

Clean Water 2020 Program

CONSENT DECREE QUARTERLY REPORT

January 1, 2018 – March 31, 2018

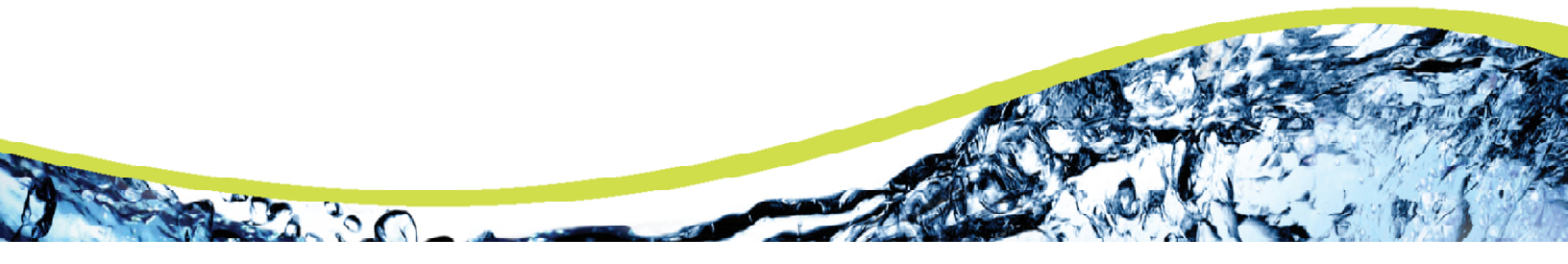


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Section 1 Introduction

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.

