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VIA ELECTRONIC CORRESPONDENCE

March 1, 2016

CCN: 60079
File No: 8.DC.20.34

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U.S. Department of Justice
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RE: DOJ No. 90-5-1-1-4022/1
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West Palm Beach, FL 33406
Attn: Compliance/Enforcement Section
Diane.Pupa@dep.state.fl.us

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 – 2015 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 the Environmental Protection Agency (EPA) and the State of Florida Department of Environmental Protection (FDEP) the 2015 Annual Report. The 2015 Annual Report covers the period of time from January 1, 2015 through December 31, 2015.

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) 552-8120.

Sincerely,

Bertha Goldenberg, P.E., LEED® Green Associate
Assistant Director, Regulatory Compliance and Planning

Attachment: 2015 Annual Report

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2015 Annual Report

January 1, 2015 through December 31, 2015

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

QUALITY. VALUE. ECONOMIC GROWTH.
WWW.MIAMIDADE.GOV/WATER

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Acronyms and Abbreviations

AC	Asbestos Cement
BODR	Basis of Design Report
CMOM	Capacity, Management, Operations, and Maintenance
CD	Consent Decree
CIP	Capital Improvement Project
CIPP	Cured in Place Pipe
CMOM	Capacity, Management, Operations and Maintenance
EFT	Electronic Funds Transfer
EPA	United States Environmental Protection Agency
FOG	Fats, Oils, and Grease
FDEP	Florida Department of Environmental Protection
GPD	Gallons per Day
GPM	Gallons per Minute
GIS	Geographic Information Systems
I/I	Inflow/Infiltration
IMS	Information Management System
LF	Linear Foot
MGD	Million Gallons per Day
NPDES	National Pollutant Discharge Elimination System
N/A	Not Applicable
PDR	Public Document Repository
PS	Pump Station

RER-DERM	Department of Regulatory and Economic Resources-Division of Environmental Resources Management
RTU	Remote Telemetry Unit
R & R	Renewal and Replacement
SSO	Sanitary Sewer Overflow
SEP	Supplemental Environmental Project
SORP	Sewer Overflow Response Plan
SCADA	Supervisory Control and Data Acquisition
VFD	Variable Frequency Drive
VSC	Volume Sewer Customer
WASD	Miami-Dade 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, 2015 through December 31, 2015), and also 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, 2015 - December 31, 2015)

3.1 CD Reporting

The County submitted four (4) Quarterly Reports during the most recent Calendar Year (January 1, 2015 through December 31, 2015). Quarterly Reports include the date, time, location, source, estimated duration, estimated volume, receiving water (if any) and cause of all SSOs occurring in the reporting period.

Two (2) Semi-Annual Reports were submitted during the most recent Calendar Year (January 1, 2015 through December 31, 2015). Semi-Annual Reports contain a description of projects and activities completed and milestones achieved during the reporting period, and those anticipated in the successive reporting period, in Gantt chart. The 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 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

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, Miami-Dade 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. See Table A-1 (Appendix A) to review significant activities and key accomplishments during the most recent Calendar Year.

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 of 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 Project 5.19, which was completed in November 2015.

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. See Table A-1 (Appendix A) to review significant activities and key accomplishments during the most recent Calendar Year.

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.

Volume Sewer Customer Ordinance Program

The purpose of the Volume Sewer Customer (VSC) Ordinance 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 VSC Ordinance, 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. VSC's Sewer Atlas and Plan of Compliance are due to RER-DERM on January 6, 2016 and March 11, 2016, respectively.

3.3 New CMOM Programs

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 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.

A FOG Control Ordinance workshop was held on May 18, 2015. The deliverable was submitted to EPA/FDEP on the CD compliance date June 8, 2015. The program is pending EPA and FDEP approval. See Table A-2 (Appendix A) to review significant activities and key accomplishments during the most recent Calendar Year.

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. The program is pending EPA and FDEP approval.

Information Management System ("IMS") Program

The IMS 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 deliverable was submitted to EPA/FDEP on December 4, 2015 - ahead of the CD compliance date of December 7, 2015. The program is pending EPA and FDEP approval.

Sewer System Asset Management Program

The Sewer System Asset Management Program 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 System Asset Management Program was submitted to EPA/FDEP on the CD compliance date of October 6, 2015. The program is pending EPA and FDEP approval.

Gravity Sewer System Operations & Maintenance Program

The Gravity Sewer System Operations and Maintenance Program 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 Gravity Sewer System Operations and Maintenance Program was submitted to EPA/FDEP on the CD compliance date of February 6, 2015. The program is pending EPA and FDEP approval.

Pump Station Operations & Preventative Maintenance Program

The Pump Station Operations and Preventive Maintenance Program will facilitate proper operation and maintenance activities associated with the pump stations within the WCTS.

The Pump Station Operations and Preventative Maintenance Program was submitted to EPA/FDEP on April 2, 2015 - ahead of the CD compliance date of April 6, 2015. The program is pending EPA and FDEP approval.

Force Main Operations, Preventative Maintenance & Assessment/Rehab Program

The Force Main Operations, Preventative Maintenance and Assessment/Rehabilitation Program 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 Force Main Operations, Preventative Maintenance and Assessment/Rehabilitation Program was submitted to EPA/FDEP on the CD compliance date August 6, 2015. The program is pending EPA and FDEP approval.

Force Main Rehabilitation/Replacement Program

The Force Main Rehabilitation/Replacement Program includes standard procedures for repairing, rehabilitating and replacing force mains.

The Force Main Rehabilitation/Replacement Program was submitted to EPA/FDEP on December 4, 2015 - ahead of the CD compliance date of December 7, 2015. The program is pending EPA and FDEP approval.

WWTP Operations and Maintenance Program

The WWTP Operations and Maintenance Program 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 Wastewater Treatment Plant Operations and Maintenance Program was submitted to EPA/FDEP on May 5, 2015 - ahead of the CD compliance date of May 6, 2015. The program is pending EPA and FDEP approval.

Specific Capital Improvement Projects

Based on previous investigations, Miami-Dade 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. Miami-Dade County shall complete each of these capital improvement projects in accordance with the schedules set forth in Appendix D.

The following Capital Improvement Projects were completed during the most recent Calendar Year (January 1, 2015 through December 31, 2015):

Wastewater Collection and Transmission Lines ("WCTL")

- Rehabilitation of 18" DIP FM in Miami Lakes (CIP 4.7) was completed on December 7, 2015 - ahead of the CD compliance date of April 9, 2017.
- Replacement of asbestos cement force mains (CIP 4.9 (9-13)) were completed on August 7, 2015.
- Replacement of asbestos cement force mains (CIP 4.9 (14-19)) were completed on June 3, 2015.

