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VIA ELECTRONIC CORRESPONDENCE

March 1, 2019

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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 –
2018 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 2018 Annual Report. The 2018 Annual Report covers the period of time from January 1, 2018 through December 31, 2018.

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 for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Should you have any questions regarding this matter, please call me at (786) 552-8884.

Sincerely,



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Attachment: 2018 Annual Report

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2018 Annual Report (Fifth Annual Report)

January 1, 2018 through December 31, 2018

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 Waste Water 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
I/I	Inflow/Infiltration
IMS	Information Management System

Acronyms and Abbreviations (continued)

LF	Linear Foot
MGD	Million Gallons per Day
MS	Metropolitan Services
NDWWTP	North District Waste Water 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 Waste Water Treatment Plant
SSO	Sanitary Sewer Overflow
SEP	Supplemental Environmental Project
SORP	Sewer Overflow Response Plan
SCADA	Supervisory Control and Data Acquisition
SSAMP	Sewer System Asset Management Program
TSS	Total Suspended Solids

Acronyms and Abbreviations (continued)

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, 2018 through December 31, 2018), 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 and 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, 2018 - December 31, 2018)

3.1 CD Reporting

The County submitted four (4) quarterly reports covering the most recent Calendar Year (January 1, 2018 through December 31, 2018). 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, 2018 through December 31, 2018). 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. Work on this Program is ongoing and details can be found in the work progress tables in Appendix A. The calibration activities were completed and WCTS Model calibration report was completed on CD compliance date of December 6, 2018.

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 VSCs. 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 VSC Plan of Compliance as defined in Appendix B of the CD. These proposed changes to amend the VSC Ordinance were submitted to the EPA/FDEP on April 4, 2014. RER-DERM revisions to the proposed amended VSC Ordinance 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 App. 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. 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. 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. WASD received comments on the Program from EPA/FDEP on July 1, 2016. WASD corrected all deficiencies in the Program identified by EPA/FDEP and submitted responses to the deficiencies 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. WASD received comments on the Program from EPA/FDEP on June 24, 2016. WASD addressed all comments and answered all questions provided by EPA/FDEP and submitted responses to the deficiencies 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. 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 deficiencies in the Program identified by EPA/FDEP and submitted responses to the deficiencies 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, 2018 through December 31, 2018):

Wastewater Treatment Plant (WWTP)

- Oxygenation Trains Plant 1 at Central District WWTP (CIP 2.5) was completed on June 22, 2018.
- Chlorination Facilities at Central District WWTP (CIP 2.17) was completed on July 27, 2018.
- Effluent Disposal at North District WWTP (CIP 3.7) was completed on June 18, 2018.

Wastewater Collection and Transmission System (“WCTS”)

- Opa-Locka Airport 48-inch PCCM FM Replacement was completed on May 5, 2018.
- South Dade 54-inch PCCP FM Rehabilitation (CIP 4.5) was completed on September 14, 2018.
- Replacement of Electrical and Mechanical Equipment PS No. 0107 (CIP 5.8) was completed on February 23, 2018.
- Upgrade of Pump Stations Nos. 0037, 0351, 0370, 0403 (CIP 5.17) was completed on April 30, 2018.
- Upgrades of PSs Nos. 0198, 0437, 0466 and 0680 (CIP 5.16) was completed on January 24, 2018.

On January 27, 2017, the County notified EPA/FDEP of the potential Force Majeure event for CIP 5.16(1) due to the OSHA investigation. On September 14, 2017, EPA/FDEP approved request with the understanding that the work on the PS was to have been completed by August 31, 2017. However, this new deadline was missed due to additional problems experienced with the contractor and delays associated with Hurricane Irma. On September 22, 2017, the County informed EPA/FDEP that because of these issues, the PS would be completed by December 31, 2017. On December 22, 2017, the County requested a schedule modification for a CD compliance date of December 31, 2018 for CD CIP 5.16 which EPA and FDEP approved on April 11, 2018. CIP 5.16(1) Upgrade of PS No. 0198 was completed on January 24, 2018.

The County continues to be fully engaged with the successful implementation and compliance of the CD. Specifically, 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. As of this reporting period, twenty-eight (28) projects with a total cost of \$351 million have been completed and more than forty-four (44) projects with an approximate total cost of \$1.22 billion are currently in the procurement and construction phases. Despite the significant efforts and progress up to date, the County encountered challenges that delayed the completion of certain capital improvement projects. On December 22, 2017, the County submitted a correspondence detailing the challenges being encountered 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.

All CD requirements were met during the most recent calendar year, with the exception of the "First Annual FOG Control Program Review Report" submittal. The County failed to meet the submittal requirements for the report as required by the CD (including specified certification language, distribution, and posting of the deliverable on the Public Document Repository (PDR) within 24 hours of submittal). The County has acknowledged this noncompliance and has implemented corrective actions/communications to rectify the issue, to ensure compliance with submittal requirements, and to prevent future incidents. Work on this Program is ongoing and details can be found in the work progress tables in Appendix A.

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 deficiencies in the Program identified by EPA/FDEP and submitted responses to the deficiencies 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.

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)

During this reporting period, the County developed responses to EPA's/FDEP's additional comments and questions on the Wastewater Treatment Plant Operations and Maintenance Program (WWTP OMP) and the associated Hauled Waste Guidance Manual and submitted the respective response to EPA/FDEP within the permissible timeframe. As of June 4, 2018, all of the nine new CMOM Programs were approved by the EPA/FDEP. The status of the CMOM Programs submitted to EPA/FDEP for review and comment are listed 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 of 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/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. CMOM Programs Consolidated Schedule of Implementation Activities was submitted on CD compliance date of August 6, 2018.

Upon submittal of the CMOM Programs Consolidated Schedule of Implementation Activities, the County will comply with the schedule and report on the progress in future 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 1-1 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 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, 2018 through December 31, 2018). 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.

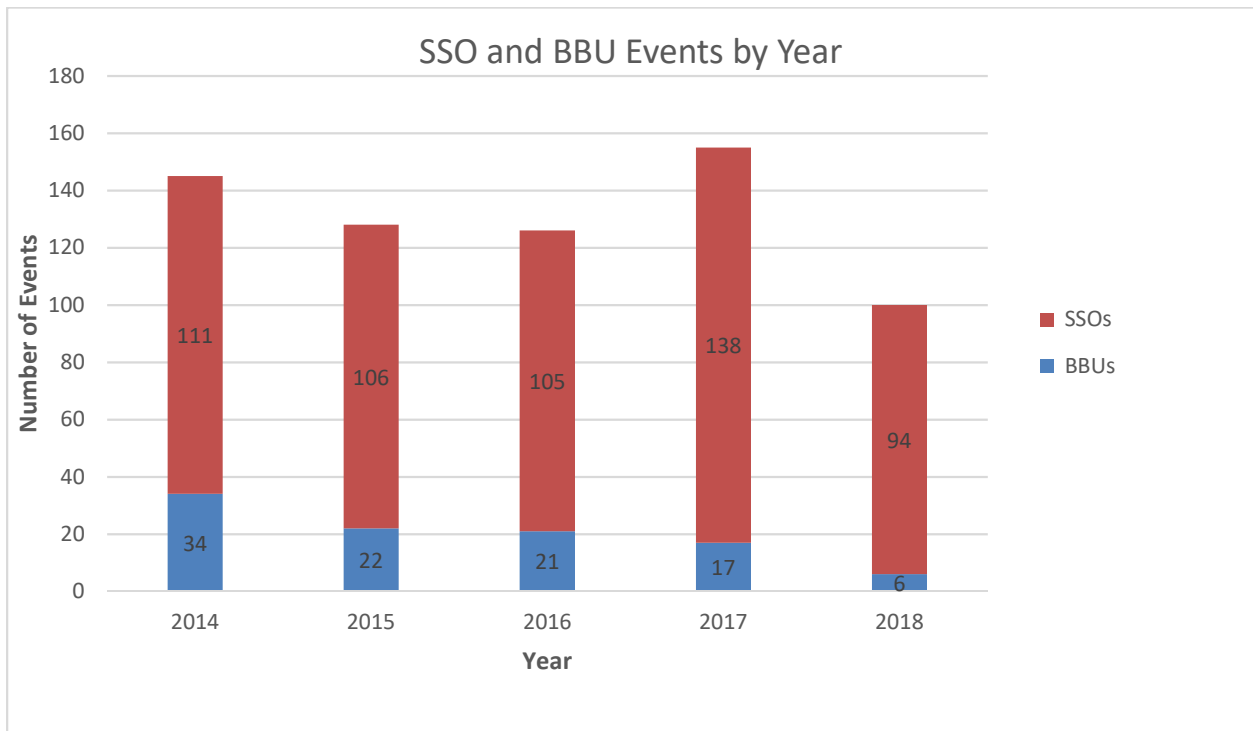


Figure 5.1 – SSO Events by Year

As shown in Figure 5.1, there was a reduction in the number of SSOs during the reporting period. In 2018, the County experienced 94 SSOs, 44 less than in 2017, a reduction of 32%. To date, this is the lowest number of events during a reporting period since the inception of these annual reports.

The number of BBUs in 2018 continued its trend downward with 6 events, 11 less events than in 2017, a reduction of 65%. When compared to 2014, the reduction amounts to 82% less BBUs in 2018.

