

Clean Water 2020 Program

CONSENT DECREE QUARTERLY REPORT

April 1, 2017 – June 30, 2017



We Are Columbia

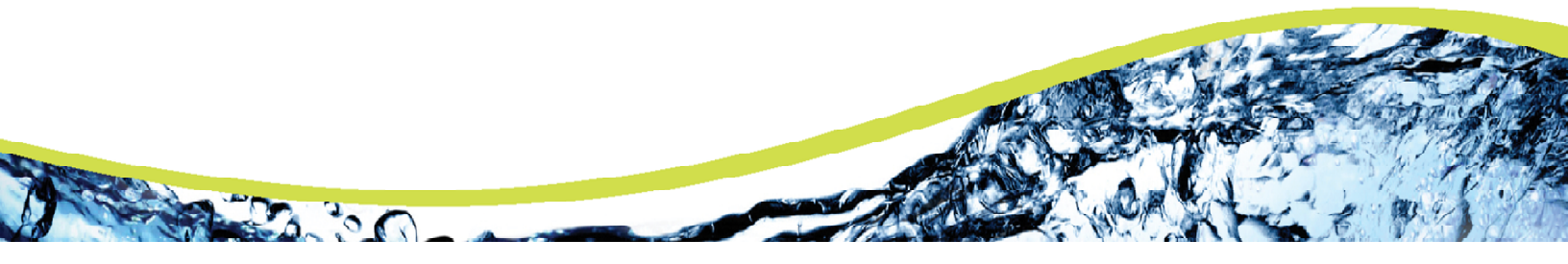


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Section 1 Introduction

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.

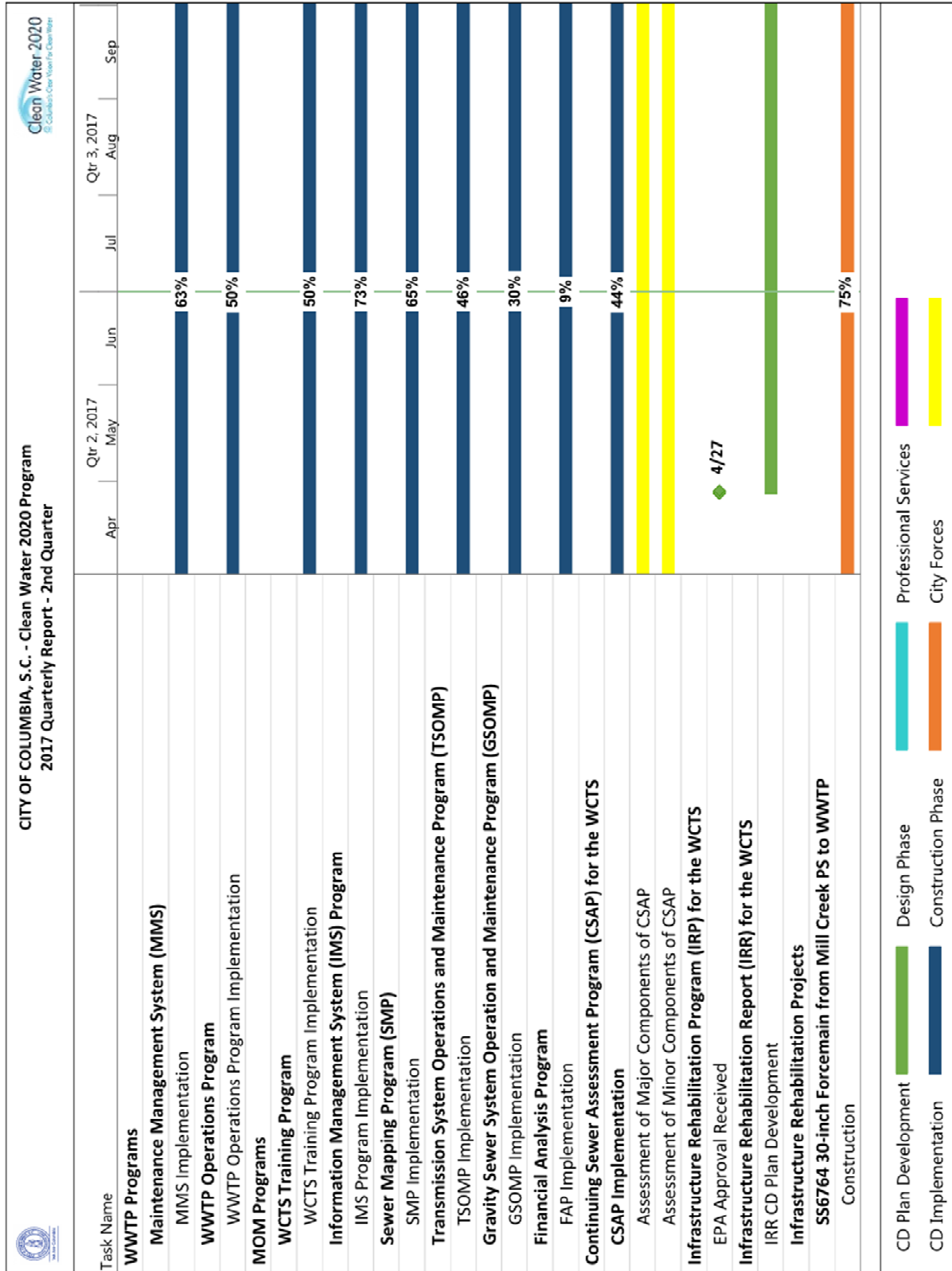
Section 4 – Quarterly SSO Report

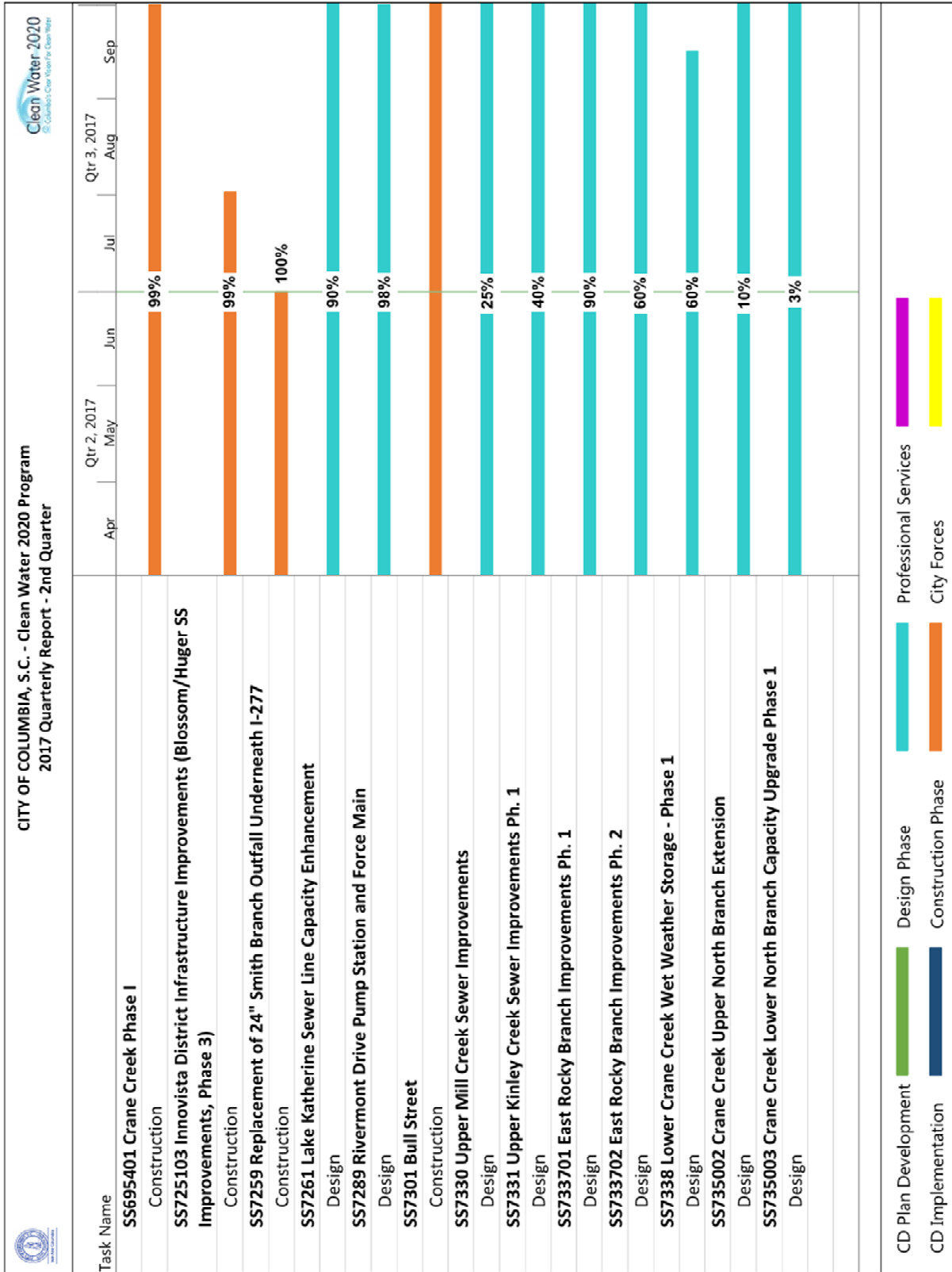
This section addresses the requirements of Section IX.39.a.(ii) of the Consent Decree and provides a tabular listing of sanitary sewer overflows (SSOs). The table includes the date, time, location, source, duration, estimated volume, receiving water (if any), cause, and actions taken to repair or otherwise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

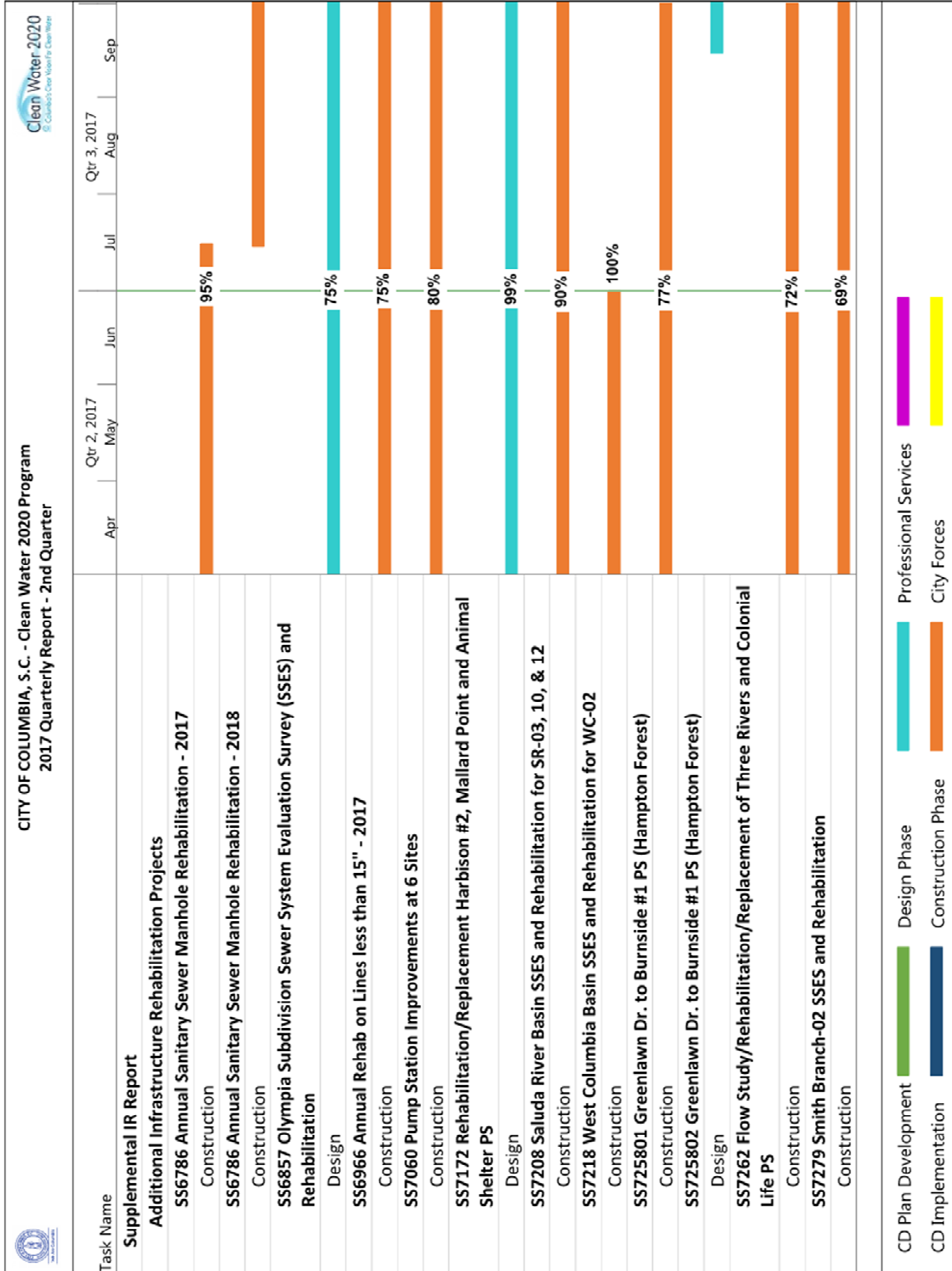
Section 5 – SEP Water Quality Monitoring Results

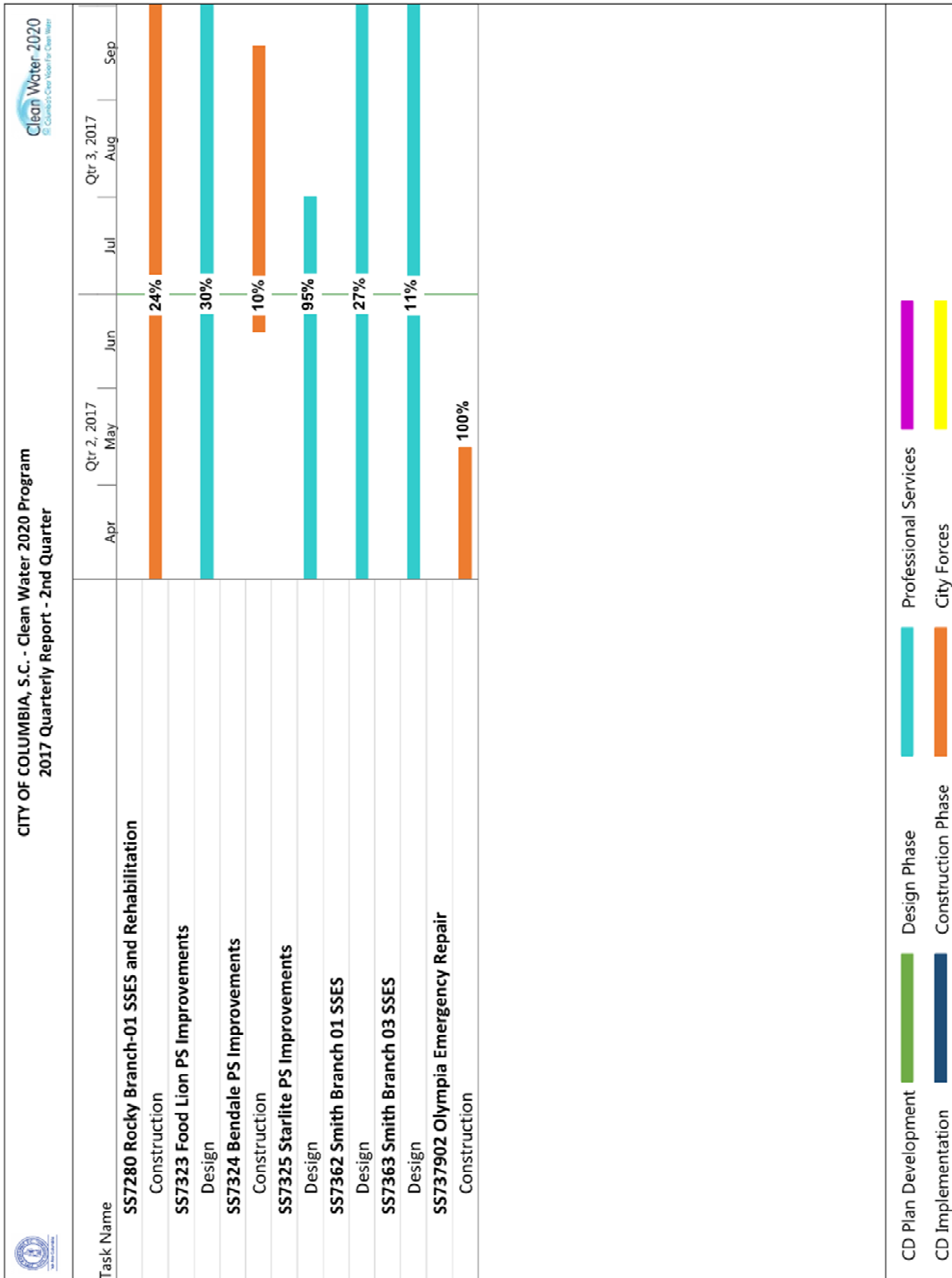
This section addresses the requirements of Section IX.39.a.(v) of the Consent Decree and provides the results of water quality monitoring conducted during the previous Calendar Quarter as part of the SEP described in Appendix I of the CD.

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.

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 received final approval of the MMS from EPA and SCDHEC on September 2, 2016.

The activities completed or in progress during the current reporting period are as follows:

- Migration of Data and Maintenance Schedules into Cityworks – 100% Complete
- Cityworks Testing & Implementation – 75% Complete
- Inventory Management within Cityworks Storeroom – 100% Complete

3.1.2 WWTP Operations Program

The WWTP Operations Program was submitted to EPA and SCDHEC on January 4, 2016. The City received final approval of the WWTP Operations Program from EPA and SCDHEC on May 23, 2016.

The activities completed or in progress during the current reporting period are as follows:

- Written procedures describing the various operational controls at the WWTP – 50% Complete

3.1.3 WWTP Training Program

The WWTP Training Program was submitted to EPA and SCDHEC on May 20, 2016. The City is awaiting EPA and SCDHEC review and approval of the WWTP Training Program.

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 WCTS Training Program

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.

The activities completed or in progress during the current reporting period are as follows:

- Plant Maintenance Technologist Apprentice Program (PMTAP) – 50% Complete

3.2.2 Information Management System (IMS) Program

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 activities completed or in progress during the current reporting period are as follows:

- Storeroom Component of Cityworks – 80% Complete
- Sewer Mapping Program – 65% Complete

3.2.3 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 – 93% complete
 - Smith Branch Basin – 67% complete
 - Saluda River Basin – 87% complete
 - Rocky Branch Basin – 43% complete
 - Mill Creek Basin – 26% complete
 - Gills Creek Basin – 29% complete
 - Crane Creek Basin – 65% complete
 - Broad River Basin – 27% complete
- Progress for each WCTS Major Gravity Mapping basin is as follows:
 - West Columbia Basin – 88% complete
 - Smith Branch Basin – 75% complete
 - Saluda River Basin – 80% complete
 - Rocky Branch Basin – 61% complete
 - Mill Creek Basin – 78% complete

- Gills Creek Basin – 75% complete
- Crane Creek Basin – 87% complete
- Broad River Basin – 89% complete

3.2.4 Transmission System Operations and Maintenance Program (TSOMP)

The TSOMP was submitted to EPA and SCDHEC on May 18, 2015. The City received final approval of the TSOMP from EPA and SCDHEC on September 2, 2016.

The activities completed or in progress during the current reporting period are as follows:

- SCADA System Enhancements – 50% Complete
- Force Main and Easement Maintenance (Easement survey and marking and initial clearing to the surveyed limits, where practical) – 20% Complete
- Corrosion Control – 6% Complete

3.2.5 Gravity Sewer System Operation and Maintenance Program (GSOMP)

The GSOMP was submitted to EPA and SCDHEC on November 20, 2015. The City received final approval of the GSOMP from EPA and SCDHEC on May 23, 2016.

The activities completed or in progress during the current reporting period are as follows:

- Gravity Line Preventive Maintenance Plan (GLPMP) – 20% Complete
- Evaluation of potential sulfide and corrosion control of the WCTS – 6% Complete
- Inspection and evaluation of crossings and stream bank encroachment areas with a higher likelihood of SSOs – 10% Complete
- Gravity Sewer Easement survey and marking and initial clearing to survey the limits, where practical – 20% Complete
- Evaluation of resource commitment as part of the implementation of the GSOMP – 75% Complete

3.2.6 Financial Analysis Program

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.

The activities completed or in progress during the current reporting period are as follows:

- Capital Improvement Financing Program – 50% Complete
- Budget and Customer Rate Setting Analysis – 100% Complete

3.3 Continuing Sewer Assessment Program (CSAP) for the WCTS

The CSAP was submitted to EPA and SCDHEC on June 9, 2015. The City received final approval of the CSAP from EPA and SCDHEC on May 23, 2016.

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 – 40% Complete
- Major Manhole Inspection – 70% Complete
- Major Pump Stations Condition Assessment – 37% Complete
- Major Force Mains Field Assessment – 25% 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 – 60% Complete
- Minor Gravity Sewer and Manholes Condition Assessment – 18% Complete
- Minor Pump Stations Condition Assessment – 18% Complete
- Minor Force Mains Field Assessment – 18% Complete

3.4 Infrastructure Rehabilitation Program (IRP) for the WCTS

The IRP was submitted to EPA and SCDHEC on November 22, 2016. The City received final approval of the IRP from EPA and SCDHEC on April 27, 2017.

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:

- SS6764 30" Forcemain from Mill Creek PS to WWTP – Construction 75% Complete
- SS695401 Crane Creek Phase I – Construction 99% Complete
- SS725103 Innovista District Infrastructure Improvements – Construction 99% Complete
- SS7259 Replacement of 24" Smith Branch Outfall Underneath I-277 – Construction 100% Complete
- SS7261 Lake Katherine Sewer Line Capacity Enhancement – Design 90% Complete

- SS7289 Rivermont Drive Pump Station and Force Main – Design 98% Complete
- SS7301 Bull Street – Construction in Progress; a completion percentage cannot be provided due to a varying scope of work and timeline for this project.
- SS7330 Upper Mill Creek Sewer Improvements – Design 25% Complete
- SS7331 Upper Kinley Creek Sewer Improvements Ph. 1 – Design 40% Complete
- SS733701 East Rocky Branch Improvements Ph. 1 – Design 90% Complete
- SS733702 East Rocky Branch Improvements Ph. 2 – Design 60% Complete
- SS7338 Lower Crane Creek Wet Weather Storage - Phase 1 – Design 60% Complete
- SS735002 Crane Creek Upper North Branch Extension – Design 10% Complete
- SS735003 Crane Creek Lower North Branch Capacity Upgrade Phase 1 – Design 3% Complete

In accordance with Section V.16.c of the CD, the City shall submit a Supplemental Infrastructure Rehabilitation Report (SIRR) 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. The SIRR is to be submitted within six months after the City has assessed the remainder of the entire WCTS 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:

- SS6786 Annual Sanitary Sewer Manhole Rehabilitation – 2017 Construction 95% Complete, 2018 Construction 0% Complete
- SS6857 Olympia Subdivision Sewer System Evaluation Survey (SSES) and Rehabilitation Design – Design 75% Complete
- SS6966 Annual Rehab on Manholes and Lines less than 15" – 2017 Construction 75% Complete
- SS7060 Pump Station Improvements at 6 Sites – Construction 80% Complete
- SS7172 Rehabilitation/Replacement Harbison #2, Mallard Point and Animal Shelter PS – Design 99% Complete
- SS7208 Saluda River Basin SSES and Rehabilitation for SR-03, 10, & 12 – Construction 90% Complete
- SS7218 West Columbia Basin SSES and Rehabilitation for WC-02 – Construction 100% Complete
- SS725801 Greenlawn Dr. to Burnside #1 PS (Hampton Forest) Phase 1 – Construction 77% Complete
- SS725801 Greenlawn Dr. to Burnside #1 PS (Hampton Forest) Phase 2 – Design 0% Complete
- SS7262 Flow Study/Rehabilitation/Replacement of Three Rivers and Colonial Life PS – Construction 72% Complete
- SS7279 Smith Branch-02 SSES and Rehabilitation – Construction 69% Complete
- SS7280 Rocky Branch-01 SSES and Rehabilitation – Construction 24% Complete
- SS7323 Food Lion PS Improvements – Design 30% Complete
- SS7324 Bendale PS Improvements – Construction 10% Complete
- SS7325 Starlite PS Improvements – Design 95% Complete
- SS7362 Smith Branch 01 SSES – Design 27% Complete

- SS7363 Smith Branch 03 SSES – Design 11% Complete
- SS737902 Olympia Emergency Repair – Construction 100% Complete

3.6 Supplemental Environmental Project

In accordance with Section VIII and Appendix I of the CD, the City will perform a Supplemental Environmental Project (SEP). Within three years of the effective date of the CD, the City was to submit to EPA preliminary reports on the condition of Rocky Branch, Smith Branch, and Gills Creek and plans for Phase II for each of the SEP watersheds. On March 24, 2016, the City submitted a supplemental report related to the October 4, 2015 *force majeure* event and requested an additional six months to November 21, 2017 to complete the submittal of the preliminary reports and plans for improving the SEP areas. This request was granted by EPA.

The activities completed or in progress during the current reporting period are as follows:

- The SEP Preliminary Report and Phase II plan for Rocky Branch, Smith Branch, and Gills Creek was submitted to EPA on June 14, 2017.

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, 2nd Quarter 2017

City of Columbia, SC Quarterly SSO Listing 2nd Quarter 2017									
SSO Date	SSO Time	Location	Source	Date of Corrective Action	Time of Corrective Action	Estimated Volume (gallons)	Receiving Water (if any)	Cause	Actions Taken
4/1/2017	12:05	925 Leesburg Rd, Columbia, SC 29209	Manhole	4/1/2017	14:40	875	Storm Drain	Debris	Removed Stoppage To Resume Normal Flow. Washed Mainline 100 Feet To Remove Stoppage.
4/3/2017	18:20	22 Thistle Ct, Irmo, SC 29063	Cleanout	TBD		760	Swygert Branch	Wet Weather	Wet Weather, Observation Only. Further Investigation To Be Conducted.
4/5/2017	16:50	1721 W Buchanan Dr, Columbia, SC 29206	Manhole	TBD		325	Pen Branch	Wet Weather	Wet Weather, Observation Only. Engineering In Design Phase Of Line Replacement.
4/5/2017	17:00	1548 Kathwood Dr, Columbia, SC 29206	Manhole	TBD		34,500	Lake Katherine (Gills Creek)	Wet Weather	Wet Weather, Observation Only. Engineering In Design Phase Of Line Replacement.
4/5/2017	17:10	4645 Pine Grove Ct, Columbia, SC 29206	Manhole	TBD		21,250	Lake Katherine (Gills Creek)	Wet Weather	Wet Weather, Observation Only. Engineering In Design Phase Of Line Replacement.
4/5/2017	19:33	1400 Peebles St, Columbia, SC 29203	Manhole	TBD		84,425	Crane Creek	Wet Weather	Wet Weather, Observation Only. Mainline Under Construction.
4/5/2017	19:41	5081 Brickyard Rd, Columbia, SC 29203	Manhole	TBD		134,863	Crane Creek	Wet Weather	Wet Weather, Observation Only. Line Replacement Under Construction.
4/5/2017	20:09	22 Thistle Ct, Irmo, SC 29063	Cleanout	TBD		3,358	Swygert Branch	Wet Weather	Wet Weather, Observation Only. Further Investigation To Be Conducted.
4/5/2017	22:15	1806 Blossom St, Columbia, SC 29201	Manhole	4/5/2017	22:21	Unknown	Rocky Branch	Wet Weather	Engineering Is In The Design Phase Of Line.
4/6/2017	08:15	6309 Olde Knight Pkwy, Columbia, SC 29209	Manhole	TBD		500	Storm Drain	Roots	Washed Mainline 350 Feet, Removed Stoppage. Emergency Tap Renewal.
4/6/2017	13:00	1609 N Beltline Blvd, Columbia, SC 29206	Manhole	4/6/2017	15:00	300		Debris	Removed Stoppage To Resume Normal Flow. Washed Mainline 150 Feet, Removed Stoppage.
4/10/2017	12:35	6309 Old Knight Pkwy, Columbia, SC 29209	Manhole	TBD		100		Roots	Washed Mainline 200 Feet, Removed Stoppage. Emergency Tap Renewal.
4/10/2017	14:40	1810 Allen Benedict Ct, Columbia, SC 29204	Manhole	4/12/2017	Unknown	7,000	Storm Drain To Smith Branch	Collapsed Line	Setup Sewer Bypass Pump. Repair Mainline - Contractor, N. American.
4/11/2017	02:00	3900 Bentley Dr, Columbia, SC 29210	Forcemain	4/11/2017	10:22	10,040	Tributary To Broad River	Equipment Failure	Called Contractor To Work On Rented Pumps. Mechanic Replaced Belt On The Primary Pump. Secondary Pump's Auto-Dailer And Float Were Corrected.
4/12/2017	17:15	217 Palm Lake Dr, Columbia, SC 29212	Manhole	4/12/2017	17:10	90	Lake Murray	Grease	Washed Mainline To Remove Stoppage And Resume Normal Flow. Remove Stoppage, Wash Affected Area, No Solids On Landing Deck.
4/13/2017	10:30	217 Palm Lake Dr, Columbia, SC 29212	Manhole	4/13/2017	12:05	2,850	Lake Murray	Grease	Washed Mainline To Resume To Normal. Washed Mainline 23077_22718, 225 Ft; Washed Mainline 22718_22719, 100 Ft; Stoppage Removed.
4/17/2017	07:53	2800 Commerce Dr, Columbia, SC 29205	Other	4/17/2017	08:15	629		Equipment Failure	Replaced Hoses And Drive Ramp With New Clamp. Secured Clamps.
4/17/2017	11:30	1000 S Holly St, Columbia, SC 29205	Manhole	4/17/2017	11:42	900	Retention Pond	Roots	Halted Bypass Pumping Operations. Washed Mainline 274 Ft To Clear Any Potential Problems, Relocated Bypass Discharge To Different Manhole.
4/18/2017	14:00	1100 Denny Rd, Columbia, SC 29203	Manhole	4/18/2017	18:45	4,525	Crane Creek	Debris	Removed Stoppage To Resume Normal Flow. Washed Mainline 271 Feet, Removed Stoppage.
4/17/2017	14:45	1351 Jim Hamilton Blvd, Columbia, SC 29205	Other	4/17/2017	14:46	50		Equipment Failure	Effluent Came Out Of Bypass Hose While Changing Out Leaking Pipe. Spread Lime & Replaced Broken Pipe.

Consent Decree Quarterly Report | 2017 Q2

City of Columbia, SC Quarterly SSO Listing 2nd Quarter 2017									
SSO Date	SSO Time	Location	Source	Date of Corrective Action	Time of Corrective Action	Estimated Volume (gallons)	Receiving Water (if any)	Cause	Actions Taken
4/24/2017	01:30	4645 Pine Grove Ct, Columbia, SC 29206	Manhole	TBD		1,800	Lake Katherine (Gills Creek)	Wet Weather	Due To Wet Weather, Monitored Until Spilling Stopped. Engineering Is In The Design Phase Of Line.
4/24/2017	01:18	1548 Kathwood Dr, Columbia, SC 29206	Manhole	TBD		2,938	Lake Katherine (Gills Creek)	Wet Weather	Due To Wet Weather, Observation Only. Engineering In Design Phase Of Line Replacement.
4/24/2017	08:30	2830 School House Rd, Columbia, SC 29204	Manhole	4/28/2017	11:00	1,800		Debris	Washed Mainline 273 Ft To Resume Normal Flow. Cut Gasket Out Of The Mainline.
4/24/2017	10:00	5200 Bluff Rd, Columbia, SC 29217	Manhole	4/24/2017	11:10	18,625	Reeder Point Branch Creek	Pump Station Failure	Corrected Control Panel Issue. Cleaned Up Solids And Limed Area.
4/24/2017	17:50	2908 Partridge Drive, Hopkins, SC 29061	Pump Station	4/25/2017	10:00	39,230	Goose Branch	Equipment Failure	Attempted To Use Vac Truck To Pump And Haul, Cleared Bypass Suction Line. Bypass Pump Restarted.
4/25/2017	08:22	850 Gracern Rd, Columbia, SC 29210	Manhole	4/25/2017	08:45	100	Unnamed Tributary To The Saluda River	Equipment Failure	During Heavy Rain Event, The Battery Of A Secondary Bypass Pump Failed And Debris From The Rain Event Had Also Washed Against The Discharge Line Kinking The Discharge Line Limiting Flow. Flow Had Stopped At 08:45 When C. Williams Arrived On Site.
4/24/2017	18:47	207 Bishopgate Rd, Columbia, SC 29212	Manhole	4/28/2017	15:00	1,075	Rawls Creek	Roots	Washed Mainline 72 Ft To Resume Normal Flow. Washed Mainline To Remove Roots In Invert.
4/24/2017	13:30	300 Hickory Ridge Rd, Columbia, SC 29209	Manhole	5/1/2017	09:27	36		Grease	Washed Mainline 175 Ft To Resume Normal Flow. Washed And Degreased Mainline 301 Ft.
5/1/2017	10:45	1112 Barton St, Columbia, SC 29203	Cleanout	5/1/2017	11:00	60		Grease	Washed Service Line 75 Ft To Resume Normal Flow. Washed Service Line 75 Ft To Resume Normal Flow.
5/2/2017	16:30	498 Lawand Dr, Columbia, SC 29210	Manhole	5/2/2017	17:15	100		Debris	Both Bypass Pumps Were Unclogged; Pump Supplier Was Contacted To Confirm Auto-Dialer And Service Pumps; Site Was Monitored.
5/1/2017	14:40	6821 N Main St, Columbia, SC 29203	Other	5/1/2017	15:00	124		Equipment Failure	Cut Plug Loose. Replugged Line Downstream.
5/3/2017	08:30	2200 Commerce Dr, Columbia, SC 29205	Other	5/3/2017	08:20	10,911		3rd Party Responsibility	Fixed Bypass Ramp Clamp.
5/4/2017	18:30	1510 St Andrews Rd, Columbia, SC 29210	Pump Station	5/4/2017	18:40	85		Equipment Failure	Equipment (Bypass Valve). Closed Bypass Valve And Limed Area.
5/5/2017	13:00	388 Lakeridge Parkway, Columbia, SC 29203	Manhole	5/9/2017	11:00	1,650		Roots	Washed Mainline 225 Ft To Resume Normal Flow. Washed Mainline 537 Ft With Root Cutter.
5/19/2017	16:40	1810 Allen Benedict Ct, Columbia, SC 29204	Other	TBD		500	Storm Drain	Collapsed Line	Washed Mainline 200 Ft. Set Up 4" Bypass Pump.
5/21/2017	08:40	3900 Bentley Dr, Columbia, SC 29210	Other	5/21/2017	09:20	800	Unnamed Tributary To Broad River	Equipment Failure	Replaced Plug (Air Plug Popped). Restarted Bypass Pumps.
5/22/2017	14:30	5006 Brickyard Rd, Columbia, SC 29203	Manhole	5/25/2017	08:58	750	Crane Creek	Debris	Washed Mainline 40 Ft To Resume Normal Flow. Televised Mainline 38.3 Ft, Line Is Free Of Debris.
5/23/2017	19:00	498 Lawand Drive, Columbia, SC 29210	Other	5/25/2017	12:00	2,000		Equipment Failure	Repaired The Leaking Hose Connection.
5/26/2017	08:54	5501 Broad River Road, Columbia, SC 29210	Pump Station	5/26/2017	09:02	120	Drainage Ditch Behind Lift Station	Pump Station Failure	Turned Pump In Manual. Replaced Float, Cycled Pumps. Tested And Repositioned High Float, Had Godwin Service Pump.
6/4/2017	13:00	7660 Teague Rd, Columbia, SC 29209	Manhole	6/7/2017	10:00	2,950	Sun View Lake (Mill Creek)	Collapsed Line	Washed Mainline 40 Ft To Resume Normal Flow. CCTV Confirmed A Sag In The Line Causing A Loss In Velocity Leading To The Accumulation Of Grease And Material. The Mainline Was Washed & Degreased 70 Ft.
6/5/2017	11:00	101 S Bull St, Columbia, SC 29205	Other	6/5/2017	18:00	1,920		3rd Party Responsibility	Repaired Service Line 6/5/17.
6/7/2017	09:42	801 Chinquapin Rd, Columbia, SC 29212	Manhole	N/A		900		Roots	Washed Mainline 300 Ft To Resume Normal Flow. Mainline Repair To Be Scheduled.

City of Columbia, SC Quarterly SSO Listing 2nd Quarter 2017									
SSO Date	SSO Time	Location	Source	Date of Corrective Action	Time of Corrective Action	Estimated Volume (gallons)	Receiving Water (if any)	Cause	Actions Taken
6/7/2017	14:21	1443 Marley Dr, Columbia, SC 29210	Manhole	N/A		2,244		Roots	Washed Mainline 401 Ft To Resume Normal Flow. Mainline Repair And Manhole Rehab To Be Scheduled.
6/8/2017	14:40	2202 Battleford Rd, Columbia, SC 29210	Cleanout	6/9/2017	08:30	5		Grease	Washed Service Line 65 Ft To Remove Stoppage. Televised Service Line 65 Ft, All Is Clear.
6/13/2017	12:00	824 Blue Ridge Ter, Columbia, SC 29203	Other	6/13/2017	20:30	3,350		Collapsed Line	Mainline Repair.
6/19/2017	14:00	1118 House St, Columbia, SC 29205	Manhole	6/19/2017	22:54	1	Storm Drain	3rd Party Responsibility	Contractor Set Up Bypass Pump To Remove Flowable Fill Out Of The Line. Turned Over To Contractor To Remove Flowable Fill.
6/21/2017	09:25	3100 N Main St, Columbia, SC 29201	Other	N/A		300	Smith Branch	3rd Party Responsibility	Contractor Hit & Broke 15' Mainline. Repaired Pipe.
6/26/2017	15:00	416 Arrowwood Rd, Columbia, SC 29210	Forcemain	6/26/2017	16:30	50	Saluda River	Equipment Failure	Replaced ARV.
6/27/2017	10:25	208 Pine Sapp Dr, Blythewood, SC 29016	Manhole	6/28/2017	11:30	160		Debris	Washed Mainline 50 Ft To Resume Normal Flow. Wood Decking Debris Removed. Mainline Was Washed & Degreased 450 Ft With Terminator Nozzle.

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. Through May 2017, neither the City nor the third-party administrator maintained records on volume, duration, or specific root causes of building backups. In June 2017, the City developed a new Standard Operating Procedure (SOP) for Building Backup data collection and documentation; additional information on building backups will be available beginning in 2017 Q3.

Table 2 - Building Backup Report, 2nd Quarter 2017

City of Columbia, SC Quarterly Building Backup Listing 2nd Quarter 2017		
Date	Location	Claim Description
4/5/2017	4039 Trenholm Road	Sewer Back Up, Commodes And Sinks Overflowed.
4/5/2017	304 Saddle Trail Road	The COC Was Doing Some Kind Of Work Around The Callers Property When The Claimant States There Was A Backup In Her Bathroom.
5/14/2017	7523 Mountainbrook Drive	There Was A Break In The Main Sewage Line & It Caused Flooding In Claimants House Causing Water Damage To Bathroom, Hallway & Living Room. COC Has Cleaned Up Front Yard & Front Of House & Claimant Has Contacted Third Party Company To Clean Up House.
6/7/2017	1439 Marley Drive	Sewage Began Spraying Up Out Of Claimants Master Bathroom. COC Was Pushing The Sewer System Out, Which Is The Initial Cause Of Sewage Back Up In The House. No Restoration Company Contacted As Of Yet.
6/26/2017	517 Newburgh Drive	WWM Washing Mainline When Sewage Water Shot Out Of Commodes.

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. The QAPP was revised and resubmitted to SCDHEC on May 31, 2017 to reflect a change in City personnel. 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 2017 Q2 was completed on May 1, 2017. 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: 5/1/17

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



Ralana Wilson/QA Manager

5/22/17

Date

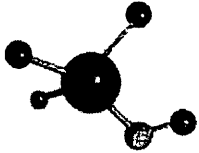
The undersigned validates the data in the above referenced report, per the QAPP requirements.



Michael Jaspers/Project Validator

5/22/17

Date



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ANALYTICAL, INC.

ANALYTICAL REPORT

CLIENT:

City of Columbia
1136 Washington Street
Columbia, SC 29201

PROJECT:

WATER QUALITY MONITORING

REPORT DATE:

05.01.17

REPORT APPROVED BY:

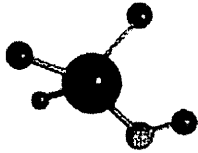
A handwritten signature in black ink, which appears to read "Bryant W. Boyd". The signature is written in a cursive style with a horizontal line across the middle.

Bryant W. Boyd
Laboratory Manager
bryant@axs-inc.com

Any questions related to this report should be directed to Access Analytical, Inc. via phone at 803.939.4983 or via email at the address listed above.

Access Analytical, Inc. SCDHEC certification #'s: 32571001 (Lexington Lab)
 25003001 (Hampton Lab)

Access Analytical, Inc.
200-B Rich-Lex Dr. ~ Lexington, SC 29072
PHONE: 803.939.4983 ~ FAX: 803.939.4984 ~ WEB: www.axs-inc.com



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Report of Analysis

Lab ID #: 03154-001

Matrix: Waste Water

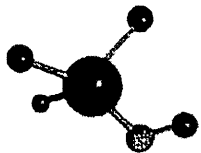
Project: WATER QUALITY MONITORING

Collected: 4/27/2017 @ 11:32

Sample Name: C-017

Date Received: 4/27/2017 @ 13:30

Parameter	Result	Reporting Limit	Units	Method Reference	Data Flag	Date/Time of Analysis	Analyst
DO	5.7	None	mg/L	SM 4500-O G-2011		4/27/2017 11:32	JRS
E. Coli (MPN)	143.9	1	MPN	SM 9223 B-2004		4/27/2017 15:32	JRS
Temperature	21	None	oC	SM 2550B-2010		4/27/2017 11:32	JRS
TSS	16.8	1	mg/L	SM 2540 D-2011		4/27/2017 11:30	RDA



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Report of Analysis

Lab ID #: 03154-002

Matrix: Waste Water

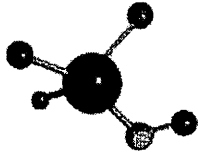
Project: WATER QUALITY MONITORING

Collected: 4/27/2017 @ 11:52

Sample Name: C-001

Date Received: 4/27/2017 @ 13:30

Parameter	Result	Reporting Limit	Units	Method Reference	Data Flag	Date/Time of Analysis	Analyst
DO	8.2	None	mg/L	SM 4500-O G-2011		4/27/2017 11:52	JRS
E. Coli (MPN)	307.6	1	MPN	SM 9223 B-2004		4/27/2017 15:32	JRS
Temperature	23	None	oC	SM 2550B-2010		4/27/2017 11:52	JRS
TSS	36.3	1	mg/L	SM 2540 D-2011		4/27/2017 11:30	RDA



ACCESS
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Report of Analysis

Lab ID #: 03154-003

Matrix: Waste Water

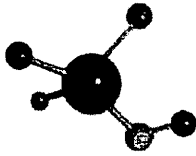
Project: WATER QUALITY MONITORING

Collected: 4/27/2017 @ 12:20

Sample Name: B-280

Date Received: 4/27/2017 @ 13:30

Parameter	Result	Reporting Limit	Units	Method Reference	Data Flag	Date/Time of Analysis	Analyst
DO	8.1	None	mg/L	SM 4500-O G-2011		4/27/2017 12:20	JRS
E. Coli (MPN)	920.8	1	MPN	SM 9223 B-2004		4/27/2017 15:32	JRS
Temperature	20	None	oC	SM 2550B-2010		4/27/2017 12:20	JRS
TSS	8.0	1	mg/L	SM 2540 D-2011		4/27/2017 11:30	RDA



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Laboratory Endorsement / Definitions

Sample analysis was performed in accordance with approved methodologies provided by the Environmental Protection Agency, Standard Methods or other recognized agencies.

Common abbreviations that may be utilized in this report:

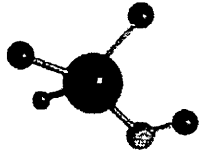
ND	Indicates the result was Not Detected at the specified reporting limit
"<"	Indicated the result as less than the indicated amount
MI	Indicates the result was subject to Matrix Interference
TNTC	Indicates the result was Too Numerous to Count
SUB	Indicates the analysis was Sub-Contracted
FLD	Indicates the analysis was performed in the Field
DL	Detection Limit
DF	Dilution Factor
RL	Reporting Limit
MDL	Calculated minimum detection limit
PQL	Practical Quantitation Limit
RE	Re-analysis

Reporting flags that may be utilized in this report:

J	Indicates the result is between the MDL and PQL and considered to be an estimated result
MB	Indicates the analyte was detected in the associated Method Blank
H	Indicates the recommended holding time was exceeded
*	Indicates a non-compliant or not applicable QC recovery or RPD
A	BOD or CBOD GGA check value for this sample did not meet acceptance criteria.
B	BOD or CBOD blank depletion did not meet acceptance criteria.
C	Indicates the spike % recovery was not acceptable.
D	Indicates the duplicate % difference was not acceptable.
E	Toxicity is apparent in the sample.

Sample receipt at Access Analytical is documented through the attached chain of custody. In accordance with laboratory protocol, this report shall be reproduced only in full and with the written permission of Access Analytical, Inc.. The results contained within this report relate only to the samples reported. The documented results are presented within this report.

This report pertains only to the samples listed in the attached report and should be retained as a permanent record thereof. The results contained within this report are intended for the use of the client. Any unauthorized use of the information contained in this report is prohibited.



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Sample Receipt

Were samples received on ice?	YES
Were samples received within required temperature limits?	YES
Are the number of samples the same as stated on the chain of custody?	YES
Are samples submitted with a correct and complete chain of custody?	YES
Are bottle caps tight and securely in place, coolers and samples intact?	YES
Are the correct sample containers provided?	YES
Were samples within the holding time for requested test(s)?	YES
Is the volume of sample submitted sufficient for the requested test(s)?	YES
Is there sufficient air space in bottle for bacteriological analysis?	YES
Were samples received with applicable preservative?	YES

200 Rich Lex Drive
Lexington, SC 29072

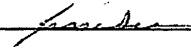
Page ___ of ___

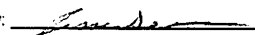
Phone: 803-939-4883
Fax: 803-939-4884
oleinc.com

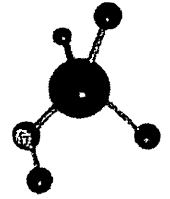
ON LINE ENVIRONMENTAL, INC		Chain of Custody Record	SCDHEC LAB ID# 32571/25003
Client: <u>City of Columbia</u>		Attn: <u>Andrew Stroud</u>	
Address: <u>1136 Washington Street</u>		Phone: <u>803-545-4001</u>	
City, State, Zip: <u>Columbia, SC 29201</u>		Email: <u>astroude@columbiasc.net</u>	

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	03164-061	C-017	4-27-17 11:32	G	A/P	1	TSS
WW	↓	C-017	" 11:52	G	GF/P	1	E. Coli MPN
WW	↓	C-017	" 11:52	G	Field An.	NA	D.O. (mg/L)= 6.7 Temp. (°C)= 20.8
WW	102	C-001	" 11:52	G	A/P	1	TSS
WW	↓	C-001	" 11:52	G	GF/P	1	E. Coli MPN
WW	↓	C-001	" 11:52	G	Field An.	NA	D.O. (mg/L)= 6.2 Temp. (°C)= 20.5
WW	133	B-280	" 11:20	G	A/P	1	TSS
WW	↓	B-280	" 11:20	G	GF/P	1	E. Coli MPN
WW	↓	B-280	" 11:20	G	Field An.	NA	D.O. (mg/L)= 8.1 Temp. (°C)= 20.1

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

Sampler signature: 		Special Instructions Received in lab @ -2.2 °C Project: <u>Water Quality Monitoring</u> (Sample Jan, April, July, Oct)																															
Auto Sampler Data Date/Time Set On: <u>1</u> by whom: <u>1</u> Date/Time Off: <u>1</u> by whom: <u>1</u>		Meter Reading After: _____ Meter Reading Before: _____ Difference: _____ x (factor)																															
<table border="1"> <thead> <tr> <th>Relinquished by</th> <th>Date</th> <th>Time</th> <th>Received by</th> <th>Date</th> <th>Time</th> </tr> </thead> <tbody> <tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr> </tbody> </table>		Relinquished by	Date	Time	Received by	Date	Time																									Preservation Codes: A=56°C, B=H ₂ SO ₄ , C=HNO ₃ , D=HCl, E=NaOH, F=Na ₂ S ₂ O ₃ , G= <10°C, O=Other (describe) Bottle Type Glass = G, Plastic = P	
Relinquished by	Date	Time	Received by	Date	Time																												

Received in lab by:  Date: 4-27-17 Time: 1:33pm Sample Rcd. On Ice: Yes No



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Chain of Custody