Sewer Pump Station Systems

- Upgrades of PS Nos. 0065, 0201, 0334, 0374 and 0607 (CIP 5.15) were completed on December 30, 2015 - ahead of the CD compliance date of December 31, 2015.
- SCADA RTU Upgrades (CIP 5.19) was completed on November 23, 2015 - ahead of the CD compliance date of March 18, 2016.

Financial Analysis Program

The purpose of the Financial Analysis Program 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 Financial Analysis Program 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 and FDEP on November 25, 2015. WASD corrected all deficiencies in the Program identified by EPA and FDEP and submitted responses to the deficiencies on January 29, 2016.

4.0 CMOM Programs Subject to Reporting Requirements

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

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

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

A narrative summary of the new CMOM Programs in Paragraphs 19(a) through (h), (j) and their significant activities for the previous calendar year can be found in Appendix A Table A-2. During this reporting period, none of the new CMOM Programs submitted to EPA/FDEP have been approved by EPA/FDEP and therefore, have not been implemented.

The County has met all of the CD requirements for the previous full Calendar Year (January 1, 2015 through December 31, 2015), following the Effective Date of the CD and is in full compliance with the CD. The CMOM Programs submitted to EPA/FDEP for review and comment are listed in Table 1-1.

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	Resubmittal Date	EPA/FDEP Approval
Financial Analysis Program	Section VI, para 19(j)	12/8/2014	12/4/2014	11/25/2015	1/29/2016	N/A
Fats, Oils and Grease (FOG) Control Program	Section VI, para 19(a)	6/8/2015	6/8/2015	N/A	N/A	N/A
Sewer Overflow Response Plan	Section VI, para 19(b)	7/6/2015	7/2/2015	N/A	N/A	N/A
Information Management System	Section VI, para 19(c)	12/7/2015	12/4/2015	N/A	N/A	N/A
Sewer System Asset Management	Section VI, para 19(d)	10/6/2015	10/6/2015	N/A	N/A	N/A
Gravity Sewer System Operations and Maintenance Program	Section VI, para 19(e)	2/6/2015	2/6/2015	N/A	N/A	N/A
Pump Station Operations and Preventative Maintenance Program	Section VI, para 19(f)	4/6/2015	4/2/2015	N/A	N/A	N/A
Force Main Operations, Preventative Maintenance and Assessment/Rehabilitation Program	Section VI, para 19(g)	8/6/2015	8/6/2015	N/A	N/A	N/A
Force Main Rehabilitation and Replacement/Program	Section VI, para 19(g)(iv)	12/7/2015	12/4/2015	N/A	N/A	N/A
WWTP Operations and Maintenance Program	Section VI, para 19(h)	5/6/2015	5/5/2015	N/A	N/A	N/A

5.0 Sanitary Sewer Overflow Analysis

A trends analysis of the number, volume, average duration, and cause of Miami-Dade's Sanitary Sewer Overflow (SSO) and Building Backup (BBU) events was conducted for the previous two (2) Calendar Years (January 1, 2014 through December 31, 2015).

5.1 Number of Sanitary Sewer Overflows

Figure 5.1 provides a summary of the number of SSO and BBU events by year for the previous two (2) Calendar Years.

Figure 5.1 - SSO Events by Year

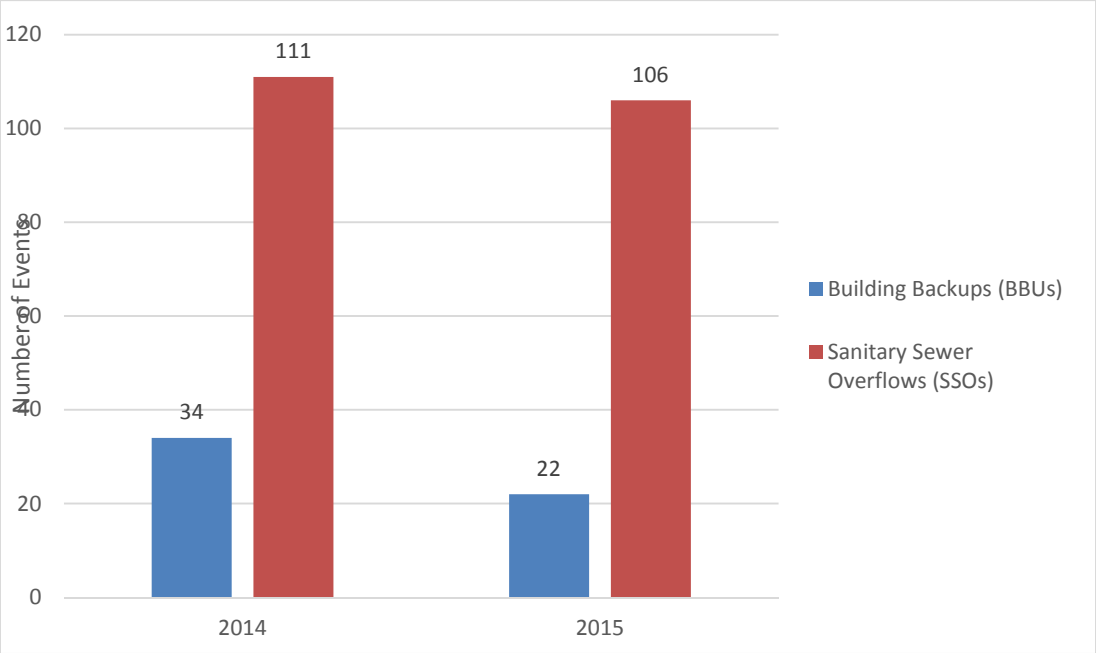
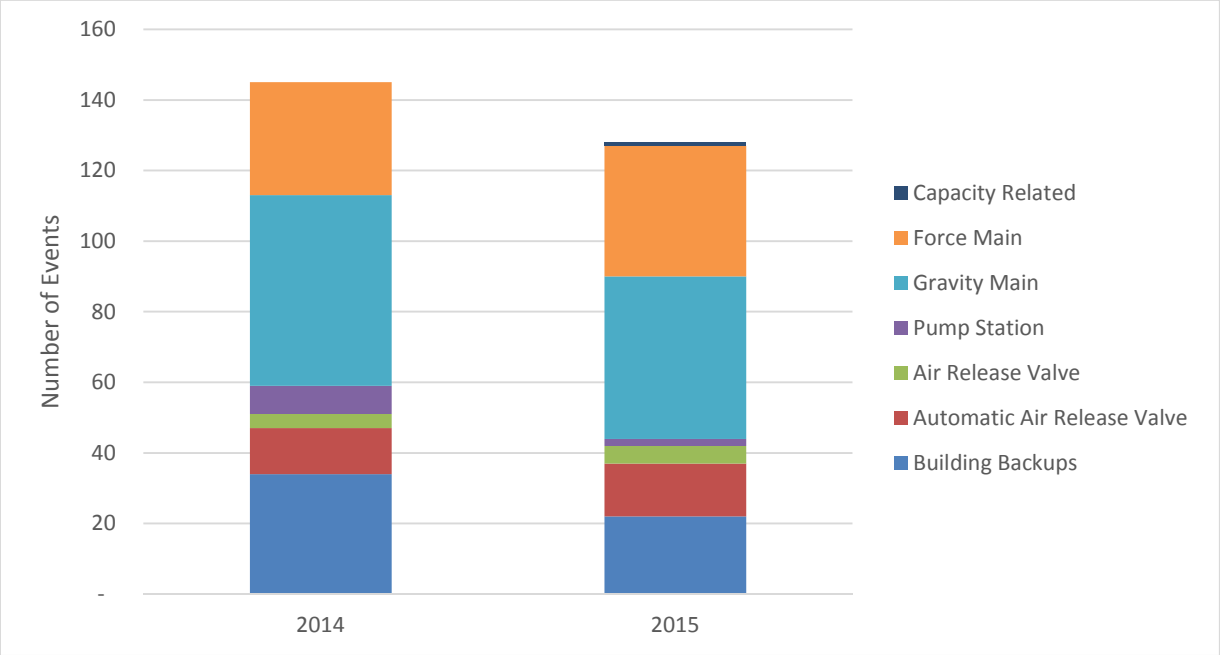