The following figures and analysis are intended to take a closer look at the causes and volumes of the SSOs and identify the successful strategies the County has implemented which contributed to the decreasing number of SSOs trend.

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

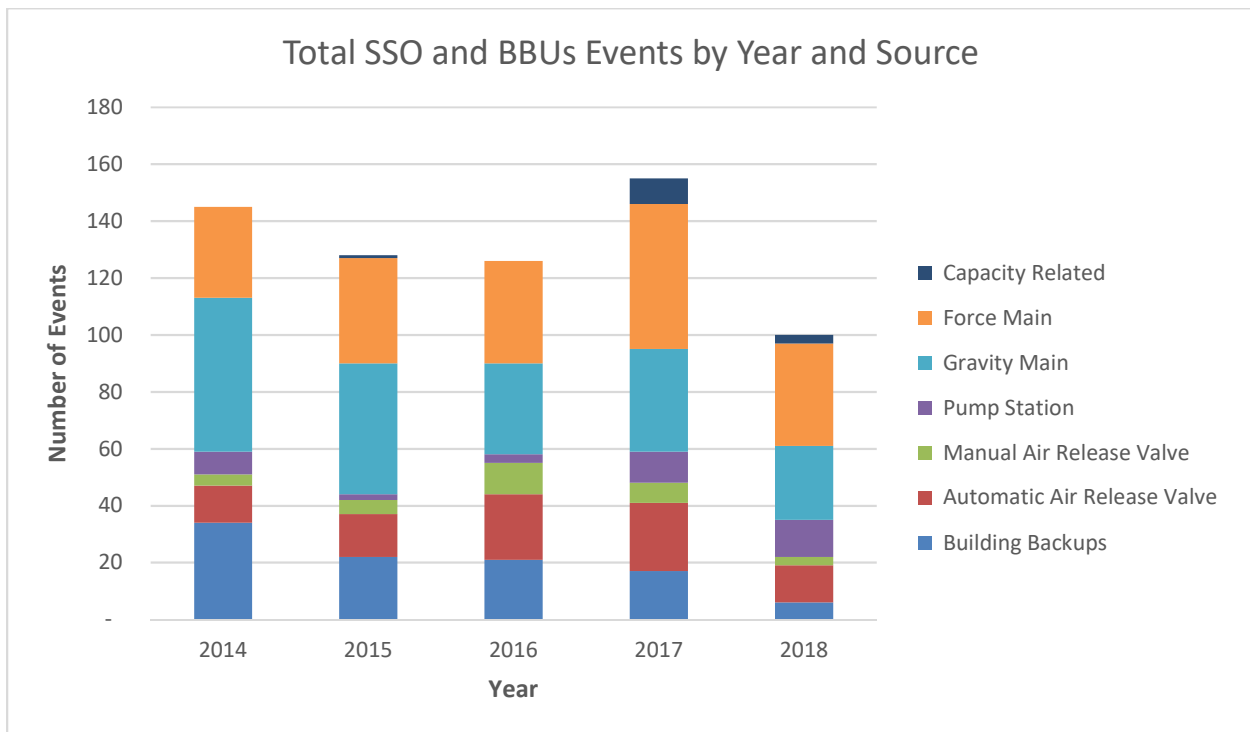


Figure 5.2 - SSO Events by Source

Figure 5.2 illustrates the distribution of SSOs by source and how each source contributed to the total number of SSOs for each year. As discussed above, BBUs decreased by 65% between 2017 and 2018. Automatic air release valve (AARV) related incidents decreased by 46%, i.e. from 24 in 2017 to 13 in 2018. The Wastewater Collection and Transmission Line Division (WWCTLD) had determined that last year's 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 7 in 2017 to 3 in 2018, a 57% reduction, continuing the trend downward from 2016. Pump station (PS) related SSO incidents rose from 11 in 2017 to 13 in 2018, this is an increase of 18%. Gravity main related SSOs events decreased from 36 in 2017 to 26 in 2018, a 28% decrease. Even though 21 out of the 26 gravity main related SSO events were due to grease blockages, the reduction on these type of events compared to previous years, is likely due to the continued implementation of the FOG Control Program. Force main SSOs events decreased by 29%, i.e. from 51 in 2017 to 36 in 2018. Of the 36 force main events 16 were contractor related. Even though the number of WCTS CIPs entering the construction phase has increased, the number of force main related incidents is comparable with

the range of previous years, i.e. 15 events in 2016, 11 in 2015, 10 in 2014 and 13 in 2013.

5.2 Volume of Sanitary Sewer Overflows

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

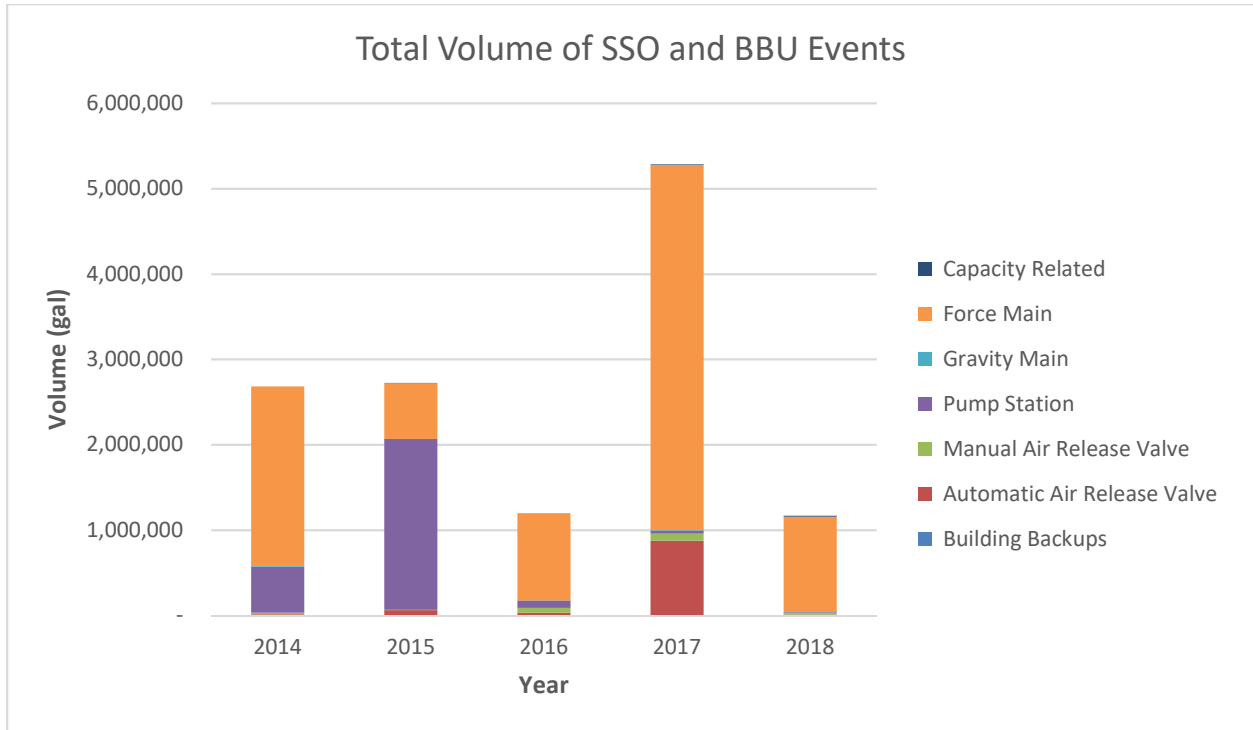


Figure 5.3 - Total Volume of SSOs

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

The volume released from all building back-ups in 2018 was 128% higher when compared to 2017. This increase is attributable to one event where a collapsed lateral resulted in a 150 gallons BBU. The normal range of BBU is between 5-10 gallons. Regarding AARVs, the volume released in 2018 was 9,286 gallons, a significant decrease of 99% when compared to 2017, where 876,830 gallons of sewage were discharged. Manual air release valves volume discharge also decreased significantly from 2017 to 2018, i.e. from 81,361 to 17,845 gallons. This amounts to a 78% reduction in volume. Pump stations recorded a decrease of 77% in volume released from SSOs from 35,027 gallons in 2017, to 8,142 gallons in 2018. In this case, despite the increase of SSO incidents at pump stations, the volume of sewage released by these sources decreased. Gravity main SSO volume discharged between 2017 and 2018 rose from 5,763 gallons to 6,475 gallons respectively, a 12% increase.

95% of the total volume discharged in 2018 was contributed by force main related SSOs. As will be described in Section 5.4, the majority of these discharges were related to force main breaks by Contractors. It is important to note that even though force main discharges contributed the great majority of volume discharged, the volume decreased significantly from 2017 to 2018, i.e.

from 4,275,958 gallons to 1,113,796 gallons respectively, a 74% reduction. Capacity related SSO volumes released in 2018 amounted to 13,034 gallons. Most of these capacity related events were attributed to AARVs that have been replaced with models that handle higher pressures.

5.3 Average Duration of Sanitary Sewer Overflows

The average duration of SSO events can be viewed in Figure 5.4 and Table 5.1. For Building Backups, the “Time” and “Duration” parameters are seldom characteristically the same. As a result, Building Backups have not been included in the calculations of average duration.

