Quarterly Progress Report

Volume 10

Third Quarter Report
July 1 through September 30, 2007

Submitted to EPA on October 30, 2007

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.

D. Wayne Loveday — 10.30.07

D. Wayne Loveday — Date

KUB

pace10

Partners Acting for a Cleaner Environment

A 10-year Program to Improve Our Waterways

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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)."*

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KUB compiled this Quarterly Progress Report to detail the events that occurred during the third quarter of 2007 from July 1 through September 30. This is the tenth quarterly report required of KUB under this Consent Decree. The Consent Decree requirements pertaining to the Phase 2 CAP/ER will not be fulfilled in this report since it has not become due; rather, a description of the status of development for this program is given. The Consent Decree reporting requirements for this program will be met after EPA has provided approval.

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, 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.

<u>July 23, 2007</u>

- Submitted to EPA – Composite Correction Plan

<u>July 26, 2007</u>

- Submitted to EPA – Phase 1 CAP/ER Annual Report 2007
- Submitted to EPA – Quarterly Progress Report 2nd quarter 2007
- Submitted to EPA – SEP Periodic Report 1st period 2007

August 8, 2007

- Submitted to EPA a request to delay the revision of the Process Controls Program

August 10, 2007

- Posted in PDR – 1st revised Operations Record-Keeping Program
- Posted in PDR – 2nd revised Emergency Response Plan
- Posted in PDR – 1st revised Reporting, Notification, & Record-Keeping Program

September 27, 2007

- Received approval from EPA to delay the revision of the Process Controls Program until further process evaluation
- Approved by EPA - Phase 1 CAP/ER schedule modifications for Project 2-4 Dutch Valley Collector Rehabilitation, Project 2-5 Rickard and Wilson Collector Rehabilitation, and Project S-1 Ginnbrook Pump Station Rehabilitation. EPA also approved the removal of Project S-5 South Knoxville/Knob Creek Storage Facility from the Phase 1 CAP/ER. That project will be replaced with the Neubert Springs Collector and West Ford Valley Trunk Rehabilitation project.

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 will be submitted to EPA within 12 months after EPA approval of the SSOER Annual Update submitted on April 30, 2008.

Requested Project Extensions and Changes

The table below lists all project extensions and changes requested during the reporting period.

Project and Reason	Original Completion Date	Revised Completion Date
2-4 Dutch Valley Collector Rehabilitation (Sewershed 10B1) – Although pipework was substantially complete on the original schedule, an extension to September 2007 was requested to allow for final closeout and cleanup.	FY 06/07	FY 07/08
2-5 Rickard and Wilson Collector Rehabilitation (Sewershed 10C1) – Although pipework was substantially complete on the original schedule, an extension to September 2007 was requested to allow for final closeout and cleanup.	FY 06/07	FY 07/08
S-1 Ginnbrook Pump Station Rehabilitation – Project concept has been modified to include substantially more work including upgrades to Ginnbrook and Power Park pump stations and force mains. The design phase of the project is complete and construction will be scheduled for FY 08/09.	FY 06/07	FY 08/09

S-5 South Knoxville/Knob Creek Storage Facility – Requested removal of project from CAP/ER. In lieu of storage facility, additional rehab upstream in sub-basin 41 and rehabilitation of the West Ford Valley trunkline will be performed. See proposed project revision below.	FY 07/08	Remove from Phase 1 CAP/ER
Revised S-5 Neubert Springs Collector and West Ford Valley Trunk Rehabilitation – In lieu of 1.75 MG storage facility, find and fix rehabilitation will be performed in sub-basin 41C1, 41C2, and 41A2 on approximately 40,000 ft of sewer lines to significantly reduce peak flows to Neubert Springs pump station. Scope will also include rehabilitation of approximately 10,000 ft of 15"-18" trunk sewer along West Ford Valley Road.		FY 08/09

EPA Approved Project Extensions and Changes

All approved project extensions and changes are listed below.

- **1-1 Upper First Creek Collector Project (Mini-basin 1A1, 2A2, and 3D1)** –End date extended from FY 06/07 to FY 07/08.
- **1-20 Vine Middle School Rehabilitation Project** –End date extended from FY 06/07 to FY 07/08.
- **2-4 Dutch Valley Collector Rehabilitation (Sewershed 10B1)** – End date was extended to September 2007.
- **2-5 Rickard and Wilson Collector Rehabilitation (Sewershed 10C1)** – End date was extended to September 2007.
- **S-1 Ginnbrook Pump Station Rehabilitation** –End date was extended from FY 06/07 to FY 08/09.
- **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** – End date scheduled as FY 08/09.

Current Capital Improvement Plan for FY 04/05 - FY 07/08

The following is a list of facility improvement projects included in the Capital Improvement Plan for FY 04/05 (July 1, 2004, to June 30, 2005), FY 05/06 (July 1, 2005, to June 30, 2006), FY 06/07 (July 1, 2006, to June 30, 2007), and FY 07/08 (July 1, 2007, to June 30, 2008). 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.

Ongoing Projects

First Creek

1. **First Creek 8A1** - Find and design rehabilitation projects in First Creek sewer basin in the North Knoxville area around North Broadway and I-640. Project includes inspection (CCTV, smoke test, manhole inspections), design, rehabilitation of 21,067 ft, and replacement of 10,273 ft of sewer. Construction of Phase A is complete. Construction of Phase B has been rescheduled to begin in spring 2008.
2. **Fountain City Trunkline Replacement** - Replace and upgrade approximately 6000 ft of trunk sewer connecting lines in upper Fountain City to Upper First Creek storage tank. The project will address SSOs along Broadway, Cedar Lane, and Fountain Road. Preliminary design is complete. Construction began in November 2006 and is expected to be complete in fall 2007. Project is on track to be complete in fall 2007.
3. **Sub-Basin 8B2** – Characterize the condition of 24,900 ft of pipe to determine rehabilitation needs. Design is complete and construction is under way.

Second Creek

No current ongoing projects

Third Creek

1. **Third Creek Basin 11** - Find and design rehabilitation needs for collectors in sub-basin 11 (approximately 129,657 ft). Project includes inspection (CCTV, smoke test, manhole inspections), design, and rehabilitation of lines requiring repair. Phase I project will be substantially complete in October 2007.
2. **Third Creek Basin 9** - Find and design rehabilitation methods for collectors in Sub-basin 9 (approximately 177,900 ft). Project includes inspection (CCTV, smoke test, manhole inspections), design, and rehabilitation of lines requiring repair. Phase II has been rescheduled to be complete in 2008.
3. **Third Creek Road Trunk Sewer Replacement** – Project includes approximately 3100 ft of 24-inch and 30-inch trunkline. The project will replace and upgrade the trunkline from Western Avenue along Third Creek to the Third Creek storage facility. It will address overflows occurring at 5600 Western Avenue. Project has been extended approximately 2000 ft to reach the new location of the Third Creek Storage Facility at the KUB Hoskins Center. Project is under way and expected to be complete in December 2007.

South Knox

1. **Ginnbrook Pump Station** – Project will include evaluation of pump station and force main to ensure adequate capacity. It will also include improvements to wet-well, pump system, and valve vault. The force main will be re-routed as well. Construction has begun on both force main and pump station projects.
2. **Blount Avenue Trunkline (Goose Creek)**– Project will examine major trunkline along Blount Avenue in South Knoxville. It will include field survey, line cleaning, and CCTV inspection. Design report has been prepared and presents recommendation on needed improvements. Phase I is substantially complete. Phase II construction will begin in spring 2008.

Completed Projects

First Creek

1. **Fountain Road** - Upsized 3700 ft of gravity sewer using open cut and pipe bursting methods. Replaced manholes and services.
2. **Fair Drive Phase II** - Rehabilitated 3691 ft and replaced 2458 ft of existing 8-12 inch gravity sewer along Fair Drive.
3. **Greenfield Lane** - Replaced approximately 3300 ft of existing sewer with 8-inch and 12-inch PVC and ductile iron pipe.
4. **Whites Creek Phase III** - Replaced 300 ft of 12-inch, 300 ft of 16-inch, 2700 ft of 24-inch, and 5000 ft of 36-inch sewer.
5. **First Creek Sub-basins 3 and 4 Rehabilitation** - Find and fix rehabilitation in First Creek sewer basin in the Fountain City area (mini-basins 03B1, 03B2, and 04B2). Project included inspection (CCTV, smoke test, manhole inspections), design, rehabilitation of 26,500 ft of lines requiring repair, and replacement 10,500 ft of sewer.
6. **Lower First Creek Storage** - Designed and built 5 million gallon (MG) wet-weather storage tank to control sewer overflows near North Hoitt Avenue during rain events.
7. **Upper First Creek Storage** - Designed and built 9 MG wet-weather storage tank to control sewer overflows near Old Broadway during rain events.

Second Creek

1. **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.
2. **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.
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. **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. **Rickard and Wilson Collector Rehab (Mini-basin 10C1)** - Assessed and rehabilitated, where needed, approximately 19,000 ft of collector pipe. Project was been combined with Mini-basin 10B1.

Third Creek

1. **Mynderse, Western, and Canna** - Replaced approximately 1700 ft of 8-inch sewer and pipe-burst approximately 3400 ft of 8-inch up to 10-inch and 12-inch pipe to address wet-weather capacity restrictions resulting in overflows near Pleasant Ridge Road.
2. **Third Creek 28B1*** - Find and design rehabilitation needs for collectors in mini-basin 28B1 (approximately 7900 ft of pipe). Project included inspection (CCTV, smoke test, manhole inspections), design, and rehabilitation of lines requiring repair. Plans are being developed for a future rehabilitation project. No construction is planned in the short-term.

*The project named Third Creek 28B1 replaces Third Creek 28C1 that appeared in the Quarterly Progress Report for the Second Quarter 2005. After additional studies, it was determined that flows from 28B1 more likely contributed to overflows along Sutherland Avenue and North Bellemeade, as listed in the SSOER.

3. **Third Creek Storage** - Designed and constructed 4.5 MG wet-weather storage tank to control sewer overflows near Western Avenue and Third Creek Road during rain events.

4. **Upper McKamey Trunk Sewer Replacement** – Project replaced approximately 1600 ft of 12-inch and 15-inch trunk sewer. This project further enhanced improvements already made in Third Creek to address overflows along McKamey Road.

Fourth Creek

1. **Pinebrook Drive Sewer Replacement** – Replaced of 330 ft of 8-inch gravity sewer partially exposed by erosion of the bank of the adjacent drainage channel.
2. **Walker Springs Rehabilitation (Mini-Basin 32A4)** – Performed find, and design work in Mini-basin 32A4 in the Walker Springs area. Inspection included 43,000 ft of smoke testing, 43,000 ft of CCTV, and 228 manhole inspections. Plans will be developed for future rehabilitation work.
3. **Walker Springs Storage** – Designed and constructed 3.25 MG wet-weather storage tank to control sewer overflows near Walker Springs Pump Station during rain events. Tank was effectively operated during a severe rain event on September 24, 2006.
4. **Papermill Drive Phases I, II, and III** – Designed and constructed replacement of approximately 4000 ft of 15-inch, 18-inch, and 2100 ft of 36-inch sewer in the Papermill Drive area to increase conveyance capacity and reduce sewer overflows.

South Knox

1. **Maryville Pike** – Designed and replaced of 800–1,200 ft of 24-inch sewer located in Witherspoon Superfund site. Design rerouted sewer around site.
2. **South Haven Phase I and Phase II** – Relocated, rehabilitated, and upsized approximately 4700 ft of existing collector sewers to increase conveyance capacity and reduce inflow and infiltration (I/I).
3. **Island Home Rehabilitation** – Rehabilitated 9400 ft and replace 1200 ft of collector sewers to reduce I/I.
4. **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.
5. **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.
6. **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.

Williams Creek

1. **Delrose Force Main Replacement** – Designed and replaced approximately 5,000 ft of 16-inch ductile iron pipe force main that had severe structural problems.
2. **Williams Creek Trunk Line Replacement** – Designed and replaced approximately 3,700 ft of 24-inch sewer to correct structural problems.
3. **1-20 Vine Middle School Rehabilitation Project** – Completed find and fix work to identify cause of overflow in the vicinity of 214 Bertrand Street.

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 posted in the public document repository on June 19, 2007, and comments were accepted until July 18, 2007. The CCP was submitted to the EPA on July 23,2007.

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."*

No high flow events occurred during the reporting period for which the Process Controls Program (PCP) would have been used.

The Revised PCP was scheduled to be submitted by September 30, 2007. Due to an insufficient number of high-flow events, KUB submitted a request to EPA on August 8, 2007, to extend the deadline for submission of the Revised PCP. EPA approved the extension in a letter dated September 27, 2007. The Revised PCP will be submitted by September 30, 2008.

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 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.