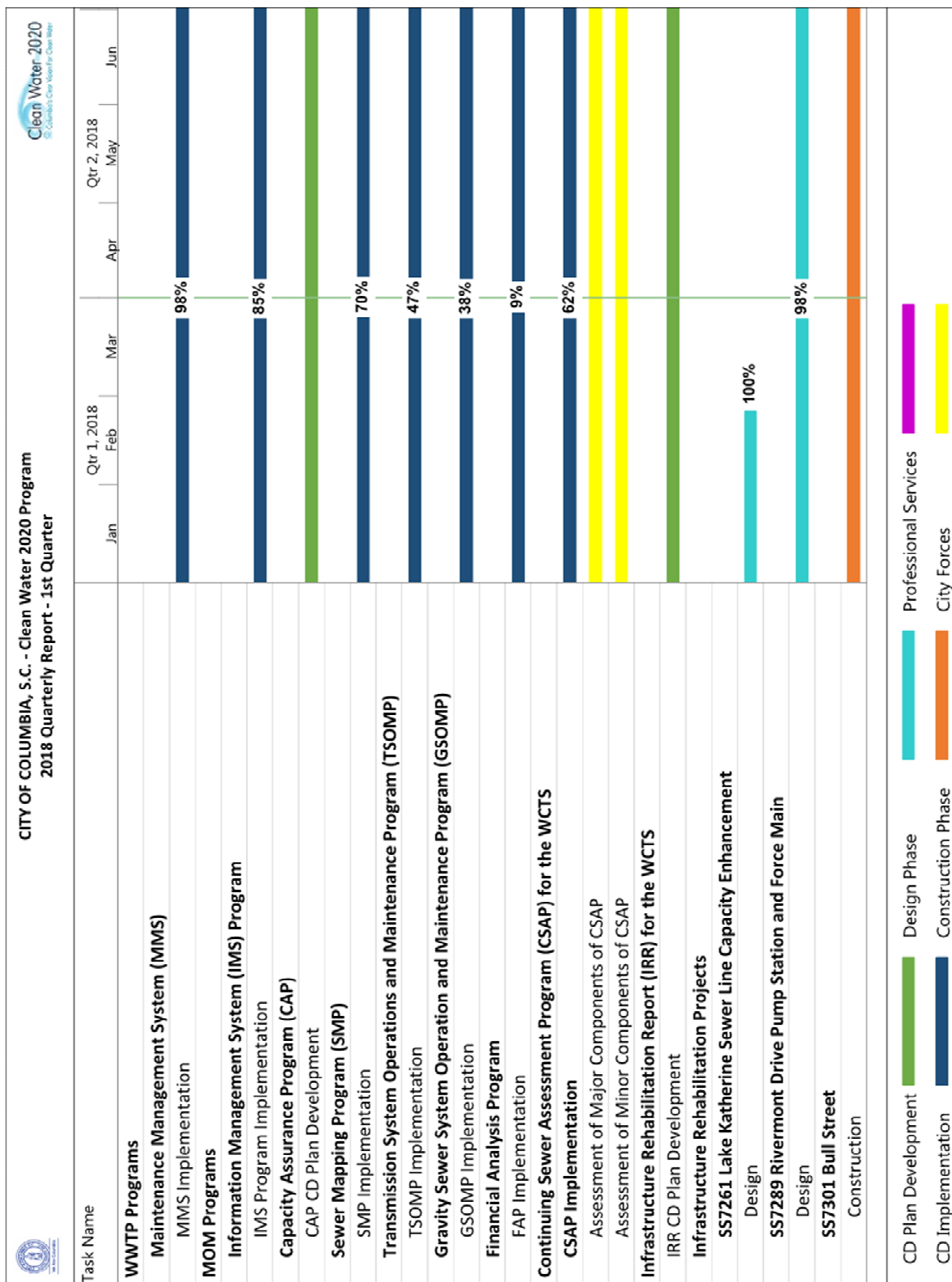
Section 4 – Quarterly SSO Report

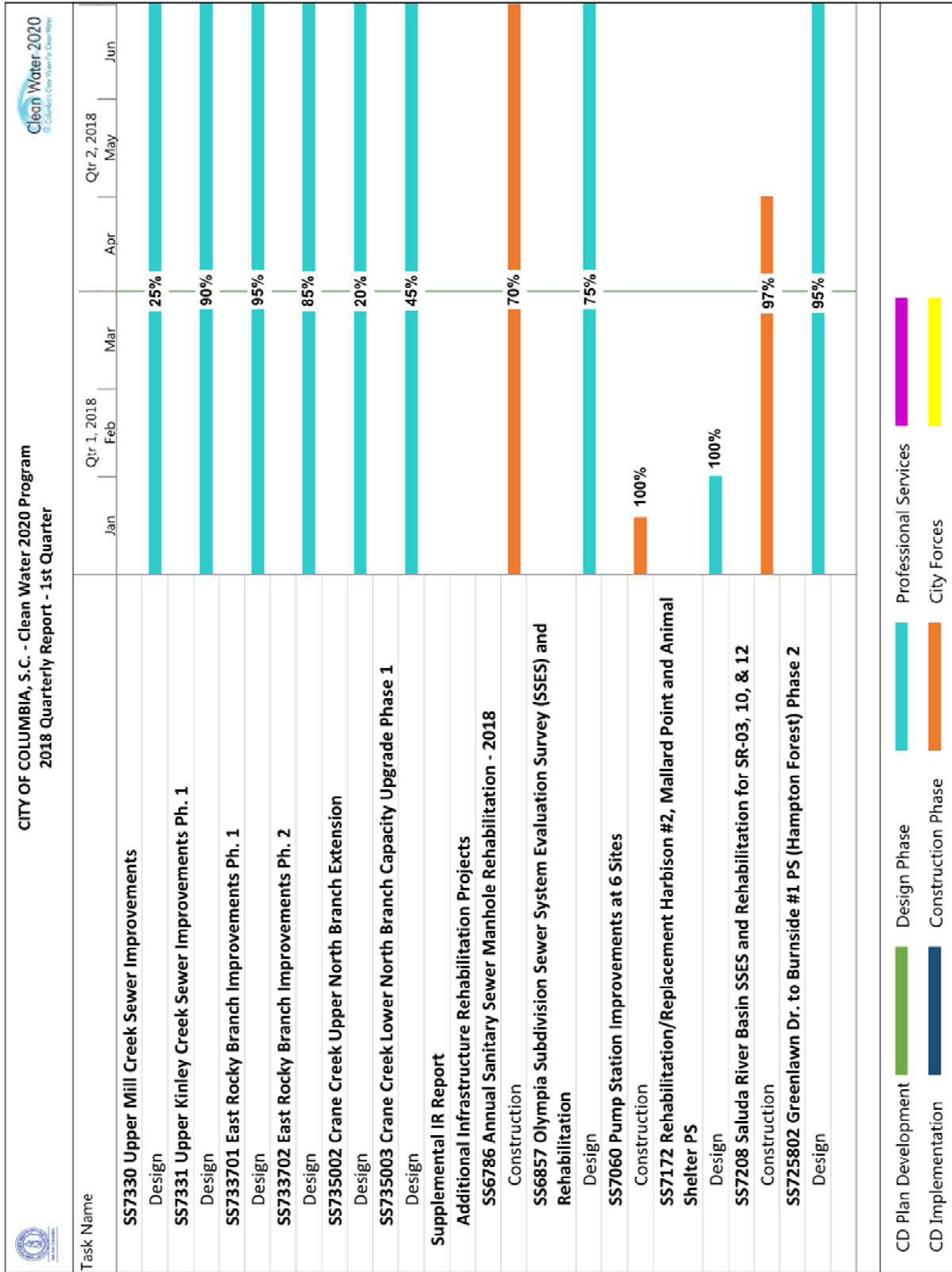
This section addresses the requirements of Section IX.39.a.(ii) of the Consent Decree and provides a tabular listing of sanitary sewer overflows (SSOs). The table includes the date, time, location, source, duration, estimated volume, receiving water (if any), cause, and actions taken to repair or otherwise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





| CITY OF COLUMBIA, S.C. - Clean Water 2020 Program 2018 Quarterly Report - 1st Quarter | | Clean Water 2020 City of Columbia's Action Plan for Clean Water | | | | | |
|--|------|--|-----|-----|-----|-----|--|
| Task Name | Jan | Feb | Mar | Apr | May | Jun | |
| S57279 Smith Branch-02 SSES and Rehabilitation Construction | | | 89% | | | | |
| S57280 Rocky Branch-01 SSES and Rehabilitation Construction | | | 51% | | | | |
| S57323 Food Lion PS Improvements Design | | | 85% | | | | |
| S57324 Bendale PS Improvements Construction | 100% | | | | | | |
| S57363 Smith Branch 03 SSES Design | | | 90% | | | | |
| S57425 Sewer System Evaluation Study and Sewer Rehabilitation Implementation RB03 Design | | | | | | | |
| Sewer System Hydraulic Model Model Report Development | | | | | | | |

| | | |
|---------------------|--------------------|-----------------------|
| CD Plan Development | Design Phase | Professional Services |
| CD Implementation | Construction Phase | City Forces |

