2.7(1) includes coating of the walkways and replacement of RAS Pump discharge piping. Work on this project will be performed in conjunction with Project 2.9; Project 2.7(2) is for the upgrades of the Trains Mechanisms; and Project 2.7(3) includes the structural rehab of the Trains.	2.7(1) Procurement continued. 2.7(2) Mechanism upgrade work postponed for Tank #3 due to rephasing. Expected to commence in 2024. 2.7(3) Structural rehabilitation of Tank #3 postponed due to rephasing. Expected to commence in 2024
2.8	Secondary Clarifiers Plant 2	The CDWWTP Secondary Clarifiers Plant 2 project is being performed pursuant to Paragraph 19(i) and Appendix D. The purpose of this project is to rehabilitate the structure and replace the sludge collection mechanisms in the plant. This project has been split into three separate child/sub projects: Project 2.8(1) includes replacement of RAS Pump discharge piping; Project 2.8(2) is for the upgrades of the Trains Mechanisms; and Project 2.8(3) includes the structural rehab of the Secondary Clarifier Trains.	2.8(1) Construction continued. 2.8(2) Mechanism upgrades continued for Tanks #10 and 8 were completed. 2.8(3) Re-bid for Tank#4 will commenced.
2.9	RS Pump Stations Plant 1	The CDWWTP RS Pump Stations Plant 1 project is being performed pursuant to Paragraph 19(i) and Appendix D. This project involves the replacement of return sludge pump, piping, motor control centers and structural repairs to the pump stations. Work on this project will be performed in conjunction with Project 2.7(1).	Procurement continued.

Table A-3.2 Central District WWTP Capital Improvement Projects January 1, 2021 through December 31, 2021

Project Number	Project Name	Project Description	Significant Activities / Key Accomplishments
2.10	RS Pump Stations Plant 2	The CDWWTP RS Pump Stations Plant 2 project is being performed pursuant to Paragraph 19(i) and Appendix D. This project involves the replacement of return sludge pump, piping, motor control centers and structural repairs to the pump stations. This project has been split into two separate child/sub projects: Project 2.10(1) is for the RAS Pump Stations No.1 through 5 and Project 2.10(2) is for the RAS Header Pipe.	2.10(1) Construction continued. 2.10(2) Construction of RAS Header Pipe was completed on July 7, 2017.
2.11	Effluent Pump Station	The CDWWTP Effluent Pump Station project is being performed pursuant to Paragraph 19(i) and Appendix D. The purpose of this project is to replace the pump motors and related electrical equipment in the effluent pump station.	Consent Decree construction completion was achieved on June 17, 2021.
2.12	Sludge Thickeners Plant 1	The CDWWTP Sludge Thickeners Plant 1 project is being performed pursuant to Paragraph 19(i) and Appendix D. This project involves the replacement of the thickened sludge pumps, sanitary sewer pumps, HVAC and electrical systems in the concentrator pump station. It also involves the rehabilitation of concentrator collector mechanisms and structural rehabilitation and coating of concentrators. Specifically, this project will provide a combined Thickening and Dewatering facility under one common building. The existing sludge concentrators will be abandoned, and a centrifuge thickening system will be utilized.	Design Build project Notice to Proceed was issued on July 6, 2020. Currently the project is in Design-Build phase, transitioning from 60% design towards 100% NFC and construction started with building's foundation and shell work.
2.13	Sludge Thickeners Plant 2	The CDWWTP Sludge Thickeners Plant 2 project is being performed pursuant to Paragraph 19(i) and Appendix D. This project involves the replacement of the thickened sludge pumps, sanitary sewer pumps, HVAC and electrical systems in the concentrator pump station. It also involves the rehabilitation of concentrator collector mechanisms and structural rehabilitation and coating of concentrators. Specifically, this project will provide a combined Thickening and Dewatering facility under one common building. The existing sludge concentrators will be abandoned, and a centrifuge thickening system will be utilized.	Design Build project Notice to Proceed was issued on July 6, 2020. Currently the project is in design-build phase, transitioning from 60% design towards 100% NFC and construction started with building's foundation and shell work.
2.14	Digesters Plant 1	The CDWWTP Digesters Plant 1 project is being performed pursuant to Paragraph 19(i) and Appendix D. This project involves the complete rehabilitation of sludge digester clusters, i.e. roofs, concrete structures, recirculation and transfer pumps, mixers, and electrical pumps. This will prevent the loss of digestion capacity and the decline in biogas/methane production for power generation. In addition, it will decrease the amount of unstable sludge that will require landfill disposal.	On May 21, 2018, the County requested a Material Change to CD to cancel this project. Request under EPA/FDEP consideration.
2.15	Digesters Plant 2	The CDWWTP Digesters Plant 2 project is being performed pursuant to Paragraph 19(i) and Appendix D. This project involves the complete rehabilitation of sludge digester clusters, i.e. roofs, concrete structures, recirculation and transfer pumps, mixers, and electrical pumps. This will prevent the loss of digestion capacity and the decline in biogas/methane production for power generation. In addition, it will decrease the amount of unstable sludge that will require landfill disposal. This project has been split into 4 child projects, one for each digester cluster.	2.15(1) Construction continued. 2.15(2) Construction continued. 2.15(3) Procurement commenced. 2.15(4) Child project deleted as approved by EPA.
2.16	Dewatering Building	The CDWWTP Dewatering Building project is being performed pursuant to Paragraph 19(i) and Appendix D. The purpose of this project is to construct a new dewatering facility and sludge cake conveyance system to the sludge storage buildings.	Design Build project Notice to Proceed was issued on July 6, 2020. Currently the project is in Design-Build phase, transitioning from 60% design towards 100% NFC and construction started with building's foundation and shell work.
2.17	Chlorination Facilities	The CDWWTP Chlorination Facilities project is being performed pursuant to Paragraph 19(i) and Appendix D. This project involves the design and construction of a new bulk sodium hypochlorite storage and dosing system in separate outdoor structures to replace the existing chlorine gas system.	Construction was completed on July 27, 2018, ahead of the October 15, 2018 CD compliance date.
2.18	Odor Control Systems	The CDWWTP Cogeneration Facility Improvements project is being performed pursuant to Paragraph 19(i) and Appendix D. This involves the replacement of the motor control center of the odor control buildings including air-conditioned electrical rooms. It also involves replacement of odor control chemical pumps, piping, valves, and gas stripping tower media. This project is being completed in conjunction with other related projects. Project 2.18(1) Headworks Odor Controls System was performed earlier in coordination with the Headworks projects (2.3/2.4). Project 2.18(2) will be performed in coordination with the Design-Build Dewatering project (2.16).	2.18(1) This child project reached substantial completion on September 11, 2019. 2.18(2) Design-Build project Notice to Proceed was issued on July 6, 2020.