Figure 5.2 provides a summary of the number of SSO and BBU events by year and source for the previous two (2) Calendar Years.

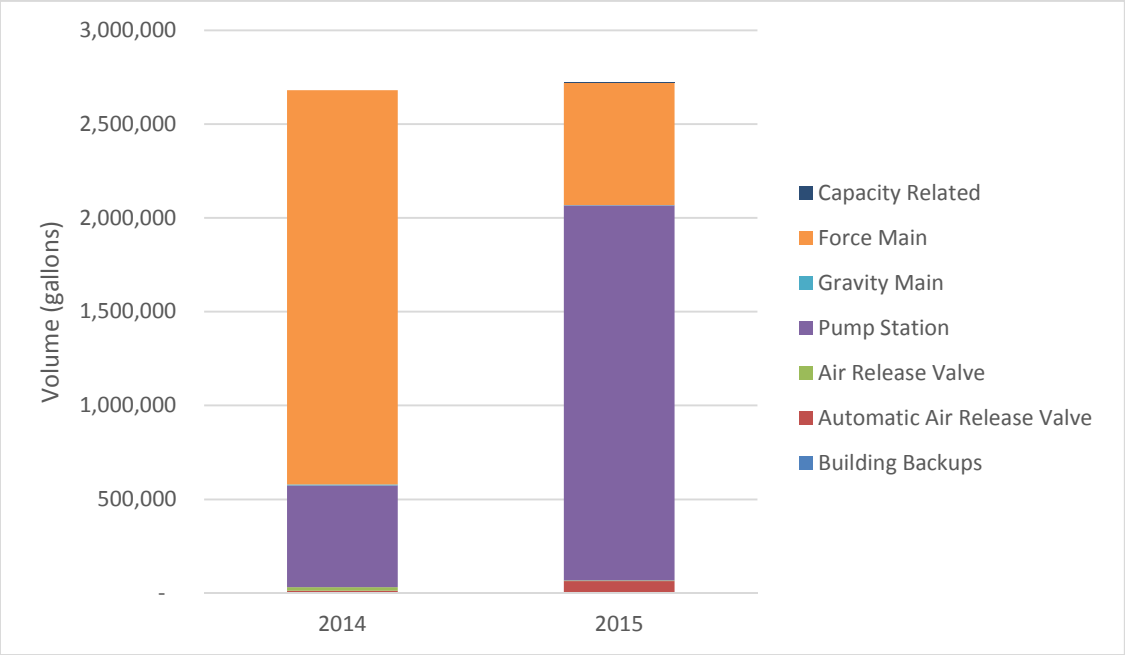
Figure 5.2 - SSO Events by Source



5.2 Volume of Sanitary Sewer Overflows

Figure 5.3 shows the total volume of all SSOs broken down by the source of the SSO. A full breakdown of all SSO volumes is available in Appendix B of this document.

Figure 5.3 - Total Volume of SSOs



5.3 Average Duration of Sanitary Sewer Overflows

The average duration of SSO events can be viewed in Table 5.1. For Building Backups, the "Time" and "Duration" parameters are seldom characteristically the same. For these reasons, Building Backups have not been included in the calculations of average duration.

