Quarterly Progress Report

Volume 44

First Quarter Report
January 1 through March 31, 2016

Submitted to EPA on April 29, 2016

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
Date

KUB

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Partners Acting for a Cleaner Environment
A 10-year Program to Improve Our Waterways

006358
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006359
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 first quarter of 2016 from January 1 through March 31. This is the forty-fourth 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.

January 28, 2016
• Submitted to EPA – Quarterly Progress Report fourth quarter 2015

February 26, 2016
• Submitted to EPA – Annual MOM Progress Report 2015

March 29, 2016
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 was completed by the June 30, 2013 deadline. 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 was completed by March 31, 2014, prior to the June 30, 2016 deadline.

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.
o 3-7 Neyland Drive Trunk Replacement (Lower Third Creek Trunk Replacement) – revised completion date was FY 12/13. Project was completed ahead of schedule.

o 4-2 Gleason Drive Collector Rehabilitation Project – revised completion date was June 30, 2010, and project was completed as scheduled.

o 4-3 Middlebrook Pike Rehabilitation (Sub-basin 27C3) – revised completion date was June 30, 2010, and project was completed as scheduled.

o 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.

o 4-6 Shadyland Drive Rehabilitation (Sub-basin 36A2) Project – revised completion date was June 30, 2010, and was completed as scheduled.

o 4-28 Queensridge (Queensbury) Pump Station Upgrade Project – revised completion date is FY 11/12. Project was completed ahead of schedule.

o S-1 Ginnbrook Pump Station Rehabilitation – revised completion date was FY 08/09 and project was completed as scheduled.

o S-5 South Knoxville/Knob Creek Storage Facility – Project was removed from CAP/ER and replaced with the project below.

o 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. Many of these projects were “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 were trunkline capacity improvements or wet-weather storage. Each project was considered part of the overall Phase 1 or Phase 2 CAP/ER.

Phase I CAP/ER Ongoing Projects

All Phase I CAP/ER projects 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 in. – 12 in. sewer, and rehabilitated approximately 14,000 ft. of 8 in. 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 in. 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 in. and 130 ft. of 24 in. 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 in. and 12 in. PVC and ductile iron pipe.

15. 1-19 Edgewood Drive Rehabilitation Project – Replaced 519 ft. of 8 in. sewer, 179 ft. of 12 in. sewer; rehabilitated 22,300 ft. of 8 in. sewer, and 60 ft. of 12 in. sewer using CIPP and pipe bursting. Project also included rehabilitation of 662 vertical ft. 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 in. and 100 ft. of 15 in. sewer and rehabilitated 987 ft. of 16 in. sewer.

17. 1-21 College Park Rehabilitation Project – Replaced approximately 446 ft. of 8 in. PVC and rehabilitated 1,581 ft. of 8 in. sewer using pipe bursting. Project also included replacement of six manholes.

18. 1-22 E. Jackson Avenue Rehabilitation Project – Replaced 3,485 ft. of 8 in. sewer using pipe bursting, replaced another 84 ft. of 8 in. 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 in. 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 in. sewer.

9. 2-10 Second Creek Trunk Sewer Improvements Phase II – Replaced approximately 3,700 ft. of existing trunkline with 30 in. sewer and replaced approximately 1,400 ft. of existing trunkline with 36 in. sewer.

10. 2-11 Burnside Rehabilitation Project – Replaced 517 ft. of 8 in. sewer and 1,651 ft. of 12 in. sewer using pipe bursting. Six manholes were replaced and 3 were rehabbed.

11. 2-12 Camelia Road Rehabilitation Project – Replaced 430 ft. of 8 in. pipe and two manholes. 220 ft. of 8 in. pipe was rehabbed using CIPP.

12. 2-13 Cedar Heights Road Rehabilitation Project – Replaced 123 ft. of 8 in. pipe and rehabbed 263 ft. of 8 in. pipe with CIPP.

13. 2-14 Central Avenue Pike Rehabilitation Project – Replaced 102 ft. of 10 in. pipe, 25 ft. of 18 in. pipe, two manholes. CIPP was used to rehab 659 ft. of 8 in. pipe.

14. 2-15 1000 Block Elm Street Rehabilitation Project – Replaced 632 ft. of 8 in. sewer and nine manholes. Rehabbed 1,400 ft. of 8 in. 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 in. sewer and replaced two manholes.

16. 2-17 Shasta Drive Rehabilitation Project – Replaced 714 ft. of 8 in. pipe and 6 manholes. CIPP was used to rehab 2,149 ft. of 8 in. pipe.

17. 2-18 Nicholas Road - Clinton Highway Rehabilitation Project – Replaced 405 ft. of 8 in. pipe and one manhole.

18. 2-19 Cumberland Avenue Rehabilitation Project – Replaced 1,448 ft. of 8 in. sewer and 10 manholes. Rehabbed 525 ft. of 8 in. sewer using CIPP and reinstated 12 laterals.