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 Composite Correction Plan

Consent Decree language, page 42: *"KUB shall propose, as part of its CPE, a schedule for submission of the CCP set forth below, such schedule not to exceed twelve (12) months after EPA's approval of the CPE…KUB shall submit a Composite Correction Plan (CCP) pursuant to the schedule set forth in the CPE."*

On June 19, 2007, KUB placed in the PDR the Composite Correction Plan. This Review Level 1 Deliverable was available for public comment until July 18, 2007. No comments were received during that period. The CCP was submitted to EPA on July 23, 2007.

6.1.2 Phase 1 CAP/ER Annual Report 2007

Consent Decree language, page 24: *"On an annual basis, beginning on July 30, 2006, KUB shall submit a report which shall include specific dates for beginning and completing all work identified in both the Phase 1 CAP/ER and Phase 2 CAP/ER for the upcoming twelve (12)-month period."*

On July 26, 2007, KUB submitted the Phase 1 CAP/ER Annual Report 2007 to EPA. This deliverable was not subject to the Public Review Requirement of Section VI.A.2, but was available for public comment from July 26, 2007, until August 15, 2007. No comments were received during that period. Accompanying the submission was the request to extend the schedules for the following projects; Dutch Valley Collector Rehabilitation, Rickard and Wilson Collector Rehabilitation, and Ginnbrook Pump Station Rehabilitation. KUB also requested the removal of the South Knoxville/Knob Creek Storage Facility from the Phase 1 CAP/ ER and replace it with the Neubert Springs Collector and West Ford Valley Trunk Rehabilitation project. EPA approved those project modifications in a letter dated September 27, 2007.

6.1.3 Quarterly Progress Report Second Quarter 2007

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 July 26, 2007, KUB submitted to EPA and placed in the PDR the Quarterly Progress Report for the second quarter 2007. This deliverable was not subject to the Public Review Requirement of Section VI.A.2, but was available for public comment from July 26, 2007, until August 15, 2007. No comments were received during that period.

6.1.4 SEP Periodic Report First Period 2007

Consent Decree language, page 61: *"While the SEP is being planned and implemented, KUB shall submit semiannual reports to the Parties describing the progress of the SEP up to and during the most recent Calendar Quarter within one (1) Month after the end of the second and fourth Calendar Quarters following the Date of Entry."*

On July 26, 2007, KUB submitted the SEP Periodic Report for the first period 2007 to EPA. This deliverable was not subject to public review but was posted in the PDR at the time of submission.

6.1.5 Revisions to Deliverables

Consent Decree language, page 19: *"KUB may revise the form of any deliverable without consulting EPA and shall place a copy of any such revised deliverable in the PDR within seven days after making such revision."*

On July 26, 2007, KUB placed in the PDR the 1st revised Operations Record-Keeping Program, the 2nd revised Emergency Response Plan, and the 1st revised Reporting, Notification, & Record-Keeping Program.

6.2 Violations Subject to Stipulated Penalties

During this reporting period, KUB incurred three Unpermitted Discharges. Table 1 below lists all violations subject to stipulated penalties as outlined in the Consent Decree.

Table 1. Violations Subject to Stipulated Penalties

Violation	Date	Address	Cause
Unpermitted Discharge	7/14/07	2021 Cold Creek Way	Blockage
Unpermitted Discharge	8/6/07	300 Kingston Court	Broken pipe
Unpermitted Discharge	8/22/07	2701 Wilson Avenue	Blockage

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 15 SSO events. Of that number, 10 were due to blockages by either grease, debris, roots, or a combination thereof; three were due to broken pipe; one was due to construction failure; and one was due to mechanical failure. Of the 15 SSO events, eight were in the 0 – 1000 gallons volume range, five were in the 1001 – 10,000 range, and two events totaled greater than 10,000 gallons. Durations for events during this period are as follows: 10 ranged from 0 – 2 hours, and five lasted more than five hours. SSOs are often not reported or identified for some time prior to our response. Long durations, such as these, represent KUB's best estimate of the time from when the overflow likely began until cessation of the overflow.

7.2 Building Backups

Appendix C lists all Building Backups that occurred during this reporting period. During this period, there were eight Building Backups. All eight building backups were due to blockage.

7.3 Bypasses

No Bypasses occurred during this reporting period.

7.4 Diversions

No Diversions occurred during this reporting period.

7.5 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 was one effluent limit violation at Fourth Creek Wastewater Treatment Plant (WWTP). No effluent limit violations occurred at Kuwahee, Loves Creek, or Eastbridge WWTPs during the reporting period.

Table 2: Bypasses and Diversions

WWTP	Did an event occur?	Type of Event	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 (MG)	Total Event Volume (MG)	Reason for Event
Kuwahee	No											
Fourth Creek	No											
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	8/11/07	Fecal	Daily Max	1000 cfu/100 ml	1500 cfu/100 ml
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

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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 the reporting period and the results thereof. In addition to routine monitoring in all creeks, and responding to Sanitary Sewer Overflows, KUB focused its water quality monitoring efforts in Baker Creek, Williams Creek, and Fourth Creek this quarter.

Routine monitoring of Williams Creek during the second and third quarters of 2007 resulted in elevated fecal coliform counts at sites 1.70 and 2.02. In addition, on August 22, 2007, a Sanitary Sewer Overflow also discharged into Williams Creek on Wilson Avenue, above site 1.70. This overflow occurred in an area of ongoing sewer rehabilitation. KUB is currently rehabilitating and relaying sewer mains located along the creek in the vicinity of sites 2.02 and 1.70. KUB will continue to routinely monitor the creek, as well as review the progress of the sewer rehabilitation work in that area.

KUB completed an additional round of Location of Source sampling at five locations along Baker Creek, which had resulted in elevated fecal coliform counts during the previous dry weather investigation as well as the location of source testing conducted during the second quarter of 2007. During this location of source testing, Water Quality personnel observed water flowing through a storm drain located upstream from the sampling area, (during dry weather). Water Quality personnel discovered a broken sewer lateral coming from a local school which was flowing into the storm drain. This was confirmed by dye testing a proximal manhole on September 18, 2007. KUB personnel contacted the Knox County School System to inform them of the damaged lateral, which was repaired the following day. Subsequent sampling and fecal coliform analysis at the upper most sample site, stream mile 2.08, on September 26 and October 9, 2007 demonstrated that the lateral had been successfully repaired. KUB will continue to monitor Baker Creek and launch further investigations as elevations in fecal coliform counts dictate.

Due to dry weather conditions this quarter, one sample site on Baker Creek, (0.32), did not have an adequate quantity of water during August and September so samples at that site were not collected. Water Quality personnel will continue to monitor all three sites along Baker Creek and sample all areas when possible.

In early July, KUB investigated an area on Fourth Creek precipitated by notification of an exposed sewer lateral by the City of Knoxville. KUB examined the area, contacted the customer and issued a notice to repair the private lateral. Repairs to the lateral were complete in late August, and routine monitoring in early September confirmed that the repairs were effective.

KUB will begin Wet Weather Investigations on elevated areas of Baker Creek in the fourth quarter of 2007, pending increased rainfall. KUB also plans to begin a Dry Weather Walking Survey of Goose Creek in the fourth quarter.

8.2 Projected Data Collection

During the fourth quarter of 2007, 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 fourth quarter 2007:

Sample Locations by Creek Mile or Site Number

Creek Name	*Creek Mile #*	*Creek Mile #*	*Creek Mile #*
First Creek	0.45	2.57	6.33
Second Creek	0.36	1.54	5.76
Third Creek	0.87	2.08E	4.80W
Fourth Creek	0.55	1.33	1.78
Baker Creek	0.15	0.32	0.36S
Goose Creek	0.35	0.90E	1.50E
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	McCampbell 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	193,152	Under Construction - 50% 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

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Capital Projects and Rehabilitation Credits

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	207,240	20% complete
73	Third Creek Storage Tank (21A1)	Storage Tank	3rd Creek	Kuwahee	4,000,000	Project Complete
74	Comprehensive Rehabiliation (19A1)	Comprehensive Rehabilitation	Williams Creek	Kuwahee	188,406	60% complete
75	Comprehensive Rehabiliation (19B1)	Comprehensive Rehabilitation	Williams Creek	Kuwahee	196,980	60% complete
76	Comprehensive Rehabiliation (10B1)	Comprehensive Rehabilitation	2nd Creek	Kuwahee	191,698	Project Complete
77	Comprehensive Rehabiliation (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