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:

- Cityworks Testing & Implementation – 100% Complete
- Summary Reports Generation, Equipment Failures for Prior Month – 95% Complete
- Summary Reports Generation, Outstanding Work Orders for Prior Month – 95% Complete

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 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 – 99% Complete
- Sewer Mapping Program – 70% Complete

3.2.2 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 – 95% complete
 - Smith Branch Basin – 67% complete
 - Saluda River Basin – 88% complete
 - Rocky Branch Basin – 44% 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 – 100% complete (Mapping complete as of November 20, 2017.)
 - Smith Branch Basin – 100% complete (Mapping complete as of November 20, 2017.)
 - Saluda River Basin – 93% complete
 - Rocky Branch Basin – 83% complete
 - Mill Creek Basin – 85% complete
 - Gills Creek Basin – 77% complete
 - Crane Creek Basin – 88% complete
 - Broad River Basin – 94% complete

3.2.3 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) – 22% Complete
- Corrosion Control – 6% Complete

3.2.4 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) – 50% 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

3.2.5 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

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 – 65% Complete
- Major Manhole Inspection – 90% Complete
- Major Pump Stations Condition Assessment – 65% Complete
- Major Force Mains Field Assessment – 65% 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 – 74% Complete
- Minor Gravity Sewer and Manholes Condition Assessment – 31% Complete
- Minor Pump Stations Condition Assessment – 31% Complete
- Minor Force Mains Field Assessment – 31% Complete

3.4 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:

- SS7261 Lake Katherine Sewer Line Capacity Enhancement – Design 100% 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 90% Complete
- SS733701 East Rocky Branch Improvements Ph. 1 – Design 95% Complete
- SS733702 East Rocky Branch Improvements Ph. 2 – Design 85% Complete
- SS735002 Crane Creek Upper North Branch Extension – Design 20% Complete
- SS735003 Crane Creek Lower North Branch Capacity Upgrade Phase 1 – Design 45% Complete

- SS7338 Lower Crane Creek Wet Weather Storage - Phase 1 – Project was removed from the City’s list of rehabilitation projects due to updated hydraulic model recommendations. (Project was previously noted to be 98% complete with design.)

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 – 2018 Construction 70% Complete
- SS6857 Olympia Subdivision Sewer System Evaluation Survey (SSES) and Rehabilitation – Design 75% Complete
- SS7060 Pump Station Improvements at 6 Sites – Construction 100% Complete
- SS7172 Rehabilitation/Replacement Harbison #2, Mallard Point and Animal Shelter PS – Design 100% Complete
- SS7208 Saluda River Basin SSES and Rehabilitation for SR-03, 10, & 12 – Construction 97% Complete
- SS725802 Greenlawn Dr. to Burnside #1 PS (Hampton Forest) Phase 2 – Design 95% Complete
- SS7262 Flow Study/Rehabilitation/Replacement of Three Rivers and Colonial Life PS – Construction 100% Complete (Permit to Operate issued October 6, 2017.)
- SS7279 Smith Branch-02 SSES and Rehabilitation – Construction 89% Complete
- SS7280 Rocky Branch-01 SSES and Rehabilitation – Construction 51% Complete

- SS7323 Food Lion PS Improvements – Design 85% Complete
- SS7324 Bendale PS Improvements – Construction 100% Complete
- SS7363 Smith Branch 03 SSES – Design 90% Complete
- SS7425 Sewer System Evaluation Study and Sewer Rehabilitation Implementation RB03 – Design 0% Complete

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

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

- NTP was issued for the MLK Detention Project, which will meet the SEP Phase II requirements for Rocky Branch. Submittals are coming in, and groundbreaking will likely take place in the next week or two. Construction time is 180 days, which puts completion in late September 2018.
- Sediment and debris removal has taken place within the waterways in the Smith Branch watershed. It was decided that a volunteer litter cleanup, in addition to the completed sediment and debris removal, would meet the SEP Phase II requirements for Smith Branch. The volunteer cleanup is scheduled for April 8, 2018.
- The City and Gills Creek Watershed Association (GCWA) have agreed on an approach for completion of the stream cleanup. Staff turnover in GCWA has caused a slight delay in project execution, but adjustments have been made, and the project continues to move forward.

