

Clean Water 2020 Program

CONSENT DECREE QUARTERLY REPORT

July 1, 2021 – September 30, 2021

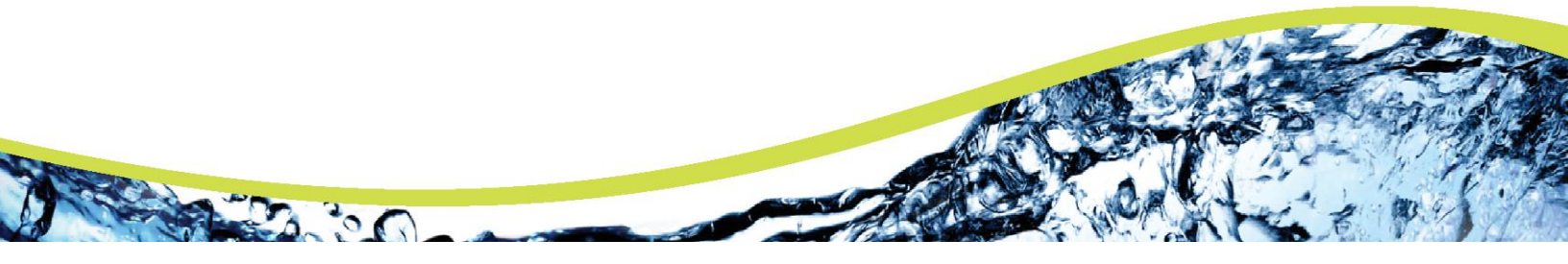


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Section 1 Introduction

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.

