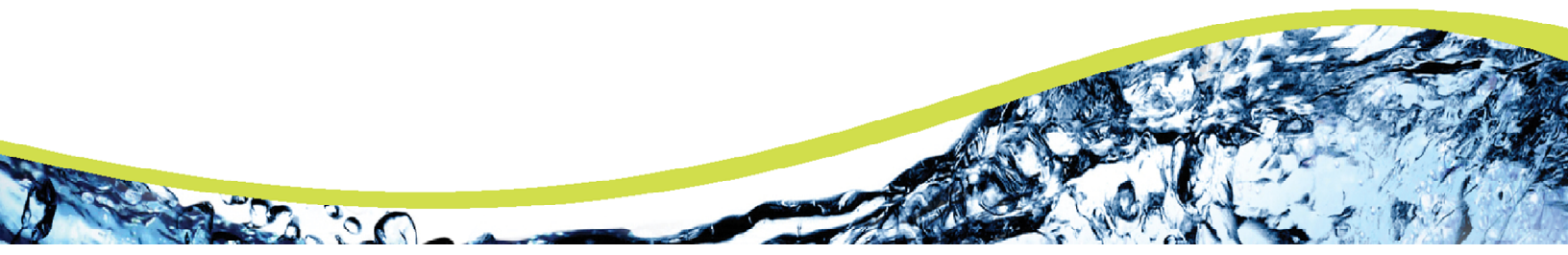


# Clean Water 2020 Program

## CONSENT DECREE ANNUAL REPORT

January 1, 2016 – December 31, 2016



## Table of Contents

Acronyms & Abbreviations .....	2
Section 1 Introduction .....	4
1.1 Summary of Reporting Requirements .....	4
1.2 Report Organization.....	4
Section 2 CMOM Programs Update.....	5
2.1 Sewer Overflow Response Program (SORP) .....	5
2.2 Contingency and Emergency Response Plan (CERP).....	5
2.3 WCTS Training Program .....	6
2.4 Information Management System (IMS) Program .....	6
2.5 Capacity Assurance Program (CAP).....	7
2.6 Sewer Mapping Program .....	7
2.7 Fats, Oils, and Grease (FOG) Management Program .....	8
2.8 Transmission System Operations and Maintenance Program.....	8
2.9 Gravity Sewer System Operation and Maintenance Program.....	8
2.10 Financial Analysis Program .....	9
Section 3 Capital Projects Update .....	10
3.1 Infrastructure Rehabilitation Report (IRR) Projects.....	10
Section 4 Sanitary Sewer Overflow (SSO) Trends Analysis.....	12
4.1 SSO Frequency and Volume by Cause.....	12
4.2 SSO Frequency and Volume by Month .....	15
4.3 SSO Duration .....	16
4.4 SSOs per 100 Miles of Pipe .....	17
4.5 Building Backup Frequency by Month .....	17
Appendix A EPA Force Majeure Deliverables Extension Approval Letter .....	19
Appendix B Supplemental Report of Force Majeure Event .....	20
Appendix C EPA Force Majeure Performance Extension Approval Letter .....	21

## List of Tables

Table 1: IRR Projects (V.16).....	10
Table 2: SIRR Projects (V.16.c) .....	11
Table 3: Total SSO Frequency and Volume by Cause, CY 2015 & 2016 .....	12
Table 4: Monthly SSO Frequency by Cause, CY 2015 & 2016 .....	13
Table 5: Monthly Building Backup Frequency, CY 2015 & 2016 .....	18

## List of Figures

Figure 1: CY 2015 SSOs by Cause .....	14
Figure 2: CY 2016 SSOs by Cause .....	14
Figure 3: SSO Frequency by Month.....	15
Figure 4: SSO Volume by Month <sup>1</sup> .....	16
Figure 5: SSOs per 100 Miles of Pipe .....	17

## Acronyms & Abbreviations

- CAP** – Capacity Assurance Program
- CCTV** – Closed Circuit Television
- CD** – Consent Decree
- CE** – City Engineer
- CERP** – Contingency Emergency Response Plan
- CFO** – Chief Financial Officer
- CIP** – Capital Improvements Program
- City** – City of Columbia
- CMOM** – Capacity, Management, Operations and Maintenance
- CSAP** – Continuing Sewer Assessment Program
- CW2020** – City’s Program to Manage the Consent Decree Compliance
- CY** – Calendar Year
- DOJ** – United States Department of Justice
- DUE** – Department of Utilities and Engineering

**EACIP** – Early Action Capital Improvement Projects

**EPA** – United States Environmental Protection Agency

**ERG** – Emergency Response Guide

**FOG** – Fats, Oils and Grease

**FSE** – Food Service Establishment

**GIS** – Geographic Information System

**GLPMP** – Gravity Line Preventive Maintenance Plan

**GSOMP** – Gravity Sewer System Operation and Maintenance Program

**IMS** – Information Management System

**IR** – Infrastructure Rehabilitation [Program]

**IRR** – Infrastructure Rehabilitation Report

**LGIM** – Local Government Information Model

**MAC** – Maintenance and Compliance

**NTP** – Notice to Proceed

**PTO** – Permit to Operate

**RFP** – Request for Proposal

**SCDHEC** – South Carolina Department of Health and Environmental Control

**SMP** – Sewer Mapping Program

**SOP** – Standard Operating Procedure

**SORP** – Sewer Overflow Response Program

**SSES** – Sanitary Sewer Evaluation Survey

**SSO** – Sanitary Sewer Overflow

**TSOMP** – Transmission System Operations and Maintenance Program

**WCTS** – Wastewater Collection and Transmission System

**WMD** – Wastewater Maintenance Division

**WWTP** – Wastewater Treatment Plant

## Section 1 Introduction

### 1.1 Summary of Reporting Requirements

On May 21, 2014 the City of Columbia (City) entered into a Consent Decree (CD) with the United States Environmental Protection Agency (EPA), the United States Department of Justice (DOJ) and the South Carolina Department of Health and Environmental Control (SCDHEC). To fulfill the reporting requirements as defined in Section IX.39.c of the CD, the City has prepared this *Annual Report*, which includes the following information (as excerpted from the CD):

1. A summary of the CMOM Programs implemented pursuant to this Consent Decree, including a comparison of actual performance with any performance measures that have been established;
2. A summary of each remedial measure and capital project implemented pursuant to this Consent Decree;
3. A trends analysis of the number, volume, duration, and cause of Columbia's SSOs for the previous twenty-four (24) month period.

### 1.2 Report Organization

This Annual Report is organized as follows:

#### **Section 1 – Introduction**

This section includes a summary of the reporting requirements and describes the report organization.

#### **Section 2 – CMOM Programs Update**

This section addresses the requirements of Section IX.39.c.(i) of the CD. The section provides a summary and update on the implementation of the specific Management, Operations, and Maintenance (MOM) Programs included in Section V.12 of the CD.

#### **Section 3 – Capital Projects Update**

This section addresses the requirements of Section IX.39.c.(ii) of the CD. The section provides a summary and update on the remedial measures and capital projects implemented as a part of the CD. The remedial measures and capital projects noted in this report have been identified by the City in the course of the assessment of the Wastewater Collection and Transmission System (WCTS) and will be included in the IR Report required under Section V.16 of the CD.

#### **Section 4 – Sanitary Sewer Overflow (SSO) Trends Analysis**

This section addresses the requirements of Section IX.39.c.(iii) of the CD. The section provides information on the number, volume, duration, and cause of the City's SSOs for the previous twenty-four month period.

## Section 2 CMOM Programs Update

In accordance with Section IX.39.c.(i) of the CD, this section provides a summary and update on the implementation of the specific CMOM Programs included in Section V.12 of the Consent Decree. The Program elements addressed in this section provide information regarding activities involving the Metro Wastewater Treatment Plant (WWTP) as well as the City's WCTS.

The City notified the U.S. Department of Justice, the U.S. Environmental Protection Agency, and the South Carolina Department of Health and Environmental Control of a *force majeure* event on October 6, 2015. The City experienced unprecedented rainfall which resulted in catastrophic flooding beginning on October 4, 2015. On October 13, 2015, the City submitted an initial written report of the *force majeure* event and requested an additional 45 days for certain CD deliverables. The request for this extension was granted by EPA; the approval letter is provided in Appendix A. Additionally, the October 13, 2015 written report further advised that the report would be supplemented with additional information on other delays in performance under the CD following a full assessment of the damage to the City's wastewater system. On March 24, 2016, the City submitted the supplemental report of the *force majeure* event. The supplemental report is provided in Appendix B. On June 2, 2016 the EPA agreed that the delays described in the March 24, 2016 letter were attributable to a *force majeure* event and that timeframes for the performance of certain obligations under the CD should be extended. The EPA's *force majeure* extension approval letter is provided in Appendix C.

### 2.1 Sewer Overflow Response Program (SORP)

The City continues to implement the SORP as required under Section V.12.a of the CD.

Projects and significant activities completed during the current reporting period:

- Updated and redistributed the SORP to Department of Utilities and Engineering (DUE) personnel following December 2015 training.
- Trained new hires and existing personnel on the use of the SORP (completed December 2016).

### 2.2 Contingency and Emergency Response Plan (CERP)

In consultation with SCDHEC, the City developed and submitted to EPA and SCDHEC a CERP within 18 months of the Date of Entry of the CD.

Projects and significant activities completed during the current reporting period:

- The City received final approval of the CERP from EPA and SCDHEC on May 23, 2016.
- Updated plan with new phone numbers, personnel, and addresses in CY 2016.
- Updated Emergency Response Guides (ERGs) with new pump stations added to the system.
- Created training documents to train personnel on the CERP in 2017 as required by EPA.