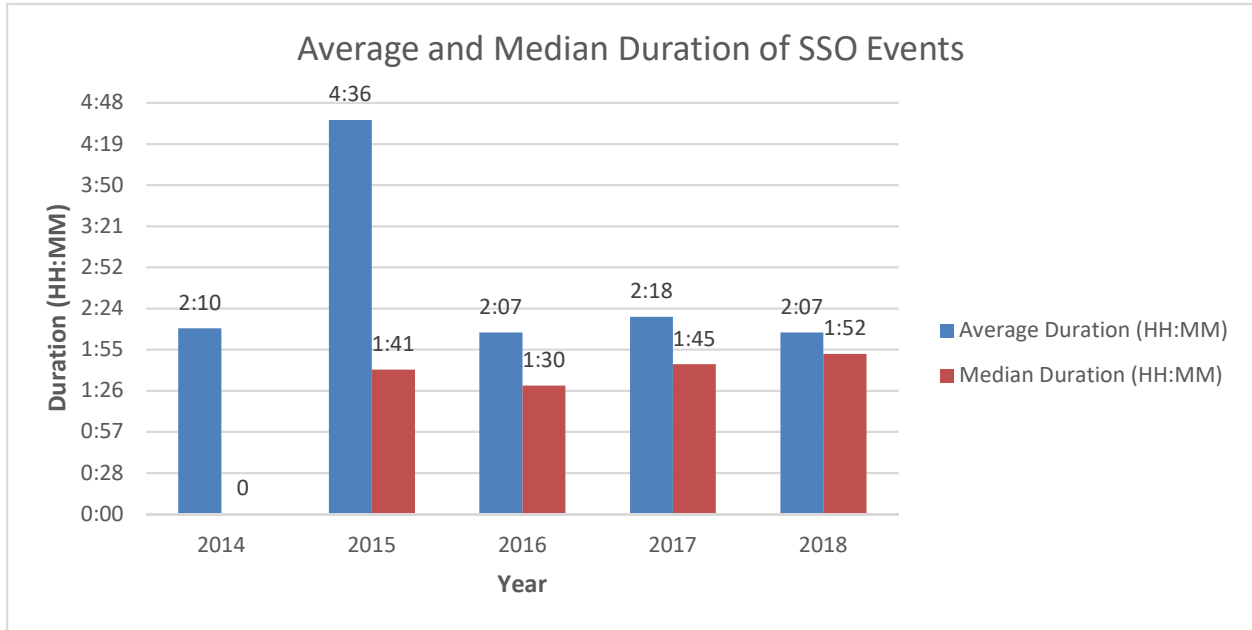


Table 5.1 - Average and Median Duration of SSO Events

Year	Average Duration (HH:MM)	Median Duration (HH:MM)
2014	02:10	N/A
2015	04:36	01:41
2016	02:07	01:30
2017	02:18	01:45
2018	02:07	01:52

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.

5.4 Cause of Sanitary Sewer Overflows

A cause breakdown of SSOs is shown in Figure 5.4. A full breakdown of SSO causes is available in Appendix B of this document.

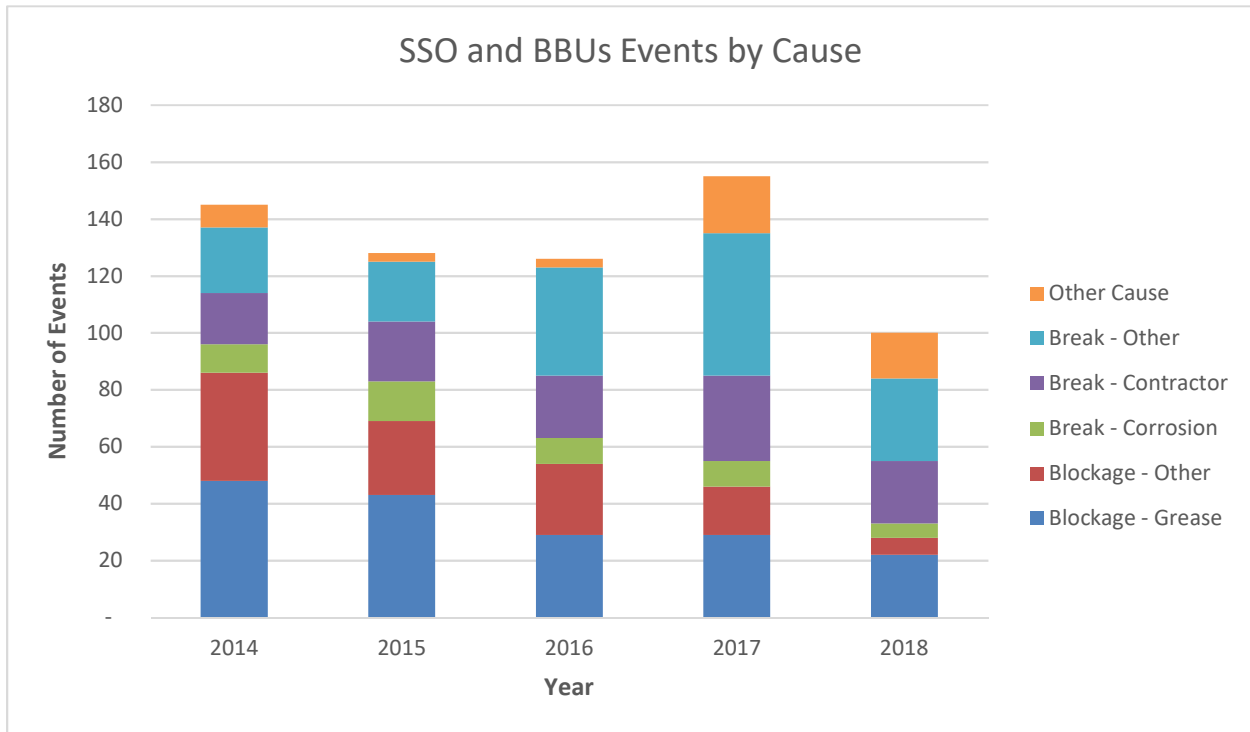


Figure 5.4 - SSO Events by Cause

As mentioned before, there was a significant reduction of SSOs in 2018 compared to previous years. The number of SSOs caused by grease blockages in the system decreased by 24% between 2017 and 2018, with 29 and 22 events respectively. Other blockages in the system caused by other means were reduced by 65%, i.e. from 17 in 2017 to 6 in 2018. Broken equipment due to corrosion decreased between 2017 and 2018 by 44%. Contractor related breakages decreased from 30 in 2017 to 22 in 2018. This decrease in contractor related incidents was expected due to the implementation of the SORP, specifically the annual Contractor Outreach Workshop. Breakages attributed to other causes include Building Back-Up (laterals); Malfunction, Riser/Nipple, 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. This field decreased from 50 incidents in 2017 to 29 in 2018, a 42% decline.

The amount of SSOs classified as “Other Cause” may include pump station 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 2017 and 2018 from 20 to 16 respectively, a 20% reduction.

Figure 5.5 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.

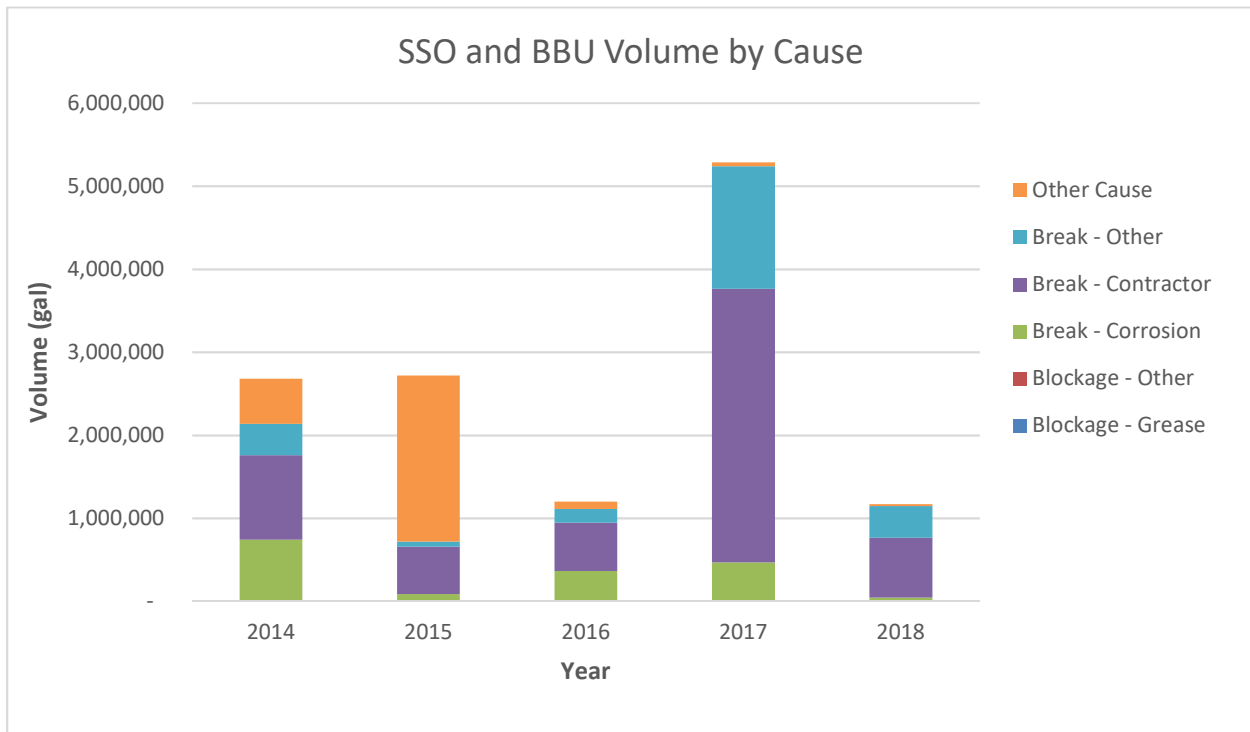


Figure 5.5 – SSO Volume by Cause

As figure 5.5 shows, the total volume discharged from SSOs in 2018 diminished significantly in comparison with the previous year. In 2018, 1,168,765 gallons of sewage were discharged from the system compared to 2017, when 5,284,836 gallons were released. The decrease in volume amounted to 78%.

