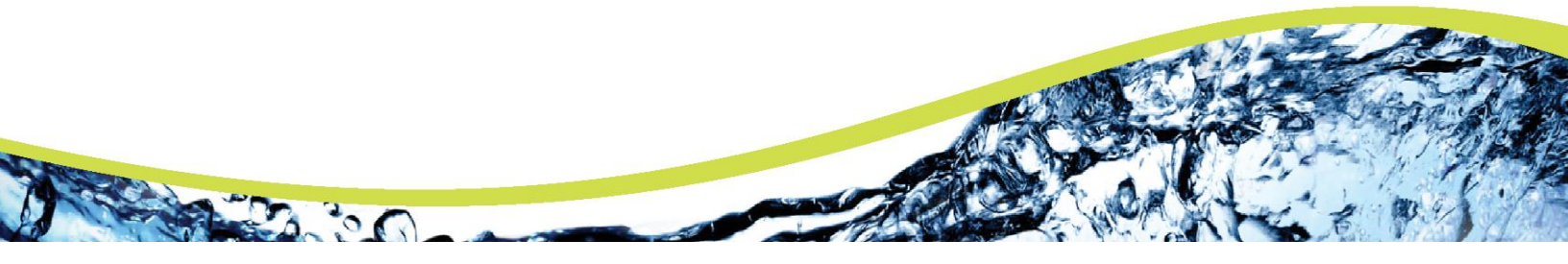


# Clean Water 2020 Program

## CONSENT DECREE QUARTERLY REPORT

July 1, 2020 – September 30, 2020



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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.

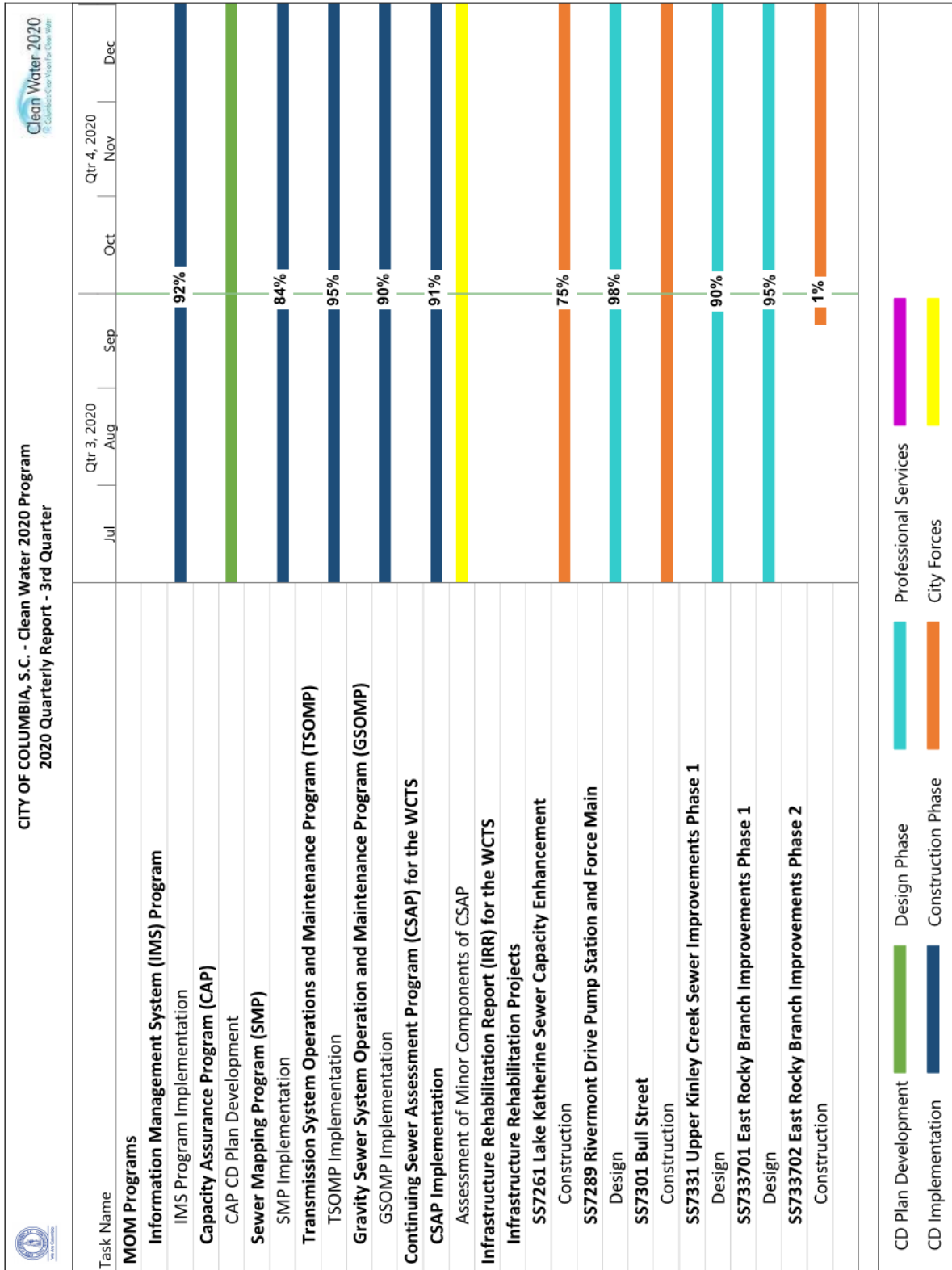
**Section 4 – Quarterly SSO Report**

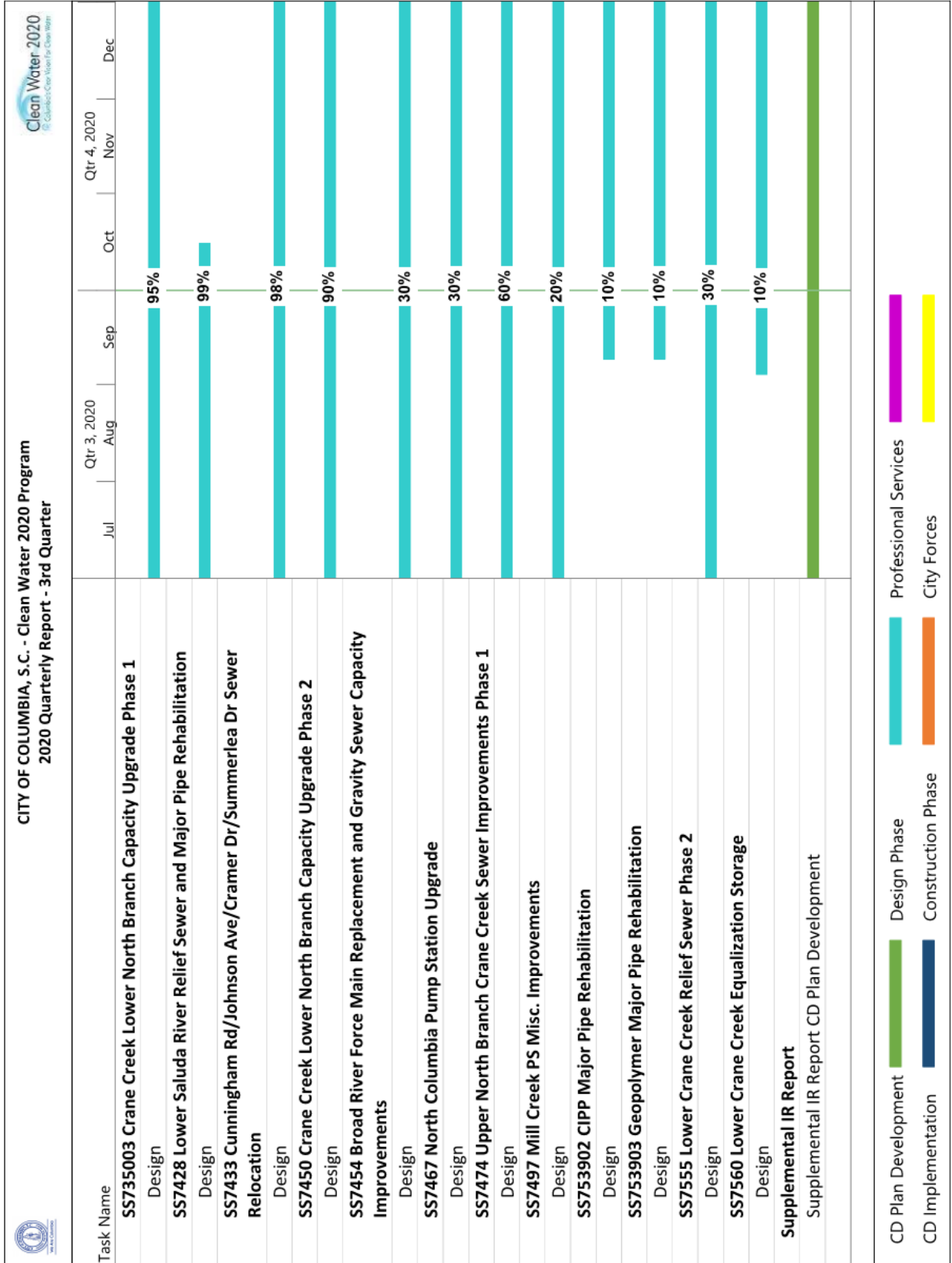
This section addresses the requirements of Section IX.39.a.(ii) of the Consent Decree and provides a tabular listing of sanitary sewer overflows (SSOs). The table includes the date, time, location, source, duration, estimated volume, receiving water (if any), cause, and actions taken to repair or otherwise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

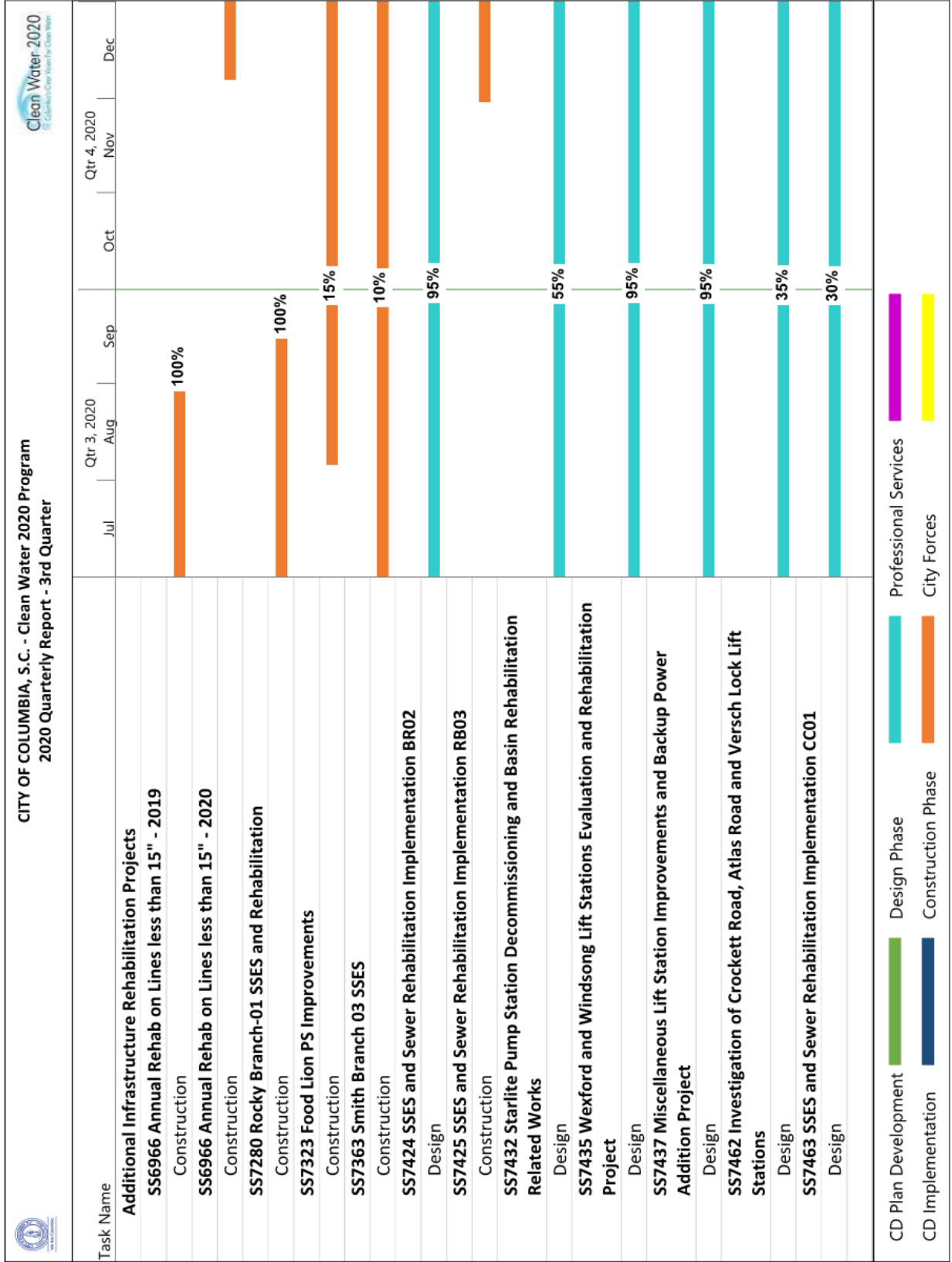
**Section 5 – SEP Water Quality Monitoring Results**

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









Task Name	CITY OF COLUMBIA, S.C. - Clean Water 2020 Program 2020 Quarterly Report - 3rd Quarter												
	Jul	Aug	Sep	Oct	Nov	Dec							
SS7464 SSES and Sewer Rehabilitation Implementation CC02 and CC04 Design													99%
SS7468 Three Rivers Force Main Replacement Design													85%
SS7478 RB01 SSES - Phase 2 Design													95%
SS7479 SB02 SSES - Phase 2 Design													75%
SS7487 Hickory Ridge Drive Sewer Rehab Design													75%
SS7535 Olympia Sewer Relocation and Rehabilitation Design													5%
SS7546 Mallard Pointe Force Main Replacement Design													10%
SS7547 Yacht Cove Force Main Replacement Design													10%
SS7548 Shady Lane Force Main Replacement Design													10%
SS7549 Woodlands Force Main Replacement Design													10%
SS7554 Harbison #4 Pump Station Improvements and Force Main Replacement Design													5%
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 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).

#### 3.1.1 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:

- Sewer Mapping Program – 84% Complete

#### 3.1.2 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 – 100% complete (Mapping complete as of June 9, 2020)
  - Smith Branch Basin – 89% complete
  - Saluda River Basin – 96% complete
  - Rocky Branch Basin – 82% complete
  - Mill Creek Basin – 28% complete
  - Gills Creek Basin – 51% complete
  - Crane Creek Basin – 71% complete
  - Broad River Basin – 47% complete

### 3.1.3 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:

- Force Main and Easement Maintenance (Easement survey and marking and initial clearing to the surveyed limits, where practical) – 85% Complete

### 3.1.4 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 GSOMP was revised and resubmitted to EPA and SCDHEC on May 8, 2019.

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

- Gravity Sewer Easement survey and marking and initial clearing to survey the limits, where practical – 70% Complete

## 3.2 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 CSAP was revised and resubmitted to EPA and SCDHEC on October 3, 2018. The City received approval of the revised CSAP from EPA and SCDHEC on February 6, 2019.

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

- Minor Gravity Sewer and Manholes Condition Assessment – 73% Complete
- Minor Pump Stations Condition Assessment – 73% Complete
- Minor Force Mains Field Assessment – 73% Complete

## 3.3 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 was submitted to EPA and SCDHEC on November 22, 2019. The City is awaiting EPA and SCDHEC review and approval of the IRR.

As rehabilitation projects are identified through the assessments described in Section 3.2 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 Capacity Enhancement – Construction 75% 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.
- SS7331 Upper Kinley Creek Sewer Improvements Phase 1 – Design 90% Complete
- SS733701 East Rocky Branch Improvements Phase 1 – Design 95% Complete
- SS733702 East Rocky Branch Improvements Phase 2 – Construction 1% Complete
- SS735003 Crane Creek Lower North Branch Capacity Upgrade Phase 1 – Design 95% Complete
- SS7428 Lower Saluda River Relief Sewer and Major Pipe Rehabilitation – Design 99% Complete
- SS7433 Cunningham Rd/Johnson Ave/Cramer Dr/Summerlea Dr Sewer Relocation – Design 98% Complete
- SS7450 Crane Creek Lower North Branch Capacity Upgrade Phase 2 – Design 90% Complete
- SS7454 Broad River Force Main Replacement and Gravity Sewer Capacity Improvements – Design 30% Complete
- SS7467 North Columbia Pump Station Upgrade – Design 30% Complete
- SS7474 Upper North Branch Crane Creek Sewer Improvements Phase 1 – Design 60% Complete
- SS7497 Mill Creek Pump Station Miscellaneous Improvements – 20% Design Complete
- SS753902 CIPP Major Pipe Rehabilitation – 10% Design Complete
- SS753903 Geopolymer Major Pipe Rehabilitation – 10% Design Complete
- SS7555 Lower Crane Creek Relief Sewer Phase 2 – Design 30% Complete
- SS7560 Lower Crane Creek Equalization Storage – 10% Design 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 3.2 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:

- SS6966 Annual Rehab on Lines less than 15" – 2019 Construction 100% Complete, 2020 Construction 0% Complete
- SS7280 Rocky Branch-01 SSES and Rehabilitation – Construction 100% Complete
- SS7323 Food Lion PS Improvements – Construction 15% Complete
- SS7363 Smith Branch 03 SSES – Construction 10% Complete
- SS7424 SSES and Sewer Rehabilitation Implementation BR02 – Design 95% Complete
- SS7425 SSES and Sewer Rehabilitation Implementation RB03 – Construction 0% Complete

- SS7432 Starlite PS Decommissioning and Basin Rehabilitation Related Works – Design 55% Complete
- SS7435 Wexford and Windsong Lift Stations Evaluation and Rehabilitation Project – Design 95% Complete
- SS7437 Miscellaneous Lift Station Improvements and Backup Power Addition Project – Design 95% Complete
- SS7462 Investigation of Crockett Road, Atlas Road and Versch Lock Lift Stations – Design 35% Complete
- SS7463 SSES and Sewer Rehabilitation Implementation CC01 – Design 30% Complete
- SS7464 SSES and Sewer Rehabilitation Implementation CC02 and CC04 – Design 99% Complete
- SS7468 Three Rivers Force Main Replacement – Design 85% Complete
- SS7478 Rocky Branch 01 SSES Phase 2 – Design 95% Complete
- SS7479 Smith Branch 02 SSES Phase 2 – Design 75% Complete
- SS7487 Hickory Ridge Drive Sewer Rehab – Design 75% Complete
- SS7535 Olympia Sanitary Sewer Relocation and Rehabilitation – 5% Design Complete
- SS7546 Mallard Pointe Force Main Replacement – 10% Design Complete
- SS7547 Yacht Cove Force Main Replacement – 10% Design Complete
- SS7548 Shady Lane Force Main Replacement – 10% Design Complete
- SS7549 Woodlands Force Main Replacement – 10% Design Complete
- SS7554 Harbison #4 Pump Station Improvements and Force Main Replacement – Design 5% Complete

### 3.4 Sewer System Hydraulic Model

In accordance with Section V.17.d of the CD, the City is to submit to EPA and SCDHEC for review, comment, and approval a Hydraulic Model Report that explains how the Model meets the capabilities required in Section V.17.a. The Hydraulic Model Report is to be submitted within fifteen months after completion of the CSAP for Major components of the WCTS. As of May 23, 2019, all activities under the Major components of the CSAP were completed. Therefore, the deadline for submittal of the Hydraulic Model Report to EPA and SCDHEC is August 23, 2020.

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

- The Hydraulic Model Report was submitted to EPA and SCDHEC on August 21, 2020.

## 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, 3rd Quarter 2020

City of Columbia, SC Quarterly SSO Listing 3rd Quarter 2020									
Date	Time	Location	Source	Date of Corrective Action	Time of Corrective Action	Estimated Volume (gallons)	Receiving Water (if any)	Cause	Actions Taken
7/6/2020	12:45	1860 Cunningham Rd, Columbia, SC 29210	Manhole	7/8/2020	10:00	4425	Trib To Broad River	Collapsed Line	Removed Blockage To Resume Normal Flow. Main Line Repair.
7/7/2020	12:00	102 Rocky Point Dr, Columbia, SC 29212	Pump Station	7/7/2020	12:30	1500	Storm Drain	Pump Station Failure	Reset Pump #1 At Lift Station.
7/10/2020	13:00	2217 Lorick Ave, Columbia, SC 29203	Line Segment	TBD		737		Collapsed Line	Set Up Bypass Pump. Main Line Repair.
7/13/2020	11:45	1665 Woodlake Dr, Columbia, SC 29206	Line Segment	TBD		38250	Lake Katherine	Collapsed Line	Set Up Bypass Pump. Main Line Repair.
7/17/2020	12:30	1665 Woodlake Dr, Columbia, SC 29206	Other	7/17/2020	12:35	30	Lake Katherine	Equipment Failure	Replaced Bypass Pump Hose.
7/19/2020	11:00	204 Lincolshire North Dr, Columbia, SC 29203	Manhole	7/19/2020	13:22	940	Storm Drain	Grease	Removed Blockage To Resume Normal Flow. Main Line Wash To Remove Grease.
7/20/2020	10:50	50 Palmetto Wood Ct, Irmo, SC 29063	Cleanout	TBD		5		Collapsed Line	Removed Stoppage To Resume Normal Flow. Emergency Service Line Repair.
7/22/2020	16:00	524 Brierclyff Dr, Columbia, SC 29203	Cleanout	TBD		6		Collapsed Line	Washed Service Line 60 Feet To Clear Blockage. Service Line Repair.
7/22/2020	13:53	116 Larchwood Dr, Columbia, SC 29203	Cleanout	TBD		41		Collapsed Line	Service Line Wash To Remove Blockage. Service Line Repair.
7/26/2020	15:00	426 Biddle Rd, Columbia, SC 29212	Cleanout	TBD		8		Roots	Removed Blockage To Resume Normal Flow. Service Line Repair.
7/31/2020	11:20	169 Mariners Row, Columbia, SC 29212	Manhole	7/31/2020	11:30	90		Roots	Removed Blockage To Resume Normal Flow. Main Line Root Cut.
8/3/2020	13:35	820 Blue Ridge Ter, Columbia, SC 29203	Manhole	8/3/2020	14:05	1500	Trib To Crane Creek	Debris	Removed Blockage To Resume Normal Flow. Washed Main Line 100 Feet.
8/7/2020	18:00	336 Brookshire Dr, Columbia, SC 29210	Cleanout	TBD		2337	Storm Drain	Roots	Removed Stoppage Causing Spill. Tap Renewal.
8/8/2020	10:34	406 Bosworth Field Ct, Columbia, SC 29212	Manhole	TBD		603	Trib To Koon Branch	Roots	Removed Blockage To Resume Normal Flow. Main Line Repair.
8/10/2020	19:30	2791 The Blvd, Columbia, SC 29209	Manhole	TBD		18		Roots	Removed Stoppage To Resume Normal Flow. Emergency Main Line Repair.
8/11/2020	11:15	1203 Jackson Ave, Columbia, SC 29203	Cleanout	TBD		11		Roots	Removed Stoppage To Resume Normal Flow. Service Line Repair.
8/12/2020	08:35	4441 Bentley Dr, Columbia, SC 29210	Manhole	8/12/2020	09:00	375	Storm Drain	Debris	Removed Blockage To Resume Normal Flow. Washed Main Line.
8/13/2020	09:30	102 Rocky Point Dr, Columbia, SC 29212	Forcemain	8/13/2020	09:45	497	Storm Drain	Force Main	Shut Pump Station Down. Replaced ARV.
8/14/2020	16:30	2007 Cedarbrook Ct, Columbia, SC 29212	Cleanout	8/18/2020	12:00	18	Storm Drain	Roots	Removed Stoppage To Resume Normal Flow. Emergency Service Line Repair.
8/15/2020	22:45	1100 Key Rd, Columbia, SC 29201	Manhole	TBD		1875	Storm Drain	Collapsed Line	Removed Blockage To Resume Normal Flow. Main Line Repair.
8/18/2020	08:00	3900 Bentley Dr, Columbia, SC 29210	Manhole	TBD		1250	Trib To Broad River	Collapsed Line	Removed Stoppage To Resume Normal Flow. Main Line Repair.
8/20/2020	01:54	1200 Simmon Tree Ln, Columbia, SC 29201	Manhole	8/20/2020	02:20	50	Storm Drain	Debris	Sand Was Removed From Manhole Via Vactor Truck.
8/20/2020	11:00	7321 Fontana Dr, Columbia, SC 29209	Line Segment	8/20/2020	15:00	50	Unnamed Creek	Collapsed Line	Ceased Washing The Line. Mainline Repair.
8/22/2020	20:02	6025 Sinclair Dr, Columbia, SC 29203	Cleanout	8/23/2020	11:00	40	Stormwater Ditch	Collapsed Line	Ceased Washing The Line. Service Line Repair.
8/27/2020	09:58	3632 Truman St, Columbia, SC 29204	Cleanout	8/27/2020	09:58	15		Debris	Removed Blockage To Resume Normal Flow. Washed Service Line 25 Feet To Remove Blockage.
8/27/2020	16:45	770 Maryland St, Columbia, SC 29201	Other	8/27/2020	17:30	15		Debris	Removed Blockage To Resume Normal Flow. Washed Main Line.

City of Columbia, SC Quarterly SSO Listing 3rd Quarter 2020									
Date	Time	Location	Source	Date of Corrective Action	Time of Corrective Action	Estimated Volume (gallons)	Receiving Water (if any)	Cause	Actions Taken
8/28/2020	20:56	621 Winter Wren Ln, Blythewood, SC 29016	Cleanout	9/1/2020	08:00	25		Collapsed Line	Removed Roots To Restore Flow. Cleanout Repair.
8/31/2020	08:15	321 Maple View Dr, Columbia, SC 29212	Cleanout	TBD		15		Roots	Removed Blockage To Resume Normal Flow. Service Line Repair.
9/1/2020	15:30	1228 Harden St, Columbia, SC 29204	Manhole	9/1/2020	15:45	47	Storm Drain	Debris	Removed Blockage To Resume Normal Flow. Washed Main Line 150 Feet To Clear Blockage.
9/5/2020	20:00	2140 Rolling Hills Rd, Columbia, SC 29210	Manhole	TBD		4600	Trib To Broad River	Collapsed Line	Removed Stoppage To Resume Normal Flow. Main Line Repair.
9/8/2020	18:45	1515 Hyatt Ave, Columbia, SC 20203	Cleanout	TBD		6		Collapsed Line	Removed Stoppage To Resume Normal Flow. Emergency Service Line Repair.
9/11/2020	10:49	1619 York Dr, Columbia, SC 29204	Cleanout	TBD		40		Roots	Removed Blockage To Resume Normal Flow. Service Line Repair / Cleanout Install.
9/11/2020	14:00	626 Galway Ln, Columbia, SC 29209	Cleanout	9/11/2020	14:16	4		Debris	Removed Stoppage To Resume Normal Flow. Washed Service Line.
9/16/2020	11:25	105 Paul St, Columbia, SC 29203	Cleanout	9/16/2020	12:00	68		Grease	Removed Stoppage To Resume Normal Flow. Washed Service Line To Remove Grease.
9/16/2020	21:05	1118 Brandon Ave, Columbia, SC 29209	Cleanout	9/16/2020	21:15	23		Roots	Removed Blockage To Resume Normal Flow. Root Cut Service Line To Remove Roots Causing Blockage.
9/17/2020	13:50	6306 Kemberly St, Columbia, SC 29209	Manhole	TBD		60		Collapsed Line	Removed Blockage To Resume Normal Flow. Main Line Repair.
9/17/2020	14:37	5609 Bush River Rd, Columbia, SC 29212	Manhole	N/A		373	Rawls Creek	Wet Weather	Wet Weather; Observation Only.
9/24/2020	09:30	1112 Crane Church Rd, Columbia, SC 29203	Cleanout	TBD		25		Collapsed Line	Washed Service Line 20 Feet From City Cleanout To Resume Normal Flow. Emergency Service Line Repair.
9/28/2020	18:18	1228 Harden St, Columbia, SC 29204	Manhole	TBD		72	Storm Drain	Collapsed Line	Removed Blockage To Resume Normal Flow. 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, 3rd Quarter 2020**

City of Columbia, SC Quarterly Building Backup Listing 3rd Quarter 2020									
Date	Time	Location	Source	Date of Corrective Action	Time of Corrective Action	Estimated Volume (gallons)	Receiving Water (if any)	Cause	Actions Taken
7/9/2020	19:14	804 Hemphill St, Columbia, SC 29205	City	7/10/2020	08:00	30		Collapsed Line	Removed Blockage To Resume Normal Flow. Service Line Repair.
7/14/2020	20:23	528 Newburgh Dr, Columbia, SC 29203	City	TBD		15		Collapsed Line	Removed Blockage To Resume Normal Flow. Service Line Repair.
9/5/2020	11:30	4735 Heath Hill Rd, Columbia, SC 29206	City	9/5/2020	12:45	1		Roots	Removed Blockage To Resume Normal Flow. Root Cut Service 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 Gills 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:

- Gills Creek at Garner's Ferry Road
- Smith Branch at North Main Street
- Gills 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 and on December 19, 2018 to reflect changes in City personnel. The revised QAPP was approved on January 9, 2019. The QAPP was subsequently revised and resubmitted to SCDHEC on January 22, 2019 to reflect a change in the testing laboratory. Following comments from SCDHEC and additional resubmittals, the City received approval of the revised QAPP from EPA and SCDHEC on April 2, 2019.

The City monitored quarterly for the first three years under the CD (through January 15, 2019) and will monitor 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 2020 Q3 was completed on July 24, 2020, August 31, 2020, and September 28, 2020. Monitoring results are provided below for the following samples:

- C-001: Gills Creek at Garner's Ferry Road
- B-280: Smith Branch at North Main Street
- C-017: Gills 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, Revised May 2017, Revised December 2018, Revised January 2019

**Laboratory Report Date:** 7/24/2020

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



\_\_\_\_\_

Project Verifier/QA Manager

8/12/2020

\_\_\_\_\_

Date

Miranda S. Staples

Printed Name

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



\_\_\_\_\_

Project Manager/Project Validator

8/12/2020

\_\_\_\_\_

Date

AJ Jessee

Printed Name



## Laboratory Report

<b>Client</b>	Woolpert Inc. - City of Columbia Michael Long 2000 Center Point Road Ste 2200 Columbia, SC 29210	<b>Project:</b>	Water Quality Testing
		<b>Work Order:</b>	0071169
		<b>Received:</b>	07/22/2020 12:05

Dear Client:

Rogers and Callcott appreciates the opportunity to be of service to you. The attached laboratory services report includes analytical results and chain of custody for samples that were received on July 22, 2020. Rogers and Callcott maintains a formal QA/QC program. Unless otherwise noted, all analyses performed under NELAP certification have complied with all the requirements for the TNI standard. The analyses met the QA/QC confidence interval for each test method unless otherwise qualified. Estimated uncertainty is available upon request.

Privileged / Confidential information may be contained in this report and is intended only for the use of the addressee. If you are not the addressee, or the person responsible for delivering to the person addressed, you may not copy or deliver this message to anyone else. If you receive this message by mistake, please notify Rogers and Callcott immediately.

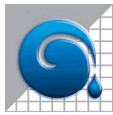
We strive to provide excellent service to our clients. Please contact Lauren Hollister, your Project Manager, at [lhollister@rcenviro.com](mailto:lhollister@rcenviro.com), (864)-232-1556 if you have any questions about this report.

CC: Trevor Gauron

Report Approved By:

---

Lauren Hollister  
Project Manager



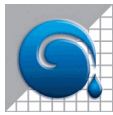
# Certificate of Analysis

*South Carolina Greenville Laboratory Identification 23105  
 South Carolina Columbia Laboratory Identification 40572  
 North Carolina Laboratory Certification Number 27  
 North Carolina Drinking Water Lab Number 45710  
 NELAP Utah Certificate Number SC000042014-1  
 Georgia Drinking Water Lab ID 880*

**Client** Woolpert Inc. - City of Columbia  
 Michael Long  
 2000 Center Point Road Ste 2200  
 Columbia, SC 29210

**Project:** Water Quality Testing  
**Work Order:** 0071169  
**Received:** 07/22/2020 12:05

Sample Number	Sample Description	Matrix	Sampled	Type
0071169-01	DHEC B-280 Smith Branch @ N. Main St	Wastewater	07/22/20 09:14	Grab
0071169-02	DHEC B-280 Smith Branch @ N. Main St	Wastewater	07/22/20 09:15	Grab
0071169-03	DHEC C-001 Gills Creek @ Garners Ferry Rd	Wastewater	07/22/20 09:51	Grab
0071169-04	DHEC C-001 Gills Creek @ Garners Ferry Rd	Wastewater	07/22/20 09:52	Grab
0071169-05	DHEC C-017 Gills Creek @ Bluff Road	Wastewater	07/22/20 10:15	Grab
0071169-06	DHEC C-017 Gills Creek @ Bluff Road	Wastewater	07/22/20 10:16	Grab



Woolpert Inc. - City of Columbia  
2000 Center Point Road Ste 2200  
Columbia, SC 29210

Project: Water Quality Testing  
Work Order: 0071169  
Reported: 07/24/20 14:45

**Sample Data**

**Sample Number** 0071169-01  
**Sample Description** DHEC B-280 Smith Branch @ N. Main St collected on 07/22/20 09:14

Parameter	Result	Reporting Limit	Units	DF	Analyzed	Method	Flag	Analyst	Batch	Lab
<b>Field Parameters</b>										
Dissolved Oxygen	6.7	0.1	mg/L	1.00	07/22/20 09:15	SM 4500 OG-2011		MBW	B0G1027	RC-C
Temperature	20.6	0.0	°C	1.00	07/22/20 09:15	SM 2550B-2010		MBW	B0G1027	RC-C