19. 2-20 Sierra Road Rehabilitation Project – CIPP was used to rehab 969 ft. of 8 in. pipe.

20. 2-21 Morelia Avenue Rehabilitation Project – Replaced 382 ft. of 8 in. sewer and two manholes. Rehabbed three manholes, 2,375 ft. of 8 in. sewer using CIPP, and reinstated 74 laterals.
21. **2-22 Dale Avenue Rehabilitation Project** – The 8 in main was replaced in 2003 with a 12 in. 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 in. and 15 in. 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 in. and 30 in. 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 ft. of sewer, rehabilitated 783 ft., 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 in. CCFMP, slip-lined 685 ft. of sewer with 42 in. 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 in. main to a 36 in. trunk sewer running south of Sutherland Avenue along Third Creek bike trail. Improvements included approximately 50 ft. of 12 in. line and a new manhole. Additionally, rehabilitation in SB 28B1 has reduced the peaks to the 12 in 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. Pipe burst 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 in. and 1,400 ft. of 18 in. 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 in. sewer and 28 manholes.

15. **3-21 Deerfield Road Rehabilitation Project** – Pipe burst 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 in. 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 in. 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 in. 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 in. sewer and 28 manholes.

**Fourth Creek**

1. **4-1 Chukar Road Rehabilitation** – Replaced 1,600 ft. of pipe and nine manholes; rehbab 900 ft. of pipe and nine manholes.

2. **4-2 Gleason Road Rehabilitation** – Replaced 980 ft. of 8 in. pipe and 12 manholes. CIPP was used to rehab 640 ft. of 8 in. pipe and 480 ft. of 12 in. pipe.

3. **4-3 Middlebrook Pike Rehabilitation** – Replaced 190 ft. of 8 in. pipe and two manholes. CIPP was used to rehab 2,000 ft. of 8 in. pipe. Two manholes were rehabbed as well.

4. **4-4 Northshore Drive Trunk Sewer Replacement** – Installed approximately 3,375 ft. of 36 in. 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 in. 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 in., 18 in., and 2,100 ft. of 36 in. 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 in. 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 in. sewer and five manholes. Approximately 92 ft. of existing 8 in. sewer was rehabilitated. Project included CCTV, manhole inspections, and smoke testing.

13. **4-25 Lonas Drive Project** – Replaced approximately 326 ft. of existing 8 in. sewer and five manholes. Approximately 4,688 ft. of existing 8 in. 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 in. 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 ft. of 8 in. pipe and two manholes. Rehabilitated 140 ft. of 8 in. 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 in. 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 in. to 18 in. 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 in. 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 up sized 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 in. 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 in. 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 in. sewer and 3,700 ft. of existing sewer with 15 in. 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.

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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 ft. 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 ft. of sewer, rehabilitated 1,271 ft. 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 in. 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 in. – 12 in. sewer and rehabilitated approximately 9,500 ft. of 8 in. – 12 in. sewer.

2. **W-2 Williams Creek Trunk Line Replacement** – Designed and replaced approximately 3,700 ft. of 24 in. 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 in. 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 in. sewer.

4. **W-4 E. Fifth Avenue Sewer Replacement Project** – Replaced 956 ft. with 8 in. 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 in. PVC and four manholes, and rehabbed 600 ft. of 8 in. concrete.

7. **W-7 Sunset Avenue Rehabilitation Project** – Replaced 102 ft. with 8 in. PVC.

8. **W-8 South Elmwood Street Rehabilitation Project** – Replaced 200 ft. with 8 in. PVC and three manholes, and rehabbed 400 ft. of 8 in. 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 in. concrete with 15 in. sewer, problem was
addressed by comprehensive rehab of Mini-basin 19A1. Project included replacement with 8,900 ft. of 8 in. PVC, 97 ft. with 10 in. PVC, 179 ft. with 12 in. PVC, and 76 manholes. Also rehabbed 21,200 ft. of 8 in. concrete and 180 ft. of 12 in. concrete.

Phase II CAP/ER Ongoing Projects

All Phase II CAP/ER projects have been completed.

Phase II CAP/ER Completed Projects

First Creek
1. **FCR-1 1235 Watercress Drive** – Rehabilitated 32,500 ft. of pipe through use of CIPP and pipe bursting, and replaced 2,500 ft. of sewer by open cut replacement. Replaced 39 manholes, rehabilitated 1,050 vertical ft. of manholes (approximately 150 manholes), and replaced 350 laterals.
2. **FCR-2 4600 Upchurch Road** – Completed in conjunction with FCR-1 1235 Watercress Drive project, see above for details.

Second Creek
1. **SCR-1 4105 Central Avenue Pike** – Rehabilitated 10,316 ft. of pipe through use of CIPP and pipe bursting, and replaced 771 ft. of sewer by open cut replacement. Replaced 17 manholes, rehabilitated 37 vertical ft. of manholes (5 manholes), and replaced 92 laterals.

