## Clean Water 2020 Program

## CONSENT DECREE QUARTERLY REPORT

January 1, 2020 – March 31, 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):

- 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.

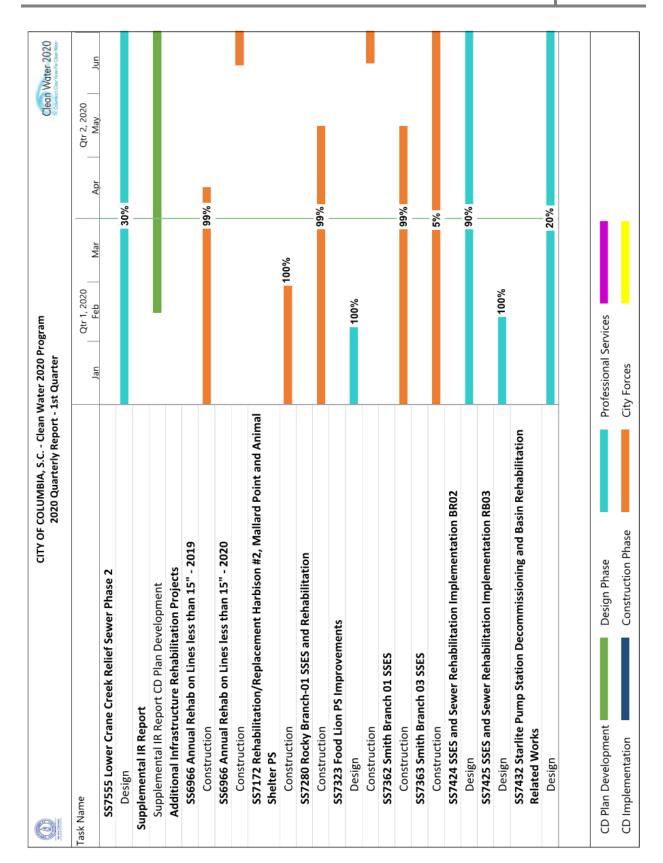
### Section 5 – SEP Water Quality Monitoring Results

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																																
Clean Water 2020 © Cumor Car Viso for Can Water	Apr Aav Jun	-		%				%		%		%		%							%		%				%		%			
Water 2020 Program - 1st Quarter	Qtr 1, 2020 Jan Feb Mar	- -		90%				81%		92%		83%		87%					100%		45%		98%				55%		%06		Professional Services	City Forces
CITY OF COLUMBIA, S.C Clean Water 2020 Program 2020 Quarterly Report - 1st Quarter			Information Management System (IMS) Program	nentation	ogram (CAP)	oment	im (SMP)		Transmission System Operations and Maintenance Program (TSOMP)	tion	Gravity Sewer System Operation and Maintenance Program (GSOMP)	tion	ment Program (CSAP) for the WCTS		Assessment of Minor Components of CSAP	Infrastructure Rehabilitation Report (IRR) for the WCTS	tation Projects	SS725802 Greenlawn Dr. to Burnside #1 PS (Hampton Forest) Phase 2		SS7261 Lake Katherine Sewer Capacity Enhancement		SS7289 Rivermont Drive Pump Station and Force Main				SS7330 Upper Mill Creek Sewer Improvements		SS7331 Upper Kinley Creek Sewer Improvements Phase 1			Design Phase	Construction Phase C
0	Task Name	MOM Programs	Information Managem	IMS Program Implementation	Capacity Assurance Program (CAP)	CAP CD Plan Development	Sewer Mapping Program (SMP)	SMP Implementation	Transmission System (	TSOMP Implementation	<b>Gravity Sewer System</b>	GSOMP Implementation	Continuing Sewer Assessment Program (CSAP)	<b>CSAP Implementation</b>	Assessment of Mino	Infrastructure Rehabilita	Infrastructure Rehabilitation Projects	SS725802 Greenlaw	Design	SS7261 Lake Kather	Construction	SS7289 Rivermont L	Design	SS7301 Bull Street	Construction	SS7330 Upper Mill (	Design	SS7331 Upper Kinle	Design		CD Plan Development	CD Implementation

2020 Quarterly Report - 1st Quarter	st Quarter	Clean Water 2020 Counses Convision Transfer Convinue
Task Name	Qtr 1, 2020 Jan Feb Mar	Abr Mav Iun
SS733701 East Rocky Branch Improvements Phase 1	-	-
Design	92%	%
SS733702 East Rocky Branch Improvements Phase 2		
Design	100%	
SS735002 Crane Creek Upper North Branch Extension		
Design	%66	%
SS735003 Crane Creek Lower North Branch Capacity Upgrade Phase 1		
Design	95%	%
SS7428 Lower Saluda River Relief Sewer and Major Pipe Rehabilitation		
Design	95%	%
SS7433 Cunningham Rd/Johnson Ave/Cramer Dr/Summerlea Dr Sewer		
Relocation		
Design	88	%
SS7450 Crane Creek Lower North Branch Capacity Upgrade Phase 2		
Design	60%	%
SS7454 Broad River Force Main Replacement and Gravity Sewer Capacity		
Improvements		
Design	30%	%
SS7466 Lower Rocky Branch Relief Sewer Phase 1		
Design	85%	%
SS7467 North Columbia Pump Station Upgrade		
Design	30%	%
SS7470 Lower Crane Creek Relief Sewer Phase 1		
Design	30%	%
SS7474 Upper North Branch Crane Creek Sewer Improvements Phase 1		
Design	30%	%
SS7497 Mill Creek PS Misc. Improvements		
Design		
CD Plan Development	Professional Services	

## Consent Decree Quarterly Report 2020 Q1



## Consent Decree Quarterly Report 2020 Q1

Task Name SS7435 Wexford and Windsong Lift Stations Evaluation and Rehabilitation Project Design SS7437 Miscellaneous Lift Station Improvements and Backup Power Addition Project	
	Qtr 1, 2020 Qtr 2, 2020 Eeb Mar Anr Mav Iun
Design SS7437 Miscellaneous Lift Station Improvements and Backup Power Addition Project	
SS7437 Miscellaneous Lift Station Improvements and Backup Power Addition Project	95%
Design	90%
SS7462 Investigation of Crockett Road, Atlas Road and Versch Lock Lift Stations	
Design	30%
SS7463 SSES and Sewer Rehabilitation Implementation CC01	
Design	27%
SS7464 SSES and Sewer Rehabilitation Implementation CC02 and CC04	
Design	60%
SS7468 Three Rivers Force Main Replacement	
Design	30%
SS7478 RB01 SSES - Phase 2	
Design	55%
SS7479 SB02 SSES - Phase 2	
Design	27%
SS7487 Hickory Ridge Drive Sewer Rehab	
Design	75%
SS7554 Harbison #4 Pump Station Improvements and Force Main	
Replacement	
Design	
Sewer System Hydraulic Model	
Model Report Development	
	_
CD Plan Development  Professional Services	vices
CD Implementation Construction Phase City Forces	

## Consent Decree Quarterly Report 2020 Q1

## 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 – 81% 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 98% complete
  - Smith Branch Basin 89% complete
  - Saluda River Basin 92% complete
  - Rocky Branch Basin 80% complete
  - Mill Creek Basin 28% complete
  - Gills Creek Basin 37% complete
  - Crane Creek Basin 71% complete
  - Broad River Basin 27% 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) – 75% 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 – 50% 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 64% Complete
- Minor Pump Stations Condition Assessment 64% Complete
- Minor Force Mains Field Assessment 64% 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 Design 100% Complete
- SS7261 Lake Katherine Sewer Capacity Enhancement Construction 45% Complete
- SS7289 Rivermont Drive Pump Station and Force Main Design 98% Complete
- SS7301 Bull Street Construction in Progress; a completion percentage cannot be provided due to a varying scope of work and timeline for this project.
- SS7330 Upper Mill Creek Sewer Improvements Design 55% Complete
- 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 Design 100% Complete
- SS735002 Crane Creek Upper North Branch Extension Design 99% 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 95% 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 60% Complete
- SS7454 Broad River Force Main Replacement and Gravity Sewer Capacity Improvements Design 30% Complete
- SS7466 Lower Rocky Branch Relief Sewer Phase 1 Design 85% Complete
- SS7467 North Columbia Pump Station Upgrade Design 30% Complete
- SS7470 Lower Crane Creek Relief Sewer Phase 1 Design 30% Complete
- SS7474 Upper North Branch Crane Creek Sewer Improvements Phase 1 Design 30% Complete
- SS7497 Mill Creek Pump Station Miscellaneous Improvements 0% Design Complete
- SS7555 Lower Crane Creek Relief Sewer Phase 2 Design 30% Complete; project is continuation of SS7465 contract previously under design.

In accordance with Section V.16.c of the CD, the City shall submit a Supplemental Infrastructure Rehabilitation Report (SIRR) which shall update all portions of the IRR to reflect additional information developed by the City through completion of the CSAP of the minor components of the WCTS. The SIRR is to be submitted within six months after the City has assessed the remainder of the entire WCTS pursuant to the CSAP. As rehabilitation projects are identified through the assessments described in Section 3.2 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 99% Complete, 2020 Construction 0% Complete
- SS7172 Rehabilitation/Replacement Harbison #2, Mallard Point and Animal Shelter PS Construction 100% Complete

- SS7280 Rocky Branch-01 SSES and Rehabilitation Construction 99% Complete
- SS7323 Food Lion PS Improvements Design 100% Complete
- SS7362 Smith Branch 01 SSES Construction 99% Complete
- SS7363 Smith Branch 03 SSES Construction 5% Complete
- SS7424 SSES and Sewer Rehabilitation Implementation BR02 Design 90% Complete
- SS7425 SSES and Sewer Rehabilitation Implementation RB03 Design 100% Complete
- SS7432 Starlite PS Decommissioning and Basin Rehabilitation Related Works Design 20% 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 90% Complete
- SS7462 Investigation of Crockett Road, Atlas Road and Versch Lock Lift Stations Design 30% Complete
- SS7463 SSES and Sewer Rehabilitation Implementation CC01 Design 27% Complete
- SS7464 SSES and Sewer Rehabilitation Implementation CC02 and CC04 Design 60% Complete
- SS7468 Three Rivers Force Main Replacement Design 30% Complete
- SS7478 Rocky Branch 01 SSES Phase 2 Design 55% Complete
- SS7479 Smith Branch 02 SSES Phase 2 Design 27% Complete
- SS7487 Hickory Ridge Drive Sewer Rehab Design 75% Complete
- SS7554 Harbison #4 Pump Station Improvements and Force Main Replacement Design 0% Complete

## 3.4 Supplemental Environmental Project

In accordance with Section VIII and Appendix I of the CD, the City will perform a Supplemental Environmental Project (SEP). Within three years of the effective date of the CD, the City was to submit to EPA preliminary reports on the condition of Rocky Branch, Smith Branch, and Gills Creek and plans for Phase II for each of the SEP watersheds. On March 24, 2016, the City submitted a supplemental report related to the October 4, 2015 *force majeure* event and requested an additional six months to November 21, 2017 to complete the submittal of the preliminary reports and plans for improving the SEP areas. This request was granted by EPA. The SEP Preliminary Report and Phase II plan for Rocky Branch, Smith Branch, and Gills Creek was submitted to EPA on June 14, 2017. The SEP Completion Report was submitted to USDOJ and EPA on June 19, 2019. The City received final approval of the SEP Completion Report from EPA and SCDHEC on September 16, 2019.