**Sample Number** 0071169-02  
**Sample Description** DHEC B-280 Smith Branch @ N. Main St collected on 07/22/20 09:15

Parameter	Result	Reporting Limit	Units	DF	Analyzed	Method	Flag	Analyst	Batch	Lab
<b>Microbiological Parameters</b>										
E. Coli	2708	20	MPN/100 mL	20.0	07/22/20 15:08	SM 9223B-2004		MBW	B0G1104	RC-C
<b>General Chemistry Parameters</b>										
Total Suspended Solids	8.8	1.0	mg/L	1.00	07/23/20 08:33	SM 2540D-2011		RAM	B0G1058	RC-C

**Sample Number** 0071169-03  
**Sample Description** DHEC C-001 Gills Creek @ Garners Ferry Rd collected on 07/22/20 09:51

Parameter	Result	Reporting Limit	Units	DF	Analyzed	Method	Flag	Analyst	Batch	Lab
<b>Field Parameters</b>										
Dissolved Oxygen	6.4	0.1	mg/L	1.00	07/22/20 09:56	SM 4500 OG-2011		MBW	B0G1027	RC-C
Temperature	24.8	0.0	°C	1.00	07/22/20 09:56	SM 2550B-2010		MBW	B0G1027	RC-C

**Sample Number** 0071169-04  
**Sample Description** DHEC C-001 Gills Creek @ Garners Ferry Rd collected on 07/22/20 09:52

Parameter	Result	Reporting Limit	Units	DF	Analyzed	Method	Flag	Analyst	Batch	Lab
<b>Microbiological Parameters</b>										
E. Coli	2878	20	MPN/100 mL	20.0	07/22/20 15:08	SM 9223B-2004		MBW	B0G1104	RC-C
<b>General Chemistry Parameters</b>										
Total Suspended Solids	56.8	4.0	mg/L	4.00	07/23/20 08:33	SM 2540D-2011		RAM	B0G1058	RC-C



Woolpert Inc. - City of Columbia  
2000 Center Point Road Ste 2200  
Columbia, SC 29210

Project: Water Quality Testing  
Work Order: 0071169  
Reported: 07/24/20 14:45

**Sample Number** 0071169-05  
**Sample Description** DHEC C-017 Gills Creek @ Bluff Road collected on 07/22/20 10:15

Parameter	Result	Reporting Limit	Units	DF	Analyzed	Method	Flag	Analyst	Batch	Lab
<b>Field Parameters</b>										
Dissolved Oxygen	5.6	0.1	mg/L	1.00	07/22/20 10:20	SM 4500 OG-2011		MBW	B0G1027	RC-C
Grab	Complete				07/22/20 10:15	Grab		MBW	B0G1027	RC-C
Temperature	27.2	0.0	°C	1.00	07/22/20 10:20	SM 2550B-2010		MBW	B0G1027	RC-C

**Sample Number** 0071169-06  
**Sample Description** DHEC C-017 Gills Creek @ Bluff Road collected on 07/22/20 10:16

Parameter	Result	Reporting Limit	Units	DF	Analyzed	Method	Flag	Analyst	Batch	Lab
<b>Microbiological Parameters</b>										
E. Coli	7308	20	MPN/100 mL	20.0	07/22/20 15:08	SM 9223B-2004		MBW	B0G1104	RC-C
<b>General Chemistry Parameters</b>										
Total Suspended Solids	41.7	3.3	mg/L	3.33	07/23/20 08:33	SM 2540D-2011		RAM	B0G1058	RC-C



Woolpert Inc. - City of Columbia  
2000 Center Point Road Ste 2200  
Columbia, SC 29210

Project: Water Quality Testing  
Work Order: 0071169  
Reported: 07/24/20 14:45

### Data Qualifiers and Definitions

ND Analyte NOT DETECTED at or above the reporting limit  
NR Not reported

#### Laboratory Reference:

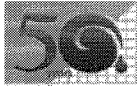
RC-G = Rogers and Callcott, 426 Fairforest Way, Greenville, SC 29607 / SC Lab ID 23105  
RC-C = Rogers and Callcott, 215B Stoneridge Drive, Columbia, SC 29210 / SC Lab ID 40572











**Sample Receipt Verification**

Client: Woolpert

Date Received: 7-22-20

Work Order: 0071169

Carrier Name: (to Columbia)	Client	FedEx	UPS	US Mail	Courier	<u>Field Services</u>	Other: _____
Tracking Number: _____							

Carrier Name: (to Greenville)	Client	FedEx	UPS	US Mail	Courier	Field Services	Other: _____
Tracking Number: <u>N/A</u>							

Receipt Criteria	Y	No	N	A	Comments
Shipping container / cooler intact?	<input checked="" type="checkbox"/>				Damaged Leaking Other:
Custody seals intact?			<input checked="" type="checkbox"/>		
COC included with samples?	<input checked="" type="checkbox"/>				
COC signed when relinquished and received?	<input checked="" type="checkbox"/>				
Sample bottles intact?	<input checked="" type="checkbox"/>				Damaged Leaking Other:
Sample ID on COC agree with label on bottle(s)?	<input checked="" type="checkbox"/>				
Date / time on COC agree with label on bottle(s)?	<input checked="" type="checkbox"/>				
Number of bottles on COC agrees with number of bottles received?	<input checked="" type="checkbox"/>				
Samples received within holding time?	<input checked="" type="checkbox"/>				
Sample volume sufficient for analysis?	<input checked="" type="checkbox"/>				
VOA vials free of headspace (<6mm bubble)?			<input checked="" type="checkbox"/>		
Samples requiring pH preservation at proper pH? <small>Note: Samples for metals analysis may be preserved upon receipt in the lab. Note: Samples for O&amp;G and VOA analysis – preservation checked at bench.</small>				<input checked="" type="checkbox"/>	
Samples dechlorinated for parameters requiring chlorine removal at the time of sample collection? <small>Note: Chlorine checked at bench for samples requiring Bacterial, VOA, and HAA analysis.</small>	<input checked="" type="checkbox"/>				
Samples cooled when received in <b>Columbia</b> ?	Temp at time of receipt <u>0.1</u> °C	<input checked="" type="checkbox"/>			<u>Ice</u> Cold Packs Dry Ice None
	Temp measured with IR SN: 36301069WS				
Samples cooled when received in <b>Greenville</b> ?	Temp at time of receipt <u>N/A</u> °C				Ice Cold Packs Dry Ice None
	Temp measured with IR SN: 97050067				

If in-house preservation used – record Lot #			
HCL		H <sub>3</sub> PO <sub>4</sub>	
H <sub>2</sub> SO <sub>4</sub>		NaOH	
HNO <sub>3</sub>		Other	

Comments:

Were non-conformance issues noted at initial sample receipt? Yes or No

Non-Conformance issue other than noted above:

Completed by: NLB

City of Columbia Quality Assurance Project Plan (QAPP) Data

Verification and Validation Form

City of Columbia Supplemental Environmental Projects QAPP

November 2015, Revised May 2017, Revised December 2018, Revised January 2019

**Laboratory Report Date:** 8/31/2020

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

*Miranda S. Staples*

Project Verifier/QA Manager

9/11/2020

Date

Miranda Staples

Printed Name

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

*AJ Jessee*

Project Manager/Project Validator

9/11/2020

Date

AJ Jessee

Printed Name



## Laboratory Report

<b>Client</b>	Woolpert Inc. - City of Columbia Michael Long 2000 Center Point Road Ste 2200 Columbia, SC 29210	<b>Project:</b>	Water Quality Testing
		<b>Work Order:</b>	0081127
		<b>Received:</b>	08/21/2020 13:15

Dear Client:

Rogers and Callcott appreciates the opportunity to be of service to you. The attached laboratory services report includes analytical results and chain of custody for samples that were received on August 21, 2020. Rogers and Callcott maintains a formal QA/QC program. Unless otherwise noted, all analyses performed under NELAP certification have complied with all the requirements for the TNi standard. The analyses met the QA/QC confidence interval for each test method unless otherwise qualified. Estimated uncertainty is available upon request.

Privileged / Confidential information may be contained in this report and is intended only for the use of the addressee. If you are not the addressee, or the person responsible for delivering to the person addressed, you may not copy or deliver this message to anyone else. If you receive this message by mistake, please notify Rogers and Callcott immediately.

We strive to provide excellent service to our clients. Please contact Lauren Hollister, your Project Manager, at [lhollister@rcenviro.com](mailto:lhollister@rcenviro.com), (864)-232-1556 if you have any questions about this report.

CC: Trevor Gauron

Report Approved By:

---

Lauren Hollister  
Project Manager



*South Carolina Greenville Laboratory Identification 23105  
 South Carolina Columbia Laboratory Identification 40572  
 North Carolina Laboratory Certification Number 27  
 North Carolina Drinking Water Lab Number 45710  
 NELAP Utah Certificate Number SC000042014-1  
 Georgia Drinking Water Lab ID 880*

# Certificate of Analysis

**Client** Woolpert Inc. - City of Columbia  
 Michael Long  
 2000 Center Point Road Ste 2200  
 Columbia, SC 29210

**Project:** Water Quality Testing  
**Work Order:** 0081127  
**Received:** 08/21/2020 13:15

Sample Number	Sample Description	Matrix	Sampled	Type
0081127-01	DHEC B-280 Smith Branch @ N. Main St	Wastewater	08/21/20 10:50	Grab
0081127-02	DHEC B-280 Smith Branch @ N. Main St	Wastewater	08/21/20 10:45	Grab
0081127-03	DHEC B-280 Smith Branch @ N. Main St	Wastewater	08/21/20 10:47	Grab
0081127-04	DHEC C-001 Gills Creek @ Garners Ferry Rd	Wastewater	08/21/20 12:15	Grab
0081127-05	DHEC C-001 Gills Creek @ Garners Ferry Rd	Wastewater	08/21/20 12:10	Grab
0081127-06	DHEC C-001 Gills Creek @ Garners Ferry Rd	Wastewater	08/21/20 12:13	Grab
0081127-07	DHEC C-017 Gills Creek @ Bluff Road	Wastewater	08/21/20 12:45	Grab
0081127-08	DHEC C-017 Gills Creek @ Bluff Road	Wastewater	08/21/20 12:40	Grab
0081127-09	DHEC C-017 Gills Creek @ Bluff Road	Wastewater	08/21/20 12:43	Grab



Woolpert Inc. - City of Columbia  
2000 Center Point Road Ste 2200  
Columbia, SC 29210

Project: Water Quality Testing  
Work Order: 0081127  
Reported: 08/31/20 10:52

### Sample Data

**Sample Number** 0081127-01  
**Sample Description** DHEC B-280 Smith Branch @ N. Main St collected on 08/21/20 10:50

Parameter	Result	Reporting Limit	Units	DF	Analyzed	Method	Flag	Analyst	Batch	Lab
<b>Field Parameters</b>										
Dissolved Oxygen	6.7	0.1	mg/L	1.00	08/21/20 10:50	SM 4500 OG-2011		CDT	B0H0992	RC-C
Grab	Complete				08/21/20 10:50	Grab		CDT	B0H0992	RC-C
Temperature	25.0	0.0	°C	1.00	08/21/20 10:50	SM 2550B-2010		CDT	B0H0992	RC-C

**Sample Number** 0081127-02  
**Sample Description** DHEC B-280 Smith Branch @ N. Main St collected on 08/21/20 10:45

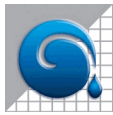
Parameter	Result	Reporting Limit	Units	DF	Analyzed	Method	Flag	Analyst	Batch	Lab
<b>General Chemistry Parameters</b>										
Total Suspended Solids	2.0	1.0	mg/L	1.00	08/25/20 09:45	SM 2540D-2011		RAM	B0H1077	RC-C

**Sample Number** 0081127-03  
**Sample Description** DHEC B-280 Smith Branch @ N. Main St collected on 08/21/20 10:47

Parameter	Result	Reporting Limit	Units	DF	Analyzed	Method	Flag	Analyst	Batch	Lab
<b>Microbiological Parameters</b>										
E. Coli	3700	20	MPN/100 mL	20.0	08/21/20 14:25	SM 9223B-2004		HBB	B0H1015	RC-C

**Sample Number** 0081127-04  
**Sample Description** DHEC C-001 Gills Creek @ Garners Ferry Rd collected on 08/21/20 12:15

Parameter	Result	Reporting Limit	Units	DF	Analyzed	Method	Flag	Analyst	Batch	Lab
<b>Field Parameters</b>										
Dissolved Oxygen	6.8	0.1	mg/L	1.00	08/21/20 12:15	SM 4500 OG-2011		CDT	B0H0992	RC-C
Temperature	29.3	0.0	°C	1.00	08/21/20 12:15	SM 2550B-2010		CDT	B0H0992	RC-C



Woolpert Inc. - City of Columbia  
2000 Center Point Road Ste 2200  
Columbia, SC 29210

Project: Water Quality Testing  
Work Order: 0081127  
Reported: 08/31/20 10:52

**Sample Number** 0081127-05  
**Sample Description** DHEC C-001 Gills Creek @ Garners Ferry Rd collected on 08/21/20 12:10

Parameter	Result	Reporting Limit	Units	DF	Analyzed	Method	Flag	Analyst	Batch	Lab
<b>General Chemistry Parameters</b>										
Total Suspended Solids	36.0	2.9	mg/L	2.86	08/25/20 09:45	SM 2540D-2011		RAM	B0H1077	RC-C

**Sample Number** 0081127-06  
**Sample Description** DHEC C-001 Gills Creek @ Garners Ferry Rd collected on 08/21/20 12:13

Parameter	Result	Reporting Limit	Units	DF	Analyzed	Method	Flag	Analyst	Batch	Lab
<b>Microbiological Parameters</b>										
E. Coli	1056	20	MPN/100 mL	20.0	08/21/20 14:25	SM 9223B-2004		HBB	B0H1015	RC-C

**Sample Number** 0081127-07  
**Sample Description** DHEC C-017 Gills Creek @ Bluff Road collected on 08/21/20 12:45

Parameter	Result	Reporting Limit	Units	DF	Analyzed	Method	Flag	Analyst	Batch	Lab
<b>Field Parameters</b>										
Dissolved Oxygen	5.2	0.1	mg/L	1.00	08/21/20 12:45	SM 4500 OG-2011		CDT	B0H0992	RC-C
Temperature	27.1	0.0	°C	1.00	08/21/20 12:45	SM 2550B-2010		CDT	B0H0992	RC-C

**Sample Number** 0081127-08  
**Sample Description** DHEC C-017 Gills Creek @ Bluff Road collected on 08/21/20 12:40

Parameter	Result	Reporting Limit	Units	DF	Analyzed	Method	Flag	Analyst	Batch	Lab
<b>General Chemistry Parameters</b>										
Total Suspended Solids	11.8	1.5	mg/L	1.50	08/25/20 09:45	SM 2540D-2011		RAM	B0H1077	RC-C

**Sample Number** 0081127-09  
**Sample Description** DHEC C-017 Gills Creek @ Bluff Road collected on 08/21/20 12:43

Parameter	Result	Reporting Limit	Units	DF	Analyzed	Method	Flag	Analyst	Batch	Lab
<b>Microbiological Parameters</b>										
E. Coli	370	20	MPN/100 mL	20.0	08/21/20 14:25	SM 9223B-2004		HBB	B0H1015	RC-C



Woolpert Inc. - City of Columbia  
2000 Center Point Road Ste 2200  
Columbia, SC 29210

Project: Water Quality Testing  
Work Order: 0081127  
Reported: 08/31/20 10:52

### Data Qualifiers and Definitions

ND Analyte NOT DETECTED at or above the reporting limit  
NR Not reported

#### Laboratory Reference:

RC-G = Rogers and Callcott, 426 Fairforest Way, Greenville, SC 29607 / SC Lab ID 23105  
RC-C = Rogers and Callcott, 215B Stoneridge Drive, Columbia, SC 29210 / SC Lab ID 40572











**Sample Receipt Verification**

Client: Woolpert Date Received: 8/2/20 Work Order: 0081127

Carrier Name: Client FedEx UPS US Mail Courier Field Services Other: \_\_\_\_\_  
Tracking Number: \_\_\_\_\_

Carrier Name: Client FedEx UPS US Mail Courier Field Services Other: \_\_\_\_\_  
Tracking Number: NA

Receipt Criteria	Y e s	No	N A	Comments
Shipping container / cooler intact?	X			Damaged Leaking Other:
Custody seals intact?			X	
COC included with samples?	X			
COC signed when relinquished and received?	X			
Sample bottles intact?	X			Damaged Leaking Other:
Sample ID on COC agree with label on bottle(s)?	X			
Date / time on COC agree with label on bottle(s)?	X			
Number of bottles on COC agrees with number of bottles received?	X			
Samples received within holding time?	X			
Sample volume sufficient for analysis?	X			
VOA vials free of headspace (<6mm bubble)?			X	
Samples requiring pH preservation at proper pH? <small>Note: Samples for metals analysis may be preserved upon receipt in the lab. Note: Samples for O&amp;G and VOA analysis – preservation checked at bench.</small>			X	
Samples dechlorinated for parameters requiring chlorine removal at the time of sample collection? <small>Note: Chlorine checked at bench for samples requiring Bacterial, VOA, and HAA analysis.</small>	X			
Samples cooled when received in <b>Columbia</b> ?	Temp at time of receipt <u>2.8</u> °C Temp measured with IR SN: 36301069WS	X		<u>Ice</u> Cold Packs Dry Ice None
Samples cooled when received in <b>Greenville</b> ?	Temp at time of receipt <u>NA</u> °C Temp measured with IR SN: 97050067			Ice Cold Packs Dry Ice None

If in-house preservation used – record Lot #			
HCL		H <sub>3</sub> PO <sub>4</sub>	
H <sub>2</sub> SO <sub>4</sub>		NaOH	
HNO <sub>3</sub>		Other	

Comments:

Were non-conformance issues noted at initial sample receipt? Yes or No  
Non-Conformance issue other than noted above:

Note: Samples received initially in Columbia Facility. Sample preservation checks performed at Columbia Facility. Revised March 2019

Completed by: TAB

City of Columbia Quality Assurance Project Plan (QAPP) Data


Verification and Validation Form

City of Columbia Supplemental Environmental Projects QAPP

November 2015, Revised May 2017, Revised December 2018, Revised January 2019

**Laboratory Report Date:** 9-28-2020

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



Project Verifier/QA Manager

10/12/2020

Date

Miranda Staples

Printed Name

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



Project Manager/Project Validator

10-10-2020

Date

AJ Jessee

Printed Name



**Rogers & Callcott**  
ENVIRONMENTAL



Laboratory Services

## Laboratory Report

<b>Client</b>	Woolpert Inc. - City of Columbia Michael Long 2000 Center Point Road Ste 2200 Columbia, SC 29210	<b>Project:</b>	Water Quality Testing
		<b>Work Order:</b>	0091084
		<b>Received:</b>	09/21/2020 14:32

Dear Client:

Rogers and Callcott appreciates the opportunity to be of service to you. The attached laboratory services report includes analytical results and chain of custody for samples that were received on September 21, 2020. Rogers and Callcott maintains a formal QA/QC program. Unless otherwise noted, all analyses performed under NELAP certification have complied with all the requirements for the TNi standard. The analyses met the QA/QC confidence interval for each test method unless otherwise qualified. Estimated uncertainty is available upon request.

Privileged / Confidential information may be contained in this report and is intended only for the use of the addressee. If you are not the addressee, or the person responsible for delivering to the person addressed, you may not copy or deliver this message to anyone else. If you receive this message by mistake, please notify Rogers and Callcott immediately.

We strive to provide excellent service to our clients. Please contact Lauren Hollister, your Project Manager, at lhollister@rcenviro.com, (864)-232-1556 if you have any questions about this report.

CC: Trevor Gauron

Report Approved By:

---

Lauren Hollister  
Project Manager



# Certificate of Analysis

*South Carolina Greenville Laboratory Identification 23105  
 South Carolina Columbia Laboratory Identification 40572  
 North Carolina Laboratory Certification Number 27  
 North Carolina Drinking Water Lab Number 45710  
 NELAP Utah Certificate Number SC000042014-1  
 Georgia Drinking Water Lab ID 880*

**Client** Woolpert Inc. - City of Columbia  
 Michael Long  
 2000 Center Point Road Ste 2200  
 Columbia, SC 29210

**Project:** Water Quality Testing  
**Work Order:** 0091084  
**Received:** 09/21/2020 14:32

Sample Number	Sample Description	Matrix	Sampled	Type
0091084-01	DHEC B-280 Smith Branch @ N. Main St	Wastewater	09/21/20 09:10	Grab
0091084-02	DHEC B-280 Smith Branch @ N. Main St	Wastewater	09/21/20 09:12	Grab
0091084-03	DHEC B-280 Smith Branch @ N. Main St	Wastewater	09/21/20 09:15	Grab
0091084-04	DHEC C-001 Gills Creek @ Garners Ferry Rd	Wastewater	09/21/20 13:05	Grab
0091084-05	DHEC C-001 Gills Creek @ Garners Ferry Rd	Wastewater	09/21/20 13:08	Grab
0091084-06	DHEC C-001 Gills Creek @ Garners Ferry Rd	Wastewater	09/21/20 13:10	Grab
0091084-07	DHEC C-017 Gills Creek @ Bluff Road	Wastewater	09/21/20 13:35	Grab
0091084-08	DHEC C-017 Gills Creek @ Bluff Road	Wastewater	09/21/20 13:38	Grab
0091084-09	DHEC C-017 Gills Creek @ Bluff Road	Wastewater	09/21/20 13:41	Grab



Woolpert Inc. - City of Columbia  
2000 Center Point Road Ste 2200  
Columbia, SC 29210

Project: Water Quality Testing  
Work Order: 0091084  
Reported: 09/28/20 16:12

**Sample Data**

**Sample Number** 0091084-01  
**Sample Description** DHEC B-280 Smith Branch @ N. Main St collected on 09/21/20 09:10

Parameter	Result	Reporting Limit	Units	DF	Analyzed	Method	Flag	Analyst	Batch	Lab
<b>General Chemistry Parameters</b>										
Total Suspended Solids	2.4	1.0	mg/L	1.00	09/24/20 09:10	SM 2540D-2011		SMN	B0I1151	RC-C

**Sample Number** 0091084-02  
**Sample Description** DHEC B-280 Smith Branch @ N. Main St collected on 09/21/20 09:12

Parameter	Result	Reporting Limit	Units	DF	Analyzed	Method	Flag	Analyst	Batch	Lab
<b>Microbiological Parameters</b>										
E. Coli	914	20	MPN/100 mL	20.0	09/21/20 16:00	SM 9223B-2004		MBW	B0I1093	RC-C

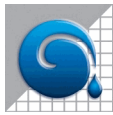
**Sample Number** 0091084-03  
**Sample Description** DHEC B-280 Smith Branch @ N. Main St collected on 09/21/20 09:15

Parameter	Result	Reporting Limit	Units	DF	Analyzed	Method	Flag	Analyst	Batch	Lab
<b>Field Parameters</b>										
Dissolved Oxygen	8.2	0.1	mg/L	1.00	09/21/20 09:15	SM 4500 OG-2011		CDT	B0I1011	RC-C
Grab	Complete				09/21/20 09:15	Grab		CDT	B0I1011	RC-C
Temperature	17.9	0.0	°C	1.00	09/21/20 09:15	SM 2550B-2010		CDT	B0I1011	RC-C

**Sample Number** 0091084-04  
**Sample Description** DHEC C-001 Gills Creek @ Garners Ferry Rd collected on 09/21/20 13:05

Parameter	Result	Reporting Limit	Units	DF	Analyzed	Method	Flag	Analyst	Batch	Lab
<b>General Chemistry Parameters</b>										
Total Suspended Solids	37.7	3.3	mg/L	3.33	09/24/20 09:10	SM 2540D-2011		SMN	B0I1151	RC-C





Woolpert Inc. - City of Columbia  
2000 Center Point Road Ste 2200  
Columbia, SC 29210

Project: Water Quality Testing  
Work Order: 0091084  
Reported: 09/28/20 16:12

**Sample Number** 0091084-05  
**Sample Description** DHEC C-001 Gills Creek @ Garners Ferry Rd collected on 09/21/20 13:08

Parameter	Result	Reporting Limit	Units	DF	Analyzed	Method	Flag	Analyst	Batch	Lab
<b>Microbiological Parameters</b>										
E. Coli	218	20	MPN/100 mL	20.0	09/21/20 16:00	SM 9223B-2004		MBW	B0I1093	RC-C

**Sample Number** 0091084-06  
**Sample Description** DHEC C-001 Gills Creek @ Garners Ferry Rd collected on 09/21/20 13:10

Parameter	Result	Reporting Limit	Units	DF	Analyzed	Method	Flag	Analyst	Batch	Lab
<b>Field Parameters</b>										
Dissolved Oxygen	8.1	0.1	mg/L	1.00	09/21/20 13:10	SM 4500 OG-2011		CDT	B0I1011	RC-C
Temperature	22.7	0.0	°C	1.00	09/21/20 13:10	SM 2550B-2010		CDT	B0I1011	RC-C

**Sample Number** 0091084-07  
**Sample Description** DHEC C-017 Gills Creek @ Bluff Road collected on 09/21/20 13:35

Parameter	Result	Reporting Limit	Units	DF	Analyzed	Method	Flag	Analyst	Batch	Lab
<b>General Chemistry Parameters</b>										
Total Suspended Solids	11.3	1.7	mg/L	1.67	09/24/20 09:10	SM 2540D-2011		SMN	B0I1151	RC-C

**Sample Number** 0091084-08  
**Sample Description** DHEC C-017 Gills Creek @ Bluff Road collected on 09/21/20 13:38

Parameter	Result	Reporting Limit	Units	DF	Analyzed	Method	Flag	Analyst	Batch	Lab
<b>Microbiological Parameters</b>										
E. Coli	124	20	MPN/100 mL	20.0	09/21/20 16:00	SM 9223B-2004		MBW	B0I1093	RC-C