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 2018

| City of Columbia, SC Quarterly SSO Listing 1st Quarter 2018 | | | | | | | | | |
|---|----------|---|----------|---------------------------|---------------------------|----------------------------|-------------------------------|--------------------------|--|
| SSO Date | SSO Time | Location | Source | Date of Corrective Action | Time of Corrective Action | Estimated Volume (gallons) | Receiving Water (if any) | Cause | Actions Taken |
| 1/2/2018 | 19:51 | 7504 Garners Ferry Rd, Columbia, SC 29209 | Manhole | 1/2/2018 | 19:51 | 8,898 | Storm Ditch | Grease | Removed Stoppage To Resume Normal Flow. Washed Mainline 200 Feet And Vac Manhole. |
| 1/3/2018 | 18:00 | 211 Clearview Dr, Columbia, SC 29212 | Cleanout | 1/3/2018 | 18:05 | 94 | | Debris | Line Was Washed 25 Feet From The Homeowners Clean Out To Resume Normal Flow. Washed Clean Out, Removed Stoppage. |
| 1/6/2018 | 11:11 | 107 Finsbury Ct, Columbia, SC 29212 | Cleanout | TBD | | 400 | Storm Drain | Roots | Washed Mainline 20 Feet To Resume Normal Flow. Mainline Repair. |
| 1/11/2018 | 11:15 | 160 Albert Allen Rd, Columbia, SC 29016 | Manhole | 1/11/2018 | 14:41 | 5,000 | Hidden Acres Pond | Grease | Washed Mainline 10 Feet To Remove Stoppage To Resume Normal Flow. Removed Stoppage From Line. |
| 1/13/2018 | 11:03 | 712 Lockner Rd, Columbia, SC 29212 | Manhole | 1/13/2018 | 12:01 | 5,149 | Kinley Creek | Grease | Washed Upstream And Downstream Manholes To Remove Stoppage To Resume Normal Flow. Cleared Grease Blockage In Manhole With Shovel And Washing The Upstream And Downstream Manholes. |
| 1/15/2018 | 17:00 | 3507 N Main St, Com, Columbia, SC 29203 | Cleanout | TBD | | 300 | Storm Drain | 3rd Party Responsibility | Washed From City Clean Out And Property Clean Out Including Grease Trap, To Resume Normal Flow. Tap Repair. |
| 1/18/2018 | 10:45 | 3216 Lyles St, Columbia, SC 29201 | Other | 1/18/2018 | 18:30 | 2,325 | Storm Drain | Collapsed Line | Mainline Repair. |
| 1/20/2018 | 18:51 | 2539 Laurel St, Columbia, SC 29204 | Manhole | TBD | | 260 | Storm Drain | Roots | The Mainline Was Washed 300 Ft To Resume Normal Flow. Mainline Repairs To Be Scheduled. |
| 1/23/2018 | 10:45 | 228 Pear Tree Cir, Res, Columbia, SC 29061 | Cleanout | 1/26/2018 | 10:55 | 40 | | Roots | The Service Line Was Washed 30 Ft To Resume Normal Flow. The Service Line Was Washed & Sawed 14 Ft To Remove Roots. The Line Is Clear. |
| 2/1/2018 | 12:30 | 121 Atlas Ct, Com, Columbia, SC 29209 | Other | 2/2/2018 | 10:24 | 270 | Storm Drain | Collapsed Line | Washed Main Line 200 Feet To Remove Stoppage. Main Line Repair. |
| 2/4/2018 | 14:00 | 4835 Portobello Ct, Columbia, SC 29206 | Manhole | 2/6/2018 | 08:30 | 30,150 | Penn Branch To Lake Katherine | 3rd Party Responsibility | Temporary Bypass. Water Department Closed Valve To Isolate Leak. |
| 2/5/2018 | 10:45 | 4835 Portobello Ct, Res, Columbia, SC 29206 | Manhole | 2/6/2018 | 08:30 | 7,410 | Penn Branch | 3rd Party Responsibility | Temporary Bypass. Water Department Closed Valve To Isolate Leak. |
| 2/5/2018 | 10:30 | 410 Finwood Ct, Columbia, SC 29212 | Manhole | 2/5/2018 | 10:30 | 94 | Storm Drain | Debris | Washed Mainline 250 Feet. Removed Stoppage To Resume Normal Flow. |
| 2/5/2018 | 16:24 | 1663 Shady Ln, Columbia, SC 29206 | Manhole | 2/6/2018 | 08:30 | 3,480 | Lake Katherine | 3rd Party Responsibility | Adjusted RPMs On Bypass Pump To Reduce Flow On Force Main And Stop SSO. Water Department Closed Valve To Isolate Leak. |
| 2/6/2018 | 00:00 | 330 Broken Hill Rd, Res, Columbia, SC 29212 | Manhole | 2/6/2018 | 00:00 & 00:25 | 244 | 2 Storm Drains | Grease | Removed Stoppage To Resume Normal Flow. Washed Main Line 554 Feet, Stoppage Removed. De-Greased Lines. |
| 2/7/2018 | 18:45 | 314 W Miriam Ave, Columbia, SC 29203 | Cleanout | 2/7/2018 | 19:15 | 1 | | Debris | Service Line Wash. |
| 2/7/2018 | 16:30 | 2122 Shady Ln, Columbia, SC 29206 | Cleanout | 2/7/2018 | 17:30 | 6 | | Roots | Jetted Service Line 65 Ft To Resume Normal Flow. Service Line Repair. |
| 2/9/2018 | 13:30 | 102 Greenbow Ct, Res, Columbia, SC 29212 | Cleanout | 2/9/2018 | 14:00 | 7 | | Debris | Washed Service Line 50 Feet To Remove Stoppage - Overflow Was Observed Active. Removed Stoppage. |
| 2/14/2018 | 13:20 | 2503 Marling Dr, Columbia, SC 29204 | Cleanout | TBD | | 20 | | Roots | Washed Service Line And Removed Stoppage To Resume Normal Flow. Service Line Repair. |