## 2.3 WCTS Training Program

In accordance with the requirements of the CD, the City was to submit a WCTS Training Program to EPA and SCDHEC within eighteen months of the date of entry of the CD. The deadline for submittal of the WCTS Training Program to EPA and SCDHEC was November 21, 2015. Following the *force majeure* event of early October 2015, the City submitted a written report on October 13, 2015 requesting an additional 45 days to January 5, 2016 to complete and obtain Council approval for this deliverable. This request was granted by EPA.

Projects and significant activities completed during the current reporting period:

- The WCTS Training Program was submitted to EPA and SCDHEC on January 4, 2016.
- The City received final approval of the WCTS Training Program from EPA and SCDHEC on May 23, 2016.
- Staff implemented the Wastewater Maintenance Division (WMD) Training Program in 2016.
- The Pump Station Group Training Program has been updated and will be implemented in 2017 as required by EPA.

## 2.4 Information Management System (IMS) Program

In accordance with the requirements of the CD, the City was to submit an Information Management System (IMS) Program to EPA and SCDHEC within eighteen months of the date of entry of the CD. The deadline for submittal of the IMS Program to EPA and SCDHEC was November 21, 2015. Following the *force majeure* event of early October 2015, the City submitted a written report on October 13, 2015 requesting an additional 45 days to January 5, 2016 to complete and obtain Council approval for this deliverable. This request was granted by EPA.

- The IMS Program was submitted to EPA and SCDHEC on January 4, 2016.
- The City received final approval of the IMS Program from EPA and SCDHEC on May 23, 2016.
- The City has continued to use Cityworks as their CMMS system for work order and service request processing for corrective and preventative maintenance, tracking inspections, and for complaint tracking.
- The City has continued to use a series of Microsoft Excel spreadsheets to track CIPs throughout the project lifecycle, from concept through completion.
- The City has continued to use the Storeroom module as part of the Cityworks software. As of December 31, 2016, 70% implementation of the Storeroom component was achieved with full implementation scheduled to be completed by June 30, 2018.
- The City has continued to obtain metrics and reports directly from Cityworks regarding the amount, type and frequency of work performed in the WCTS.
- Sewer basin electronic mapping has continued to be implemented in accordance with the submitted and EPA approved Sewer Mapping Plan (SMP). As of December 31, 2016, 59% implementation of the SMP was achieved.

## 2.5 Capacity Assurance Program (CAP)

In accordance with the requirements of the CD, the City is to submit to EPA and SCDHEC a CAP within 180 days after approval of the Hydraulic Model Report. Additionally, within 90 days after the Date of Entry of the CD, Columbia was required to establish a list of all authorized new sewer service connections or increases in flow from existing service connections, which flows have not yet been introduced into the WCTS. Columbia is required to update and maintain this list as necessary until full implementation of the CAP, as approved by EPA. In addition, upon execution of the CD and until EPA approves the CAP as required by Section 12.e, Columbia agreed to continue to implement its current capacity program.

Projects and significant activities completed during the current reporting period:

- Updated the existing CAP SOP document to further define the CAP process.
- Continued to distribute a CAP request form to satellite systems for their use.
- Continued to collect and process CAP requests received from satellite systems and developments within the City's system.
- Began developing the CAP Tool which will be used to facilitate CAP analysis requests.

## 2.6 Sewer Mapping Program

In accordance with the requirements of the CD, the City submitted a Sewer Mapping Program (SMP) to EPA and SCDHEC within 60 days of the date of entry of the CD. The City received final approval of the SMP from EPA and SCDHEC on December 9, 2014.

Projects and significant activities completed during the current reporting period:

- The City is continuing the electronic mapping of each Sewer Basin in accordance with the approved SMP implementation plan therein. Progress for each WCTS Minor Gravity Mapping basin is as follows:
  - West Columbia Basin – 80% complete
  - Smith Branch Basin – 67% complete
  - Saluda River Basin – 86% complete
  - Rocky Branch Basin – 33% complete
  - Mill Creek Basin – 26% complete
  - Gills Creek Basin – 29% complete
  - Crane Creek Basin – 65% complete
  - Broad River Basin – 27% complete
- In accordance with the SMP electronic mapping schedule, the City began reporting progress for each WCTS major gravity mapping basin upon approval of the CSAP from EPA and SCDHEC on May 23, 2016. Progress for each WCTS Major Gravity Mapping basin is as follows:
  - West Columbia Basin – 64% complete
  - Smith Branch Basin – 74% complete



- Saluda River Basin – 65% complete
- Rocky Branch Basin – 55% complete
- Mill Creek Basin – 74% complete
- Gills Creek Basin – 75% complete
- Crane Creek Basin – 75% complete
- Broad River Basin – 65% complete

## 2.7 Fats, Oils, and Grease (FOG) Management Program

The City continues to implement its FOG Management Program. The FOG Management Program was submitted to the EPA on July 2, 2013 and incorporated into the CD as Appendix G.

Projects and significant activities completed during the current reporting period:

- Public education program and website information are available to the public to promote FOG awareness throughout the City of Columbia.
- The City continues to implement the existing FOG Program to include annual inspections of Food Service Establishments (FSEs) and Public Outreach Programs.

## 2.8 Transmission System Operations and Maintenance Program

In accordance with the requirements of the CD, the City submitted to EPA and SCDHEC a Transmission System Operations and Maintenance Program (TSOMP) within one year after the Date of Entry of the CD.

Projects and significant activities completed during the current reporting period:

- The City received final approval of the TSOMP from EPA and SCDHEC on September 2, 2016.
- Recommended SCADA Improvements are currently under final design.
- Contract documents for Force Main Easement Survey and Marking are under development by WMD staff.
- Created inventory management procedures as documented in TSOMP Section 5 and Appendix D.
- Completed routine inspection and maintenance activities including Easement and Force Main Inspection (FM SOP 1) and Air Release Valve Inspection and Maintenance (FM SOP 3).

## 2.9 Gravity Sewer System Operation and Maintenance Program

In accordance with the requirements of the CD, the City submitted to EPA and SCDHEC a Gravity Sewer System Operation and Maintenance Program (GSOMP) within 18 months of the Date of Entry of the CD.

Projects and significant activities completed during the current reporting period:

- The City received final approval of the GSOMP from EPA and SCDHEC on May 23, 2016.
- Evaluation of resource commitment as part of the implementation of the GSOMP has been completed by WMD staff.
- The Gravity Line Preventive Maintenance Plan (GLPMP) is under development.
- Contract documents for Gravity Sewer Easement Clearing are under development by WMD staff.
- Completed written procedures for maintenance of gravity sewer system manholes.

## 2.10 Financial Analysis Program

In accordance with the requirements of the CD, the City was to submit a Financial Analysis Program to EPA and SCDHEC within eighteen months of the date of entry of the CD. The deadline for submittal of the Financial Analysis Program to EPA and SCDHEC was November 21, 2015. Following the *force majeure* event of early October 2015, the City submitted a written report on October 13, 2015 requesting an additional 45 days to January 5, 2016 to complete and obtain Council approval for this deliverable. This request was granted by EPA.

- The Financial Analysis Program was submitted to EPA and SCDHEC on January 4, 2016.
- The City received final approval of the FAP from EPA and SCDHEC on May 23, 2016.
- Assessed staffing impacts connected to CD programs and included needs and levels in FY17/18 budget plan.
- Planned for costs of equipment and materials needed for the proper management, operation and maintenance of the WCTS and WWTP (based on an evaluation of past needs, recent budgeting levels and costs, and projected needs) and for implementing CD programs.
- Planned for outsourcing needs based on past budgeting levels and costs, and on specific requirements for implementing CD programs.
- A rate study update was presented to City Council in March/April 2016. The next rate study update was begun in January 2017.
- IFAS (Integrated Financial and Administrative Solution) continues to be in use and can track and report capital improvement costs.
- Started development of an updated 5 year CIP plan.
- Started reassessment of an updated overall CIP plan through program completion.

## Section 3 Capital Projects Update

In accordance with Section IX.39.c.(ii) of the CD, the following section provides a summary and update on the remedial measures and capital projects implemented as a part of the Consent Decree.

### 3.1 Infrastructure Rehabilitation Report (IRR) Projects

In accordance with Section V.16 of the CD, the City shall submit an IRR to EPA and SCDHEC summarizing the results of the Continuing Sewer Assessment Program (CSAP) of the major components of the WCTS and a description of proposed rehabilitation projects, including rehabilitation projects currently underway. As rehabilitation projects are identified through the CSAP and in the normal course of operations and maintenance, the City is proceeding with those projects. The following projects have already been identified and are currently in progress.

**Table 1: IRR Projects (V.16)**

CIP #	Project Name	Project Status/Summary
SS6764	30-inch Forcemain from Mill Creek PS to WWTP	Construction NTP issued on April 14, 2016. Construction ongoing throughout remainder of 2016.
SS695401	Crane Creek Phase I	Construction NTP issued on March 31, 2015. Construction ongoing throughout 2016.
SS725103	Innovista District Infrastructure Improvements (Blossom/Huger SS Improvements, Phase 3)	Construction NTP issued on July 28, 2015. Construction ongoing throughout 2016.
SS7259	Replacement of 24" Smith Branch Outfall Underneath I-277	Construction NTP issued on June 11, 2016. Construction ongoing throughout remainder of 2016.
SS7301	Bull Street	City Council approved project on April 21, 2015. Construction ongoing throughout 2016.