**Sample Number** 0091084-09  
**Sample Description** DHEC C-017 Gills Creek @ Bluff Road collected on 09/21/20 13:41

Parameter	Result	Reporting Limit	Units	DF	Analyzed	Method	Flag	Analyst	Batch	Lab
<b>Field Parameters</b>										
Dissolved Oxygen	7.4	0.1	mg/L	1.00	09/21/20 13:41	SM 4500 OG-2011		CDT	B0I1011	RC-C
Temperature	20.6	0.0	°C	1.00	09/21/20 13:41	SM 2550B-2010		CDT	B0I1011	RC-C



Woolpert Inc. - City of Columbia  
2000 Center Point Road Ste 2200  
Columbia, SC 29210

Project: Water Quality Testing  
Work Order: 0091084  
Reported: 09/28/20 16:12

### Data Qualifiers and Definitions

ND Analyte NOT DETECTED at or above the reporting limit  
NR Not reported

#### Laboratory Reference:

RC-G = Rogers and Callcott, 426 Fairforest Way, Greenville, SC 29607 / SC Lab ID 23105  
RC-C = Rogers and Callcott, 215B Stoneridge Drive, Columbia, SC 29210 / SC Lab ID 40572



**Rogers & Callcott**  
ENVIRONMENTAL  
Half a century of commitment and quality

Mailing Address: PO Box 5655 Greenville, SC 29606 Phone (864) 232-1556  
Shipping Address: 426 Fairforest Way Greenville, SC 29607 Phone (803) 509-8999  
215B Stoneridge Drive Columbia, SC 29210

Client Name: Woolpert - City of Columbia  
Address: 2000 Center Point Road Suite 2200 Columbia, SC 29210  
Report To: Michael Long  
Email Address: Michael.long@woolpert.com  
Telephone #: 803-214-5936  
PO #: \_\_\_\_\_ Project # Water Quality Testing

# CHAIN OF CUSTODY RECORD

WORK ORDER 0091084

R & C WORK ORDER	YR DATE	TIME	SAMPLE DESCRIPTION	Total Number of Containers	Parameter(s) ↑	N	N	Filtered (Yes/No)	Cooled (Yes/No)	Container Type (Plastic/Glass)	Container Volume (ml)	Sample Type (Grab/Composite)	Sample Source (WW, GW, DW, SW, S, Other)	Preservation Code(s)
-01	9/24	0910	DHEC B-280 (Smith Branch @ N. Main St)	1	TSS	Y	Y							A - None E - HCl F - Na <sub>2</sub> S <sub>2</sub> O <sub>3</sub> G - Boric Acid H - Ascorbic Acid I - Zn Acetate J - H <sub>3</sub> PO <sub>4</sub> K - NaH <sub>2</sub> PO <sub>4</sub> L - NH <sub>4</sub> Cl
-02	9/24	0912	DHEC B-280 (Smith Branch @ N. Main St)	1	E. Coli	P	P							-03 COMMENTS D.O.- 8.15 mg/L Temp- 17.9 °C Collected @ 0915 9/24/20 Analyzed @ 0915 9/24/20 Weather- 57° Sunny
<p>SAMPLER RELINQUISHED BY: <u>[Signature]</u> DATE/TIME: <u>9/21/20 1432</u> RECEIVED BY: <u>2. Nandi B. Wright</u></p> <p>RELINQUISHED BY: _____ DATE/TIME: _____ RECEIVED BY: 4. _____</p> <p>RELINQUISHED BY: _____ DATE/TIME: _____ RECEIVED BY: 6. _____</p> <p>RELINQUISHED BY: _____ DATE/TIME: _____ RECEIVED BY: 8. _____</p>														



Mailing Address: PO Box 5655 Greenville, SC 29606 Phone (864) 232-1556  
 Shipping Address: 426 Fairforest Way Greenville, SC 29607 Phone (864) 232-6140  
 215B Stoneridge Drive Columbia, SC 29210 Phone (803) 509-8999

**Client Name** Woolpert - City of Columbia  
**Address** 2000 Center Point Road Suite 2200 Columbia, SC 29210  
**Report To:** Michael Long  
**Email Address** Michael.long@woolpert.com  
**Telephone #** 803-214-5936  
**PO #** \_\_\_\_\_ **Project #** Water Quality Testing

**CHAIN OF CUSTODY RECORD**

WORK ORDER 0091684

Parameter(s) ↓	Total Number of Containers	N	Y	N	Y	Filtered (Yes/No)	Cooled (Yes/No)	Container Type (Plastic/Glass)	Container Volume (mL)	Sample Type (Grab/Composite)	Sample Source (WW, GW, DW, SW, S, Other)	Preservation Code(s)	COMMENTS
TSS	1											A - None E - HCl B - HNO <sub>3</sub> F - Na <sub>2</sub> S <sub>2</sub> O <sub>3</sub> C - H <sub>2</sub> SO <sub>4</sub> G - Boric Acid D - NaOH H - Ascorbic Acid I - Zn Acetate J - H <sub>3</sub> PO <sub>4</sub> K - NaH <sub>2</sub> PO <sub>4</sub> L - NH <sub>4</sub> Cl	-09
	1												D.O.- 7.44 mg/L
	1												Temp- 20.6 °C
													Collected @ 1341 9/21/20
													Analyzed @ 1341 9/21/20
													Weather- 72° Sunny

SAMPLER - RELINQUISHED BY:	DATE/TIME:	RECEIVED BY:	DATE/TIME:
1. <i>[Signature]</i>	9/21/20 1432	2. <i>[Signature]</i>	9.21.20 1432
RELINQUISHED BY:	DATE/TIME:	RECEIVED BY:	DATE/TIME:
3.		4.	
RELINQUISHED BY:	DATE/TIME:	RECEIVED BY:	DATE/TIME:
5.		6.	
RELINQUISHED BY:	DATE/TIME:	RECEIVED BY:	DATE/TIME:
7.		8.	



**Sample Receipt Verification**

Client: Woolpert - City of Cola Date Received: 9-21-20 Work Order: 0091084

Carrier Name: Client FedEx UPS US Mail Courier Field Services Other: \_\_\_\_\_  
Tracking Number: \_\_\_\_\_

Carrier Name: Client FedEx UPS US Mail Courier Field Services Other: \_\_\_\_\_  
Tracking Number: N/A

Receipt Criteria	Y e s	No	N A	Comments	
Shipping container / cooler intact?	<input checked="" type="checkbox"/>			Damaged Leaking Other:	
Custody seals intact?			<input checked="" type="checkbox"/>		
COC included with samples?	<input checked="" type="checkbox"/>				
COC signed when relinquished and received?	<input checked="" type="checkbox"/>				
Sample bottles intact?	<input checked="" type="checkbox"/>			Damaged Leaking Other:	
Sample ID on COC agree with label on bottle(s)?	<input checked="" type="checkbox"/>				
Date / time on COC agree with label on bottle(s)?	<input checked="" type="checkbox"/>				
Number of bottles on COC agrees with number of bottles received?	<input checked="" type="checkbox"/>				
Samples received within holding time?	<input checked="" type="checkbox"/>				
Sample volume sufficient for analysis?	<input checked="" type="checkbox"/>				
VOA vials free of headspace (<6mm bubble)?			<input checked="" type="checkbox"/>		
Samples requiring pH preservation at proper pH? Note: Samples for metals analysis may be preserved upon receipt in the lab. Note: Samples for O&G and VOA analysis – preservation checked at bench.			<input checked="" type="checkbox"/>		
Samples dechlorinated for parameters requiring chlorine removal at the time of sample collection? Note: Chlorine checked at bench for samples requiring Bacterial, VOA, and HAA analysis.	<input checked="" type="checkbox"/>				
Samples cooled when received in <b>Columbia</b> ?	<input checked="" type="checkbox"/>	Temp at time of receipt <u>1.6</u> °C		<input checked="" type="checkbox"/>	Ice Cold Packs Dry Ice None
		Temp measured with IR SN: 36301069WS			
Samples cooled when received in <b>Greenville</b> ?		Temp at time of receipt <u>N/A</u> °C			Ice Cold Packs Dry Ice None
		Temp measured with IR SN: 97050067			

If in-house preservation used – record Lot #			
HCL		H <sub>3</sub> PO <sub>4</sub>	
H <sub>2</sub> SO <sub>4</sub>		NaOH	
HNO <sub>3</sub>		Other	

Comments: \_\_\_\_\_

Were non-conformance issues noted at initial sample receipt? Yes or No

Non-Conformance issue other than noted above: \_\_\_\_\_