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| City of Columbia, SC Quarterly SSO Listing 1st Quarter 2018 | | | | | | | | | |
|---|----------|--|----------|---------------------------|---------------------------|----------------------------|---|--------------------------|--|
| SSO Date | SSO Time | Location | Source | Date of Corrective Action | Time of Corrective Action | Estimated Volume (gallons) | Receiving Water (if any) | Cause | Actions Taken |
| 2/14/2018 | 14:03 | 7643 Burdell Dr, Res, Columbia, SC 29209 | Manhole | 2/19/2018 | 12:00 | 204 | Conveyance Ditch | Collapsed Line | Washed Line To Remove Stoppage To Resume Normal Flow. Requested To Be Added To Preventative Maintenance List. |
| 2/15/2018 | 15:02 | 4609 Ridgewood Ave, Columbia, SC 29203 | Cleanout | 2/19/2018 | 08:49 | 38 | | Roots | Washed Main Line 125 Feet To Resume Normal Flow. Service Line Repair & Cleanout Repair. |
| 2/15/2018 | 13:07 | 2719 Heyward St, Columbia, SC 29205 | Cleanout | 2/15/2018 | 13:40 | 3 | | Roots | Washed Service Line 35 Feet To Resume Normal Flow. Overflow Was Not Observed Active. Removed Roots From Line. |
| 2/17/2018 | 17:00 | 541 Shadowbrook Dr, Columbia, SC 29210 | Manhole | TBD | | 102 | | Roots | Wash Mainline 350 Feet To Remove Stoppage And Resume Normal Flow. Mainline Repair. |
| 2/18/2018 | 11:30 | 410 Columbiana Dr, Columbia, SC 29212 | Manhole | TBD | | 350 | Storm Drain | Collapsed Line | Washed Mainline 450 Feet To Resume Normal Flow. Main Line Repair. |
| 2/20/2018 | 09:10 | 2329 Lincoln St, Columbia, SC 29201 | Cleanout | TBD | | 15 | | Collapsed Line | Washed Service Line 25 Feet To Resume Normal Flow. Service Line Repair. |
| 2/19/2018 | 08:30 | 148 Haverford Dr, Columbia, SC 29203 | Cleanout | 2/19/2018 | 08:15 | 15 | | Debris | Washed Service Line 20 Feet To Resume Normal Flow. Washed Area And Spread Lime. |
| 2/19/2018 | 11:00 | 237 Bowling Ave, Columbia, SC 29203 | Cleanout | 2/19/2018 | 11:00 | 4 | | Grease | Washed Service Line 60 Feet To Resume Normal Flow. |
| 2/20/2018 | 16:30 | 2821 Duncan St, Columbia, SC 29205 | Cleanout | 2/20/2018 | 17:00 | 20 | | Debris | Washed Service Line 20 Feet To Resume Normal Flow. Removed Stoppage At 12 Feet On City Side. |
| 2/21/2018 | 12:00 | 448 Deerwood St, Com, Columbia, SC 29205 | Other | 2/21/2018 | 12:10 | 25 | Storm Drain | 3rd Party Responsibility | Bypass Hose Coupling Hit By Truck. Reconnected Bypass Hose. |
| 2/21/2018 | 13:00 | 1612 Saint Julian Pl, Columbia, SC 29204 | Manhole | TBD | | 245 | | Collapsed Line | Washed 200 Ft From Overflowing Manhole To Remove Stoppage. Main Line Repair - Bellies/Sags Found. |
| 2/27/2018 | 09:30 | 301 Myles Ave, Columbia, SC 29203 | Other | TBD | | 360 | | Collapsed Line | Washed Mainline 125 Feet To Resume Normal Flow. Main Line Repair. |
| 2/26/2018 | 17:45 | 1842 Saint Michaels Rd, Columbia, SC 29210 | Cleanout | 3/6/2018 | 08:00 | 15 | | Collapsed Line | Washed Service Line 15 Feet To Resume Normal Flow. Overflow Was Observed Active. Service Line Repair. |
| 2/26/2018 | 11:10 | 364 Wycombe Rd, Res, Columbia, SC 29212 | Cleanout | 3/1/2018 | 13:41 | 20 | | Roots | Washed Service Line 60 Feet To Resume Normal Flow. Washed And Sawed Roots In City's Service Line 70 Feet. |
| 2/27/2018 | 15:00 | 3917 Lee Hills Dr, Columbia, SC 29061 | Cleanout | 2/27/2018 | 15:15 | 10 | | Debris | Washed Service Line 50 Feet To Resume Normal Flow. Washed Service Line To Remove Stoppage. |
| 3/1/2018 | 19:00 | 1550 Gadsden St, Columbia, SC 29201 | Manhole | 3/5/2018 | TBD | 15 | Storm Drain | Collapsed Line | Washed Upstream Main Line To Resume Normal Flow. Main Line Repair. |
| 3/3/2018 | 09:55 | 1550 Gadsden St, Columbia, SC 29201 | Manhole | 3/5/2018 | TBD | 900 | Storm Drain | 3rd Party Responsibility | Reconnected Bypass Hoses. |
| 3/2/2018 | 10:30 | 102 Village Pl, Res, Columbia, SC 29209 | Cleanout | 3/5/2018 | 10:27 | 90 | | Roots | Washed Main Line 100 Feet To Resume Normal Flow. Main Line Washed With Lumberjack Nozzle, Roots Were Removed. |
| 3/3/2018 | 07:50 | 1200 Simmon Tree Lane, Columbia, SC 29201 | WWTP | 3/7/2018 | 15:00 | 1,000 | Storm Water Outfall 002 To The Congaree River | Collapsed Line | Operations Immediately Shut Down Associated Equipment, Maintenance Responded To Begin Cleanup. Maintenance Crew Repaired The Broken Pipe. Vector Trucks Were Used To Remove All Thickened Sludge And Soil. |
| 3/7/2018 | 13:00 | 1800 Huger St, Columbia, SC 29201 | Manhole | 3/7/2018 | 14:10 | 70 | | Debris | Washed The Main Line 50 Ft To Resume Normal Flow. |
| 3/9/2018 | 13:00 | 3220 Duncan St, Columbia, SC 29205 | Cleanout | 3/9/2018 | 13:25 | 10 | | Debris | Washed Service Line 20 Feet To Resume Normal Flow. |
| 3/15/2018 | 14:34 | 5829 Mcmillan Cir, Columbia, SC 29212 | Cleanout | 3/15/2018 | 16:54 | 420 | Unnamed Trib To Lorrick Branch | Grease | Washed Mainline And Removed Stoppage At 200 Feet To Resume Normal Flow. |
| 3/16/2018 | 08:00 | 500 Deerwood St, Res, Columbia, SC, 29205 | Other | 3/16/2018 | 08:45 | 45 | Storm Drain | 3rd Party Responsibility | Replace Bypass Hose. |
| 3/16/2018 | 11:00 | 421 W Miriam Ave, Columbia, SC 29203 | Manhole | 3/16/2018 | 15:00 | 1,390 | Unnamed Conveyance | Roots | Washed Main Line To Break Blockage And Resume Normal Flow. Main Line Repair. |