Table 5.1 - Average Duration of SSO Events

Year	Average Duration (HH:MM)
2014	2:10
2015	4:36

5.4 Cause of Sanitary Sewer Overflows

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

Figure 5.4 - SSO Events by Cause

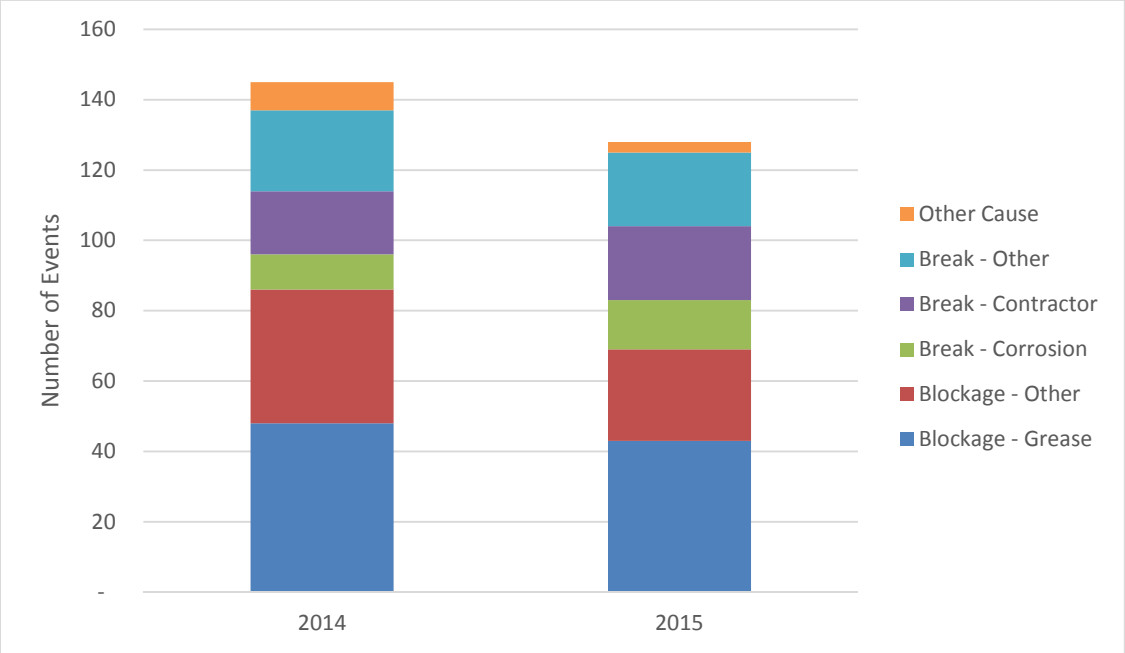
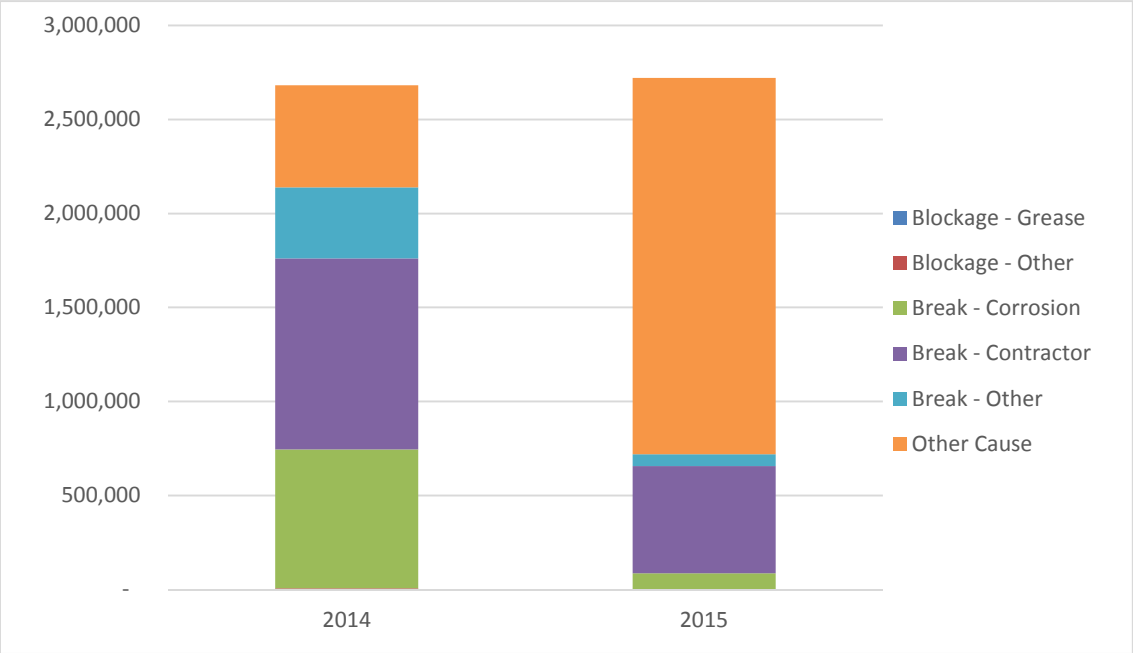


Figure 5.5 shows the total volume of all SSOs broken down by the cause of the SSO. A full breakdown of all SSO volumes is available in Appendix B of this document.

Figure 5.5 – SSO Volume by Cause



6.0 Amendment to Last Annual Report

Miami-Dade County has found deficiencies in the 2014 Annual Report that affect Section 5.0 Sanitary Sewer Overflow Analysis and Appendix B – SSO Cause Analysis Table of the 2015 Annual Report. The corrections are listed as follows:

1) Table 5.1 – Average Duration of SSO Events

The average duration of SSO events in 2014 was 2 Hours and 10 Minutes. The 2014 Annual Report incorrectly indicates that the average duration of SSO events for 2014 was 2 Hours and 7 Minutes. This change has been reflected in Section 5.3 (Table 5.1) of this Report.

2) Appendix B – SSO Cause Analysis

The 2014 Annual Report did not contain a SSO event that occurred on July 21, 2014 at 541 SW 8th Street. This SSO was caused by a bypass operation, and it is described in the 2014 Quarterly Report No. 3. The correct values have been used for the trends analysis in this Report. Changes to Table B-1 and Table B-2 have been highlighted in Appendix B of this Report.

3) Appendix B – SSO Cause Analysis

The 2014 Annual Report included a SSO event that occurred on June 11, 2014 at East Port Blvd. & SE Caribbean Way. This SSO occurred in a private system, and does not correspond to the “Sanitary Sewer Overflow” definition in Section IV of the CD. This SSO event was not reported on the 2014 Quarterly Report No. 2, and should not have been included for the trends analysis on the 2014 Annual Report. The correct values have been used for the trends analysis in this Report. Changes on Table B-1 and Table B-2 have been highlighted in Appendix B of this Report.

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Appendix A
CMOM Programs Significant Activities / Key Accomplishments

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Table A-1 Continuing CMOM Programs January 1, 2015 through December 31, 2015

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)	1. Monitored and tracked the monthly submittal of the Elapsed Time (ET) readings by each Volume Sewer Customer Utility. 2. Placed under Moratorium those pump stations that exceeded the maximum 10 hours pursuant to the Nominal Average Pump Operating Time (NAPOT). 3. Removed from Moratorium those pump stations for which the utility completed and certified the Remedial Action Plans (RAP) below the 10 hours pursuant to the Nominal Average Pump Operating Time (NAPOT). 4. Completed monthly reports for the Certification of Nominal Average Pump Operating Time (NAPOT) for each Volume Sewer Customer Utility. 5. Sent copies of the Certification of Nominal Average Pump Operating Time (NAPOT) to each Volume Sewer Customer Utility.
Pump Station Remote Monitoring Program	Work on the program is ongoing.	Section VI, Paragraph 18(b)	The continuing program involves the installation and operation of remote monitoring equipment in all Pump Stations in the Wastewater Collection and Transmission System (WCTS) within 6 months after the County becomes operationally responsible for Pump Station. All of 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 Project 5.19, which was completed in November 2015.

Table A-1 Continuing CMOM Programs January 1, 2015 through December 31, 2015

CMOM Program	CMOM Program Status	CD Reference	Significant Activities / Key Accomplishments
Wastewater Collection and Transmission Model	Work on the program is ongoing.	Section VI, Paragraph 18(c)	1) Completed hydraulic modeling analysis to provide evaluation of impact from proposed modifications, upgrades and expansions to the WCTS within each CD project deadline: 4.10, 5.11, 5.04, 5.05, 5.06 and 5.07. 2) Continued efforts to develop Model and GIS integration procedures according to Paragraph 18(c)(iv). 3) Completed the compilation of available information on wastewater private pump stations. 4) Continued efforts to incorporate private PS flows into the Model according to Paragraph 18(c)(ii). 5) Continued efforts towards the development of a Model Calibration Plan according to Paragraph 18(c)(iv). 6) Completed update of hydraulic model pump station connectivity in addition to the sustained efforts to update Gravity Sewer elevations for the entire system and major gravity sewer lines according to Paragraphs 18(c)(iii) and 18(c)(iv). 7) Continued efforts to update hydraulic model with information available for CD Projects, Ocean Outfall Legislation Projects, Master Plan Projects, Pump Station Improvement Projects as well as New Development Projects in an effort to maintain the most up to date projection scenarios for years 2015, 2020, 2025 and 2035 in the Pump Model.
Spare Parts Program	Work on the program is ongoing.	Section VI, Paragraph 18(d)	This program is a continuing inventory management program for spare parts 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.