Grease related blockages in 2018, caused spills that amounted to 4,815 gallons. In 2017, that volume was 1,851 gallons. This increase of 2,964 gallons between the reporting periods represents a 160% rise. It is important to note that most of the volume of sewage spilled occurred in two separate events, 2,800 gallons were spilled in one and 1,200 gallons were spilled in another. Therefore, although the number of incidents decreased compared to last year, the actual volume spilled increased. Spills due to blockages caused by other means were reduced almost completely, 47 gallons in 2018 compared to 3,728 gallons in 2017; a 99% reduction. The volume discharged due to corrosion breakages in 2018 was 421,334 less gallons than those of 2017, representing a significant 91% decrease.

Breakages attributed to contractors also decreased. Volume went from 3,295,319 gallons spilled in 2017 to 721,120 gallons in 2018, a 78% drop in volume released. As mentioned before, the implementation of SORP, especially the Annual Contractor Outreach Workshops are very likely the reason of the decrease of these types of SSOs.

Breakages attributed to other causes decreased by 74% from 2017 to 2018, i.e., 1,095,058 less gallons were released in 2018 than 2017.

SSOs that occurred due to causes other than blockages and breakages in 2018 released 24,748 less gallons than in 2017. This results in a 55% decrease in the volume spilled for this category. It may include pump station 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.

6.0 Amendment to Last Annual Report

There are no amendments to the 2017 Annual Report

Appendix A

CMOM Programs Significant Activities / Key Accomplishments

Table A-1 Continuing CMOM Programs January 1, 2018 through December 31, 2018

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)	<ol style="list-style-type: none"> 1. Continued with the monitoring and tracking of the monthly Elapsed Time (ET) submittals by each Volume Sewer Customer Utility. 2. Placed under Initial Moratorium (IM) Pump Station basins that exceeded the maximum 10 hours pursuant to the Nominal Average Pump Operating Time (NAPOT). 3. Placed under Incomplete Moratorium (IN) Pump Station basins that that failed to submit ET readings or not submitted by the 14th of the following month, as required by the Miami-Dade County Code. 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. 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 and were provided a copy of the Allocation report. 6. Sewer Allocations were de-allocated manually for municipalities according to their monthly reports as submitted to RER-DERM. 7. Held four (4) Quarterly Utility Round Table (URT) Meetings with all Utilities and/or Utility Representatives to discuss/review compliance issues. 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. 9. Continued to review Sanitary Sewer System Evaluations or Amendments as submitted by the utilities. PS moratoriums were reverted as the utilities demonstrated compliance with the SSES, Code requirement of 5,000 GPDIM.

Table A-1 Continuing CMOM Programs January 1, 2018 through December 31, 2018

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>10. Prepared and completed the Water & Sewer As-Built / Atlas Guidelines for submittals by each Utility to assist Plan Review staff in the issuance of Sewer Capacity Allocation Letters.</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. A final Water & Sewer As-Built / Atlas Guidelines was presented and provided to all utilities at the URT Meeting on August 28, 2018, for the Atlas/As-Built Update submittal due on January 6th, 2019.</p>
Pump Station Remote Monitoring Program	Work on the program is ongoing	Section VI, Paragraph 18(b)	Work on the program has been ongoing.

Table A-1 Continuing CMOM Programs January 1, 2018 through December 31, 2018

CMOM Program	CMOM Program Status	CD Reference	Significant Activities / Key Accomplishments
Wastewater Collection and Transmission Model	Work on the Model is ongoing	Section VI, Paragraph 18(c)	<p>The CD PMCM team performed hydraulic modeling evaluations to assess the effect of modifications to the WASD sewer collection system as a result of CD projects on operating conditions of the WASD WCTS. Evaluations were completed for the following CD projects:</p> <ul style="list-style-type: none"> -4.9 (48-53, 63) -4.9 (34-43) -4.9 (46) <p>These projects consist on the replacement of asbestos cement pipe (ACP) segments across the system. The projects evaluated affect pipe segments that convey manifolded flows from several lift stations which resulted in the requirement of comprehensive assessment of regional areas of the system. The evaluations were documented in technical memorandums that were submitted to DERM/RER as part of the permitting process.</p> <p>In addition to the efforts associated with CD Project validation and permitting, the CD PMCM team continued the update of WCTS Hydraulic Model network geometry in order to match the current conditions of the system, these updates included addressing discrepancies identified in the model network through evaluation of as-built drawings, equipment O&M information and GIS data. In addition, these efforts considered the addition and improvement of system facilities based on capital improvement programs (CIP) as the Ocean Outfall Legislation (OOL), Pump Station Improvement Program (PSIP) and CD PMCM as well as New Development Projects in an effort to maintain the most up to date projection scenarios for years 2020, 2025 and 2035 in the Pump Model.</p> <p>Advanced efforts related to additional updates to Private Pump Stations (PPS) into the WCTS Hydraulic Model according to Paragraph 18(c)(ii) of the Consent Decree. Efforts completed over the period addressed by this document focused on the adjustment of model inflows for public pump stations to accommodate the additional flows associated with PPS.</p>

Table A-1 Continuing CMOM Programs January 1, 2018 through December 31, 2018

CMOM Program	CMOM Program Status	CD Reference	Significant Activities / Key Accomplishments
Wastewater Collection and Transmission Model (continued)	Work on the Model is ongoing	Section VI, Paragraph 18(c)	<p>Continued inclusion of all gravity sewer network elements on Hydraulic Model. The CD PMCM continued to test the tool that populates missing invert data and eliminates adverse slopes conditions. This tool processes the entire WASD gravity system before inclusion in the model software. The CD Hydraulic Modeling team initiated and advanced efforts associated with second stage (Hydraulic) calibration runs for dry weather flow (DWF) conditions to evaluate accuracy of simulations of discharge pressure and flow at booster pump stations and regional wet well stations throughout the system.</p> <p>The hydraulic modeling team completed additional scenario runs based on modifications to DWF calibration network for the hydraulic model. Adjustments to the network were made based on evaluation of previous model simulations results comparison with SCADA data through the implementation of calibration spreadsheets. These efforts were implemented with the use of the previously re-ensembled regional networks to continue calibration considering system wide interconnectivity. As a result of the efforts focused on model calibration during this time period, the CD PMCM team identified the need for additional information of booster and master pump station operation</p> <p>The CD PMCM team performed hydraulic modeling evaluations to assess the effect of modifications to the WASD sewer collection system as a result of CD projects on operating conditions of the WASD WCTS. Evaluations were completed for the following CD projects: 4.9 (60-62), 4.9 (70), 4.9 (65) and 4.9 (72).</p>

Table A-1 Continuing CMOM Programs January 1, 2018 through December 31, 2018

CMOM Program	CMOM Program Status	CD Reference	Significant Activities / Key Accomplishments
Wastewater Collection and Transmission Model (continued)	Work on the Model is ongoing.	Section VI, Paragraph 18(c)	<p>These projects consist on the replacement of asbestos cement pipe (ACP) segments across the system. The projects evaluated affect pipe segments that convey manifolded flows from several lift stations which resulted in the requirement of comprehensive assessment of regional areas of the system. The evaluations were documented in technical memorandums that were submitted to DERM/RER as part of the permitting process.</p> <p>In addition to the efforts associated with CD Project validation and permitting, the CD PMCM team continued the update of WCTS Hydraulic Model network geometry in order to match the current conditions of the system, these updates included addressing discrepancies identified in the model network through evaluation of as-built drawings, equipment O&M information and GIS data. This effort constitutes the compliance with Section VI, Paragraph (18).(c).(iv) of the Consent Decree.</p> <p>Continued efforts to update hydraulic model with information available for improvement projects associated with Consent Decree, Ocean Outfall Legislation, WASD Master Plan, Pump Station Improvement Program as well as New Development Projects in an effort to maintain the most up to date projection scenarios for years 2020, 2025 and 2035 in the WASD hydraulic model.</p> <p>Completed incorporation of Private Pump Stations (PPS) into the WCTS Hydraulic Model according to Paragraph 18(c)(ii) of the Consent Decree. This effort also included the adjustment of model inflows for public pump stations to accommodate the additional flows associated with PPS. The update of PPS is a process that continues in to the future to accommodate new developments and modifications to the system.</p>