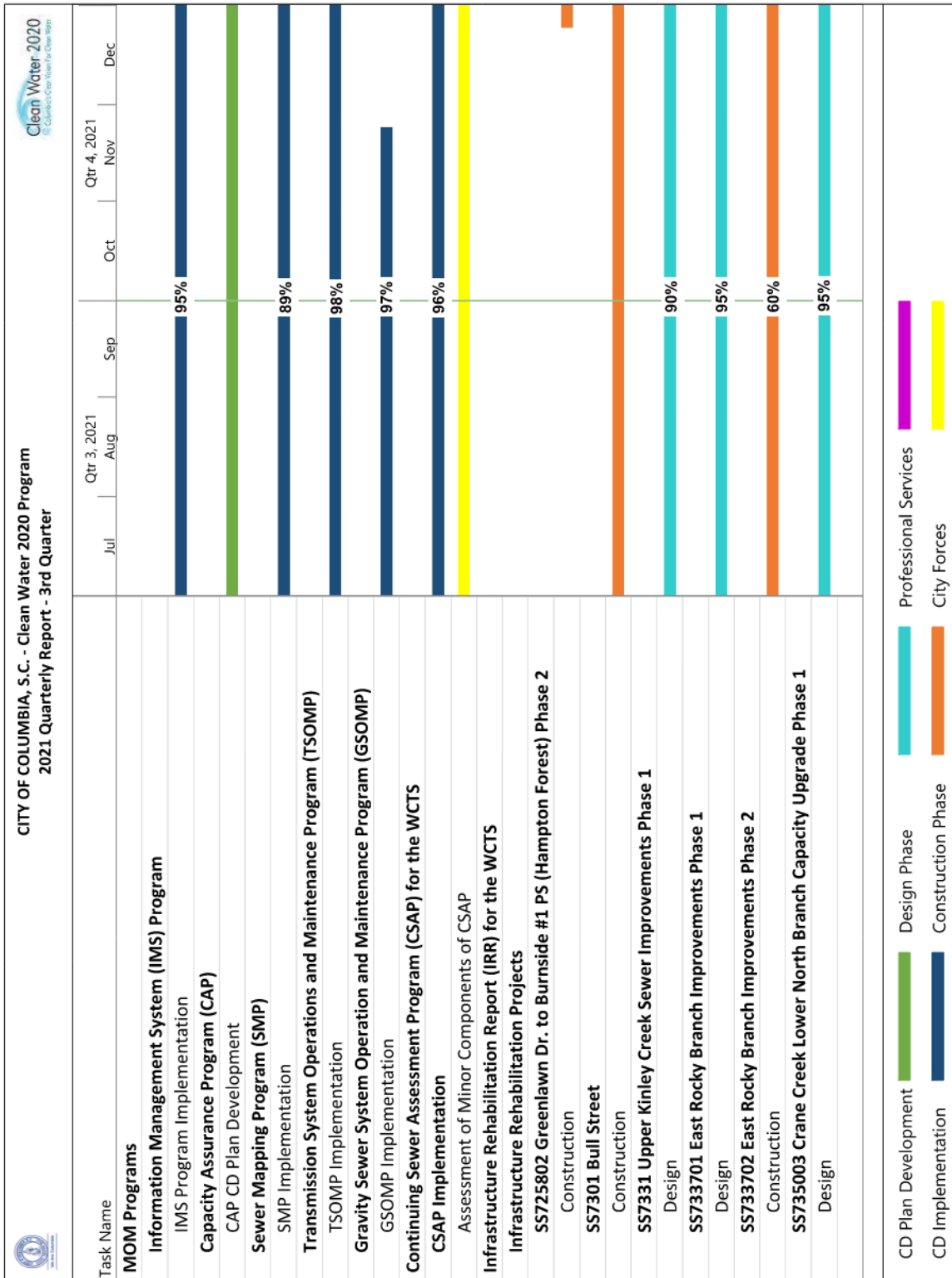
Section 4 – Quarterly SSO Report

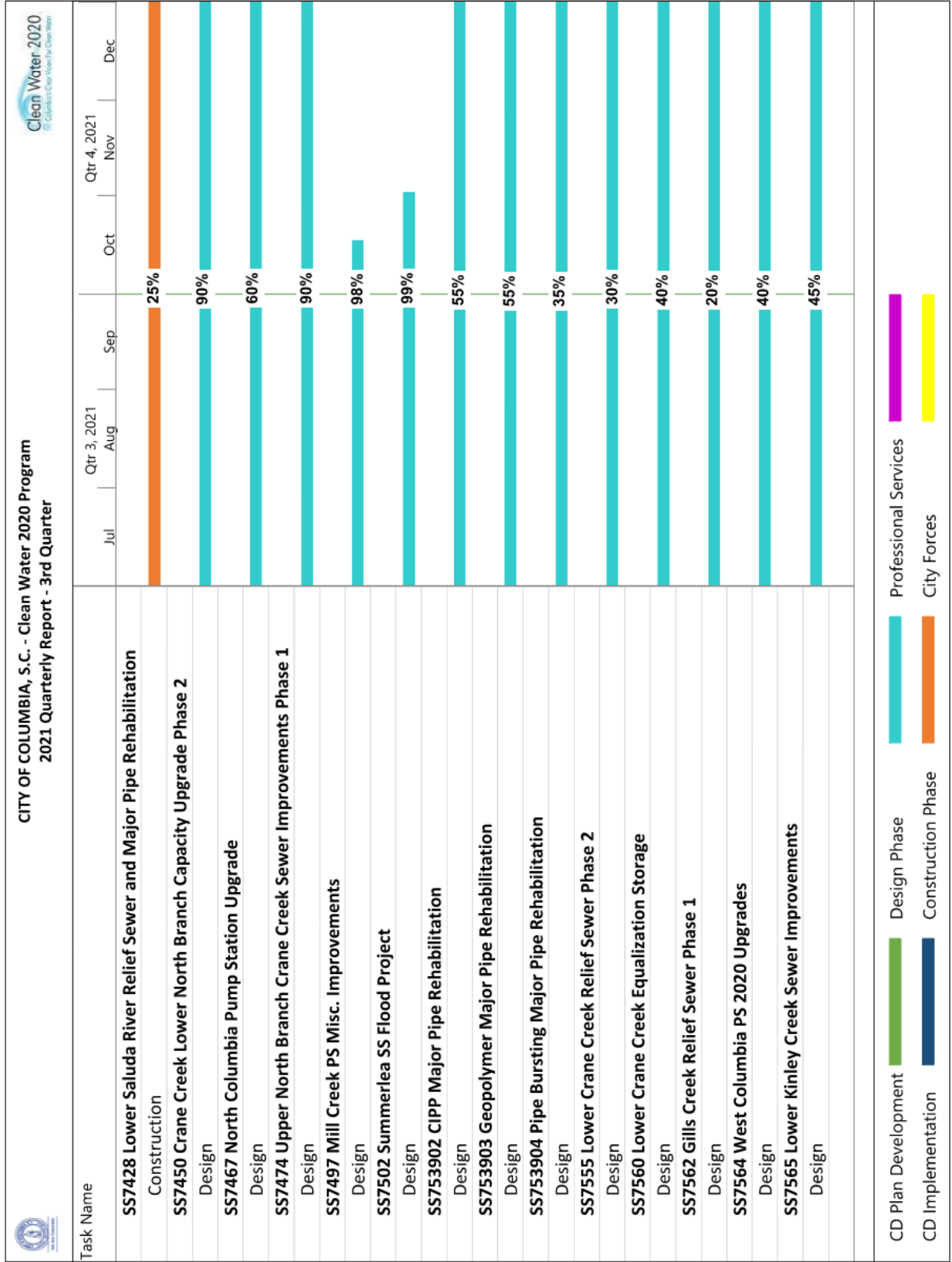
This section addresses the requirements of Section IX.39.a.(ii) of the Consent Decree and provides a tabular listing of sanitary sewer overflows (SSOs). The table includes the date, time, location, source, duration, estimated volume, receiving water (if any), cause, and actions taken to repair or otherwise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

Section 5 – SEP Water Quality Monitoring Results

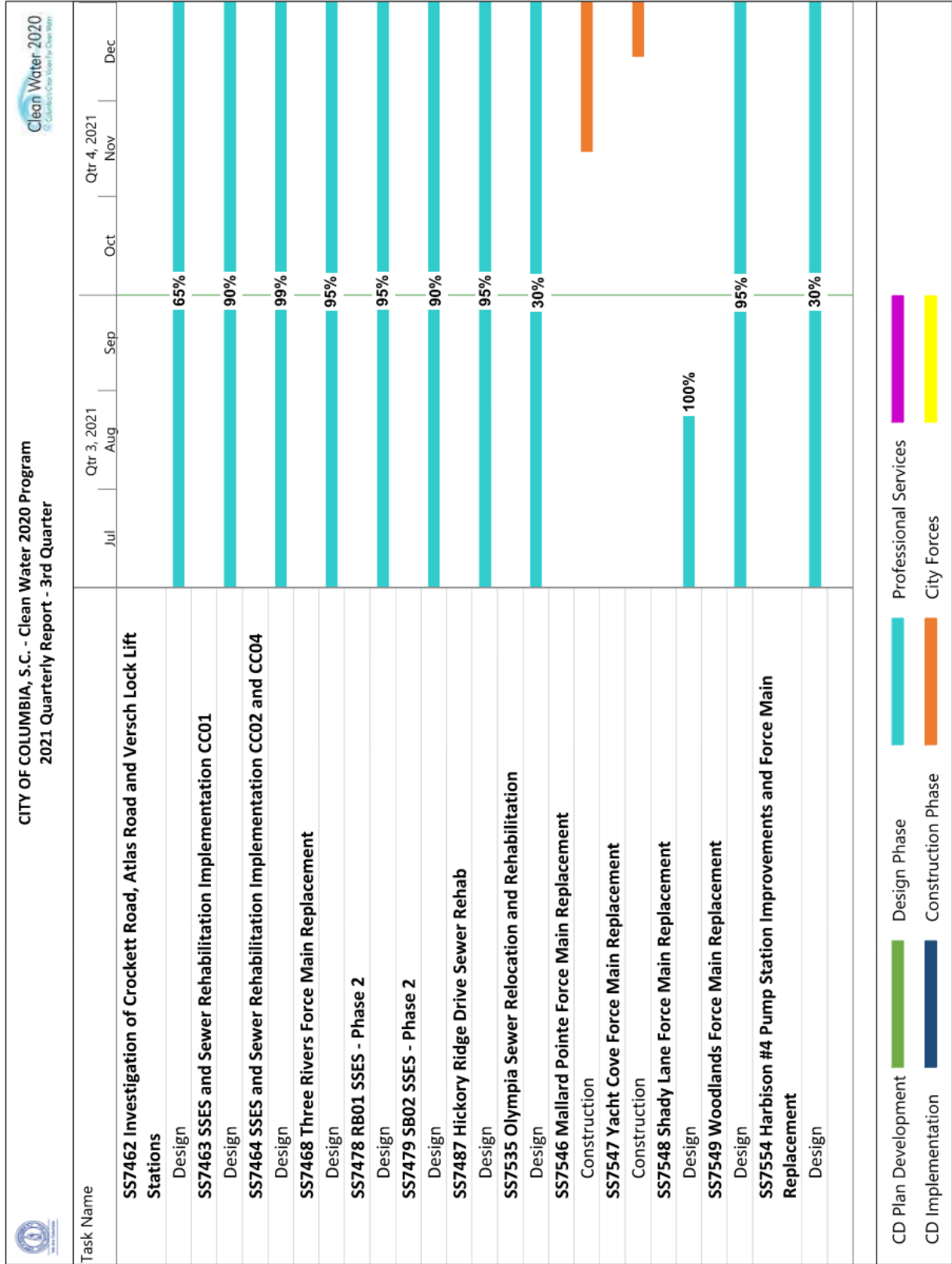
This section addresses the requirements of Section IX.39.a.(v) of the Consent Decree and provides the results of water quality monitoring conducted during the previous Calendar Quarter as part of the SEP described in Appendix I of the CD.



Section 2 Schedule of Projects and Activities









 CITY OF COLUMBIA, S.C. - Clean Water 2020 Program 2021 Quarterly Report - 3rd Quarter						
Task Name	Jul	Aug	Sep	Oct	Nov	Dec
SS7583 SR02 Engineer Led Find and Fix Rehabilitation Design			100%			

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 – 89% 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 – 100% complete (Mapping complete as of June 9, 2021)
 - Saluda River Basin – 100% complete (Mapping complete as of June 9, 2021)
 - Rocky Branch Basin – 100% complete (Mapping complete as of June 9, 2021)
 - Mill Creek Basin – 28% complete
 - Gills Creek Basin – 87% complete
 - Crane Creek Basin – 89% 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) – 95% 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 – 90% 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 – 89% Complete
- Minor Pump Stations Condition Assessment – 89% Complete
- Minor Force Mains Field Assessment – 89% 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:

- SS725802 Greenlawn Dr. to Burnside #1 PS (Hampton Forest) Phase 2 – Construction 0% 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 60% Complete
- SS735003 Crane Creek Lower North Branch Capacity Upgrade Phase 1 – Design 95% Complete
- SS7428 Lower Saluda River Relief Sewer and Major Pipe Rehabilitation – Construction 25% Complete
- SS7450 Crane Creek Lower North Branch Capacity Upgrade Phase 2 – Design 90% Complete
- SS7467 North Columbia Pump Station Upgrade – Design 60% Complete
- SS7474 Upper North Branch Crane Creek Sewer Improvements Phase 1 – Design 90% Complete
- SS7497 Mill Creek Pump Station Miscellaneous Improvements – Design 98% Complete
- SS7502 Summerlea SS Flood Project – Design 99% Complete
- SS753902 CIPP Major Pipe Rehabilitation – Design 55% Complete
- SS753903 Geopolymer Major Pipe Rehabilitation – Design 55% Complete
- SS753904 Pipe Bursting Major Pipe Rehabilitation – Design 35% Complete
- SS7555 Lower Crane Creek Relief Sewer Phase 2 – Design 30% Complete
- SS7560 Lower Crane Creek Equalization Storage – Design 40% Complete
- SS7562 Gills Creek Relief Sewer Phase 1 – Design 20% Complete
- SS7564 West Columbia Pump Station Improvements – Design 40% Complete
- SS7565 Lower Kinley Creek Sewer Improvements – Design 45% Complete
- SS7568 Saluda River Force Main Extension – Design 35% Complete
- SS7589 Broad River Force Main Replacement and Gravity Sewer Capacity Improvements – Design 60% 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:

- SS6786 Annual Gravity Sewer Manhole Lining and Replacement – 2021 Construction 10% Complete
- SS6966 Annual Rehab on Lines less than 15” – 2021 Construction 10% Complete
- SS7323 Food Lion PS Improvements – Construction 100% Complete
- SS7363 Smith Branch 03 SSES – Construction 65% Complete
- SS7424 SSES and Sewer Rehabilitation Implementation BR02 – Design 99% Complete
- SS7425 SSES and Sewer Rehabilitation Implementation RB03 – Construction 65% Complete
- SS7432 Starlite PS Decommissioning and Basin Rehabilitation Related Works – Design 80% 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 99% Complete
- SS7462 Investigation of Crockett Road, Atlas Road and Versch Lock Lift Stations – Design 65% Complete
- SS7463 SSES and Sewer Rehabilitation Implementation CC01 – Design 90% Complete
- SS7464 SSES and Sewer Rehabilitation Implementation CC02 and CC04 – Design 99% Complete
- SS7468 Three Rivers Force Main Replacement – Design 95% Complete
- SS7478 Rocky Branch 01 SSES Phase 2 – Design 95% Complete
- SS7479 Smith Branch 02 SSES Phase 2 – Design 90% Complete
- SS7487 Hickory Ridge Drive Sewer Rehab – Design 95% Complete
- SS7535 Olympia Sanitary Sewer Relocation and Rehabilitation – Design 30% Complete
- SS7546 Mallard Pointe Force Main Replacement – Construction 0% Complete
- SS7547 Yacht Cove Force Main Replacement – Construction 0% Complete
- SS7548 Shady Lane Force Main Replacement – Design 100% Complete
- SS7549 Woodlands Force Main Replacement – Design 95% Complete
- SS7554 Harbison #4 Pump Station Improvements and Force Main Replacement – Design 30% Complete
- SS7583 Saluda River 02 Engineer Led Find and Fix Rehabilitation – Design 100% Complete

3.4 Sewer System Hydraulic Model

The Hydraulic Model Report was submitted to EPA and SCDHEC on August 21, 2020. The City is awaiting EPA and SCDHEC review and approval of the Hydraulic Model Report.

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 2021

City of Columbia, SC Quarterly SSO Listing 3rd Quarter 2021									
Date	Time	Location	Source	Date of Corrective Action	Time of Corrective Action	Estimated Volume (gallons)	Receiving Water (if any)	Cause	Actions Taken
7/4/2021	08:00	2304 Rolling Hills Rd, Columbia, SC 29210	Line Segment	7/4/2021	13:00	36000	Trib To Broad River	Collapsed Line	Set Up Bypass Pump To Stop Overflow. Tap Repair.
7/6/2021	14:45	9531 Farrow Rd, Columbia, SC 29203	Manhole	8/15/2021	12:00	1200	Trib To Craine Creek	Roots	Root Cut Main Line To Relieve Stoppage. Main Line Repair.
7/14/2021	11:00	739 Fountain Lake Rd, Columbia, SC 29209	Cleanout	7/14/2021	12:00	1800	Storm Drain	Grease	Removed Stoppage To Resume Normal Flow. Washed Main Line To Remove Grease.
7/8/2021	12:53	824 Blue Ridge Ter, Columbia, SC 29203	Manhole	7/9/2021	12:30	300		Grease	Removed Blockage To Resume Normal Flow. Washed Main Line 80 Feet To Remove Blockage.
7/15/2021	19:03	821 Old Oak Dr, Columbia, SC 29203	Cleanout	7/15/2021	19:15	12		Debris	Removed Blockage To Resume Normal Flow. Service Line Wash To Remove Debris And Minor Roots.
7/16/2021	18:50	1514 Tanglewood Rd, Columbia, SC 29205	Cleanout	7/16/2021	19:00	39		Grease	Removed Blockage To Resume Normal Flow. Washed Main Line 200 Feet To Remove Grease.
7/21/2021	19:30	100 Wheat St, Columbia, SC 29201	Pump Station, Manhole	7/22/2021	2:00	216837	Congaree River, Multiple	Equipment	Diverted Flow From The Force Main To The 60" Gravity Line Due To High Wet Well Levels At Pump Station. Later Determined Initial Cause Of Backup Was Downstream Bypass Setup On 60" Gravity Line. Upon Removal Of Bypass Setup, The Pump Station, Force Main, And Gravity Line All Returned To Normal Operation.
7/27/2021	19:07	192 Rocky Point Dr, Columbia, SC 29212	Force Main	7/27/2021	11:00	78		Force Main	Shut Off Valve To ARV. Replaced ARV.
7/31/2021	17:45	607 Woodrow St, Columbia, SC 29205	Manhole	8/2/2021	9:35	60	Storm Drain	Debris	Removed Blockage To Resume Normal Flow. Main Line Repair To Remove Debris Stuck In Main Line.
8/1/2021	20:21	1320 Heidt St, Columbia, SC 29204	Cleanout	8/9/2021	7:08	25	Storm Drain	Collapsed Line	Service Line Wash To Remove Stoppage. Emergency Service Line Repair.
8/17/2021	14:15	4300 Candlelite Dr, Columbia, SC 29209	Cleanout	8/17/2021	14:15	24		Debris	Removed Blockage To Resume Normal Flow. Washed Service Line 15 Feet To Remove Debris.
8/19/2021	08:30	680 Candi Ln, Columbia, SC 29210	Force Main	8/20/2021	08:30	600		3rd Party Responsibility	Containment Pit Dug To Contain The Spill. Force Main Repair Completed By Contractor. Tested On 8/23/21.
8/20/2021	12:00	192 Windfall Rd, Blythewood, SC 29016	Cleanout	8/21/2021	10:00	315	Storm Drain	3rd Party Responsibility	Service Line Wash To Resume Normal Flow. Service Line Repair.
8/22/2021	16:13	1600 Garner Ln, Columbia, SC 29210	Manhole	8/23/2021	12:00	9522		Pump Station Failure	Reset Breaker For VFDs. Rewired VFD.
8/24/2021	16:45	321 Killian Rd, Columbia, SC 29203	Cleanout	8/24/2021	18:15	90	Storm Drain	Debris	Removed Stoppage To Resume Normal Flow. Washed Service Line To Remove Debris.
8/25/2021	19:30	919 S Bonham Rd, Columbia, SC 29205	Manhole	TBD		545	Storm Drain	Collapsed Line	Removed Stoppage To Resume Normal Flow. Line Under Review To Be Added To Preventative Maintenance Wash List.
9/8/2021	17:30	1517 N Woodstream Rd, Columbia, SC 29212	Cleanout	9/11/2021	00:35	29	Koon Branch	Collapsed Line	Removed Blockage To Resume Normal Flow. Service Line Repair.
9/17/2021	11:30	437 Finsbury Rd, Columbia, SC 29212	Cleanout	TBD		4		Roots	Removed Blockage To Resume Normal Flow. Service Line CIPP Will Be Done.
9/21/2021	12:05	3913 Overbrook Dr, Columbia, SC 29205	Cleanout	TBD		25	Storm Water Ditch	Collapsed Line	Removed Blockage To Resume Normal Flow. Service Line Repair To Be Done.
9/29/2021	19:00	409 Beaverbrook Rd, Columbia, SC 29203	Cleanout	TBD		1794		Grease	Washed Main Line To Resume Normal Flow. Main Line Wash To Remove Grease Deposits To Be Done.