Table A-3.2 Central District WWTP Capital Improvement Projects January 1, 2021 through December 31, 2021

Project Number	Project Name	Project Description	Significant Activities / Key Accomplishments
2.19	Co-Gen Facility	The CDWWTP Cogeneration Facility Improvements project is being performed pursuant to Paragraph 19(i) and Appendix D. The project involves the installation of two new cogeneration engines, cogeneration building improvements, replacement of biogas pipeline and installation of biogas conditioning system. Thus, this project has been split into three separate child projects: 2.19(1) Co-Gen Generator Replacement, 2.19(2a) Co-Gen Biogas Treatment Facilities, and 2.19(2b) Co-Gen Restroom and Building Rehab.	2.19(1) Project completed on January 27, 2016. 2.19(2a) Project paused at testing/commissioning stage due to lack of bio gas availability from Digester Clusters. EPA and FDEP notified of the delay on January 10, 2020 and May 21, 2020. 2.19(2b) Project completed on May 18, 2020.
2.20	Septage Uploading	The CDWWTP Septage Unloading project is required under Paragraph 19(i) and Appendix D. The CD scope of this project included the construction of a new septage handling station to remove FOG from the main wastewater treatment stream and treat either through digestion or an off-site third party facility. However, the violation associated with this project was resolved by requiring all hauled waste to be sent to the South District WWTP as of January 2013.	Motion to delete Project 2.20 Septage Uploading at CDWWTP was approved by the Court on December 28, 2016.
2.21	Pump Station 1	The CDWWTP Pump Station No. 1 project is being performed pursuant to Paragraph 19(i) and Appendix D. The purpose of this project is to rehabilitate the pump station for the odor control system and rehabilitate the bar screen mechanisms.	Construction was completed on December 19, 2019, ahead of the February 26, 2021 CD compliance date.
2.22	Pump Station 2	The CDWWTP Pump Station No. 2 project is being performed pursuant to Paragraph 19(i) and Appendix D. This project involves the rehabilitation of the pump station odor control system, rehabilitation of bar screen mechanism, and replacement pump stations flow metering to improve maintenance accessibility.	Construction continued.
2.23	O ₂ Plant Process Controls Phase 2	The CDWWTP O ₂ Plant Process Controls project is being performed pursuant to Paragraph 19(i) and Appendix D. Existing oxygen production systems are either failing or obsolete. The purpose of this project is to replace existing oxygen production systems.	Construction was completed on April 25, 2016, ahead of the March 9, 2017 CD compliance date.
2.24	Gas Monitoring	The CDWWTP Gas Monitoring project is being performed pursuant to Paragraph 19(i) and Appendix D. The purpose of this project is to monitor gas levels and place alarms in hazardous areas.	Construction was completed on September 29, 2017.
2.25	Ventilation Improvements	The CDWWTP Ventilation Improvements project is being performed pursuant to Paragraph 19(i) and Appendix D. The purpose of this project is to improve ventilation in hazardous areas and is being executed in conjunction with other Capital Improvement projects. This project schedule has been broken down into multiple components to more accurately reflect the way the work is being executed: 2.25(1) HVAC Improvements for air scrubber (Project 2.12, 2.13 and 2.16) 2.25(2) Headworks HVAC Improvements (Project 2.3/2.4). 2.25(3) Digester Control Building HVAC Improvements (Project 2.15(1)). 2.25(4) Pump Station 1 HVAC Improvements (Project 2.21). 2.25(5) Pumps Station 2 HVAC Improvements (Project 2.22).	2.25(1) Procurement continued. 2.25(2) Construction was completed. 2.25(3) Construction completed. 2.25(4) Construction was completed. 2.25(5) Construction completed.
2.26	Rehabilitation of Walkways and Stairways	The CDWWTP Rehabilitation of Walkways and Stairways project is being performed pursuant to Paragraph 19(i) and Appendix D. This project involves the replacement of corroded walkways, stairways, railings, and grating throughout the plant. A portion of the project requires engineering services and construction of the remaining project scope that do not require engineering services is being performed.	Construction continued.
2.27	Oxygen Production	The CDWWTP Oxygen Production project is being performed pursuant to Paragraph 19(i) and Appendix D. The existing units are near the end of useful life and prone to failure. The purpose of this project is to construct a new oxygen production system to provide full redundancy as existing units are near the end of useful life and prone to failure. Project 2.27(1) is for the initial site preparation and utility relocation work. Project 2.27(2) is for the balance of the work that will be completed under a design-build delivery method.	2.27(1) Oxygen Production Site Preparation was completed on June 29, 2017. 2.27(2) Design Build continued.
2.28	SCADA RTU Upgrades	The CDWWTP Building Improvements project was performed pursuant to Paragraph 19(i) and Appendix D. The old radio communication system was obsolete and it was difficult to procure parts. The purpose of the project was to upgrade the SCADA remote telemetry units to maintain operational sustainability.	This project was completed as of February 10, 2014, ahead of the March 29, 2014 CD compliance date .
2.29	High Strength Influent Impact Study	The CDWWTP High Strength Influent Impact Study was performed pursuant to Paragraph 19(i) and Appendix D. The CDWWTP was experiencing an increase in Total Suspended Solids (TSS) and Biochemical Oxygen Demand (BOD) loading. This study investigated the sources and conceptualized solutions to eliminate or mitigate the change in plant influent characteristics.	Completed. Work started February 2013 and was completed June 5, 2014, ahead of the June 24, 2014 CD compliance date.

Table A-3.3 North District WWTP Capital Improvement Projects January 1, 2021 through December 31, 2021

Project Number	Project Name	Project Description	Significant Activities / Key Accomplishments
3.1	Headworks and Sludge Degritting Transfer	The NDWWTP Headworks and Sludge Degritting and Transfer project is being performed pursuant to Paragraph 19(i) and Appendix D. This project is a two-phase approach to improve the existing screening facilities at the NDWWTP. In Phase 1, bar screens are replaced with perforated plate screens, and Phase 2 involves the upgrade of the pretreatment buildings for fire code compliance and replacement of primary sludge grit separation equipment.	Construction was completed on December 6, 2017 ahead of the April 7, 2018 compliance date.
3.2	Primary Clarifiers and Odor Control	The NDWWTP Primary Clarifiers and Odor Control project is being performed pursuant to Paragraph 19(i) and Appendix D. This project involves the rehabilitation of the structures of the primary clarifiers. It also involves the rehabilitation of the mechanical and odor control systems at the plant. This project has been split into two child projects: Project 3.02(1) Replace Primary Clarifier Mechanisms for Primary Clarifiers #4 & 6 and Project 3.02(2) Primary Clarifiers and Odor Control Upgrades	3.2(1) Construction was completed on February 20, 2019. 3.2(2) Construction continued.
3.3	Oxygenation Trains	The NDWWTP Oxygenation Trains project is being performed pursuant to Paragraph 19(i) and Appendix D. The purpose of this project is to rehabilitate the structures of the aeration tanks and its mechanical and electrical systems.	Project is being procured as Design-Build along with CD 3.4. Procurement continued.
3.4	Oxygen Production	The NDWWTP Oxygen Production project is being performed pursuant to Paragraph 19(i) and Appendix D. This project involves the rehabilitation of the structure of the oxygen plant and its mechanical and electrical systems.	Project is being procured as Design-Build along with CD 3.3. Procurement continued.
3.5	Secondary Clarifiers	The NDWWTP Secondary Clarifiers project is being performed pursuant to Paragraph 19(i) and Appendix D. This project involves the rehabilitation of the structure of the secondary clarifiers and its mechanical and electrical systems. This project has been split into two child projects: Project 3.05(1) Replace mechanisms #1-10 and 3.5(2) Secondary Clarifiers Main Design Package	3.5(1) Construction of Secondary Clarifiers Replace Mechanisms No.1 - 10 was completed on March 30, 2017. 3.5(2) Construction continued.
3.6	Disinfection	The NDWWTP Disinfection project is being performed pursuant to Paragraph 19(i) and Appendix D. This project involves the replacement of the chlorine gas storage, liquid chlorination and dosing system with bulk sodium hypochlorite storage and dosing system in the existing chlorine building.	Construction continued.
3.7	Effluent Disposal	The NDWWTP Effluent Disposal project is being performed pursuant to Paragraph 19(i) and Appendix D. This project involves the installation of standby pumps to ensure effluent disposal capacity and the structural rehabilitation of the ocean outfall pump station wet well. This project has been split into two separate child projects: the Deep Injection Well (DIW) Pump Station and the Ocean Outfall (OOF) Pump Station.	The Ocean Outfall Pump Station rehabilitation was completed in March 2015. Construction of DIW Pump Station was completed on June 29, 2018, ahead of the December 28, 2021 CD compliance date.
3.8	Plant Wide Electrical	The NDWWTP Plant Wide Electrical project is being performed pursuant to Paragraph 19(i) and Appendix D. This project involves the rehabilitation and replacement of electrical controls and wiring as needed at the NDWWTP. This project schedule has been broken down into multiple child/sub projects to better reflect the way the work is being executed: 3.8(1) NDWWTP General Electrical In House Construction Feeders 1 and 2 have been replaced. 3.8(2) Electrical Feeders 3-6 Feeders 3-6 will be replaced in conjunction with Project 3.01. 3.8(3) Electrical Feeders 7-8 Feeders 7 and 8 will be replaced along with Project 3.04. 3.8(4) Electrical Feeders 9-14	Design, permitting, procurement, and construction continued. 3.8(1) General Electrical In-house construction (Feeders 1-2) was completed on January 15, 2016. 3.8(2) Electrical Feeders 3-6 (Project 3.1) was completed on December 6, 2017. 3.8(3) Electrical Feeders 7-8 designed continued (scope considered under CD 3.3 and CD 3.4) 3.8(4) Procurement completed, notice to proceed issued to Contractor on September 21, 2020. Construction completed.

