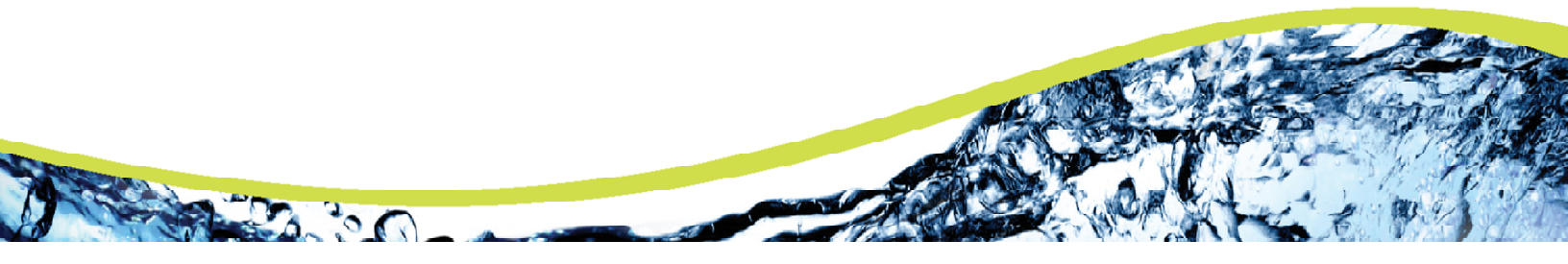


# Clean Water 2020 Program

## CONSENT DECREE QUARTERLY REPORT

January 1, 2016 – March 31, 2016

Corrected February 2018



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## 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.a of the CD, the City has prepared this *Quarterly Report* that includes the following information (as excerpted from the CD):

1. A description of all projects and activities conducted during the most recently completed calendar quarter to comply with the requirements of this Consent Decree, in Gantt chart or similar format. This description shall include completion percentages of early action capital improvement projects under Paragraph 10, continuing sewer assessments under the CSAP, and the subsequent remedial actions under the IR Report;
2. The date, time, location, source, duration, estimated volume, receiving water (if any), cause, and actions taken to repair or otherwise resolve the cause of all SSOs for the most recently completed quarter in a tabulated electronic format;
3. The anticipated projects and activities that will be performed in the next quarter to comply with the requirements of this Consent Decree, in Gantt chart or similar format;
4. Any additional information that demonstrates that Columbia is implementing the remedial measures required in this Consent Decree; and
5. The results of water quality monitoring conducted during the previous Calendar Quarter as part of the SEP described in Appendix I of the Consent Decree.

### 1.2 Report Organization

This Quarterly Report is organized as follows:

#### **Section 1 – Introduction**

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

#### **Section 2 – Schedule of Projects and Activities**

This section addresses the requirements of Sections IX.39.a.(i) and IX.39.a.(iii) of the Consent Decree. The section includes the projects and activities conducted during the most recently completed calendar

quarter to comply with the requirements of the CD as well as the anticipated projects and activities that will be performed in the next quarter to comply with the requirements of the CD. A Gantt chart schedule of these activities is provided and includes completion percentages of continuing sewer assessments under the CSAP and the subsequent remedial actions under the IR Report, as applicable.

### **Section 3 – Additional Information Demonstrating Implementation of Consent Decree Requirements**

This section addresses the requirements of Section IX.39.a.(iv) of the Consent Decree and includes additional information that demonstrates that Columbia is implementing the remedial measures required in the CD. Information supplemental to that which is provided in Section 2 is provided in this section.

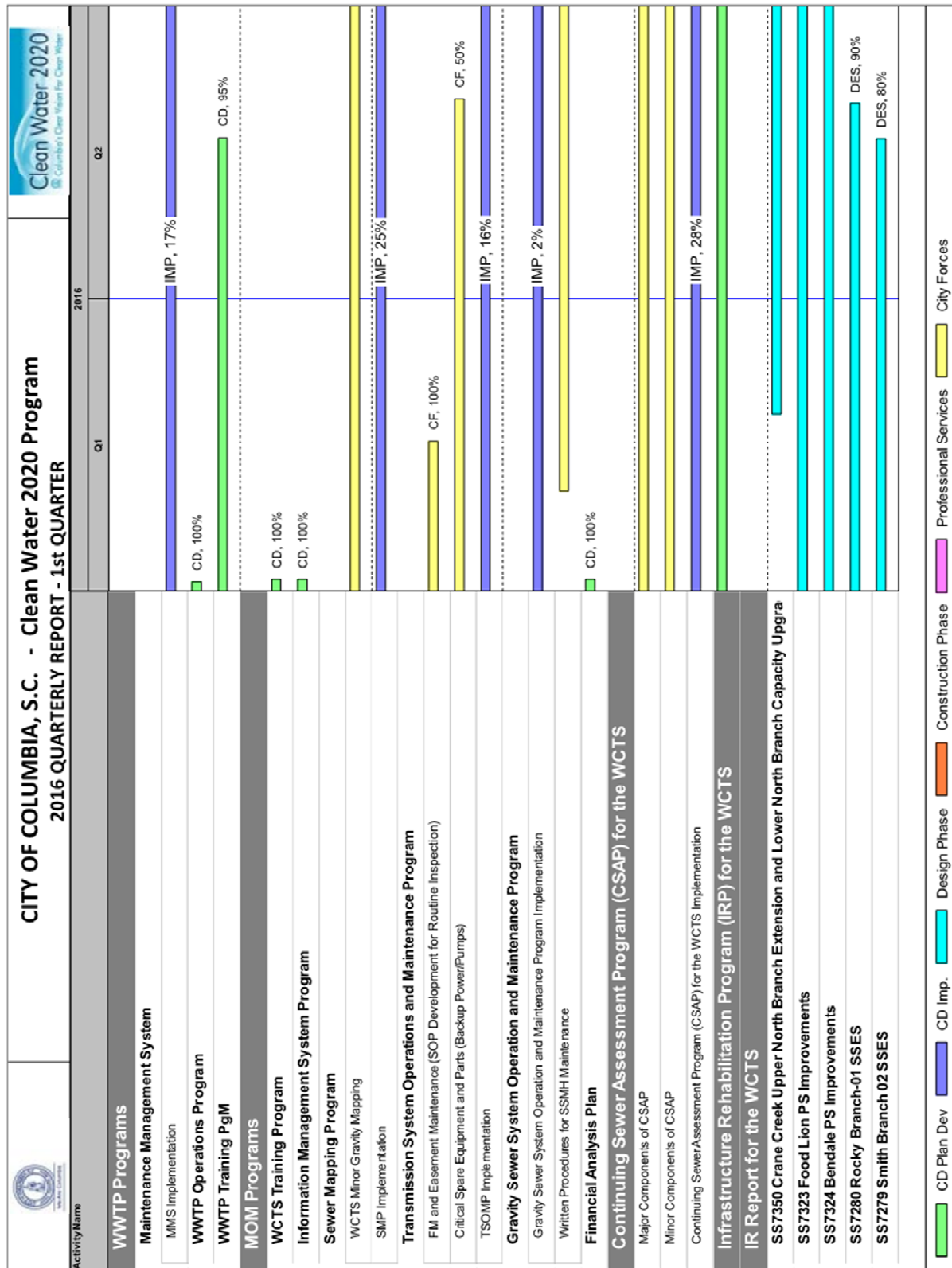
### **Section 4 – Quarterly SSO Report**

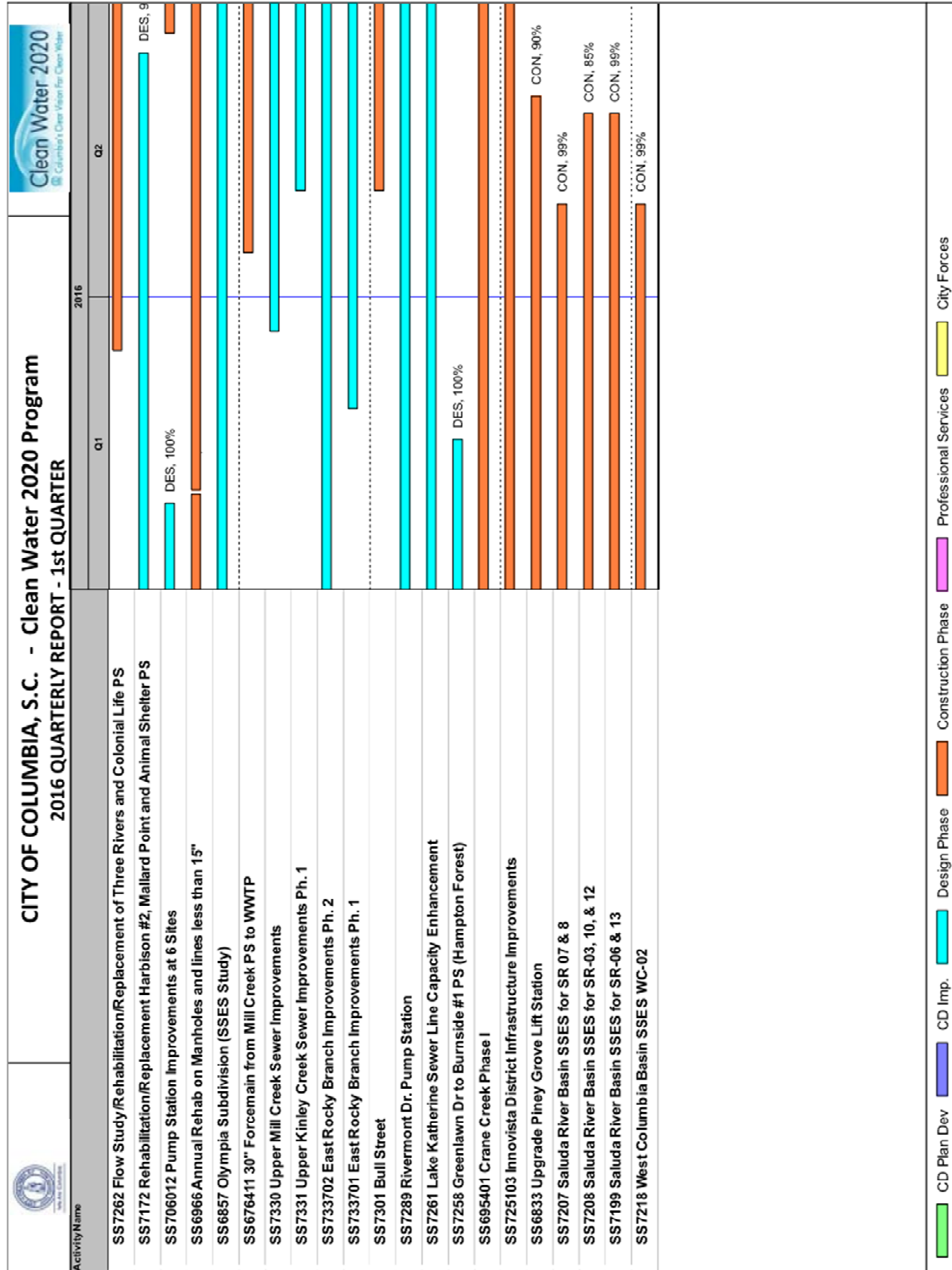
This section addresses the requirements of Section IX.39.a.(ii) of the Consent Decree and provides a tabular listing of sanitary sewer overflows (SSOs). The table includes the date, time, location, source, duration, estimated volume, receiving water (if any), cause, and actions taken to repair or otherwise resolve the cause of all SSOs that occurred during the most recently completed calendar quarter.

### **Section 5 – SEP Water Quality Monitoring Results**

This section addresses the requirements of Section IX.39.a.(v) of the Consent Decree and provides the results of water quality monitoring conducted during the previous Calendar Quarter as part of the SEP described in Appendix I of the CD.

## Section 2 Schedule of Projects and Activities





## Section 3 Additional Information Demonstrating Implementation of Consent Decree Requirements

In accordance with Section IX.39.a.(iv) of the CD, the following section provides additional information that demonstrates that the City is implementing the remedial measures required in the CD.

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. 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 A.

### 3.1 WWTP Programs

In accordance with Section V.11 of the CD, the City is developing and implementing specific Wastewater Treatment Plant (WWTP) programs. The Program elements addressed in this section provide information regarding activities involving the Metro WWTP.

#### 3.1.1 Maintenance Management System (MMS)

The MMS was submitted to EPA and SCDHEC on May 18, 2015. The City is awaiting EPA and SCDHEC review and approval of the MMS.

Although the EPA has not yet approved the MMS, the City is proceeding with implementation activities under the MMS.

#### 3.1.2 WWTP Operations Program

The WWTP Operations Program was submitted to EPA and SCDHEC on January 4, 2016.

#### 3.1.3 WWTP Training Program

In accordance with the requirements of the CD, the City shall submit a WWTP Training Program to EPA and SCDHEC for review, comment, and approval. The WWTP Training Program is to be submitted within 24 months of the date of entry of the CD. The deadline for submittal of the WWTP Training Program to EPA and SCDHEC is May 21, 2016.

### 3.2 MOM Programs

In accordance with Section V.12 of the CD, the City is developing and implementing specific Management, Operations, and Maintenance (MOM) programs. The Program elements addressed in this section provide



information regarding activities involving the Metro WWTP as well as the City's Wastewater Collection and Transmission System (WCTS).

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

The CERP was submitted to EPA and SCDHEC on November 20, 2015. The City is awaiting EPA and SCDHEC review and approval of the CERP.

### 3.2.2 WCTS Training Program

The WCTS Training Program was submitted to EPA and SCDHEC on January 4, 2016.

### 3.2.3 Information Management System (IMS) Program

The IMS Program was submitted to EPA and SCDHEC on January 4, 2016.

### 3.2.4 Sewer Mapping Program

In accordance with the requirements of the CD, the City was to develop and submit 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 continues to complete the electronic mapping of each Sewer Basin in accordance with the approved SMP implementation plan. Progress for each WCTS Minor Gravity Mapping basin is as follows:
  - West Columbia Basin – 80% complete
  - Smith Branch Basin – 67% complete
  - Saluda River Basin – 78% complete
  - Rocky Branch Basin – 30% complete
  - Mill Creek Basin – 25% complete
  - Gills Creek Basin – 27% complete
  - Crane Creek Basin – 65% complete
  - Broad River Basin – 23% complete

### 3.2.5 Transmission System Operations and Maintenance Program (TSOMP)

The TSOMP was submitted to EPA and SCDHEC on May 18, 2015. The City is awaiting EPA and SCDHEC review and approval of the TSOMP.

Although the EPA has not yet approved the TSOMP, the City is proceeding with implementation activities under the TSOMP. The activities completed or in progress during the current reporting period are as follows:

- SOP Development for Force Main and Easement Maintenance (Routine inspection and maintenance activities including Easement and Force Main Inspection and Air Release Valve Inspection and Maintenance) – 100% Complete
- Critical Spare Equipment and Parts (Provision of onsite back-up power or backup diesel pumps at Pump Station 080 (Quail Creek) and Pump Station 115 (Clearwater) – 50% Complete

The overall TSOMP implementation completion estimate shown on the Schedule of Projects and Activities in Section 2 decreased from the previous quarter due to a revised method of weighting each implementation task. The revised method will be used on all quarterly reports going forward.

### 3.2.6 Gravity Sewer System Operation and Maintenance Program (GSOMP)

The GSOMP was submitted to EPA and SCDHEC on November 20, 2015. The City is awaiting EPA and SCDHEC review and approval of the GSOMP.

Although the EPA has not yet approved the GSOMP, the City is proceeding with implementation activities under the GSOMP. The activities completed or in progress during the current reporting period are as follows:

- Written Procedures for Maintenance of Gravity Sewer System Manholes – 50% Complete

### 3.2.7 Financial Analysis Program

The Financial Analysis Program was submitted to EPA and SCDHEC on January 4, 2016.

## 3.3 Satellite Sewer System Agreements (SSSA)

The SSSA was submitted to EPA and SCDHEC on May 18, 2015. The City is awaiting EPA and SCDHEC review and approval of the SSSA.

## 3.4 Continuing Sewer Assessment Program (CSAP) for the WCTS

The CSAP was submitted to EPA and SCDHEC on June 9, 2015. The City is awaiting EPA and SCDHEC review and approval of the CSAP.

Although the EPA has not yet approved the CSAP, the City is proceeding with implementation activities under the CSAP. The activities under the Major Components of the CSAP completed or in progress during the current reporting period are as follows:

- Major Gravity Sewer Video Inspection or Multi-Sensor Inspection – 30% Complete
- Major Manhole Inspection – 70% Complete
- Initial Major Force Mains Desktop Condition Assessment/Prioritization – 100% Complete

The activities under the Minor Components of the CSAP completed or in progress during the current reporting period are as follows:

- Initial Minor Gravity Sewer and Manholes Desktop Condition Assessment/Prioritization – 50% Complete
- Initial Minor Pump Stations Desktop Condition Assessment/Prioritization – 100% Complete
- Initial Minor Force Mains Desktop Condition Assessment/Prioritization – 100% Complete

### 3.5 Infrastructure Rehabilitation Report (IRR) for the WCTS

In accordance with Section V.16 of the CD, the City shall submit an Infrastructure Rehabilitation Report (IRR) summarizing the results of the CSAP of the major components of the WCTS and a description of proposed rehabilitation projects. The IRR is to be submitted within six months after the City has assessed the major components of the WCTS once pursuant to the CSAP. As rehabilitation projects are identified through the assessments described in Section 3.4 and in the normal course of operations and maintenance, the City is proceeding with design and construction of those projects. Completion percentages of projects currently in progress are as follows:

- SS7350 Crane Creek Upper North Branch Extension and Lower North Branch Capacity Upgrade Phase 1 – Design 2% Complete
- SS7323 Food Lion PS Improvements – Design 15% Complete
- SS7324 Bendale PS Improvements – Design 30% Complete
- SS7280 Rocky Branch-01 SSES and Rehabilitation – Design 90% Complete
- SS7279 Smith Branch-02 SSES and Rehabilitation – Design 80% Complete
- SS7262 Flow Study/Rehabilitation/Replacement of Three Rivers and Colonial Life PS – Construction 1% Complete
- SS7172 Rehabilitation/Replacement Harbison #2, Mallard Point and Animal Shelter PS – Design 99% Complete
- SS706012 Pump Station Improvements at 6 Sites – Design 100% Complete, Construction 0% Complete
- SS6966 Annual Rehab on Manholes and Lines less than 15" – 2015 Construction 100% Complete, 2016 Construction 20% Complete
- SS6857 Olympia Subdivision Sewer System Evaluation Survey (SSES) and Rehabilitation Design – Design 75% Complete
- SS676411 30" Forcemain from Mill Creek PS to WWTP – Construction 0% Complete
- SS7330 Upper Mill Creek Sewer Improvements – Design 1% Complete
- SS7331 Upper Kinley Creek Sewer Improvements Ph. 1 – Design 0% Complete
- SS733702 East Rocky Branch Improvements Ph. 2 – Design 15% Complete
- SS733701 East Rocky Branch Improvements Ph. 1 – Design 3% Complete
- SS7301 Bull Street – Construction 0% Complete
- SS7289 Rivermont Drive Pump Station – Design 85% Complete
- SS7261 Lake Katherine Sewer Line Capacity Enhancement – Design 80% Complete

- SS7258 Greenlawn Dr. to Burnside #1 PS (Hampton Forest) – Design 100% Complete
- SS695401 Crane Creek Phase I – Construction 50% Complete
- SS725103 Innovista District Infrastructure Improvements – Construction 50% Complete
- SS6833 Upgrade Piney Gove Lift Station – Construction 90% Complete
- SS7207 Saluda River Basin SSES and Rehabilitation for SR07 & 8 – Construction 99% Complete
- SS7208 Saluda River Basin SSES and Rehabilitation for SR-03, 10, & 12 – Construction 85% Complete
- SS7199 Saluda River Basin SSES and Rehabilitation for SR-06 & 13 – Construction 99% Complete
- SS7218 West Columbia Basin SSES and Rehabilitation for WC-02 – Construction 99% Complete

## Section 4 Quarterly SSO Report

In accordance with Section IX.39.a.(ii) of the CD, the City is to provide a list of all SSOs that occurred during the reporting period in a tabular format along with information on the date, time, location, source, duration, estimated volume, receiving water, cause, and actions taken to resolve the SSO.

**Table 1 - SSO Report, 1st Quarter 2016**

City of Columbia, SC Quarterly SSO Listing 1st Quarter 2016									
SSO Date	SSO Time	Location	Source	Date of Corrective Action	Time of Corrective Action	Estimated Volume (gallons)	Receiving Water (if any)	Cause	Actions Taken
1/2/2016	09:00	4800 Fort Jackson Blvd, Columbia, SC 29209	Manhole	1/2/2016	09:05	500		Equipment Failure	Restarted Pump. Notice To Proceed Has Been Issued For Repairs. Work Is Expected To Start January 11, 2016, And Last 60 Days. Bypass Pump Will Be Removed When Repairs Completed.
1/1/2016	10:00	9518 Caughman Rd, Columbia, SC 29209	Manhole	1/1/2016	10:05	25		Equipment Failure	Restarted Bypass Pump. Finalizing Engineering Design And Preparing Bid Package For Repair. Bypass Pump Will Be Removed When Repair Is Completed.
1/10/2016	09:36	1320 Elmtree Rd, Columbia, SC 29209	Cleanout	1/13/2016	11:30	63		Debris	Washed Service Line 50 Ft And Washed Mainline 200 Ft To Remove Stoppage. Pushed City Clean Out 52 Ft Down Mainline. Some Tissue And Debris Was Found In The Service Line. Service Line Needs To Be Washed Out.
1/11/2016	13:00	6112 Fitzgibbons Dr, Columbia, SC 29209	Cleanout	1/13/2016	12:00	Undetermined		3rd Party Responsibility	Washed Mainline 210 Feet To Resume Normal Flow. Mainline Repair (SCE&G Placed A Utility Pole On Mainline).
1/13/2016	14:30	102 Rocky Point Rd, Columbia, SC 29212	Pump Station	1/13/2016	14:55	300	Lake Murray	Force Main	Force Main Blockage; Closed Influent Valve To Pump Station. Flushed Force Main To Remove Obstruction And Clear Line.
1/13/2016	17:00	1615 Haviland Cir, Columbia, SC 29210	Cleanout	1/14/2016	12:15	31		Roots	Washed Service Line 20 Ft And Washed Mainline 350 Ft. Pushed Service Line Tap 29 Ft. Roots Were Found In The Line. Line Needs To Be Washed.
1/22/2016	11:30	215 Brookshire Dr, Columbia, SC 29210	Cleanout	1/22/2016	12:00	15		Debris	Removed Stoppage To Resume Normal Flow. Washed Service Line 80 Feet, Removed Stoppage (Tissue).
1/22/2016	15:00	1200 Simmon Tree Ln, Columbia, SC 29201	WWTP	TBD		100		Treatment Plant	Sludge Leak Had Stopped By The Time Of Discovery. Used Vac-Truck To Vacuum Spill And Spread Lime Over Affected Area.
1/26/2016	14:30	166 Stoneridge Dr, Columbia, SC 29210	Cleanout	1/31/2016	08:00	719	Ditch	3rd Party Responsibility	Washed Service Line 50 Feet, Removed Stoppage To Resume Normal Flow. Line Was Insituformed, Tap Was Never Cut Out By Contractor. ITG Will Be Going Out On 1/31/16 To Cut Out Tap.
1/26/2016	14:30	6620 Brasington Ln, Columbia, SC 29209	Manhole	1/26/2016	15:07	44		Equipment Failure	The Bypass Pump Was Fixed, Put Back In Manual Mode. Fixed Pump And Spread Lime. SCE&G Removed Utility Pole From M/L. WWM Has 3 Bids For This Project. Awaiting PO From Carolina Top & Board.
1/29/2016	17:45	2711 Middleburg Dr, Columbia, SC 29204	Manhole	1/30/2016		125	Unknown Storm Drain	Grease	Washed Mainline 300 Ft. TV M/L Which Is A 6" Pick Up Line Due To Stoppage 30 Ft. No Faults Noted. Washed 85 Ft M/H To M/H.
2/1/2016	08:50	320 Northwood St, Columbia, SC 29201	Manhole	2/1/2016	09:01	275	Broad River	Equipment Failure	Reset And Started Pump, Returned Back To Regular Flow (Pump Overheated And Allowed To Cool). Called Rain For Rent To Send Out Mechanic To Check Pump (P.O. Was Requested On 2-1-2016 For New Back Up Pump). Installation Date TBD.
1/31/2016	17:30	2944 S Partridge Cir, Hopkins, SC 29061	Manhole	2/2/2016	13:45	60	Goose Branch	Roots	Washed M/L 300 Ft To Resume To Normal Flow. Televised Mainline 307 Ft Downstream. 2 M/L Repairs Are To Be Scheduled.
2/2/2016	10:00	1005 Pope St, Columbia, SC 29201	Pipeline	2/3/2016	13:00	Unknown		Collapsed Line	Not Actively Overflowing, Only Evidence Of Overflow. Bypass System Will Be Installed On 2/3/2016. This Project Is In Design Phase With Engineering.
2/2/2016	13:45	9518 Caughman Rd, Columbia, SC 29209	Manhole	2/2/2016	14:15	750		Equipment Failure	Suction Line Issue. Re-Positioned Bypass Pump Hose. Spread Lime.
2/2/2016	16:30	801 Lady St, Columbia, SC 29201	Manhole	2/2/2016	17:15	31		Debris	Removed Stoppage To Resume Normal Flow. Washed Mainline 400 Feet To Remove Rocks And Debris From Line.

City of Columbia, SC Quarterly SSO Listing 1st Quarter 2016									
SSO Date	SSO Time	Location	Source	Date of Corrective Action	Time of Corrective Action	Estimated Volume (gallons)	Receiving Water (if any)	Cause	Actions Taken
2/4/2016	12:00	1005 Pope St, Columbia, SC 29201	Pipeline	TBD		300		Collapsed Line	Dug Suction Pit And Set Up Bypass Pump. Project In Design Phase With Engineering.
2/8/2016	12:30	1717 Haviland Cir, Columbia, SC 29210	Manhole	2/9/2016	10:00	675	Creek To Broad River	Roots	Washed Mainline 50 Ft To Resume Normal Flow. Televised Mainline 206 Ft.
2/9/2016	09:30	3900 Bentley Dr, Columbia, SC 29210	Cleanout	2/9/2016	10:00	11		Equipment Failure	Fixed Bypass Pumps. Primary Pump Suction Hose Clogged; Cleaned Out. Battery For Backup Pump Was Dead. Able To Get Pump Started But Did Not Want To Stay On. Called Mechanic To Come Out To Fix The Issue On 2/10/2016.
2/10/2016	7:25	1200 Simmon Tree Ln, Columbia, SC 29201	WWTP	2/10/2016	19:15	220,278	Congaree River	3rd Party Responsibility	Closed Feed Valves From The Aeration Basins. Isolated The Line, And Made Point Repair. Repair Completed On 2/10/16 At 7:15 pm.
2/15/2016	13:00	1025 Huger St, Columbia, SC 29201	Cleanout	TBD		4,825	Storm Drain	Collapsed Line	Washed Mainline 400 Feet, Stoppage Removed. Set Up On Bypass, Emergency Mainline Repair TBD.
2/17/2016	11:45	100 Independence Ave, Columbia, SC 29210	Forcemain	2/18/2016	11:30	530,991	Stoops Creek To Saluda River	Force Main	Set Up Bypass And Discharged To Ni America Stoops Creek WWTP. McClam & Associates (Contractors) Replaced Broken Section Of Pipe.
2/17/2016	20:00	1209 E Muller Ave, Columbia, SC 29203	Cleanout	2/17/2016	21:00	31		Debris	Washed Homeowner's Service Line 45 Ft. Televised Service Line 45 Ft To The Mainline. The Line Is Clear.
2/18/2016	12:15	1356 Country Squire Dr, Columbia, SC 29212	Manhole	2/19/2016	08:00	623	Kinley Creek	Roots	Removed Stoppage To Resume Normal Flow. Washed Mainline 250 Feet On 2/18/2016 And Re-Washed 454 Feet On 2/19/2016 To Remove Roots.
2/18/2016	16:30	512 Stamford Bridge Rd, Columbia, SC 29212	Manhole	2/18/2016	16:55	750	Rawls Creek	Debris	Removed Stoppage To Resume Normal Flow. Washed Mainline 400 Feet To Remove Rocks And Debris From Line.
2/18/2016	17:50	312 Valcour Rd, Columbia, SC 29212	Manhole	TBD		75	Unknown Storm Drain	Roots	Washed Mainline 300 Ft To Remove Stoppage. TV ML (1st Attempt) 55 Ft. ML Was Full Of Grease. Followed Up With ML Wash And TV 90 Ft. Severe Root Blockage Downstream Of Grease. Attempting To Cut Out Root.
2/19/2016	14:00	700 Carty Dr, Columbia, SC 29203	Cleanout	TBD		360		Collapsed Line	Removed Stoppage To Resume Normal Flow. Emergency Mainline Repair.
2/19/2016	12:30	637 Shadowbrook Dr, Columbia, SC 29210	Manhole	2/22/2016	08:00	28		Grease	Removed Stoppage To Resume Normal Flow. Washed Mainline 150 Feet 2/19/2016 And Washed 250 Feet And De-Greased Line 2-22-2016.
2/18/2016	14:00	1924 Calhoun St, Columbia, SC 29201	Cleanout	TBD		18		Roots	Washed Service Line 40 Ft To Remove Stoppage. Televised Service Line 20 Ft. Found Roots At Every Joint. Service Line Repair To Be Scheduled.
2/23/2016	09:00	4401 Colonial Dr, Columbia, SC 29203	Pipeline	TBD		600		Collapsed Line	Washed ML 70 Ft To Remove Stoppage. Televised ML 52 Ft, Broken ML. Emergency ML Repair To Be Scheduled For 2/25/16.
2/19/2016	08:10	1035 Garden Valley Lane, Columbia, SC 29210	Pump Station	TBD		150		Pump Station Failure	Contained In Area With Piles Of Sand And Setup Bypass Pump To Recapture Spill, And Eq Storage Tank Drained. Contractor To Repair Line.
2/25/2016	10:00	1101 Peachwood Dr, Columbia, SC 29203	Manhole	2/26/2016	11:45	3,000	Unnamed Tributary To Crane Creek	Roots	Remove Stoppage To Resume Normal Flow. Washed Mainline 330 Ft To Remove Roots And De-Greased Mainline, Area Set Up On Preventive Maintenance.
2/29/2016	13:00	2161 Oak St, Columbia, SC 29204	Pipeline	3/3/2016	14:00	4,848	Storm Drain Tying Into Smith Branch	Collapsed Line	Washed Mainline To Resume To Normal Flow. Televised M/L 200 Ft. Mainline Repair Scheduled For 3/3/2016.
3/1/2016	15:00	921 Marlboro St, Columbia, SC 29201	Manhole	3/2/2016	11:00	150		Grease	Removed Stoppage Washed Mainline 80 Feet. Mainline CCTV 228 Feet. Grease In Line. Washed Line And De-Greased Line.
3/3/2016	00:00	2907 Two Notch Rd, Columbia, SC 29204	Cleanout	TBD		16		Roots	Washed Service Line 12 Ft To Resume To Normal Flow. TV S/L 20 Ft With Push Camera. Roots. Service Line Repair To Be Scheduled.

City of Columbia, SC Quarterly SSO Listing 1st Quarter 2016									
SSO Date	SSO Time	Location	Source	Date of Corrective Action	Time of Corrective Action	Estimated Volume (gallons)	Receiving Water (if any)	Cause	Actions Taken
3/7/2016	14:00	3319 Westbury Dr, Columbia, SC 29201	Cleanout	3/7/2016	21:30	360		Roots	Washed Service Line 10 Feet To Resume Normal Flow. Emergency Service Line Install Clean Out (503502).
3/8/2016	16:51	1104 Shop Rd, Columbia, SC 29201	Cleanout	TBD		13		Collapsed Line	Washed Service Line 20 Ft To Remove Stoppage. Televised Service Line 30 Ft To M/L. There Was A Buckle In The Line. Service Line Repair To Be Scheduled.
3/15/2016	10:00	900 Pulaski St, Columbia, SC 29201	Manhole	3/15/2016	10:10	1	Tributary To Congaree River	3rd Party Responsibility	Bypass Hose Came Out Of Manhole. Washed Road With Fire Hydrant And Harben Unit.
3/14/2016	08:30	2105 S Beltline Blvd, Columbia, SC 29201	Manhole	3/14/2016	13:32	78		3rd Party Responsibility	Removed Stoppage To Resume Normal Flow. Washed Mainline 200 Feet And Manhole. Vacuumed Manhole For Debris.
3/21/2016	13:30	2519 Park St, Columbia, SC 29201	Pipeline	3/22/2016	15:30	Unknown	Unknown Creek Leading To Broad River	Collapsed Line	Tried To Wash And Vacuum Mainline But Was Unsuccessful. Emergency Mainline Repair Scheduled For 3/22/16.
3/22/2016	16:10	2208 Manse St, Columbia, SC 29203	Cleanout	3/23/2016	14:00	3		Grease	Removed Stoppage To Resume Normal Flow. Washed Mainline 400 Feet To Remove Stoppage, Re-Washed And De-Greased Mainline 204 Feet.
3/23/2016	14:15	4465 Fort Jackson Blvd, Columbia, SC 29209	Manhole	TBD		129	Gills Creek	Collapsed Line	Removed Stoppage To Resume Normal Flow. Washed Mainline 350 Feet To Remove Stoppage. Emergency Mainline Repair.
3/24/2016	09:00	401 Goldstone Dr, Columbia, SC 29212	Manhole	3/24/2016	11:00	600	Rawls Creek	Grease	Removed Stoppage To Resume Normal Flow. Washed Mainline 200 Feet And Used De-Greaser. Re-Washed Line 200 Feet.
3/23/2016	14:15	31 Downing St, Columbia, SC 29209	Manhole	3/28/2016	02:00	22		Grease	Washed Mainline 150 Ft To Resume To Normal Flow. TV M/L 75 Ft, Grease. The ML Washed 75 Ft.
3/28/2016	15:30	1848 Cunningham Rd, Columbia, SC 29210	Cleanout	3/31/2016	13:30	5		Grease	Washed Mainline 250 Ft To Resume To Normal Flow. Televised Mainline 160 Ft.
3/29/2016	18:53	125 Old Arms Ct, Columbia, SC 29212	Manhole	3/29/2016	19:00	210		Grease	Removed Stoppage To Resume Normal Flow. Washed Mainline 100 Feet To Remove Stoppage, De-Greased Line. All Clear.
3/29/2016	14:45	2721 Pleasant Ridge Dr, Columbia, SC 29209	Cleanout	3/30/2016	14:30	4	Mill Creek	Roots	Washed Mainline 200 Ft To Resume To Normal Flow. Pushed Service Tap 42 Ft.
3/29/2016	10:00	498 Lawand Dr, Columbia, SC 29210	Pump Station	3/29/2016	10:07	350		Pump Station Failure	Re-Primed Pumps And Put Back Into Operation. Re-Primed Pumps.

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 listing provided in Table 1 above, the following table identifies building backups within the City's system for the current reporting period. 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.

**Table 2 - Building Backup Report, 1st Quarter 2016**

City of Columbia, SC Quarterly Building Backup Listing 1st Quarter 2016		
Date	Location	Claim Description
1/15/2016	145 Shadow Pines Rd	Sewer Back Up
2/5/2016	1546 Victory St	Sewer Back Up
2/15/2016	1006 Huger St	Sewer Back Up
2/15/2016	1025 Huger St	Sewer Back Up
2/22/2016	636 Shadowbrook Dr	Sewer Back Up



## Section 5 SEP Water Quality Monitoring Results

In accordance with Section IX.39.a.(v) of the CD, the following section provides a summary of the results of water quality monitoring conducted during the previous calendar quarter as part of the Supplemental Environmental Project (SEP) described in Appendix I of the CD.

### 5.1 Sampling Conducted and Results

As a part of the SEP requirements established in Section VIII and Appendix I of the CD, the City is to conduct water quality monitoring at three locations to assist in evaluation of the environmental benefits of the SEP in improving water quality in Smith Branch and Gill's Creek. The City is to implement a program for ambient monitoring of dissolved oxygen (DO), total suspended solids (TSS), temperature, and E. coli at the following monitoring sites:

- Gill's Creek at Garner's Ferry Road
- Smith Branch at North Main Street
- Gill's Creek at Bluff Road

In accordance with the requirements of the CD, the City was to submit a Quality Assurance Project Plan (QAPP) to SCDHEC within 60 days of the date of entry of the CD. The City originally submitted the QAPP to SCDHEC on July 18, 2014 in advance of the deliverable deadline. The City subsequently received comments from SCDHEC and resubmitted the QAPP to SCDHEC on January 13, 2015. The City received final approval of the QAPP from EPA and SCDHEC on January 15, 2016. Upon approval of the QAPP by SCDHEC the City was to begin monitoring within 30 days. The City will monitor quarterly for the first three years under the CD and monthly (or every other month at the Gills Creek at Bluff Road site) from years four through six under the CD.

Water quality monitoring for 2016 Q1 was completed on February 2, 2016. Monitoring results are provided below for the following samples:

- C-001: Gill's Creek at Garner's Ferry Road
- B-280: Smith Branch at North Main Street
- C-017: Gill's Creek at Bluff Road



City Of Columbia Quality Assurance Project Plan (QAPP) Data  
Verification and Validation Form

City of Columbia Supplemental Environmental Projects QAPP November 2015

Laboratory Report Date: 02/02/2016

The undersigned verifies the data in the above referenced report, per the QAPP requirements.



Andrew T. Stroud/QA Manager

02/03/2016

Date

The undersigned validates the data in the above referenced report, per the QAPP requirements.



Michael Jaspers/Project Validator

02/03/2016

Date



DATE: 02/02/2016

SCDHEC #32571

CLIENT: City of Columbia  
Attn: Andrew Stroud  
1136 Washington Street  
Columbia SC 29201

PROJECT: WATER QUALITY MONITORING

-----  
ID#: 150349 Sample Name: C-017 Sampled on 01/27/2016 at 1202 Received on 01/28/2016 at 1330  
-----

Parameter	Method#	Value	Units	Anal. on/	at/	by
TSS (SM)	SM 2540 D-2011	8.8	mg/L	01/28/2016	1330	RA
E. Coli MPN	SM 9223 B-2004	38.4	MPN	01/28/2016	1452	JS
Dissolved Oxygen (SM)	SM4500OG-2011	9.6	mg/L	01/28/2016	1202	JS
Temperature (SM)	SM 2550 B-2010	10	Deg. C	01/28/2016	1202	JS

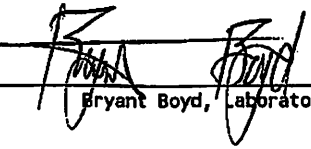
-----  
ID#: 150350 Sample Name: C-001 Sampled on 01/27/2016 at 1233 Received on 01/28/2016 at 1330  
-----

Parameter	Method#	Value	Units	Anal. on/	at/	by
TSS (SM)	SM 2540 D-2011	23	mg/L	01/28/2016	1330	RA
E. Coli MPN	SM 9223 B-2004	79.8	MPN	01/28/2016	1452	JS
Dissolved Oxygen (SM)	SM4500OG-2011	11.1	mg/L	01/28/2016	1233	JS
Temperature (SM)	SM 2550 B-2010	10	Deg. C	01/28/2016	1233	JS

-----  
ID#: 150351 Sample Name: B-280 Sampled on 01/27/2016 at 1302 Received on 01/28/2016 at 1330  
-----

Parameter	Method#	Value	Units	Anal. on/	at/	by
TSS (SM)	SM 2540 D-2011	16	mg/L	01/28/2016	1330	RA
E. Coli MPN	SM 9223 B-2004	686.7	MPN	01/28/2016	1452	JS
Dissolved Oxygen (SM)	SM4500OG-2011	10.3	mg/L	01/28/2016	1302	JS
Temperature (SM)	SM 2550 B-2010	11	Deg. C	01/28/2016	1302	JS

Report Released by: \_\_\_\_\_

  
Bryant Boyd, Laboratory Director

# ON LINE ENVIRONMENTAL, INC

Chain of Custody Record

SCDHEC LAB ID# 32571/25003

Client: <u>City of Columbia</u> Address: <u>1136 Washington Street</u> City, State, Zip: <u>Columbia, SC 29201</u>	Attn: <u>Andrew Stroud</u> Phone: <u>803-545-4001</u> Email: <u>atstroud@columbiasc.net</u>
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Prog. Area	Sample ID# (FOR LAB USE ONLY)	Sample Name	Date/Time of Sample	Sample Type (G or C)	Preservation/Bottle Type	# of bottles	Parameter(s)
WW	150349	C-017	1-28-16 / 1202	G	A/P	1	TSS
WW	↓	C-017	1 "	G	GF/P	1	E. Coli MPN
WW	↓	C-017	1 "	G	Field An.	NA	D.O. (mg/L)= 9.6 Temp. (°C)= 10°
WW	350	C-001	1 / 1233	G	A/P	1	TSS
WW	↓	C-001	1 "	G	GF/P	1	E. Coli MPN
WW	↓	C-001	1 "	G	Field An.	NA	D.O. (mg/L)= 11.1 Temp. (°C)= 10
WW	351	B-280	1 / 1302	G	A/P	1	TSS
WW	↓	B-280	1 "	G	GF/P	1	E. Coli MPN
WW	↓	B-280	1 "	G	Field An.	NA	D.O. (mg/L)= 10.3 Temp. (°C)= 11

G=grab C=composite

Prog. Area: WW=wastewater DW=drinking water MW=monitoring well SS=semi solid SL=soil SD=solid

Samplers signature: [Signature]

## Auto Sampler Data

Date/Time Set On: <u>1</u>	Meter Reading After: _____
by whom: <u>1</u>	Meter Reading Before: _____
Date/Time Off: <u>1</u>	Difference: _____
by whom: <u>1</u>	X _____ (factor): _____

## Special Instructions:

Received in lab @ 3 °C

Project: Water Quality Monitoring

Relinquished by	Date	Time	Received by	Date	Time

Preservation Codes: A=≤6°C, B=H<sub>2</sub>SO<sub>4</sub>,  
C=HNO<sub>3</sub>, D=HCl, E=NaOH, F=Na<sub>2</sub>S<sub>2</sub>O<sub>3</sub>,  
G=≤10°C, O=Other (describe) Bottle  
Type: Glass = G, Plastic = P

Received in lab by: [Signature] Date: 1-28-16 Time: 1330

Sample Rcd. On Ice: Yes No

## Appendix A

### Supplemental Report of Force Majeure Event



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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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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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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 13th, 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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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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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® 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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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

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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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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 Discharge 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