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 2021

City of Columbia, SC Quarterly Building Backup Listing 3rd Quarter 2021									
Date	Time	Location	Source	Date of Corrective Action	Time of Corrective Action	Estimated Volume (gallons)	Receiving Water (if any)	Cause	Actions Taken
7/16/2021	13:30	2405 Preston St, Columbia, SC 29205	City	7/16/2021	14:00	1		Roots	Removed Blockage To Resume Normal Flow. Root Cut Service Line To Remove Roots At Tap.
7/17/2021	22:30	1510 Milford Rd, Columbia, SC 29206	City	8/2/2021	10:00	1		Roots	Service Line Wash Clean Out Raised And Service Line Root Cut.
8/3/2021	17:30	300 Huger St, Columbia, SC 29201	City	Corrective Action Completed By Contractor		4		3rd Party Responsibility	Removed Blockage To Resume Normal Flow. Contractor Installed Invert In Hanhole.
9/16/2021	19:00	2623 Banner Hill Rd, Columbia, SC 29209	City	TBD		6		Roots	Removed Blockage To Resume Normal Flow. Service Line Repair To Be Done.
9/29/2021	16:20	6 Penelope Ln, Columbia, SC 29016	City	TBD		2		Roots	Washed, Root Cut And Rodded 1' From City Cleanout. Service Line Repair To Be Done.

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 2021 Q2 was completed on August 3, 2021, August 27, 2021, and September 29, 2021. 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: 8/3/2021

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

Miranda Staples
Project Verifier/QA Manager

8/10/2021
Date

Miranda Staples
Printed Name

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

AJ Jesse
Project Manager/Project Validator

8/10/21
Date

AJ Jesse
Printed Name



Laboratory Report

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

Project: Water Quality Testing
Work Order: 1071100
Received: 07/20/2021 14:45

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 20, 2021. 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 Bailey Branham, your Project Manager, at bbranham@rcenviro.com, (864)-232-1556 if you have any questions about this report.

CC: Trevor Gauron

Report Approved By:

Bailey Branham
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: 1071100
Received: 07/20/2021 14:45

Sample Number	Sample Description	Matrix	Sampled	Type
1071100-01	DHEC B-280 Smith Branch @ N. Main St	Wastewater	07/20/21 13:11	Grab
1071100-02	DHEC B-280 Smith Branch @ N. Main St	Wastewater	07/20/21 13:05	Grab
1071100-03	DHEC B-280 Smith Branch @ N. Main St	Wastewater	07/20/21 13:08	Grab
1071100-04	DHEC C-001 Gills Creek @ Garners Ferry Rd	Wastewater	07/20/21 13:45	Grab
1071100-05	DHEC C-001 Gills Creek @ Garners Ferry Rd	Wastewater	07/20/21 13:40	Grab
1071100-06	DHEC C-001 Gills Creek @ Garners Ferry Rd	Wastewater	07/20/21 13:42	Grab
1071100-07	DHEC C-017 Gills Creek @ Bluff Road	Wastewater	07/20/21 14:08	Grab
1071100-08	DHEC C-017 Gills Creek @ Bluff Road	Wastewater	07/20/21 14:02	Grab
1071100-09	DHEC C-017 Gills Creek @ Bluff Road	Wastewater	07/20/21 14:05	Grab



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

Project: Water Quality Testing
Work Order: 1071100
Reported: 08/03/21 17:07

Sample Data

Sample Number 1071100-01
Sample Description DHEC B-280 Smith Branch @ N. Main St collected on 07/20/21 13:11

Parameter	Result	Reporting Limit	Units	DF	Analyzed	Method	Flag	Analyst	Batch	Lab
Field Parameters										
Dissolved Oxygen	7.4	0.1	mg/L	1.00	07/20/21 13:11	SM 4500 OG-2011		CDT	B1G0905	RC-C
Grab	Complete				07/20/21 13:11	Grab		CDT	B1G0905	RC-C
Temperature	24.7	0.0	°C	1.00	07/20/21 13:11	SM 2550B-2010		CDT	B1G0905	RC-C

Sample Number 1071100-02
Sample Description DHEC B-280 Smith Branch @ N. Main St collected on 07/20/21 13:05

Parameter	Result	Reporting Limit	Units	DF	Analyzed	Method	Flag	Analyst	Batch	Lab
General Chemistry Parameters										
Total Suspended Solids	155	6.7	mg/L	6.67	07/22/21 15:55	SM 2540D-2011		SMN	B1G1044	RC-C

Sample Number 1071100-03
Sample Description DHEC B-280 Smith Branch @ N. Main St collected on 07/20/21 13:08

Parameter	Result	Reporting Limit	Units	DF	Analyzed	Method	Flag	Analyst	Batch	Lab
Microbiological Parameters										
E. Coli	10950	20	MPN/100 mL	20.0	07/20/21 15:18	SM 9223B-2004		MBW	B1G0968	RC-C

Sample Number 1071100-04
Sample Description DHEC C-001 Gills Creek @ Garners Ferry Rd collected on 07/20/21 13:45

Parameter	Result	Reporting Limit	Units	DF	Analyzed	Method	Flag	Analyst	Batch	Lab
Field Parameters										
Dissolved Oxygen	7.2	0.1	mg/L	1.00	07/20/21 13:45	SM 4500 OG-2011		CDT	B1G0905	RC-C
Temperature	26.2	0.0	°C	1.00	07/20/21 13:45	SM 2550B-2010		CDT	B1G0905	RC-C



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

Project: Water Quality Testing
Work Order: 1071100
Reported: 08/03/21 17:07

Sample Number 1071100-05
Sample Description DHEC C-001 Gills Creek @ Garners Ferry Rd collected on 07/20/21 13:40

Parameter	Result	Reporting Limit	Units	DF	Analyzed	Method	Flag	Analyst	Batch	Lab
General Chemistry Parameters										
Total Suspended Solids	28.3	3.3	mg/L	3.33	07/22/21 15:55	SM 2540D-2011		SMN	B1G1044	RC-C

Sample Number 1071100-06
Sample Description DHEC C-001 Gills Creek @ Garners Ferry Rd collected on 07/20/21 13:42

Parameter	Result	Reporting Limit	Units	DF	Analyzed	Method	Flag	Analyst	Batch	Lab
Microbiological Parameters										
E. Coli	1112	20	MPN/100 mL	20.0	07/20/21 15:18	SM 9223B-2004		MBW	B1G0968	RC-C