In accordance with Section V.16.c of the CD, the City shall submit a Supplemental Infrastructure Rehabilitation Report (SIRR) to EPA and SCDHEC which shall update all portions of the IRR to reflect additional information developed by the City through completion of the CSAP of the minor components of the WCTS. As rehabilitation projects are identified through the CSAP and in the normal course of operations and maintenance, the City is proceeding with those projects. The following projects have already been identified and are currently in progress.

Table 2: SIRR Projects (V.16.c)

CIP #	Project Name	Project Status/Summary
SS6833	Upgrade Piney Grove Lift Station	Construction NTP issued on June 8, 2015. Construction was completed and a PTO was issued on April 13, 2016.
SS6966	Annual Rehab on Lines less than 15"	Construction services included CCTV as well as pipe replacement/lining. Construction associated with FY 2016 was completed on June 30, 2016. Construction associated with FY 2017 began on August 23, 2016 and was ongoing throughout the remainder of 2016.
SS7060	Pump Station Improvements at 6 Sites	Design 100% complete in January 2016. Construction NTP issued on June 7, 2016. Construction ongoing throughout remainder of 2016.
SS7199	Saluda River Basin SSES and Rehabilitation for SR-06 & 13	Construction NTP issued on July 31, 2014. Construction ongoing throughout 2016.
SS7207	Saluda River Basin SSES and Rehabilitation for SR07 & 8	Construction NTP issued on August 15, 2014. Construction was completed in July 2016.
SS7208	Saluda River Basin SSES and Rehabilitation for SR-03, 10, & 12	Construction NTP issued on August 19, 2014. Construction ongoing throughout 2016.
SS7218	West Columbia Basin SSES and Rehabilitation for WC-02	Construction NTP issued on June 17, 2014. Construction ongoing throughout 2016.
SS7258	Greenlawn Dr. to Burnside #1 PS (Hampton Forest)	Design 100% complete in February 2016. Construction NTP issued on June 21, 2016. Construction ongoing throughout remainder of 2016.
SS7262	Flow Study/Rehabilitation/Replacement of Three Rivers and Colonial Life PS	Construction NTP issued on May 16, 2016. Construction ongoing throughout remainder of 2016.
SS7279	Smith Branch-02 SSES and Rehabilitation	Design 100% complete in May 2016. Construction NTP issued on November 17, 2016. Construction ongoing throughout remainder of 2016.
SS7280	Rocky Branch-01 SSES and Rehabilitation	Design 100% complete in May 2016. Construction NTP issued on August 22, 2016. Construction ongoing throughout remainder of 2016.
SS737902	Olympia Emergency Repair	Design 100% complete in November 2016. Construction anticipated to begin in 2017.

## Section 4 Sanitary Sewer Overflow (SSO) Trends Analysis

In accordance with Section IX.39.c.(iii) of the CD, the following section provides a trends analysis of the number, volume, duration, and cause of the City's Sanitary Sewer Overflows (SSOs) for the previous twenty-four month period.

Items required include the detailed number (frequency) and volume, by cause, of reportable spills as well as a trend analysis of the number, volume, and cause of the City's SSOs, by month, for the previous twenty-four month period.

### 4.1 SSO Frequency and Volume by Cause

The detailed number and volume, by cause, for reportable spills is presented for review. The following table represents the SSO volume spilled by cause, frequency and volume for calendar years 2015 and 2016. The wet weather volume in CY 2015 is related to the significant amount of rainfall experienced by the City, including the unprecedented rainfall and catastrophic flooding that began on October 4, 2015. Total wet weather volume in 2016 was approximately 634,970 gallons.

**Table 3: Total SSO Frequency and Volume by Cause, CY 2015 & 2016**

SSO Cause	Frequency	Volume (gal)
Collapsed Line	58	297,510 <sup>1</sup>
Grease	38	39,513
3 <sup>rd</sup> Party	18	56,697
Pump Station Failure	7	130,040
Roots	71	74,873
Debris	26	36,346 <sup>1</sup>
Wet Weather	126	5,902,175 <sup>1</sup>
Force Main	12	999,254
Equipment Failure	11	11,610 <sup>1</sup>
Wastewater Treatment Plant	2	0

<sup>1</sup> Volume totals noted do not include confirmed SSOs which occurred between October 3 and October 13, 2015 following the catastrophic flooding event, as no volume data was collected during this time.

The following table shows the SSO category (cause), number of SSOs of that category by month, and the total for each month in CY 2015 and CY 2016. The total number of SSOs by category is then calculated as a percentage of all SSOs for the overall time period.

**Table 4: Monthly SSO Frequency by Cause, CY 2015 & 2016**

Month / Year	Collapsed Line	Grease	3rd Party	Pump Station Failure	Roots	Debris	Wet Weather	Force Main	Equipment Failure	Wastewater Treatment Plant	Total
Jan-15	1	0	0	1	5	1	1	0	0	0	9
Feb-15	4	5	2	0	7	2	2	0	0	0	22
Mar-15	2	6	1	0	6	2	0	1	0	0	18
Apr-15	1	3	0	0	3	1	0	0	0	0	8
May-15	0	3	0	0	2	0	0	0	0	0	5
Jun-15	1	2	1	0	3	1	1	0	0	0	9
Jul-15	2	1	0	0	1	1	1	0	0	0	6
Aug-15	1	0	0	0	2	0	4	0	0	1	8
Sep-15	0	3	0	0	1	0	13	0	0	0	17
Oct-15 <sup>1</sup>	8	0	0	1	2	3	58	3	1	0	76
Nov-15	3	2	0	0	4	1	9	0	0	0	19
Dec-15	3	0	1	0	1	1	15	0	0	0	21
<b>CY 2015 Total</b>	<b>26</b>	<b>25</b>	<b>5</b>	<b>2</b>	<b>37</b>	<b>13</b>	<b>104</b>	<b>4</b>	<b>1</b>	<b>1</b>	<b>218</b>
Jan-16	0	1	2	0	2	2	0	1	3	0	11
Feb-16	7	1	0	0	5	3	0	1	3	0	20
Mar-16	3	6	2	1	3	0	0	0	0	0	15
Apr-16	1	1	1	1	5	1	0	0	0	0	10
May-16	2	1	0	0	4	1	0	4	0	0	12
Jun-16	1	0	0	0	1	1	0	0	0	1	4
Jul-16	3	0	0	2	1	0	0	0	0	0	6
Aug-16	1	0	0	0	2	1	9	0	1	0	14
Sep-16	3	0	2	0	1	1	6	0	0	0	13
Oct-16	5	1	3	1	4	0	7	1	0	0	22
Nov-16	4	1	0	0	1	1	0	1	2	0	10
Dec-16	2	1	3	0	5	2	0	0	1	0	14
<b>CY 2016 Total</b>	<b>32</b>	<b>13</b>	<b>13</b>	<b>5</b>	<b>34</b>	<b>13</b>	<b>22</b>	<b>8</b>	<b>10</b>	<b>1</b>	<b>151</b>
<b>Grand Total</b>	<b>58</b>	<b>38</b>	<b>18</b>	<b>7</b>	<b>71</b>	<b>26</b>	<b>126</b>	<b>12</b>	<b>11</b>	<b>2</b>	<b>369</b>
<b>% of Total</b>	<b>15.7%</b>	<b>10.3%</b>	<b>4.9%</b>	<b>1.9%</b>	<b>19.2%</b>	<b>7.0%</b>	<b>34.1%</b>	<b>3.3%</b>	<b>3.0%</b>	<b>0.5%</b>	

<sup>1</sup> The SSOs noted for October 2015 include confirmed SSOs that occurred between October 3 and October 13 following the catastrophic flooding event. During this time the City was instructed by SCDHEC to suspend normal reporting of SSOs; additional SSOs may have occurred, but were not confirmed as large sections of the WCTS were under water or inaccessible.

In CY 2015, the highest number (48%) of reportable spills were wet weather related. The next highest area of reportable spills was attributable to roots (17%). Collapsed lines represented 12% and grease 11%. In CY 2016, the highest number (23%) of reportable spills was attributable to roots. The next highest area of reportable spills was attributable to collapsed lines (21%), while wet weather represented 15%. Overall, wet weather, roots, and collapsed lines combined to represent a significant majority (69%) of the reportable spills for the period.