Table A-1 Continuing CMOM Programs January 1, 2015 through December 31, 2015

CMOM Program	CMOM Program Status	CD Reference	Significant Activities / Key Accomplishments
Volume Sewer Customer ("VSC") Ordinance Program	The VSC Program and the VSC Ordinance were amended in accordance with Paragraph 18(e) of the CD.	Section VI, Paragraph 18(e)	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. VSC's Sewer Atlas are due to RER-DERM on January 6, 2016. VSC's Plan of Compliance are due to RER-DERM on March 11, 2016.

Table A-2 New CMOM Programs January 1, 2015 through December 31, 2015

CMOM Program	CMOM Program Status	CD Reference	Significant Activities / Key Accomplishments
Fats, Oils and Grease ("FOG") Control Program	Pending EPA/FDEP review.	Section VI, Paragraph 19(a)	1. Modified Grease Discharge Operating Permits to include mandatory cleaning/pumping frequency (30 days for Hydromechanical and 90 for gravity FOG Control Devices). 2. Continued FOG Outreach Program, including workshop for Food Service Establishments: December 11, 2015 FOG Control Program Operating Permit Workshop.
Sewer Overflow Response Plan ("SORP")	Pending EPA/FDEP review.	Section VI, Paragraph 19(b)	The Program document was finalized and submitted to the EPA/FDEP on July 2, 2015 - ahead of the CD compliance date of July 6, 2015.
Information Management System ("IMS") Program	Pending EPA/FDEP review.	Section VI, Paragraph 19(c)	The Program document was finalized and submitted to the EPA/FDEP on December 4, 2015 - ahead of the CD compliance date of December 7, 2015.
Sewer System Asset Management Program	Pending EPA/FDEP review.	Section VI, Paragraph 19(d)	The Program document was finalized and submitted to the EPA/FDEP on the CD compliance date of October 6, 2015.
Gravity Sewer System Operations and Maintenance Program	Pending EPA/FDEP review.	Section VI, Paragraph 19(e)	Program was pending EPA and FDEP approval.
Pump Station Operations and Preventative Maintenance Program	Pending EPA/FDEP review.	Section VI, Paragraph 19(f)	Program was pending EPA and FDEP approval.
Force Main Operations, Preventative Maintenance and Assessment/Rehabilitation Program	Pending EPA/FDEP review.	Section VI, Paragraph 19(g)	The Program document was finalized and submitted to the EPA/FDEP on the CD compliance date of August 6, 2015.
Force Main Rehabilitation/Replacement Program	Pending EPA/FDEP review.	Section VI, Paragraph 19(g)(iv)	The Program document was finalized and submitted to the EPA/FDEP on December 4, 2015 - ahead of the CD compliance date of December 7, 2015.
WWTP Operations and Maintenance Program	Pending EPA/FDEP review.	Section VI, Paragraph 19(h)	The Program document was finalized and submitted to the EPA/FDEP on the CD compliance date of May 6, 2015.
Specific Capital Improvement Projects	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.

Table A-2 New CMOM Programs January 1, 2015 through December 31, 2015

CMOM Program	CMOM Program Status	CD Reference	Significant Activities / Key Accomplishments
Financial Analysis Program	Pending EPA/FDEP review. EPA/FDEP submitted comments on November 25, 2015	Section VI, Paragraph 19(j)	WASD received comments from EPA and FDEP on November 25, 2015. WASD corrected all deficiencies in the Program identified by EPA and FDEP and submitted responses to the deficiencies on January 29, 2016.

Table A-3.1 South District WWTP Capital Improvement Projects January 1, 2015 through December 31, 2015

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.	Design and permitting were completed. Procurement and construction were ongoing.
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.	Design was ongoing.
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 two child projects: the structural rehab of the trains 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.	Plant staff rehabilitated Train 1, ahead of schedule, because of deteriorating conditions.
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.	In validation/planning stage.
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 two separate child projects for the electrical equipment and the building improvements, respectively.	Structural rehab of wet well #3 was completed in September 2015. Electrical equipment was installed and wet well rehab continued. The required building improvements to the pump station were in the validation process.
1.6	Gravity Sludge Thickeners	The SDWWTP Gravity Sludge Thickeners project will be performed pursuant to Paragraph 19(i) and Appendix D. This project involves the replacement of the thickened sludge pumps and electrical systems in the concentrator pump station. It also entails the rehabilitation of the concentrator collector mechanisms and structural rehabilitation and coating of the concentrators.	Design was ongoing.

Table A-3.1 South District WWTP Capital Improvement Projects January 1, 2015 through December 31, 2015

Project Number	Project Name	Project Description	Significant Activities /Key Accomplishments
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 unstabilized sludge that will require landfill disposal.	Design was ongoing.
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.	Design was ongoing.
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 handing 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.	Design was ongoing.
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.	In validation/planning stage.
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.	In validation/planning stage.
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.	Procurement commenced.

Table A-3.2 Central District WWTP Capital Improvement Projects January 1, 2015 through December 31, 2015

Project Number	Project Name	Project Description	Significant Activities / Key Accomplishments
2.1	Electrical Improvements	The CDWWTP Electrical Improvements project is being performed pursuant to Paragraph 19(i) and Appendix D. This project involves the rehabilitation and replacement of electrical controls and wiring as needed throughout the plant.	Construction was ongoing. The majority of this work will be done in conjunction with other CD projects.
2.2	Building Improvements	The CDWWTP Building Improvements project is being performed pursuant to Paragraph 19(i) and Appendix D. The project involves the repair of maintenance, operations control and administration buildings at the plant. It includes the repair of the roofs and the staff facility. This project was split into 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.	Design was completed and permitting commenced for the remodeling activities of the Administration Building. Procurement commenced for the roof repairs. Design was ongoing for the remodeling of bathrooms, locker rooms and showers.
2.3	Headworks Plant 1	The CDWWTP Headworks/Grit Basin Plant 1 project is being performed pursuant to Paragraph 19(i) and Appendix D. The existing screening facilities at the CDWWTP influent pump station are inefficient. This results in the accumulation of rags and plastics in plant processes which sometimes leads to pump, mixer and clarifier collection mechanism failure. This project involves the addition of influent screens and an electrical room with upgraded electrical instrumentation.	Design was ongoing. Procurement and pre-purchase activities commenced.
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.	Design was ongoing. Pre-purchase activities commenced.
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 ongoing.
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.	The installation of electrical equipment continued. Construction was ongoing.
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.	In validation/planning stage.

Table A-3.2 Central District WWTP Capital Improvement Projects January 1, 2015 through December 31, 2015

Project Number	Project Name	Project Description	Significant Activities / Key Accomplishments
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.	Design 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.	In validation/planning stage.
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.	Design commenced.
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.	In validation/planning stage.
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.	Design was ongoing.
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.	Design was ongoing.
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 unstabilized sludge that will require landfill disposal.	In validation/planning stage.

Table A-3.2 Central District WWTP Capital Improvement Projects January 1, 2015 through December 31, 2015

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 unstabilized sludge that will require landfill disposal.	Cluster 1: Permitting commenced. Cluster 4: Design continued.
2.16	Dewatering Building	The CDWWTP Dewatering Building project is being performed pursuant to Paragraph 19(i) and Appendix D. The purpose of this project is to construct a new dewatering facility and sludge cake conveyance system to the sludge storage buildings.	Design was ongoing.
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.	Permitting and procurement commenced.
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.	A portion of this project is being performed in coordination with the Headworks projects 2.3 and 2.4.
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 two separate child projects: the replacement of the generators and the biogas treatment facilities.	Construction was ongoing for the Co-Gen generator replacement. Design continued for the Co-Gen biogas treatment facilities improvements.

Table A-3.2 Central District WWTP Capital Improvement Projects January 1, 2015 through December 31, 2015

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.	In lieu of constructing improvements to the CDWWTP Septage Unloading facilities, WASD discontinued the process of receiving septage at the CDWWTP and has shut down the Septage Unloading facilities. Septage has been diverted to the SDWWTP as of January 2013 ahead of the compliance date of June 3, 2022.
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 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.	Design was ongoing.
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 ongoing.
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.	Permitting commenced.
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.	In validation/planning stage.
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 was ongoing.

Table A-3.2 Central District WWTP Capital Improvement Projects January 1, 2015 through December 31, 2015

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.	Design was ongoing.
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.	Completed on February 10, 2014 - ahead of the CD compliance date of 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 TSS and BOD loading. This study investigated the sources and conceptualized solutions to eliminate or mitigate the change in plant influent characteristics.	This study was completed as of June 4, 2014 - ahead of the CD compliance date of June 24, 2014.

Table A-3.3 North District WWTP Capital Improvement Projects January 1, 2015 through December 31, 2015

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 commenced.
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.	Design was ongoing.
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.	In validation/planning stage.
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.	In validation/planning stage.
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.	Rehabilitation of mechanism Nos. 3, 6 and 8 was ongoing and performed by in-house plant staff. Design for remaining scope of work continued.
3.6	Disinfection	The NDWWTP Disinfection project is being performed pursuant to Paragraph 19(i) and Appendix D. This project involves the replacement of the chlorine gas storage, liquid chlorination and dosing system with bulk sodium hypochlorite storage and dosing system in the existing chlorine building.	Design was ongoing.

Table A-3.3 North District WWTP Capital Improvement Projects January 1, 2015 through December 31, 2015

Project Number	Project Name	Project Description	Significant Activities / Key Accomplishments
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 separates 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. Procurement started for the DIW Pump Stations Mechanical. Construction continued for the DIW Pump stations Electrical.
3.8	Plant Wide Electrical	The NDWWTP Plant Wide Electrical project is being performed pursuant to Paragraph 19(i) and Appendix D. This project involves the rehabilitation and replacement of electrical controls and wiring as needed at the NDWWTP.	Procurement continued for ND Plant Wide Electrical. Procurement commenced for Feeders 1 and 2.
3.9	Flood Mitigation	The NDWWTP Flood Mitigation project is being performed pursuant to Paragraph 19(i) and Appendix D. The purpose of this project is to mitigate the flood potential in the Generator and Electrical Building at the NDWWTP.	Procurement and construction continued.
3.10	Yard Piping Replacement	The NDWWTP Yard Piping Replacement project is being performed pursuant to Paragraph 19(i) and Appendix D. The purpose of this project is to replace the wastewater piping that interconnects unit processes throughout the plant.	Construction was ongoing.
3.11	SCADA RTU Upgrades	The NDWWTP SCADA RTU Upgrades project is being performed pursuant to Paragraph 19(i) and Appendix D. The current radio communication system is obsolete, and it is difficult to procure parts. The purpose of the project is to upgrade the SCADA remote telemetry units to maintain operational sustainability.	Project was completed on November 26, 2014 - ahead of the CD compliance date of March 24, 2015.

Table A-4.1 Wastewater Collection and Transmission Lines January 1, 2015 through December 31, 2015

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 was 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.	Construction was ongoing.
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.	Permitting and construction were ongoing.
4.5	South Dade 54 inch PCCP FM Rehabilitation	This South Dade Force Main Rehabilitation project is being performed in accordance with Paragraph 19(i) and Appendix D. The project involves the rehabilitation of 2.5 miles of 54-inch PCCP FM from SW 112 Avenue and SW 280 Street to SW 107 Avenue and SW 248 Street in South Dade. It replaces sections of the 54-inch force main that has critically damaged pipe segments. This project has been split into two (2) separate child projects: one which includes the 2.5 miles of 54-inch pipe rehabilitation and another for required bypasses.	Permitting commenced.

Table A-4.1 Wastewater Collection and Transmission Lines January 1, 2015 through December 31, 2015

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.	Work on this project was ongoing.
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.	Design was ongoing.

Table A-4.2 Project 4.9 Replacement of Approximately 26 Miles AC FM Transmission System January 1, 2015 through December 31, 2015

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 commenced.
2	8	NE 14 Ave. & 191 St.	NE 14 Ave. & Miami Gardens Dr.	Procurement commenced.
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.	Permitting commenced.
7	10	NW 52 Ct. & NW 190 St.	NW 52 Ave. & NW 189 Ter.	Permitting commenced.
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.	Procurement commenced.
21	10	NW 42 Pl. & NW 199 Ter.	NW 39 Ct. & NW 199 St.	Procurement commenced.
22	6	PS 358	PS 352	Procurement commenced.
23	8	PS 1022	PS 1072	Design commenced.
24	8	PS 353	NW 48 Ct. & NW 178 Ter.	Design was ongoing.
25	10	NW 52 Ave. & NW 173 Dr.	NW 52 Ave. & NW 178 Ter.	Procurement commenced.
26	6	PS 354	NW 52 Ave. & NW 173 Dr.	Procurement commenced.
27	4	Pvt. PS @ SW 149 Ter.	MH 14 @ PS 719	Design commenced.
28	8	PS 786	MH 5 @ PS 785	Design commenced.
29	12	PS 811	SW 107 Ave. & SW 76 St.	Permitting commenced.
30	12	PS 811	SW 102 Ave. & SW 81 St.	Permitting commenced.
31	10	PS 812	SW 102 Ave. & SW 84 St.	Permitting commenced.

Table A-4.2 Project 4.9 Replacement of Approximately 26 Miles AC FM Transmission System January 1, 2015 through December 31, 2015

Line Number	Diameter	From Location	To Location	Significant Activities / Key Accomplishments
32	12	SW 107 Ave. & SW 104 St.	SW 107 Ave. & Kendale Blvd.	Procurement commenced.
33	4	Pvt. PS @ 114 Ave. & SW 169 St.	MH 59 @ SW 103 Ave.	Design commenced.
34	10	PS 709	Homestead Ave. & Kumquat St.	Design commenced.
35	6	SW 110 Ave. & Banyan St.	SW 95 Ave. & SW Banyan St.	Design commenced.
36	4	PS 721	US1 & Banyan St.	Design commenced.
37	4	PS 749	PS 731	Design commenced.
38	4	PS 747	US1 & East Indigo St.	Design commenced.
39	10	SW 102 Ave. & SW 176 St.	Homestead Ave. & West Jessamine	Design commenced.
40	8	PS 745	SW 102 Ave. & SW 175 St.	Design commenced.
41	4	PS 731	SW Duval Ave. & West Indigo St.	Design commenced.
42	10	SW 102 Ave. & West Jessamine	US1 & SW 184 St.	Design commenced.
43	12	Homestead Ave. & 180 St.	Railroad St. & SW 184 St.	Design commenced.
44	8	PS 810	SW 118 Pl. & SW 72 St.	Design commenced.
45	12	PS 793	SW 118 Pl. & SW 72 St.	Design commenced.
46	6	PS 724	SW 106 Ave. & SW 155 St.	Design was ongoing.
47	8	PS 869	SW 122 Ave. & SW 88 St.	Procurement commenced.
48	10	PS 1017	SW 123 Pl. & SW 268 St.	Design commenced.
49	10	PS 1029	SW 132 Ave. & 268 St.	Design commenced.
50	8	SW 137 Ave. & SW 268 St.	SW 128 Ave. & 268 St.	Design commenced.
51	10	PS 1028	SW 137 Ave. & 288 St.	Design commenced.
52	10	PS 1027	SW 132 Ave. & 280 St.	Design commenced.
53	8	PS 1018	MH 44A @ SW 132 Ave.	Design commenced.
54	12	SW 137 Ave. & SW 72 St.	SW 142 Ave. & SW 72 St.	Design commenced.
55	12	SW 142 Ave. & SW 72 St.	SW 147 Ave. & SW 72 St.	Design commenced.
56	8	PS 864	SW 147 Ave. & SW 72 St.	Design commenced.
57	8	SW 142 Ave. & Kendale Lakes Blvd.	SW 140 Ave. & Kendale Lakes Blvd.	Design commenced.

Table A-4.2 Project 4.9 Replacement of Approximately 26 Miles AC FM Transmission System January 1, 2015 through December 31, 2015

Line Number	Diameter	From Location	To Location	Significant Activities / Key Accomplishments
58	10	SW 140 Ave. & Kendale Lakes Blvd.	SW 137 Ave. & Kendale Lakes Blvd.	Design commenced.
59	12	SW 137 Ave. & Kendale Lakes Blvd.	SW 137 Ave. & SW 81 St.	Design commenced.
60	8	PS 1013	PS 1012	In validation/planning stage.
61	10	PS 1012	SW 144 Ave. & SW 280 St.	In validation/planning stage.
62	8	PS 1011	SW 144 Ct. & SW 280 St.	In validation/planning stage.
63	10	SW 147 Ave. & SW 288 St.	SW 134 Pl. & SW 288 St.	Design commenced.
64	6	PS 1009	SW 147 Ave. & SW 296 St.	In validation/planning stage.
65	6	PS 1006	PS 1005	In validation/planning stage.
66	8	PS 1002	SW 152 & SW 304 St.	In validation/planning stage.

Table A-5 Sewer Pump Station Systems January 1, 2015 through December 31, 2015

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.	Procurement commenced.
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.	Design was ongoing.
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.	Design was ongoing.
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.	Design was ongoing.
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_2S. This project involves the replacement of electrical switchgear and the rehabilitation of the wet well to include an odor control unit.	Design was ongoing.
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.	Design was ongoing.

Table A-5 Sewer Pump Station Systems January 1, 2015 through December 31, 2015

Project Number	Project Name	Project Description	Significant Activities / Key Accomplishments
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_2S. 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.	Design was ongoing.
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.	Permitting commenced.
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 ongoing.
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.	Procurement commenced.
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.	Design was ongoing.
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.	Permitting commenced. Pre-purchase activities commenced.

Table A-5 Sewer Pump Station Systems January 1, 2015 through December 31, 2015

Project Number	Project Name	Project Description	Significant Activities / Key Accomplishments
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.	Construction was ongoing.
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.
5.15	Upgrade of PSs Nos. 0065, 0201, 0374, 0607	The Upgrade of PSs No. 0065, 0201, 0334, 0374, 0607 project is being performed pursuant to Paragraph 19(i) and Appendix D. The pump stations exceed the Adequate Transmission Capacity Criteria with a NAPOT of greater than 10 hours. The PS No. 0065 is being upgraded to include new submersible pumps in the existing dry well, installation of larger suction and discharge piping, and an electrical upgrade. The PS No. 0201 is being upgraded to include new submersible pumps, installation of a new valve box, an electrical upgrade and 48 I/I repairs for a flow of 176 gpm. The PS No. 0334 project involves the conversion to a new submersible type pump station, an electrical upgrade and the installation of 2,200 L.F. of new 8-inch FM. The PS No. 0374 is being upgraded to include new submersible pumps, installation of a new valve box, an electrical upgrade and the installation of 320 L.F. of new 8-inch FM. The PS No. 0607 project involves the conversion to a new submersible type pump station and an electrical upgrade.	This project was completed on December 30, 2015 - ahead of the CD compliance date of December 31, 2015.

Table A-5 Sewer Pump Station Systems January 1, 2015 through December 31, 2015

Project Number	Project Name	Project Description	Significant Activities / Key Accomplishments
5.16	Upgrade of PSs Nos.0198, 0437, 0466, 0680	The Upgrade of PSs No. 0198, 0437, 0466, 0680 project is being performed pursuant to Paragraph 19(i) and Appendix D. The pump stations exceed the Adequate Transmission Capacity Criteria with a NAPOT of greater than 10 hours. 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.	Procurement commenced.
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.	Design commenced.