Sample Number 1071100-07
Sample Description DHEC C-017 Gills Creek @ Bluff Road collected on 07/20/21 14:08

Parameter	Result	Reporting Limit	Units	DF	Analyzed	Method	Flag	Analyst	Batch	Lab
Field Parameters										
Dissolved Oxygen	6.0	0.1	mg/L	1.00	07/20/21 14:08	SM 4500 OG-2011		CDT	B1G0905	RC-C
Temperature	25.0	0.0	°C	1.00	07/20/21 14:08	SM 2550B-2010		CDT	B1G0905	RC-C

Sample Number 1071100-08
Sample Description DHEC C-017 Gills Creek @ Bluff Road collected on 07/20/21 14:02

Parameter	Result	Reporting Limit	Units	DF	Analyzed	Method	Flag	Analyst	Batch	Lab
General Chemistry Parameters										
Total Suspended Solids	12.0	1.7	mg/L	1.67	07/22/21 15:55	SM 2540D-2011		SMN	B1G1044	RC-C

Sample Number 1071100-09
Sample Description DHEC C-017 Gills Creek @ Bluff Road collected on 07/20/21 14:05

Parameter	Result	Reporting Limit	Units	DF	Analyzed	Method	Flag	Analyst	Batch	Lab
Microbiological Parameters										
E. Coli	242	20	MPN/100 mL	20.0	07/20/21 15:18	SM 9223B-2004		MBW	B1G0968	RC-C



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

Project: Water Quality Testing
Work Order: 1071100
Reported: 08/03/21 17:07

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 (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 1071100

R & C WORK ORDER	YR 21 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)	COMMENTS	
-01	7/20	1305	DHEC B-280 (Smith Branch @ N. Main St)	1	TSS	Y	N							A - None E - HCl F - Na ₂ S ₂ O ₃ G - Boric Acid H - Ascorbic Acid	-03	
-02	7/20	1708	DHEC B-280 (Smith Branch @ N. Main St)	1	D.O.	Y	N							I - Zn Acetate J - H ₃ PO ₄ K - NaH ₂ PO ₄ L - NH ₄ Cl	D.O.- 7.40 mg/L	
		1311			Temp											Temp- 24.7 °C
																Collected @ 1311 7/20/21
																Analyzed @ 1311 7/20/21
																Weather- 73° Cloudy

DATE/TIME: 7/20/21 1445 RECEIVED BY: St m, m
DATE/TIME: _____ RECEIVED BY: _____
DATE/TIME: _____ RECEIVED BY: _____
DATE/TIME: _____ RECEIVED BY: _____
DATE/TIME: _____ RECEIVED BY: _____

COMPOSITE START DATE/TIME: _____
COMPOSITE END DATE/TIME: _____
Time or Flow (Circle one) Initials: _____

Temperature of blank or representative sample _____ °C
At time of collection _____ °C
At time of lab receipt 1.8 °C



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Mailing Address: PO Box 5655, Greenville, SC 29606
Phone (864) 232-1556

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

Project # Water Quality Testing

CHAIN OF CUSTODY RECORD

WORK ORDER 1071166

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)	COMMENTS	
-05	7/20	1340	DHEC C-001 (Gills Creek @ Garners Ferry Rd)	1	TSS	Y	N							A - None B - HNO ₃ C - H ₂ SO ₄ D - NaOH	-01 D.O.- 7.15 mg/L	
-06	7/20	1342	DHEC C-001 (Gills Creek @ Garners Ferry Rd)	1	F. Coll	P	N							E - HCl F - Na ₂ S ₂ O ₃ G - Boric Acid H - Ascorbic Acid	Temp- 26.2 °C Collected @ 1345 7/20/21 Analyzed @ 1345 7/20/21	
														I - Zn Acetate J - H ₃ PO ₄ K - NaH ₂ PO ₄ L - NH ₄ Cl	Weather- 73° Cloudy	

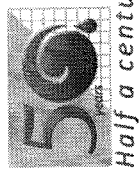
SAMPLER - RELINQUISHED BY: [Signature] DATE/TIME: 7/20/21 1445 RECEIVED BY: [Signature]

RELINQUISHED BY: DATE/TIME: RECEIVED BY: 4.

RELINQUISHED BY: DATE/TIME: RECEIVED BY: 6.

RELINQUISHED BY: DATE/TIME: RECEIVED BY: 8.

Composite Start Date/Time: _____
Composite End Date/Time: _____
Time or Flow (Circle one) Initials: _____
Temperature of blank or representative sample
At time of collection _____ °C
At time of lab receipt 1.8 °C



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 (864) 232-6140

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 1071100

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 F - Na ₂ S ₂ O ₃ G - Boric Acid H - Ascorbic Acid I - Zn Acetate J - H ₃ PO ₄ K - NaH ₂ PO ₄ L - NH ₄ Cl	-07
D.O.-	1												D.O.- 6.02 mg/L
Temp-	1												Temp- 25.0 °C
													Collected @ 1408 7/20/21
													Analyzed @ 1408 7/20/21
													Weather- 73° Cloudy

Composite Start Date/Time: _____
 Composite End Date/Time: _____
 Time or Flow (Circle one) Initials: _____
 Temperature of blank or representative sample
 At time of collection _____ °C
 At time of lab receipt 1.8 °C

R & C WORK ORDER	YR DATE	TIME	SAMPLE DESCRIPTION	RECEIVED BY:	DATE/TIME:
-08	7/20	1402	DHEC C-017 (Gills Creek @ Bluff Road)	2. <i>DL</i>	7/20/21 1445
-09	7/20	1405	DHEC C-017 (Gills Creek @ Bluff Road)	4. <i>DL</i>	7/20/21 1445
				6. _____	DATE/TIME: _____
				8. _____	DATE/TIME: _____



Columbia Sample Receipt Verification

Client: Wodport Date Received: 7/20/21 Work Order: 1071160

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: _____
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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 Columbia ?				<input checked="" type="checkbox"/> Ice Cold Packs Dry Ice None
	Temp at time of receipt	<u>18</u> °C		
	Temp measured with IR SN: 36301069WS			

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

Comments:

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

Non-Conformance issue other than noted above:

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: 8/27/21

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

Miranda Staples
Project Verifier/QA Manager

9/7/2021
Date

Miranda S. Staples
Printed Name

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

AJ Jesse
Project Manager/Project Validator

9/7/21
Date

AJ Jesse
Printed Name



Laboratory Report

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

Project: Water Quality Testing
Work Order: 1081240
Received: 08/20/2021 12:25

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 20, 2021. 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 Bailey Branham, your Project Manager, at bbranham@rcenviro.com, (864)-232-1556 if you have any questions about this report.