Figure 1: CY 2015 SSOs by Cause

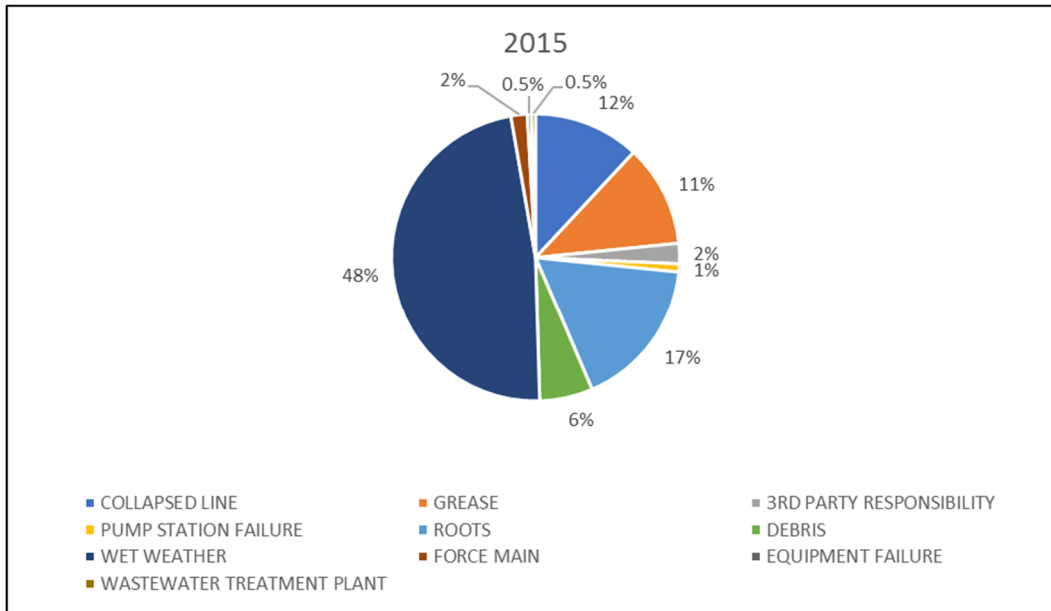
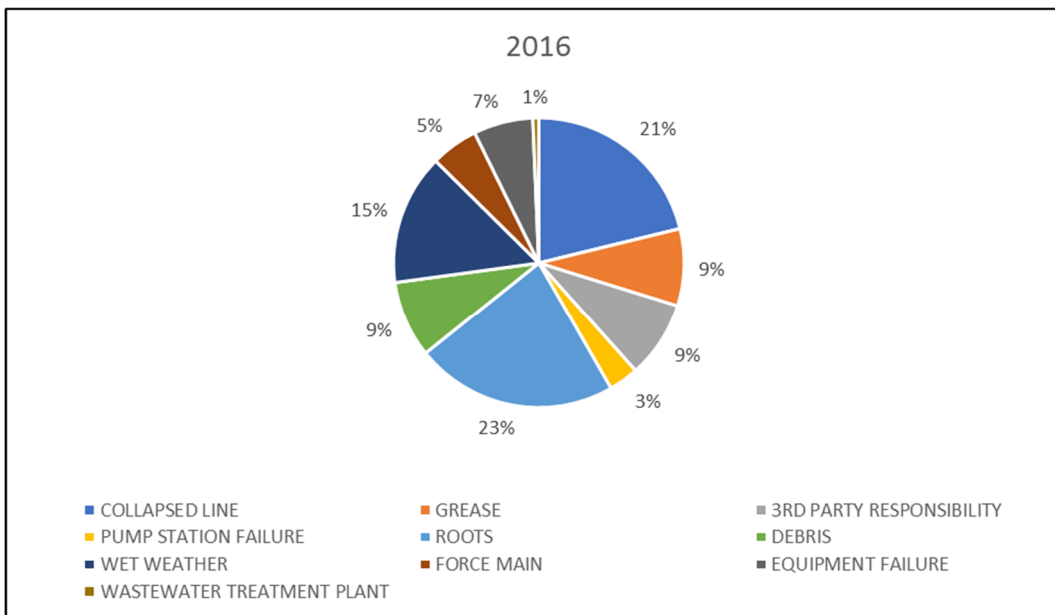


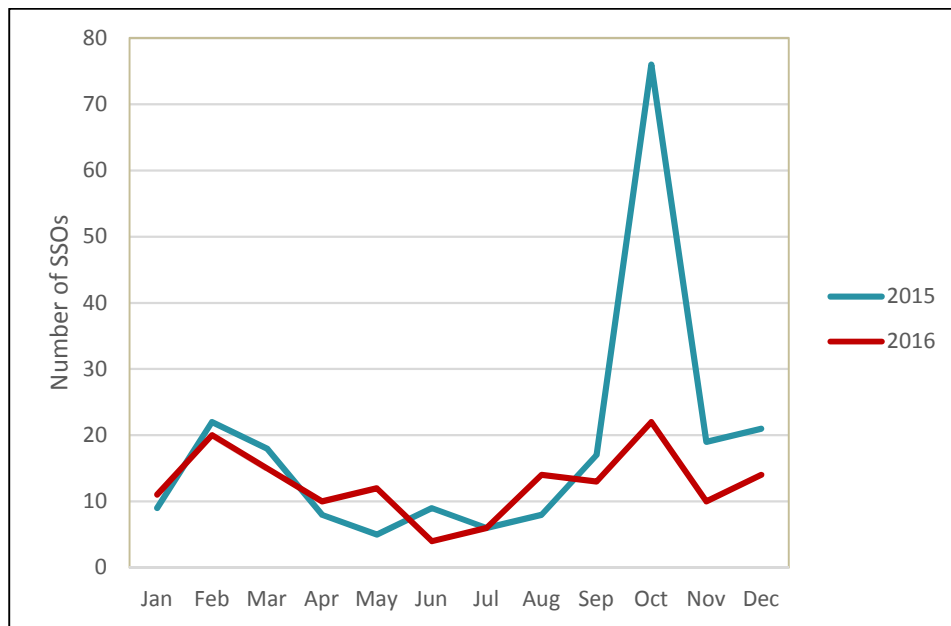
Figure 2: CY 2016 SSOs by Cause



## 4.2 SSO Frequency and Volume by Month

As shown in the tables above, the City experienced a total of 218 SSOs in CY 2015. In CY 2016, the City experienced a total of 151 SSOs for a combined total of 369 SSOs. The average number of SSOs per month during CY 2015 was 18.2, and 12.6 in CY 2016. The fluctuation in SSOs on a monthly basis is caused by a combination of wet weather, roots, and collapsed lines. In CY 2016, there was a significant reduction in SSOs due to grease. During CY 2015, February, October, November and December averaged 34.5 SSOs per month, well above the annual average of 18.2. In CY 2016, February and October averaged 21 SSOs per month, once again well above the annual average of 12.6.

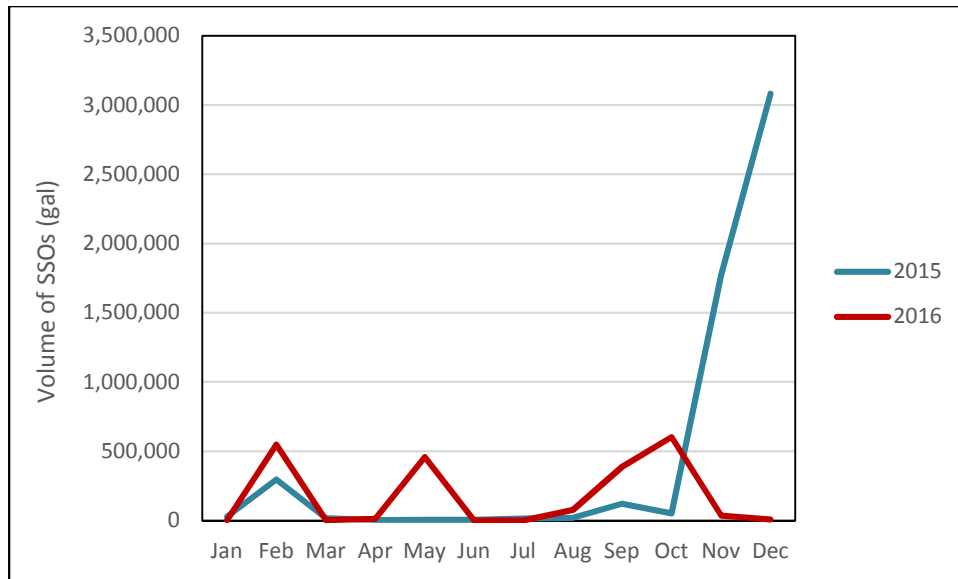
Figure 3: SSO Frequency by Month



During CY 2015, total known volume spilled represented approximately 5.41 million gallons; in CY 2016, total known volume spilled represented approximately 2.14 million gallons, for an estimated combined total known volume of 7.55 million gallons. Wet weather events accounted for 97.3% of the known volume spilled in CY 2015 and 29.8% of the known volume spilled in CY 2016.



Figure 4: SSO Volume by Month<sup>1</sup>



<sup>1</sup> Volume totals noted do not include confirmed SSOs which occurred between October 3 and October 13, 2015 following the catastrophic flooding event, as no volume data was collected during this time.

Based on an analysis of the wet weather SSO events, there is an identifiable correlation between spill volume and rainfall. During major rainfall events, the City experienced significant volume of SSOs related to wet weather. The wet weather volume in CY 2015 is related to the significant amount of rainfall experienced by the City, including the unprecedented rainfall and catastrophic flooding that began on October 4, 2015. In 2016, total volume has decreased significantly.

### 4.3 SSO Duration

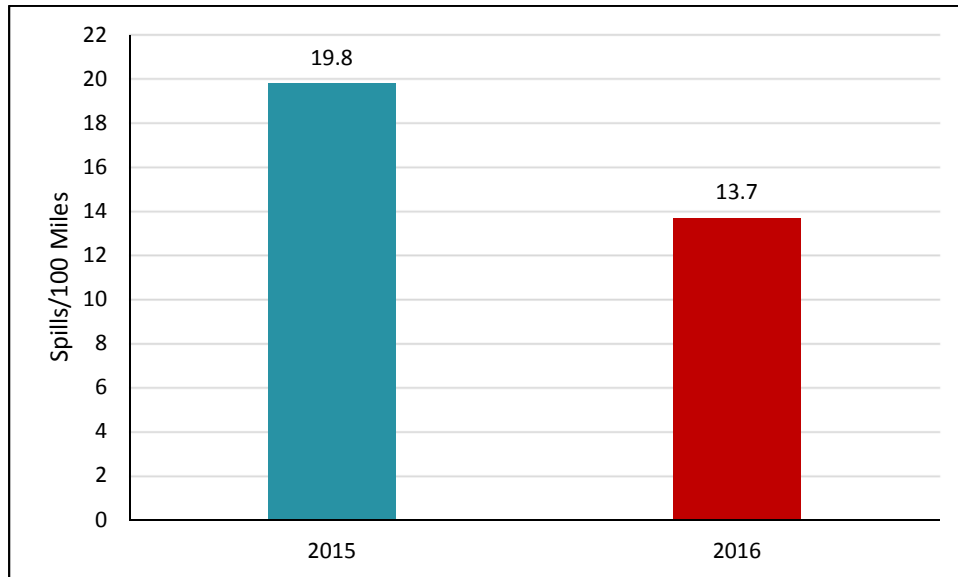
Duration data for SSOs was captured beginning with CY 2015. The documented duration of an SSO is the amount of time between the estimated start time of the SSO event (observed) and the estimated end time of the SSO event (observed). In CY 2015, non-wet weather SSOs represented an average duration of 114 minutes per SSO. Wet weather SSOs represented an average duration of 655 minutes per SSO. In CY 2016, non-wet weather SSOs represented an average duration of 137 minutes. Wet weather SSOs represented an average duration of 292 minutes.