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| City of Columbia, SC Quarterly SSO Listing 1st Quarter 2018 | | | | | | | | | |
|---|----------|--|----------|---------------------------|---------------------------|----------------------------|----------------------------------|--------------------------|---|
| SSO Date | SSO Time | Location | Source | Date of Corrective Action | Time of Corrective Action | Estimated Volume (gallons) | Receiving Water (if any) | Cause | Actions Taken |
| 3/16/2018 | 12:06 | 429 W Miriam Ave, Columbia, SC 29203 | Manhole | 3/16/2018 | 13:00 | 24 | | Debris | Washed Main Line 142 Feet To Resume Normal Flow. |
| 3/16/2018 | 10:00 | 137 Saddlefield Rd, Columbia, SC 29203 | Cleanout | 3/16/2018 | 10:40 | 20 | | Debris | Washed Homeowner Cleanout To City Cleanout To Main Line 100 Feet To Resume Normal Flow. Washed Service Line. |
| 3/19/2018 | 14:20 | 65 Caleb Ct, Columbia, SC 29203 | Cleanout | 3/19/2018 | 15:00 | 20 | | Debris | Washed Service Line 100 Feet From Homeowner's Cleanout To Resume Normal Flow. Washed Service Line. |
| 3/20/2018 | 20:00 | 473 Annondale Rd, Res, Columbia, SC 29212 | Manhole | 3/21/2018 | 00:45 | 1,800 | Unnamed Tributary To Rawls Creek | Roots | Washed Main Line 600 Feet To Resume Normal Flow. Washed Main Line To Remove Roots. No Repairs Needed. |
| 3/20/2018 | 15:00 | 940 House St, Columbia, SC 29205 | Cleanout | TBD | | 2,880 | Storm Drain | 3rd Party Responsibility | Washed Service Line 30 Feet From City Cleanout. Unable To Stop Overflow. Contractor Did Not Cut Top Out Of Liner. The Tap Was Cut Out By Contractor To Restore Normal Flow. |
| 3/20/2018 | 14:40 | 2428 Wheat St, Res, Columbia, SC 29205 | Cleanout | 3/20/2018 | 14:40 | 20 | | Debris | The Homeowner's Clean Out Was Washed 50 Ft To Resume Normal Flow. Service Line Washed 50 Ft. |
| 3/20/2018 | 23:15 | 411 Huger St, Columbia, SC 29201 | Cleanout | 3/20/2018 | 23:18 | 3 | | Debris | The Homeowner's Clean Out Was Washed 70 Ft To Resume Normal Flow. Washed Service Line 70 Ft. |
| 3/22/2018 | 12:40 | 213 Lingstrom Ln, Columbia, SC 29212 | Cleanout | 3/22/2018 | 13:30 | 20 | | Roots | Washed Service Line 15 Feet And Removed Roots. Root Removal. |
| 3/23/2018 | 10:30 | 3100 Cornwall Rd, Columbia, SC 29204 | Cleanout | 3/29/2018 | TBD | 20 | | Roots | Washed Service Line 20 Feet To Remove Stoppage. Root Removal. |
| 3/23/2018 | 09:30 | 2906 Devine St, Columbia, SC 29205 | Cleanout | 3/23/2018 | 21:00 | 30 | | Collapsed Line | The Service Line Was Washed 25 Ft From The City's Clean Out To Resume Normal Flow. Service Line Repair. |
| 3/24/2018 | 14:00 | 184 Ripley Station Rd, Columbia, SC 29212 | Cleanout | TBD | | 10 | | Roots | The Service Line Was Washed 100 Ft And Roots Removed To Resume Normal Flow. Manhole Cleaning To Be Scheduled. |
| 3/24/2018 | 16:24 | 1637 Tall Pines Cir, Columbia, SC 29205 | Cleanout | 3/26/2018 | 11:27 | 5 | Storm Drain | Roots | Washed Service Line 50 Feet To Resume Normal Flow. Service Line Repair. |
| 3/25/2018 | 12:00 | 1524 Westminster Dr, Columbia, SC 29204 | Cleanout | 3/25/2018 | 12:40 | 11 | Storm Drain | Debris | Washed Service Line 25 Feet To Resume Normal Flow. |
| 3/26/2018 | 10:30 | 1821 Germany St, Columbia, SC 29204 | Cleanout | 3/31/2018 | TBD | 30 | | Roots | Washed Service Line 35 Feet From City Cleanout To Remove Stoppage And Resume Normal Flow. Service Line Repair. |
| 3/27/2018 | 14:30 | 308 Stirlington Rd, Columbia, SC 29212 | Cleanout | 3/27/2018 | 15:30 | 60 | | Debris | Washed Service Line 45 Feet, Removed Stoppage, Resumed Normal Flow. |
| 3/28/2018 | 11:00 | 4007 Gonzales Ave, Res, Columbia, SC 20203 | Cleanout | 3/28/2018 | 11:30 | 30 | | Roots | Removed Stoppage, Washed Service Line 30 Feet From Homeowners Clean Out. |
| 3/28/2018 | 11:24 | 212 Canterfield Rd, Columbia, SC 29212 | Manhole | TBD | | 395 | Unnamed Tributary To Rawls Creek | Roots | Washed Main Line 309 Feet From Downstream Manhole To Remove Stoppage. Main Line Repair. |