Table A-1 Continuing CMOM Programs January 1, 2018 through December 31, 2018

CMOM Program	CMOM Program Status	CD Reference	Significant Activities / Key Accomplishments
Wastewater Collection and Transmission Model (continued)	Work on the Model is ongoing	Section VI, Paragraph 18(c)	<p>The WASD hydraulic model calibration was completed during the last quarter of 2018. The calibration process considered the evaluation of three (3) specific weather events (two events for calibration and one for validation) that are representative of the range of operating conditions for the WASD WCTS system. One wet weather event (WWE1), one wet season dry weather event (WWE2) and one dry weather event (DWE) were selected within the 2-year rainfall period (2013-2015).</p> <p>The calibration process consisted on performing several iterations of hydraulic model runs and comparing simulated model values for pressures and flows against observed data obtained from the WASD SCADA system. After each model run iteration, a detailed evaluation of the results comparison was conducted which served as the basis to make adjustment to the model network configuration, facilities operation parameters and hydraulic variables, until an acceptable match was obtained.</p> <p>The completion of model calibration was dictated by compliance with calibration criteria previously defined and documented in hydraulic model calibration TM. The criteria implemented outlines the standards that are applied in the calibration of the different networks elements and hydraulic variables of the WASD Sewer Hydraulic Model. The document was based on Wastewater Planning Users Group Code of Practice for the Hydraulic Modeling of Sewer Systems v 3.001 (WaPUG, 2002) and the general guidelines from United States Environmental Protection Agency (USEPA, 1999) in addition to previous experience by technical leads from the CD PMCM Team on hydraulic model calibration for wastewater collection systems.</p>

Table A-1 Continuing CMOM Programs January 1, 2018 through December 31, 2018

CMOM Program	CMOM Program Status	CD Reference	Significant Activities / Key Accomplishments
Wastewater Collection and Transmission Model (continued)	Work on the Model is ongoing	Section VI, Paragraph 18(c)	<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 as well as 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>

Table A-1 Continuing CMOM Programs January 1, 2018 through December 31, 2018

CMOM Program	CMOM Program Status	CD Reference	Significant Activities / Key Accomplishments
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 2018.</p>
Volume Sewer Customer ("VSC") Ordinance Program	Work on the program is ongoing	Section VI, Paragraph 18(e)	<ol style="list-style-type: none"> 1. Monitored and tracked the monthly submittal of the Elapsed Time (ET) readings by each Volume Sewer Customer utility. 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). 3. Placed under Incomplete Moratorium (IN) Pump Station basins under the jurisdiction of the Volume Customer utilities that failed to submit ET readings, or not submitted, by the 14th of the following month, as required by the Miami-Dade County Code. 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. 5. Continued generating the monthly Certification of Nominal Average Pump Operating Time NAPOT Status for each Volume Sewer Customer Utility. 6. Continued to use the PS system/database to track PS basin Moratoriums related to SSOs.

Table A-1 Continuing CMOM Programs January 1, 2018 through December 31, 2018

CMOM Program	CMOM Program Status	CD Reference	Significant Activities / Key Accomplishments
Volume Sewer Customer ("VSC") Ordinance Program	Work on the program is ongoing	Section VI, Paragraph 18(e)	<p>7. Continued to review the Volume Sewer Customer's Sanitary Sewer System Evaluations or Amendments submitted. PS moratoriums were reverted as the utilities demonstrated compliance with the SSES, Code requirement of 5,000 GPDIM.</p> <p>8. Completed enforcement action against City of Opa-Locka for repeat SSOs during this period and established an inspection coordination effort to prevent new SSOs.</p> <p>9. Drafted a Consent Agreement (CA) to the City of Opa-Locka for repeat SSOs during this period. CA outlined actions to prevent SSOs and to complete needed rehabilitation to bring the sanitary sewer collection system into full compliance.</p> <p>10. All Volume Sewer Customer utilities and/or representatives were reminded about Sanitary Sewer Overflow (SSO) requirements in the quarterly Utility Round Table (URT) meetings on April 11 & December 7, 2018.</p>

Table A-2 New CMOM Programs January 1, 2018 through December 31, 2018

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 “Did You Know” flyers. Flyers were distributed by DERM Plan Review, FOG Technicians/Inspectors, and Liquid Waste Transporters. 3. Continued FOG Outreach, including workshops (e.g., FOG Round Table and Utility Round Table meetings). 4. Continued to receive monthly hauled waste disposal data from MDWASD and Pompano/Broward using the eManifest system. 5. Updated FSE FOG Operating Permit (GDO) conditions, including mandatory eManifest reporting. 6. Continued enforcement (and compliance assistance) with NGTs Food Service Establishments (FSE). 7. Updated the Liquid Waste Transporter (LWT) permits. 8. Monitored “NO COMMINGLING of FOG” (implemented April 1, 2017) at the South District Wastewater Treatment Plant. Inspections include 1 day per week and 1 weekend per month. 9. Continued to receive eManifest from LWTs. LWTs not submitting eManifest were advised that their operating permit would not be renewed. 10. Implemented FOG Construction Inspections. Continued to perform and track FOG Construction Inspections, and to document inspection results to improve FOG Plan Review procedures.

Table A-2 New CMOM Programs January 1, 2018 through December 31, 2018

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>11. Implemented a monthly FOG Hot Spot reporting process for all utilities, including compliance and enforcement. Established protocol for discussing Hot Spot reporting as part of the URT meetings. Continued to track FOG Hot Spots and identify sources(s) and root cause(s). Continued to collect monthly accelerated FOG maintenance reports from utilities.</p>
			<p>12. Continued to work with equipment manufactures to get FOG Control Devices approved for FOG2.0.</p>
			<p>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.</p>
			<p>14. Continued to track/record Key Performance Indicators and Performance Measures to evaluate and improve the FOG Control Program.</p>
			<p>15. First FOG Control Program Annual Review Report submitted to EPA/FDEP on June 30, 2018.</p>
			<p>16. Developed training program for 2019 GDO permitting cycle.</p>

Table A-2 New CMOM Programs January 1, 2018 through December 31, 2018

CMOM Program	CMOM Program Status	CD Reference	Significant Activities / Key Accomplishments
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"> 1. Continued all required SSO reporting 2. Continued holding monthly SSO evaluation meetings 3. Held a Contractor Outreach Workshops, in coordination with Sunshine 811, on April 4 and September 13, 2018. 3. Continued the development of Consolidated SSO Database, including 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"> 1. Continued working on transitioning PCTS software from Proliance to e-Builder, to enhance Construction Contracts Management project close-out business practices. 2. Started the development of CMOM dashboard for performance measure and KPI tracking.

Table A-2 New CMOM Programs January 1, 2018 through December 31, 2018

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)	<ol style="list-style-type: none"> 1. GIS to Hydraulic Model Interface. - Completed. Updates to continue. 2. Manhole rim and pipe inverts and their inclusion into GIS - Completed - Updates to continue as part of the GIS data maintenance process. 3. Streamlining the manual as-built to GIS process to satisfy 90 day requirement - Completed. Improvements continue as opportunities arise. 4. GIS to Hydraulic Model Integration to satisfy 90 day requirement from GIS to Model - Completed. Updates continue. 5. GIS Training Refresher Program - Completed - Training course, manual and online videos launched and continues to be offered by WASD HR several times a month. 6. Electronic As-Built Submittal -Contract and Donation as-builts being received electronically. Approval/rejection process also being tracked electronically. 7. Completion of GIS Backlog - Completed <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>

Table A-2 New CMOM Programs January 1, 2018 through December 31, 2018

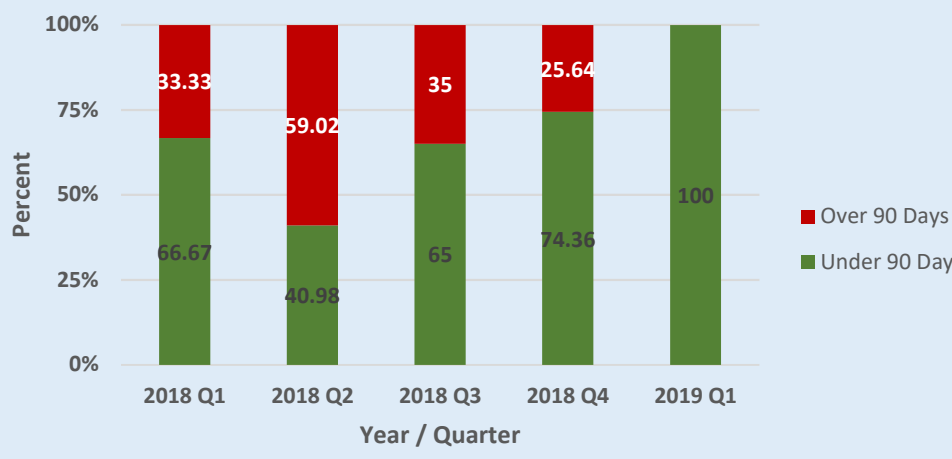
CMOM Program	CMOM Program Status	CD Reference	Significant Activities / Key Accomplishments																		
Geographic Information Systems (GIS) Program (continued)	Approved by EPA/FDEP on October 17, 2017	Section VI, Paragraph 19(c)(x)	<p style="text-align: center;">Approved Projects by Time Unit (Quarter vs. Percent)</p>  <table border="1" data-bbox="945 324 1890 779"> <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>2018 Q1</td> <td>66.67</td> <td>33.33</td> </tr> <tr> <td>2018 Q2</td> <td>40.98</td> <td>59.02</td> </tr> <tr> <td>2018 Q3</td> <td>65</td> <td>35</td> </tr> <tr> <td>2018 Q4</td> <td>74.35</td> <td>25.64</td> </tr> <tr> <td>2019 Q1</td> <td>100</td> <td>0</td> </tr> </tbody> </table>	Year / Quarter	Under 90 Days (%)	Over 90 Days (%)	2018 Q1	66.67	33.33	2018 Q2	40.98	59.02	2018 Q3	65	35	2018 Q4	74.35	25.64	2019 Q1	100	0
Year / Quarter	Under 90 Days (%)	Over 90 Days (%)																			
2018 Q1	66.67	33.33																			
2018 Q2	40.98	59.02																			
2018 Q3	65	35																			
2018 Q4	74.35	25.64																			
2019 Q1	100	0																			
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 the program was ongoing.</p> <p>WASD has brought on board a Consultant to assist them in developing a Department asset management framework.</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> <ol style="list-style-type: none"> Continued to deploy Smart Covers to "hot spots" to closely monitor and prevent SSOs, including deploying 14 new devices during this reporting period. Completed repairs in compliance with the Wellfield Protection Ordinance during this reporting period. Initiated the deployment of mobile technology. 																		

Table A-2 New CMOM Programs January 1, 2018 through December 31, 2018

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)	The PSOPMP was approved by the EPA and FDEP on October 17, 2017. Work on the Program was ongoing.
Force Main Operations, Preventative Maintenance and Assessment/Rehabilitation Program (FMOPMARP)	Approved by EPA/FDEP on October 17, 2017	Section VI, Paragraph 19(g)	The FMOPMARP was approved by the EPA and FDEP on October 17, 2017. 1. The Force Main Criticality Assessment and Prioritization Report was completed and submitted to EPA/FDEP on July 17, 2018.
Force Main Rehabilitation/Replacement Program (FMRRP)	Approved by EPA/FDEP on September 28, 2017	Section VI, Paragraph 19(g)(iv)	The FMRRP was approved by the EPA and FDEP on September 28, 2017. Work on the program was ongoing.
WWTP Operations and Maintenance Program (WWTP OMP)	Pending EPA/FDEP approval	Section VI, Paragraph 19(h)	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. 1. Continued random collection of hauled waste as a standard practice. The random sample collection practice and procedures used at the SDWWTP are in 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 at SD WWTP on March 14, 2018, July 9, 2018 and November 26, 2018 to discuss Hauled Waste Program and any issues or concerns related to illicit hauled waste or discharges to the plant or collection system.

Table A-2 New CMOM Programs January 1, 2018 through December 31, 2018

CMOM Program	CMOM Program Status	CD Reference	Significant Activities / Key Accomplishments
Specific Capital Improvement Projects (CIP)	Ongoing	Section VI, Paragraph 19(i)	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.
Financial Analysis Program (FAP)	Approved by EPA/FDEP on October 17, 2017	Section VI, Paragraph 19(j)	The FAP was approved by the EPA and FDEP on October 17, 2017. Work on the program was ongoing.

Table A-3.1 South District WWTP Capital Improvement Projects January 1, 2018 through December 31, 2018

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.	Procurement continued.
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 replace and retrofit existing air compression units.	Procurement 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) the structural rehab of the trains, (2) the electrical building expansions and (3) the mixer upgrades. and the mixer upgrades, which includes electrical and building upgrades. The structural rehab will be performed by in-house forces, and the mixer/building work will be designed and constructed in the future.	1.3(1) Procurement and construction for Train 6 - SD Oxygenation Trains Struct. Rehab was completed. Procurement for Train 4 commenced. 1.3(2) Design continued. 1.3(3) Design 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.	Design continued.

Table A-3.1 South District WWTP Capital Improvement Projects January 1, 2018 through December 31, 2018

Project Number	Project Name	Project Description	Significant Activities /Key Accomplishments
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) structural rehabilitation of the effluent pump wet wells; (2) the building improvements and equipment for the remaining pumps respectively; (3) the electrical equipment associated with pumps 7,8 and 9.	Design, permitting, procurement and construction continued. 1.5(1) Procurement for Wetwells #1 and #2 was completed. Procurement for Wetwells #3 and #4 commenced. Construction of Wetwell #1 piping was completed. Structural rehab construction for Wetwell #2 was completed. Structural rehab construction for Wetwell #1 commenced. 1.5(2) Design was completed. Permitting was completed. Procurement commenced. 1.5(3) Construction - SD Effluent PS Electrical Equipment (Pumps 7-9) was 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 is being performed under design-build delivery method. Procurement continued.
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; digester tank cleaning, structural rehabilitation and coating, and 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 unstable sludge that will require landfill disposal.	Procurement continued. Construction commenced.
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 is being performed under design-build delivery method. Procurement continued.

Table A-3.1 South District WWTP Capital Improvement Projects January 1, 2018 through December 31, 2018

Project Number	Project Name	Project Description	Significant Activities /Key Accomplishments
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 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.	Construction continued.
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.	Design commenced.
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: 1.1) SDWWTP Substation 9-12; 1.2) Generator Repairs; 2) Replacement of primary feeders from Main Switchgear A & B to Effluent Pump Station Pumps 1-6; 3) Replace Primary Feeders from Electrical Building 1 to Substations 7 & 8 9 - This work is part of Project 1.07	1.11(1.1) Design was completed. Permitting was completed. Procurement commenced. 1.11(1.2) Design continued. Procurement commenced. 1.11(2) Design was completed. Permitting was completed. Procurement commenced.
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.	1.12(1) Construction for 1.12(1) Actuator Replacement was completed on June 5, 2018. 1.12(2) Construction of contact chamber #1 was completed. Construction for sluice gates continued.

Table A-3.2 Central District WWTP Capital Improvement Projects January 1, 2018 through December 31, 2018

Project Number	Project Name	Project Description	Significant Activities / Key Accomplishments
2.1	Electrical Improvements	<p>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 more accurately reflect the way the work is being executed:</p> <ol style="list-style-type: none"> 1) CDWWTP General Electric In-house Construction - Substations 1, 2, 7A, 8A, 9A & 10A 2) Substations 3, 4A, 4B, 5 & 6 – This work is part of Project 2.27. 3) Substations 9 & 10 - This work is part of Project 2.10. 4) Substations 11 & 12 – This work is part of project 2.11. 5) Substations 15 & 16 – This work is part of Project 2.15. 6) Substations 17 & 18 – This work is part of Project 2.19. 	<p>Note: The majority of this work will be done in conjunction with other CD projects.</p> <p>2.1(1) Construction Sub-Stations 1 & 2 Completed on May 5, 2016.</p> <p>2.1(2) Procurement was completed.</p> <p>2.1(3) Permitting and procurement were completed. Construction commenced.</p> <p>2.1(4) Permitting was completed. Procurement commenced.</p> <p>2.1(5) Construction continued.</p> <p>2.1(6) Construction continued.</p> <p>2.1(7) Design continued.</p>
2.2	Building Improvements	<p>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 two child projects; one for the building improvements to the Administrative Building and another for required repairs to other buildings, e.g. Maintenance, Operations, Storage, etc.</p>	<p>2.2(1a) Completed on June 1, 2015.</p> <p>2.2(1b) Substantially completed in January 2018.</p> <p>2.2(1c) Completed on October 19, 2016.</p> <p>2.2(2) Construction activities suspended on October 31, 2017. Contractor terminated for convenience on June 7, 2018. Re-design was completed. Re-permitting and re-procurement commenced.</p>
2.3	Headworks Plant 1	<p>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 an electrical room with upgraded electrical instrumentation.</p>	<p>Construction continued.</p>

Table A-3.2 Central District WWTP Capital Improvement Projects January 1, 2018 through December 31, 2018

Project Number	Project Name	Project Description	Significant Activities / Key Accomplishments
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 an electrical room with upgraded electrical instrumentation.	Construction continued.
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.	Construction was completed on June 22, 2018 ahead of the CD compliance date of April 12, 2019.
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.	Procurement and construction continued.
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.	2.7(1) Design continued. 2.7(2) Construction continued. 2.7(3) Design was completed. Procurement commenced.
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.	2.8(1) Permitting and procurement were completed. Construction commenced 2.8(2) Construction of Trains 2&3 - Train Mechanisms continued. 2.8(3) Design was completed. Procurement and construction 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.	Design continued.

Table A-3.2 Central District WWTP Capital Improvement Projects January 1, 2018 through December 31, 2018

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.	2.10(1) Permitting and procurement were completed. Construction commenced. 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 in the effluent pump station.	Permitting was completed. Procurement commenced.
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.	This project is being performed under design-build delivery method. Procurement continued.
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.	This project is being performed under design-build delivery method. Procurement continued.
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.

Table A-3.2 Central District WWTP Capital Improvement Projects January 1, 2018 through December 31, 2018

Project Number	Project Name	Project Description	Significant Activities / Key Accomplishments
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) Cluster 1: Construction continued. 2.15(2) Cluster 2: Procurement was completed. Construction commenced. 2.15(3) Cluster 3: Design was completed. Permitting commenced. 2.15(4) Cluster 4: 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.	This project is being performed under design-build delivery method. Procurement continued.
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 CD compliance date of October 15, 2018.
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.	2.18(1) Headworks Odor Controls System (Project 2.3/2.4) construction continued. 2.18(2) Dewatering Odor Control System (Project 2.16) procurement continued.
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: the replacement of the generators, the biogas treatment facilities, and restrooms and building rehabilitation.	2.19(1) Co-Gen Generator Replacement completed on January 27, 2016. 2.19(2a) Construction continued. 2.19(2b) Procurement was completed. Construction commenced.

Table A-3.2 Central District WWTP Capital Improvement Projects January 1, 2018 through December 31, 2018

Project Number	Project Name	Project Description	Significant Activities / Key Accomplishments
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 CD WWTP has been 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.	Design, permitting, and procurement were completed. Construction commenced.
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 CD compliance date March 9, 2017.
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.	2.25(1) In validation/planning stage 2.25(2) Construction continued. 2.25(3) Construction continued. 2.25(4) Permitting and procurement were completed. Construction commenced. 2.25(5) Construction continued.
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.	Construction continued.

Table A-3.2 Central District WWTP Capital Improvement Projects January 1, 2018 through December 31, 2018

Project Number	Project Name	Project Description	Significant Activities / Key Accomplishments
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 80 ton/day oxygen production cryogenic tower and air compression unit to provide full redundancy.	2.27(1) Oxygen Production Site Preparation was completed on June 29, 2017. 2.27(2) Procurement was completed.
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 CD compliance date March 29, 2014.
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 CD compliance date June 24, 2014.

Table A-3.3 North District WWTP Capital Improvement Projects January 1, 2018 through December 31, 2018

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 CD compliance date April 7, 2018.
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.	3.2(1) Construction continued. 3.2(2) Procurement was completed. Construction commenced.
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.	Design and 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.	Design 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.	3.5(1) Construction of Secondary Clarifiers Replace Mechanisms No.1 - 10 was completed on March 30, 2017. 3.5(2) Procurement was completed. Construction commenced.
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.	Permitting continued. Procurement was completed.
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 OOF Pump Station rehabilitation was completed in March 2015. Construction of DIW Pump Station Mechanical was completed on June 29, 2018.

Table A-3.3 North District WWTP Capital Improvement Projects January 1, 2018 through December 31, 2018

Project Number	Project Name	Project Description	Significant Activities / Key Accomplishments
3.8	Plant Wide Electrical	<p>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:</p> <ol style="list-style-type: none"> 1) NDWWTP General Electrical In House Construction Feeders 1 and 2 have been replaced. 2) Electrical Feeders 3-6 Feeders 3-6 will be replaced in conjunction with Project 3.01. 3) Electrical Feeders 7-8 Feeders 7 and 8 will be replaced along with Project 3.04. 4) Electrical Feeders 9-14 	<p>Design, permitting, procurement, and construction continued.</p> <p>3.8(1) General Electrical In-house construction (Feeders 1-2) was completed on January 15, 2016.</p> <p>3.8(2) Electrical Feeders 3-6 (Project 3.1) was completed on December 6, 2017.</p> <p>3.8(3) Electrical Feeders 7-8 (Project 3.04) Design commenced.</p> <p>3.8(4) Electrical Feeders 9-14 Design commenced.</p>
3.9	Flood Mitigation	<p>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.</p>	<p>Procurement and construction were completed. This project was completed on June 24, 2016 ahead of the CD compliance date of August 13, 2017.</p>
3.10	Yard Piping Replacement	<p>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.</p>	<p>Project was completed on May 24, 2016 ahead of the CD compliance date of December 4, 2021.</p>
3.11	SCADA RTU Upgrades	<p>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.</p>	<p>Project was completed on November 26, 2014 ahead of the CD compliance date of March 24, 2015.</p>

Table A-4.1 Wastewater Collection and Transmission Lines January 1, 2018 through December 31, 2018

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.	Completed on September 14, 2018 ahead of the CD compliance date of December 23, 2018.

Table A-4.1 Wastewater Collection and Transmission Lines January 1, 2018 through December 31, 2018

Project Number	Project Name	Project Description	Significant Activities / Key Accomplishments
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.	Construction was completed on June 16, 2017.
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.
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.	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.

Table A-4.2 Project 4.9 Replacement of Approximately 26 Miles AC FM Transmission System January 1, 2018 through December 31, 2018

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.	Design continued.
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	Construction was completed. 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	Design continued.
28	8	PS 786	MH 5 @ PS 785	Design continued.
29	12	PS 811	SW 107 Ave. & SW 76 St.	Construction commenced.
30	12	PS 811	SW 102 Ave. & SW 81 St.	Construction commenced.
31	10	PS 812	SW 102 Ave. & SW 84 St.	Construction commenced.
32	12	SW 107 Ave. & SW 104 St.	SW 107 Ave. & Kendale Blvd.	This project was completed on October 13, 2017.

Table A-4.2 Project 4.9 Replacement of Approximately 26 Miles AC FM Transmission System January 1, 2018 through December 31, 2018

Line Number	Diameter	From Location	To Location	Significant Activities / Key Accomplishments
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.	Design, permitting, and procurement were completed.
35	6	SW 110 Ave. & Banyan St.	SW 95 Ave. & SW Banyan St.	Design, permitting, and procurement were completed.
36	4	PS 721	US1 & Banyan St.	Design, permitting, and procurement were completed.
37	4	PS 749	PS 731	Design, permitting, and procurement were completed.
38	4	PS 747	US1 & East Indigo St.	Design, permitting, and procurement were completed.
39	10	SW 102 Ave. & SW 176 St.	Homestead Ave. & West Jessamine	Design, permitting, and procurement were completed.
40	8	PS 745	SW 102 Ave. & SW 175 St.	Design, permitting, and procurement were completed.
41	4	PS 731	SW Duval Ave. & West Indigo St.	Design, permitting, and procurement were completed.
42	10	SW 102 Ave. & West Jessamine	US1 & SW 184 St.	Design, permitting, and procurement were completed.
43	12	Homestead Ave. & 180 St.	Railroad St. & SW 184 St.	Design, permitting, and procurement were completed.
44	8	PS 810	SW 118 Pl. & SW 72 St.	Design continued.
45	12	PS 793	SW 118 Pl. & SW 72 St.	Design continued.
46	6	PS 724	SW 106 Ave. & SW 155 St.	Design, permitting and procurement were completed.
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.	Permitting and procurement were completed. Construction commenced.
49	10	PS 1029	SW 132 Ave. & 268 St.	Permitting and procurement were completed. Construction commenced.
50	8	SW 137 Ave. & SW 268 St.	SW 128 Ave. & 268 St.	Permitting and procurement were completed. Construction commenced.
51	10	PS 1028	SW 137 Ave. & 288 St.	Permitting and procurement were completed. Construction commenced.
52	10	PS 1027	SW 132 Ave. & 280 St.	Permitting and procurement were completed. Construction commenced.
53	8	PS 1018	MH 44A @ SW 132 Ave.	Permitting and procurement were completed. Construction commenced.
54	12	SW 137 Ave. & SW 72 St.	SW 142 Ave. & SW 72 St.	Design continued.
55	12	SW 142 Ave. & SW 72 St.	SW 147 Ave. & SW 72 St.	Design continued.
56	8	PS 864	SW 147 Ave. & SW 72 St.	Design continued.

Table A-4.2 Project 4.9 Replacement of Approximately 26 Miles AC FM Transmission System January 1, 2018 through December 31, 2018

Line Number	Diameter	From Location	To Location	Significant Activities / Key Accomplishments
57	8	SW 142 Ave. & Kendale Lakes Blvd.	SW 140 Ave. & Kendale Lakes Blvd.	Design continued.
58	10	SW 140 Ave. & Kendale Lakes Blvd.	SW 137 Ave. & Kendale Lakes Blvd.	Design continued.
59	12	SW 137 Ave. & Kendale Lakes Blvd.	SW 137 Ave. & SW 81 St.	Design continued.
60	8	PS 1013	PS 1012	Design and permitting were completed. Procurement commenced.
61	10	PS 1012	SW 144 Ave. & SW 280 St.	Design and permitting were completed. Procurement commenced.
62	8	PS 1011	SW 144 Ct. & SW 280 St.	Design and permitting were completed. Procurement commenced.
63	10	SW 147 Ave. & SW 288 St.	SW 134 Pl. & SW 288 St.	Permitting and procurement were completed. Construction commenced.
64	6	PS 1009	SW 147 Ave. & SW 296 St.	Design continued.
65	6	PS 1006	PS 1005	Design and permitting were completed. Procurement commenced.
66	8	PS 1002	SW 152 & SW 304 St.	Design continued.

Table A-5 Sewer Pump Station Systems January 1, 2018 through December 31, 2018

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 continued.
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. This project involves the replacement of pumping and electrical equipment in PS No. 0691. 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.	Construction continued.
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.	Procurement continued.
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.	Construction continued.
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 replacement of electrical switchgear and the rehabilitation of the wet well to include an odor control unit.	Construction continued.