CC: Trevor Gauron

Report Approved By:

Bailey Branham
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: 1081240
Received: 08/20/2021 12:25

Sample Number	Sample Description	Matrix	Sampled	Type
1081240-01	DHEC B-280 Smith Branch @ N. Main St	Wastewater	08/20/21 07:40	Grab
1081240-02	DHEC B-280 Smith Branch @ N. Main St	Wastewater	08/20/21 07:41	Grab
1081240-03	DHEC B-280 Smith Branch @ N. Main St	Wastewater	08/20/21 07:39	Grab
1081240-04	DHEC C-001 Gills Creek @ Garners Ferry Rd	Wastewater	08/20/21 08:19	Grab
1081240-05	DHEC C-001 Gills Creek @ Garners Ferry Rd	Wastewater	08/20/21 08:20	Grab
1081240-06	DHEC C-001 Gills Creek @ Garners Ferry Rd	Wastewater	08/20/21 08:18	Grab
1081240-07	DHEC C-017 Gills Creek @ Bluff Road	Wastewater	08/20/21 08:44	Grab
1081240-08	DHEC C-017 Gills Creek @ Bluff Road	Wastewater	08/20/21 08:45	Grab
1081240-09	DHEC C-017 Gills Creek @ Bluff Road	Wastewater	08/20/21 08:43	Grab



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

Project: Water Quality Testing
Work Order: 1081240
Reported: 08/27/21 18:16

Sample Data

Sample Number 1081240-01
Sample Description DHEC B-280 Smith Branch @ N. Main St collected on 08/20/21 07:40

Parameter	Result	Reporting Limit	Units	DF	Analyzed	Method	Flag	Analyst	Batch	Lab
Field Parameters										
Grab	Complete				08/20/21 07:40	Grab		MBW	B1H1008	RC-C
General Chemistry Parameters										
Total Suspended Solids	8.4	1.3	mg/L	1.33	08/25/21 15:10	SM 2540D-2011		SMN	B1H1072	RC-C

Sample Number 1081240-02
Sample Description DHEC B-280 Smith Branch @ N. Main St collected on 08/20/21 07:41

Parameter	Result	Reporting Limit	Units	DF	Analyzed	Method	Flag	Analyst	Batch	Lab
Microbiological Parameters										
E. Coli	1434	20	MPN/100 mL	20.0	08/20/21 13:05	SM 9223B-2004		MBW	B1H1234	RC-C

Sample Number 1081240-03
Sample Description DHEC B-280 Smith Branch @ N. Main St collected on 08/20/21 07:39

Parameter	Result	Reporting Limit	Units	DF	Analyzed	Method	Flag	Analyst	Batch	Lab
Field Parameters										
Dissolved Oxygen	13.0	0.1	mg/L	1.00	08/20/21 07:42	SM 4500 OG-2011		MBW	B1H1008	RC-C
Temperature	21.7	0.0	°C	1.00	08/20/21 07:42	SM 2550B-2010		MBW	B1H1008	RC-C

Sample Number 1081240-04
Sample Description DHEC C-001 Gills Creek @ Garners Ferry Rd collected on 08/20/21 08:19

Parameter	Result	Reporting Limit	Units	DF	Analyzed	Method	Flag	Analyst	Batch	Lab
General Chemistry Parameters										
Total Suspended Solids	21.1	2.2	mg/L	2.22	08/25/21 15:10	SM 2540D-2011		SMN	B1H1072	RC-C



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

Project: Water Quality Testing
Work Order: 1081240
Reported: 08/27/21 18:16

Sample Number 1081240-05
Sample Description DHEC C-001 Gills Creek @ Garners Ferry Rd collected on 08/20/21 08:20

Parameter	Result	Reporting Limit	Units	DF	Analyzed	Method	Flag	Analyst	Batch	Lab
Microbiological Parameters										
E. Coli	646	20	MPN/100 mL	20.0	08/20/21 13:05	SM 9223B-2004		MBW	B1H1234	RC-C

Sample Number 1081240-06
Sample Description DHEC C-001 Gills Creek @ Garners Ferry Rd collected on 08/20/21 08:18

Parameter	Result	Reporting Limit	Units	DF	Analyzed	Method	Flag	Analyst	Batch	Lab
Field Parameters										
Dissolved Oxygen	12.6	0.1	mg/L	1.00	08/20/21 08:21	SM 4500 OG-2011		MBW	B1H1008	RC-C
Temperature	23.4	0.0	°C	1.00	08/20/21 08:21	SM 2550B-2010		MBW	B1H1008	RC-C

Sample Number 1081240-07
Sample Description DHEC C-017 Gills Creek @ Bluff Road collected on 08/20/21 08:44

Parameter	Result	Reporting Limit	Units	DF	Analyzed	Method	Flag	Analyst	Batch	Lab
General Chemistry Parameters										
Total Suspended Solids	16.0	2.2	mg/L	2.22	08/25/21 15:10	SM 2540D-2011		SMN	B1H1072	RC-C

Sample Number 1081240-08
Sample Description DHEC C-017 Gills Creek @ Bluff Road collected on 08/20/21 08:45

Parameter	Result	Reporting Limit	Units	DF	Analyzed	Method	Flag	Analyst	Batch	Lab
Microbiological Parameters										
E. Coli	1394	20	MPN/100 mL	20.0	08/20/21 13:05	SM 9223B-2004		MBW	B1H1234	RC-C

Sample Number 1081240-09
Sample Description DHEC C-017 Gills Creek @ Bluff Road collected on 08/20/21 08:43

Parameter	Result	Reporting Limit	Units	DF	Analyzed	Method	Flag	Analyst	Batch	Lab
Field Parameters										
Dissolved Oxygen	10.4	0.1	mg/L	1.00	08/20/21 08:46	SM 4500 OG-2011		MBW	B1H1008	RC-C
Temperature	24.5	0.0	°C	1.00	08/20/21 08:46	SM 2550B-2010		MBW	B1H1008	RC-C



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

Project: Water Quality Testing
Work Order: 1081240
Reported: 08/27/21 18:16

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

Mailing: PO Box 5655 Shipping: 426 Fairforest Way 215B Stoneridge Drive
 Address: Greenville, SC 29606 Address: Greenville, SC 29607 Columbia, SC 29210
 Phone (864) 232-1556 Fax (864) 232-6140 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 1081240

R & C WORK ORDER	YR DATE	TIME	SAMPLE DESCRIPTION	Total Number of Containers	Parameter(s) ↑	N	N	Filtered (Yes/No)
-01	8-20	0740	DHEC B-280 (Smith Branch @ N. Main St)	1	TSS	Y	Y	Yes
-02	8-20	0741	DHEC B-280 (Smith Branch @ N. Main St)	1	F. Col	P	P	Yes
						0.5G	1.20	
						G	G	
						ww	ww	
						A	F	

Container Type (Plastic/Glass) _____
 Container Volume (mL) _____
 Sample Type (Grab/Composite) _____
 Sample Source (WW, GW, DW, SW, S, Other) _____

Preservation Code(s)
 A - None E - HCl I - Zn Acetate
 B - HNO₃ F - Na₂S₂O₃ J - H₃PO₄
 C - H₂SO₄ G - Boric Acid K - NaH₂PO₄
 D - NaOH H - Ascorbic Acid L - NH₄Cl

-03 COMMENTS
 D.O. - 13.05 mg/L
 Temp - 21.7 °C
 Collected @ 0739
 Analyzed @ 0742
 Weather - 75° F / Partly Cloudy

DATE/TIME: 8-20-21 1225 Composite Start Date/Time: _____
 DATE/TIME: _____ Composite End Date/Time: _____
 DATE/TIME: _____ Time or Flow (Circle one) Initials: _____
 DATE/TIME: _____ Temperature of blank or representative sample
 DATE/TIME: _____ At time of collection _____ °C
 DATE/TIME: _____ At time of lab receipt 0.6 °C

CHAIN OF CUSTODY RECORD



Mailing Address: PO Box 5655 Greenville, SC 29606
 Shipping Address: 426 Fairforest Way Greenville, SC 29607
 Phone (864) 232-1556 Fax (864) 232-6140

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 #: 21 Project # Water Quality Testing