Of all SSOs in CY 2015 and 2016, 40 percent of the non-wet weather SSO durations and 60 percent of the wet weather SSO durations were reported as unknown or undetermined due to overflow being unobserved. These percentages include the confirmed SSOs which occurred between October 3 and October 13, 2015 following the catastrophic flooding event, as no SSO duration information was determined during this time.

## 4.4 SSOs per 100 Miles of Pipe

The City currently operates and maintains 1,100 miles of pipe. In CY 2015 the number of SSOs per 100 miles equaled 19.8 and in CY 2016 13.7. This is a decrease of 6.1 SSOs per 100 miles of pipe.

Figure 5: SSOs per 100 Miles of Pipe



## 4.5 Building Backup Frequency by Month

As noted in Section IV.8.a of the CD, a Building Backup is defined as a release of wastewater into a building or onto private property that is caused by blockages, flow conditions, or other malfunctions in the WCTS.

Separate from the SSO data noted above in Sections 4.1 through 4.4, the following table represents the frequency of building backups within the City's system for each month in CY 2015 and CY 2016. Building backup claims are investigated by the City in order to determine whether the cause of the building backup is a condition within the City's system. If so, the City corrects the problem in the City's WCTS. Issues on private property are documented for the City by a third-party administrator. At this time, neither the City nor the third-party administrator have maintained records on volume, duration, or specific root causes of building backups; therefore, only frequency information is provided in this report.

Table 5: Monthly Building Backup Frequency, CY 2015 & 2016

Month	2015	2016
January	3	1
February	1	4
March	5	0
April	2	1
May	1	0
June	3	0
July	1	2
August	1	3
September	4	0
October	5	0
November	2	1
December	0	0
<b>Total</b>	<b>28</b>	<b>12</b>

Appendix A

EPA Force Majeure Deliverables Extension Approval  
Letter



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
REGION 4  
ATLANTA FEDERAL CENTER  
61 FORSYTH STREET  
ATLANTA, GEORGIA 30303-8960

CERTIFIED MAIL 7015 1730 0002 0524 5222  
RETURN RECEIPT REQUESTED

Ms. Teresa B. Wilson  
City Manager of Columbia  
P.O. Box 147  
Columbia, South Carolina 29217

Re: United States et al. v. The City of Columbia Consent Decree  
Civil Action No.: 3:13-2429-TLW (D. S.C.)

Dear Ms. Wilson:

This is in response to your letter of October 13, 2015, claiming that a force majeure event had occurred and would affect the ability of the City of Columbia to comply with its obligations under the above-referenced Consent Decree. The force majeure event in question is the unprecedented rainfall and catastrophic flooding that the City experienced beginning on October 4, 2015. The U.S. Environmental Protection Agency Region 4 has determined, after a reasonable opportunity for review and comment by the South Carolina Department of Health, that the anticipated delay described in your letter is attributable to a force majeure event and that the time for performance of certain obligations under the Consent Decree should be extended in accordance with your request. Specifically, pursuant to Paragraph 57 of the Consent Decree, the deadline for submission of four deliverables due on November 21, 2015 is extended to January 5, 2016. The four deliverables subject to this extension are:

1. Wastewater Collection and Transmission System Training Program (WCTS Training Program, required under Paragraph 12.c of Consent Decree)
2. Information Management System (IMS) Program (Paragraph 12.d of Consent Decree)
3. Wastewater Treatment Plant Operations Program (Paragraph 11.b of Consent Decree)
4. Financial Analysis Program (Paragraph 12.j of Consent Decree)

Your letter noted that the City would continue to assess the impacts of the force majeure event on the City's ability to meet deadlines in the Consent Decree, and that the City would supplement its October 13, 2015, letter with additional information regarding any further delays that may be caused by the force majeure event. We understand that the impacts to the City's operations and infrastructure have been substantial and, at the time of your October 13 letter, were still unfolding. Accordingly, we request that, as you complete your assessment, you provide notice of any additional delays that may be attributable to the force majeure event along with the information required under Paragraph 56 of the Consent Decree.

Should you have any questions regarding this matter, please contact Mr. Richard Elliott, of my staff, at (404) 562-8691 or via email at [elliott.richard@epa.gov](mailto:elliott.richard@epa.gov).

Sincerely,



Maurice L. Horsey, IV, Chief  
Municipal & Industrial Enforcement Section  
NPDES Permitting and Enforcement Branch

cc: City Attorney  
Columbia, South Carolina

Chief Financial Officer  
Columbia, South Carolina

Director – Utilities and Engineering  
Columbia, South Carolina

Paul Schwartz, Esq.  
Atlanta, Georgia

Mr. Glen Trofatter  
Columbia, South Carolina

Michael S. Traynham, Esq.  
Columbia, South Carolina

W. Thomas Lavender, Jr., Esq.  
Columbia, South Carolina

Joan Hartley, Esq.  
Columbia, South Carolina

Valerie Mann, Esq.  
Washington, DC

Elizabeth Drake, Esq  
Columbia, South Carolina

Carol King, Esq  
Washington, DC

## Appendix B

# Supplemental Report of Force Majeure Event



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We Are Columbia

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March 24, 2016

**BY U.S. MAIL TO:**

Chief, Water Programs Enforcement Branch  
Water Protection Division  
U.S Environmental Protection Agency, Region 4  
61 Forsyth Street, S.W.  
Atlanta, GA 30303

Mr. Glenn Trofatter  
SCDHEC-Bureau of Water  
Water Pollution Control Division  
2600 Bull Street  
Columbia, SC 29201

**AND BY ELECTRONIC MAIL TO:**

Michael S. Traynham, Esquire (traynhams@dhec.sc.gov)  
Valerie K. Mann, Esquire (Valerie.Mann@usdoj.gov)  
Paul Schwartz, Esquire (Schwartz.paul@epa.gov)  
Beth Drake, Esquire (beth.drake@usdoj.gov)  
Carol DeMarco King, Esquire (King.carol@epa.gov)  
Richard Elliott (Elliott.richard@epa.gov)

Re: *The United States of America and State of South Carolina by and through the Department of Health and Environmental Control vs. The City of Columbia*  
Civil Action No. 3:13-2429-TLW  
DOJ Case Number 90-5-1-1-00954

Dear Sirs and Madams:

By electronic mail on October 6, 2015, the City of Columbia notified the U.S. Department of Justice, the U.S. Environmental Protection Agency, and the South Carolina Department of Health and Environmental Control of a *force majeure* event which is expected to delay the City's performance of certain obligations under the Consent Decree. Specifically, the City experienced unprecedented rainfall which resulted in catastrophic flooding beginning on October 4, 2015. Pursuant to Paragraph 56 of the Consent Decree, the City provided a preliminary report on a *force majeure* event on October 13, 2015. Provided herein is a supplemental report on the status of the ongoing efforts to assess and restore the wastewater collection

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Teresa Wilson • City Manager  
1737 Main Street • P.O. Box 147 • Columbia, South Carolina 29217  
Office: 803.545.3026 • Fax: 803.545.3051 • Email: [tbwilson@columbiasc.net](mailto:tbwilson@columbiasc.net)





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## We Are Columbia

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and treatment system to normal operations and to repair damage caused by the October flooding.

As described in the October 13, 2015 preliminary report, the October 3-5, 2015 rainfall event was initially characterized as an approximate "500 year storm" across the City of Columbia's metropolitan area. This rainfall event was also preceded by almost two weeks of rain conditions in the area. Hundreds of homes were damaged, and approximately 100 streets were blocked, flooded, or impassable as a result of the flood. The devastation caused by the flood interrupted services at State government offices, the State Capitol buildings, five hospitals including a Level 1 Trauma Center, five colleges, one major university, and two U.S. military installations, the Army Training Center at Fort Jackson and McCrady Training Center. The University of South Carolina did not resume classes until Monday, October 12th, and even then, the University continued to deal with the effects of the flood since the City's boil water advisory had not yet been lifted for the campus. The commitment of local and state government resources to flood recovery were such that a University of South Carolina football game scheduled to be played in Columbia on October 10<sup>th</sup> was moved to the opposing team's stadium in Louisiana. The relocation of this game further impacted local business whose operations had been interrupted because of the flood.

On Sunday, October 4th alone, the National Weather Service rain gauges in Gills Creek and Fort Jackson registered 16.61" and 14.09", respectively. Between October 2nd and October 4th, those same rain gauges registered 20.28" and 16.54", respectively. For both time periods, these levels were greater than a 1,000 year flooding event for the region (12.6" for a 24-hour period and 14.3" for a 3-day period). The City and its residents were affected by six dam failures, one in the Columbia Canal, and five in the Gills Creek watershed. In addition to the failures, three other dams along Gills Creek overtopped. The failures and overtopping in Gills Creek impacted many homes, businesses, and roadways. Statewide, there were 32 confirmed dam failures—sixteen of which were in Richland County—and another 167 dams have been identified as damaged by the flood.