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 in. 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 in. gravity sewer.

Loves Creek and Eastbridge
1. **LVS-1 1815 Wayland Road** – Replaced approximately 19,000 ft. of 10 in. and 12 in. 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 in. sewer, 2,100 ft. of 12 in. sewer, 7,100 ft. of 18 in. sewer and 6,000 ft. of 20 in. sewer.

South Knox
1. **STH-1 820 Goldfinch Drive** – Replaced approximately 1,700 ft. of 8 in. 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.

Kuwaehe Wastewater Treatment Plant (WWTP) Phase I, Contract I
Work was completed prior to the December 30, 2012, deadline.

Kuwaehe WWTP Phase I, Contract II
Work was completed prior to the December 30, 2012, deadline.

Fourth Creek WWTP Phase I
Work was completed prior to the December 30, 2013, deadline.

Fourth Creek WWTP Phase II
KUB has received the Preliminary Design Report (30% completion) from our consultant. Design is on schedule and a start construction target date has been set for January 2017.
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 18 times during this reporting period. No Diversion events occurred.
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 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.
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 Fourth Quarter 2015
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 January 28, 2016, KUB submitted to EPA and placed in the PDR the Quarterly Progress Report for the fourth quarter 2015. This deliverable was not subject to the Public Review Requirement of Section VI.A.2, but was available for public comment from January 28, 2016, until February 17, 2016. No comments were received during that period.

6.2 Violations Subject to Stipulated Penalties
During this reporting period, KUB incurred 11 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 2016 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

<table>
<thead>
<tr>
<th>Violation</th>
<th>Date</th>
<th>Address</th>
<th>Cause</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unpermitted discharge</td>
<td>1/14/2016</td>
<td>840 Twentieth Street</td>
<td>Construction Failure</td>
</tr>
<tr>
<td>Unpermitted discharge</td>
<td>1/25/2016</td>
<td>2223 Cumberland Avenue</td>
<td>Broken System – Broken Manhole Lid</td>
</tr>
<tr>
<td>Unpermitted discharge</td>
<td>1/29/2016</td>
<td>3222 Kingston Pike</td>
<td>Broken System – Broken Gravity Main</td>
</tr>
<tr>
<td>Unpermitted discharge</td>
<td>2/3/2016</td>
<td>2706 Boright Drive</td>
<td>Heavy Rainfall</td>
</tr>
<tr>
<td>Unpermitted discharge</td>
<td>2/3/2016</td>
<td>4100 Central Avenue Pike</td>
<td>Heavy Rainfall</td>
</tr>
<tr>
<td>Unpermitted discharge</td>
<td>2/3/2016</td>
<td>6803 Stockton Drive</td>
<td>Heavy Rainfall</td>
</tr>
<tr>
<td>Unpermitted discharge</td>
<td>2/3/2016</td>
<td>2004 Riverside Drive</td>
<td>Heavy Rainfall</td>
</tr>
<tr>
<td>Unpermitted discharge</td>
<td>2/3/2016</td>
<td>7000 Rotherwood Drive</td>
<td>Heavy Rainfall</td>
</tr>
<tr>
<td>Unpermitted discharge</td>
<td>2/16/2016</td>
<td>6803 Stockton Drive</td>
<td>Heavy Rainfall</td>
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<tr>
<td>----------------------</td>
<td>------------</td>
<td>---------------------</td>
<td>----------------</td>
</tr>
<tr>
<td>Unpermitted discharge</td>
<td>2/24/2016</td>
<td>6803 Stockton Drive</td>
<td>Heavy Rainfall</td>
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<tr>
<td>Unpermitted discharge</td>
<td>2/24/2016</td>
<td>517 Bernard Avenue</td>
<td>WW Storage Facility Failure</td>
</tr>
</tbody>
</table>
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 22 SSO events. Of that number, two were due to blockages, two were due to broken systems, one was due to construction failure, six were due to grinder pump failures, ten were due to heavy rainfall, and one was due to WW storage facility failure.

Of the 22 SSO events, 15 were in the 0 – 1,000 gallons volume range, three were in the 1,001 – 10,000 gallons volume range, three events totaled greater than 10,000 gallons, and the volume for one event was unknown. Durations for events during this period are as follows: 17 ranged from 0 – 2 hours, two ranged from 2.1 – 5 hours, two were greater than five hours, and the duration for one event was unknown.

7.2 Building Backups
Appendix C lists all Building Backups that occurred during this reporting period. During this period, there was one Building Backup caused by heavy rainfall.