Parameter(s) ↓	Total Number of Containers		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)
TSS	1	1	Y	N							A - None E - HCl I - Zn Acetate B - HNO3 F - Na2S2O3 J - H3PO4 C - H2SO4 G - Boric Acid K - NaH2PO4 D - NaOH H - Ascorbic Acid L - NH4Cl
F. Coli	1	1									-06 COMMENTS
											D.O. - 12.57 mg/L
											Temp- 23.4 °C
											Collected @ 0818
											Analyzed @ 0821
											Weather- 77° F / Fair

SAMPLER - RELINQUISHED BY: 1. Nindi B. Wright DATE/TIME: 8-20-21 1215 RECEIVED BY: [Signature] DATE/TIME: 8/21/2021 Composite Start Date/Time: _____

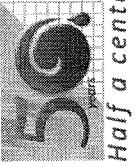
RELINQUISHED BY: _____ DATE/TIME: _____ RECEIVED BY: _____ DATE/TIME: _____ Composite End Date/Time: _____

RELINQUISHED BY: _____ DATE/TIME: _____ RECEIVED BY: _____ DATE/TIME: _____ Time or Flow (Circle one) Initials: _____

RELINQUISHED BY: _____ DATE/TIME: _____ RECEIVED BY: _____ DATE/TIME: _____ Temperature of blank or representative sample _____ °C

RELINQUISHED BY: _____ DATE/TIME: _____ RECEIVED BY: _____ DATE/TIME: _____ At time of collection _____ °C

RELINQUISHED BY: _____ DATE/TIME: _____ RECEIVED BY: _____ DATE/TIME: _____ At time of lab receipt 0.6 °C



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Half a century of commitment and quality

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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 1081240

Total Number of Containers	N	N					Filtered (Yes/No)
	Y	Y					Cooled (Yes/No)
Parameter(s) ↑	P	P					Container Type (Plastic/Glass)
	0.5G	1.20					Container Volume (mL)
	G	G					Sample Type (Grab/Composite)
	WW	WW					Sample Source (WW, GW, DW, SW, S, Other)
	A	F					Preservation Code(s) A - None E - HCl I - Zn Acetate B - HNO ₃ F - Na ₂ S ₂ O ₃ J - H ₃ PO ₄ C - H ₂ SO ₄ G - Boric Acid K - NaH ₂ PO ₄ D - NaOH H - Ascorbic Acid L - NH ₄ Cl
	TSS	F. Coli					-09 COMMENTS
	1						D.O.- 10.38 mg/L
	1	1					Temp- 24.5 °C
							Collected @ 0843
							Analyzed @ 0846
							Weather- 79° F / Sunny

SAMPLER - RELINQUISHED BY: 1. <u>Indi B. Digt</u>	DATE/TIME:	RECEIVED BY:	DATE/TIME:	Composite Start Date/Time:
	<u>8-20-21 1225</u>	<u>[Signature]</u>	<u>8/21/25</u>	<u>8/21/25</u>
RELINQUISHED BY:	DATE/TIME:	RECEIVED BY:	DATE/TIME:	Composite End Date/Time:
RELINQUISHED BY:	DATE/TIME:	RECEIVED BY:	DATE/TIME:	Time or Flow (Circle one) Initials:
RELINQUISHED BY:	DATE/TIME:	RECEIVED BY:	DATE/TIME:	Temperature of blank or representative sample
				At time of collection _____ °C
				At time of lab receipt <u>0.6</u> °C



Columbia Sample Receipt Verification

Client: WOOLPERT- CITY OF COLUMBIA Date Received: 8/20/21 Work Order: 1081240

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: _____
----------------------------------	--------	-------	-----	---------	---------	----------------	--------------

Receipt Criteria	Y e s	No	N A	Comments
Shipping container / cooler intact?	✓			Damaged Leaking Other:
Custody seals intact?			✓	
COC included with samples?	✓			
COC signed when relinquished and received?	✓			
Sample bottles intact?	✓			Damaged Leaking Other:
Sample ID on COC agree with label on bottle(s)?	✓			
Date / time on COC agree with label on bottle(s)?	✓			
Number of bottles on COC agrees with number of bottles received?	✓			
Samples received within holding time?	✓			
Sample volume sufficient for analysis?	✓			
VOA vials free of headspace (<6mm bubble)?			✓	
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&G and VOA analysis – preservation checked at bench.</small>			✓	
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>	✓			
Samples cooled when received in Columbia ?				<u>Ice</u> Cold Packs Dry Ice None
	Temp at time of receipt	<u>0.6</u> °C	↓	
	Temp measured with IR SN: 36301069WS			

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

Comments:

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

Non-Conformance issue other than noted above:

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: 9/29/21

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



Project Verifier/QA Manager

10/8/2021

Date

Miranda S. Staples

Printed Name

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



Project Manager/Project Validator

10/8/21

Date

AJ Jessee

Printed Name



Laboratory Report

Client	Woolpert Inc. - City of Columbia Michael Long 2000 Center Point Road Ste 2200 Columbia, SC 29210	Project:	Water Quality Testing
		Work Order:	1091089
		Received:	09/20/2021 12:46

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 20, 2021. 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 Bailey Branham, your Project Manager, at bbranham@rcenviro.com, (864)-232-1556 if you have any questions about this report.

CC: Trevor Gauron

Report Approved By:

Bailey Branham
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: 1091089
Received: 09/20/2021 12:46

Sample Number	Sample Description	Matrix	Sampled	Type
1091089-01	DHEC B-280 Smith Branch @ N. Main St	Wastewater	09/20/21 10:20	Grab
1091089-02	DHEC B-280 Smith Branch @ N. Main St	Wastewater	09/20/21 10:25	Grab
1091089-03	DHEC B-280 Smith Branch @ N. Main St	Wastewater	09/20/21 10:27	Grab
1091089-04	DHEC C-001 Gills Creek @ Garners Ferry Rd	Wastewater	09/20/21 11:50	Grab
1091089-05	DHEC C-001 Gills Creek @ Garners Ferry Rd	Wastewater	09/20/21 11:53	Grab
1091089-06	DHEC C-001 Gills Creek @ Garners Ferry Rd	Wastewater	09/20/21 11:55	Grab
1091089-07	DHEC C-017 Gills Creek @ Bluff Road	Wastewater	09/20/21 12:10	Grab
1091089-08	DHEC C-017 Gills Creek @ Bluff Road	Wastewater	09/20/21 12:13	Grab
1091089-09	DHEC C-017 Gills Creek @ Bluff Road	Wastewater	09/20/21 12:15	Grab



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

Project: Water Quality Testing
Work Order: 1091089
Reported: 09/29/21 15:58

Sample Data

Sample Number 1091089-01
Sample Description DHEC B-280 Smith Branch @ N. Main St collected on 09/20/21 10:20

Parameter	Result	Reporting Limit	Units	DF	Analyzed	Method	Flag	Analyst	Batch	Lab
General Chemistry Parameters										
Total Suspended Solids	5.8	1.0	mg/L	1.00	09/21/21 09:45	SM 2540D-2011		SMN	B1I0892	RC-C

Sample Number 1091089-02
Sample Description DHEC B-280 Smith Branch @ N. Main St collected on 09/20/21 10:25

Parameter	Result	Reporting Limit	Units	DF	Analyzed	Method	Flag	Analyst	Batch	Lab
Microbiological Parameters										
E. Coli	322	20	MPN/100 mL	20.0	09/20/21 15:00	SM 9223B-2004		MBW	B1I0941	RC-C