## 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.

					City of Col Quarterly 1st Quar	SSO Listing			
Date	Time	Location	Source	Date of Corrective Action	Time of Corrective Action	Estimated Volume (gallons)	Receiving Water (if any)	Cause	Actions Taken
1/2/2020	09:30	4000 Plowden Rd, Columbia, Sc 29205	Manhole	1/2/2020	09:45	150		Grease	Removed Stoppage To Resume Normal Flow. Washed Main Line 40 Feet To Remove Stoppage.
1/2/2020	11:10	4825 Luvalie St, Columbia, Sc 29203	Cleanout	1/2/2020	11:17	90		Debris	Removed Blockage To Resume Normal Flow. Washed Service Line 20 Feet To Removed Broken Cleanout Cap That Was Causing Blockage.
1/3/2020	20:05	4645 Pine Grove Ct, Columbia, Sc 29206	Manhole	N,	/A	45	Lake Katherine	Wet Weather	Wet Weather; Observation Only. City Improvement Project To Increase Line Capacity In Progress.
1/6/2020	13:35	1823 Bristol Dr, Columbia, Sc 29204	Cleanout	TE	D	100		Roots	Removed Stoppage To Resume Normal Flow. Service Line Repair.
1/6/2020	16:00	207 Rutledge Pl, Columbia, Sc 29212	Cleanout	1/6/2020	16:30	445		Roots	Removed Blockage To Resume Normal Flow. Washed Service Line 25 Feet Cutting Out Roots.
1/6/2020	17:00	774 Gardendale Dr, Columbia, Sc 29210	Cleanout	TE	ID	979		Roots	Removed Stoppage To Resume Normal Flow. Main Line Repair/Tap Renewal.
1/7/2020	17:19	2805 Millwood Ave, Columbia, Sc 29205	Cleanout	TE	ID	729	Storm Drain	3rd Party Responsibility	Removed Stoppage To Resume Normal Flow. Emergency Main Line Repair (Main Line Was Bored Through).
1/11/2020	17:10	921 Fuller Ave, Columbia, Sc 29203	Manhole	ТЕ	ID	195		Debris	Removed Stoppage To Resume Normal Flow. Manhole Cleaning/Repair.
1/12/2020	17:30	4440 Bluff Rd, Columbia, Sc 29209	Pump Station	N,	/Α	12675		Wet Weather	Wet Weather; Observation Only.
1/12/2020	12:50	7581 Irmo Dr, Columbia, Sc 29212	Pump Station	1/12/2020	12:50	474	Storm Drain	Pump Station Failure	Reset Pumps.
1/13/2020	16:12	4645 Pine Grove Ct, Columbia, Sc 29206	Manhole	TE	ID	60	Lake Katherine	Wet Weather	Wet Weather; Observation Only. City Improvement Project To Increase Line Capacity In Progress.
1/13/2020	16:40	3303 Margrave Rd, Columbia, Sc 29203	Manhole	TE	ID	37355	Tributary To Smith Branch	Collapsed Line	Main Line Wash / Set Up Bypass Pump. Main Line Repair.
1/13/2020	16:00	1228 Harden St, Columbia, Sc 29204	Manhole	1/16/2020	08:00	360	Storm Drain	3rd Party Responsibility	Removed Blockage To Resume Normal Flow. Main Line Repair (Bored Through).
1/14/2020	08:20	4116 Hileah Dr, Columbia, Sc 29209	Manhole	TE	ID	500	Storm Drain	Roots	Removed Blockage To Resume Normal Flow. Main Line Repair.
1/14/2020	11:30	3127 Forest Dr, Columbia, Sc 29204	Manhole	TE	ID	40		Roots	Removed Stoppage To Resume Normal Flow. Main Line Root Cut.
1/14/2020	09:32	4500 Bluff Rd, Columbia, Sc 29209	Manhole	N,	A/A	749		Wet Weather	Wet Weather; Observation Only.
1/14/2020	12:10	1621 Stevenson Ave, Columbia, Sc 29203	Manhole	N,	/A	559		Wet Weather	Wet Weather; Observation Only.
1/15/2020	21:43	400 S Highland Forest Dr, Columbia, Sc 29203	Manhole	1/15/2020	22:00	130	Storm Drain	Debris	Pulled Debris From Manhole To Remove Stoppage. Manhole Cleaning/Repair.
1/15/2020	18:00	445 Mockernut Ln, Columbia, Sc 29209	Cleanout	TE	ID	48		Roots	Removed Blockage To Resume Normal Flow. Main Line Repair/Tap Renewal.
1/15/2020	23:11	154 Foxglove Cir, Irmo, Sc 29063	Cleanout	TE	ID	375		Roots	Removed Stoppage To Resume Normal Flow. Main Line Root Cut.

### Table 1 - SSO Report, 1st Quarter 2020

					Quarterly	lumbia, SC SSO Listing rter 2020			
Date	Time	Location	Source	Date of Corrective Action	Time of Corrective Action	Estimated Volume (gallons)	Receiving Water (if any)	Cause	Actions Taken
1/16/2020	11:10	4815 Broad River Rd, Columbia, Sc 29210	Manhole	твр		4680		Collapsed Line	Spill Leaking Through Joint Of Concrete Riser Intermittently. Manhole Repair.
1/21/2020	17:00	6169 Saint Andrews Rd, Columbia, Sc 29212	Manhole	1/22/2020	12:00	300	Storm Drain	Grease	Removed Stoppage To Resume Normal Flow. Washed Main Line 700 Feet.
1/21/2020	11:30	549 Regatta Rd, Columbia, Sc 29212	Forcemain	TE	8D	1		Force Main	Opened Force Main Valve.
1/23/2020	08:41	309 Pitney Rd, Columbia, Sc 29212	Cleanout	TE	3D	113		Collapsed Line	Washed From City CO 25 Feet And Main Line Wash 150 Feet. Main Line Repair.
1/25/2020	16:55	242 White Falls Dr, Columbia, Sc 29212	Cleanout	1/27/2020	10:00	477	Storm Drain	3rd Party Responsibility	Removed Stoppage To Resume Normal Flow. Emergency Service Line Repair (Bored Through).
1/27/2020	16:16	2001 Apple Valley Rd, Apt A, Columbia, Sc 29210	Cleanout	TE	3D	12		Collapsed Line	Removed Blockage To Resume Normal Flow. Service Line Repair.
1/27/2020	18:50	116 Crosscreek Dr, Columbia, Sc 29212	Other	1/29/2020	09:00	13	Storm Drain	3rd Party Responsibility	Capped Broken Line. Emergency Service Line Repair.
1/28/2020	15:30	39 Acme St, Columbia, Sc 29201	Manhole	1/28/2020	15:30	20		Grease	Removed Stoppage To Resume Normal Flow. Washed Main Line 95 Feet.
1/30/2020	14:45	5101 Randall Ave, Columbia, Sc 29203	Manhole	TE	3D	300	Storm Drain	Roots	Removed Stoppage To Resume Normal Flow. Main Line Repair.
2/1/2020	14:00	2208 Manse St, Columbia, Sc 20203	Cleanout	TE	ID	31		Collapsed Line	Removed Stoppage To Resume Normal Flow. Service Line Repair.
2/3/2020	13:43	175 Emerald Lake Rd, Columbia, Sc 29209	Manhole	2/4/2020	11:56	17360	Ulmers Pond (Trib To Mill Creek)	Debris	Set Up Bypass Pump. Washed Main Line To Remove Debris.
2/4/2020	06:00	17I5 Emerald Lakes Rd, Columbia, Sc 29209	Manhole	2/4/2020	11:56	8556	Ulmers Pond (Trib To Mill Creek)	Debris	Hooked Up Bypass Pump And Diverted Flow From Station To A Manhole. Main Line Washed To Remove Debris.
2/4/2020	14:40	821 Old Oak Dr, Columbia, Sc 29203	Cleanout	2/4/2020	15:10	60		Debris	Removed Blockage To Resume Normal Flow. Washed Service Line 20 Feet To Remove Blockage.
2/4/2020	09:37	200 Montadale Dr, Columbia, Sc 29209	Cleanout	TE	3D	62		Roots	Service Line Wash. Main Line Repair.
2/6/2020	16:45	22 Thistle Ct, Irmo, Sc 29063	Cleanout	N,	/A	14520	Swygert Branch	Wet Weather	Wet Weather; Observation Only.
2/6/2020	17:53	517 Broken Hill Rd, Columbia, Sc 29212	Manhole	N	/A	44450	Kinley Creek	Wet Weather	Wet Weather; Observation Only.
2/6/2020	18:30	1548 Kathwood Dr, Columbia, Sc 29206	Manhole	N	/A	127800	Lake Katherine (Gills Creek)	Wet Weather	Wet Weather; Observation Only.
2/6/2020	20:59	500 Wildlife Pkwy, Columbia, Sc 29210	Manhole	N	/Α	84	Saluda River	Wet Weather	Wet Weather; Observation Only.
2/6/2020	21:00	4645 Pine Grove Ct, Columbia, Sc 29206	Manhole	N	/A	44562	Lake Katherine (Gills Creek)	Wet Weather	Wet Weather; Observation Only.
2/6/2020	21:01	1400 Peeples St, Columbia, Sc 29203	Manhole	N	/A	133	Crane Creek	Wet Weather	Wet Weather; Observation Only.
2/7/2020	09:00	2111 Marley Dr, Columbia, Sc 29210	Manhole	N,	/Α	180	Broad River	Wet Weather	Wet Weather; Observation Only.
2/7/2020	13:18	5609 Bush River Rd, Columbia, Sc 29212	Manhole	N	/A	62	Rawls Creek	Wet Weather	Wet Weather; Observation Only.

						lumbia, SC SSO Listing ter 2020			
Date	Time	Location	Source	Date of Corrective Action	Time of Corrective Action	Estimated Volume (gallons)	Receiving Water (if any)	Cause	Actions Taken
2/7/2020	20:55	500 Wildlife Pkwy, Columbia, Sc 29210	Manhole	N/A		26663	Saluda River	Wet Weather	Wet Weather; Observation Only.
2/8/2020	20:16	500 Wildlife Pkwy, Columbia, Sc 29210	Manhole	N	/A	16295	Saluda River	Wet Weather	Wet Weather; Observation Only.
2/8/2020	14:50	1000 Garden Valley Ln, Columbia, Sc 29210	Other	2/8/2020	16:09	790		Equipment Failure	Tightened Up Bolts On The Bulkhead Until Leak Stopped.
2/9/2020	04:30	1200 Simmon Tree Ln, Columbia, Sc 29201	Other	2/9/2020	09:30	100000	Congaree River	Treatment Plant	In Response To The Historic River Levels Caused By Heavy Rainfall In The Preceding Days, Which Prevented Normal Discharge From The WWTP, Influent Flow Set Points Were Decreased Temporarily To Regain Hydraulic Control Of The Secondary Clarifiers. Train 1 Aeration Was Shut Down, RAS Was Shut Down. Influent Flow Set Points Were Increased To Limit The Volume Of Wastewater Sent To Storage. Lime Was Applied To The Area Around The Train 1 Disinfection Splitter.
2/9/2020	14:50	500 Wildlife Pkwy, Columbia, Sc 29210	Manhole	N	/A	174	Saluda River	Wet Weather	Wet Weather; Observation Only.
2/11/2020	08:49	100 Catawba St, Columbia, Sc 29201	Other	2/11/2020	10:00	1075	Trib To Congaree River	Force Main	Shut Off ARV. Replaced ARV.
2/12/2020	12:00	503 Denmark St, Columbia, Sc 20201	Cleanout	2/12/2020	13:30	40		Grease	Removed Stoppage To Resume Normal Flow. Service Line Wash To Remove Grease.
2/12/2020	21:00	1208 Crane Church Rd, Columbia, Sc 29203	Cleanout	2/12/2020	21:15	72		Debris	Removed Blockage To Resume Normal Flow. Washed Service Line 15 Feet To Main Line.
2/12/2020	15:10	1228 Harden St, Columbia, Sc 29204	Cleanout	2/12/2020	15:45	70		Debris	Removed Stoppage To Resume Normal Flow. Washed Service Line To Remove Stoppage.
2/14/2020	12:30	1321 Haviland Cir, Columbia, Sc 29210	Cleanout	2/14/2020	13:30	50		Roots	Removed Root Blockage To Resume Normal Flow. Washed Service Line Cutting Out Roots.
2/17/2020	16:20	194 Waterford Dr, Columbia, Sc 29203	Manhole	TE	BD	5091	Trib To Crane Creek	Collapsed Line	Set Up Bypass Pump. Emergency Main Line Repair.
2/18/2020	17:00	171 Banbury Rd, Columbia, Sc 29210	Manhole	2/18/2020	18:00	180		Debris	Removed Stoppage To Resume Normal Flow. Washed Main Line 100 Feet.
2/20/2020	18:35	22 Thistle Ct, Irmo, Sc 29063	Cleanout	N	/A	499		Wet Weather	Wet Weather; Observation Only.
2/24/2020	10:30	400 Brookshire Dr, Columbia, Sc 29210	Cleanout	2/26/2020	09:00	374	Storm Drain	Collapsed Line	Removed Stoppage To Resume Normal Flow. Emergency Service Line Repair.
2/24/2020	13:20	6208 Easter St, Columbia, Sc 29203	Cleanout, Manhole	2/24/2020	13:40	860	Storm Drain	Debris	Removed Stoppage To Resume Normal Flow. Main Line Wash.
2/24/2020	23:56	2477 Gervais St, Columbia, Sc 29204	Cleanout	TE	BD	19		Collapsed Line	Service Line Wash/Dammed Spill In Yard. Service Line Repair.
2/25/2020	14:50	1601 Sunset Dr, Columbia, Sc 29203	Other	2/25/2020	15:00	15	Trib To Smith Branch	Equipment Failure	Turned Off Bypass Pump. Repaired Clamp On Bypass Pump Hose And Restarted Pump.
2/27/2020	19:30	9531 Farrow Rd, Columbia, Sc 29203	Manhole	TE	BD	780	Storm Water Ditch	Roots	Removed Stoppage To Resume Normal Flow. Main Line Repair.
2/29/2020	18:13	7639 Burdell Dr, Columbia, Sc 29209	Manhole	TE	BD	962	Storm Water Ditch	Roots	Removed Stoppage To Resume Normal Flow. Manhole Repair.
3/1/2020	12:15	133 Piney Grove Rd, Columbia, Sc 29210	Cleanout	т	BD	16		Roots	Removed Blockage To Resume Normal Flow. Service Line Repair/Raised.
3/1/2020	15:30	3528 Truman St, Columbia, Sc 29204	Cleanout	3/1/2020	15:35	93		Roots	Removed Stoppage To Resume Normal Flow. Service Line Repair.
3/2/2020	11:30	4909 James St, Columbia, Sc 29203	Cleanout	3/2/2020	12:00	30		Debris	Removed Blockage To Resume Normal Flow. Washed Service Line To Remove Blockage.
3/4/2020	12:00	2420 Broad River Rd, Columbia, Sc 29210	Cleanout	3/4/2020	12:30	30		Debris	Removed Stoppage To Resume Normal Flow. Washed Service Line 15 Feet To Remove Stoppage.

	City of Columbia, SC Quarterly SSO Listing 1st Quarter 2020										
Date	Time	Location	Source	Date of Corrective Action	Time of Corrective Action	Estimated Volume (gallons)	Receiving Water (if any)	Cause	Actions Taken		
3/5/2020	13:00	1917 Harden St, Columbia, Sc 29204	Cleanout	TE	3D	187		Debris	Removed Stoppage To Resume Normal Flow. Cleanout Repair/Raise.		
3/5/2020	22:00	22 Thistle Ct, Irmo, Sc 29063	Cleanout	N	/Α	425		Wet Weather	Wet Weather; Observation Only.		
3/8/2020	09:00	248 Savannah Dr, Columbia, Sc 29203	Cleanout	3/8/2020	09:50	50		Debris	Removed Stoppage To Resume Normal Flow. Washed Service Line 50 Feet To Remove Stoppage.		
3/8/2020	15:00	102 Alabama St, Columbia, Sc 29201	Manhole	3/8/2020	15:40	200		Roots	Removed Blockage To Resume Normal Flow. Main Line Root Cut.		
3/11/2020	19:45	209 Montadale Dr, Columbia, Sc 29209	Manhole	те	3D	695	Storm Drain	Collapsed Line	Removed Blockage To Resume Normal Flow. Main Line Repair.		
3/13/2020	17:00	101 Leeward Loop, Columbia, Sc 29209	Manhole	3/13/2020	17:15	288	Storm Drain	Debris	Removed Stoppage To Resume Normal Flow. Cleaned Out Manhole And Removed Stick Lodged In Invert.		
3/16/2020	16:35	206 Stamford Bridge Rd, Columbia, Sc 29212	Cleanout	3/16/2020	16:45	4		Roots	Removed Stoppage To Resume Normal Flow. Manhole Cleaned And Mainline Root Cut.		
3/17/2020	10:45	124 Whitwood Cir, Columbia, Sc 29212	Cleanout	3/22/2020	10:00	15		Collapsed Line	Removed Stoppage To Resume Normal Flow. Emergency Service Line Repair.		
3/17/2020	19:35	629 Carty Dr, Columbia, Sc 29203	Cleanout	TE	3D	12		Roots	Removed Blockage To Resume Normal Flow. Service Line Repair.		
3/21/2020	18:40	10 Carty Ct, Columbia, Sc 29203	Cleanout	TE	3D	47	Trib To Crane Creek	Roots	Removed Stoppage To Resume Normal Flow. Main Line Repair.		
3/24/2020	08:50	101 S Waccamaw Ave, Columbia, Sc 29205	Cleanout	3/24/2020	09:10	20	Storm Drain	Debris	Removed Stoppage To Resume Normal Flow. Washed Service Line To Remove Stoppage.		
3/24/2020	16:49	22 Thistle Ct, Irmo, Sc 29063	Cleanout	N,	/A	1358		Wet Weather	Wet Weather; Observation Only. Project In Design To Increase Wet Well Capacity.		

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.

	City of Columbia, SC												
	Quarterly Building Backup Listing												
	1st Quarter 2020												
Date	Time	Location	Source	Date of Corrective Action	Time of Corrective Action	Estimated Volume (gallons)	Receiving Water (if any)	Cause	Actions Taken				
8/30/2019	12:00	2630 Magnolia St, Columbia, Sc 29204	Inside Property	8/30/2019	12:00	5		Roots	Homeowner Cleaned Up The Spill. Emergency Service Line Repair.				
9/23/2019	16:47	2107 Sumter St, Columbia, Sc 29201	City	9/25/2019	17:00	9		Collapsed Line	Homeowner Ceased Water Usage / No Access To Service Line. Main Line Repair / Clean Out Install.				
2/24/2020		6132 Yorkshire Dr, Columbia, Sc 29209	Private Sewer Lateral Issue	2/25/2020	13:31	1		Collapsed Line	Emergency Service Line Reapair.				
3/30/2020	17:00	3817 Ardincaple Dr, Columbia, Sc 29203	City	TB	D	86		Roots	Removed Stoppage To Resume Normal Flow. Service Line Repair.				

### Table 2 – Building Backup Report, 1st Quarter 2020

## 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 Q1 was completed on January 31, 2020, February 28, 2020, and March 26, 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: 1/31/2020

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

Project Verifier/QA Manager

10/2020

Date

Miranda Staplas

Printed Name

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

26

Project Manager/Project Validator

10/20

Date

Jessee

**Printed Name** 





Laboratory Services

## Laboratory Report

Client

Woolpert Inc. - City of Columbia Michael Long 2000 Center Point Road Ste 2200 Columbia, SC 29210 Project: Work Order: Received: Water Quality Testing 0011064 01/20/2020 12:45

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 January 20, 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 Bailey Branham, your Project Manager, at bailey.branham@rogersandcallcott.com or (864)-232-1556 if you have any questions about this report.

CC: Trevor Gauron

Report Approved By:

H. Bailey Brunhan

Bailey Branham Project Manager

PO Box 5655 | Greenville, SC 29606 | 426 Fairforest Way | Greenville, SC 29607 | main 864.232.1556 | fax 864.232.6140 rogersandcallcott.com

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# SUPP ACCREDIES

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	Project:	Water Quality Testing
	Michael Long	Work Order:	0011064
	2000 Center Point Road Ste 2200	Received:	01/20/2020 12:45
	Columbia, SC 29210		

Sample Number	Sample Description	Matrix	Sampled	Туре
0011064-01	DHEC C-017 Gills Creek @ Bluff Road	Wastewater	01/20/20 11:11	Grab
0011064-02	DHEC C-017 Gills Creek @ Bluff Road	Wastewater	01/20/20 11:10	Grab
0011064-03	DHEC C-001 Gills Creek @ Garners Ferry Rd	Wastewater	01/20/20 11:53	Grab
0011064-04	DHEC C-001 Gills Creek @ Garners Ferry Rd	Wastewater	01/20/20 11:52	Grab
0011064-05	DHEC B-280 Smith Branch @ N. Main St	Wastewater	01/20/20 12:26	Grab
0011064-06	DHEC B-280 Smith Branch @ N. Main St	Wastewater	01/20/20 12:25	Grab

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Woolpert Inc City of Columbia	Project:	Water Quality Testing
2000 Center Point Road Ste 2200	Work Order:	0011064
Columbia, SC 29210	Reported:	01/31/20 16:34

### **Sample Data**

Sample Number	0011064-01
Sample Description	DHEC C-017 Gills Creek @ Bluff Road collected on 01/20/20 11:11

Parameter		Result	Reporting Limit	Units	DF	Analyzed	Method	Flag	Analyst	Batch	Lab
Field Parameters											
Grab		Complete				01/20/20 11:11	Grab		MBW	B0A0929	RC-C
Microbiological Param	eters										
E. Coli		144	20	MPN/100 mL	20.0	01/20/20 15:41	SM 9223B-2004		BNE	B0A1009	RC-C
General Chemistry Par	ameters										
Total Suspended Solids		6.1	1.0	mg/L	1.00	01/21/20 08:43	SM 2540D-2011		RAM	B0A0935	RC-C
Sample Number Sample Description	0011064-02 DHEC C-017 (	Gills Creek (	) Bluff Road	d collected o	n 01/20/2	20 11:10					
Parameter		Result	Reporting Limit	Units	DF	Analyzed	Method	Flag	Analyst	Batch	Lab
Field Parameters											
Dissolved Oxygen		10.0	0.1	mg/L	1.00	01/20/20 11:13	SM 4500 OG-2011		MBW	B0A0929	RC-C
Temperature		9.8	0.0	°C	1.00	01/20/20 11:13	SM 2550B-2010		MBW	B0A0929	RC-C
Sample Number Sample Description	0011064-03 DHEC C-001 (	Gills Creek (	) Garners Fo	erry Rd colle	ected on (	01/20/20 11:53					
Parameter		Result	Reporting Limit	Units	DF	Analyzed	Method	Flag	Analyst	Batch	Lab
Microbiological Param	eters										
E. Coli		524	20	MPN/100 mL	20.0	01/20/20 15:41	SM 9223B-2004		BNE	B0A1009	RC-C
General Chemistry Par	ameters										
Total Suspended Solids		35.0	3.3	mg/L	3.34	01/21/20 08:43	SM 2540D-2011		RAM	B0A0935	RC-C

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Woolpert Inc City of 2000 Center Point Road Columbia, SC 29210						Project: Work Order: Reported:	Water Qua 0011064 01/31/20 1				
Sample Number0011064-04Sample DescriptionDHEC C-001 Gills Creek @ Garners Ferry Rd collected on 01/20/20 1											
Parameter		Result	Reporting Limit	Units	DF	Analyzed	Method	Flag	Analyst	Batch	Lab
Field Parameters											
Dissolved Oxygen		10.7	0.1	mg/L	1.00	01/20/20 11:58	SM 4500 OG-2011		MBW	B0A0929	RC-C
Temperature		11.5	0.0	°C	1.00	01/20/20 11:58	SM 2550B-2010		MBW	B0A0929	RC-C
Sample Number Sample Description	0011064-05 DHEC B-280 St	nith Branc	ch @ N. Mair	n St collected	l on 01/2	0/20 12:26					
Parameter		Result	Reporting Limit	Units	DF	Analyzed	Method	Flag	Analyst	Batch	Lab
Microbiological Parame	eters										
E. Coli		62	20	MPN/100 mL	20.0	01/20/20 15:41	SM 9223B-2004		BNE	B0A1009	RC-C
General Chemistry Para	ameters										
Total Suspended Solids		ND	1.0	mg/L	1.00	01/21/20 08:43	SM 2540D-2011		RAM	B0A0935	RC-C
Sample Number Sample Description	0011064-06 DHEC B-280 Si	nith Branc	ch @ N. Mair	n St collected	l on 01/2	0/20 12:25					
Parameter		Result	Reporting Limit	Units	DF	Analyzed	Method	Flag	Analyst	Batch	Lab
Field Parameters											
Dissolved Oxygen		11.8	0.1	mg/L	1.00	01/20/20 12:28	SM 4500 OG-2011		MBW	B0A0929	RC-C
Temperature		9.7	0.0	°C	1.00	01/20/20 12:28	SM 2550B-2010		MBW	B0A0929	RC-C

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Woolpert Inc City of Columbia	Project:	Water Quality Testing
2000 Center Point Road Ste 2200	Work Order:	0011064
Columbia, SC 29210	Reported:	01/31/20 16:34

### **Data Qualifiers and Definitions**

ND	Analyte NOT DETECTED at or above the reporting limit
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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

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	Roge	LS &	Rogers & Callcott	لسيل	CHAIN (		UST UST		CHAIN OF CUSTODY RECORD	WOR	WORK ORDER 0011064	
Half a centu	rv of com	EN	a century of commitment and auality	< لـ	<u> </u>		Z	Z			Filtered (Yes/No)	
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Mailing PO Box 5655 Address: Greenville, So	PO Box 5655 Greenville, SC 29606	Shipping Address:	Greenville, SC 29607	20	215B Stoneridge Drive Columbia, SC 29210		٩	4			Container Type (Plastic/Glass)	
CI:	acct-252 (408) anony	č	Fax (804) 232-0140				0.5G	120			Container Volume (mL)	r
Client Name	Woolper		<u>woolpert – Lity of Lolumbia</u>				U	ŋ			Sample Type ( <u>G</u> rab/ <u>C</u> omposite)	1
Address	2000 Cer	ter Poin	2000 Center Point Road Suite 2200			ers	ŴŴ	MM			Sample Source (WW, GW, DW, SW, S, Other)	
	<u>Columbia, SC 29210</u>	a, SC 292	10			nisti	4	<u> </u>				1
Report To:	Michael Long	Long									A - None E - HCl I - 7n Aretate	
Email Address		ong@wc	Michael.long@woolpert.com				<b>∧</b> (c				F - Na <sub>2</sub> S <sub>2</sub> O <sub>3</sub>	
Telephone #	803-214-5936	-5936				-	·\				C - H <sub>2</sub> SO <sub>4</sub> G - Boric Acid K - NaH <sub>2</sub> PO <sub>4</sub> D - NaOH H - Ascorbic Acid I - NH <sub>4</sub> Cl	
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10-	07.1		DHEC C-017 (Gills Creek @	(Gills Creel	k @ Bluff Road)			-			Temp- 9.8 °C	
											Collected @ 11.10	
											Analyzed @ 1115	
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											Weather- 38° F	
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											-	
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Bages 15.	ED ΒΥ:		DATE	DATE/TIME:	RECEIVED BY: 6.				DATE/TIME:	Temper	Temperature of blank or representative sample	
6 jo 7.	D BY:		DATE/	DATE/TIME:	RECEIVED BY: 8.				DATE/TIME:	At tim At tim	At time of collection °C At time of lab receipt <u><b>0</b></u> · <del>4</del> °C	
ossible Hazards associated with samples:	ssociated with s		O Non-Hazard	O Flammable (	O Skin Irritant O Poison		O Unknown	n 🔿 other		Form Revised March, 2019	arch, 2019 Page of	1

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f (804	rax (804) 232-0140	140			0.5G	120			Container Volume (mL)
ame		01d			ט	Ð			Sample Type (Grab/Composite)
Address 2000 Center Point Koad Suite 2200	oint Koad Sui	.e 2200		ers	MM	WM			Sample Source (WW, GW, DW, SW, S, Other)
·	29210			nisti	۲	ш.			
Report To: <u>Michael Long</u>									Preservation Code(s) A - None F - HCl I - 7n Acetate
Email Address <u>Michael.long@woolpert.com</u>	@woolpert.co	u							52 <b>0</b> 3
Telephone # 803-214-5936									C - H <sub>2</sub> SO4 G - Boric Acid K - NaH <sub>2</sub> PO4 D - NaOH H - Ascorbic Acid I - NH <sub>4</sub> Ci
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07.1		DHEC C-001 (Gills Creek @ Garners Ferry	Garners Ferry Rd)					101	D.O 10.68 mg/L
-03 1.20 1153		DHEC C-001 (Gills Creek @ Garners Ferry	Garners Ferry Rd)	-		-			Temp- 1.5 °C
									Collected @ 1152
									Analyzed @ 1158
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									~
SAMPLER RELINQUISHED BY:	. 4 t .	DATE/TIME:	RECEIVED BY:	K	turn and a second and a s		DATE/TIME:	Composite S	Composite Start Date/Time:
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			6.					Tempera	Temperature of blank or representative sample
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6	Roge	S S S	Rogers & Callcott		CHAIN	OF (	CUST		CHAIN OF CUSTODY RECORD	WOR	WORK ORDER 001064
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Phone (8	Phone (864) 232-1556	Ċ	Fax (864) 232-6140		Phone (SU3) Phone (SU3)		0.5G	120			Container Volume (mL)
Client Name	Woolpe	rt – City	Woolpert – City of Columbia				U	U			Sample Type ( <u>G</u> rab/ <u>C</u> omposite)
Address	2000 Cer	nter Poin	2000 Center Point Road Suite 2200	g		SIS	M	NM N			Sample Source (WW, GW, DW, SW, S, Other)
	Columbi	Columbia, SC 29210	10			ənis:		. L.L.			
Report To:	Michael Long	Long						-			Preservation Code
Email Address	Michael.	long@wc	Michael.long@woolpert.com				个 (s				
Telephone #	803-214-5936	-5936				-	ter(:				C - H <sub>2</sub> SO <sub>4</sub> G - Boric Acid K - NaH <sub>2</sub> PO <sub>4</sub> D - NaOH H - Ascorbic Acid I - NH <sub>2</sub> Cl
# Od			Project	Project # Water Quality Testing	lity Testing	INN  I	ອເມຍ	ilo			
R & C WORK ORDER	VR 20	TIME	SAMI	SAMPLE DESCRIPTION	NOIT		Par 227	E. C		-	COMMENTS
-05	n. 1	27.11	DHEC B-2	nith Branch @	) N. Main St)		$\leftarrow$			- 06	D.O 11.75 mg/L
102	, aj	1776	DHEC B-280 (Smith Branch @ N. Main St)	nith Branch @	) N. Main St)						Temp- q.7 °C , MBID
	,	2									Collected @ 1226 1225
											1
											Weather- 40° F
											Summy
SAMPLER - RELINQUISHED BY:	ELINQUISHE	ED BY:	L DATE	DATE/TIME: RE	RECEIVED BY:	K			DATE/TIME:	Composite (	Composite Start Date/Time:
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b RELINQUISHED BY:	D BY:		DATE	DATE/TIME: RE 8.	RECEIVED BY: 8.				DATE/TIME:	At tim At tim	At time of collection °C At time of lab receipt <u>0.4 °C</u>
ossible Hazards associated with samples:	ssociated with		O Non-Hazard	O Flammable	O Skin Irritant O Poison			n O other		Form Revised March, 2019	arch, 2019 Page of