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 for the first quarter 2016. During this period, there were no Diversion events at Kuwahee, Loves Creek, Fourth 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 no effluent limit violations at the Kuwahee, Loves Creek, Fourth Creek, or Eastbridge WWTPs.
Table 2. Diversions

<table>
<thead>
<tr>
<th>WWTP</th>
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<th>Date Diversion gate opened</th>
<th>Time Diversion gate opened</th>
<th>Date Diversion gate closed</th>
<th>Time Diversion gate closed</th>
<th>Date Diversion flow reported</th>
<th>Duration (hrs)</th>
<th>Volume (MG)</th>
<th>Total Event Duration (hrs)</th>
<th>Total Event Volume (MG)</th>
<th>Reason for Event</th>
</tr>
</thead>
<tbody>
<tr>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
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<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Fourth Creek</td>
<td>No</td>
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<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
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<td></td>
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</tbody>
</table>

Table 3. Effluent Limit Violations

<table>
<thead>
<tr>
<th>WWTP</th>
<th>Did an event occur?</th>
<th>Date</th>
<th>Parameter</th>
<th>Type</th>
<th>Limit</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kuwahee</td>
<td>No</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fourth Creek</td>
<td>No</td>
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<td></td>
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<tr>
<td>Loves Creek</td>
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</tr>
<tr>
<td>Eastbridge</td>
<td>No</td>
<td></td>
<td></td>
<td></td>
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<td></td>
</tr>
</tbody>
</table>

SS - Settleable Solids, mg/l - milligrams per liter, mpn – Most Probable Number
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. KUB investigates the source of any high *E. coli* counts that reoccur in the course of routine or investigative monitoring.

First Creek
Any bacteriological *E. coli* results above the water quality standard of 941 cfu/100 ml for this Creek occurred during wet weather conditions when storm runoff can bring surface contamination to the stream. Monitoring results obtained were not consistently high throughout the quarter. Bacteriological counts obtained during some months in the quarter were not above the standard. No investigation is needed. (Routine Water Quality Monitoring Report – Appendix D).

Second Creek
Any bacteriological *E. coli* results above the water quality standard of 941 cfu/100 ml for this Creek occurred during wet weather conditions when storm runoff can bring surface contamination to the stream. Monitoring results obtained were not consistently high throughout the quarter. Bacteriological counts obtained during some months in the quarter were not above the standard. No investigation is needed. (Routine Water Quality Monitoring Report – Appendix D).

Third Creek
All bacteriological *E. coli* results were below the water quality standard of 941 cfu/100 ml for this Creek this quarter (Routine Water Quality Monitoring Report – Appendix D).

Fourth Creek
All bacteriological *E. coli* results were below the water quality standard of 941 cfu/100 ml for this Creek this quarter (Routine Water Quality Monitoring Report – Appendix D).

Baker Creek
Any bacteriological *E. coli* results above the water quality standard of 941 cfu/100 ml for this Creek occurred during wet weather conditions when storm runoff can bring surface contamination to the stream. Monitoring results obtained were not consistently high throughout the quarter. Bacteriological counts obtained during some months in the quarter were not above the standard. No investigation is needed. (Routine Water Quality Monitoring Report – Appendix D).

Goose Creek
All bacteriological *E. coli* results were below the water quality standard of 941 cfu/100 ml for this Creek this quarter (Routine Water Quality Monitoring Report – Appendix D).

Loves Creek
All bacteriological *E. coli* results except one (980 cfu/100 ml) were below the water quality standard of 941 cfu/100 ml for this Creek this quarter (Routine Water Quality Monitoring Report – Appendix D). The one slightly elevated result occurred during wet weather conditions.
Williams Creek
All bacteriological *E. coli* results were below the water quality standard of 941cfu/100 ml for this Creek this quarter (Routine Water Quality Monitoring Report – Appendix D).

Spill Impact Reporting
There were three unpermitted discharges that occurred in dry weather conditions. See the Spill Impact Report in Appendix D for the monitoring results. Stream monitoring could not be safely conducted for the discharge that occurred on 1/29/16 due to the steep incline to the river near where the overflow had occurred. This overflow was caused by a crack in a gravity main and was small in volume (50 gallons). Most of the unrecovered volume went to soil saturation. The gravity main was repaired to prevent further concerns.

8.2 Projected Data Collection
During the second quarter of 2016, 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 second quarter of 2016:

**Sample Locations by Creek Mile or Site Number**

<table>
<thead>
<tr>
<th>Creek Name</th>
<th>Creek Mile #</th>
<th>Creek Mile #</th>
<th>Creek Mile #</th>
</tr>
</thead>
<tbody>
<tr>
<td>First Creek</td>
<td>1.74</td>
<td>2.57</td>
<td>6.33</td>
</tr>
<tr>
<td>Second Creek</td>
<td>0.30</td>
<td>1.54</td>
<td>5.11</td>
</tr>
<tr>
<td>Third Creek</td>
<td>0.87</td>
<td>2.08E</td>
<td>4.80W</td>
</tr>
<tr>
<td>Fourth Creek</td>
<td>1.75</td>
<td>2.79</td>
<td>3.29</td>
</tr>
<tr>
<td>Baker Creek</td>
<td>0.36</td>
<td>0.53</td>
<td>1.45</td>
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<tr>
<td>Goose Creek</td>
<td>0.40</td>
<td>1.19E</td>
<td>1.80E</td>
</tr>
<tr>
<td>Loves Creek</td>
<td>0.85</td>
<td>1.89</td>
<td>3.45</td>
</tr>
<tr>
<td>Williams Creek</td>
<td>0.89</td>
<td>1.70</td>
<td>2.02</td>
</tr>
</tbody>
</table>
Appendix A

Capital Projects and Rehabilitation Credits
182. Lonas Drive - Find & Fix  Find & Fix Gravity Main  3rd Creek  Kuwahee  881  Project Complete
183. Third Creek SSO Abatement Project  Find & Fix Gravity Main  3rd Creek  Kuwahee  105,000  Project Complete
184. Clyde Street Gravity Sewer Replacement  Find & Fix Gravity Main  3rd Creek  Kuwahee  12,250  Project Complete
185. Red Bud Road Gravity Sewer Replacement  Find & Fix Gravity Main  South Knox / Knob Creek  Kuwahee  11,375  Project Complete
186. Fern St Sewer Line Replacement  Find & Fix Gravity Main  Loves Creek  Loves Creek  9625  Project Complete
187. Dallas St Sewer Line Replacement Project  Find & Fix Gravity Main  Loves Creek  Loves Creek  9625  Project Complete
188. Loves Creek Minibasin 20A9 Magnolia ave sewer rehabilitation/replacement  Find & Fix Gravity Main  Loves Creek  Loves Creek  34125  Project Complete
189. Griner Drive Mini-Basin Sanitary Sewer Rehabilitation  Find & Fix Gravity Main  Williams Creek  Kuwahee  9625  Project Complete
190. Strawberry Plains Pk Mini-Basins  Find & Fix Gravity Main  Loves Creek  Loves Creek  4904  Project Complete
191. Farragut Ave. Keenwood & Jefferson Ave sewer rehabilitation  Find & Fix Gravity Main  1st Creek  Kuwahee  9,250  Project Complete
192. Minibasins 07A1, -7A2 & 07A3 Sewer Rehabilitation  Comprehensive Rehabilitation  1st Creek  Kuwahee  156,625  Project Complete
193. Maltoneyville Road Sewer Improvements  Find & Fix Gravity Main  Eastbridge  Eastbridge  7,031  Project Complete
194. Cedarhill, Loras Drive & Kenessaw Find & Fix  Find & Fix Gravity Main  3rd Creek  Kuwahee  3,518  Project Complete
195. Lusinda Drive Balsam Dr & others  Find & Fix Gravity Main  3rd Creek  Kuwahee  7,000  Project Complete
196. Cherokee Blvd. - Oak Rd. - Find & Fix  Find & Fix Gravity Main  2nd Creek  Kuwahee  6,125  Project Complete
197. Peterburg Rd., S Middlebrook Pk. - Find & Fix  Find & Fix Gravity Main  4th Creek  Fourth Creek  7,000  Project Complete
198. Holland Rd., bona Rd. Find & Fix  Find & Fix Gravity Main  4th Creek  Fourth Creek  10,500  Project Complete
199. Fairhill Ln., N. Broadway. Find & Fix  Find & Fix Gravity Main  2nd Creek  Kuwahee  19,250  Project Complete
200. Cluster Ave., Gaines Rd., Find & Fix  Find & Fix Gravity Main  1st Creek  Kuwahee  10,500  Project Complete
201. Buhl Ave., Wells Ave., Find & Fix  Find & Fix Gravity Main  1st Creek  Kuwahee  5,250  Project Complete
202. Bluefield Road Sewer Line  Find & Fix Gravity Main  3rd Creek  Kuwahee  1,750  Project Complete
203. Fourth Creek Mini-Basins 33A4 & 36B4  Comprehensive Rehabilitation  4th Creek  Fourth Creek  59,500  Project Complete
204. First Creek Mini-Basin 08B3 rehabilitation/replacement  Find & Fix Gravity Main  4th Creek  Fourth Creek  408,500  Project Complete
205. Fourth Creek Mini-Basin 36A3  Comprehensive Rehabilitation  4th Creek  Fourth Creek  59,125  Project Complete
206. Fourth Creek Mini-Basin 32B1  Comprehensive Rehabilitation  4th Creek  Fourth Creek  11,375  Project Complete
207. Fourth Creek Mini-Basin 32B2  Comprehensive Rehabilitation  4th Creek  Fourth Creek  36,750  Project Complete
208. Fourth Creek Mini-Basins 36A4 & 36A5  Comprehensive Rehabilitation  4th Creek  Fourth Creek  23,625  Project Complete
209. Westland Drive Trunk Sewer  Find & Fix Gravity Main  4th Creek  Fourth Creek  144,949  Project Complete
210. Mini-Basin 23A1 Rehabilitation  Find & Fix Gravity Main  2nd Creek  Kuwahee  80,500  Project Complete
211. Sub-Basin 22, Mini-Basins 22A2 & 22C2  Comprehensive Rehabilitation  3rd Creek  Kuwahee  75,250  Project Complete
212. Chapman Highway Gravity Sewer Replacement  Find & Fix Gravity Main  South Knox / Knob Creek  Kuwahee  7,000  Project Complete
213. Scottish Pkwy, Blount Ave, Morinourth St, Kyle St Sewer Replacement  Find & Fix Gravity Main  South Knox / Knob Creek  Kuwahee  4,375  Project Complete
214. First Creek Mini-Basins 07A1 & 07A1a  Comprehensive Rehabilitation  1st Creek  Kuwahee  143,500  Project Complete
215. Fourth Creek MiniBasin 2163 & 32A1  Find & Fix Gravity Main  4th Creek  Fourth Creek  9,625  Project Complete
216. Second Creek Mini-Basin 10B1  Comprehensive Rehabilitation  2nd Creek  Second Creek  25,378  Project Complete