Table A-5 Sewer Pump Station Systems January 1, 2018 through December 31, 2018

Project Number	Project Name	Project Description	Significant Activities / Key Accomplishments
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 replacement of electrical switchgear in PS No. 0416.	Construction continued.
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 replacement of electrical switchgear and the rehabilitation of the wet well of PS No. 0417 to include an odor control unit.	Procurement was completed. Construction commenced.
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 the CD compliance date January 27, 2019.
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.	Design was completed. Permitting and procurement 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 continued.

Table A-5 Sewer Pump Station Systems January 1, 2018 through December 31, 2018

Project Number	Project Name	Project Description	Significant Activities / Key Accomplishments
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 continued.
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.	PS No. 0086 was completed on July 15, 2013 and PS No. 0492 on April 25, 2013. Both were completed ahead of the CD compliance date of December 31, 2013.

Table A-5 Sewer Pump Station Systems January 1, 2018 through December 31, 2018

Project Number	Project Name	Project Description	Significant Activities / Key Accomplishments
5.15	Upgrade of PSs Nos. 0065, 0201, 0374, 0607	<p>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.</p>	<p>This project was completed on December 30, 2015 - ahead of the CD compliance date of December 31, 2015.</p>
5.16	Upgrade of PSs Nos. 0198, 0437, 0466, 0680	<p>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. The 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. The PSs No. 0437 and 0466 are being upgraded to include new submersible pumps, installation of a new valve box, and an electrical upgrade. The PS No. 0680 is being upgraded to include new submersible pumps, new valves above ground and an electrical upgrade.</p>	<p>This project was completed on January 24, 2018 - ahead of the CD compliance date of December 31, 2018.</p>

Table A-5 Sewer Pump Station Systems January 1, 2018 through December 31, 2018

Project Number	Project Name	Project Description	Significant Activities / Key Accomplishments
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. The PS No. 0037 project involves the conversion to a new submersible type pump station and an electrical upgrade. The 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. The 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. The 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 the CD compliance date of November 20, 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. The PS No. 0441 project involves the conversion to a new submersible type pump station and an electrical upgrade. PS No. 0491 is undergoing flow isolation and I/I repairs, if necessary. The 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. The 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. The PS No. 0852 project involves the conversion to a new submersible type pump station and an electrical upgrade. PS No. 1236 is undergoing 300 I/I repairs to achieve a flow of 130 gpm.	5.18(1) PS No. 0441: Permitting and procurement were completed. Construction commenced. 5.18(2) PS No. 0491: Construction commenced. 5.18(3) PS No. 0710: Permitting and procurement were completed. Construction commenced. 5.18(4) PS No.0827: Permitting and procurement were completed. Construction commenced. 5.18(5) PS No.0852: Permitting and procurement were completed. Construction commenced. 5.18(6) PS No.1236: Phase 1 was completed. Phase 2 (non-Consent Decree) was transferred to WASD.
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 Cause Analysis Tables

Table B-1: SSO Volume Analysis

CAUSE		2013	2014	2015	2016	2017	2018
1. Building Backups (Laterals)		- gal.	612 gal.	58 gal.	101 gal.	82 gal.	187 gal.
Blockage	(i) PM Activity*	* gal.	76 gal.	43 gal.	88 gal.	10 gal.	10 gal.
	(ii) Roots	* gal.	5 gal.	- gal.	- gal.	20 gal.	7 gal.
	(iii) Grease	* gal.	455 gal.	9 gal.	- gal.	35 gal.	20 gal.
	(iv) Debris	* gal.	2 gal.	- gal.	- gal.	1 gal.	- gal.
Break	(v) Contractor Involved	* gal.	56 gal.	1 gal.	- gal.	1 gal.	- gal.
	(vi) Other	* gal.	18 gal.	5 gal.	13 gal.	15 gal.	150 gal.
2. Air Release Valves		145,735 gal.	31,685 gal.	66,977 gal.	88,159 gal.	958,191 gal.	27,131 gal.
(a) Automatic		58,557 gal.	12,485 gal.	63,507 gal.	34,657 gal.	876,830 gal.	9,286 gal.
Break/Mal-functioning	(i) Malfunctioning/Other	7,214 gal.	2 gal.	3,055 gal.	3,220 gal.	779,477 gal.	5,921 gal.
	(ii) Riser/Nipple	35,023 gal.	2,232 gal.	- gal.	12,875 gal.	16,938 gal.	771 gal.
	(iii) Valve	16,065 gal.	90 gal.	- gal.	- gal.	gal.	50 gal.
	(iv) Contractor Involved	- gal.	9,930 gal.	60,140 gal.	6,015 gal.	27,485 gal.	2,294 gal.
	(v) Vandalism	- gal.	- gal.	- gal.	12,200 gal.	52,930 gal.	250 gal.
Blockage	(iv) Grease Blockage	- gal.	5 gal.	36 gal.	220 gal.	- gal.	- gal.
	(v) Debris Blockage	255 gal.	226 gal.	276 gal.	127 gal.	- gal.	- gal.
(b) Manual		87,178 gal.	19,200 gal.	3,470 gal.	53,502 gal.	81,361 gal.	17,845 gal.
Broken	(i) Riser/Nipple	63,098 gal.	5,800 gal.	2,710 gal.	33,982 gal.	53,677 gal.	2,100 gal.
	(ii) Valve	230 gal.	2,600 gal.	- gal.	- gal.	85 gal.	- gal.
	(iii) Contractor Involved	23,850 gal.	10,800 gal.	750 gal.	19,470 gal.	27,599 gal.	15,745 gal.
	(iv) Vandalism	- gal.	- gal.	- gal.	- gal.	- gal.	- gal.
Blockage	(v) Grease Blockage	- gal.	- gal.	- gal.	- gal.	- gal.	- gal.
	(vi) Debris Blockage	- gal.	- gal.	10 gal.	50 gal.	- gal.	- gal.
3. Pump Station		25,914 gal.	542,178 gal.	2,000,468 gal.	86,065 gal.	35,027 gal.	8,142 gal.
Other/Broken	(i) FPL Service Outage	12,130 gal.	- gal.	2,000,000 gal.	- gal.	1,820 gal.	- gal.
	(ii) Pump	10,484 gal.	100 gal.	- gal.	- gal.	50 gal.	5,160 gal.
	(iii) Pipe/Pump-out	1,950 gal.	200 gal.	468 gal.	86,065 gal.	30,107 gal.	1,800 gal.
	(iv) Electrical	300 gal.	540,500 gal.	- gal.	- gal.	- gal.	- gal.
	(v) Level/Bubbler	- gal.	- gal.	- gal.	- gal.	- gal.	- gal.
	(vi) Valve	- gal.	628 gal.	- gal.	- gal.	500 gal.	- gal.
	(vii) Bypass Operation	1,050 gal.	750 gal.	- gal.	- gal.	50 gal.	50 gal.
	(viii) Contractor Involved	- gal.	- gal.	- gal.	- gal.	- gal.	1,082 gal.
	(ix) SCADA	- gal.	- gal.	- gal.	- gal.	- gal.	- gal.
	(x) Other	- gal.	- gal.	- gal.	- gal.	2,500 gal.	50 gal.

Table B-1: SSO Volume Analysis

CAUSE		2013	2014	2015	2016	2017	2018
4. Gravity Main		4,072 gal.	5,447 gal.	1,629 gal.	1,008 gal.	5,763 gal.	6,475 gal.
Blockage	(i) Grease	1,850 gal.	1,682 gal.	1,075 gal.	908 gal.	1,816 gal.	4,795 gal.
	(ii) Debris	191 gal.	180 gal.	134 gal.	5 gal.	1,117 gal.	5 gal.
	(iii) Roots	- gal.	2,400 gal.	- gal.	- gal.	- gal.	- gal.
	(iv) Other	2,025 gal.	900 gal.	110 gal.	60 gal.	2,580 gal.	25 gal.
Break	(iv) Contractor Involved	6 gal.	285 gal.	260 gal.	35 gal.	250 gal.	1,650 gal.
	(v) Other	- gal.	- gal.	50 gal.	- gal.	- gal.	- 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.
Break	(i) Contractor Involved	595,018 gal.	995,860 gal.	509,115 gal.	556,888 gal.	3,239,984 gal.	700,349 gal.
	(ii) Vandalism	- gal.	- gal.	5,800 gal.	50 gal.	- gal.	- gal.
	(iii) Corrosion	773,586 gal.	738,446 gal.	84,756 gal.	363,480 gal.	462,842 gal.	41,508 gal.
	(iv) Bedding/Settlement	280,850 gal.	39,139 gal.	51,130 gal.	21,350 gal.	120,299 gal.	127,212 gal.
	(v) Other	810 gal.	328,160 gal.	200 gal.	83,105 gal.	452,833 gal.	244,727 gal.
6. Capacity Rel. - Rain/Sur/Press		1,000 gal.	- gal.	500 gal.	- gal.	9,815 gal.	13,034 gal.
	(i) No Improvement Ness.	1,000 gal.	- gal.	500 gal.	- gal.	3,860 gal.	11,960 gal.
	(ii) Improvement Rec.	- gal.	- gal.	- gal.	- gal.	5,955 gal.	1,074 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.
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.

Table B-2: SSO Event Cause Analysis

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

Table B-2: SSO Event Cause Analysis

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