Table A-3.3 North District WWTP Capital Improvement Projects January 1, 2021 through December 31, 2021

Project Number	Project Name	Project Description	Significant Activities / Key Accomplishments
3.9	Flood Mitigation	The NDWWTP Flood Mitigation project is being performed pursuant to Paragraph 19(i) and Appendix D. The purpose of this project is to mitigate the flood potential in the Generator and Electrical Building at the NDWWTP.	This project was completed on June 24, 2016 ahead of the August 13, 2017 CD compliance date.
3.10	Yard Piping Replacement	The NDWWTP Yard Piping Replacement project is being performed pursuant to Paragraph 19(i) and Appendix D. The purpose of this project is to replace the wastewater piping that interconnects unit processes throughout the plant.	Project was completed on May 24, 2016, ahead of the December 4, 2021, CD compliance date.
3.11	SCADA RTU Upgrades	The NDWWTP SCADA RTU Upgrades project is being performed pursuant to Paragraph 19(i) and Appendix D. The current radio communication system is obsolete, and it is difficult to procure parts. The purpose of the project is to upgrade the SCADA remote telemetry units to maintain operational sustainability.	Project was completed on November 26, 2014, ahead of the March 24, 2015 CD compliance date.

Table A-4.1 Wastewater Collection and Transmission Lines January 1, 2021 through December 31, 2021

Project Number	Project Name	Project Description	Significant Activities / Key Accomplishments
4.1	Collection System I/I Repairs	The Collection System I/I Repairs project is being performed in accordance with Paragraph 19(i) and Appendix D of the CD. The project targets defective gravity sewers with excessive inflow/infiltration. It involves rehabilitation of the Collection System, (i.e. dig & replace mainlines and laterals, manhole replacement, cured-in-place liners and sectional liners) and will be performed concurrently with other work.	Work on this project is ongoing.
4.2	Government Cut FM Phase 1 & 2	The Government Cut FM Phases 1 & 2 project was performed in accordance with Paragraph 19(i) and Appendix D. The purpose of this two phase project is to replace critically damaged sections of the 54-inch force main to avert catastrophic failures in Government Cut. This project involved the replacement of the 54-inch FM with a 60-inch FM from the water shaft in Government Cut to mainland Miami Beach.	Project was completed on the CD compliance date of September 30, 2013.
4.3	Government Cut FM Phase 3	The Government Cut FM Phase 3 project is being performed in accordance with Paragraph 19(i) and Appendix D. Phase 3 of this project involves the replacement of the 54-inch FM from the land shaft at Fisher Island to CDWWTP at Virginia Key.	Project was completed on November 23, 2016, ahead of the CD compliance date of April 8, 2017.
4.4	North Dade 72 inch PCCP FM Rehabilitation	This North Dade Force Main Rehabilitation project is being performed in accordance with Paragraph 19(i) and Appendix D. The project replaces a damaged section of 72-inch force main that has experienced catastrophic failure. The rehabilitation involves 3.5 miles of 72-inch PCCP FM located between NW 17 Avenue and NE 10 Avenue in North Dade.	Project was completed on May 5, 2016, ahead of the CD compliance date of March 5, 2018.
4.5	South Dade 54 inch PCCP FM Rehabilitation	This South Dade Force Main Rehabilitation project is being performed in accordance with Paragraph 19(i) and Appendix D. The project involves the rehabilitation of 2.5 miles of 54-inch PCCP FM from SW 112 Avenue and SW 280 Street to SW 107 Avenue and SW 248 Street in South Dade. It replaces sections of the 54-inch force main that has critically damaged pipe segments. This project has been split into two (2) separate child projects: one which includes the 2.5 miles of 54-inch pipe rehabilitation and another for required bypasses.	Project was completed on September 14, 2018, ahead of the CD compliance date of December 23, 2018.
4.6	Replacement of Tamiami Canal Aerial Crossing FMs at NW 37th Avenue	This Tamiami Force Main Replacement project is being performed in accordance with Paragraph 19(i) and Appendix D. This project replaces corroded twin 24-inch FM crossing the Tamiami Canal at NW 37 Avenue, just south of NW 21 Street in the Tamiami area. The twin 24-inch force mains have experienced failures and are in need of replacement.	Construction was completed on May 27, 2014, ahead of the CD compliance date of October 29, 2016.
4.7	Rehabilitation of 18 inch DIP FM in Miami Lakes	This Miami Lakes Force Main Replacement project is being replaced in accordance with Paragraph 19(i) and Appendix D. The purpose of this project is to replace severely corroded 18-inch pipe that has had multiple failures. It replaces one mile of 18-inch DIP FM located at NW 60 Avenue and NW 138 Street.	Construction was completed on December 7, 2015, ahead of the CD compliance date of April 9, 2017.
4.8	Rehabilitation of 54 inch PCCP FM in the City of Miami	This City of Miami Force Main Rehabilitation project is being performed pursuant to Paragraph 19(i) and Appendix D. A section of 54-inch force main in the City of Miami is deteriorated and has experienced failures. The project involves the rehabilitation of 2 miles of 54-inch PCCP FM by cured-in-place liner located on NW 2 Street between NW 67 Avenue and NW 37 Avenue in the City of Miami. Project 4.8(1) includes the two miles of PCCP pipe rehabilitation and Project 4.8(2) includes the remaining two miles of pipe rehabilitation or replacement.	4.8(1): Construction was completed on June 16, 2017. 4.8(2): Completed on August 29, 2018 (Non-Consent Decree).

Table A-4.1 Wastewater Collection and Transmission Lines January 1, 2021 through December 31, 2021

Project Number	Project Name	Project Description	Significant Activities / Key Accomplishments
4.9	Replace Approximately 30 miles of AC FM Transmission System	This Force Main Transmission System Replacement project is being performed pursuant to Paragraph 19(i) and Appendix D. The purpose of this project is to replace asbestos cement force mains that have experienced failures and are difficult to locate in the field. This includes approximately 30 miles of AC FM transmission system.	See Table A-4.2. Project was substantially completed June 5, 2020 and completion letter submitted on October 7, 2020
4.10	Opa-Locka Airport FM Replacement	The Opa-Locka Airport PCCP Force Main Replacement project is being performed pursuant to Paragraph 19(i) and Appendix D. This project involves the rehabilitation of 2.5 miles of 48-inch PCCP force main running along the Biscayne Canal between NW 57th Avenue & NW 32nd Avenue. The length has been determined to have approximately one quarter of its line segments distressed based on in-situ condition assessments. The project has been split into four child projects for different areas in the Opa-Locka Airport.	4.10(1) Construction was completed on October 27, 2017, ahead of the CD Compliance date of January 28, 2018. 4.10(2) Construction was completed on May 11, 2018. 4.10(3) Construction was completed on December 14, 2017. 4.10(4) Non-Consent Decree Project.

Table A-4.2 Project 4.9 Replacement of Approximately 26 Miles AC FM Transmission System January 1, 2021 through December 31, 2021

Line Number	Diameter	From Location	To Location	Significant Activities / Key Accomplishments
1	12	SW 112 Ave. & SW 104 St.	SW 112 Ave. & SW 112 St.	This project was complete on June 5, 2020.
2	8	NE 14 Ave. & 191 St.	NE 14 Ave. & Miami Gardens Dr.	This project was completed on October 25, 2016.
3	6	PS 356	NW 53 Ct. & NW 195 Dr.	This project was completed on August 11, 2014.
4	8	NW 53 Ct. & NW 195 Dr.	NW 52 Ct. & NW 191 Dr.	This project was completed on August 11, 2014.
5	10	NW 52 Ct. & NW 191 St.	NW 52 Ct. & NW 188 Dr.	This project was completed on August 11, 2014.
6	6	PS 362	NW 52 Ct. & NW 190 Dr.	This project was completed on August 18, 2017.
7	10	NW 52 Ct. & NW 190 St.	NW 52 Ave. & NW 189 Ter.	This project was completed on August 18, 2017.
8	10	NW 52 Ct. & NW 188 St.	NW 52 Ave. & NW 183 St.	This project was completed on August 11, 2014.
9	8	PS 385	NW 29 Ct. & NW 199 St.	This project was completed on August 7, 2015.
10	12	NW 29 Ct. & NW 199 St.	NW 30 Pl. & NW 199 St.	This project was completed on August 7, 2015.
11	8	NW 29 Ct. & NW 199 St.	NW 28 Ave. & NW 199 St.	This project was completed on August 7, 2015.
12	6	PS 374	NW 28 Ave. & NW 199 St.	This project was completed on August 7, 2015.
13	12	NW 30 Pl. & NW 199 St.	NW 37 Ave. & NW 199 St.	This project was completed on August 7, 2015.
14	8	PS 368	NW 37 Ave. & NW 194 Ter.	This project was completed on June 3, 2015.
15	4	PS 375	NW 29 Pl. and NW 191 St.	This project was completed on June 3, 2015.
16	10	PS 427	NW 29 Pl. and NW 191 St.	This project was completed on June 3, 2015.
17	10	NW 29 Pl. and NW 191 St.	NW 32 Ave. & NW 191 St.	This project was completed on June 3, 2015.
18	6	PS 376	NW 32 Ave. & NW 191 St.	This project was completed on June 3, 2015.
19	6	PS 377	NW 36 Ave. & NW 183 St.	This project was completed on June 3, 2015.
20	8	PS 366	NW 42 Pl. & NW 199 Ter.	This project was completed on March 6, 2017.
21	10	NW 42 Pl. & NW 199 Ter.	NW 39 Ct. & NW 199 St.	This project was completed on March 6, 2017.
22	6	PS 358	PS 352	This project was completed on March 1, 2017.
23	8	PS 1022	PS 1072	This project was completed on June 15, 2018.
24	8	PS 353	NW 48 Ct. & NW 178 Ter.	This project was completed October 27, 2016.
25	10	NW 52 Ave. & NW 173 Dr.	NW 52 Ave. & NW 178 Ter.	This project was completed on April 3, 2017.
26	6	PS 354	NW 52 Ave. & NW 173 Dr.	This project was completed on April 3, 2017.
27	4	Pvt. PS @ SW 149 Ter.	MH 14 @ PS 719	This project was complete on June 5, 2020.
28	8	PS 786	MH 5 @ PS 785	This project was complete on June 5, 2020.
29	12	PS 811	SW 107 Ave. & SW 76 St.	This project was completed on September 12, 2019.
30	12	PS 811	SW 102 Ave. & SW 81 St.	This project was completed on September 12, 2019.
31	10	PS 812	SW 102 Ave. & SW 84 St.	This project was completed on September 12, 2019.
32	12	SW 107 Ave. & SW 104 St.	SW 107 Ave. & Kendale Blvd.	This project was completed on October 13, 2017.
33	4	Pvt. PS @ 114 Ave. & SW 169 St.	MH 59 @ SW 103 Ave.	This project was completed on August 12, 2016.
34	10	PS 709	Homestead Ave. & Kumquat St.	This project was completed on April 21, 2020.
35	6	SW 110 Ave. & Banyan St.	SW 95 Ave. & SW Banyan St.	This project was completed on April 21, 2020.
36	4	PS 721	US1 & Banyan St.	This project was completed on April 21, 2020.

Table A-4.2 Project 4.9 Replacement of Approximately 26 Miles AC FM Transmission System January 1, 2021 through December 31, 2021

Line Number	Diameter	From Location	To Location	Significant Activities / Key Accomplishments
37	4	PS 749	PS 731	This project was completed on April 21, 2020.
38	4	PS 747	US1 & East Indigo St.	This project was completed on April 21, 2020.
39	10	SW 102 Ave. & SW 176 St.	Homestead Ave. & West Jessamine	This project was completed on April 21, 2020.
40	8	PS 745	SW 102 Ave. & SW 175 St.	This project was completed on April 21, 2020.
41	4	PS 731	SW Duval Ave. & West Indigo St.	This project was completed on April 21, 2020.
42	10	SW 102 Ave. & West Jessamine	US1 & SW 184 St.	This project was completed on April 21, 2020.
43	12	Homestead Ave. & 180 St.	Railroad St. & SW 184 St.	This project was completed on April 21, 2020.
44	8	PS 810	SW 118 Pl. & SW 72 St.	This project was complete on June 5, 2020.
45	12	PS 793	SW 118 Pl. & SW 72 St.	This project was complete on June 5, 2020.
46	6	PS 724	SW 106 Ave. & SW 155 St.	This project was complete on April 21, 2020.
47	8	PS 869	SW 122 Ave. & SW 88 St.	This project was completed on February 1, 2017.
48	10	PS 1017	SW 123 Pl. & SW 268 St.	This project was completed on September 12, 2019.
49	10	PS 1029	SW 132 Ave. & 268 St.	This project was completed on September 12, 2019.
50	8	SW 137 Ave. & SW 268 St.	SW 128 Ave. & 268 St.	This project was completed on September 12, 2019.
51	10	PS 1028	SW 137 Ave. & 288 St.	This project was completed on September 12, 2019.
52	10	PS 1027	SW 132 Ave. & 280 St.	This project was completed on September 12, 2019.
53	8	PS 1018	MH 44A @ SW 132 Ave.	This project was completed on September 12, 2019.
54	12	SW 137 Ave. & SW 72 St.	SW 142 Ave. & SW 72 St.	This project was complete on June 5, 2020.
55	12	SW 142 Ave. & SW 72 St.	SW 147 Ave. & SW 72 St.	This project was complete on June 5, 2020.
56	8	PS 864	SW 147 Ave. & SW 72 St.	This project was complete on June 5, 2020.
57	8	SW 142 Ave. & Kendale Lakes Blvd.	SW 140 Ave. & Kendale Lakes Blvd.	This project was complete on June 5, 2020.
58	10	SW 140 Ave. & Kendale Lakes Blvd.	SW 137 Ave. & Kendale Lakes Blvd.	This project was complete on June 5, 2020.
59	12	SW 137 Ave. & Kendale Lakes Blvd.	SW 137 Ave. & SW 81 St.	This project was complete on June 5, 2020.
60	8	PS 1013	PS 1012	This project was completed on August 21, 2019.
61	10	PS 1012	SW 144 Ave. & SW 280 St.	This project was completed on August 21, 2019.
62	8	PS 1011	SW 144 Ct. & SW 280 St.	This project was completed on August 21, 2019.
63	10	SW 147 Ave. & SW 288 St.	SW 134 Pl. & SW 288 St.	This project was completed on September 12, 2019.
64	6	PS 1009	SW 147 Ave. & SW 296 St.	This project was complete on June 5, 2020.
65	6	PS 1006	PS 1005	This project was complete on December 12, 2019.
66	8	PS 1002	SW 152 & SW 304 St.	This project was complete on June 5, 2020.

Table A-5 Sewer Pump Station Systems January 1, 2021 through December 31, 2021

Project Number	Project Name	Project Description	Significant Activities / Key Accomplishments
5.1	Upgrade of PS No. 0418	The Upgrade of PS No. 0418 project is being performed pursuant to Paragraph 19(i) and Appendix D. The station has reached the end of its useful life, and a booster station is needed to relieve pressures in the Doral area. The purpose of this project is to convert PS No. 0418 into a booster type station.	Construction was completed on November 8, 2019.
5.2	Upgrade of PS No. 0691	The Upgrade of PS No. 0691 project is being performed pursuant to Paragraph 19(i) and Appendix D. The existing equipment of the PS is beyond its useful life and capacity increase is required to handle increased Homestead flows. On April 14, 2016, this scope was modified and approved by EPA/FDEP. Specifically, PS No. 0691 serves the City of Homestead and will be replaced by a new pump station currently being built by Homestead. As this new Homestead pump station will replace the current PS No. 0691, that pump station (PS No. 0691) will be decommissioned once the new Homestead pump station (PS No. 1) is online.	PS No. 0691 was decommissioned on November 8, 2019.
5.3	Upgrade of PS No. 0692	The Upgrade of PS No. 0692 project is being performed pursuant to Paragraph 19(i) and Appendix D. The existing equipment of the PS is beyond its useful life and capacity increase is required to handle increased Homestead flows. This project involves the replacement of pumping and electrical equipment in PS No. 0692.	The County notified EPA and FDEP on May 5, 2020 and on June 16, 2020 of Delay, Force Majeure, and Failure to Meet the Compliance Date. Construction completed November 17, 2020.
5.4	Replacement of Switchgear PS No. 0414	The Replacement of Switchgear PS No. 0414 project is being performed pursuant to Paragraph 19(i) and Appendix D. The existing equipment of the PS is beyond its useful life. This project involves the replacement of electrical switchgear in PS No. 0414. The purpose of this project is to convert PS 0414 into a booster type station and rehabilitate and replace the entire facility equipment (pumps, motors, electrical equipment, HVAC, valves, and piping).	Construction was completed on June 11, 2019, ahead of the CD compliance date of June 15, 2019.
5.5	Replacement of Switchgear and Rehabilitation of Wet Well PS No. 0415	The Replacement of Switchgear and Rehabilitation of Wet Well PS No. 0415 project is being performed pursuant to Paragraph 19(i) and Appendix D. The existing equipment of the PS is beyond its useful life, and the wet well structure is badly deteriorated due to H ₂ S. This project involves the rehabilitation and replacement of the entire facility equipment (pumps, motors, electrical equipment, HVAC, odor control, valves, piping and wet well) in PS 0415.	Construction was completed on November 13, 2019.
5.6	Replacement of Switchgear PS No. 0416	The Replacement of Switchgear PS No. 0416 project is being performed pursuant to Paragraph 19(i) and Appendix D. The existing equipment of the PS is beyond its useful life. This project involves the rehabilitation and replacement of the entire facility equipment (pumps, motors, electrical equipment, HVAC, valves, and piping) in PS No. 0416.	Construction was completed on June 11, 2019, ahead of the CD compliance date of June 13, 2019.
5.7	Replacement of Switchgear and Rehabilitation of Wet Well PS No. 0417	The Replacement of Switchgear and Rehabilitation of Wet Well PS No. 0417 project is being performed pursuant to Paragraph 19(i) and Appendix D. The existing equipment of the PS is beyond its useful life, and the wet well structure is badly deteriorated due to H ₂ S. This project involves the rehabilitation and replacement of the entire facility equipment (pumps, motors, electrical equipment, HVAC, odor control, valves, piping and wet well) in PS 0417.	Construction was completed July 1, 2020.
5.8	Replacement of Electrical and Mechanical Equipment PS No 0107	The Replacement of Electrical and Mechanical Equipment PS No. 0107 project is being performed pursuant to Paragraph 19(i) and Appendix D. The existing equipment of the PS is beyond its useful life, and parts are not readily available for the load cell type controllers. This project involves the replacement of pumping and electrical equipment of PS No. 0107.	Construction was completed on February 3, 2018, ahead of CD compliance date of January 27, 2019.