006385
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 |
|----------|-------|----------|------------------|---------|-----------|-------|------------------------|----------------------------------------------------------------------|--------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------|------------------------|----------------------|-----------------------------|------------------------|---------------------|-----------------------------|
Appendix C

Building Backups
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<th>Recovered Volume (Gallons)</th>
<th>Non-Recovered Volume (Gallons)</th>
<th>Duration (Hours)</th>
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Appendix D

Water Quality Monitoring Program
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<th>E. Coli (MPN)</th>
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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

1/1/2016 Through 3/31/2016

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<td>R</td>
</tr>
<tr>
<td>0.40</td>
<td>3/14/2016</td>
<td>11:50</td>
<td>7.4</td>
<td>15</td>
<td>9.6</td>
<td>640</td>
<td>920</td>
<td>Wet</td>
<td>R</td>
</tr>
<tr>
<td>1.19E</td>
<td>3/14/2016</td>
<td>12:13</td>
<td>7.6</td>
<td>16</td>
<td>9.9</td>
<td>600</td>
<td>650</td>
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<td>R</td>
</tr>
<tr>
<td>1.80E</td>
<td>3/14/2016</td>
<td>12:03</td>
<td>7.7</td>
<td>15</td>
<td>9.2</td>
<td>230</td>
<td>330</td>
<td>Wet</td>
<td>R</td>
</tr>
</tbody>
</table>

*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.*
### Loves Creek

<table>
<thead>
<tr>
<th>Creek Mile #</th>
<th>Sample Date</th>
<th>Sample Time</th>
<th>pH</th>
<th>Sample Temp (C)</th>
<th>Dissolved Oxygen (mg/l)</th>
<th>Fecal Coliform (CFU/100 ml)</th>
<th>E. Coli (MPN)</th>
<th>Precipitation Event</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.85</td>
<td>1/13/2016</td>
<td>10:35</td>
<td>7.1</td>
<td>7</td>
<td>11</td>
<td>130</td>
<td>100</td>
<td>Dry</td>
<td>R</td>
</tr>
<tr>
<td>1.89</td>
<td>1/13/2016</td>
<td>10:11</td>
<td>6.6</td>
<td>9</td>
<td>9.7</td>
<td>99</td>
<td>64</td>
<td>Dry</td>
<td>R</td>
</tr>
<tr>
<td>3.45</td>
<td>1/13/2016</td>
<td>10:19</td>
<td>6.8</td>
<td>6</td>
<td>11</td>
<td>18</td>
<td>40</td>
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<td>R</td>
</tr>
<tr>
<td>0.85</td>
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<td>10:10</td>
<td>7.2</td>
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<td>290</td>
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<td>R</td>
</tr>
<tr>
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<td>R</td>
</tr>
<tr>
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<td>7.1</td>
<td>13</td>
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<td>6.8</td>
<td>14</td>
<td>9.3</td>
<td>1400</td>
<td>980</td>
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<td>R</td>
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<td>3/15/2016</td>
<td>10:00</td>
<td>6.8</td>
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<td>8.7</td>
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<td>R</td>
</tr>
<tr>
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<td>3/15/2016</td>
<td>09:45</td>
<td>7.1</td>
<td>15</td>
<td>8.8</td>
<td>1100</td>
<td>190</td>
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<td>R</td>
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</table>

### Williams Creek

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<tr>
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<th>Sample Date</th>
<th>Sample Time</th>
<th>pH</th>
<th>Sample Temp (C)</th>
<th>Dissolved Oxygen (mg/l)</th>
<th>Fecal Coliform (CFU/100 ml)</th>
<th>E. Coli (MPN)</th>
<th>Precipitation Event</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.89</td>
<td>1/13/2016</td>
<td>11:12</td>
<td>8.0</td>
<td>9</td>
<td>11</td>
<td>150</td>
<td>120</td>
<td>Dry</td>
<td>R</td>
</tr>
<tr>
<td>1.70</td>
<td>1/13/2016</td>
<td>10:58</td>
<td>7.2</td>
<td>10</td>
<td>9.5</td>
<td>140</td>
<td>130</td>
<td>Dry</td>
<td>R</td>
</tr>
<tr>
<td>2.02</td>
<td>1/13/2016</td>
<td>10:50</td>
<td>7.3</td>
<td>9</td>
<td>11</td>
<td>370</td>
<td>360</td>
<td>Dry</td>
<td>R</td>
</tr>
<tr>
<td>0.89</td>
<td>2/22/2016</td>
<td>10:35</td>
<td>7.4</td>
<td>13</td>
<td>10</td>
<td>200</td>
<td>150</td>
<td>Wet</td>
<td>R</td>
</tr>
<tr>
<td>1.70</td>
<td>2/22/2016</td>
<td>11:01</td>
<td>7.4</td>
<td>14</td>
<td>8.9</td>
<td>130</td>
<td>170</td>
<td>Wet</td>
<td>R</td>
</tr>
<tr>
<td>2.02</td>
<td>2/22/2016</td>
<td>10:48</td>
<td>7.4</td>
<td>13</td>
<td>9.6</td>
<td>99</td>
<td>50</td>
<td>Wet</td>
<td>R</td>
</tr>
<tr>
<td>0.89</td>
<td>3/15/2016</td>
<td>10:56</td>
<td>7.2</td>
<td>15</td>
<td>9.7</td>
<td>370</td>
<td>310</td>
<td>Wet</td>
<td>R</td>
</tr>
<tr>
<td>1.70</td>
<td>3/15/2016</td>
<td>10:25</td>
<td>7.2</td>
<td>15</td>
<td>8.6</td>
<td>520</td>
<td>310</td>
<td>Wet</td>
<td>R</td>
</tr>
<tr>
<td>2.02</td>
<td>3/15/2016</td>
<td>10:34</td>
<td>7.3</td>
<td>15</td>
<td>9.1</td>
<td>360</td>
<td>180</td>
<td>Wet</td>
<td>R</td>
</tr>
</tbody>
</table>

*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.*
### Spill Impact Sampling Results

**Water Quality Monitoring Program**

**Event Date** 1/14/2015  
**Street Address** 840 Twentieth St.  
**Description** Construction failure

**Estimated unrecovered volume** 100 gallons

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

<table>
<thead>
<tr>
<th>Precipitation (McGhee-Tyson Airport)</th>
<th>Date</th>
<th>Total - Day of Event</th>
<th>Total - Prior 4 Days</th>
</tr>
</thead>
<tbody>
<tr>
<td>1/14/2015</td>
<td>0.01</td>
<td>1.14</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Sample Location</th>
<th>Sample Date</th>
<th>Sample Time</th>
<th>Dissolved Oxygen</th>
<th>Temperature (Celsius)</th>
<th>pH</th>
<th>Fecal Coliform</th>
<th>E-Coli (MPN)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Upstream of SSO Discharge</td>
<td>1/15/2016</td>
<td>08:36</td>
<td>10</td>
<td>9</td>
<td>7.6</td>
<td>300</td>
<td>270</td>
</tr>
<tr>
<td>Downstream of SSO Discharge</td>
<td>1/15/2016</td>
<td>08:20</td>
<td>10</td>
<td>9</td>
<td>7.6</td>
<td>280</td>
<td>360</td>
</tr>
</tbody>
</table>
### Spill Impact Sampling Results

#### Water Quality Monitoring Program

**Event Date**: 1/25/2015  
**Street Address**: 2223 Cumberland Avenue  
**Description**: Broken System - Manhole Lid

**Estimated unrecovered volume**: 130 gallons

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

<table>
<thead>
<tr>
<th>Precipitation (McGhee-Tyson Airport)</th>
<th>Date</th>
<th>Total - Day of Event</th>
<th>Total - Prior 4 Days</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1/25/2015</td>
<td>0.02</td>
<td>1.18</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Sample Location</th>
<th>Sample Date</th>
<th>Sample Time</th>
<th>Dissolved Oxygen</th>
<th>Temperature (Celsius)</th>
<th>pH</th>
<th>Fecal Coliform</th>
<th>E-Coli (MPN)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Upstream of SSO Discharge</td>
<td>1/25/2016</td>
<td>11:52</td>
<td>9.5</td>
<td>11</td>
<td>8.2</td>
<td>36</td>
<td>64</td>
</tr>
<tr>
<td>Downstream of SSO Discharge</td>
<td>1/25/2016</td>
<td>11:42</td>
<td>9.0</td>
<td>11</td>
<td>7.5</td>
<td>110</td>
<td>170</td>
</tr>
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</table>
Appendix E

Unpermitted Discharges Subject to Stipulated Penalties
First Quarter 2016 Unpermitted Discharge Data and Analysis

Appendix E lists all SSOs that occurred during 2016 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.

Table 6. Unpermitted Discharge Data

<table>
<thead>
<tr>
<th>Category</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mech/Elec. Failure</td>
<td>0</td>
</tr>
<tr>
<td>Vandalism</td>
<td>0</td>
</tr>
<tr>
<td>3-day rain &gt; 4 in.</td>
<td>0</td>
</tr>
<tr>
<td>1-day &gt; 3 in.</td>
<td>0</td>
</tr>
<tr>
<td>Vol 501 - 1000 gal</td>
<td>0</td>
</tr>
<tr>
<td>Vol &lt; 500 gal.</td>
<td>7</td>
</tr>
<tr>
<td>Intensity &gt; 0.84 in/hr</td>
<td>0</td>
</tr>
</tbody>
</table>
### Unpermitted Discharges in 2016

<table>
<thead>
<tr>
<th>Period</th>
<th>Date</th>
<th>Location</th>
<th>Event</th>
<th>Unpermitted Discharge</th>
<th>Volume (Gal.)</th>
<th>Stream</th>
<th>Cause</th>
<th>Rainfall Totals</th>
<th>Peak Rainfall Intensity (in/hr)</th>
<th>Force Majeure</th>
</tr>
</thead>
<tbody>
<tr>
<td>1st</td>
<td>1/14/2016</td>
<td>840 Twentieth Street</td>
<td>Unpermitted Discharge</td>
<td>100</td>
<td>Third Creek</td>
<td>Construction Failure</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>1st</td>
<td>1/25/2016</td>
<td>2223 Cumberland Avenue</td>
<td>Unpermitted Discharge</td>
<td>130</td>
<td>Third Creek</td>
<td>Broken System - Broken Manhole Lid</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>1st</td>
<td>1/29/2016</td>
<td>3222 Kingston Pike</td>
<td>Unpermitted Discharge</td>
<td>50</td>
<td>TN River</td>
<td>Broken System - Broken Gravity Main</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>1st</td>
<td>2/3/2016</td>
<td>2706 Bonight Drive</td>
<td>Unpermitted Discharge</td>
<td>200</td>
<td>First Creek</td>
<td>Heavy Rainfall</td>
<td>1.86</td>
<td>3.09</td>
<td>0.71</td>
<td></td>
</tr>
<tr>
<td>1st</td>
<td>2/3/2016</td>
<td>4100 Central Avenue Pike</td>
<td>Unpermitted Discharge</td>
<td>500</td>
<td>Second Creek</td>
<td>Heavy Rainfall</td>
<td>1.86</td>
<td>3.09</td>
<td>0.71</td>
<td></td>
</tr>
<tr>
<td>1st</td>
<td>2/3/2016</td>
<td>6803 Stockton Drive</td>
<td>Unpermitted Discharge</td>
<td>15,840</td>
<td>Fourth Creek</td>
<td>Heavy Rainfall</td>
<td>1.86</td>
<td>3.09</td>
<td>0.71</td>
<td></td>
</tr>
<tr>
<td>1st</td>
<td>2/3/2016</td>
<td>2004 Riverside Drive</td>
<td>Unpermitted Discharge</td>
<td>4,700</td>
<td>Williams Creek</td>
<td>Heavy Rainfall</td>
<td>1.86</td>
<td>3.09</td>
<td>0.71</td>
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<td>1st</td>
<td>2/3/2016</td>
<td>7000 Rothenwood Drive</td>
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<td>Fourth Creek</td>
<td>Heavy Rainfall</td>
<td>1.86</td>
<td>3.09</td>
<td>0.71</td>
<td></td>
</tr>
<tr>
<td>1st</td>
<td>2/16/2016</td>
<td>6803 Stockton Drive</td>
<td>Unpermitted Discharge</td>
<td>3,400</td>
<td>Fourth Creek</td>
<td>Heavy Rainfall</td>
<td>0.75</td>
<td>1.78</td>
<td>0.25</td>
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</tr>
<tr>
<td>1st</td>
<td>2/24/2016</td>
<td>6803 Stockton Drive</td>
<td>Unpermitted Discharge</td>
<td>500</td>
<td>Fourth Creek</td>
<td>Heavy Rainfall</td>
<td>0.28</td>
<td>1.93</td>
<td>0.66</td>
<td></td>
</tr>
<tr>
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<td>517 Bernard Avenue</td>
<td>Unpermitted Discharge</td>
<td>860,000</td>
<td>Second Creek</td>
<td>WW Storage Facility Failure</td>
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<td>1.93</td>
<td>0.66</td>
<td></td>
</tr>
</tbody>
</table>

*1-Day Rainfall Total is the rain that occurred on the day of the SSO*

*5-Day Rainfall Total is the total amount of rain that occurred on the day of the SSO and the 2 days prior*