### **Flood Impacts and Damage to City's Drinking Water System**

The dam failure in the Columbia Canal and other flood-related damages to the City's drinking water system resulted in interruption of water service for the entire system. In the early morning of Sunday, October 4th, City water plant operators

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Teresa Wilson • City Manager

1737 Main Street • P.O. Box 147 • Columbia, South Carolina 29217

Office: 803.545.3026 • Fax: 803.545.3051 • Email: [tbwilson@columbiasc.net](mailto:tbwilson@columbiasc.net)



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began noticing that tank levels throughout the system were dropping. It was subsequently discovered that flood waters had caused breaks throughout the system. Additionally, dam failures caused breaks in lines ranging from 6 to 18 inches. These breaks caused enough damage that the City's entire water distribution system suffered a loss of pressure. That day, City crews began identifying, isolating and repairing water system line breaks that could be reached; however, numerous sections of the system remained unreachable due to flooding or road conditions. At 2:02 p.m. on October 4th, the City issued an unprecedented system-wide boil water advisory due to the breaks in the system. The system-wide boil water advisory was not fully repealed until Wednesday, October 14th.

In addition to the breaks in the water distribution lines, the dam failure jeopardized the major raw water source for drinking water for the City. The Columbia Canal diverted from the Broad River has supplied raw water to the Canal Water Treatment Plant since 1906 and currently supplies water to approximately half of the 375,000 people who use City drinking water. In the early hours of Monday, October 5th, floodwaters that had overtopped the Canal the previous day caused a 60-foot section of the Canal levee to wash away just upstream of the City's hydroelectric plant. Efforts began well before dawn to mobilize experts, material and equipment to address the breach in order to protect one of the City's two major raw water sources of drinking water. With help from its partners over the next days and weeks, the City followed through on several plans to provide raw water to the Canal plant. These included building a temporary dam in the canal, running by-pass pumps from the Canal to the water plant, running by-pass pumps from the Broad River to the water plant, and supplementing the Canal Plant's production with finished water from the Lake Murray Plant, supplementing the City's production with Cayce and West Columbia finished water. The Canal by-pass pumps were serving the plant by Wednesday, October 7<sup>th</sup>. Two larger by-pass pumps drawing from the Broad River were supplying raw water to the plant by Monday, October 12<sup>th</sup>. By Tuesday, October 13<sup>th</sup>, and after several set-backs, the basic rock coffer dam structure designed to temporarily hold back water in the Canal was completed. The permanent repair to the canal is still to be designed and permitted and will not likely be completed in less than 24 months. The cost for the permanent repair is currently estimated to be approximately \$40 million.

### **Flood Impacts and Damage to the City's Wastewater System**

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Teresa Wilson • City Manager  
1737 Main Street • P.O. Box 147 • Columbia, South Carolina 29217  
Office: 803.545.3026 • Fax: 803.545.3051 • Email: [tbwilson@columbiasc.net](mailto:tbwilson@columbiasc.net)



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The City provides sanitary sewer service to approximately 64,000 customers and several satellite systems in Columbia and in portions of Richland and Lexington Counties. Based on the assessment conducted to date, the current cost estimate to repair flood-related damage to the Wastewater Collection and Transmission System (WCTS) and Metro Wastewater Treatment Plant (WWTP) is approximately \$10,000,000. The WWTP on Simon Tree Lane continued to operate throughout the duration of the flood event. However, the WWTP was completely surrounded by flood waters, rendering the plant inaccessible by commercial motor vehicles for weeks after the flood event and requiring assistance by the State National Guard to shuttle employees to and from work. As a result of the flood, the WWTP experienced a peak of 160 million gallons in one day into the plant and storage basin, greatly in excess of the design capacity of 60 million gallons per day. Despite the increased influent flow and inability to readily access the WWTP, the WWTP staff was able to manage the influent flow without exceeding the plant's permitted effluent limits as confirmed by sampling conducted throughout the flood event. For example, WWTP averaged 19.5 for 5-day biochemical oxygen demand and 20.5 for total suspended solids for the 2009-2013 time period. During the October flooding and immediate aftermath, Metro WWTP's effluent was sampled above 10.0 for both parameters only seven times, and those occurred when the plant was discharging above design capacity. Throughout this period, the Metro WWTP staff was able to manage the volume in the existing equalization basin effectively, modify operations to ensure proper operation of the plant, coordinate laboratory pick-up of composite samples, and provide for the basic needs of personnel at the WWTP. Despite the lack of access for chemical delivery and sludge removal, the WWTP staff had procured additional fuel and chemicals in preparation for the possible of flooding and implemented measures to manage the solids inventory for an extended period. The WWTP experienced additional flooding in December which again rendered it inaccessible by motor vehicle, but did not interrupt operations.

With respect to the WCTS, the City is continuing its efforts to identify all of the damage to the WCTS as a result of the October flood. Portions of the collection system remained inaccessible for weeks following the flood event. For months after the October flood, each rainfall event caused continued flooding which resulted in access issues. As inspections of the collection system began, major damage was revealed in manholes, piping, and pumps. Inspections and damage assessment is being managed by the City's Department of Utilities Engineering (DUE). This inspection, assessment, and repair work is being performed by both City personnel

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Teresa Wilson • City Manager

1737 Main Street • P.O. Box 147 • Columbia, South Carolina 29217

Office: 803.545.3026 • Fax: 803.545.3051 • Email: [tbwilson@columbiasc.net](mailto:tbwilson@columbiasc.net)



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and contractors. Within the first week of recovery from the flood, the City's wastewater maintenance crews were evaluating the WCTS using Closed Circuit Television (CCTV) inspections and field inspections of manholes and easements. Once the flood waters receded, City personnel continued to access flood-damaged locations and are continuing work to complete additional surface and internal pipeline inspections. Major repair and replacement work is being completed by both City staff and contractors. Entire sections of the wastewater collection system have been damaged, and much of this damage has been temporarily addressed through the installation of bypass lines. The maintenance of these bypass lines has diverted substantial City resources from damage assessment and normal maintenance activities. Two of the 15 crews of the City's Wastewater Management Division (WMD), working seven days per week, are almost exclusively engaged in the inspection and maintenance of these bypass lines.

While the initial assessment of the damage to pump stations and force mains has been substantially completed, the City has not yet identified all damage to the collection system—in particular, damage to manholes and gravity lines. However, the extent of such damage is evidenced by the significant increase in influent flows at the WWTP. In 2013 and 2014, the average influent flow to the WWTP was approximately 41 MGD and 39 MGD, respectively. Prior to the October flood, the average influent flow for 2015 was approximately 43 MGD. From October 2015 through the end of February 2016, the average influent flow was approximate 62 MGD. For the first three weeks of March, the influent flow remains well above normal, averaging approximately 50 MGD. This sustained above-average influent flow at the WWTP is primarily attributed to direct inflow and infiltration through damaged manholes and sewer lines.

Despite the City's commitment of all available resources to the inspection and assessment of the flood-related damage to the WCTS, such damage to the system is still being discovered months later even in sections of the system in which an initial post-flood inspection was conducted. For example, an SSO was discovered by a private citizen on February 17, 2016, at a Stoops Creek force main adjacent to a railroad overpass which had been significantly damaged by the October flood and repaired shortly thereafter. During the City's initial inspections after the flood, City staff conducted a visual inspection of this area and found no problem with the force main. Additionally, in 2011, the City had conducted an inspection of this force main using SmartBall<sup>®</sup> technology and found no anomalies in that section of the pipe. Indeed, after the SSO was discovered, the City staff inspected the damaged pipe

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Teresa Wilson • City Manager

1737 Main Street • P.O. Box 147 • Columbia, South Carolina 29217

Office: 803.545.3026 • Fax: 803.545.3051 • Email: [tbwilson@columbiasc.net](mailto:tbwilson@columbiasc.net)





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and confirmed that the rupture of the pipe was caused by impact damage on the outside of the pipe and not deterioration of the inside of the pipe. Additionally, it is our understanding that the individual who reported the SSO to the City was in the area just days before discovering the SSO and did not notice any problems. Despite the City's efforts to inspect the WCTS and identify all flood-related damage, it is expected that this type of damage may continue to be found in the coming months.

The table below provides a general breakdown of the observed flood-related damage as of the end of January:

Pump Stations	
Seven (7) Pump Stations Mechanical Damage	Damage: <ul style="list-style-type: none"><li>• Pump and Motor</li><li>• General Electrical (Control Panel)</li><li>• Pump Station Grinders (Macerator)</li><li>• Discharge Piping Failure</li><li>• Gas Monitor Equipment</li></ul>
Four (4) Pump Stations Access Road Damage	Repair access roads damaged during flood (access limited)
Metro Wastewater Treatment Plant Repairs	
Seven (7) Locations	Damage: <ul style="list-style-type: none"><li>• Processes Include: Bar Screens, Influent Gates, Bypass Gate Actuator</li><li>• Roof Damage at WWTP</li><li>• Site Drainage (access roads)</li><li>• Receiving Station Scales</li><li>• Fencing</li></ul>



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### Sanitary Sewer Collection System Repairs

More than 150 locations

Damage:

- Gravity Sewer Pipeline Collapse and replacement
- Gravity Sewer Joint Failure
- Creek / Stream Aerial Crossing Failure/Damage
- Lateral Service Repair
- Erosion Control Adjacent to River/Creeks
- Streambank Stabilization
- Easement Cleaning (tree removal)
- Pipe Supports (pilings)
- Manhole repair and replacement

Since the flood, City personnel have accessed a significant amount of the WCTS assets. Additionally, the City has engaged contractors to assist in the inspection of the WCTS, including the following:

- Re-inspection of section of the Major Sewer Lines determined to potentially be at risk
- Manhole inspection in Crane Creek and Smith Branch Basins
- Flow monitoring observations
- Flood recovery program management

In addition to the direct damage to equipment and sewer lines, the October flood has impacted areas of the system on which the City had made significant progress on the initial assessment required under the Continuing Sewer Assessment Program in the Consent Decree. For example, after experiencing flooding and surcharging in major pipes that had been assessed prior to the flood, the City decided to re-inspect specific segments to check for damage. This re-inspection effort will take considerable time and require the engagement of two contractors. Also, many

Teresa Wilson • City Manager

1737 Main Street • P.O. Box 147 • Columbia, South Carolina 29217

Office: 803.545.3026 • Fax: 803.545.3051 • Email: [tbwilson@columbiasc.net](mailto:tbwilson@columbiasc.net)



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efforts to map and assess the minor system have been delayed as existing projects had to be stopped and delayed due to the initial and repeated flooding. Restarting these efforts has been further hampered by access complications due to the flood.

Additionally, one of the most significant setbacks resulting from of the October flood was the loss of a large bypass project in the Crane Creek basin which was undertaken to enable comprehensive rehabilitation of the gravity system. The Crane Creek bypass consisted of approximately 3 miles of temporary 24 inch sewer lines and a pump station and was designed to allow sufficient flow in this area of the system during the City's capacity enhancement of a segment of the Crane Creek trunk line. In September 2015, the Crane Creek bypass was completed and fully operating. During significant rainfall events in late September 2015, the Crane Creek bypass demonstrated sufficient capacity to manage the flow from this area. The operation of the by-pass was restored on March 14, 2016. However, the damage to the bypass has delayed the entire project by at least six months. Prior to the October flood, the Crane Creek gravity sewer line project was scheduled to be completed in September 2016. Under the current revised schedule, the rehabilitation project is expected to be completed in March 2017.

#### **A. Explanation and description of reasons for the delay**

As described above, the magnitude of the damage caused by the flood continues to significantly strain the limits of the City's available resources. City staff and contractors have been diverted to flood-related projects and the continuing assessment and repair of flood damage to the City's drinking water supply and distribution system and the City's wastewater system. Additionally, the requirements for FEMA funding for flood-related damages have delayed the procurement of the parts and services required for the permanent repairs to the water and wastewater systems. For example, although emergency repairs have enabled continued operation of the damaged pump stations, the full assessment of damage and permanent repairs have not yet been performed. Normally, the City would engage a contractor to perform the assessment and repair under its general engineering and support services procurement procedures. However, in order to qualify for federal funds under the FEMA Public Assistance Grant Program, each project must be awarded in accordance with the FEMA guidelines, which dictate procurement procedures which must be followed in addition the City's own procedures. Moreover, this delay in funding for the permanent repairs to the system continues to divert resources to the inspection and maintenance of

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Teresa Wilson • City Manager

1737 Main Street • P.O. Box 147 • Columbia, South Carolina 29217

Office: 803.545.3026 • Fax: 803.545.3051 • Email: [tbwilson@columbiasc.net](mailto:tbwilson@columbiasc.net)



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temporary repairs to the systems. For all the reasons described herein, the City anticipates delays in the implementation schedules outlined in program deliverables already submitted to EPA and SCDHEC and in certain deadlines in the Supplemental Environmental Project (SEP).

## **B. The Anticipated Duration of the Delay**

With respect to the delay in performance of the City's obligations under the Consent Decree, the following describes the anticipated duration of the delays in the certain implementation schedules outlined in program deliverables already submitted to EPA and SCDHEC and in the deadlines in the Supplemental Environmental Project (SEP).

In addition to the damage described above, the October flood has impacted areas of the system on which the City had made significant progress toward the initial assessment required under the Continuing Sewer Assessment Program (CSAP) in the Consent Decree. As described above, the City decided to re-inspect specific segments post-flood to check for damage. This re-inspection effort will take considerable time and require the engagement of two contractors. Also, many efforts to map and assess the minor system have been delayed as existing projects had to be stopped and delayed due to the initial and repeated flooding. Restarting these efforts has been further hampered by access complications due to the flood. The City therefore requests a one-year extension for completion of the initial assessment of the WCTS under Paragraph 14.a of the CD and Table 4-1 of the CSAP submitted on June 8, 2015. The proposed extension would require that the major components of the WCTS be assessed at least once by no later than 36 months from the date of EPA/DHEC approval of the CSAP and would require the remainders of the entire WCTS to be assessed at least once by no later than 72 months from the date of EPA/DHEC approval of the CSAP.

The City further requests a six-month extension on the implementation schedules in the following Management Operations and Maintenance (MOM) programs which have been previously submitted to EPA/DHEC for approval:

WCTS Training Program (Paragraph 12.c) submitted on January 4, 2016;  
Information Management System (Paragraph 12.d) submitted on January 4, 2016;





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Sewer Mapping Program (Paragraph 12.f) submitted on July 17, 2014;  
Transmission System O&M Program (Paragraph 12.h) submitted on  
May 18, 2015;  
Gravity System O&M Program (Paragraph 12.i) submitted on  
November 21, 2015;  
Financial Analysis Program (Paragraph 12.j) submitted on January 4,  
2016.

The primary obstacle for implementation of these programs is the diversion of City staff and other resources due to the October flood as described above. For example, the Transmission System O&M Program (TSOMP) requires, *inter alia*, inspection and maintenance of easements. As noted in the TSOMP, the City has a crew of three to four employees dedicated to tasks associated with this requirement (see Table 3-1 of the TSOMP). The City maintenance staff continues to be diverted to tasks related to assessment and repairs related to the flood damage. Additionally, as noted in TSOMP, the City will also engage contractors to assist in these tasks. However, assessment and repair work related to the flood has significantly limited the availability of contract labor to perform other tasks. Moreover, the MOM program components which rely on Cityworks® will be delayed because City Information Technology (IT) staff must confer with WCTS and WWTP staff and management in order to customize the system to meet the requirements of these programs. Again, both WCTS and WWTP staff continue to devote considerable time to addressing issues related to the damage from the October flooding and have been unavailable for consultation.

With respect to the SEP, Phase I of the SEP for Gills Creek (Area 3) requires implementation of six projects in the Gills Creek Watershed. These projects are located in one of the areas most severely impacted by the October flood. Additionally, the City has engaged a contractor to implement these projects. The numerous flood-related projects have created a significant delay in normal procurement schedules and diverted personnel needed to secure the required easements and to schedule resources needed for these projects. Accordingly, the City requests a six month extension to November 21, 2016 to complete Phase I of the SEP for the Gills Creek Watershed. Additionally, Phase II of the SEP for all three areas includes one-time stream cleanup projects. Flood debris and fallen trees remain in all three SEP areas and substantially increase the scope of work to be performed during Phase II of the SEP. Therefore, the City requests a six-month



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extension to November 21, 2017 to complete Phase II for all three areas under the SEP.

Additionally, the City requests a one-year extension for the stipulated penalties for Unpermitted Discharges Events pursuant to Paragraph 47.a of the CD. As discussed above, the assessment and repair of flood-related damages is diverting resources previously committed to capacity enhancing projects which had been identified by the City and scheduled for design and construction. Moreover, as discussed above, a significant amount of the City's maintenance staffing has also been diverted from routine inspection and maintenance for these efforts. As such, the City requests a one-year extension on the imposition of stipulated penalties under Paragraph 47.a, such that these penalties are applicable for Unpermitted Discharge Events occurring on or after May 21, 2017, and that the stipulated penalties which may be assessed under Paragraph 47.a(i) and (ii) are revised as follows:

- (i) For each Unpermitted Discharge Event of 5,000 gallons or less, a stipulated penalty may be assessed as follows:

Within three to six years from the Date of Entry, \$250.  
More than six years from the Date of Entry, \$1,000.

- (ii) For each Unpermitted Discharge Event of more than 5,000 gallons, a stipulated penalty may be assessed as follows:

Within three to six years from the Date of Entry, \$500  
More than six years from the Date of Entry, \$2,000

**C. Actions to Prevent or Minimize the Delay and an Implementation Schedule for those Actions**

As noted above, the City has committed all available resources to addressing the damage from the flood to both its drinking water system and its sanitary sewer system. The City staff has worked diligently to conduct the initial inspections, assessment, and repairs needed to maintain the operation of both systems. The City has also engaged contractors to assist in addressing flood assessment and repair, but those resources are also limited and have been utilized to the maximum extent available. However, despite those efforts, the magnitude of the damage and



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the scope of required assessment and repair have strained the limits of the City's resources, and the anticipated delays described above could not be prevented or further minimized.

**D. Rationale for Attributing Delay to a *Force Majeure* Event**

The basis for expected delays as a result of the flooding are provided herein. Additional support for those delays may be provided in supplemental reports and in response to comments and questions regarding this report.

**E. Endangerment to Public Health, Welfare or the Environment**

The City does not believe that delays in the performance of its obligations under the Consent Decree will endanger public health, welfare or the environment. The City continues to prioritize projects as additional damage is identified in the system.

The City reserves the right to further supplement its report on the *force majeure* event with additional assessment information and any additional delays resulting from the October flood. Further details regarding the flood damage and the City's efforts to assess and repair the WCTS and Metro WWTP will be provided at the meeting in Columbia scheduled for April 22, 2016.

The City appreciates your consideration of the request for extension of certain deadlines under the CD. If additional information is needed in support of this request, please do not hesitate to contact me.