Table A-5 Sewer Pump Station Systems January 1, 2021 through December 31, 2021

Project Number	Project Name	Project Description	Significant Activities / Key Accomplishments
5.9	Replacement of Pumping and Electrical Equipment PS No. 0301	The Replacement of Pumping and Electrical Equipment PS No. 0301 project is being performed pursuant to Paragraph 19(i) and Appendix D. The existing equipment is beyond its useful life due to the saltwater environment. This project involves the replacement of pumping and electrical equipment of PS No. 0301 to include a generator. This project includes the construction of a new submersible pump station.	Notice to proceed was issued to Contractor on December 9, 2019. Construction continued.
5.10	Upgrade of PS No. 0488	The Upgrade of PS No. 0488 project is being performed pursuant to Paragraph 19(i) and Appendix D. The existing equipment is beyond its useful life. This project involves the conversion of the PS to a submersible type station.	This project was completed on December 8, 2016, ahead of the CD compliance date May 9, 2018.
5.11	Installation of 60 inch FM from Kendall Dr. to PS No. 0536	On August 12, 2015 WASD submitted a Request for Non-Material Change for Appendix D CIP 5.11. WASD proposed the cost effective alternative of adding a 48-inch connection to the suction side of PS 0536 that will provide similar benefits to those of the 60-inch FM for CD Appendix D CIP 5.11. WASD received EPA and FDEP approval on October 28, 2015.	Construction was completed on February 13, 2019, ahead of CD compliance date of May 18, 2019.
5.12	Replacement of Switchgear PS No. 0187	The Replacement of Switchgear PS No. 0187 project is being performed pursuant to Paragraph 19(i) and Appendix D. The existing equipment of the PS is beyond its useful life, and parts are not readily available. This project involves the replacement of the Anvic Drive with a VFD.	Construction was completed on March 25, 2019, ahead of the CD compliance date of March 26, 2019.
5.13	Refurbish Emergency Generators and Controls at Regional PSs	The Refurbish Emergency Generators and Controls at regional PSs project is being performed pursuant to Paragraph 19(i) and Appendix D. The emergency backup generators are unreliable due to the age of the controllers and the condition of the wiring on the engines. The purpose of this project is to refurbish emergency generators and controls at regional PSs.	This project was completed on February 4, 2016, ahead of the CD compliance date July 20, 2016.
5.14	Upgrade of PSs Nos. 0086 and 0492	The Upgrade of Pump Stations No. 0086 and 0492 project was performed and completed pursuant to Paragraph 19(i) and Appendix D. The project was designed to increase reliability and extend the service life of the pump station. The pump stations also exceeded the Adequate Transmission Capacity Criteria with a NAPOT of greater than 10 hours. For this project, Pump Station No. 0086 was converted to a submersible type pump station with an existing wet well and the electrical controls and instrumentation were upgraded. The electrical controls and instrumentation for Pump Station No. 0492 were upgraded. It was also rehabilitated to a new submersible type pump station.	Construction was completed on July 15, 2013, ahead of the CD compliance date of December 31, 2013.
5.15	Upgrade of PSs Nos. 0065, 0201, 0374, 0607	The Upgrade of PSs No. 0065, 0201, 0334, 0374, 0607 project is being performed pursuant to Paragraph 19(i) and Appendix D. The pump stations exceed the Adequate Transmission Capacity Criteria with a NAPOT of greater than 10 hours. The PS No. 0065 is being upgraded to include new submersible pumps in the existing dry well, installation of larger suction and discharge piping, and an electrical upgrade. The PS No. 0201 is being upgraded to include new submersible pumps, installation of a new valve box, an electrical upgrade and 48 I/I repairs for a flow of 176 gpm. The PS No. 0334 project involves the conversion to a new submersible type pump station, an electrical upgrade and the installation of 2,200 L.F. of new 8-inch FM. The PS No. 0374 is being upgraded to include new submersible pumps, installation of a new valve box, an electrical upgrade and the installation of 320 L.F. of new 8-inch FM. The PS No. 0607 project involves the conversion to a new submersible type pump station and an electrical upgrade.	This project was completed on December 30, 2015, ahead of the CD compliance date December 31, 2015.

Table A-5 Sewer Pump Station Systems January 1, 2021 through December 31, 2021

Project Number	Project Name	Project Description	Significant Activities / Key Accomplishments
5.16	Upgrade of PSs Nos.0198, 0437, 0466, 0680	The Upgrade of PSs No. 0198, 0437, 0466, 0680 project is being performed pursuant to Paragraph 19(i) and Appendix D. The pump stations exceed the Adequate Transmission Capacity Criteria with a NAPOT of greater than 10 hours. Project has been split into four child projects, one for each PS. 5.16(1) PS No. 0198 is being upgraded to include new submersible pumps in the existing dry well, an electrical upgrade and flow isolation and I/I repairs, if necessary. 5.16(2) PS No. 0437 and 5.16(3) PS No. 0466 are being upgraded to include new submersible pumps, installation of a new valve box, and an electrical upgrade. 5.16(4) PS No. 0680 is being upgraded to include new submersible pumps, new valves above ground and an electrical upgrade.	This project was completed on January 24, 2018. 5.16(1) PS No. 0198: Construction was completed in January 24, 2018. 5.16(2) PS No. 0437: Construction was completed on December 30, 2016. 5.16(3) PS No. 0466: Construction was completed on October 21, 2016. 5.16(4) PS No. 0680: Construction was completed on December 1, 2016.
5.17	Upgrade of PSs Nos. 0037, 0351, 0370, 0403	The Upgrade of PSs No. 0037, 0351, 0370, 0403 project is being performed pursuant to Paragraph 19(i) and Appendix D. The pump stations exceed the Adequate Transmission Capacity Criteria with a NAPOT of greater than 10 hours. Project has been split into four child projects, one for each PS. 5.17(1) PS No. 0037 project involves the conversion to a new submersible type pump station and an electrical upgrade. 5.17(2) PS No. 0351 is being upgraded to include new submersible pumps, installation of a new valve box, an electrical upgrade and the replacement of 360 L.F. of 4-inch with 8-inch FM. 5.17(3) PS No. 0370 project involves the conversion to a new submersible type pump station, an electrical upgrade and the installation of 760 L.F. of new 8-inch FM. 5.17(4) PS No. 0403 project involves the conversion to a new submersible type pump station, an electrical upgrade and the installation of an on-site generator.	This project was completed on April 30, 2018 ahead of CD compliance date of November 20, 2018. 5.17(1) PS No. 0037: Construction was completed on November 14, 2017. 5.17(2) PS No. 0351: Construction was completed on December 1, 2017. 5.17(3) PS No. 0370: Construction was completed on January 11, 2018. 5.17940 PS No. 0403: Construction was completed on April 30, 2018.
5.18	Upgrade of PSs Nos. 0441, 0491, 0710, 0827, 0852, 1236	The Upgrade of PSs No. 0441, 0491, 0710, 0827, 0852, 1236 project is being performed pursuant to Paragraph 19(i) and Appendix D. The pump stations exceed the Adequate Transmission Capacity Criteria with a NAPOT of greater than 10 hours. Project has been split into six child projects, one for each PS. 5.18(1) PS No. 0441 project involves the conversion to a new submersible type pump station and an electrical upgrade. 5.18(2) PS No. 0491 is undergoing flow isolation and I/I repairs, if necessary. 5.18(3) PS No. 710 project involves the conversion to a new submersible type pump station, an electrical upgrade and the installation of 1,800 L.F. of new 8-inch FM. 5.18(4) PS No. 0827 is being upgraded to include larger submersible pumps, installation of a new valve vault, an electrical upgrade and the replacement of 1,600 L.F. of 4-inch FM with 8-inch FM. 5.18(5) PS No. 0852 project involves the conversion to a new submersible type pump station and an electrical upgrade. 5.18(6) PS No. 1236 is undergoing 300 I/I repairs to achieve a flow of 130 gpm.	This project was completed on November 18, 2019, ahead of the CD compliance date of December 13, 2019. 5.18(1) PS No. 0441: Construction was completed August 14, 2019. 5.18(2) PS No. 0491: Completed on November 15, 2019. 5.18(3) PS No. 0710: Construction was completed on August 14, 2019. 5.18(4) PS No.0827: Construction was completed on November 18, 2019. 5.18(5) PS No.0852: Construction was completed on July 26, 2019. 5.18(6) PS No.1236: Completed on May 1, 2017.
5.19	SCADA RTU Upgrades	The SCADA RTU Upgrades project is being performed pursuant to Paragraph 19(i) and Appendix D. The current radio communication system is obsolete, and it is difficult to procure parts. The purpose of the project is to upgrade the SCADA remote telemetry units for 635 pump stations to maintain operational sustainability.	Construction was completed on November 23, 2015, ahead of the CD compliance date of March 18, 2016.

Appendix B
SSO Volume Analysis Tables

Table B-1: SSO Volume Analysis

CAUSE	2013	2014	2015	2016	2017	2018	2019	2020	2021	
1. Building Backups (Laterals)	- gal.	612 gal.	58 gal.	101 gal.	82 gal.	187 gal.	37 gal.	176 gal.	80 gal.	
Blockage	(i) PM Activity*	* gal.	76 gal.	43 gal.	88 gal.	10 gal.	10 gal.	17 gal.	- gal.	48 gal.
	(ii) Roots	* gal.	5 gal.	- gal.	- gal.	20 gal.	7 gal.	- gal.	5 gal.	- gal.
	(iii) Grease	* gal.	455 gal.	9 gal.	- gal.	35 gal.	20 gal.	5 gal.	103 gal.	32 gal.
	(iv) Debris	* gal.	2 gal.	- gal.	- gal.	1 gal.	gal.	15 gal.	2 gal.	- gal.
Break	(v) Contractor Involved	* gal.	56 gal.	1 gal.	- gal.	1 gal.	gal.	- gal.	- gal.	- gal.
	(vi) Other	* gal.	18 gal.	5 gal.	13 gal.	15 gal.	150 gal.	- gal.	- gal.	- gal.
Other	(vii) Flow conditions			- gal.	- gal.	- gal.	- gal.	- gal.	6 gal.	- gal.
	(viii) Other			- gal.	- gal.	- gal.	- gal.	- gal.	60 gal.	- gal.
2. Air Release Valves	145,735 gal.	31,685 gal.	66,977 gal.	88,159 gal.	958,191 gal.	27,131 gal.	49,491 gal.	20,894 gal.	12,520 gal.	
(a) Automatic	58,557 gal.	12,485 gal.	63,507 gal.	34,657 gal.	876,830 gal.	9,286 gal.	11,930 gal.	4,660 gal.	12,520 gal.	
Break/Mal-functioning	(i) Malfunctioning/Other	7,214 gal.	2 gal.	3,055 gal.	3,220 gal.	779,477 gal.	5,921 gal.	4,241 gal.	25 gal.	125 gal.
	(ii) Riser/Nipple	35,023 gal.	2,232 gal.	- gal.	12,875 gal.	16,938 gal.	771 gal.	6,311 gal.	330 gal.	- gal.
	(iii) Valve	16,065 gal.	90 gal.	- gal.	- gal.	gal.	50 gal.	- gal.	740 gal.	- gal.
	(iv) Contractor Involved	- gal.	9,930 gal.	60,140 gal.	6,015 gal.	27,485 gal.	2,294 gal.	- gal.	320 gal.	11,960 gal.
	(v) Vandalism	- gal.	- gal.	- gal.	12,200 gal.	52,930 gal.	250 gal.	1,353 gal.	1,540 gal.	- gal.
Blockage	(iv) Grease Blockage	- gal.	5 gal.	36 gal.	220 gal.	gal.	gal.	- gal.	80 gal.	- gal.
	(v) Debris Blockage	255 gal.	226 gal.	276 gal.	127 gal.	gal.	gal.	390 gal.	1,625 gal.	435 gal.
(b) Manual	87,178 gal.	19,200 gal.	3,470 gal.	53,502 gal.	81,361 gal.	17,845 gal.	37,561 gal.	16,234 gal.	- gal.	
Broken	(i) Riser/Nipple	63,098 gal.	5,800 gal.	2,710 gal.	33,982 gal.	53,677 gal.	2,100 gal.	- gal.	16,154 gal.	- gal.
	(ii) Valve	230 gal.	2,600 gal.	- gal.	- gal.	85 gal.	gal.	- gal.	- gal.	- gal.
	(iii) Contractor Involved	23,850 gal.	10,800 gal.	750 gal.	19,470 gal.	27,599 gal.	15,745 gal.	- gal.	50 gal.	- gal.
	(iv) Vandalism	- gal.	- gal.	- gal.	- gal.	gal.	gal.	- gal.	- gal.	- gal.
Blockage	(v) Grease Blockage	- gal.	- gal.	- gal.	- gal.	gal.	gal.	- gal.	- gal.	- gal.
	(vi) Debris Blockage	- gal.	- gal.	10 gal.	50 gal.	gal.	gal.	- gal.	30 gal.	- gal.
3. Pump Station	25,914 gal.	542,178 gal.	2,000,468 gal.	86,065 gal.	35,027 gal.	8,142 gal.	803,996 gal.	18,740 gal.	75 gal.	
Other/Broken	(i) FPL Service Outage	12,130 gal.	- gal.	2,000,000 gal.	- gal.	1,820 gal.	gal.	180 gal.	gal.	gal.
	(ii) Pump	10,484 gal.	100 gal.	- gal.	- gal.	50 gal.	5,160 gal.	8,200 gal.	gal.	gal.
	(iii) Pipe/Pump-out	1,950 gal.	200 gal.	468 gal.	86,065 gal.	30,107 gal.	1,800 gal.	200 gal.	gal.	gal.
	(iv) Electrical	300 gal.	540,500 gal.	- gal.	- gal.	gal.	gal.	200 gal.	6,440 gal.	- gal.
	(v) Level/Bubbler	- gal.	- gal.	- gal.	- gal.	gal.	gal.	50 gal.	gal.	gal.
	(vi) Valve	- gal.	628 gal.	- gal.	- gal.	500 gal.	gal.	26,526 gal.	gal.	gal.
	(vii) Bypass Operation	1,050 gal.	750 gal.	- gal.	- gal.	50 gal.	50 gal.	200 gal.	12,080 gal.	- gal.
	(viii) Contractor Involved	- gal.	- gal.	- gal.	- gal.	gal.	1,082 gal.	45,515 gal.	gal.	gal.
	(ix) SCADA	- gal.	- gal.	- gal.	- gal.	- gal.	gal.	- gal.	gal.	gal.
	(x) Other	- gal.	- gal.	- gal.	- gal.	2,500 gal.	50 gal.	722,925 gal.	220 gal.	75 gal.
4. Gravity Main	4,072 gal.	5,447 gal.	1,629 gal.	1,008 gal.	5,763 gal.	6,475 gal.	2,605 gal.	557,115 gal.	2,806 gal.	
Blockage	(i) Grease	1,850 gal.	1,682 gal.	1,075 gal.	908 gal.	1,816 gal.	4,795 gal.	1,240 gal.	20,785 gal.	1,545 gal.
	(ii) Debris	191 gal.	180 gal.	134 gal.	5 gal.	1,117 gal.	5 gal.	475 gal.	1,485 gal.	368 gal.
	(iii) Roots	- gal.	2,400 gal.	- gal.	- gal.	gal.	gal.	- gal.	gal.	gal.
	(iv) Other	2,025 gal.	900 gal.	110 gal.	60 gal.	2,580 gal.	25 gal.	350 gal.	534,845 gal.	570 gal.
Break	(iv) Contractor Involved	6 gal.	285 gal.	260 gal.	35 gal.	250 gal.	1,650 gal.	540 gal.	- gal.	- gal.
	(v) Other	- gal.	- gal.	50 gal.	- gal.	gal.	gal.	gal.	- gal.	323 gal.
5. Force Main	1,650,264 gal.	2,101,605 gal.	651,001 gal.	1,024,873 gal.	4,275,958 gal.	1,113,796 gal.	4,154,260 gal.	2,864,403 gal.	893,572 gal.	
Break	(i) Contractor Involved	595,018 gal.	995,860 gal.	509,115 gal.	556,888 gal.	3,239,984 gal.	700,349 gal.	993,791 gal.	351,318 gal.	472,452 gal.
	(ii) Vandalism	- gal.	- gal.	5,800 gal.	50 gal.	gal.	gal.	- gal.	- gal.	- gal.
	(iii) Corrosion	773,586 gal.	738,446 gal.	84,756 gal.	363,480 gal.	462,842 gal.	41,508 gal.	2,133,666 gal.	1,040,775 gal.	341,390 gal.
	(iv) Bedding/Settlement	280,850 gal.	39,139 gal.	51,130 gal.	21,350 gal.	120,299 gal.	127,212 gal.	193,265 gal.	122,533 gal.	23,333 gal.
	(v) Other	810 gal.	328,160 gal.	200 gal.	83,105 gal.	452,833 gal.	244,727 gal.	833,538 gal.	1,349,777 gal.	56,397 gal.
6. Capacity Rel. - Rain/Sur/Press	1,000 gal.	- gal.	500 gal.	- gal.	9,815 gal.	13,034 gal.	- gal.	gal.	gal.	
(i) No Improvement Ness.	1,000 gal.	- gal.	500 gal.	- gal.	3,860 gal.	11,960 gal.	- gal.	gal.	gal.	
(ii) Improvement Rec.	- gal.	- gal.	- gal.	- gal.	5,955 gal.	1,074 gal.	- gal.	gal.	gal.	
SSOs (Excluding BBUs)	1,826,985 gal.	2,680,915 gal.	2,720,575 gal.	1,200,105 gal.	5,284,754 gal.	1,168,578 gal.	5,010,352 gal.	3,461,152 gal.	908,973 gal.	
Total	1,826,985 gal.	2,681,527 gal.	2,720,633 gal.	1,200,206 gal.	5,284,836 gal.	1,168,765 gal.	5,010,389 gal.	3,461,328 gal.	909,053 gal.	

Table B-2: SSO Event Cause Analysis

CAUSE		2013	2014	2015	2016	2017	2018	2019	2020	2021
1. Building Backups (Laterals)		-	34	22	21	17	6	4	22	14
Blockage	(i) PM Activity*	*	20	11	17	8	1	2	13	9
	(ii) Roots	*	2	-	-	1	3	-	1	0
	(iii) Grease	*	3	6	-	2	1	1	4	5
	(iv) Debris	*	1	-	-	1	-	1	1	0
Break	(v) Contractor Involved	*	3	1	-	1	0	0	-	-
	(vi) Other		5	4	4	4	1	0	-	-
Other	(vii)Flow conditions			-	-	0	0	0	2	-
	(viii)Other	*	-	-	-	0	0	0	1	-
2. Air Release Valves		23	17	20	34	31	16	15	27	10
(a) Automatic		13	13	15	23	24	13	8	22	10
Break/Malfunctioning	(i) Malfunctioning/Other	5	1	3	7	13	8	3	1	3
	(ii) Riser/Nipple	4	1	-	5	3	2	3	3	-
	(iii) Valve	1	1	-	-		1	0	7	-
	(iv) Contractor Involved	-	1	3	2	5	1	0	1	1
	(v) Vandalism	-	-	3	3	3	1	1	2	-
Blockage	(iv) Grease Blockage	-	1	3	2				2	-
	(v) Debris Blockage	3	8	6	4			1	6	6
(b) Manual		10	4	5	11	7	3	7	5	0
Broken	(i) Riser/Nipple	3	1	1	7	3	1	3	3	-
	(ii) Valve	3	2	-	-	1			-	-
	(iii) Contractor Involved	4	1	3	3	3	2	3	1	-
	(iv) Vandalism	-	-	-	-			1	-	-
Blockage	(v) Grease Blockage	-	-	-	-			0	-	-
	(vi) Debris Blockage	-	-	1	1			0	1	-
3. Pump Station		15	8	2	3	11	13	17	8	1
Other/Broken	(i) FPL Service Outage	4		1	-	6		3	-	-
	(ii) Pump	3	1	-	-	1	4	2	-	-
	(iii) Pipe/Pump-out	4	1	1	3	1	3	1	-	-
	(iv) Electrical	1	2	-	-			1	4	0
	(v) Level/Bubbler	-	-	-	-			1		
	(vi) Valve	-	3	-	-	1		2		0
	(vii) Bypass Operation	3	1	-	-	1	1	1	2	0
	(viii) Contractor Involved	-	-	-	-		4	3		
	(ix) SCADA	-	-	-	-					
	(x) Other		-	-	-	1	1	3	2	1

Table B-2: SSO Event Cause Analysis

CAUSE		2013	2014	2015	2016	2017	2018	2019	2020	2021
4. Gravity Main		66	54	46	32	36	26	36	61	41
Blockage	(i) Grease	53	44	34	27	27	21	26	31	30
	(ii) Debris	9	5	6	1	6	1	3	11	4
	(iii) Roots	-	1	-	-					
	(iv) Other	3	1	2	2	1	1	2	19	4
Break	(iv) Contractor Involved	1	3	3	2	2	3	5	-	-
	(v) Other	-	-	1	-				-	3
5. Force Main		35	32	37	36	51	36	40	49	37
Break	(i) Contractor Involved	13	10	11	15	19	16	18	7	9
	(ii) Vandalism	-	-	1	3				-	-
	(iii) Corrosion	9	10	14	9	9	5	7	15	10
	(iv) Bedding/Settlement	8	6	10	2	5	7	7	7	3
	(v) Other	5	6	1	7	18	8	8	20	15
6. Capacity Rel. - Rain/Sur/Press		1	-	1	-	9	3	0	0	0
	(i) No Improvement Nec.	1	-	1	-	5	1	0	0	0
	(ii) Improvement Rec.	-	-	-	-	4	2	0	0	0
SSOs (Excluding BBUs)		140	111	106	105	138	94	108	145	89
Total		140	145	128	126	155	100	112	167	103

it was not required to do so. Because the Consent decree was entered on December 6, 2013,