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.

Table 2 - Building Backup Report, 1st Quarter 2018

| City of Columbia, SC Quarterly Building Backup Listing 1st Quarter 2018 | | | | | | | | | |
|---|-------|--|-----------------|---------------------------|---------------------------|----------------------------|--------------------------|--------------------------|--|
| Date | Time | Location | Source | Date of Corrective Action | Time of Corrective Action | Estimated Volume (gallons) | Receiving Water (if any) | Cause | Actions Taken |
| 1/12/2018 | 16:00 | 110 River Birch Ln, Columbia, SC 29206 | Inside Property | 1/13/2018 | 16:00 | 10 | | 3rd Party Responsibility | Jetted Line To Get Some Relief. Service Line Repair Due To Contractor Bored Through Line. |
| 1/24/2018 | 10:00 | 1743 Kathleen Dr, Columbia, SC 29210 | Other | TBD | | 50 | | Roots | The Mainline Was Washed 75 Ft To Resume Normal Flow. Clean Out Installation To Remove Roots At 1807 Kathleen Dr Where Roots Infiltrated And Caused Main Line Blockage. |
| 2/3/2018 | 20:00 | 1037 Cokesbury Dr, Columbia, SC 29203 | Inside Property | 2/3/2018 | 21:00 | 3 | | Roots | Washed Service Line 65 Feet. Removed Stoppage To Resume Normal Flow. Ran Root Cutter To Remove Roots From Line. |

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 2018 Q1 was completed on January 30, 2018. 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: 1/30/18

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



Ralana Wilson/QA Manager

2/6/18

Date

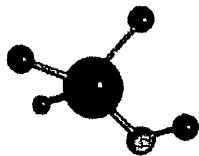
The undersigned validates the data in the above referenced report, per the QAPP requirements.



Michael Jaspers/Project Validator

2/6/18

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:

01.30.18

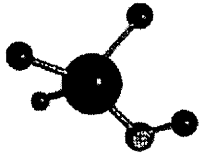
REPORT APPROVED BY:

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 803.781.4243 or via email at the address listed above.

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

Access Analytical, Inc.
15 Thames Valley Rd. ~ Irmo, SC 29063
PHONE: 803.781.4243 ~ FAX: 803.781.4303 ~ WEB: www.axs-inc.com



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Report of Analysis

Lab ID #: 09099-001

Matrix: Waste Water

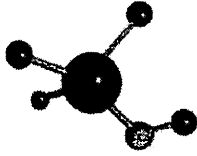
Project: WATER QUALITY MONITORING

Collected: 1/22/2018 @ 13:15

Sample Name: C-017 BR

Date Received: 1/22/2018 @ 15:45

| Parameter | Result | Reporting Limit | Units | Method Reference | Data Flag | Date/Time of Analysis | Analyst |
|---------------|--------|-----------------|-------|------------------|-----------|-----------------------|---------|
| DO | 11.55 | None | mg/L | SM 4500-O G-2011 | | 1/22/2018 13:15 | RC |
| E. Coli (MPN) | 53.8 | None | MPN | SM 9223 B-2004 | | 1/22/2018 17:01 | BB |
| Temperature | 8.6 | None | oC | SM 2550B-2010 | | 1/22/2018 13:15 | RC |
| TSS | 3.2 | None | mg/L | SM 2540 D-2011 | | 1/25/2018 14:30 | RDA |



ACCESS
ANALYTICAL, INC.