Sincerely,

Teresa B. Wilson  
City Manager

Appendix C

EPA Force Majeure Performance Extension

Approval Letter



**UNITED STATES ENVIRONMENTAL PROTECTION AGENCY**

REGION 4

ATLANTA FEDERAL CENTER

61 FORSYTH STREET

ATLANTA, GEORGIA 30303-8960

**JUN 02 2016**

CERTIFIED MAIL 7015 1730 0001 8044 3545

RETURN RECEIPT REQUESTED

Ms. Teresa B. Wilson  
City Manager, City of Columbia  
P.O. Box 147  
Columbia, South Carolina 29217

Re: United States et al. v. The City of Columbia Consent Decree  
Civil Action No.: 3:13-2429-TLW (D. S.C.)

Dear Ms. Wilson:

The United States Environmental Protection Agency Region 4 has reviewed the City of Columbia's (the City) supplemental report on a force majeure event submitted by a letter dated March 24, 2016, to the EPA, the South Carolina Department of Health and Environmental Control (SCDHEC), and the U.S. Department of Justice. The supplemental report relates to catastrophic flooding that occurred in Columbia, SC beginning on October 4, 2015.

The supplemental report, provided pursuant to Section XI of the above-referenced Consent Decree (CD), was preceded by a force majeure notice submitted by the City on October 6, 2015, and a preliminary force majeure report submitted on October 13, 2015. The force majeure notice, preliminary force majeure report and supplemental force majeure report relate to the unprecedented rainfall and catastrophic flooding that the City experienced in October 2015, and provides detailed information regarding the force majeure event that occurred and its effect on the ability of the City of Columbia to comply with their obligations under the above-referenced Consent Decree. This information was further augmented by an in-person meeting among the EPA, SCDHEC and City representatives in Columbia, South Carolina on April 22, 2016, which included a tour of some flood-affected areas of the City and its sanitary sewer system.

Based on the information provided by the City, the EPA in collaboration with SCDHEC has determined, that the anticipated delays described in your March 24, 2016 letter are attributable to a force majeure event and that the timeframes for the performance of certain obligations under the Consent Decree should be extended. Specifically, pursuant to Section XI, Paragraph 57 of the Consent Decree, decisions on the following extensions requests have been made as set forth below:

- 1. Extend by 12 months the deadline for completion of an initial assessment of the major components of the wastewater collection and transmission system (WCTS) pursuant to second to last sentence of Paragraph 14(a) of the Consent Decree (page 52).**

Change deadline from “no later than 24 months from the date of EPA/DHEC approval of the CSAP” [Continuing Sewer Assessment Program] to “no later than 36 months from the date of the EPA/DHEC approval of the CSAP.”

- 2. Extend by 12 months the deadline for completion of assessment of the remainder of the WCTS pursuant to last sentence of Paragraph 14(a) of the Consent Decree (page 52).**

Change deadline from “no later than 60 months from the date of EPA/DHEC approval of the CSAP” [Continuing Sewer Assessment Program]” to “no later than 72 months from the date of the EPA/DHEC approval of the CSAP.

- 3. Extend by six months the implementation schedules for six management, operations and maintenance (MOM) programs previously submitted by the City to the EPA for approval pursuant to Paragraph 12 of the Consent Decree, including:**

- a. WCTS Training Program (CD Paragraph 12(c))**
- b. Information Management System Program (CD Paragraph 12(d))**
- c. Sewer Mapping Program (CD Paragraph (12f))**
- d. Transmission System Operations and Maintenance Program (CD Paragraph 12 (h))**
- e. Gravity System Operation and Maintenance Program (CD Paragraph 12(i))**
- f. Financial Analysis Program (CD Paragraph 12(j))**

Each of the MOM programs above were submitted to the EPA with proposed implementation schedules, as required by the CD, and were approved in writing by a letter from the EPA dated May 23, 2016. The approved implementation schedules for each of the listed MOM Programs are extended by six months pursuant to this force majeure determination.

- 4. Extend by six months the completion of Phase 1 of the Supplemental Environmental Project (SEP) in the Gills Creek area (Area 3) pursuant to Section VIII and Revised Appendix I of the Consent Decree.**

Change deadline for completion of Phase I, as specified on page 5 of Revised Appendix I of the Consent Decree, from “within twenty-four (24) months of the Effective Date of this Consent Decree” to “within thirty (30) months of the Effective Date of this Consent Decree.”

- 5. Extend by six months the deadline for submitting to the EPA the preliminary reports on the condition of, and the plans for improving, the three defined SEP areas required**

**under Section VIII and Revised Appendix I of the Consent Decree for all three areas addressed by the SEP (Gills Creek, Rocky Branch, and Smith Branch).**

Change the deadline for submittal of the preliminary reports and plans from “within three (3) years of the Effective Date of this Consent Decree,” as specified at pages 2 [Area 1], 4 [Area 2], and 5 [Area 3] of Revised Appendix I of the Consent Decree, to “within three (3) years and six (6) months of the Effective Date of this Consent Decree.” Note that the City’s March 24, 2016, letter requested extension of the deadline “to complete Phase II for all three areas under the SEP.” The City has since clarified that it is seeking a six month extension of the deadline only for submitting the preliminary reports describing the conditions of the SEP areas and the City’s plans for improving the SEP areas. The deadline for completion of Phase II of the SEPs is five (5) years from the effective date of the Consent Decree, and that deadline will remain unchanged.

- 6. Extend by one year the deadlines after which stipulated penalties may be assessed for unpermitted discharge events pursuant to Paragraph 47(a), of the Consent Decree (page 78), and make corresponding changes to defer by one year the time periods during which particular penalty amounts are assessable pursuant to Paragraph 47(a) (i) and (ii) (page.78).**

Change the deadline for the date after which penalties may be assessed under Paragraph 47(a) so that stipulated penalties are assessable for Unpermitted Discharge Events “occurring on or after three (3) years from the Date of Entry” instead of “occurring on or after two (2) years from the Date of Entry.” In addition, change the dates during which particular penalty amounts are assessable by deferring the start and end dates by one year, as follows:

- (i) For each Unpermitted Discharge Event of 5,000 gallons or less, a stipulated penalty may be assessed as follows:

- Within three to six years from the Date of Entry, \$250. [changed from “Within two to five years”]

- More than six years from the Date of Entry, \$1,000. [changed from “More than five years”]

For each Unpermitted Discharge Event of more than 5,000 gallons, a stipulated penalty may be assessed as follows:

- (ii) For each Unpermitted Discharge Event of more than 5,000 gallons, a stipulated penalty may be assessed as follows:

- Within three to six years from the Date of Entry, \$500 [changed from “Within two to five years”]

-More than six years from the Date of Entry, \$2,000 [changed from "More than five years"]

With respect to the extension of the dates when stipulated penalties are assessable, the EPA notes that the entered Consent Decree establishes a period of two years following Consent Decree Entry during which there is no provision for stipulated penalties for Unpermitted Discharge Events. The Consent Decree then provides for gradually escalating stipulated penalty amounts as time passes from the date of Entry. The purpose of this structure for stipulated penalty amounts is to allow the City an opportunity to assess and remediate the most significant problems in the WCTS before the City would be subject to stipulated penalties for Unpermitted Discharge Events. The EPA believes that the catastrophic flooding experienced in the City of Columbia has interfered with the City's ability to complete assessment and remediation work that would minimize the occurrence of Unpermitted Discharge Events. Accordingly, an extension of these deadlines and time frames is deemed appropriate under Section XI (Force Majeure), paragraph 57 of the Consent Decree.

The EPA acknowledges the efforts that the City has made to bring its wastewater treatment plant and collection system into compliance with the CWA, as well as the City's efforts to address the many impacts of the October 2015 flooding. Should you have any questions regarding this letter, please contact Mr. Richard Elliott, of my staff, at (404) 562-8691 or via email at [elliott.richard@epa.gov](mailto:elliott.richard@epa.gov).

Sincerely,



Alenda E. Johnson, Acting Chief  
Municipal & Industrial Enforcement Section  
NPDES Permitting and Enforcement Branch

cc: See Attached Mailing List



**Mailing List**

City of Columbia  
Attn: City Attorney  
P.O. Box 147  
Columbia, South Carolina 29217

City of Columbia  
Attn: Chief Financial Office  
P.O. Box 147  
Columbia, South Carolina 29217

City of Columbia  
Attn: Director - Utilities and Engineering  
P.O. Box 147  
Columbia, South Carolina 29217

Paul Schwartz, Esq,  
Office of Water Legal Support  
U.S. Environmental Protection Agency, Region 4

Glenn Trofatter  
SCDHEC-Bureau of Water  
Water Pollution Control Division  
2600 Bull St.  
Columbia, SC 29201

Michael S. Traynham, Esq.  
Assistant General Counsel  
SC Department of Health and Environmental Control  
2600 Bull Street  
Columbia, SC 29201

W. Thomas Lavender, Jr., Esq.  
Nexsen Pruet, LLC  
1230 Main Street, Suite 700  
Columbia, SC 29201

Joan Hartley, Esq.  
Nexsen Pruet, LLC  
1230 Main Street, Suite 700  
Columbia, SC 29201

Valerie Mann, Esq.  
Environmental Enforcement Section  
U.S. Department of Justice  
Box 7611 Ben Franklin Station  
Washington, DC 20044-7611

Beth Drake, Esq.  
First Assistant United States Attorney  
District of South Carolina  
First Union Building  
1441 Main Street, Suite 500  
Columbia, SC 29201

Jacquelyn S. Dickman  
Deputy General Counsel  
South Carolina Department of Health and Environmental Control  
2600 Bull Street  
Columbia, SC 29201