Sample Number 1091089-03
Sample Description DHEC B-280 Smith Branch @ N. Main St collected on 09/20/21 10:27

Parameter	Result	Reporting Limit	Units	DF	Analyzed	Method	Flag	Analyst	Batch	Lab
Field Parameters										
Dissolved Oxygen	7.2	0.1	mg/L	1.00	09/20/21 10:27	SM 4500 OG-2011		CDT	B1I0857	RC-C
Grab	Complete				09/20/21 10:27	Grab		CDT	B1I0857	RC-C
Temperature	24.7	0.0	°C	1.00	09/20/21 10:27	SM 2550B-2010		CDT	B1I0857	RC-C

Sample Number 1091089-04
Sample Description DHEC C-001 Gills Creek @ Garners Ferry Rd collected on 09/20/21 11:50

Parameter	Result	Reporting Limit	Units	DF	Analyzed	Method	Flag	Analyst	Batch	Lab
General Chemistry Parameters										
Total Suspended Solids	19.7	2.9	mg/L	2.86	09/21/21 09:45	SM 2540D-2011		SMN	B1I0892	RC-C



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

Project: Water Quality Testing
Work Order: 1091089
Reported: 09/29/21 15:58

Sample Number 1091089-05
Sample Description DHEC C-001 Gills Creek @ Garners Ferry Rd collected on 09/20/21 11:53

Parameter	Result	Reporting Limit	Units	DF	Analyzed	Method	Flag	Analyst	Batch	Lab
Microbiological Parameters										
E. Coli	406	20	MPN/100 mL	20.0	09/20/21 15:00	SM 9223B-2004		MBW	B1I0941	RC-C

Sample Number 1091089-06
Sample Description DHEC C-001 Gills Creek @ Garners Ferry Rd collected on 09/20/21 11:55

Parameter	Result	Reporting Limit	Units	DF	Analyzed	Method	Flag	Analyst	Batch	Lab
Field Parameters										
Dissolved Oxygen	7.4	0.1	mg/L	1.00	09/20/21 11:55	SM 4500 OG-2011		CDT	B1I0857	RC-C
Temperature	26.5	0.0	°C	1.00	09/20/21 11:55	SM 2550B-2010		CDT	B1I0857	RC-C

Sample Number 1091089-07
Sample Description DHEC C-017 Gills Creek @ Bluff Road collected on 09/20/21 12:10

Parameter	Result	Reporting Limit	Units	DF	Analyzed	Method	Flag	Analyst	Batch	Lab
General Chemistry Parameters										
Total Suspended Solids	10.7	1.7	mg/L	1.67	09/21/21 09:45	SM 2540D-2011		SMN	B1I0892	RC-C

Sample Number 1091089-08
Sample Description DHEC C-017 Gills Creek @ Bluff Road collected on 09/20/21 12:13

Parameter	Result	Reporting Limit	Units	DF	Analyzed	Method	Flag	Analyst	Batch	Lab
Microbiological Parameters										
E. Coli	82	20	MPN/100 mL	20.0	09/20/21 15:00	SM 9223B-2004		MBW	B1I0941	RC-C

Sample Number 1091089-09
Sample Description DHEC C-017 Gills Creek @ Bluff Road collected on 09/20/21 12:15

Parameter	Result	Reporting Limit	Units	DF	Analyzed	Method	Flag	Analyst	Batch	Lab
Field Parameters										
Dissolved Oxygen	6.0	0.1	mg/L	1.00	09/20/21 12:15	SM 4500 OG-2011		CDT	B1I0857	RC-C
Temperature	25.3	0.0	°C	1.00	09/20/21 12:15	SM 2550B-2010		CDT	B1I0857	RC-C



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

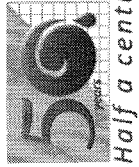
Project: Water Quality Testing
Work Order: 1091089
Reported: 09/29/21 15:58

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 (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

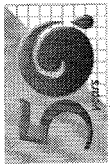
CHAIN OF CUSTODY RECORD

WORK ORDER 1091089

R & C WORK ORDER	YR DATE	TIME	SAMPLE DESCRIPTION	Total Number of Containers	Parameter(s) ↓		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
					N	N								
-01	9/20	1020	DHEC B-280 (Smith Branch @ N. Main St)	1	TSS	E. Coli	Y	Y	P	120	GW	WW	A - None E - HCl B - HNO ₃ F - Na ₂ S ₂ O ₃ C - H ₂ SO ₄ D - NaOH	D.O.- 7.17 mg/L Temp- 24.7 °C
-02	9/20	1025	DHEC B-280 (Smith Branch @ N. Main St)	1										Collected @ 1027 9/20/21 Analyzed @ 1027 9/20/21 Weather- Cloudy 75°

SAMPLER - RELINQUISHED BY: <u>John</u>	DATE/TIME: <u>9/20/21 1246</u>	RECEIVED BY: <u>2. J.A.M.</u>	DATE/TIME: <u>9/20/21 1246</u>
RELINQUISHED BY:	DATE/TIME:	RECEIVED BY: 4.	DATE/TIME:
RELINQUISHED BY:	DATE/TIME:	RECEIVED BY: 6.	DATE/TIME:
RELINQUISHED BY:	DATE/TIME:	RECEIVED BY: 8.	DATE/TIME:

Temperature of blank or representative sample
At time of collection _____ °C
At time of lab receipt 6.1 °C



Rogers & Callcott

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Mailing Address: PO Box 5655 Greenville, SC 29606
 Shipping Address: 426 Fairforest Way Greenville, SC 29607
 Phone: (864) 232-1556
 Phone: (864) 232-6140

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

1041089
~~1041089~~
 9/20/14

R & C WORK ORDER	YR DATE	TIME	SAMPLE DESCRIPTION	Total Number of Containers		Parameter(s) ↓	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
				N	Y		N	Y								
-07	9/20	1210	DHEC C-017 (Gills Creek @ Bluff Road)	1	1	TSS	A									D.O. - 5.95 mg/L
-08	9/20	1213	DHEC C-017 (Gills Creek @ Bluff Road)	1	1	E. Coli	F									Temp - 25.3 °C
																Collected @ 1215 9/20/21
																Analyzed @ 1215 9/20/21
																Weather - 75° showers
SAMPLER - RELINQUISHED BY:			DATE/TIME:	RECEIVED BY:	DATE/TIME:	Composite Start Date/Time:		Composite End Date/Time:		Time or Flow (Circle one)		Initials:		Temperature of blank or representative sample		
1. <i>[Signature]</i>			9/20/21 1244	2. <i>[Signature]</i>	9/20/21 1246					At time of collection				At time of lab receipt		
RELINQUISHED BY:			DATE/TIME:	RECEIVED BY:	DATE/TIME:											
8. _____				4. _____												
RELINQUISHED BY:			DATE/TIME:	RECEIVED BY:	DATE/TIME:											
8. _____				6. _____												
RELINQUISHED BY:			DATE/TIME:	RECEIVED BY:	DATE/TIME:											
8. _____				8. _____												



Columbia Sample Receipt Verification

Client: Wolpert Date Received: 9/20/12 Work Order: 1041099

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

Carrier Name: (to Greenville)	Client	FedEx	UPS	US Mail	Courier	Field Services	Other: _____
----------------------------------	--------	-------	-----	---------	---------	----------------	--------------

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 Columbia ?				<input checked="" type="checkbox"/> Ice Cold Packs Dry Ice None
	Temp at time of receipt	<u>1.1</u> °C		
	Temp measured with IR SN: 36301069WS			

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

Comments:

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

Non-Conformance issue other than noted above: