

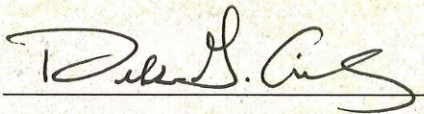
Quarterly Progress Report

Volume 33

Second Quarter Report April 1 through June 30, 2013

Submitted to EPA on July 29, 2013

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering such information, the information submitted is, to the best of my knowledge and belief, true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.



Debbie G. Ailey

7-29-13

Date



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Executive Summary

On February 11, 2005, the Knoxville Utilities Board (KUB) entered into a Consent Decree with the United States, the State of Tennessee, the Tennessee Clean Water Network, and the City of Knoxville. The following Quarterly Progress Report is submitted to fulfill the reporting requirements described in Section XIX of the Consent Decree.

Consent Decree language, pages 82-83: *“Beginning thirty (30) Days after the first Calendar Quarter following the Date of Entry, and thirty (30) Days after each Calendar Quarter thereafter until termination of the Consent Decree, KUB shall submit to the Parties, and simultaneously place in the PDR, a Quarterly Progress Report. Quarterly Progress Reports shall not be subject to the Public Review Requirement of Section VI.A.2. However, KUB shall receive questions and comments from the public for KUB’s review for a period of twenty (20) Days following placement in the PDR. Each Quarterly Progress Report shall contain:*

1. *A summary of compliance with and activities related to implementation of the Phase 1 CAP/ER and Phase 2 CAP/ER, including: the status of construction projects in comparison to the schedules that have been established pursuant to the Consent Decree for those projects; and schedule deadlines and milestones achieved during Calendar Quarter and expected during the next Calendar Quarter;*
2. *A summary of compliance with and activities related to implementation of the CPE and CCP;*
3. *A summary of implementation of and compliance with the Process Controls Program;*
4. *A summary of the implementation of the Capacity Assurance Program for the Calendar Quarter, including the number of, and anticipated flow from, sewer connections that have been authorized, by Sewerbasin, a description of the projects that have been authorized and the number of credits earned and banked by KUB that will be expended for those projects, by Sewerbasin, and any exceptions granted for connections for essential services;*
5. *Identification of any transfer of an ownership interest, operation, management, or other control of the Treatment Works, or any portion thereof.*
6. *A description of the status of compliance or non-compliance with the requirements of this Decree and, if applicable, the reasons for non-compliance, including a list of all violations that are subject to stipulated penalties under Section X of this Decree.*
7. *A spreadsheet and summary of all SSOs, Bypasses, Diversions and effluent limit violations that occurred during the previous Calendar Quarter. Information on Building Backups may be provided in separate spreadsheets and summaries from other SSOs. The spreadsheets and summaries shall identify:*
 - a. *For all SSOs, the location, source, date, time, duration, pathway (if any), receiving water (if any), the reason for each SSO, the total SSO volume, the volume returned to the WCTS, and the volume not captured;*
 - b. *For all Bypasses and Diversions, the location, date, time, duration, volume and reason for each Bypass and Diversion; and the total Bypass and Diversion volumes;*
 - c. *For all effluent limit violations, all information required to be reported on KUB’s Discharge Monitoring Reports.*
8. *The water quality monitoring data and other information required pursuant to Section VII.D.1.(e).(v).”*

KUB compiled this Quarterly Progress Report to detail the events that occurred during the second quarter of 2013 from April 1 through June 30. This is the thirty-third quarterly report required of KUB under this Consent Decree.

Report Organization

Section 1: Phase 1 CAP/ER and Phase 2 CAP/ER – Summarizes the compliance with and activities related to implementation of the Phase 1 CAP/ER and Phase 2 CAP/ER, including the status of construction projects in comparison to the schedules that have been established pursuant to the Consent Decree for those projects; and schedule deadlines and milestones achieved during the Calendar Quarter and expected during the next Calendar Quarter.

Section 2: Comprehensive Performance Evaluation and Composite Correction Plan – Summarizes the compliance with and activities related to the implementation of those deliverables.

Section 3: Process Controls Program – Summarizes the implementation of and compliance with the deliverable.

Section 4: Capacity Assurance Program – Summarizes the implementation of the Capacity Assurance Program for the Calendar Quarter, including the number of, and anticipated flow from, sewer connections that have been authorized, by sewerbasin, a description of the projects that have been authorized and the number of credits earned and banked by KUB that will be expended for those projects, by sewerbasin, and any exceptions granted for connections for essential services.

Section 5: Transfers of Ownership – Identifies any transfers of ownership interest, operation, management, or other control of the treatment works, or any portion thereof.

Section 6: Compliance and Non-Compliance with the Consent Decree – Describes the status of compliance or non-compliance with requirements of the Consent Decree.

Section 7: SSOs, Bypasses, Diversions, and Effluent Limit Violations – Provides a spreadsheet and summary of all SSOs, Bypasses, Diversions, and effluent limit violations.

Section 8: Water Quality Monitoring Data – Summarizes all sampling that was conducted, the results of the sampling, and the projected data collection for the reporting period.

Status of Deliverables

Below is a list of significant dates on which KUB submitted deliverables to EPA or received approval for deliverables. To date, KUB has submitted all deliverables in accordance with the schedule set forth in the Consent Decree.

April 29, 2013

- Submitted to EPA – Quarterly Progress Report 1st quarter 2013
- Submitted to EPA – 2003-2012 Sanitary Sewer Overflow Evaluation Report

Section 1 Phase 1 CAP/ER and Phase 2 CAP/ER

Consent Decree language, pages 82-83: *“Each Quarterly Progress Report shall contain... A summary of compliance with and activities related to implementation of the Phase 1 CAP/ER and Phase 2 CAP/ER, including the status of construction projects in comparison to the schedules that have been established pursuant to the Consent Decree for those projects; and schedule deadlines and milestones achieved during Calendar Quarter and expected during next Calendar Quarter.”*

KUB began developing a Corrective Action Plan/Engineering Report (CAP/ER) in January 2004, following the completion of the Phase I Sanitary Sewer Overflow Evaluation Report (SSOER) required by the Agreed Order with the Tennessee Department of Environment and Conservation (TDEC) and, subsequently, the Consent Decree. The objective of the Phase I CAP/ER is to identify facility improvements needed to address the conditions causing SSOs occurring in the collection system during the period of 2001–2004 with the goal of eliminating the SSO locations on the Long-Term List and to support future growth needs. KUB submitted the Phase 1 CAP/ER to EPA on October 28, 2005. Comments were received from EPA on February 23, 2006. Per EPA’s letter, KUB submitted a 30-day response to EPA’s comments on March 27, 2006. The Revised Phase 1 CAP/ER was submitted to EPA on May 22, 2006, and subsequently approved by EPA on June 30, 2006. All work necessary to meet the objectives of the Phase 1 CAP/ER will be completed by June 30, 2013. The Phase 2 CAP/ER was submitted to EPA on September 9, 2009, and approved on March 22, 2010. All work necessary to meet the objectives of the Phase 2 CAP/ER will be completed by FY 2015.

EPA Approved Project Extensions and Changes

All previously approved project extensions and changes are listed below.

- **1-1 Upper First Creek Collector Project (Mini-basin 1A1, 2A2, and 3D1)** – revised completion date was FY 08/09 and was completed on schedule.
- **1-19 Edgewood Drive Rehabilitation Project** – revised completion date was FY 11/12. Project was completed ahead of schedule.
- **1-20 Vine Middle School Rehabilitation Project** – revised completion date was FY 07/08 and project was completed as scheduled.
- **1-21 College Park Rehabilitation Project** – revised completion date was FY 11/12. An additional extension to January 31, 2013, was requested and approved. Project was completed ahead of schedule.
- **2-1 Lower Second Creek Replacement/Rehabilitation at I40/I275 Junction** – revised completion date was FY 09/10 and project was completed as scheduled.
- **2-2 Lower Second Creek Replacement/Rehabilitation at Woodland** – revised completion date was FY 10/11. Additional extensions to FY 11/12 and then to January 31, 2013, were requested and approved. Project was completed ahead of schedule.
- **2-4 Dutch Valley Collector Rehabilitation (Sewershed 10B1)** – revised completion date was September 2007 and was completed as scheduled.
- **2-5 Rickard and Wilson Collector Rehabilitation (Sewershed 10C1)** – revised completion date was September 2007 and project was completed as scheduled.
- **3-6 Interstate 40 and Middlebrook Pike Trunk Replacement Project** – revised completion date was FY 11/12. An additional extension to FY 12/13 was requested and approved and the project was completed as scheduled.
- **3-7 Neyland Drive Trunk Replacement (Lower Third Creek Trunk Replacement)** – revised completion date was FY 12/13. Project was completed ahead of schedule.

- **4-2 Gleason Drive Collector Rehabilitation Project** – revised completion date was June 30, 2010, and project was completed as scheduled.
- **4-3 Middlebrook Pike Rehabilitation (Sub-basin 27C3)** – revised completion date was June 30, 2010, and project was completed as scheduled.
- **4-4 Northshore Drive Trunk Replacement Project** – revised completion date was FY 10/11. An additional extension to FY 11/12 was requested and approved. Project was completed ahead of schedule.
- **4-6 Shadyland Drive Rehabilitation (Sub-basin 36A2) Project** – revised completion date was June 30, 2010, and was completed as scheduled.
- **4-28 Queensridge (Queensbury) Pump Station Upgrade Project** – revised completion date is FY 11/12. Project was completed ahead of schedule.
- **S-1 Ginnbrook Pump Station Rehabilitation** – revised completion date was FY 08/09 and project was completed as scheduled.
- **S-5 South Knoxville/Knob Creek Storage Facility** – Project was removed from CAP/ER and replaced with the project below.
- **Revised S-5 Neubert Springs Collector and West Ford Valley Trunk Rehabilitation** – revised completion date was FY 08/09 and project was completed as scheduled.

Capital Improvement Plan for FY 04/05 – FY 13/14

The following is a list of facility improvement projects included in the Capital Improvement Plan for fiscal years 04/05 to 13/14. These projects were in various stages during the reporting period, including preliminary engineering, design, construction, and completion. Many of these projects are “find and fix” rehabilitation projects. Find work is defined as the inspection (i.e. flow monitoring, CCTV, manhole inspections, smoke testing, etc.) and design phase of the project. Fix is defined as the construction phase that may include manhole rehabilitation/replacement, main line rehabilitation/replacement, and lower lateral rehabilitation/replacement. Other projects are trunkline capacity improvements or wet-weather storage. Each of these projects is considered part of the overall Phase 1 CAP/ER.

Phase I CAP/ER Ongoing Projects

First Creek

All Phase I CAP/ER projects in the First Creek basin have been completed.

Second Creek

All Phase I CAP/ER projects in the Second Creek basin have been completed.

Third Creek

All Phase I CAP/ER projects in the Third Creek basin have been completed.

Fourth Creek

All Phase I CAP/ER projects in the Fourth Creek basin have been completed.

South Knox

All Phase I CAP/ER projects in the South Knox basin have been completed.

Loves Creek and Eastbridge

All Phase I CAP/ER projects in the Loves Creek and Eastbridge basins have been completed.

Williams Creek

All Phase I CAP/ER projects in the Williams Creek basin have been completed.

Phase I CAP/ER Completed Projects

First Creek

1. **1-1 Upper First Creek Collector Project (Mini-basin 1A1, 2A2, and 3D1)** – Estimated total quantities: 10,235 ft gravity sewer replaced/rehabbed; 32 new manholes installed; 175 manholes rehabbed; 69 private laterals reinstated.
2. **1-2 Lower First Creek Collector Project (Sub-Basin 8B2)** – Replaced approximately 10,525 ft of 8” – 12” sewer, and rehabilitated approximately 14,000 ft of 8” sewer.
3. **1-3 First Creek Storage Tanks** – Designed and built 9 million gallon (MG) wet-weather storage tank to control sewer overflows near Old Broadway during rain events. Designed and built 5 MG wet-weather storage tank to control sewer overflows near North Hoitt Avenue during rain events.
4. **1-4 Lower Fountain City Pipe Replacement Project** – Replaced 20 manholes. Replaced approximately 2,715 ft of sewer mains and rehabilitated 142 ft of sewer.
5. **1-5 Upper Fountain City Trunkline Replacement Project** – Replaced and upgraded approximately 6,000 ft of trunk sewer connecting lines in upper Fountain City to Upper First Creek storage tank. The project addressed SSOs along Broadway, Cedar Lane, and Fountain Road.
6. **1-6 Sub-basin 08A1 Rehabilitation Project** – Rehabilitated approximately 21,067 ft, and replaced approximately 10,273 ft of sewer.
7. **1-11 Fountain City Trunkline Replacement Phase IV Project** – Replaced approximately 2,991 ft of sewer.
8. **1-12 Cedar Lane Area Sanitary Sewer Rehabilitation Project** – Rehabilitated approximately 8,500 ft of sewer.
9. **1-13 Fair Drive Phase II** – Rehabilitated 3,691 ft and replaced 2,458 ft of existing 8-12” gravity sewer along Fair Drive.
10. **1-14 Wilderness Road Area Gravity Sewer Replacement Project** – Replaced approximately 5,440 ft of sewer.
11. **1-15 Replace trunk sewer upstream of lower storage unit** – Replaced 1,600 ft of existing 42” and 130 ft of 24” pipe.
12. **1-16 Clearview Street Sewer Project** – Replaced approximately 4,468 ft of sewer.
13. **1-17 Fountain Road Trunkline Sewer Improvement Project** – Upsized 3,700 ft of gravity sewer using open cut and pipe bursting methods. Replaced manholes and services.
14. **1-18 Greenfield Drive Rehabilitation Project** – Replaced approximately 3,300 ft of existing sewer with 8” and 12” PVC and ductile iron pipe.
15. **1-19 Edgewood Drive Rehabilitation Project** – Replaced 519 ft of 8” sewer, 179 ft of 12” sewer; rehabilitated 22,300 ft of 8” sewer, and 60 ft of 12” sewer using CIPP and pipebursting. Project also included rehabilitation of 662 vertical feet and replacement of 10 manholes.
16. **1-20 Vine Middle School Rehabilitation Project** – Completed find and fix work to identify cause of overflow in the vicinity of 214 Bertrand Street. Replaced approximately 200 ft of 8” and 100 ft of 15” sewer and rehabilitated 987 ft of 16” sewer.
17. **1-21 College Park Rehabilitation Project** – Replaced approximately 446 ft of 8” PVC and rehabilitated 1,581 ft of 8” sewer using pipebursting. Project also included replacement of six manholes.
18. **1-22 E. Jackson Avenue Rehabilitation Project** – Replaced 3,485 ft of 8” sewer using pipebursting, replaced another 84 ft of 8” gravity sewer, rehabilitated 425 ft of sewer using CIPP, and replaced 17 manholes.

19. **1-23 Oglewood Avenue Rehabilitation Project** – The summary above for the Edgewood Drive Rehabilitation Project includes the Oglewood Avenue Rehabilitation Project, since those projects were combined.
20. **1-24 Fulton Short Line Project** – Replaced approximately 520 ft of sewer that contributes to the cause of overflow in the vicinity of 214 Bertrand Street.
21. **1-25 First Creek Sub-basins 3 and 4 Rehabilitation Project** – Rehabilitated 26,500 ft of line and replaced 10,500 ft. Project included CCTV, smoke testing, and manhole inspections.
22. **1-26 Cherry Street Rehabilitation Project** – Upsized approximately 1,150 ft of sewer trunklines and replaced two manholes and rehabilitated two manholes.
23. **1-27 Fair Drive Rehabilitation Project** – Preliminary engineering work discovered that 567 ft of 8" gravity main and three manholes were rehabilitated after the SSO occurred. No additional work is necessary to address the overflow at this location.

Second Creek

1. **2-1 Lower Second Creek Replacement/Rehabilitation at I40/I275 Junction** – Replaced 280 ft and three manholes, pipe burst 1,959 ft; CIPP was used to rehab 2,313 ft, 29 manholes were rehabbed, and 50 laterals were reinstated.
2. **2-2 Lower Second Creek Replacement/Rehabilitation at Woodland** – Replaced approximately 1,700 ft of trunk sewer and rehabilitated approximately 600 ft of trunk sewer and replaced ten manholes.
3. **2-3 Second Creek 23E1** – Inspected a total of 28,067 ft of pipe for find and design rehabilitation needs for Mini-basin 23E1. Project included inspection (CCTV, smoke test, manhole inspections), design, and rehabilitation of lines requiring repair.
4. **2-4 Dutch Valley Collector Rehab (Mini-basin 10B1)** – Assessed and rehabilitated, where needed, approximately 16,400 ft of collector pipe. This project was combined with the Rickard and Wilson Collector Rehab project below.
5. **2-5 Rickard and Wilson Collector Rehab (Mini-basin 10C1)** – Assessed and rehabilitated, where needed, approximately 19,000 ft of collector pipe. Project was combined with Mini-basin 10B1.
6. **2-6 Second Creek Pilleaux PS Collector** – Rehabilitated 19,600 ft of collection system piping in mini-basin 05A4. Project included inspection (CCTV, smoke test, manhole inspections), design, and rehabilitation of lines requiring repair.
7. **2-8 Second Creek Sub-basin 15 Rehabilitation** – Rehabilitated approximately 23,500 ft of pipe in mini-basin 15D2. Project included inspection (CCTV, smoke test, manhole inspections), design, and rehabilitation of lines requiring repair.
8. **2-9 Second Creek Trunk Sewer Improvements Phase I** – Replaced approximately 4,100 ft of existing trunkline with 30" sewer.
9. **2-10 Second Creek Trunk Sewer Improvements Phase II** – Replaced approximately 3,700 ft of existing trunkline with 30" sewer and replaced approximately 1,400 ft of existing trunkline with 36" sewer
10. **2-11 Burnside Rehabilitation Project** – Replaced 517 ft of 8" sewer and 1,651 ft of 12" sewer using pipe bursting. Six manholes were replaced and 3 were rehabbed.
11. **2-12 Camelia Road Rehabilitation Project** – Replaced 430 ft of 8" pipe and two manholes. 220 ft of 8" pipe was rehabbed using CIPP.
12. **2-13 Cedar Heights Road Rehabilitation Project** – Replaced 123 ft of 8" pipe and rehabbed 263 ft of 8" pipe with CIPP.
13. **2-14 Central Avenue Pike Rehabilitation Project** – Replaced 102 ft of 10" pipe, 25 ft of 18" pipe, two manholes. CIPP was used to rehab 659 ft of 8" pipe.
14. **2-15 1000 Block Elm Street Rehabilitation Project** – Replaced 632 ft of 8" sewer and nine manholes. Rehabbed 1,400 ft of 8" sewer using CIPP and rehabbed three manholes. One lateral was reinstated.

15. **2-16 1600 Block Elm Street Rehabilitation Project** – Pipe burst 285 ft of existing 8" sewer and replaced two manholes.
16. **2-17 Shasta Drive Rehabilitation Project** – Replaced 714 ft of 8" pipe and 6 manholes. CIPP was used to rehab 2,149 ft of 8" pipe.
17. **2-18 Nicholas Road - Clinton Highway Rehabilitation Project** – Replaced 405 ft of 8" pipe and one manhole.
18. **2-19 Cumberland Avenue Rehabilitation Project** – Replaced 1,448 ft of 8" sewer and 10 manholes. Rehabbed 525 ft of 8" sewer using CIPP and reinstated 12 laterals.
19. **2-20 Sierra Road Rehabilitation Project** – CIPP was used to rehab 969 ft of 8" pipe.
20. **2-21 Morelia Avenue Rehabilitation Project** – Replaced 382 ft of 8" sewer and two manholes. Rehabbed three manholes, 2,375 ft of 8" sewer using CIPP, and reinstated 74 laterals.
21. **2-22 Dale Avenue Rehabilitation Project** – The 8" main was replaced in 2003 with a 12" ductile iron main in Dale Avenue. No additional overflows have occurred.

Third Creek

1. **3-2 Third Creek Basin 11** – Assessed and rehabilitated approximately 129,657 ft in Sub-basin 11. Project included inspection (CCTV, smoke test, manhole inspections), design, and rehabilitation of lines requiring repair.
2. **3-3 Third Creek Basin 9 Phase I** – Assessed and rehabilitated collector sewer in 9A1, 9A2, 9A4, and 9D1 (CAP/ER Scope). **Phase II** – Designed rehabilitation methods for collectors in Sub-basin 9 (approximately 177,900 ft). Project included inspection (CCTV, smoke test, manhole inspections), design, and rehabilitation of lines requiring repair.
3. **3-4 Upper McKamey Trunk Sewer Replacement** – Project replaced approximately 1,600 ft of 12" and 15" trunk sewer. This project further enhanced improvements already made in Third Creek to address overflows along McKamey Road. **Third Creek Road Trunk Sewer Replacement** – Project included approximately 3,100 ft of 24" and 30" trunkline. The project replaced and upgraded the trunkline from Western Avenue along Third Creek to the Third Creek storage facility. It addressed overflows occurring at 5600 Western Avenue. Project was extended approximately 2,000 ft to reach the new location of the Third Creek Storage Facility at the KUB Hoskins Center.
4. **3-5 Third Creek Storage Facility** – Designed and constructed 4.5 MG wet-weather storage tank to control sewer overflows near Western Avenue and Third Creek Road during rain events.
5. **3-6 Interstate 40 and Middlebrook Pike Trunk Replacement Project (East Fork of Third Creek Trunk Replacement)** – Replaced 11,973 feet of sewer, rehabilitated 783 feet, of sewer, replaced 77 manholes, and rehabilitated eight manholes.
6. **3-7 Neyland Drive Trunk Replacement (Lower Third Creek Trunk Replacement)** – Replaced approximately 4,600 ft of sewer with 48" CCFMP, sliplined 685 ft of sewer with 42" CCFMP and replaced 34 manholes. The inverted siphon near the mouth of Third Creek was also replaced.
7. **3-8 Third Creek Bike Trail Trunk Replacement** – Improvements to the sewer hydraulics were made at the connection of the 12" main to a 36" trunk sewer running south of Sutherland Avenue along Third Creek bike trail. Improvements included approximately 50 feet of 12" line and a new manhole. Additionally, rehabilitation in SB 28B1 has reduced the peaks to the 12" line.
8. **3-11 Sutherland Avenue Collector Rehabilitation Project (Sub-basin 28B1)** – Replaced 303 ft of existing sewer and rehabilitated 3,332 ft of existing sewer collectors in mini-basin 28B1. Project included inspection (CCTV, smoke test, manhole inspections), design, and rehabilitation of lines requiring repair.

9. **3-12 Clinch and 21st Street Collector Rehabilitation Project (Sub-basin 35B3)** – Replaced approximately 2,563 ft of existing sewer, rehabilitated 3,094 ft and replaced/rehabbed 25 manholes.
10. **3-14 McKamey Road Interconnection Project** – Analysis that occurred during preliminary engineering for this project determined that it had been adequately addressed by previous construction work.
11. **3-15 Ball Camp Pike Improvement Project** – Analysis that occurred during preliminary engineering for this project determined that it had been adequately addressed by previous construction work.
12. **3-16 Painter Avenue Trunk Replacement Project** – Original scope was changed from trunkline upsizing to collection system rehabilitation/replacement in Mini-basin 28b1. Pipeburst approximately 17,800 ft of existing sewer, rehabilitated 550 ft and replaced/rehabbed 61 manholes
13. **3-17 McKamey Road Relief Project** – Replaced approximately 3,600 ft of 15" and 1,400 ft of 18" sewer.
14. **3-20 Citico Street Rehabilitation Project** – Project was combined with 3-23 Hillvale Circle Rehabilitation Project, 3-24 Montgomery Avenue Rehabilitation Project, and 3-27 Montgomery Avenue Rehabilitation Project. Combined projects replaced approximately 22,500 ft of 8" sewer and 28 manholes.
15. **3-21 Deerfield Road Rehabilitation Project** – Pipeburst approximately 600 ft of existing gravity sewer and replaced two manholes.
16. **3-22 Fountain Drive Rehabilitation Project** – Replaced approximately 750 ft of existing sewer, rehabilitated 800 ft and replaced/rehabbed nine manholes.
17. **3-23 Hillvale Circle Rehabilitation Project** – Project was combined with 3-20 Citico Street Rehabilitation Project, 3-24 Montgomery Avenue Rehabilitation Project, and 3-27 Montgomery Avenue Rehabilitation Project. Combined projects replaced approximately 22,500 ft of 8" sewer and 28 manholes.
18. **3-24 Montgomery Avenue Rehabilitation Project** – Project was combined with 3-20 Citico Street Rehabilitation Project, 3-23 Hillvale Circle Rehabilitation Project, and 3-27 Montgomery Avenue Rehabilitation Project. Combined projects replaced approximately 22,500 ft of 8" sewer and 28 manholes.
19. **3-25 Rolling Ridge Interconnection Project** – Pump station was decommissioned and 1,950 ft of new gravity sewer was installed to divert flow from the station into existing gravity sewer.
20. **3-26 PCP, CPE and CCP** – Completed wastewater evaluation studies of the Kuwahee WWTP.
21. **3-27 Montgomery Avenue Rehabilitation Project** – Project was combined with 3-20 Citico Street Rehabilitation Project, 3-23 Hillvale Circle Rehabilitation Project, and 3-24 Montgomery Avenue Rehabilitation Project. Combined projects replaced approximately 22,500 ft of 8" sewer and 28 manholes.
22. **3-29 Highland Hills Road Rehabilitation Project** – Project was combined with 3-20 Citico Street Rehabilitation Project, 3-23 Hillvale Circle Rehabilitation Project, 3-24 Montgomery Avenue Rehabilitation Project, and 3-27 Montgomery Avenue Rehabilitation Project. Combined projects replaced approximately 22,500 ft of 8" sewer and 28 manholes.

Fourth Creek

1. **4-1 Chukar Road Rehabilitation** – Replaced 1,600 ft of pipe and nine manholes; rehabbed 900 ft of pipe and nine manholes.
2. **4-2 Gleason Road Rehabilitation** – Replaced 980 ft of 8" pipe and 12 manholes. CIPP was used to rehab 640 ft of 8" pipe and 480 ft of 12" pipe.

3. **4-3 Middlebrook Pike Rehabilitation** – Replaced 190 ft of 8" pipe and two manholes. CIPP was used to rehab 2,000 ft of 8" pipe. Two manholes were rehabbed as well.
4. **4-4 Northshore Drive Trunk Sewer Replacement** – Installed approximately 3,375 ft of 36" trunk sewer, 260 ft of smaller diameter trunk sewer, and replaced 29 manholes.
5. **4-6 Shadyland Drive Rehabilitation** – Replaced 1,700 ft of 10" pipe and 9 manholes. CIPP was used to rehab 1,000 ft.
6. **4-17 Walker Springs Storage Facility** – Designed and constructed 3.25 MG wet-weather storage tank to control sewer overflows near Walker Springs Pump Station during rain events.
7. **4-18 Papermill Drive Phases I, II, and III** – Designed and constructed replacement of approximately 4,000 ft of 15", 18", and 2,100 ft of 36" sewer in the Papermill Drive area to increase conveyance capacity and reduce sewer overflows.
8. **4-19 Northshore Drive Rehabilitation Project** – Raised manholes 6, 7, and 8 to create additional storage in the trunkline upstream of the Fourth Creek WWTP.
9. **4-21 Black Bear Road Project** – Replaced approximately 261 ft of existing 8" sewer and rehabilitated one manhole. Project included CCTV, manhole inspections, and smoke testing.
10. **4-22 Nightingale Lane Project** – Completed repairs of two manholes to address overflows in the vicinity of 6614 and 6617 Nightingale Lane.
11. **4-23 5205 Bent River Blvd Project** – Replaced air release valves, flushed the low pressure force main, and replaced the grinder pump at 5205 Bent River Blvd.
12. **4-24 Kerri Way Project** – Replaced approximately 439 ft of existing 8" sewer and five manholes. Approximately 92 ft of existing 8" sewer was rehabilitated. Project included CCTV, manhole inspections, and smoke testing.
13. **4-25 Lonas Drive Project** – Replaced approximately 326 ft of existing 8" sewer and five manholes. Approximately 4,688 ft of existing 8" sewer and nine manholes were rehabilitated. Project included CCTV, manhole inspections, and smoke testing.
14. **4-26 Midpark Drive Project** – Replaced two manholes. Approximately 440 ft of existing 8" sewer and three manholes were rehabilitated. Project included CCTV, manhole inspections, and smoke testing.
15. **4-27 Southfork Project** – Project was completed in conjunction with 4-1 Chukar Road Rehabilitation Project. Replaced 88 feet of 8 inch pipe and two manholes. Rehabilitated 140 feet of 8 inch pipe using CIPP.
16. **4-28 Queensridge (Queensbury) Pump Station Upgrade Project** – The terminal manhole for the Queensbury force main has been replaced and the piping configuration for this manhole was also adjusted to lessen pressure restrictions allowing access to the force main for cleaning. Both pumps were also replaced.
17. **4-31 Kingston Pike @ Gallaher View Project** – Replaced one manhole. Approximately 1,068 ft of existing 8" sewer and six manholes were rehabilitated. Project included CCTV, manhole inspections, and smoke testing.
18. **4-32 PCP, CPE and CCP** – Completed wastewater evaluation studies of the Fourth Creek WWTP.

South Knox

1. **S-1 Ginnbrook Pump Station** – Evaluated pump station and force main to ensure adequate capacity. Also included improvements to wet-well, pump system, and valve vault. The force main was re-routed.
2. **S-2 Blount Avenue Trunkline and Goose Creek Siphon Upgrade** – The trunkline upgrades between the siphon inlet structure and manhole 63-2 are complete. This work was included in phases I and II of the Blount Avenue Trunkline Replacement/ Rehabilitation Project. This construction successfully addressed historical overflows.

3. **S-5 (Revised) Neubert Springs Collector and West Ford Valley Trunk Rehabilitation** – Rehabilitated 10,000 ft of 15” to 18” trunk sewer along West Ford Valley Road. Completed find work in sub-basins 41C1, 41C2, and 41A2. Completed trunkline rehabilitation on West Ford Valley. Rehabilitated collector line in sub-basin 41C1, C2, and A2.
4. **S-6 Sevier Avenue and Jones Street Collector Project** – Rehabilitated approximately 3,100 ft of existing sewer and rerouted approximately 352 ft of 8” sewer.
5. **S-9 Ellis Road Rehabilitation Project** – Rehabilitated 2,250 ft of gravity sewer and replaced six MHs.
6. **S-10 Mini-basin 41A6 Rehabilitation Project** – Rehabilitated approximately 21,000 ft of sewer in Sub-basin 41A6.
7. **S-11 Ford Valley Pump Station Rehabilitation Project** – Replaced pump station and added additional pump and generator to convey two-year storm within Capacity Assurance Program requirements.
8. **S-14 Stone Road Rehabilitation** – Rehabilitated approximately 13,500 ft of sewers in Mini-basin 41B1. Project included inspection (CCTV, smoke test, manhole inspections), design, and rehabilitation of lines requiring repair.
9. **S-15 Trunk Replacement in Sub-basin 40A2 Project** – 3411 ft of gravity sewer was replaced, 16 manholes were rehabbed, and 13 laterals were reinstated as part of this completed project.
10. **S-16 Woodson Drive Trunk Replacement and Pump Station Upgrade Project** – Replaced approximately 260 ft of existing sewer and performed upgrades at the pump station.
11. **S-17 Island Home Rehabilitation** – Rehabilitated 9,400 ft and replaced 1,200 ft of collector sewers to reduce I/I.
12. **S-18 South Haven Phase I and Phase II** – Relocated, rehabilitated, and upsized approximately 4,700 ft of existing collector sewers to increase conveyance capacity and reduce inflow and infiltration (I/I).
13. **S-19 Maryville Pike** – Designed and replaced 800–1,200 ft of 24” sewer located in Witherspoon Superfund site. Design rerouted sewer around site.
14. **S-20 Avenue A Rehabilitation Project** – CIPP was used to rehabilitate 1,585 ft of sewer. Seven manholes were rehabilitated, and 25 service lines were replaced.
15. **S-21 Alpine Avenue Rehabilitation Project** – Replaced approximately 2,790 ft of sewer, and used CIPP to rehabilitate approximately 600 ft. Twenty-four manholes were rehabilitated and ten were replaced.
16. **S-24 East Ford Valley Rehabilitation** – Rehabilitated approximately 16,000 ft of sewers in Mini-basin 41A4. Project included inspection (CCTV, smoke test, manhole inspections), design, and rehabilitation of lines requiring repair.
17. **S-25 South Haven Rehabilitation Phase III** – Rehabilitated approximately 21,700 ft of sewers in Mini-basin 40F1. Project included inspection (CCTV, smoke test, manhole inspections), design, and rehabilitation of lines requiring repair.
18. **S-26 Trunk Sewer Replacement Project in Sub-basin 40F1** – This project was constructed as part of the South Haven Phase III work. Replaced 704 ft of 8” sewer and six manholes. Five laterals were reinstated.
19. **S-27 Trunk Sewer Replacement Project in Sub-basin 41A4** – Replaced approximately 175 ft of existing sewer with 12” sewer and 3,700 ft of existing sewer with 15” sewer.
20. **S-28 Trunk Sewer Project** – This project was combined with Project S-2. Please see description above.
21. **S-29 4500 Block Sevierville Pike Rehabilitation Project** – Completed find and fix work to identify and address cause of overflow in the vicinity of 4523 Sevierville Pike.

Loves Creek and Eastbridge

1. **L-1 Asheville Highway West of I-40 Trunk Replacement** – Upgraded 4,688 ft of existing pipe and replaced 20 manholes. Project was completed in FY 09/10, two years ahead of schedule.
2. **L-2 Boyds Bridge Pike and Holston Hills Trunk Replacement** – Replaced 4,456 feet of trunkline and 31 manholes.
3. **L-3 River View Rehabilitation** – Rehabilitated 4,627 ft of gravity sewer along with eight manholes and replaced one manhole. This work addressed the SSO located on Riverview Drive. Project was completed in FY 09/10.
4. **L-4 Asheville Highway Rehabilitation** – Rehabilitated 1,560 ft of sewer mains and 12 manholes.
5. **L-5 Brentwood Shortline Repair** – Rehabilitated 440 ft of gravity sewer. This work addressed the SSO located on Brentwood Road. Project was completed in FY 09/10.
6. **L-6 Holston Hills Road Rehabilitation** – Rehabilitated 1,356 ft of sewer mains.
7. **L-7 Magnolia Avenue Rehabilitation** – Replaced 7,378 feet of sewer, rehabilitated 1,271 feet of sewer, replaced two manholes, and rehabilitated 22 manholes.
8. **L-8 McDonald Drive Rehabilitation** – Rehabilitated 285 ft of sewer main, replaced 316 ft of sewer main and two manholes.
9. **L-9 Shelbourne Road Rehabilitation** – 26,900 ft of gravity sewer was rehabilitated along with 30 manholes in sub-basins 6A4 and 6A5. This work addressed the SSO located on Shelbourne Road.
10. **L-10 Washington Court Rehabilitation** – Rehabilitated 872 ft of gravity sewer. This work addressed the SSO located on Washington Court. Project was completed in FY 09/10.
11. **EB-1 Maloneyville Road Rehabilitation** – Mechanical grinder was installed at Knox County Detention Facility to remove paper debris prior to discharge. Paper debris clogging the pumps was the cause of previous SSOs at Maloney Road pump station.
12. **EB-2 Strawberry Plains Pike Rehabilitation Project** – Replaced approximately 750 ft of 8" PVC and three manholes.

Williams Creek

1. **W-1 Sub-basin 19A2 Rehabilitation** – Performed rehabilitation in Sub-basin 19A1, 19B1, and 19A2/A3 to reduce R-value to 2 percent. Investigative work was performed on the approximately 105,000 ft in the entire Sub-basin 19 area. Completed rehabilitation projects in 19A1, 19B1, and 19A2/A3. The original CAP/ER completion date for the 19A2 project was in FY 10/11. This project was shifted to higher priority due to the large number of private lateral problems and CSSAP rating. Project coincided with water quality monitoring program work in Williams Creek. Replaced approximately 14,000 ft of 8" – 12" sewer and rehabilitated approximately 9,500 ft of 8" – 12" sewer.
2. **W-2 Williams Creek Trunk Line Replacement** – Designed and replaced approximately 3,700 ft of 24" sewer to correct structural problems. In addition, the following project was completed to address force main issues in the area. **Delrose Force Main Replacement** – Replaced approximately 5,000 ft of 16" ductile iron pipe force main that had severe structural problems.
3. **W-3 Trunk Sewer Rehabilitation** – Replaced approximately 6,100 ft of existing sewer with 24" sewer.
4. **W-4 E. Fifth Avenue Sewer Replacement Project** – Replaced 956 ft with 8" PVC and four manholes.
5. **W-5 Groner Avenue Rehabilitation Project** – Replaced approximately 1,000 ft of sewer and rehabilitated approximately 3,600 ft of sewer and replaced 14 manholes.
6. **W-6 Selma Avenue – Harrison Street Rehabilitation Project** – Replaced 650 ft with 8" PVC and four manholes, and rehabbed 600 ft of 8" concrete.

7. **W-7 Sunset Avenue Rehabilitation Project** – Replaced 102 ft with 8" PVC.
8. **W-8 South Elmwood Street Rehabilitation Project** – Replaced 200 ft with 8" PVC and three manholes, and rehabbed 400 ft of 8" concrete.
9. **W-9 Williams Creek Trunk Line Replacement (Sub-basin 19A1)** – Performed rehabilitation in Sub-basin 19A1, 19B1, and 19A2/A3 to reduce R-value to 2 percent. Investigative work was performed on the approximately 105,000 ft in the entire Sub-basin 19 area. Completed rehabilitation projects in 19A1, 19B1, and 19A2/A3. The original CAP/ER completion date for the 19A2 project was in FY 10/11. This project was shifted to higher priority due to the large number of private lateral problems and CSSAP rating. Project coincided with water quality monitoring program work in Williams Creek. In lieu of replacement of 360 ft of 12" concrete with 15" sewer, problem was addressed by comprehensive rehab of Mini-basin 19A1. Project included replacement with 8,900 ft of 8" PVC, 97 ft with 10" PVC, 179 ft with 12" PVC, and 76 manholes. Also rehabbed 21,200 ft of 8" concrete and 180 ft of 12" concrete.

Phase II CAP/ER

The Phase II CAP/ER was submitted to EPA on September 9, 2009, and subsequently approved on March 22, 2010.

Phase II CAP/ER Ongoing Projects

First Creek

1. **FCR-1 1235 Watercress Drive** – Find and fix project to address overflow in vicinity of 1235 Watercress Drive in Mini-basin 07A2. This project is currently under construction. The expected completion date is June 2014.
2. **FCR-2 4600 Upchurch Road** – Find and fix project to address overflow in vicinity of 4600 Upchurch Road in Mini-basin 07A3. This project is currently under construction. The expected completion date is June 2014.

Second Creek

1. **SCR-1 4105 Central Avenue Pike** – Find and fix work to identify and address overflow in vicinity of 4105 Central Avenue Pike. CCTV, smoke testing, and manhole inspection have been completed. Construction is underway and this project is expected to be completed in FY 13/14.

Fourth Creek

1. **4TH-2 Ten Mile Pump Station Removal** – The original scope of this project included elimination of First Utility District's (FUD's) flows at KUB's Ten Mile Pump Station, while retaining KUB flows at an upgraded KUB Ten Mile Pump Station. However, during the planning phase, KUB and FUD found that it would be more cost-effective for FUD to slightly expand its planned new Ten Mile Pump Station to handle flows from both KUB and FUD. Flows from two minibasins, a total of approximately 1,000 customers, are now handled by the new FUD Pump Station, which went into service in June 2013. KUB's flows are metered by stations at the base of each mini-basin, and FUD bills KUB monthly for its flow volumes. KUB will be decommissioning its Ten Mile Pump Station and force main over the next several months, including draining the force main and salvaging equipment, with all work to be completed by the end of December 2013.

South Knox

All Phase II CAP/ER projects in the South Knox basin have been completed.

Phase II CAP/ER Completed Projects

Fourth Creek

1. **4TH-1 6540 Creekhead Drive** – Sewer rehabilitation completed in Mini-basin 32A4.
2. **Pinebrook Drive Sewer Replacement** – Replaced 330 ft of 8" gravity sewer partially exposed by erosion of the bank of the adjacent drainage channel.
3. **Walker Springs Rehabilitation (Mini-Basin 32A4)** – Performed a two-phased construction project to address issues in Mini-basin 32A4. Replaced approximately 275 ft of 8" gravity sewer.

Loves Creek and Eastbridge

1. **LVS-1 1815 Wayland Road** – Replaced approximately 19,000 ft of 10" and 12" sewer.
2. **EBR-1 7612 Bud Hawkins Road** – Replaced the pump station with a gravity sewer system consisting of approximately 1,400 ft of 8" sewer, 2,100 ft of 12" sewer, 7,100 ft of 18" sewer and 6,000 ft of 20" sewer.

South Knox

1. **STH-1 820 Goldfinch Drive** – Replaced approximately 1,700 ft of 8" sewer and rehabilitated 2,800 ft of sewer using CIPP. Four manholes were replaced and 24 were rehabilitated.

Section 2 Comprehensive Performance Evaluation Program (CPE) and Composite Correction Plan (CCP)

Consent Decree language, pages 82-83: *"Each Quarterly Progress Report shall contain... A summary of compliance with and activities related to implementation of the CPE and CCP."*

The CPE was submitted to EPA on February 24, 2006, and was approved on July 24, 2006.

The CCP was submitted to the EPA on July 23, 2007. EPA disapproved it on January 4, 2008. The Revised CCP was submitted to EPA on January 5, 2009, and subsequently approved on January 20, 2009.

Kuwahee Wastewater Treatment Plant (WWTP) Phase I, Contract I

Construction started in June 2011 and is complete. This construction project was completed prior to the December 30, 2012, deadline.

Kuwahee WWTP Phase I, Contract II

Construction started in August 2011 and is complete. This construction project was completed prior to the December 30, 2012, deadline.

Fourth Creek WWTP Phase I

The Fourth Creek WWTP Phase I is currently under construction and expected to be completed prior to the EPA substantial completion date of December 31, 2013. To date, construction is 80 percent complete. Structural work on all buildings is complete except the Wet Weather Screening Structure. The contractor is finishing the trim, electrical, HVAC, plumbing, and equipment installation on the remaining structures. Upcoming major tasks are finishing concrete work and installing the screen at the Wet Weather Screening Structure, installing 24-inch force main from the effluent pump station to the outfall box, painting and tying in the new Chlorine Contact Tank to the existing piping and tanks, and pulling new cable to existing Motor Control Centers.

Section 3 Process Controls Program

Consent Decree language, pages 82-83: *“Each Quarterly Progress Report shall contain... A summary of implementation of and compliance with the Process Controls Program.”*

The Process Controls Program (PCP) was initiated 20 times during this reporting period, resulting in one Diversion event at Kuwahee.

Section 4 Capacity Assurance Program

Consent Decree language, pages 82-83: *"Each Quarterly Progress Report shall contain... A summary of the implementation of the Capacity Assurance Program for that Calendar Quarter, including the number of, and anticipated flow from, sewer connections that have been authorized, by Sewerbasin, a description of the projects that have been authorized and the number of credits earned and banked by KUB that will be expended for those projects, by Sewerbasin, and any exceptions granted for connections for essential services."*

The Capacity Assurance Program (CAP) was submitted to EPA for review on February 8, 2006. EPA reviewed and approved the program on April 7, 2006. KUB started reviewing building permits based on the approved CAP on June 6, 2006, which was within the 60-day timeframe for implementing the program after receiving EPA approval.

To review building permits more efficiently using the CAP criteria agreed on with the EPA, KUB worked with a consultant, Camp, Dresser, & McKee, to develop an Information Management System (IMS). The IMS assists KUB in managing the CAP program by determining the amount of wastewater each proposed building would add to KUB's wastewater system based on its location. The IMS also helps track rehabilitation credits that KUB earns through its CAP/ER and Management, Operations, and Maintenance (MOM) programs.

Appendix A includes a list of capital projects that KUB performed to gain rehabilitation credit in its sewer system. As stated in the Consent Decree, the list of authorized sewer connections was maintained and updated as necessary until full implementation of the CAP as approved by EPA. Therefore, the list will no longer be included as part of this quarterly report.

There were no exceptions granted for connections for essential services during this reporting period.

Section 5 Transfers of Ownership

Consent Decree language, pages 82-83: *“Each Quarterly Progress Report shall contain... Identification of any transfer of an ownership interest, operation, management, or other control of the Treatment Works, or any portion thereof.”*

There has been no transfer of an ownership interest, operation, management, or other control of the Treatment Works, or any portion thereof, during this reporting period as defined by Section III, Part C of the Consent Decree. However, as mentioned in Section 1 Phase II CAP/ER Ongoing Projects under the 4TH-2 Ten Mile Pump Station Removal on page 10 of this report, KUB will be decommissioning its Ten Mile Pump Station and force main over the next several months, including draining the force main and salvaging equipment, with all work to be completed by the end of December 2013. Once decommissioned, the property will be transferred to First Utility District.

Section 6 Compliance and Non-Compliance With the Consent Decree

Consent Decree language, pages 82-83: *“Each Quarterly Progress Report shall contain...A description of the status of compliance or non-compliance with the requirements of this Decree and, if applicable, the reasons for non-compliance, including a list of all violations that are subject to stipulated penalties under Section X of this Consent Decree.”*

6.1 Submission of Deliverables

To date, KUB has submitted all deliverables in accordance with the schedule set forth in the Consent Decree. The following sections detail all activity related to deliverables that occurred during the past quarter. Also noted are the dates each submittal was available for public comment in the Public Document Repository (PDR), when the deliverable was submitted to EPA, when EPA responded with comments, when KUB responded to those comments, and when EPA approval was received.

6.1.1 Quarterly Progress Report First Quarter 2013

Consent Decree language, pages 82-83: *“Beginning thirty (30) Days after the first Calendar Quarter following the Date of Entry, and thirty (30) Days after each Calendar Quarter thereafter until termination of the Consent Decree, KUB shall submit to the Parties, and simultaneously place in the PDR, a Quarterly Progress Report.”*

On April 29, 2013, KUB submitted to EPA and placed in the PDR the Quarterly Progress Report for the first quarter 2013. This deliverable was not subject to the Public Review Requirement of Section VI.A.2, but was available for public comment from April 29, 2013, until May 20, 2013. No comments were received during that period.

6.1.2 2003-2012 Sanitary Sewer Overflow Evaluation Report Annual Update

Consent Decree language, page 21: *“Beginning on April 30, 2005, and on an annual basis thereafter, until termination of this Consent Decree, KUB shall submit an update to the SSOER to address those conditions that caused the SSOs that occurred during the previous Calendar Year, in accordance with subparagraphs (b) through (e) below (“Annual SSOER Update”).”*

On April 29, 2013, KUB submitted to EPA and placed in the PDR the 2003 – 2012 Sanitary Sewer Overflow Evaluation Report Annual Update. This Review Level 1 Deliverable was available for public comment from April 29, 2013, until May 19, 2013. No comments were received during that period.

6.2 Violations Subject to Stipulated Penalties

During this reporting period, KUB incurred 10 Unpermitted Discharges. Table 1 below lists all violations subject to stipulated penalties as outlined in the Consent Decree. Appendix E lists any SSO that occurred during the second quarter 2013 that resulted in an unpermitted discharge along with its cause, volume, one- and three-day rainfall totals, and rainfall intensity.

Table 1. Violations Subject to Stipulated Penalties

| Violation | Date | Address | Cause |
|-----------------------|-------------|-----------------------|----------------------|
| Unpermitted discharge | 4/8/2013 | 2724 Western Avenue | Construction failure |
| Unpermitted discharge | 4/27/2013 | 608 Van Street | Blockage |
| Unpermitted discharge | 4/28/2013 | 1540 Jourolman Avenue | Blockage |
| Unpermitted discharge | 4/28/2013 | 1500 Lyons Bend Road | Electrical failure |
| Unpermitted discharge | 5/6/2013 | 2541 Mitchell Street | Heavy rainfall |
| Unpermitted discharge | 5/6/2013 | 2722 Chukar Road | Blockage |
| Unpermitted discharge | 5/16/2013 | 2327 South Haven Road | Heavy rainfall |
| Unpermitted discharge | 6/4/2013 | 2111 Schofield Street | Construction failure |
| Unpermitted discharge | 6/12/2013 | 6549 Creekhead Drive | Vandalism |
| Unpermitted discharge | 6/18/2013 | 2500 Cedar Lane | Heavy rainfall |

Section 7 SSOs, Bypasses, Diversions, and Effluent Limit Violations

Consent Decree language, pages 82-83: *“Each Quarterly Progress Report shall contain... A spreadsheet and summary of all SSOs, Bypasses, Diversions, and effluent limit violations that occurred during the previous Calendar Quarter. Information on Building Backups may be provided in separate spreadsheets and summaries from other SSOs. The spreadsheets and summaries shall identify:*

- a. For all SSOs, the location, source, date, time, duration, pathway (if any), receiving water (if any), the reason for each SSO, the total SSO volume, the volume returned to the WCTS, and the volume not captured;*
- b. For all Bypasses and Diversions, the location, date, time, duration, volume and reason for each Bypass and Diversion; and the total Bypass or Diversion volumes;*
- c. For all effluent limit violations, all information required to be reported on KUB’s Discharge Monitoring Reports.”*

7.1 SSOs

Appendix B lists all SSOs that occurred during this reporting period. During this period, there were 21 SSO events. Of that number, eight were due to blockage, four were due to heavy rainfall, three were due to broken pipe, two were due to construction failure, two were due to grinder pump failure, one was due to electrical failure, and one was due to vandalism.

Of the 21 SSO events, 12 were in the 0 – 1,000 gallons volume range, five were in the 1,001 – 10,000 range, three events totaled greater than 10,000 gallons, and the volume was unknown for one event. Durations for events during this period are as follows: 13 ranged from 0 – 2 hours, three ranged from 2.1 – 5 hours, four were greater than five hours, and the duration was unknown for one event.

7.2 Building Backups

Appendix C lists all Building Backups that occurred during this reporting period. During this period, there were four Building Backups. Two were due to construction failure, and two were due to blockage.

7.3 Bypasses

All Bypasses that occurred during this reporting period were in compliance with the Process Controls Program. For purposes of this report, any Bypass in compliance with the Process Controls Program shall be referred to as a “Diversion” (see below). All Bypasses not in compliance with the Process Controls Program shall be referred to as a “Bypass.”

Table 2 contains all Diversion event information that occurred during this reporting period. During this reporting period, there was one Diversion event at Kuwahee, and none at Fourth Creek, Loves Creek, or Eastbridge WWTPs. No Bypasses occurred during this reporting period.

7.4 Effluent Limit Violations

Table 3 contains all effluent limit violations that occurred during this reporting period. The table contains the information as it is reported in KUB’s Discharge Monitoring Reports. During this reporting period, there were two permit violations for Fourth Creek and none for Kuwahee, Loves Creek, or Eastbridge WWTP.

Table 2: Diversions

| WWTP | Did a Diversion occur? | Date Diversion gate opened | Time Diversion gate opened | Date Diversion gate closed | Time Diversion gate closed | Date Diversion flow reported | Duration (hrs) | Volume (MG) | Total Event Duration (hrs) | Total Event Volume (MG) | Reason for Event |
|--------------|------------------------|----------------------------|----------------------------|----------------------------|----------------------------|------------------------------|----------------|-------------|----------------------------|-------------------------|--|
| Fourth Creek | No | | | | | | | | | | |
| Kuwahee | Yes | 4/28/2013 | 12:57 | 4/28/2013 | 22:00 | 4/28/2013 | 9.05 | 11.98 | 9.05 | 11.98 | High flow event due to excess rainfall |
| Loves Creek | No | | | | | | | | | | |
| Eastbridge | No | | | | | | | | | | |

Table 3: Effluent Limit Violations

| WWTP | Did an event occur? | Date | Parameter | Type | Limit | Value |
|------------------------------|---------------------|-----------------------------|---------------------|------|---------|---------|
| Kuwahee | No | - | - | - | - | - |
| Fourth Creek | Yes | 4/28/2013 | Daily Max | TSS | 45 mg/l | 70 mg/l |
| Fourth Creek | Yes | 4/28/2013 | Daily Min % Removal | TSS | 40% | 18% |
| Loves Creek | No | - | - | - | - | - |
| Eastbridge | No | - | - | - | - | - |
| SS - Settleable Solids | | mg/l - milligrams per liter | | | | |
| TSS - Total Suspended Solids | | cfu –Colony Forming Unit | | | | |
| ml/l – milliliters per liter | | lbs - Pounds | | | | |

Section 8 Water Quality Monitoring Data

Consent Decree language, pages 82-83: *"Each Quarterly Progress Report shall contain... The water quality monitoring data and other information required pursuant to Section VII.D.1.(e).(v)."*

8.1 Sampling Conducted and Results

Appendix D lists all sampling that was conducted during this reporting period and the results thereof. In addition to routine monitoring in all creeks, and responding to Sanitary Sewer Overflows (SSO), KUB Water Quality Personnel conducted some investigative sampling in Goose Creek. KUB continues to use RT-PCR Bacteroides analysis, if necessary, to investigate the source of any high *E. coli* counts that reoccur.

First Creek

There were three routine samples that had an *E. coli* result above the water quality standard of 941cfu/100 ml for Second Creek (Routine Water Quality Monitoring Report – Appendix D). All three samples were collected when the stream area had received over an inch of rain within the four days prior to the day that the sampling event occurred. It is probable that contamination from storm runoff contributed to these higher counts, especially given the lower levels observed. Due to rainfall this creek is not currently under investigation.

Second Creek

All of the bacteriological results associated with the routine monitoring for Second Creek (Routine Water Quality Monitoring Report – Appendix D) were all well below the water quality standard of 941cfu/100 ml. There has not been any additional monitoring on this creek for the second 2013 quarter.

Third Creek

One sample for this quarter collected on 5/1/13 did have an *E. coli* result above the water quality standard of 941cfu/100 ml for Third Creek (Routine Water Quality Monitoring Report – Appendix D). The area received 3.5 inches of rain within the four days prior to the sampling event. This heavy rainfall likely caused this high count due to contaminated runoff entering the creek. Investigative sampling for this creek is not needed at this time.

Fourth Creek

There was one sample in June for this quarter that had an *E. coli* result slightly above the water quality standard of 941cfu/100 ml for Fourth Creek (Routine Water Quality Monitoring Report – Appendix D). Over an inch of rain fell within the four days prior to sampling, and likely caused this high count of 1200 cfu/100 ml. Investigative sampling is unnecessary at this time.

Loves Creek

The bacteriological results associated with the routine monitoring for Loves Creek (Routine Water Quality Monitoring Report – Appendix D) were all below the water quality standard of 941cfu/100 ml except for the samples collected in the month of June. All three of the sites that were sampled on June 27, 2013, were above the water quality standard of 941cfu/100. These samples were collected on a day that 1.58 inches of rain fell, and 0.73 inches fell on the day prior to sampling. Due to the heavy rain, contamination from rain runoff entering the creek is suspect for these high counts. Investigative sampling is not necessary at this time.

Williams Creek

Much like Loves Creek, there were no samples for this quarter that had *E. coli* results above the water quality standard of 941cfu/100 ml, for Williams Creek (Routine Water Quality Monitoring Report – Appendix D) except for the samples collected in June. These samples

were collected on the same day that the Loves Creek samples were. Just like those samples, these were all above the water quality standard of 941cfu/100ml. It is likely that the two inches of rain within the 48 hours of the sampling event would have contaminated any runoff which would have flowed into the stream.

Baker Creek

There were two samples that exceeded the water quality standard of 941cfu/100 ml for Baker Creek (Routine Water Quality Monitoring Report – Appendix D) this quarter. Both of the samples were taken on June 26, 2013, when the area received nearly an inch of rain. KUB has been investigating this creek due to elevated counts observed in previous quarters along a tributary that enters the stream at mile 0.36. Monitoring of this tributary over time has suggested that a potential source needs additional investigation. Since these elevations are inconsistent and seen primarily during wet weather in this largely residential area, a leaking septic system or defective private lateral is suspect.

Wet-Weather Investigative sampling was conducted along Baker Creek in April after a dry weather period of four days followed by a predicted inch of rainfall in a 24 hour period. The results in Table 2 clearly show that counts and stream volume increased as the storm brought significant rainfall to the stream, but decreased during the period when the stream was still at maximum capacity. This was true for all three sampling sites. If the wastewater system was surcharged and leaking, counts would have stayed elevated or increased during the third sampling event at each location. No indication of overflows or leaks from a surcharged wastewater system was apparent. Monitoring of manholes near the stream also did not indicate evidence of surcharging due to inflow or infiltration.

Goose Creek

One of the routine samples for this quarter was above the water quality standard of 941cfu/100 ml for Goose Creek (Routine Water Quality Monitoring Report – Appendix D). This sample was taken at Site 1.19E, and was taken when the area received nearly two inches of rain within three days. Site 1.19E is still under investigation (Table 1 – Appendix D) because *E. coli* results above the water quality standard of 941cfu/100 ml have been obtained during both wet- and dry-weather conditions near this site in previous quarters. For this reason, more monitoring of nearby tributaries will continue. So far, the data does not indicate a source that would be indicative of a wastewater issue along either the Right Fork or Left Fork tributary.

Wet-Weather Investigative sampling was conducted along Goose Creek in April after a dry-weather period of four days followed by a predicted inch of rainfall in a 24-hour period. The results in Table 2 clearly show that counts and stream volume increased as the storm brought significant rainfall to the stream, but decreased during the period when the stream was still at maximum capacity. This was true for all three sampling sites. If the wastewater system was surcharged and leaking, counts would have stayed elevated or increased during the third sampling event at each location. No indication of overflows or leaks from a surcharged wastewater system was apparent. Monitoring of manholes near the stream also did not indicate evidence of surcharging due to inflow or infiltration.

Spill Impact Reporting

One overflow included in the Spill Impact Report included monitoring for a limited list of priority pollutants. The unpermitted discharge that resulted on June 4, 2013, at 2111 Schofield was downstream of two industries that reclaim silver. Both are Categorical Industries Subpart L – Precipitation and Filtration of Film Stripping Solutions. Metals and cyanide analyses were conducted on the upstream and downstream samples just after the unpermitted discharge occurred, and there were no detectable levels for silver, copper, lead,

zinc, cadmium, chromium, nickel and cyanide in either sample. No additional testing was warranted.

8.2 Projected Data Collection

During the third quarter of 2013, KUB will continue to monitor the 24 routine sampling locations in the sewer basins of eight area creeks. KUB will collect samples from the following locations during the third quarter of 2013:

Sample Locations by Creek Mile or Site Number

| Creek Name | Creek Mile # | Creek Mile # | Creek Mile # |
|-----------------------|---------------------|---------------------|---------------------|
| First Creek | 1.74 | 2.57 | 6.33 |
| Second Creek | 0.30 | 1.54 | 5.11 |
| Third Creek | 0.87 | 2.08E | 4.80W |
| Fourth Creek | 1.75 | 2.79 | 3.29 |
| Baker Creek | 0.36 | 0.53 | 1.45 |
| Goose Creek | 0.40 | 1.19E | 1.80E |
| Loves Creek | 0.85 | 1.89 | 3.45 |
| Williams Creek | 0.89 | 1.70 | 2.02 |

Appendix A

Capital Projects and Rehabilitation Credits

Capital Projects and Rehabilitation Credits

| | Project Name | Credit Type | Basin | WWTP | Credits Banked (gpd) | Status |
|----|--|------------------------------|-------------------------|--------------|----------------------|------------------|
| 1 | Comprehensive Rehab 03B1a | Comprehensive Rehabilitation | 1st Creek | Kuwahee | 321,030 | Project Complete |
| 2 | Comprehensive Rehab 03B2a | Comprehensive Rehabilitation | 1st Creek | Kuwahee | 302,366 | Project Complete |
| 3 | Comprehensive Rehab 04B1a | Comprehensive Rehabilitation | 1st Creek | Kuwahee | 334,626 | Project Complete |
| 4 | Comprehensive Rehab 08A1 | Comprehensive Rehabilitation | 1st Creek | Kuwahee | 1,589,952 | Project Complete |
| 5 | McC Campbell Lane Sewer Replacement | Find & Fix Gravity Main | 1st Creek | Kuwahee | 25,543 | Project Complete |
| 6 | Knox Road Trunkline Replacement | Find & Fix Gravity Main | 1st Creek | Kuwahee | 36,728 | Project Complete |
| 7 | vented manhole cover replacement (7A1) | Manhole Cover | 1st Creek | Kuwahee | 13,333 | Project Complete |
| 8 | vented manhole cover replacement (7A1) | Manhole Cover | 1st Creek | Kuwahee | 13,333 | Project Complete |
| 9 | vented manhole cover replacement (7A1) | Manhole Cover | 1st Creek | Kuwahee | 13,333 | Project Complete |
| 10 | Comprehensive Rehab 15D2 | Comprehensive Rehabilitation | 2nd Creek | Kuwahee | 1,450,008 | Project Complete |
| 11 | Comprehensive Rehab 05A4 & 05A3 | Comprehensive Rehabilitation | 2nd Creek | Kuwahee | 43,904 | Project Complete |
| 12 | Comprehensive Rehab 09A2 | Comprehensive Rehabilitation | 3rd Creek | Kuwahee | 296,664 | Project Complete |
| 13 | Comprehensive Rehab 09A1 | Comprehensive Rehabilitation | 3rd Creek | Kuwahee | 219,345 | Project Complete |
| 14 | Walker Springs Storage Tank | Storage Tank | 4th Creek | Fourth Creek | 3,250,000 | Project Complete |
| 15 | Comprehensive Rehab 40F1 | Comprehensive Rehabilitation | South Knox / Knob Creek | Kuwahee | 83,600 | Project Complete |
| 16 | Comprehensive Rehab 41A4 | Comprehensive Rehabilitation | South Knox / Knob Creek | Kuwahee | 371,994 | Project Complete |
| 17 | Comprehensive Rehab 41B1 | Comprehensive Rehabilitation | South Knox / Knob Creek | Kuwahee | 152,958 | Project Complete |
| 18 | Wilson Ave, Chesnut St., Donnell St. (Asset Replacement) | Find & Fix Gravity Main | Williams Creek | Kuwahee | 28 | Project Complete |
| 19 | Williams Creek Trunkline Replacement | Find & Fix Gravity Main | Williams Creek | Kuwahee | 168,667 | Project Complete |
| 20 | Rushland Park Off Site Sewer Rehabilitation | Find & Fix Gravity Main | Loves Creek | Loves Creek | 3,803 | Project Complete |
| 21 | Emily Avenue Pump Station Abandonment | Find & Fix Gravity Main | Loves Creek | Loves Creek | 141,600 | Project Complete |
| 22 | Fair Drive - Phase I | Find & Fix Gravity Main | 1st Creek | Kuwahee | 130,928 | Project Complete |
| 23 | Comprehensive Rehab 23E1 | Comprehensive Rehabilitation | 2nd Creek | Kuwahee | 4,215,003 | Project Complete |
| 24 | vented manhole cover replacements (08B2) | Manhole Cover | 1st Creek | Kuwahee | 4,669 | Project Complete |
| 25 | vented manhole cover replacement (16B1) | Manhole Cover | 1st Creek | Kuwahee | 667 | Project Complete |
| 26 | vented manhole cover replacements (28C1) | Manhole Cover | 3rd Creek | Kuwahee | 1,334 | Project Complete |
| 27 | 10" mainline replacement (33A2) | Find & Fix Gravity Main | 4th Creek | Fourth Creek | 5,409 | Project Complete |
| 28 | vented manhole cover replacements (22C2) | Manhole Cover | 3rd Creek | Kuwahee | 16,002 | Project Complete |
| 29 | vented manhole cover replacements (63) | Manhole Cover | Sinking Creek | Loves Creek | 66,665 | Project Complete |
| 30 | 10" mainline replacement (6C1) | Find & Fix Gravity Main | Loves Creek | Loves Creek | 24,620 | Project Complete |
| 31 | Comprehensive Rehab 06A5 | Comprehensive Rehabilitation | Loves Creek | Loves Creek | 263,358 | Project Complete |
| 32 | Comprehensive Rehab 06A4 | Comprehensive Rehabilitation | Loves Creek | Loves Creek | 386,304 | Project Complete |
| 33 | vented manhole cover replacement (39D2) | Manhole Cover | South Knox / Knob Creek | Kuwahee | 667 | Project Complete |
| 34 | vented manhole cover replacement (39D4) | Manhole Cover | South Knox / Knob Creek | Kuwahee | 667 | Project Complete |
| 35 | vented manhole cover replacement (39D3) | Manhole Cover | South Knox / Knob Creek | Kuwahee | 2,668 | Project Complete |
| 36 | vented manhole cover replacement (20A6) | Manhole Cover | Loves Creek | Loves Creek | 1,334 | Project Complete |
| 37 | vented manhole cover replacement (20A7) | Manhole Cover | Loves Creek | Loves Creek | 667 | Project Complete |
| 38 | vented manhole cover replacement (13A2) | Manhole Cover | 3rd Creek | Kuwahee | 667 | Project Complete |
| 39 | vented manhole cover replacement (13B1) | Manhole Cover | 3rd Creek | Kuwahee | 13,335 | Project Complete |
| 40 | vented manhole cover replacement (28B1) | Manhole Cover | 3rd Creek | Kuwahee | 1,334 | Project Complete |
| 41 | 12" mainline replacement (44) | Find & Fix Gravity Main | South Knox / Knob Creek | Kuwahee | 4,278 | Project Complete |
| 42 | manhole frame seal repair (67) | Manhole Repair | Loves Creek | Loves Creek | 2,304 | Project Complete |
| 43 | Whites Creek Trunk Line Replacement (02) | Find & Fix Gravity Main | 1st Creek | Kuwahee | 50,106 | Project Complete |
| 44 | Comprehensive Rehab 09D1 | Comprehensive Rehabilitation | 3rd Creek | Kuwahee | 381,376 | Project Complete |
| 45 | Comprehensive Rehab 09A4 | Comprehensive Rehabilitation | 3rd Creek | Kuwahee | 408,317 | Project Complete |
| 46 | Lower First Creek Storage Tank | Storage Tank | 1st Creek | Kuwahee | 5,000,000 | Project Complete |
| 47 | vented manhole cover replacement (11B2) | Manhole Cover | 3rd Creek | Kuwahee | 13,333 | Project Complete |
| 48 | vented manhole cover replacement (13C1) | Manhole Cover | 3rd Creek | Kuwahee | 2,667 | Project Complete |
| 49 | vented manhole cover replacement (22A2) | Manhole Cover | 3rd Creek | Kuwahee | 667 | Project Complete |
| 50 | vented manhole cover replacement (22B1) | Manhole Cover | 3rd Creek | Kuwahee | 667 | Project Complete |
| 51 | Creek Head Drive sewer line replacement (32A4) | Find & Fix Gravity Main | 4th Creek | Fourth Creek | 11,132 | Project Complete |
| 52 | Manhole replacement (19A3) | Find & Fix Gravity Main | Williams Creek | Kuwahee | 207 | Project Complete |
| 53 | Papermill drive sewer line replacement (33A2) | Find & Fix Gravity Main | 4th Creek | Fourth Creek | 103,769 | Project Complete |
| 54 | Wells Rd sewer line replacement (39C2) | Find & Fix Gravity Main | South Knox / Knob Creek | Kuwahee | 1,728 | Project Complete |
| 55 | Power Park Manhole Rehab (45) | Find & Fix Gravity Main | Knob Creek | Kuwahee | 3,596 | Project Complete |
| 56 | Blount Ave abandoned lateral (39A1) | Disconnect abandoned lateral | South Knox / Knob Creek | Kuwahee | 2,000 | Project Complete |
| 57 | Woodbine Ave sewerline Rehab (19A2) | Find & Fix Gravity Main | Williams Creek | Kuwahee | 2,683 | Project Complete |
| 58 | Pleasant Ridge Rd Sewer line improvements (09A1) | Find & Fix Gravity Main | 3rd Creek | Kuwahee | 207 | Project Complete |
| 59 | Papermill drive sewer line replacement (27A1) | Find & Fix Gravity Main | Fourth Creek | Fourth Creek | 18,211 | Project Complete |
| 60 | Wilson Rd Manhole Rehab (10C1) | Find & Fix Gravity Main | 2nd Creek | Kuwahee | 831 | Project Complete |
| 61 | Maryville Pike Trunk Replacement (39C1) | Find & Fix Gravity Main | South Knox / Knob Creek | Kuwahee | 72,880 | Project Complete |
| 62 | Upper McKamey Trunk Replacement (11B1 11B2) | Find & Fix Gravity Main | 3rd Creek | Kuwahee | 64,324 | Project Complete |
| 63 | Fox Manor Blvd sewer line replacement (32A4) | Find & Fix Gravity Main | 4th Creek | Fourth Creek | 31,510 | Project Complete |
| 64 | Power Park Manhole Rehab (47) | Manhole Repair | South Knox / Knob Creek | Kuwahee | 7,700 | Project Complete |
| 65 | Sutherland Ave Sewer Line Replacement (28B1) | Find & Fix Gravity Main | 3rd Creek | Kuwahee | 20,383 | Project Complete |
| 66 | Fountain City Trunkline Replacement (03B1 03B2) | Find & Fix Gravity Main | 1st Creek | Kuwahee | 72,512 | Project Complete |
| 67 | vented manhole cover replacement (11B2) | Manhole Cover | 4th Creek | Fourth Creek | 13,333 | Project Complete |
| 68 | vented manhole cover replacement (39D2) | Manhole Cover | South Knox / Knob Creek | Kuwahee | 13,333 | Project Complete |
| 69 | Comprehensive Rehabilitation 19A2 | Comprehensive Rehabilitation | Williams Creek | Kuwahee | 521,631 | Project Complete |
| 70 | 17B1 Manhole Replacement | Find & Fix Gravity Main | 1st Creek | Kuwahee | 1,803 | Project Complete |
| 71 | Vine Middle School sewerline Rehab (24D1) | Find & Fix Gravity Main | 1st Creek | Kuwahee | 23,491 | Project Complete |
| 72 | Comprehensive Rehabilitation (08B2) | Comprehensive Rehabilitation | 1st Creek | Kuwahee | 841,370 | Project Complete |
| 73 | Third Creek Storage Tank (21A1) | Storage Tank | 3rd Creek | Kuwahee | 4,000,000 | Project Complete |
| 74 | Comprehensive Rehabilitation (19A1) | Comprehensive Rehabilitation | Williams Creek | Kuwahee | 313,938 | Project Complete |
| 75 | Comprehensive Rehabilitation (19B1) | Comprehensive Rehabilitation | Williams Creek | Kuwahee | 328,300 | Project Complete |
| 76 | Comprehensive Rehabilitation (10B1) | Comprehensive Rehabilitation | 2nd Creek | Kuwahee | 191,698 | Project Complete |
| 77 | Comprehensive Rehabilitation (10C1) | Comprehensive Rehabilitation | 2nd Creek | Kuwahee | 67,840 | Project Complete |
| 78 | Disconnected Stormwater Detention Pond Sevier Ave (40C1) | Disconnect Storm Sewer | South Knox / Knob Creek | Kuwahee | 97,333 | Project Complete |
| 79 | Sub Basin 63 Sinking Creek Drainage rehabilitation (63) | Comprehensive Rehabilitation | South Knox / Knob Creek | Loves Creek | 72,110 | Project Complete |
| 80 | West Ford Valley Trunkline replacement (41A1) | Find & Fix Gravity Main | South Knox / Knob Creek | Kuwahee | 236,704 | Project Complete |
| 81 | Blount Avenue Trunkline Replacement (39A1) | Find & Fix Gravity Main | South Knox / Knob Creek | Kuwahee | 225,376 | Project Complete |
| 82 | Brookvale Point Repairs (02A3) | Find & Fix Gravity Main | 1st Creek | Kuwahee | 52,079 | Project Complete |
| 83 | Park Pump Point Repairs (45) | Find & Fix Gravity Main | South Knox / Knob Creek | Kuwahee | 11,522 | Project Complete |
| 84 | Wayland Road Storage Tank (67) | Storage Tank | Loves Creek | Loves Creek | 20,000 | Project Complete |
| 85 | Comprehensive Rehab (19A3) | Comprehensive Rehabilitation | Williams Creek | Kuwahee | 325,090 | Project Complete |
| 86 | Comprehensive Rehab (41A2) | Comprehensive Rehabilitation | South Knox / Knob Creek | Kuwahee | 39,330 | Project Complete |
| 87 | Comprehensive Rehab (41A5) | Comprehensive Rehabilitation | South Knox / Knob Creek | Kuwahee | 119,327 | Project Complete |
| 88 | Jersey Ave sewer rehabilitation (SubBasin 23) | Find & Fix Gravity Main | 1st Creek | Kuwahee | 419 | Project Complete |
| 89 | East Magnolia sewer rehabilitation (SubBasin 24) | Find & Fix Gravity Main | 1st Creek | Kuwahee | 846 | Project Complete |
| 90 | Walker Blvd Sewer Rehabilitation (SubBasin 16) | Find & Fix Gravity Main | 1st Creek | Kuwahee | 1086 | Project Complete |

Capital Projects and Rehabilitation Credits

| | | | | | | |
|-----|--|------------------------------|-------------------------|--------------|-----------|------------------|
| 91 | Kingston Court Sewer Rehabilitation (SubBasin 29) | Find & Fix Gravity Main | 3rd Creek | Kuwahee | 3727 | Project Complete |
| 92 | Clinch Ave Sewer Rehabilitation (SubBasin 30) | Find & Fix Gravity Main | 1st Creek | Kuwahee | 442 | Project Complete |
| 93 | Badgett Drive Sewer Rehabilitation (SubBasin 22) | Find & Fix Gravity Main | 3rd Creek | Kuwahee | 214 | Project Complete |
| 94 | Dickson Street Sewer Rehabilitation (SubBasin 20) | Find & Fix Gravity Main | Loves Creek | Loves Creek | 417 | Project Complete |
| 95 | W New Street Sewer Rehabilitation (SubBasin 24) | Find & Fix Gravity Main | 1st Creek | Kuwahee | 2844 | Project Complete |
| 96 | Rennoc Rd Sewer Rehabilitation (SubBasin 4) | Find & Fix Gravity Main | 1st Creek | Kuwahee | 2853 | Project Complete |
| 97 | Spicewood Lane Sewer Rehabilitation (SubBasin 13) | Find & Fix Gravity Main | 3rd Creek | Kuwahee | 216 | Project Complete |
| 98 | Chapman Highway Sewer Rehabilitation (SubBasin 39) | Find & Fix Gravity Main | South Knox / Knob Creek | Kuwahee | 212 | Project Complete |
| 99 | McCroskey Ave Sewer Rehabilitation (SubBasin 17) | Find & Fix Gravity Main | 1st Creek | Kuwahee | 1,076 | Project Complete |
| 100 | East 5th Ave Sewer Rehabilitation (SubBasin 24) | Find & Fix Gravity Main | 1st Creek | Kuwahee | 447 | Project Complete |
| 101 | Simms Rd Sewer Rehabilitation (SubBasin 39) | Find & Fix Gravity Main | South Knox / Knob Creek | Kuwahee | 2,955 | Project Complete |
| 102 | Maynard Ave Sewer Rehabilitation (SubBasin 16) | Find & Fix Gravity Main | 1st Creek | Kuwahee | 423 | Project Complete |
| 103 | Minibasin 10B1 & 10C1 find & fix | Find & Fix Gravity Main | 2nd Creek | Kuwahee | 15,689 | Project Complete |
| 104 | Third Creek Trunkline Replacement | Find & Fix Gravity Main | 3rd Creek | Kuwahee | 483,793 | Project Complete |
| 105 | Disconnected Stormwater 15" discharge pipe Island Home blvd | Disconnect Storm Sewer | South Knox / Knob Creek | Kuwahee | 1,720,000 | Project Complete |
| 106 | Paved Manhole Rehabilitation 40A2 | Find & Fix Gravity Main | South Knox / Knob Creek | Kuwahee | 20,140 | Project Complete |
| 107 | Paved Manhole Rehabilitation 40F2 | Find & Fix Gravity Main | South Knox / Knob Creek | Kuwahee | 6,515 | Project Complete |
| 108 | Paved Manhole Rehabilitation 40G1 | Find & Fix Gravity Main | South Knox / Knob Creek | Kuwahee | 13,571 | Project Complete |
| 109 | Paved Manhole Rehabilitation 39E1 | Find & Fix Gravity Main | South Knox / Knob Creek | Kuwahee | 2,576 | Project Complete |
| 110 | Paved Manhole Rehabilitation 03C1 | Find & Fix Gravity Main | 1st Creek | Kuwahee | 3,615 | Project Complete |
| 111 | Paved Manhole Rehabilitation 02A1 | Find & Fix Gravity Main | 1st Creek | Kuwahee | 6,491 | Project Complete |
| 112 | Paved Manhole Rehabilitation SB 38 | Find & Fix Gravity Main | 3rd Creek | Kuwahee | 5,797 | Project Complete |
| 113 | Paved Manhole Rehabilitation 18A1 | Find & Fix Gravity Main | 1st Creek | Kuwahee | 4,540 | Project Complete |
| 114 | Paved Manhole Rehabilitation 39E1 | Find & Fix Gravity Main | South Knox / Knob Creek | Kuwahee | 34,671 | Project Complete |
| 115 | Paved Manhole Rehabilitation 39D1 | Find & Fix Gravity Main | South Knox / Knob Creek | Kuwahee | 8,000 | Project Complete |
| 116 | Paved Manhole Rehabilitation 39A2 | Find & Fix Gravity Main | South Knox / Knob Creek | Kuwahee | 13,335 | Project Complete |
| 117 | Paved Manhole Rehabilitation 39C3 | Find & Fix Gravity Main | South Knox / Knob Creek | Kuwahee | 26,670 | Project Complete |
| 118 | Broken Manhole Lid Replacement (67) | Find & Fix Gravity Main | Loves Creek | Loves Creek | 26,666 | Project Complete |
| 119 | Manhole Replacement (61) | Find & Fix Gravity Main | Loves Creek | Loves Creek | 2,304 | Project Complete |
| 120 | Woodbine Awer Sewer Rehab Phase II (19A2) | Find & Fix Gravity Main | Williams Creek | Kuwahee | 855 | Project Complete |
| 121 | Comprehensive Sewer Rehab (41A6) | Comprehensive Rehabilitation | South Knox / Knob Creek | Kuwahee | 951,328 | Project Complete |
| 122 | Comprehensive Sewer Rehab (41C1) | Comprehensive Rehabilitation | South Knox / Knob Creek | Kuwahee | 161,680 | Project Complete |
| 123 | Comprehensive Sewer Rehab (41C2) | Comprehensive Rehabilitation | South Knox / Knob Creek | Kuwahee | 94,332 | Project Complete |
| 124 | Davenport Trunkline Replacement (15A1) | Find & Fix Gravity Main | 2nd Creek | Kuwahee | 86,423 | Project Complete |
| 125 | Forks of the River Trunkline Replacement (60) | Find & Fix Gravity Main | Riverdale | Kuwahee | 62,037 | Project Complete |
| 126 | Brooks & Ester Sewer Rehabilitation (25A2) | Find & Fix Gravity Main | Williams Creek | Kuwahee | 14,186 | Project Complete |
| 127 | Grand Ave Sewer Rehabilitation (23B1) | Find & Fix Gravity Main | 2nd Creek | Kuwahee | 885 | Project Complete |
| 128 | Clinch Ave & 21st Rehabilitation (35B3) | Find & Fix Gravity Main | 3rd Creek | Kuwahee | 15,453 | Project Complete |
| 129 | Blount Ave Trunkline phase II (39A2) | Find & Fix Gravity Main | South Knox / Knob Creek | Kuwahee | 124,150 | Project Complete |
| 130 | Trunkline at Woodland Ave | Trunkline Replacement | 2nd Creek | Kuwahee | 106,558 | Project Complete |
| 131 | Keowee Ave, Sandusky Rd, and Sutherland Ave | Find & Fix Gravity Main | 3rd Creek | Kuwahee | 6,367 | Project Complete |
| 132 | Antietam Rd | Find & Fix Gravity Main | 1st Creek | Kuwahee | 1,760 | Project Complete |
| 133 | Cheyenne Dr | Find & Fix Gravity Main | South Knox / Knob Creek | Kuwahee | 1,760 | Project Complete |
| 134 | Chambless Ave | Find & Fix Gravity Main | 3rd Creek | Kuwahee | 2,642 | Project Complete |
| 135 | Godfrey St | Find & Fix Gravity Main | 1st Creek | Kuwahee | 218 | Project Complete |
| 136 | Shortline-Ave B | Find & Fix Gravity Main | South Knox / Knob Creek | Kuwahee | 7,332 | Project Complete |
| 137 | Second Creek SSO Abatement | Find & Fix Gravity Main | 2nd Creek | Kuwahee | 163,471 | Project Complete |
| 138 | Shortline- Maplehurst | Find & Fix Gravity Main | 1st Creek | Kuwahee | 6,062 | Project Complete |
| 139 | Shortline- Parkhill | Find & Fix Gravity Main | 4th Creek | Fourth Creek | 1,755 | Project Complete |
| 140 | Shortline- Essary | Find & Fix Gravity Main | 1st Creek | Kuwahee | 215 | Project Complete |
| 141 | Shortline- Ridgecrest | Find & Fix Gravity Main | 1st Creek | Kuwahee | 3,058 | Project Complete |
| 142 | 4th Creek SSO Abatement Project | Find & Fix Gravity Main | 4th Creek | Fourth Creek | 266,200 | Project Complete |
| 143 | Ashville Highway Trunkline Replacement (20A3) | Find & Fix Gravity Main | Loves Creek | Kuwahee | 372,780 | Project Complete |
| 144 | Minibasin 06A2 & 06A3 Comprehensive Rehabilitation | Comprehensive Rehabilitation | Loves Creek | Loves Creek | 275,630 | Project Complete |
| 145 | Sevier Ave & Jones Ave Find & Fix Rehabilitation (40C1) | Find & Fix Gravity Main | South Knox / Knob Creek | Kuwahee | 50,537 | Project Complete |
| 146 | Manhole Rehabilitation - National Drive (60) | Find & Fix Gravity Main | Riverdale | Kuwahee | 4,608 | Project Complete |
| 147 | Washington Ave Sewer Replacement (24B1) | Find & Fix Gravity Main | 1st Creek | Kuwahee | 14,643 | Project Complete |
| 148 | Second Creek SSO Abatement phase II | Find & Fix Gravity Main | 2nd Creek | Kuwahee | 40,973 | Project Complete |
| 149 | Highland Hills (37A3) | Find & Fix Gravity Main | 4th Creek | Fourth Creek | 13,017 | Project Complete |
| 150 | Moses Ave (29D1) | Find & Fix Gravity Main | 3rd Creek | Kuwahee | 1,761 | Project Complete |
| 151 | Dance Ave (28A1) | Find & Fix Gravity Main | 3rd Creek | Kuwahee | 1,889 | Project Complete |
| 152 | Texas Ave (SB 15) | Find & Fix Gravity Main | 2nd Creek | Kuwahee | 85,030 | Project Complete |
| 153 | Ellis Road find & fix (41A3) | Find & Fix Gravity Main | Knob Creek | Kuwahee | 61,614 | Project Complete |
| 154 | Ford Valley Pump Station & gravity sewer | Find & Fix Gravity Main | Knob Creek | Kuwahee | 14,520 | Project Complete |
| 155 | Crestwood Pump Station & Gravity Sewer | Find & Fix Gravity Main | Loves Creek | Loves Creek | 3,950 | Project Complete |
| 156 | Washington Pike Manhole Rehab MH IPID 20414153 | Find & Fix Gravity Main | Eastbridge | Eastbridge | 576 | Project Complete |
| 157 | Wassman & 8th Ave | Find & Fix Gravity Main | 1st Creek | Kuwahee | 8,750 | Project Complete |
| 158 | Lebanon Street Sewer Improvements | Find & Fix Gravity Main | 3rd Creek | Kuwahee | 13,145 | Project Complete |
| 159 | Minibasin 35B2 UT sewer improvements | Find & Fix Gravity Main | 3rd Creek | Kuwahee | 39,952 | Project Complete |
| 160 | Minibasin 35B3 UT sewer improvements | Find & Fix Gravity Main | 3rd Creek | Kuwahee | 27,132 | Project Complete |
| 161 | Boyd's Bridge Trunkline Replacement | Find & Fix Gravity Main | Loves Creek | Loves Creek | 137,695 | Project Complete |
| 162 | Minibasin 17B1 & 01A1 | Find & Fix Gravity Main | 1st Creek | Kuwahee | 69,883 | Project Complete |
| 163 | Lake Forest Sewer Improvements 41A6 | Find & Fix Gravity Main | Knob Creek | Kuwahee | 35,202 | Project Complete |
| 164 | Bennett Place Sewer Improvements 32B | Find & Fix Gravity Main | 4th Creek | Fourth Creek | 25,112 | Project Complete |
| 165 | 40A2 Phase I Trunkline Replacement | Find & Fix Gravity Main | South Knox / Knob Creek | Kuwahee | 195,583 | Project Complete |
| 166 | Jersey Ave, Ball Camp & Hiwassee Sewer Improvments | Find & Fix Gravity Main | 3rd Creek | Kuwahee | 13,059 | Project Complete |
| 167 | W Glenwood, Nathaniel & Boyd St Shortline project 22B1, 17A1, 01A1 | Find & Fix Gravity Main | 1st Creek | Kuwahee | 13,059 | Project Complete |
| 168 | Minibasin 23D1/F1 | Comprehensive Rehabilitation | 2nd Creek | Kuwahee | 50,577 | Project Complete |
| 169 | Minibasin 18B1 find & fix | Find & Fix Gravity Main | 1st Creek | Kuwahee | 4,929 | Project Complete |
| 170 | Second Creek Storage Tank | Storage Tank | 2nd Creek | Kuwahee | 5,500,000 | Project Complete |
| 171 | Lower Third Creek Storage Tank | Storage Tank | 3rd Creek | Kuwahee | 6,500,000 | Project Complete |
| 172 | Noelton Drive Sewer Improvements | Find & Fix Gravity Main | 3rd Creek | Kuwahee | 5,042 | Project Complete |
| 173 | Old Kingston Pike Sewer improvments | Find & Fix Gravity Main | 3rd Creek | Kuwahee | 301 | Project Complete |
| 174 | Northshore Trunkline Replacement | Find & Fix Gravity Main | 4th Creek | Fourth Creek | 183,777 | Project Complete |
| 175 | Subbasin 37 Sewer Improvements | Find & Fix Gravity Main | 4th Creek | Fourth Creek | 85,039 | Project Complete |
| 176 | Second Creek SSO Abatement | Find & Fix Gravity Main | 2nd Creek | Kuwahee | 827 | Project Complete |
| 177 | Minibasin 42 & 42A1 | Comprehensive Rehabilitation | 4th Creek | Fourth Creek | 118,001 | Project Complete |
| 178 | East Fork of Third Creek Trunkline | Find & Fix Gravity Main | 3rd Creek | Kuwahee | 192,992 | Project Complete |
| 179 | Minibasin 04C1 Trunkline | Find & Fix Gravity Main | 1st Creek | Kuwahee | 36,480 | Project Complete |
| 180 | South Knox SSO Abatement | Find & Fix Gravity Main | South Knox / Knob Creek | Kuwahee | 50,280 | Project Complete |
| 181 | Minibasin 22A2 & 22C2 rehabilitation | Find & Fix Gravity Main | 3rd Creek | Kuwahee | 16,061 | Project Complete |

Appendix B

SSOs

| Date | Time | Street # | Street | Plant | Watershed | Basin | Overflow Location | Pathway | Receiving Water | Cause of SSO/KUB Response | Total Volume (Gallons) | Recovered Volume (Gallons) | Non-Recovered Volume (Gallons) | Duration (Hours) | Unpermitted Discharge |
|-----------|----------|----------|--------------------------|-------|--------------|-------|--------------------------------|--|----------------------------------|---|------------------------|----------------------------|--------------------------------|------------------|-----------------------|
| 4/8/2013 | 9:15 AM | 2724 | Western Avenue | KUW | Third Creek | 22 | Manhole 18-86 | Ground to Unnamed Tributary to Third Creek and Recovery | Third Creek | Construction Failure - Dig-in (Pre-Construction Drilling). The sewer main was repaired and the area was cleaned. | 20,000 | 10,000 | 10,000 | 7.5 | Yes |
| 4/11/2013 | 10:38 AM | 900 | Carrington Road | FC | Fourth Creek | 32b | Manhole 4-92 | Pavement to Soil Saturation | | Blockage - Roots. The sewer main was repaired and the area was cleaned. | 40 | 20 | 20 | 1 | No |
| 4/18/2013 | 12:15 PM | 1212 | Kenesaw Avenue | KUW | Third Creek | 38 | Manhole 24-168 | Ground to Soil Saturation | | Blockage - Debris. The sewer main was flushed to clear the blockage and area was cleaned. | 30 | 0 | 30 | 1 | No |
| 4/26/2013 | 11:00 AM | 7939 | Washington Pike | EB | Eastbridge | 113 | Grinder Pump | Wet Well to Soil Saturation | | The grinder pump was repaired & the area was cleaned. | 6 | 1 | 5 | 1 | No |
| 4/27/2013 | 3:45 PM | 608 | Van Street | KUW | Second Creek | 23 | Manholes 28-1 & 28-14 | Pavement to Storm Drain to Second Creek | Second Creek | Blockage - Grease. The sewer main was flushed to clear the blockage and was cleaned. | 1,000 | 0 | 1,000 | 4 | Yes |
| 4/28/2013 | 2:20 PM | 1540 | Jourolman Avenue | KUW | Third Creek | 22 | Manholes 6-194 & 6-219 & BBU | Ground and Pavement to Storm Drain to Unnamed Tributary to Third Creek and BBU | Third Creek | Blockage - Debris and Grease. The sewer main was flushed to clear the blockage and area was cleaned. | 6,350 | 50 | 6,300 | 6 | Yes |
| 4/28/2013 | 11:30 AM | 1500 | Lyons Bend Road | FC | Fourth Creek | 37 | Manhole 1 & Influent Pump Room | Fourth Creek | Fourth Creek | Electrical Failure - WWTP. Electricity was restored and the area was cleaned. | 1,660,879 | 0 | 1,660,879 | 5.18 | Yes |
| 4/29/2013 | 8:28 AM | 1028 | West Parkway Avenue | KUW | First Creek | 4 | Manhole 51-15 | Ground to Soil Saturation | | Broken System - Protruding Lateral. The lateral was trimmed and the area was cleaned. | 25 | 0 | 25 | 1 | No |
| 5/6/2013 | 9:10 AM | 2541 | Mitchell Street | KUW | First Creek | 18 | Manhole 30-182 | Pavement to Storm Drain to First Creek and Soil Saturation | First Creek | Rainfall in the area produced I & I and high flows in sewer mains. | 12,500 | 0 | 12,500 | 1 | Yes |
| 5/6/2013 | 1:23 PM | 2722 | Chukar Road | FC | Fourth Creek | 32a | Manhole 65-11 | Ground to Wet Weather Conveyance to Fourth Creek | Fourth Creek | Blockage - Debris. The sewer main was flushed to clear the blockage and area was cleaned. | 5,500 | 0 | 5,500 | 2 | Yes |
| 5/8/2013 | 8:20 PM | 701 | West Hills Road | FC | Fourth Creek | 27 | Manhole 54 | Ground to Soil Saturation | | Broken System - Broken Gravity Main. The sewer main was repaired & the area was cleaned. | 400 | 200 | 200 | 16 | No |
| 5/16/2013 | 11:15 AM | 2327 | South Haven Road | KUW | South Knox | 40 | Manhole 24-27 | Ground to Unknown Tributary to Baker Creek and Soil Saturation | Unknown Tributary to Baker Creek | Rainfall in the area produced I & I and high flows in sewer mains. | Unknown | Unknown | Unknown | Unknown | Yes |
| 5/16/2013 | 4:20 PM | 1450 | Dowell Springs Boulevard | FC | Fourth Creek | 27 | Manhole 24-94 | Ground to Pavement to Storm Drain to Ditch to Soil Saturation | | The sewer main was flushed to clear the blockage and the area was cleaned. | 100 | 0 | 100 | 0.5 | No |
| 5/30/2013 | 9:05 AM | 1501 | Washington Ave | KUW | First Creek | 24 | Manhole 24-13 | Pavement to Storm Drain to Soil Saturation to Recovery | | Blockage - Debris. The sewer main was flushed to clear the blockage and area was cleaned. | 210 | 200 | 10 | 1 | No |
| 6/4/2013 | 12:24 PM | 2111 | Schofield Street | KUW | Third Creek | 22 | Manhole 13 | Ground to East Fork of Third Creek | Third Creek | Construction Failure - Broken Gravity Main. The sewer main was repaired and the area was cleaned. | 40,000 | 0 | 40,000 | 3 | Yes |
| 6/7/2013 | 5:49 PM | 7939 | Washington Pike | EB | Eastbridge | 113 | Grinder Pump | Wet Well to Soil Saturation | | Grinder Pump Failure - Residential. Electrical problem with grinder pump. Electrical breaker and grinder pump were replaced and the area was cleaned. | 3 | 1 | 2 | 1.5 | No |
| 6/10/2013 | 5:40 PM | 1725 | Amherst Road | FC | First Creek | 27 | Lateral Cleanout | Broken Gravity Main to Lateral Cleanout and Soil Saturation | | Broken System - Broken Gravity Main. The sewer main was repaired & the area was cleaned. | 10 | 0 | 10 | 1 | No |
| 6/12/2013 | 1:00 PM | 4714 | Julian Street | KUW | South Knox | 39 | Manhole 40-28 | Ground to Soil Saturation | | Blockage - Debris. The sewer main was flushed to clear the blockage and area was cleaned. | 1,500 | 0 | 1,500 | 3 | No |
| 6/12/2013 | 5:04 PM | 6549 | Creekhead Drive | FC | Fourth Creek | 32a | Manhole 49-3 | Ground to Soil Saturation and Ten Mile Creek | Ten Mile Creek | Vandalism. The sewer main was flushed to clear the blockage and the area was cleaned. | 3,000 | 0 | 3,000 | 2 | Yes |
| 6/18/2013 | 1:10 PM | 1908 | Jefferson Avenue | KUW | First Creek | 24 | Lateral Cleanout | Lateral Cleanout to Soil Saturation | | Rainfall in the area produced I & I and high flows in sewer mains. | 50 | 0 | 50 | 1 | No |
| 6/18/2013 | 1:05 PM | 2500 | Cedar Lane | KUW | First Creek | 4 | Manhole 22-13 | Pavement to Unnamed Tributary to First Creek | First Creek | Rainfall in the area produced I & I and high flows in sewer mains. | 300 | 0 | 300 | 1 | Yes |

Appendix C

Building Backups

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 |
|-----------|----------|----------|------------------|-------|--------------|-------|------------------------------|--|------------------------|----------------------------|--------------------------------|------------------|
| Date | Time | Street # | Street | Plant | Watershed | Basin | Overflow Location | Cause of SSO/KUB Response | Total Volume (Gallons) | Recovered Volume (Gallons) | Non-Recovered Volume (Gallons) | Duration (Hours) |
| 4/8/2013 | 4:04 PM | 912 | East Inskip Road | KUW | First Creek | 7 | BBU | Construction Failure - Unconnected Lateral. Lateral was reconnected and the area was cleaned. | 10 | 5 | 5 | 1 |
| 4/11/2013 | 12:00 PM | 825 | Carrington Road | FC | Fourth Creek | 32b | BBU | Construction Failure - Flushing. The building was cleaned by Disaster, Cleaning and Restoration. | 25 | 25 | 0 | 0.25 |
| 4/28/2013 | 2:20 PM | 1540 | Jourolman Avenue | KUW | Third Creek | 22 | Manholes 6-194 & 6-219 & BBU | Blockage - Debris and Grease. The sewer main was flushed to clear the blockage and the area was cleaned. | 6,350 | 50 | 6,300 | 6 |
| 5/28/2013 | 4:27 PM | 519 | Noelton Drive | KUW | Third Creek | 38 | BBU | Blockage - Debris. The sewer main was cleaned by UGC and the building was cleaned by Service Master. | 2 | 2 | 0 | 0.0166 |

Appendix D

Water Quality Monitoring Program Sampling Results



Water Quality Monitoring
Report

Routine Water Quality Monitoring Report

4/1/2013 Through 6/30/2013

Knoxville Utilities Board

Water Quality Laboratory
Debbie Ailey, Lab Supervisor
835 East Jackson Avenue
Knoxville, Tennessee 37915
(865) 594-8286 Fax: (865) 594-8245

| Creek Mile # | Sample Date | Sample Time | pH | Sample Temp (C) | Dissolved Oxygen (mg/l) | Fecal Coliform (CFU/100 ml) | E. Coli (MPN) | Precipitation Event | Status* |
|----------------------------|-------------|-------------|-----|-----------------|-------------------------|-----------------------------|---------------|---------------------|---------|
| <u>First Creek</u> | | | | | | | | | |
| 1.74 | 4/2/2013 | 13:14 | 8.2 | 13 | 12 | 360 | 440 | Wet | R |
| 2.57 | 4/2/2013 | 13:27 | 8.3 | 13 | 12 | 27 | 160 | Wet | R |
| 6.33 | 4/2/2013 | 13:45 | 7.8 | 14 | 11 | 63 | 47 | Wet | R |
| 1.74 | 5/9/2013 | 10:00 | 7.8 | 16 | 9.0 | 770 | 1000 | Wet | R |
| 2.57 | 5/9/2013 | 10:11 | 7.9 | 16 | 9.3 | 1200 | 980 | Wet | R |
| 6.33 | 5/9/2013 | 10:30 | 7.5 | 16 | 8.6 | 640 | 580 | Wet | R |
| 1.74 | 6/12/2013 | 09:27 | 7.9 | 20 | 7.9 | 1600 | 820 | Wet | R |
| 2.57 | 6/12/2013 | 09:40 | 7.9 | 20 | 8.2 | 1600 | 650 | Wet | R |
| 6.33 | 6/12/2013 | 09:53 | 7.5 | 19 | 7.3 | 2000 | 2400 | Wet | R |
| <u>Second Creek</u> | | | | | | | | | |
| 0.30 | 4/11/2013 | 12:45 | 8.1 | 18 | 9.9 | 140 | 210 | Wet | R |
| 1.54 | 4/11/2013 | 13:00 | 8.1 | 19 | 11 | 140 | 84 | Wet | R |
| 5.76 | 4/11/2013 | 13:17 | 7.4 | 16 | 7.1 | 63 | 78 | Wet | R |
| 0.30 | 5/9/2013 | 12:47 | 7.3 | 18 | 9.2 | 530 | 520 | Wet | R |
| 1.54 | 5/9/2013 | 12:30 | 7.9 | 18 | 9.0 | 420 | 280 | Wet | R |
| 5.11 | 5/9/2013 | 12:12 | 7.3 | 17 | 7.5 | 190 | 160 | Wet | R |
| 0.30 | 6/12/2013 | 10:42 | 8.0 | 20 | 8.5 | 4100 | 870 | Wet | R |
| 1.54 | 6/12/2013 | 10:25 | 7.7 | 20 | 7.7 | 2200 | 870 | Wet | R |
| 5.11 | 6/12/2013 | 10:07 | 7.2 | 17 | 6.5 | 260 | 100 | Wet | R |

*Status: I = Site Under Investigation, R = Reportable for monitoring purposes

Precipitation event = "Wet" if the total amount of rainfall for four days prior to the sample was greater than 0.1 inches.



Routine Water Quality Monitoring Report

4/1/2013 Through 6/30/2013

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Water Quality Laboratory
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(865) 594-8286 Fax: (865) 594-8245

| Creek Mile # | Sample Date | Sample Time | pH | Sample Temp (C) | Dissolved Oxygen (mg/l) | Fecal Coliform (CFU/100 ml) | E. Coli (MPN) | Precipitation Event | Status* |
|----------------------------|-------------|-------------|-----|-----------------|-------------------------|-----------------------------|---------------|---------------------|---------|
| <u>Third Creek</u> | | | | | | | | | |
| 0.87 | 4/11/2013 | 13:55 | 8.1 | 19 | 9.9 | 72 | 100 | Wet | R |
| 2.08E | 4/11/2013 | 13:45 | 7.7 | 19 | 6.0 | 440 | 120 | Wet | R |
| 4.80W | 4/11/2013 | 13:33 | 7.8 | 18 | 10 | 27 | 37 | Wet | R |
| 0.87 | 5/1/2013 | 11:21 | 7.8 | 16 | 9.3 | 1000 | 1300 | Wet | R |
| 2.08E | 5/1/2013 | 11:36 | 7.7 | 17 | 8.8 | 310 | 360 | Wet | R |
| 4.80W | 5/1/2013 | 11:50 | 7.5 | 16 | 9.1 | 290 | 310 | Wet | R |
| 0.87 | 6/13/2013 | 10:25 | 8.0 | 20 | 8.2 | 1400 | 650 | Wet | R |
| 2.08E | 6/13/2013 | 10:16 | 7.8 | 20 | 7.0 | 4700 | 870 | Wet | R |
| 4.80W | 6/13/2013 | 10:03 | 7.6 | 17 | 8.2 | 360 | 360 | Wet | R |
| <u>Fourth Creek</u> | | | | | | | | | |
| 1.75 | 4/9/2013 | 12:27 | 8.0 | 17 | 11 | 68 | 160 | Dry | R |
| 2.79 | 4/9/2013 | 12:08 | 8.0 | 17 | 11 | 110 | 200 | Dry | R |
| 3.29 | 4/9/2013 | 11:55 | 8.0 | 17 | 11 | 81 | 82 | Dry | R |
| 1.75 | 5/1/2013 | 13:36 | 7.8 | 18 | 9.3 | 120 | 170 | Wet | R |
| 2.79 | 5/1/2013 | 13:20 | 7.7 | 17 | 9.1 | 150 | 160 | Wet | R |
| 3.29 | 5/1/2013 | 13:09 | 7.7 | 17 | 9.4 | 210 | 170 | Wet | R |
| 1.75 | 6/13/2013 | 09:48 | 7.9 | 19 | 8.5 | 480 | 580 | Wet | R |
| 2.79 | 6/13/2013 | 09:38 | 7.8 | 18 | 8.2 | 1500 | 1200 | Wet | R |
| 3.29 | 6/13/2013 | 09:30 | 7.9 | 18 | 8.9 | 410 | 270 | Wet | R |

*Status: I = Site Under Investigation, R = Reportable for monitoring purposes

Precipitation event = "Wet" if the total amount of rainfall for four days prior to the sample was greater than 0.1 inches.



Water Quality Monitoring
Report

Routine Water Quality Monitoring Report

4/1/2013 Through 6/30/2013

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(865) 594-8286 Fax: (865) 594-8245

| Creek Mile # | Sample Date | Sample Time | pH | Sample Temp (C) | Dissolved Oxygen (mg/l) | Fecal Coliform (CFU/100 ml) | E. Coli (MPN) | Precipitation Event | Status* |
|---------------------------|-------------|-------------|-----|-----------------|-------------------------|-----------------------------|---------------|---------------------|---------|
| <u>Baker Creek</u> | | | | | | | | | |
| 0.36 | 4/4/2013 | 07:33 | 7.7 | 12 | 8.8 | 370 | 360 | Wet | R |
| 0.53 | 4/4/2013 | 07:50 | 8.0 | 12 | 9.3 | 230 | 410 | Wet | R |
| 1.45 | 4/4/2013 | 08:05 | 7.9 | 11 | 8.7 | 530 | 610 | Wet | R |
| 0.36 | 5/16/2013 | 10:10 | 7.5 | 16 | 8.1 | 540 | 440 | Dry | R |
| 0.53 | 5/16/2013 | 10:27 | 7.6 | 16 | 8.7 | 440 | 240 | Dry | R |
| 1.45 | 5/16/2013 | 10:51 | 7.4 | 15 | 8.1 | 410 | 550 | Dry | R |
| 0.36 | 6/26/2013 | 09:08 | 7.7 | 18 | 7.8 | 2700 | 1600 | Wet | R |
| 0.53 | 6/26/2013 | 09:14 | 7.9 | 18 | 8.3 | 1000 | 730 | Wet | R |
| 1.45 | 6/26/2013 | 08:55 | 7.7 | 18 | 7.8 | 1300 | 1200 | Wet | R |
| <u>Goose Creek</u> | | | | | | | | | |
| 0.40 | 4/4/2013 | 09:25 | 8.0 | 11 | 9.0 | 330 | 390 | Wet | R |
| 1.19E | 4/4/2013 | 08:49 | 8.1 | 11 | 9.3 | 400 | 920 | Wet | R |
| 1.80E | 4/4/2013 | 08:38 | 8.0 | 11 | 9.3 | 310 | 330 | Wet | R |
| 0.40 | 5/2/2013 | 12:36 | 7.7 | 16 | 8.7 | 500 | 440 | Dry | R |
| 1.19E | 5/2/2013 | 12:50 | 7.8 | 16 | 9.0 | 640 | 870 | Dry | R |
| 1.80E | 5/2/2013 | 13:23 | 7.7 | 16 | 9.0 | 63 | 91 | Dry | R |
| 0.40 | 6/20/2013 | 10:10 | 7.7 | 18 | 8.1 | 1300 | 820 | Wet | R |
| 1.19E | 6/20/2013 | 10:24 | 7.8 | 17 | 8.5 | 2400 | 1300 | Wet | R |
| 1.80E | 6/20/2013 | 11:00 | 7.7 | 17 | 8.5 | 430 | 610 | Wet | R |

*Status: I = Site Under Investigation, R = Reportable for monitoring purposes

Precipitation event = "Wet" if the total amount of rainfall for four days prior to the sample was greater than 0.1 inches.



Water Quality Monitoring
Report

Routine Water Quality Monitoring Report

4/1/2013 Through 6/30/2013

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(865) 594-8286 Fax: (865) 594-8245

| Creek Mile # | Sample Date | Sample Time | pH | Sample Temp (C) | Dissolved Oxygen (mg/l) | Fecal Coliform (CFU/100 ml) | E. Coli (MPN) | Precipitation Event | Status* |
|------------------------------|-------------|-------------|-----|-----------------|-------------------------|-----------------------------|---------------|---------------------|---------|
| <u>Loves Creek</u> | | | | | | | | | |
| 0.85 | 4/10/2013 | 12:55 | 7.8 | 18 | 12 | 86 | 63 | Dry | R |
| 1.89 | 4/10/2013 | 13:10 | 7.5 | 18 | 9.3 | 18 | 3 | Dry | R |
| 3.45 | 4/10/2013 | 13:22 | 7.9 | 20 | 9.7 | < 9 | 12 | Dry | R |
| 0.85 | 5/8/2013 | 11:35 | 7.6 | 16 | 8.9 | 170 | 150 | Wet | R |
| 1.89 | 5/8/2013 | 11:45 | 7.4 | 16 | 8.4 | 90 | 61 | Wet | R |
| 3.45 | 5/8/2013 | 12:00 | 7.7 | 16 | 8.6 | 45 | 56 | Wet | R |
| 0.85 | 6/27/2013 | 10:45 | 7.5 | 21 | 7.2 | 40000 | > 2400 | Wet | R |
| 1.89 | 6/27/2013 | 10:57 | 7.5 | 21 | 7.6 | 32000 | > 2400 | Wet | R |
| 3.45 | 6/27/2013 | 11:08 | 7.6 | 22 | 6.9 | 20000 | > 2400 | Wet | R |
| <u>Williams Creek</u> | | | | | | | | | |
| 0.89 | 4/10/2013 | 14:02 | 8.1 | 20 | 11 | 18 | 12 | Dry | R |
| 1.70 | 4/10/2013 | 13:51 | 7.8 | 19 | 8.6 | 45 | 110 | Dry | R |
| 2.02 | 4/10/2013 | 13:41 | 8.0 | 18 | 10 | 140 | 81 | Dry | R |
| 0.89 | 5/8/2013 | 10:46 | 7.6 | 16 | 9.0 | 280 | 220 | Wet | R |
| 1.70 | 5/8/2013 | 11:07 | 7.5 | 16 | 8.4 | 380 | 440 | Wet | R |
| 2.02 | 5/8/2013 | 11:20 | 7.7 | 16 | 8.5 | 320 | 180 | Wet | R |
| 0.89 | 6/27/2013 | 10:00 | 7.7 | 22 | 7.9 | 33000 | > 2400 | Wet | R |
| 1.70 | 6/27/2013 | 10:10 | 7.6 | 22 | 7.1 | 29000 | > 2400 | Wet | R |
| 2.02 | 6/27/2013 | 10:18 | 7.5 | 22 | 7.0 | 13000 | > 2400 | Wet | R |

*Status: I = Site Under Investigation, R = Reportable for monitoring purposes

Precipitation event = "Wet" if the total amount of rainfall for four days prior to the sample was greater than 0.1 inches.



Water Quality Monitoring
Report

Spill Impact Sampling Results
Water Quality Monitoring Program

Knoxville Utilities Board
Water Quality Laboratory
Debbie Ailey, Lab Supervisor
835 East Jackson Avenue
Knoxville, Tennessee 37915
(865) 594-8286 Fax: (865)594-8245

Event Date 4/8/2013
Street Address: 2724 Western Ave.
Description: Construction Failure.

Estimated unrecovered volume 10,000 gallons

Sampling Notes: There was no industry upstream of the SSO, therefore no Priority Pollutant samples were collected.

| Precipitation (McGhee-Tyson Airport) | Date | Total - Day of Event | Total - Prior 4 Days |
|---|----------|----------------------|----------------------|
| | 4/8/2013 | 0 | 0 |

| Sample Location | Sample Date | Sample Time | Dissolved Oxygen | Temperature (Celsius) | pH | Fecal Coliform | E-Coli (MPN) |
|-----------------------------|-------------|-------------|------------------|-----------------------|-----|----------------|--------------|
| Upstream of SSO Discharge | 4/8/2013 | 12:07 | 10 | 18 | 8.7 | 18 | 16 |
| Downstream of SSO Discharge | 4/8/2013 | 12:28 | 3.5 | 17 | 7.1 | 1100 | 1700 |
| Upstream of SSO Discharge | 4/11/2013 | 09:41 | 11 | 16 | 8.1 | 54 | 260 |
| Downstream of SSO Discharge | 4/11/2013 | 09:57 | 5.0 | 17 | 7.3 | 480 | 230 |



Water Quality Monitoring
Report

Spill Impact Sampling Results
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Event Date 6/4/2013
Street Address: 2111 Schofield
Description: Construction Failure. Broken Gravity Main.

Estimated unrecovered volume 40,000 gallons

Sampling Notes: Industry was noted to be upstream of the spill. See narrative.

| Precipitation (McGhee-Tyson Airport) | Date | Total - Day of Event | Total - Prior 4 Days |
|---|----------|----------------------|----------------------|
| | 6/4/2013 | 0 | 3 |

| Sample Location | Sample Date | Sample Time | Dissolved Oxygen | Temperature (Celsius) | pH | Fecal Coliform | E-Coli (MPN) |
|-----------------------------|-------------|-------------|------------------|-----------------------|-----|----------------|--------------|
| Upstream of SSO Discharge | 6/4/2013 | 14:25 | 6.1 | 20 | 7.5 | 10000 | > 2400 |
| Downstream of SSO Discharge | 6/4/2013 | 15:00 | 3.9 | 21 | 7.6 | 55000 | > 2400 |
| Upstream of SSO Discharge | 6/19/2013 | 09:40 | 7.8 | 19 | 7.6 | 4000 | 1400 |
| Downstream of SSO Discharge | 6/19/2013 | 09:22 | 8.7 | 19 | 7.9 | 4600 | 1400 |



Water Quality Monitoring
Report

Spill Impact Sampling Results
Water Quality Monitoring Program

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Event Date 6/12/2013
Street Address: 6549 Creekhead Drive
Description: Vandalism

Estimated unrecovered volume 3,000 gallons

Sampling Notes: There was no industry upstream of the SSO, therefore no Priority Pollutant samples were collected.

| Precipitation (McGhee-Tyson Airport) | Date | Total - Day of Event | Total - Prior 4 Days |
|---|-----------|----------------------|----------------------|
| | 6/12/2013 | 0 | 1.01 |

| Sample Location | Sample Date | Sample Time | Dissolved Oxygen | Temperature (Celsius) | pH | Fecal Coliform | E-Coli (MPN) |
|-----------------------------|-------------|-------------|------------------|-----------------------|-----|----------------|--------------|
| Upstream of SSO Discharge | 6/13/2013 | 08:50 | 8.2 | 20 | 7.8 | 2200 | 1400 |
| Downstream of SSO Discharge | 6/13/2013 | 09:05 | 8.2 | 20 | 8.0 | 2100 | 1300 |
| Upstream of SSO Discharge | 6/19/2013 | 09:55 | 8.6 | 19 | 7.8 | 4200 | 1300 |
| Downstream of SSO Discharge | 6/19/2013 | 10:05 | 8.6 | 19 | 7.8 | 3800 | 1300 |

Knoxville Utilities Board

Water Quality Monitoring Program

Investigative Water Quality Monitoring Report

11/1/11 - 6/20/13

Table 1: Goose Creek Investigative Sampling

| Location | Collection Date | Weather | Dissolved Oxygen | Water Temp | Water pH | Fecal Coliform | E. coli |
|-----------------------------|-----------------|---------|------------------|------------|----------|----------------|---------|
| | | | (mg/L) | (°C) | s.u. | (CFU/ 100mL) | (MPN) |
| Right Fork Above Site 1.19E | 11/1/2011 | Dry | 11 | 10 | 8.3 | 90 | 260 |
| | 1/30/2012 | Wet | 10 | 10 | 8.8 | 140 | 150 |
| | 2/22/2012 | Wet | 10 | 11 | 8.3 | 90 | 96 |
| | 3/26/2012 | Wet | 9.4 | 14 | 8.0 | 430 | 220 |
| | 4/24/2012 | Wet | 9.8 | 12 | 8.1 | 2900 | > 2400 |
| | 5/10/2012 | Wet | 8.8 | 15 | 8.2 | 570 | 770 |
| | 6/25/2012 | Dry | 7.7 | 21 | 8.1 | 410 | 460 |
| | 7/27/2012 | Dry | 7.9 | 21 | 8.1 | 360 | 310 |
| | 8/27/2012 | Dry | 8.0 | 20 | 8.1 | 1100 | 1300 |
| | 9/26/2012 | Dry | 8.8 | 16 | 7.9 | 3400 | > 2400 |
| | 10/23/2012 | Dry | 8.5 | 14 | 7.7 | 270 | 340 |
| | 11/19/2012 | Dry | 10 | 9 | 8.1 | 470 | 870 |
| | 12/12/2012 | Wet | 9.0 | 10 | 8.1 | 34000 | > 2400 |
| | 1/29/2013 | Dry | 10 | 12 | 8.0 | 140 | 110 |
| | 2/25/2013 | Wet | 11 | 10 | 8.0 | 36 | 31 |
| | 3/20/2013 | Wet | 11 | 11 | 8.0 | 330 | 220 |
| | 4/4/2013 | Wet | 9.6 | 11 | 8.1 | 1300 | 1000 |
| | 5/2/2013 | Dry | 9.1 | 16 | 7.9 | 450 | 550 |
| | 6/20/2013 | Wet | 8.6 | 17 | 7.9 | 1400 | 1100 |
| Left Fork Above Site 1.19E | 11/1/2011 | Dry | 9.3 | 11 | 8.0 | 590 | 580 |
| | 1/30/2012 | Wet | 8.7 | 11 | 8.1 | 530 | 550 |
| | 2/22/2012 | Wet | 9.0 | 12 | 7.9 | 1900 | 730 |
| | 3/26/2012 | Wet | 8.8 | 16 | 7.7 | 640 | 490 |
| | 4/24/2012 | Wet | 8.5 | 13 | 7.7 | 1700 | 1400 |
| | 5/10/2012 | Wet | 7.8 | 15 | 7.7 | 1800 | 2400 |
| | 6/25/2012 | Dry | 7.3 | 20 | 7.7 | 2100 | 1200 |
| | 7/27/2012 | Dry | 6.6 | 21 | 7.3 | 1200 | 1700 |
| | 8/27/2012 | Dry | 8.4 | 21 | 7.5 | 1800 | 1300 |
| | 9/26/2012 | Dry | 7.7 | 17 | 7.5 | 1400 | 1200 |
| | 10/23/2012 | Dry | 7.6 | 15 | 7.6 | 680 | 460 |
| | 11/19/2012 | Dry | 9.6 | 11 | 7.6 | 1200 | 770 |
| | 12/12/2012 | Wet | 9.5 | 10 | 7.5 | 1300 | 1100 |
| | 1/29/2013 | Dry | 9.5 | 14 | 7.6 | 150 | 100 |
| | 2/25/2013 | Wet | 10 | 12 | 7.6 | 99 | 130 |
| | 3/20/2013 | Wet | 9.6 | 12 | 7.8 | 180 | 160 |
| | 4/4/2013 | Wet | 8.6 | 13 | 7.9 | 180 | 240 |
| | 5/2/2013 | Dry | 8.4 | 17 | 7.5 | 200 | 250 |
| | 6/20/2013 | Wet | 8.0 | 18 | 7.6 | 1400 | 820 |

Knoxville Utilities Board

Water Quality Monitoring Program

Investigative Water Quality Monitoring Report

4/4/13 - 4/8/13

Table 2: Baker Creek (Rain Event)

| | Collection Date | Time | Creek Depth | Creek Width | Dissolved Oxygen | Water Temp | Water pH | Fecal Coliform |
|------------------------------|-----------------|----------|---------------|---------------|------------------|------------|----------|----------------|
| | | | Feet' Inches" | Feet' Inches" | (mg/L) | (oC) | s.u. | (CFU/ 100mL) |
| Site 0.36 | 4/4/2013 | 7:33 AM | 1' 10" | 13' 4" | 8.8 | 12 | 7.7 | 370 |
| | 4/4/2013 | 1:54 PM | 2' 1" | 21' 0" | 9.6 | 12 | 7.9 | 3200 |
| | 4/5/2013 | 9:35 AM | 1' 4" | 15' 0" | 10 | 11 | 8 | 1400 |
| | 4/8/2013 | 9:20 AM | 1' 8" | 13' 6" | 9.3 | 14 | 7.6 | 300 |
| Site 0.53 | 4/4/2013 | 7:50 AM | 0' 7" | 9' 0" | 9.3 | 12 | 8 | 230 |
| | 4/4/2013 | 2:05 PM | 1' 3" | 8' 7" | 9.9 | 11 | 8.1 | 3500 |
| | 4/5/2013 | 9:49 AM | 0' 6" | 9' 0" | 10 | 11 | 8.1 | 540 |
| | 4/8/2013 | 9:32 AM | 0' 7" | 8' 3" | 9.8 | 13 | 7.9 | 240 |
| Site 1.45 | 4/4/2013 | 8:05 AM | 1' 1" | 12' 2" | 8.7 | 11 | 7.9 | 530 |
| | 4/4/2013 | 2:19 PM | 1' 4" | 11' 4" | 8.8 | 10 | 7.9 | 9000 |
| | 4/5/2013 | 10:03 AM | 1' 2" | 11' 0" | 9.4 | 11 | 7.8 | 530 |
| | 4/8/2013 | 9:46 AM | 1' 0" | 11' 4" | 8.9 | 13 | 7.5 | 350 |
| Site Taylor Rd & Cruze | 4/4/2013 | 8:11 AM | 0' 6" | 4' 6" | 9.4 | 11 | 8 | 10000 |
| | 4/4/2013 | 2:32 PM | 0' 10" | 5' 0" | 10 | 10 | 8 | 2400 |
| | 4/5/2013 | 10:16 AM | 0' 8" | 5' 0" | 9.7 | 12 | 7.9 | 250 |
| | 4/8/2013 | 10:01 AM | 0' 6" | 4' 0" | 9.5 | 13 | 7.8 | 820 |

Knoxville Utilities Board

Water Quality Monitoring Program

Investigative Water Quality Monitoring Report

4/4/13 - 4/8/13

Table 3: Goose Creek (Rain Event)

| | Collection Date | Time | Creek Depth | Creek Width | Dissolved Oxygen | Water Temp | Water pH | Fecal Coliform |
|---------------|-----------------|----------|---------------|---------------|------------------|------------|----------|----------------|
| | | | Feet' Inches" | Feet' Inches" | (mg/L) | (oC) | s.u. | (CFU/ 100mL) |
| Site 0.4 | 4/4/2013 | 9:25 AM | 0' 9" | 14' 6" | 9 | 11 | 8 | 330 |
| | 4/4/2013 | 3:06 PM | 1' 2" | 15' 0" | 9.9 | 11 | 8 | 2800 |
| | 4/5/2013 | 10:55 AM | 0' 8" | 15' 0" | 10 | 12 | 7.9 | 260 |
| | 4/8/2013 | 10:38 AM | 0' 9" | 13' 0" | 11 | 14 | 7.8 | 86 |
| | | | | | | | | |
| Site 1.19E | 4/4/2013 | 8:49 AM | 0' 11" | 11' 0" | 9.3 | 11 | 8.1 | 400 |
| | 4/4/2013 | 2:53 PM | 1' 7" | 12' 2" | 10 | 11 | 8 | 2300 |
| | 4/5/2013 | 10:40 AM | 0' 8" | 11' 7" | 11 | 12 | 7.9 | 310 |
| | 4/8/2013 | 10:21 AM | 0' 8" | 11' 9" | 10 | 14 | 7.8 | 180 |
| | | | | | | | | |
| Site 1.80E | 4/4/2013 | 8:38 AM | 0' 7" | 5' 0" | 9.3 | 11 | 8 | 310 |
| | 4/4/2013 | 2:43 PM | 0' 8" | 5' 0" | 9.5 | 11 | 7.9 | 4000 |
| | 4/5/2013 | 10:27 AM | 0' 8" | 5' 0" | 9.9 | 12 | 7.9 | 280 |
| | 4/8/2013 | 10:13 AM | 0' 8" | 4' 8" | 9.6 | 14 | 7.8 | 81 |

Appendix E

Unpermitted Discharges Subject to Stipulated Penalties

Second Quarter 2013 Unpermitted Discharge Data and Analysis

Appendix E lists any SSO that occurred during the second quarter of 2013 that resulted in an unpermitted discharge along with its cause, volume, one- and three-day rainfall totals, and rainfall intensity.

The table below summarizes unpermitted discharges listed in Appendix E for this quarter that were impacted by factors that were difficult to control or events that had minimal impact on the environment due to their low volume.

| Category | Count |
|------------------------|-------|
| Mech/Elec. Failure | 1 |
| Vandalism | 1 |
| 3-day rain > 4 in. | 0 |
| 1-day > 3 in. | 0 |
| Vol 501 - 1000 gal | 1 |
| Vol < 500 gal. | 1 |
| Intensity > 0.84 in/hr | 0 |

| | | | | | | | | | | |
|--|-----------|--|-----------------------|---------------|----------------------------------|---------------------------|-----------------|---------|-------------------|---------------|
| Appendix E | | | | | | | | | | |
| Unpermitted Discharges in 2013 | | | | | | | | | | |
| | | Overflow volume of 500 gallons or less | | | 1-day rainfall greater than 3" | | | | | |
| | | | | | | | | | | |
| | | Overflow volume of 501 - 1000 gallons | | | 3-day rainfall greater than 4" | | | | | |
| | | | | | | | | | | |
| | | Vandalism | | | Intensity > 0.84 in/hr | | | | | |
| | | | | | | | | | | |
| | | Electrical or mechanical failure | | | | | | | | |
| Reporting | | | | Unrecovered | Receiving | | Rainfall Totals | | Peak Rainfall | Force Majeure |
| Period | Date | Location | Event | Volume (Gal.) | Stream | Cause | 1-Day* | 3-Day** | Intensity (in/hr) | event |
| 1st 2013 | 1/14/2013 | 5829 Ball Camp Pike | Unpermitted Discharge | 10,600 | Third Creek | Blockage | 1.59 | 2.54 | 0.49 | Yes |
| 1st 2013 | 1/15/2013 | 2004 Neyland Drive | Unpermitted Discharge | 18,440,000 | Tennessee River | Heavy Rainfall | 2.57 | 5.09 | 0.49 | Yes |
| 1st 2013 | 1/15/2013 | 1500 Lyons Bend Road | Unpermitted Discharge | 4,285,300 | Fourth Creek | Heavy Rainfall | 2.57 | 5.09 | 0.49 | Yes |
| 1st 2013 | 1/15/2013 | 1903 Jefferson Avenue | Unpermitted Discharge | 75 | First Creek | Heavy Rainfall | 2.57 | 5.09 | 0.49 | Yes |
| 1st 2013 | 1/15/2013 | 2328 Cedar Lane | Unpermitted Discharge | 11,655 | First Creek | Heavy Rainfall | 2.57 | 5.09 | 0.49 | Yes |
| 1st 2013 | 1/15/2013 | 3410 Boright Drive | Unpermitted Discharge | 70,650 | First Creek | Heavy Rainfall | 2.57 | 5.09 | 0.49 | Yes |
| 1st 2013 | 1/15/2013 | 2008 Riverside Drive | Unpermitted Discharge | 628,000 | Williams Creek | Heavy Rainfall | 2.57 | 5.09 | 0.49 | Yes |
| 1st 2013 | 1/15/2013 | 2541 Mitchell Street | Unpermitted Discharge | 317,000 | First Creek | Heavy Rainfall | 2.57 | 5.09 | 0.49 | Yes |
| 1st 2013 | 1/15/2013 | 4719 Old Broadway | Unpermitted Discharge | 16,320,000 | First Creek | Heavy Rainfall | 2.57 | 5.09 | 0.49 | Yes |
| 1st 2013 | 1/15/2013 | 600 N Gallaher View Road | Unpermitted Discharge | 11,324,000 | Ten Mile Creek | Heavy Rainfall | 2.57 | 5.09 | 0.49 | Yes |
| 1st 2013 | 1/16/2013 | 201 Hermitage Drive | Unpermitted Discharge | 1,225 | Butterfly Lake | Heavy Rainfall | 0.79 | 4.98 | 0.49 | Yes |
| 1st 2013 | 1/16/2013 | 2412 Bernhurst Drive | Unpermitted Discharge | 1,425 | First Creek | Heavy Rainfall | 0.79 | 4.98 | 0.49 | Yes |
| 1st 2013 | 1/16/2013 | 6410 S Northshore Drive | Unpermitted Discharge | 5,800 | Fourth Creek | Heavy Rainfall | 0.79 | 4.98 | 0.49 | Yes |
| 1st 2013 | 1/16/2013 | 4505 Middlebrook Pike | Unpermitted Discharge | 10,000 | Third Creek | Heavy Rainfall | 0.79 | 4.98 | 0.49 | Yes |
| 1st 2013 | 1/16/2013 | 6016 Neubert Springs Road | Unpermitted Discharge | 10,000 | Knob Creek | Heavy Rainfall | 0.79 | 4.98 | 0.49 | Yes |
| 1st 2013 | 1/17/2013 | 2541 Fair Drive | Unpermitted Discharge | 13,900 | First Creek | Heavy Rainfall | 0.99 | 4.35 | 0.49 | Yes |
| 1st 2013 | 1/17/2013 | 6532 Westside Drive | Unpermitted Discharge | 200 | Ten Mile Creek | Heavy Rainfall | 0.99 | 4.35 | 0.49 | Yes |
| 1st 2013 | 1/30/2013 | 3305 McKamey Road | Unpermitted Discharge | 6,400 | Third Creek | Heavy Rainfall | 2.71 | 2.71 | 0.66 | |
| 1st 2013 | 1/30/2013 | 1500 Lyons Bend Road | Unpermitted Discharge | 905,700 | Fourth Creek | Heavy Rainfall | 2.71 | 2.71 | 0.66 | |
| 1st 2013 | 1/30/2013 | 1903 Jefferson Avenue | Unpermitted Discharge | 875 | First Creek | Heavy Rainfall | 2.71 | 2.71 | 0.66 | |
| 1st 2013 | 1/30/2013 | 2008 Riverside Drive | Unpermitted Discharge | 13,100 | Williams Creek | Heavy Rainfall | 2.71 | 2.71 | 0.66 | |
| 1st 2013 | 1/30/2013 | 2541 Mitchell Street | Unpermitted Discharge | 19,600 | First Creek | Heavy Rainfall | 2.71 | 2.71 | 0.66 | |
| 1st 2013 | 1/30/2013 | 3412 Boright Drive | Unpermitted Discharge | 21,300 | First Creek | Heavy Rainfall | 2.71 | 2.71 | 0.66 | |
| 1st 2013 | 1/31/2013 | 600 N Gallaher View Road | Unpermitted Discharge | 570,700 | Ten Mile Creek | Heavy Rainfall | 0.0013 | 2.71 | 0.66 | |
| 1st 2013 | 2/4/2013 | 409 N Bellemeade Avenue | Unpermitted Discharge | 500 | Third Creek | Heavy Rainfall | 0.00 | 0.06 | 0.08 | |
| 1st 2013 | 2/4/2013 | 4100 Central Avenue Pike | Unpermitted Discharge | 50 | Second Creek | Heavy Rainfall | 0.00 | 0.06 | 0.08 | |
| 1st 2013 | 2/10/2013 | 1521 Saylors Ford Road | Unpermitted Discharge | 435 | Holston River | WWTP - Mechanical Failure | 0.20 | 0.30 | 0.12 | |
| 1st 2013 | 3/11/2013 | 2840 Essary Drive | Unpermitted Discharge | 180 | First Creek | Blockage | 0.73 | 0.73 | 0.03 | |
| 1st 2013 | 3/11/2013 | 4917 Ball Road | Unpermitted Discharge | 3,400 | Fourth Creek | Broken System | 0.73 | 0.73 | 0.03 | |
| 1st 2013 | 3/15/2013 | 4923 Ball Road | Unpermitted Discharge | 2,700 | Fourth Creek | Broken System | 0.00 | 0.00 | 0.00 | |
| 1st 2013 | 3/27/2013 | 2418 Selma Avenue | Unpermitted Discharge | 800 | Williams Creek | Blockage | 0 | 0.05 | 0.04 | |
| 2nd 2013 | 4/8/2013 | 2724 Western Avenue | Unpermitted Discharge | 10,000 | Third Creek | Construction Failure | 0 | 0 | 0 | |
| 2nd 2013 | 4/27/2013 | 608 Van Street | Unpermitted Discharge | 1,000 | Second Creek | Blockage | 1.09 | 1.09 | 0.38 | |
| 2nd 2013 | 4/28/2013 | 1540 Jourolman Avenue | Unpermitted Discharge | 6,300 | Third Creek | Blockage | 2.42 | 3.51 | 0.38 | |
| 2nd 2013 | 4/28/2013 | 1500 Lyons Bend Road | Unpermitted Discharge | 1,660,879 | Fourth Creek | Electrical Failure | 2.42 | 3.51 | 0.38 | |
| 2nd 2013 | 5/6/2013 | 2541 Mitchell Street | Unpermitted Discharge | 12,500 | First Creek | Heavy Rainfall | 0.23 | 2.00 | 0.19 | |
| 2nd 2013 | 5/6/2013 | 2722 Chukar Road | Unpermitted Discharge | 5,500 | Fourth Creek | Blockage | 0.23 | 2.00 | 0.19 | |
| 2nd 2013 | 5/16/2013 | 2327 South Haven Road | Unpermitted Discharge | Unknown | Unknown Tributary to Baker Creek | Heavy Rainfall | NA*** | NA*** | NA*** | |
| 2nd 2013 | 6/4/2013 | 2111 Schofield Street | Unpermitted Discharge | 40,000 | Third Creek | Construction Failure | 0.00 | 2.50 | 0.73 | |
| 2nd 2013 | 6/12/2013 | 6549 Creekhead Drive | Unpermitted Discharge | 3,000 | Ten Mile Creek | Vandalism | 0.00 | 0.52 | 0.1 | |
| 2nd 2013 | 6/18/2013 | 2500 Cedar Lane | Unpermitted Discharge | 300 | First Creek | Heavy Rainfall | 0.87 | 1.91 | 0.59 | |
| | | | | | | | | | | |
| *1-Day Rainfall Total is the rain that occurred on the day of the SSO | | | | | | | | | | |
| **3-Day Rainfall Total is the total amount of rain that occurred on the day of the SSO and the the 2 days prior | | | | | | | | | | |
| ***Evidence of this event was discovered some time after it occurred. The line was CCTVd and no defects were discovered so the event was attributed to a prior rain event. | | | | | | | | | | 005584 |