Report of Analysis

Lab ID #: 09099-002

Matrix: Waste Water

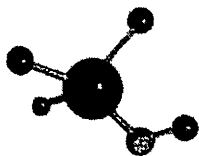
Project: WATER QUALITY MONITORING

Collected: 1/22/2018 @ 12:50

Sample Name: C-001 GC

Date Received: 1/22/2018 @ 15:45

| Parameter | Result | Reporting Limit | Units | Method Reference | Data Flag | Date/Time of Analysis | Analyst |
|---------------|--------|-----------------|-------|------------------|-----------|-----------------------|---------|
| DO | 11.06 | None | mg/L | SM 4500-O G-2011 | | 1/22/2018 12:50 | RC |
| E. Coli (MPN) | 248.9 | None | MPN | SM 9223 B-2004 | | 1/22/2018 17:01 | BB |
| Temperature | 8.7 | None | oC | SM 2550B-2010 | | 1/22/2018 12:50 | RC |
| TSS | 4.0 | None | mg/L | SM 2540 D-2011 | | 1/25/2018 14:30 | RDA |



ACCESS
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Report of Analysis

Lab ID #: 09099-003

Matrix: Waste Water

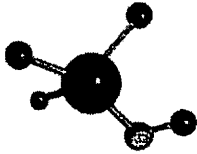
Project: WATER QUALITY MONITORING

Collected: 1/22/2018 @ 12:25

Sample Name: B-280 EP

Date Received: 1/22/2018 @ 15:45

| Parameter | Result | Reporting Limit | Units | Method Reference | Data Flag | Date/Time of Analysis | Analyst |
|---------------|--------|-----------------|-------|------------------|-----------|-----------------------|---------|
| DO | 10.91 | None | mg/L | SM 4500-O G-2011 | | 1/22/2018 12:25 | RC |
| E. Coli (MPN) | 59.1 | None | MPN | SM 9223 B-2004 | | 1/22/2018 17:01 | BB |
| Temperature | 9.9 | None | oC | SM 2550B-2010 | | 1/22/2018 12:25 | RC |
| TSS | 2.8 | None | mg/L | SM 2540 D-2011 | | 1/25/2018 14:30 | 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:

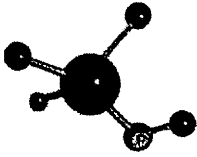
| | |
|---------------|--|
| ND | Indicates the result was Not Detected at the specified reporting limit |
| "<" | Indicated the result as less than the indicated amount |
| MI | Indicates the result was subject to Matrix Interference |
| TNTC | Indicates the result was Too Numerous to Count |
| SUB | 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.

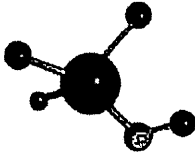
This report pertains only to the samples listed in the attached report and should be retained as a permanent record thereof. The results contained within this report are intended for the use of the client. Any unauthorized use of the information contained in this report is prohibited.



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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 |



ACCESS ANALYTICAL, INC.

Chain of Custody

Access Lab Report #: 09099

Access Analytical, Inc. - 7500
10 Executive
8300 200th St W
Columbia, WA 98903 | TEL: 509-945-1803 | FAX: 509-945-1802 | WEB: www.accessinc.com

Access Analytical, Inc.
3100 E. Lincoln
Columbia, WA 98903

| | | | | | |
|-------------------------|--------------------------|---------------------------|--------------------------|-----------------|-------|
| Client: | City of Columbia | Preservatives (see code): | 9 | 5 | INA |
| Name: | Mike Jaspers | Bottle Types (see code): | P | P | INA |
| Address: | 1136 Washington Street | Requested Lab Analysis: | DO, Temperature | | |
| City: | Columbia | SC | WA | | |
| Phone: | 803-545-0076 | Lab Code: | 29201 | | |
| Email: | mljaspers@columbiawa.gov | Project Name: | Water Quality Monitoring | | |
| Sampled by (Signature): | <i>Mike Jaspers</i> | Sample Name: | Composite Harvest | | |
| Lab ID: | C-017 BR | Date Collected: | 1-22-18 | Time Collected: | 13:15 |
| | C-001 GC | Date Collected: | 1-22-18 | Time Collected: | 12:50 |
| | B-280 FP | Date Collected: | 1-22-18 | Time Collected: | 12:25 |

Auto Sampler Data (composite samples only): Composite Harvest Temp (°C) = _____
Date/Time Set On: _____ by whom: _____
Date/Time Of: _____ by whom: _____

Meter Reading After: _____
Meter Reading Before: _____
Difference: _____

| Turnaround Time Requested: | | Project Location: | SC <input checked="" type="checkbox"/> WA <input type="checkbox"/> | Relinquished By: | | Received By: | | Time (24hr): | | Date: | | Samples Received on Ice: | | | | | |
|------------------------------|--|-------------------|--|------------------|--|--------------|--|--------------|--|-------|--|-----------------------------------|--------------------|-----|---|---|-----|
| Standard: | | Sub *: | | | | | | | | | | Y | N | N/A | | | |
| Collected: | | Other (Specify): | | | | | | | | | | Y | N | N/A | | | |
| Chain of Custody Page 1 of 7 | | | | | | | | | | | | Received in lab by: | <i>Robin Clark</i> | | Y | N | N/A |
| | | | | | | | | | | | | Sample Temp. Upon Receipt in Lab: | 12218 1545 | | Y | N | N/A |

Sample Temp. Upon Receipt in Lab: 0.1 °C

NOTE: Relinquishing samples via this Chain of Custody document constitutes client acceptance of Access Analytical terms and conditions.