Table A-5 Sewer Pump Station Systems January 1, 2015 through December 31, 2015

Project Number	Project Name	Project Description	Significant Activities / Key Accomplishments
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.	In validation/planning stage.
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

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Table B-1: SSO Event Cause Analysis

CAUSE		2013	2014	2015
1. Building Backups (Laterals)		**-**	**34**	**22**
Blockage	(i) PM Activity	*	20	11
	(ii) Roots	*	2	-
	(iii) Grease	*	3	6
	(iv) Debris	*	1	-
Break	(v) Contractor Involved	*	3	1
	(vi) Other	*	5	4
2. Air Release Valves		**23**	**17**	**20**
(a) Automatic		**13**	**13**	**15**
Break/Malfunctioning	(i) Malfunctioning/Other	5	1	3
	(ii) Riser/Nipple	4	1	-
	(iii) Valve	1	1	-
	(iv) Contractor Involved	-	1	3
	(v) Vandalism	-	-	
Blockage	(vi) Grease Blockage	-	1	3
	(vii) Debris Blockage	3	8	6
(b) Manual		**10**	**4**	**5**
Broken	(i) Riser/Nipple	3	1	1
	(ii) Valve	3	2	-
	(iii) Contractor Involved	4	1	3
	(iv) Vandalism	-	-	-
Blockage	(v) Grease Blockage	-	-	-
	(vi) Debris Blockage	-	-	1
3. Pump Station		**15**	**8**	**2**
Other/Broken	(i) FPL Service Outage	4		1
	(ii) Pump	3	1	-
	(iii) Pipe/Pump-out	4	1	1
	(iv) Electrical	1	2	-
	(v) Level/Bubbler	-	-	-
	(vi) Valve	-	3	-
	(vii) Bypass Operation	3	1	-
	(viii) Contractor Involved	-	-	-
	(ix) SCADA	-	-	-
	(x) Other		-	-
4. Gravity Main		**66**	**54**	**46**
Blockage	(i) Grease	53	44	34
	(ii) Debris	9	5	6
	(iii) Roots	-	1	-
	(iv) Other	3	1	2
Break	(v) Contractor Involved	1	3	3
	(vi) Other	-	-	1
5. Force Main		**35**	**32**	**37**
Break	(i) Contractor Involved	13	10	11
	(ii) Vandalism	-	-	1
	(iii) Corrosion	9	10	14
	(iv) Bedding/Settlement	8	6	10
	(v) Other	5	6	1
6. Capacity Rel. - Rain/Sur/Press		**1**	**-**	**1**
	(i) No Improvement Ness.	1	-	1
	(ii) Improvement Rec.	-	-	-
SSOs (Excluding BBUs)		**140**	**111**	**106**
Total		**140**	**145**	**128**

* Prior to entry of the Consent Decree the County had not treated Building Backups as SSOs as it was not required to do so. Because the Consent Decree was entered on December 6, 2013, the County only has one full year of Building Backup data.

Table B-2: SSO Volume Analysis

CAUSE		2013		2014		2015	
1. Building Backups (Laterals)		**-**	**gal.**	**612**	**gal.**	**58**	**gal.**
Blockage	(i) PM Activity	*	gal.	76	gal.	43	gal.
	(ii) Roots	*	gal.	5	gal.	-	gal.
	(iii) Grease	*	gal.	455	gal.	9	gal.
	(iv) Debris	*	gal.	2	gal.	-	gal.
Break	(v) Contractor Involved	*	gal.	56	gal.	1	gal.
	(vi) Other	*	gal.	18	gal.	5	gal.
2. Air Release Valves		**145,735**	**gal.**	**31,685**	**gal.**	**66,977**	**gal.**
(a) Automatic		**58,557**	**gal.**	**12,485**	**gal.**	**63,507**	**gal.**
Break/Malfunctioning	(i) Malfunctioning/Other	7,214	gal.	2	gal.	3,055	gal.
	(ii) Riser/Nipple	35,023	gal.	2,232	gal.	-	gal.
	(iii) Valve	16,065	gal.	90	gal.	-	gal.
	(iv) Contractor Involved	-	gal.	9,930	gal.	60,140	gal.
	(v) Vandalism	-	gal.	-	gal.	-	gal.
Blockage	(vi) Grease Blockage	-	gal.	5	gal.	36	gal.
	(vii) Debris Blockage	255	gal.	226	gal.	276	gal.
(b) Manual		**87,178**	**gal.**	**19,200**	**gal.**	**3,470**	**gal.**
Broken	(i) Riser/Nipple	63,098	gal.	5,800	gal.	2,710	gal.
	(ii) Valve	230	gal.	2,600	gal.	**-**	gal.
	(iii) Contractor Involved	23,850	gal.	10,800	gal.	750	gal.
	(iv) Vandalism	-	gal.	-	gal.	-	gal.
Blockage	(v) Grease Blockage	-	gal.	-	gal.	-	gal.
	(vi) Debris Blockage	-	gal.	-	gal.	10	gal.
3. Pump Station		**25,914**	**gal.**	**542,178**	**gal.**	**2,000,468**	**gal.**
Other/Broken	(i) FPL Service Outage	12,130	gal.	-	gal.	2,000,000	gal.
	(ii) Pump	10,484	gal.	100	gal.	-	gal.
	(iii) Pipe/Pump-out	1,950	gal.	200	gal.	468	gal.
	(iv) Electrical	300	gal.	540,500	gal.	-	gal.
	(v) Level/Bubbler	-	gal.	-	gal.	-	gal.
	(vi) Valve	-	gal.	628	gal.	-	gal.
	(vii) Bypass Operation	1,050	gal.	750	gal.	-	gal.
	(viii) Contractor Involved	-	gal.	-	gal.	-	gal.
	(ix) SCADA	-	gal.	-	gal.	-	gal.
	(x) Other	-	gal.	-	gal.	-	gal.
4. Gravity Main		**4,072**	**gal.**	**5,447**	**gal.**	**1,629**	**gal.**
Blockage	(i) Grease	1,850	gal.	1,682	gal.	1,075	gal.
	(ii) Debris	191	gal.	180	gal.	134	gal.
	(iii) Roots	-	gal.	2,400	gal.	-	gal.
	(iv) Other	2,025	gal.	900	gal.	110	gal.
Break	(v) Contractor Involved	6	gal.	285	gal.	260	gal.
	(vi) Other	-	gal.	-	gal.	50	gal.
5. Force Main		**1,650,264**	**gal.**	**2,101,605**	**gal.**	**651,001**	**gal.**
Break	(i) Contractor Involved	595,018	gal.	995,860	gal.	509,115	gal.
	(ii) Vandalism	-	gal.	-	gal.	5,800	gal.
	(iii) Corrosion	773,586	gal.	738,446	gal.	84,756	gal.
	(iv) Bedding/Settlement	280,850	gal.	39,139	gal.	51,130	gal.
	(v) Other	810	gal.	328,160	gal.	200	gal.
6. Capacity Rel. - Rain/Sur/Press		**1,000**	**gal.**	**-**	gal.	**500**	**gal.**
	(i) No Improvement Ness.	1,000	gal.	-	gal.	500	gal.
	(ii) Improvement Rec.	-	gal.	-	gal.	-	gal.
SSOs (Excluding BBUs)		**1,826,985**	**gal.**	**2,680,915**	**gal.**	**2,720,575**	**gal.**
Total		**1,826,985**	**gal.**	**2,681,527**	**gal.**	**2,720,633**	**gal.**