Sample Receipt Verification

Client: WD01pert - Co	Inmbia Date Received:	. 1	- 2	0-	-20 Work 00/1064			
Carrier Name: Client (to Columbia) Tracking		Mail		Cou	urier Field Services Other:			
Carrier Name: Client (to Greenville) Tracking		Mail		Cou	rier Field Services Other:			
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 re	ceived?	x						
Sample bottles intact?		х			Damaged Leaking Other:			
Sample ID on COC agree with label o	n bottle(s)?	x						
Date / time on COC agree with label of	n bottle(s)?	x						
Number of bottles on COC agrees with	n number of bottles received?	x						
Samples received within holding time	?	x						
Sample volume sufficient for analysis	?	x						
VOA vials free of headspace (<6mm b	pubble)?			x				
Samples requiring pH preservation Note: Samples for metals analysis may Note: Samples for O&G and VOA anal	be preserved upon receipt in the lab.			x				
Samples dechlorinated for parameters of sample collection? Note: Chlorine checked at bench for sa analysis.	requiring chlorine removal at the time unples requiring Bacterial, VOA, and HAA	x						
Samples cooled when received in     Temp at time of receipt     D , -/     °C       Columbia ?     Temp measured with IR SN: 36301069WS					Ice Cold Packs Dry Ice None			
Samples cooled when received in	Temp at time of receipt N/A °C				Ice Cold Packs Dry Ice None			
Greenville ?	Temp measured with IR SN: 97050067							
If in-house preservation used - record Lot #       HCL     H <sub>3</sub> PO <sub>4</sub>								
HCL	H <sub>3</sub> I Na							
H <sub>2</sub> SO <sub>4</sub> HNO <sub>3</sub>		her						
Comments:	L							
Were non-conformance issues not	ed at initial sample receipt? Ye	s or	· ( N	lo)				
Non-Conformance issue other that								
Note: Samples received initially in Columb Facility. Revised March 2019	ia Facility. Sample preservation checks per	formed	l at Co	lumbia	Completed by: MOT			

Page 9 of 9

### 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: 2/28/20

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

Project Verifier/QA Manager

3/10/2020

Date

U. vanda Staples

**Printed Name** 

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

Project Manager/Project Validator

Date

Jessen

Printed Name





Laboratory Services

## **Laboratory Report**

Client

Woolpert Inc. - City of Columbia Michael Long 2000 Center Point Road Ste 2200 Columbia, SC 29210 Project: Work Order: Received: Water Quality Testing 0021033 02/20/2020 09:38

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 February 20, 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 Sarah Baker, your Project Manager, at sarah.baker@rogersandcallcott.com or (864)-232-1556 if you have any questions about this report.

CC: Trevor Gauron

Report Approved By:

Sarah Baker

Sarah Baker Project Manager

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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	Project:	Water Quality Testing
	Michael Long	Work Order:	0021033
	2000 Center Point Road Ste 2200	Received:	02/20/2020 09:38
	Columbia, SC 29210		

Sample Number	Sample Description	Matrix	Sampled	Туре
0021033-01	DHEC B-280 Smith Branch @ N. Main St	Wastewater	02/20/20 08:14	Grab
0021033-02	DHEC C-001 Gills Creek @ Garners Ferry Rd	Wastewater	02/20/20 08:43	Grab
0021033-03	DHEC C-017 Gills Creek @ Bluff Road	Wastewater	02/20/20 09:09	Grab

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Woolpert Inc City of Columbia	Project:	Water Quality Testing
2000 Center Point Road Ste 2200	Work Order:	0021033
Columbia, SC 29210	Reported:	02/28/20 09:40

### Sample Data

Sample Number	0021033-01
Sample Description	DHEC B-280 Smith Branch @ N. Main St collected on 02/20/20 08:14

Parameter	Result	Reporting Limit	Units	DF	Analyzed	Method	Flag	Analyst	Batch	Lab
Field Parameters										
Dissolved Oxygen	9.5	0.1	mg/L	1.00	02/20/20 08:14	SM 4500 OG-2011		MJT	B0B0935	RC-C
Grab	Complete				02/20/20 08:14	Grab		MJT	B0B0935	RC-C
Temperature	12.3	0.0	°C	1.00	02/20/20 08:14	SM 2550B-2010		MJT	B0B0935	RC-C
Microbiological Parameters										
E. Coli	270	20	MPN/100 mL	20.0	02/20/20 14:24	SM 9223B-2004		MBW	B0B1032	RC-C
General Chemistry Parameters										
Total Suspended Solids	17.4	1.2	mg/L	1.25	02/25/20 08:28	SM 2540D-2011		RAM	B0B1102	RC-C

Sample Number

0021033-02

Sample Description DHEC C-001 Gills Creek @ Garners Ferry Rd collected on 02/20/20 08:43

Parameter	Result	Reporting Limit	Units	DF	Analyzed	Method	Flag	Analyst	Batch	Lab
Field Parameters										
Dissolved Oxygen	9.7	0.1	mg/L	1.00	02/20/20 08:43	SM 4500 OG-2011		MJT	B0B0935	RC-C
Temperature	12.3	0.0	°C	1.00	02/20/20 08:43	SM 2550B-2010		MJT	B0B0935	RC-C
<b>Microbiological Parameters</b> E. Coli	346	20	MPN/100 mL	20.0	02/20/20 14:24	SM 9223B-2004		MBW	B0B1032	RC-C
General Chemistry Parameters										
Total Suspended Solids	26.3	2.9	mg/L	2.86	02/25/20 08:28	SM 2540D-2011		RAM	B0B1102	RC-C

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Woolpert Inc City of Columbia	Project:	Water Quality Testing
2000 Center Point Road Ste 2200	Work Order:	0021033
Columbia, SC 29210	Reported:	02/28/20 09:40

Sample Number Sample Description 0021033-03

DHEC C-017 Gills Creek @ Bluff Road collected on 02/20/20 09:09

Parameter	Result	Reporting Limit	Units	DF	Analyzed	Method	Flag	Analyst	Batch	Lab
Field Parameters										
Dissolved Oxygen	8.4	0.1	mg/L	1.00	02/20/20 09:09	SM 4500 OG-2011		MJT	B0B0935	RC-C
Temperature	11.7	0.0	°C	1.00	02/20/20 09:09	SM 2550B-2010		MJT	B0B0935	RC-C
<b>Microbiological Parameters</b> E. Coli	122	20	MPN/100 mL	20.0	02/20/20 14:24	SM 9223B-2004		MBW	B0B1032	RC-C
General Chemistry Parameters Total Suspended Solids	6.0	1.0	mg/L	1.00	02/25/20 08:28	SM 2540D-2011		RAM	B0B1102	RC-C

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Woolpert Inc City of Columbia	Project:	Water Quality Testing
2000 Center Point Road Ste 2200	Work Order:	0021033
Columbia, SC 29210	Reported:	02/28/20 09:40

#### **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

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	Roge	rs &	Rogers & Callcott	CHAIN OF CUSTODY RECORD	Ц С Ц	<b>JSTC</b>	DDY F	RECORD	WORK ORDER	033
Half a centur	rv of con	ENV	a century of commitment and auality			z	Z		Filtered (Yes/No)	
						~	~		Cooled (Yes/No)	
Address: Greenville, So	PU Box 5635 Greenville, SC 29606	Snipping Address:	426 Fairforest way Greenville, SC 29607 Fair / 964 233 5140	ZIJO SLONELINGE ULIVE Columbia, SC 29210 Dhono (903) 500 9000		٩	۵.		Container Type (Plastic/Glass)	/ <u>G</u> lass)
Phone (8	Phone (864) 232-2-2-2-2-2-2-2-2-2-2-2-2-2-2-2-2-2-2	č	-E C -1,L;-			0.5G	120		Container Volume (mL)	
Client Name	Woolpe					Ð	G		Sample Type (Grab/Composite)	mposite)
Address	2000 Cer	nter Point	2000 Center Point Road Suite 2200		SLS	MM	Ŵ		Sample Source (WW, GW, DW, SW, S,	v, DW, SW, S, Other)
	<u>Columbi</u>	Columbia, SC 29210	10		aniej	∢	   LL			
Report To:	Michael Long	Long							Preservation Code(s)	1 Code(s) 1 - 7n Aratata
Email Address	Michael.	long@wo	Michael.long@woolpert.com						B - HNO <sub>3</sub> F - Na <sub>2</sub> S <sub>2</sub> O <sub>3</sub>	
Telephone #	803-214-5936	-5936							C - H <sub>2</sub> SO <sub>4</sub> G - Boric Acid D - NaOH H - Ascorbic Acid	d K - NaH <sub>2</sub> PO <sub>4</sub> Acid I - NH <sub>4</sub> Cl
# Od			Project # <u>W</u>	Project # Water Quality Testing	əwe		ilo			
R & C WORK ORDER	YR <u>20</u> DATE	TIMF	SAMPLE	SAMPLE DESCRIPTION		SST	E. C		COMIMENTS	ENTS
101	2-20	0814	DHEC B-280 (Smith	DHEC B-280 (Smith Branch @ N. Main St)		-			to/ D.O 9,5	mg/L
10-	07-2	0414	DHEC B-280 (Smith	DHEC B-280 (Smith Branch @ N. Main St)	-		~1		Temp- 12.3	°C C
					1				Collected @ 0	0814
									Analyzed @ 2814	814
									Weather- 45	2 C
									L'ight	Rain
SAMPLER - RELINQUISHED BY:	ELINOUISHE	D BY:	DATE/TIME:	ME: RECEIVED BY. C	hich	0	6	DATE/TIME: 2/20/20 0933	Composite Start Date/Time:	
RELINQUISHED BY:	D BY:		DATE/TIME:	1E: RECEIVED BY: 4.				DATE/TIME:		
RELINQUISHED	D BY:		DATE/TIME:					DATE/TIME:		
9 BELINOLIICHED BV.	.>0		DATE/TIMAE	b. AF: RECEIVED RV.				DATE/TIMAF.	Temperature of blank or representative sample At time of collection	entative sample °C
of 9	۲ e ۲.								At time of lab receipt	
pssible Hazards associated with samples:	sociated with s		O Non-Hazard O Flammable	mable O Skin Irritant O Poison		O Unknown	O other _		Form Revised March, 2019 Page (	of 3

	Roge	irs &	Rogers & Callcott	CHAIN	OF CI	UST	Э ү ОС	CHAIN OF CUSTODY RECORD	WORK ORDER	R 0021033
Half a centu	rv of con	ENV	century of commitment and auality			z	Z		Filtered	Filtered ( <u>Y</u> es/ <u>N</u> o)
		Chinning	ADE Eairforact Mau	3158 Stonaridae Drive		≻	~		Cooled	Cooled (Yes/No)
Address: Greenville, SC	Greenville, SC 29606	Address:	Greenville, SC 29607	Columbia, SC 29210		م	д.		Contair	Container Type ( <u>P</u> lastic/ <u>G</u> lass)
	acct-252 (408) anone	i C	Fax (804) 232-0140	6660-600 (CDO) 20011		0.5G	120		Contair	Container Volume (mL)
Client Name	Woolpe					ŋ	Ð		Sample	Sample Type ( <u>G</u> rab/ <u>C</u> omposite)
Address	2000 Ce	nter Point	2000 Center Point Road Suite 2200		ers	MM	MM		Sample	Sample Source (WW, GW, DW, SW, S, Other)
	Columbi	Columbia, SC 29210	10		nieti	A	<u>ш</u>			
Report To:	Michael Long	Long							A - None	Preservation Code(s) e F - HCl l - 7n Aretate
Email Address		long@wo	Michael.long@woolpert.com						B. HNO	F - Na <sub>2</sub> S <sub>2</sub> O <sub>3</sub>
Telephone #	803-214-5936	-5936							C - H <sub>2</sub> SO <sub>4</sub> D - NaOH	D <sub>4</sub> G - Boric Acid K - NaH <sub>2</sub> PO <sub>4</sub> H H - Ascorbic Acid L - NH <sub>4</sub> Cl
# Od			Project # <u>Wa</u>	Project # Water Quality Testing	nN le		ilo			
R & C WORK ORDER	YR 20 DATE	TIME	SAMPLED	SAMPLE DESCRIPTION		SS⊥	Е. С			COMMENTS
101	2-20	5430	DHEC C-001 (Gills Creek @ Garners Ferry	ek @ Garners Ferry Rd)	-	$\leftarrow$			-02 D.O.	- 9, 7 mg/L
107	5-20	0843	DHEC C-001 (Gills Creek @ Garners Ferry	ek @ Garners Ferry Rd)			-		Temp-	p- 12, 3 °C
									Colle	Collected @ 0843
									Anal	Analyzed @ 0843
									Wea	Weather- 45°F
										L'eut dain
										0
SAMPLER - RE	- RELINQUISHED BY:	ED BY:	DATE/TIME: 2-20-20 09	AE: RECEIVENED: 5	2 Caller	GR .	1	DATE/TIME: 2/20/20 0934	Composite Start Date/Time:	e/Time:
RELINQUISHED BY:	D BY:		DATE/TIME:	: RECEIVED BY:				DATE/TIME:	osite	
RELINQUISHE	D BY:		DATE/TIME:					DATE/TIME:	Time or Flow (Circle one)	cle one) Initials:
- <u>S</u>				6.					Temperature of t	or representative sar
6 J7.	D BY:		DATE/TIME:	: RECEIVED BY: 8.			_	DATE/TIME:	At time of collection At time of lab receipt	ection °C eceipt <u>1.8</u> °C
pssible Hazards associated with samples:	sociated with		O Non-Hazard O Flammable	O Skin Irritant	O Poison O L		O other		Form Revised March, 2019	Page Z of 3

ECORD WORK ORDER 021033	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	A - None         E - HCl         I - Zn Acetate           B - HNO3         F - Na252O3         J - H3PO4	G - Boric Acid H - Ascorbic Acid		COMMENTS	101 D.O 8, 4 mg/L	Mr. Temp- (1.7 °C	Collecte	Analyzed @ 0909		Weather- 45°F	right Rain		DATE/TIME: Composite Start Date/Time:	Composite End Date/Time:	DATE/TIME: DATE/TIME:	Temperature of blank or representative san	
USTODY R	z	۲ ۲	а а	0.5G 120	ບ ບ	>	+	_				E. C	1								M 12	2	Q		-
Callcott CHAIN OF CUSTODY RECORD	ENVIRONMENTAL		7	Fax (804) 232-0140 Priorie (803) 503-8339	Columbia			5 PTO	- of C	ıəqu	Project # <u>Water Quality Testing</u>		DHEC C-017 (Gills Creek @ Bluff Road) 1	DHEC C-017 (Gills Creek @ Bluff Road) 1							DATE/TIME: RECEIVED BY: E DATE/TIME:		DATE/TIME: RECEIVED BY:		
Rogers & Callcott	ENVIRONMENTAL		Shipping Address:	occ1-252 (864) :	Client Name <u>Woolpert – City of Columbia</u>	Address 2000 Center Point Road Suite 2200	Columbia, SC 29210	Report To: Michael Long	Email Address <u>Michael.long@woolpert.com</u>	Telephone # 803-214-5936	# Od	R & C YR <u>2.0</u> WORK ORDER DATE TIME	3 2-20 0909	04 103 2-20 0904 E	Mt 7-20-70						SAMPLER – RELINQUISHED BY: 1.	RELINQUISHED BY:	J. RELINQUISHED BY:		



Sample Receipt Verification

Client: Woolpert		Date eccived:		- 2						
Carrier Name: Client (to Columbia) Tracking	FedEx  UPS    Number:	USI			Cou	urier Field Services Other:				
Carrier Name: Client (to Greenville) Tracking	FedEx UPS Number: N/A	USI	S Mail Courier Field Services Other:							
Receipt Criteria			Y e s	No	N A	Comments				
Shipping container / cooler intact?			х			Damaged Leaking Other:				
'ustody seals intact?					x					
OC included with samples?			x							
OC signed when relinquished and re	eived?		x							
ample bottles intact?			х			Damaged Leaking Other:				
ample ID on COC agree with label or	n bottle(s)?		х							
ate / time on COC agree with label o	n bottle(s)?		x							
umber of bottles on COC agrees with	number of bottles received?		x							
amples received within holding time			x							
ample volume sufficient for analysis			x							
OA vials free of headspace (<6mm b	ubble)?				x					
amples requiring pH preservation Note: Samples for metals analysis may Note: Samples for O&G and VOA anal	be preserved upon receipt in the	lab. nch.			x					
amples dechlorinated for parameters f sample collection? Note: Chlorine checked at bench for sa analysis.	requiring chlorine removal at mples requiring Bacterial, VOA,	the time and HAA	x							
Samples cooled when received in Columbia ?	Temp at time of receipt     i       Temp measured with IR SN: 3630	<u>Ŝ ℃</u> 1069WS	x			Ice Cold Packs Dry Ice None				
Samples cooled when received in Greenville ?	Temp at time of receipt N/A Temp measured with IR SN: 9705	°C 0067				Ice Cold Packs Dry Ice None				
	If in-house pr	reservation	used	- rec	ord L	Lot #				
HCL		H <sub>3</sub> I								
H <sub>2</sub> SO <sub>4</sub>		Nat Ot								
HNO <sub>3</sub> Comments:										
Were non-conformance issues not Non-Conformance issue other than		? Ye	S 01		JO)					
ote: Samples received initially in Columb	ia Facility. Sample preservation	n checks per	forme	d at Co	olumbi	ia Completed by: MST				

## 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

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

Project Verifier/QA Manager

Date

Miranda Steples

**Printed Name** 

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

10000

Project Manager/Project Validator

3/30/2020

Date

AJ Jessee

**Printed Name** 





Laboratory Services

# Laboratory Report

Client

Woolpert Inc. - City of Columbia Michael Long 2000 Center Point Road Ste 2200 Columbia, SC 29210 Project: Work Order: Received: Water Quality Testing 0031063 03/20/2020 11:10

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 March 20, 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.

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

CC: Trevor Gauron

Report Approved By:

Lauren Hollister

Lauren Hollister Project Manager

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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	Project:	Water Quality Testing
	Michael Long	Work Order:	0031063
	2000 Center Point Road Ste 2200	Received:	03/20/2020 11:10
	Columbia, SC 29210		

Sample Number	Sample Description	Matrix	Sampled	Туре
0031063-01	DHEC B-280 Smith Branch @ N. Main St	Wastewater	03/20/20 09:34	Grab
0031063-02	DHEC C-001 Gills Creek @ Garners Ferry Rd	Wastewater	03/20/20 10:06	Grab
0031063-03	DHEC C-017 Gills Creek @ Bluff Road	Wastewater	03/20/20 10:31	Grab

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Woolpert Inc City of Columbia	Project:	Water Quality Testing
2000 Center Point Road Ste 2200	Work Order:	0031063
Columbia, SC 29210	Reported:	03/26/20 11:04

### Sample Data

Sample Number	0031063-01
Sample Description	DHEC B-280 Smith Branch @ N. Main St collected on 03/20/20 09:34

Parameter	Result	Reporting Limit	Units	DF	Analyzed	Method	Flag	Analyst	Batch	Lab
Field Parameters										
Dissolved Oxygen	8.4	0.1	mg/L	1.00	03/20/20 09:34	SM 4500 OG-2011		MJT	B0C0925	RC-C
Grab	Complete				03/20/20 09:34	Grab		MJT	B0C0925	RC-C
Temperature	17.8	0.0	°C	1.00	03/20/20 09:34	SM 2550B-2010		MJT	B0C0925	RC-C
Microbiological Parameters										
E. Coli	290	20	MPN/100 mL	20.0	03/20/20 12:13	SM 9223B-2004		BNE	B0C0973	RC-C
General Chemistry Parameters										
Total Suspended Solids	3.0	1.0	mg/L	1.00	03/24/20 08:44	SM 2540D-2011		RAM	B0C1002	RC-C

Sample Number

0031063-02

Sample Description DHEC C-001 Gills Creek @ Garners Ferry Rd collected on 03/20/20 10:06

Parameter	Result	Reporting Limit	Units	DF	Analyzed	Method	Flag	Analyst	Batch	Lab
Field Parameters										
Dissolved Oxygen	8.3	0.1	mg/L	1.00	03/20/20 10:06	SM 4500 OG-2011		MJT	B0C0925	RC-C
Temperature	19.2	0.0	°C	1.00	03/20/20 10:06	SM 2550B-2010		MJT	B0C0925	RC-C
<b>Microbiological Parameters</b> E. Coli	316	20	MPN/100 mL	20.0	03/20/20 12:13	SM 9223B-2004		BNE	B0C0973	RC-C
General Chemistry Parameters										
Total Suspended Solids	16.4	2.0	mg/L	2.00	03/24/20 08:44	SM 2540D-2011		RAM	B0C1002	RC-C

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Woolpert Inc City of Columbia	Project:	Water Quality Testing
2000 Center Point Road Ste 2200	Work Order:	0031063
Columbia, SC 29210	Reported:	03/26/20 11:04

Sample Number Sample Description

0031063-03 DHEC C-017 Gills Creek

DHEC C-017 Gills Creek @ Bluff Road collected on 03/20/20 10:31

Parameter	Result	Reporting Limit	Units	DF	Analyzed	Method	Flag	Analyst	Batch	Lab
Field Parameters										
Dissolved Oxygen	6.6	0.1	mg/L	1.00	03/20/20 10:31	SM 4500 OG-2011		MJT	B0C0925	RC-C
Temperature	20.5	0.0	°C	1.00	03/20/20 10:31	SM 2550B-2010		MJT	B0C0925	RC-C
<b>Microbiological Parameters</b> E. Coli	20	20	MPN/100 mL	20.0	03/20/20 12:13	SM 9223B-2004		BNE	B0C0973	RC-C
General Chemistry Parameters Total Suspended Solids	7.2	1.0	mg/L	1.05	03/24/20 08:44	SM 2540D-2011		RAM	B0C1002	RC-C

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Woolpert Inc City of Columbia	Project:	Water Quality Testing
2000 Center Point Road Ste 2200	Work Order:	0031063
Columbia, SC 29210	Reported:	03/26/20 11:04

#### **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

PO Box 5655 | Greenville, SC 29606 | 426 Fairforest Way | Greenville, SC 29607 | main 864.232.1556 | fax 864.232.6140 rogersandcallcott.com

an employee-owned company

<b>So</b> Rogers & Callcott	Callcott	CHAIN OF CUSTODY RECORD	CUS	TODY	' RECORD	WORK ORDER	RDER 0031063
Holf a contury of commitment and guality	ENVIRONMENTAL		Z	z			Filtered ( <u>Y</u> es/ <u>N</u> o)
		21ED Stanoridan Drive		>			Cooled (Yes/ <u>N</u> o)
Address: Greenville, SC 29606 Address:	Greenville, SC 29607	Columbia, SC 29210	<u>а</u>	Р		C	Container Type ( <u>P</u> lastic/ <u>G</u> lass)
; (864	140	Phone (803) Phone (803)	0.5G	3 120		C	Container Volume (mL)
ame	of Columbia		U	ŋ		S	Sample Type ( <u>G</u> rab/ <u>C</u> omposite)
Address 2000 Center Point Road Suite 2200	t Road Suite 2200	SIG	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	MM N		S	Sample Source (WW, GW, DW, SW, S, Other)
Columbia, SC 29210	10		◄	LL.			
Report To: Michael Long		uoɔ					Preservation Code(s) - None E - HCl I - 7n Acetate
Email Address Michael.long@woolpert.com	oolpert.com	r of (	↑ (s				5 <sub>2</sub> O <sub>3</sub>
Telephone # 803-214-5936		aqm	ter(				- H <sub>2</sub> SO4 G - Boric Acid K - NaH <sub>2</sub> PO4 1- NaOH H - Ascorbic Acid L - NH <sub>2</sub> Cl
PO#	Project # Water Quality Testing	uality Testing	ອເມຍ			 	
R&C YR <u>20</u> WORK ORDER DATE TIME	SAMPLE DESCRIPTION		n <mark>6</mark> 9 227	E. C		<u> </u>	COMMENTS
3/20 0	DHEC B-280 (Smith Branch @ N. Main	1 @ N. Main St) 1				6	D.O 8,44 mg/L
	DHEC B-280 (Smith Branch @ N. Main	i @ N. Main St) 1	<u> </u>				Temp- 17,8 °C
							Collected @ 0934
			<u> </u>				Analyzed @ 0934
							Weather- 70'F
							5 uns
SAMPLER – RELINQUISHED BY:	DATE/TIME: 3-20-20 1110	RECEIVED CL	ling	0	DATE/TIME: 3/20/20 1110	Composite Start Date/Time:	rt Date/Time:
RELINQUISHED BY:	DATE/TIME:	RECEIVED BY: 4.			DATE/TIME:	Composite End Date/Time: Time or Flow (Circle one	End Date/Time:
Bad RELINQUISHED BY:	DATE/TIME:	RECEIVED BY: 6.			DATE/TIME:	Temperati	ren
9 0. 6 do 17.	DATE/TIME:	RECEIVED BY: 8.			DATE/TIME:	At time o At time o	At time of collection $\frac{1}{\sqrt{2}}$ °C
ossible Hazards associated with samples:	O Non-Hazard O Flammable	O Skin Irritant O Poison		wn 🔾 Other _		Form Revised March, 2019	1, 2019 Page of

With the memory of the free With the method set of the free With the	Rogers & Callcott	& Callcott ENVIRONMENTAL			STOD' N N	CHAIN OF CUSTODY RECORD	WORK ORDER 0031063 Filtered (Yes/ <u>N</u> o)
Michael Long (Michael Long Sex Michael Long (Michael Long Sex Michael Long (Michael Long Sex Michael Long (Michael Long (Michael Long Sex Michael Long (Michael L	LUTY OF LUTION CHANNEL		Stonaridae Drive				Cooled (Yes/No)
Molpert – City of Columbia         Colu         Columbia         Columbi	u.	Greenville, SC 29607	ubia, SC 29210 (ana) 500-8000				Container Type ( <u>Plastic/Glass</u> )
Mondret     G     G     G       2000 Center Point Road Suite 2200       2000 Center Point Road Suite 2200       2000 Center Point Road Suite 2200       Columbia. 5C 29210       Michaellong@woolpert.com       Michaellong@woolpert.com       S Michaellong@woolpert.com       S Michaellong@woolpert.com       S Michaellong@woolpert.com       S 2/2     (pp/d)       D 2/14.5536       A 7       F 7       S 2/2       (pp/d)       D 1       D 1       D 2       D 2       D 2       D 2       D 2       D 2       D 2       D 2       D 2       D 2       D 2       D 2       D 2       D 2       D 2       D 2       D 2       D 2       D 2       D 2       D 2       D 2       D 2       D 2       D 2       D 2       D 2       D 2       D 2       D 2       D 2       D 2       D 2       D 2       D 2       D 2		2		<u> </u>			Container Volume (mL)
$ \begin{array}{ c c c c c c c c c c c c c c c c c c c$							Sample Type ( <u>G</u> rab/ <u>C</u> omposite)
$\begin{array}{ c c c c c c c c c c c c c c c c c c c$	2000 Center Point	Road Suite 2200					Sample Source (WW, GW, DW, SW, S, Other)
Michael Long     Michael Long     A. None     Freemon code       Michael Long     Michael Long     a. None     Freemon code       033-214-5936     Project # Water Quality Testing     Total Number of Con     a. None     Freemon code       033-214-5936     Project # Water Quality Testing     Total Number of Con     a. None     Freemon code       033-214-5936     Project # Water Quality Testing     Total Number of Con     a. None     Freemon code       033-214-5936     Project # Water Quality Testing     Total Number of Con     a. None     Freemon code       32-20     100 & 100 & 100 & 100 & 100 & 100 & 100 & 100 & 100 & 100 & 100 & 100 & 100 & 100 & 100 & 100 & 100 & 100 & 100 & 100 & 100 & 100 & 100 & 100 & 100 & 100 & 100 & 100 & 100 & 100 & 100 & 100 & 100 & 100 & 100 & 100 & 100 & 100 & 100 & 100 & 100 & 100 & 100 & 100 & 100 & 100 & 100 & 100 & 100 & 100 & 100 & 100 & 100 & 100 & 100 & 100 & 100 & 100 & 100 & 100 & 100 & 100 & 100 & 100 & 100 & 100 & 100 & 100 & 100 & 100 & 100 & 100 & 100 & 100 & 100 & 100 & 100 & 100 & 100 & 100 & 100 & 100 & 100 & 100 & 100 & 100 & 100 & 100 & 100 & 100 & 100 & 100 & 100 & 100 & 100 & 100 & 100 & 100 & 100 & 100 & 100 & 100 & 100 & 100 & 100 & 100 & 100 & 100 & 100 & 100 & 100 & 100 & 100 & 100 & 100 & 100 & 100 & 100 & 100 & 100 & 100 & 100 & 100 & 100 & 100 & 100 & 100 & 100 & 100 & 100 & 100 & 100 & 100 & 100 & 100 & 100 & 100 & 100 & 100 & 100 & 100 & 100 & 100 & 100 & 100 & 100 & 100 & 100 & 100 & 100 & 100 & 100 & 100 & 100 & 100 & 100 & 100 & 100 & 100 & 100 & 100 & 100 & 100 & 100 & 100 & 100 & 100 & 100 & 100 & 100 & 100 & 100 & 100 & 100 & 100 & 100 & 100 & 100 & 100 & 100 & 100 & 100 & 100 & 100 & 100 & 100 & 1	Columbia, SC 2921	0					
Michael long@woolpert.com     Michael long@woolpert.com     Michael long@woolpert.com       803-214-5936     Project # Water Quality Testing     From File (5, 1)       803-214-5936     Project # Water Quality Testing     From File (5, 1)       803-214-5936     Project # Water Quality Testing     From File (5, 1)       803-214-5936     From File (5, 2)     Conversity       803-214-5936     From File (5, 2)     Conversity       83-20     (p) 6     Diff.coll (Glis Creek @ Garrers Ferry Rd)     1       1     1     1     1     Ferry Edge (6, 1)       3-20     (p) 6     Diff.coll (Glis Creek @ Garrers Ferry Rd)     1     1       1     1     1     1     1     Ferry Edge (7, 2)       2     Diff.coll (Glis Creek @ Garrers Ferry Rd)     1     1     1       3     Diff.coll (Glis Creek @ Garrers Ferry Rd)     1     1     1       1     Diff.coll (Glis (Creek @ Garrers Ferry Rd)     1     1     1       1     Diff.coll (Glis (Creek @ Garrers Ferry Rd)     1     1     1       1     Diff.coll (Glis (Creek @ Garrers Ferry Rd)     1     1     1       2     Diff.coll (Glis (Creek @ Garrers Ferry Rd)     1     1     1       3     Diff.coll (Glis (Creek @ Garrers Ferry Rd)     1     1<	Michael Long						Preservation Code F - HCl
803-214-5936         Froject # Water Quality Testing         R         No.2         Froject # Water Quality Testing         R         No.2         C. H304         G H304         G H304         G H304         H-AscorbicAdd           No.2         Inde         Savapte Discretation         Point         Inde         Comments         Comments         Comments           3.2.0         (pp id         DHEC cool (Gills Creek @ Garners Ferry Rd)         1         I         P         P         D.O % 2.6         MB           1         1         1         1         1         1         P         Collected @ 10.0%           1         1         1         1         1         1         1         P         Collected @ 10.0%           1         1         1         1         1         1         P         Collected @ 10.0%           1         1         1         1         1         1         1         P         Collected @ 10.0%           1         1         1         1         1         1         1         P         Collected @ 10.0%           1         1         1         1         1         1         1         P         P         P	-	olpert.com					F - Na <sub>2</sub> S <sub>2</sub> O <sub>3</sub>
Project # Water Quality Testing Addition     Zd Total							G - Boric Acid H - Ascorbic Acid
ALE     TIME     SAMPLE DESCRIPTION     POR       ANTE     TIME     SAMPLE DESCRIPTION     POR       2.0     (.p.p. k)     DHEC C-001 (Gills Creek @ Gamers Ferry Rd)     1     1       1     100 k     DHEC C-001 (Gills Creek @ Gamers Ferry Rd)     1     1     1       1     1     1     1     1     1     1       1     100 k     DHEC C-001 (Gills Creek @ Gamers Ferry Rd)     1     1     1       1     1     1     1     1     1     1       1     1     1     1     1     1     1       1     1     1     1     1     1     1       1     1     1     1     1     1     1       1     1     1     1     1     1     1       1     1     1     1     1     1     1       1     1     1     1     1     1     1       1     1     1     1     1     1     1       1     1     1     1     1     1     1       1     1     1     1     1     1     1       1     1     1     1     1		Project # Water Q		əme			
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IPOE     DHEC C-001 (Gills Creek @ Garners Ferry Rd)     1     1     1       IPOE     DHEC C-001 (Gills Creek @ Garners Ferry Rd)     1     1     1       IPOE     DATE/TIME:     RECEIVED BY:     DATE/TIME:     Con       IPOE     DATE/TIME:     RECEIVED BY:     DATE/TIME:     DATE/TIME:       IPOE     DATE/TIME:     RECEIVED BY:     DATE/TIME:     DATE/TIME:	3-20 (1	DHEC C-001 (Gills Creek @	Rd)				D.O 8.26
High Harmonic Constraints     DATE/TIME:     RECEIVED BY:     DATE/TIME:     Constraints       High Harmonic Constraints     DATE/TIME:     RECEIVED BY:     DATE/TIME:     Constraints       Constraints     DATE/TIME:     RECEIVED BY:     DATE/TIME:     Constraints       DATE/TIME:     RECEIVED BY:     DATE/TIME:     DATE/TIME:     Constraints       DATE/TIME:     RECEIVED BY:     DATE/TIME:     Constraints     Constraints       DATE/TIME:     RECEIVED BY:     DATE/TIME:     Constraints     Constraints       DATE/TIME:     RECEIVED BY:     DATE/TIME:     Constraints     Constraints       DATE/TIME:     RECEIVED BY:     DATE/TIME:     DATE/TIME:     Constraints       DATE/TIME:     RECEIVED BY:     DATE/TIME:     DATE/TIME:     Time       DATE/TIME:     RECEIVED BY:     DATE/TIME:     DATE/TIME:     Time		DHEC C-001 (Gills Creek @	Garners Ferry Rd)				19.2
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DATE/TIME: RECEIVED BY: DATE/TIME: 8.	SHED BY:	DATE/TIME:	RECEIVED BY: 6.			DATE/TIME:	Temperature of blank or representative sample
	SHED BY:	DATE/TIME:	RECEIVED BY: 8.			DATE/TIME:	At time of collection ${4^{2} \mathcal{Z}}^{C}$ C At time of lab receipt

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	loger	ک ری	Rogers & Callcott	CHAIN	OF C	UST	CHAIN OF CUSTODY RECORD	<b>D</b> WORK ORDER $0.031063$	1063
Half a century	v of comm	ENV	a century of commitment and auality			Z	Z	Filtered (Yes/No)	
		Chimaina	Vote Eairformet Wow	015B Stanaridae Drive		~	×	Cooled (Yes/No)	
Address: Greenville, SC 29606		Address:		Columbia, SC 29210		Ч	Р	Container Type (Plastic/Glass)	ttic/ <u>G</u> lass)
Phone (86-	Phone (864) 232-132-	ē	Fax (864) 232-6140	Phone (sus) Phone		0.5G	120	Container Volume (mL)	nL)
Client Name	Woolpert -		<u>Woolpert – Lity of Columpia</u>			U	U	Sample Type (Grab/Composite)	Composite)
Address	2000 Cente	<u>er Point</u>	2000 Center Point Road Suite 2200		sıs	MM	MM	Sample Source (WW, GW, DW, SW, S,	GW, DW, SW, S, Other)
	Columbia, SC 29210	SC 2921	0		əuie:	A			
Report To:	Michael Long	ng					-		Preservation Code(s)
Email Address	Michael.long@woolpert.com	ng@wo	olpert.com			<b>A</b> 10			
Telephone #	803-214-5936	<b>3</b> 36				.)		C - H <sub>2</sub> SO <sub>4</sub> G - Boric Acid D - NaOH H - Ascorbic Acid	Acid K - NaH <sub>2</sub> PO <sub>4</sub> bic Acid I - NH <sub>2</sub> CI
# Od			Project # <u>W</u>	Project # Water Quality Testing	om6 N le		ilo(		
R & C WORK ORDER	YR <u>2.0</u> DATE	TIME	SAMPLE	SAMPLE DESCRIPTION		SSL	E. (	COMI	COMMENTS
- 03	1	1031	DHEC C-017 (Gil	DHEC C-017 (Gills Creek @ Bluff Road)	1	-		+03 D.O 6,56	mg/L
103	17	1601	DHEC C-017 (Gil	DHEC C-017 (Gills Creek @ Bluff Road)				Temp- 20,5	. C
								Collected @	(031
								Analyzed @	1031
								Weather-	700F
									Mun
SAMPLER – RELINQUISHED BY:	INQUISHED E	BY:	DATE/TIME: 3-20-20 1110	IE: RECEIVED A	Rath	Her	3/2c/2c III O	Composite Start Date/Time:	
RELINQUISHED BY	BY:		DATE/TIME:	1E: RECEIVED BY:		2	DATE/TIME:	e End Date/Time:	
RELINQUISHED	BY:		DATE/TIME:				DATE/TIME:	IIme or Flow (Circle one) It	Initials:
ن. age								Temperature of blank or representative sample	esentative sample
6 9 RELINQUISHED BY: 6 7.	BY:		DATE/TIME:	1E: RECEIVED BY: 8.			DATE/TIME:	At time of collection At time of lab receipt	<u>ч. 2                                    </u>
ossible Hazards associated with samples:	ociated with sam		O Non-Hazard O Flammable	O skin Irritant	O Poison	O Unknown	O other	Form Revised March, 2019 Page	of



Sample Receipt Verification

Client: Woolpett 6	nla De Rece	ate eived:		3-	20	-2-0 Work 003/063
Carrier Name: Client (to Columbia) Tracking	FedEx UPS Number:	US 1	Mail		Cou	urier Field Services Other:
Carrier Name: Client (to Greenville) Tracking	FedEx UPS Number: <u>N/A</u>	USI	Mail		Cou	urier Field Services Other:
Receipt Criteria			Y e s	No	N A	Comments
Shipping container / cooler intact?			х			Damaged Leaking Other:
Custody seals intact?					х	
COC included with samples?			х			
COC signed when relinquished and red	ceived?		х			
Sample bottles intact?			х			Damaged Leaking Other:
Sample ID on COC agree with label or	n bottle(s)?		х			
Date / time on COC agree with label or	n bottle(s)?		х			
Number of bottles on COC agrees with	number of bottles received?		х			
Samples received within holding time?			х			
Sample volume sufficient for analysis?	,		х			
VOA vials free of headspace (<6mm b	ubble)?				х	
Samples requiring pH preservation Note: Samples for metals analysis may Note: Samples for O&G and VOA anal	be preserved upon receipt in the lab. ysis – preservation checked at bench	1.			x	
Samples dechlorinated for parameters of sample collection? Note: Chlorine checked at bench for sa analysis.			x			х.
Samples cooled when received in Columbia ?	Temp at time of receipt $\mathcal{L}$ Temp measured with IR SN: 36301069		х			Ice Cold Packs Dry Ice None
Samples cooled when received in Greenville ?	Temp at time of receipt N/A Temp measured with IR SN: 9705006	°C				Ice Cold Packs Dry Ice None
	If in-house prese	ervation	used	– rec	ord L	.ot #
HCL		H <sub>3</sub> P				
H <sub>2</sub> SO <sub>4</sub> HNO <sub>3</sub>		Na( Otł				
Comments:						
Were non-conformance issues not	ed at initial sample receipt?	Yes	s or		lo)	
Non-Conformance issue other than						
Note: Samples received initially in Columba Facility. Revised March 2019	a Facility. Sample preservation ch	hecks perj	formea	l at Co	lumbi	a MJT