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Appendix B

SSOs

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
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
7/7/2007	12:15 PM	2110	HARVEY STREET	KUW	Second Creek	15	Leaking Lateral	Storm Drain to Soil Saturation		There was a leak caused by a broken lateral in the street.	6	0	6	1	No
7/11/2007	8:24 AM	1723	BREDA DRIVE	KUW	First Creek	8	MH 7-144	Soil Saturation		The sewer main was flushed to remove the blockage caused by grease.	288	0	288	2	No
7/12/2007	3:08 PM	4900	MURPHY ROAD	KUW	First Creek	2	MH 67-154	Removal and Soil Saturation		The sewer main was flushed to remove the blockage caused by debris.	19,635	10,000	9,635	24	No
7/13/2007	6:18 PM	1540	AMHERST ROAD	FC	Fourth Creek	27	MH 22-74	Soil Saturation		The sewer main was flushed to remove the blockage caused by debris.	16,560	1,000	15,560	72	No
7/14/2007	1:28 PM	2021	COLD CREEK WAY	KUW	First Creek	4	MH 22-45	Soil Saturation and Swale to Unnamed Tributary to First Creek	First Creek	The sewer main was flushed to remove the blockage caused by debris.	7,967	0	7,967	10	Yes
7/17/2007	5:25 PM	1935	CHIPMAN STREET	KUW	First Creek	18	MH 20-8	Storm Drain to Recovery and Soil Saturation		The sewer main was flushed to remove the blockage caused by grease and roots.	2,962	2,500	462	5.5	No
7/23/2007	10:22 AM	5101	MALONEYVILLE ROAD	EB	Eastbridge	109	MH 93-26	Removal and Soil Saturation		The pump station barscreen was cleaned to remove the blockage caused by heavy debris.	3,000	1,500	1,500	1	No
8/2/2007	8:00 PM	751	MURRAY DRIVE	KUW	Third Creek	9	Residential Grinder Pump	Soil Saturation		The residential grinder pump had a mechanical failure.	50	0	50	1.5	No
8/6/2007	12:00 PM	300	KINGSTON COURT	KUW	Third Creek	29	MH 8-50	Swale to Third Creek	Third Creek	The sewer main was repaired.	10	0	10	2	Yes
8/15/2007	8:33 AM	100	DALTON PLACE WAY	KUW	Second Creek	10	MH 20-2	Ditch to Soil Saturation		The sewer main was flushed to remove the blockage caused by grease and roots.	108	0	108	1	No
8/19/2007	4:45 PM	5101	MALONEYVILLE ROAD	EB	Eastbridge	109	MH 93-26	Ditch to Soil Saturation		The pump station barscreen was cleaned to remove the blockage caused by heavy debris.	1,440	0	1,440	2	No
8/22/2007	2:40 PM	2701	WILSON AVENUE	KUW	Williams Creek	19	MH 8	Storm Drain to Williams Creek	Williams Creek	The sewer main was flushed to remove the blockage caused by grease.	540	0	540	6	Yes
9/15/2007	1:03 PM	325	PELHAM ROAD	KUW	Williams Creek	19	Leaking Force Main	Pavement to Soil Saturation		There was a leak on a 6" force main.	90	0	90	1	No
9/24/2007	4:10 PM	961	E FORD VALLEY ROAD	KUW	Knob Creek	41	Cut Force Main	Trench to Pipe Bedding to Soil Saturation		A contractor cut the pump station force main.	4,500	0	4,500	1.5	No
9/25/2007	12:18 PM	1610	CLINCH AVENUE IN ALLEY	KUW	Second Creek	35A	End-of-Line	Pavement to Storm Drain to Soil Saturation		The sewer main was repaired and flushed to remove the blockage caused by debris.	11	0	11	1	No

Appendix C

Building Backups

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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)
7/28/2007	9:03 AM	3808	KINCAID STREET	KUW	First Creek	16	BBU	The sewer main was flushed to remove the blockage caused by debris.	225	225	0	1
7/28/2007	6:58 AM	1434	NOLAN AVENUE	KUW	Third Creek	22	BBU	The sewer main was flushed to remove the blockage caused by grease.	450	450	0	1.5
8/2/2007	6:40 PM	4213	WALROCK LANE	KUW	Third Creek	12	BBU	The sewer main was flushed to remove the blockage caused by roots.	540	540	0	1.66
8/3/2007	12:22 PM	4416	DEERFIELD ROAD	KUW	Third Creek	11	BBU	The sewer main was flushed to remove the blockage caused by grease and roots.	75	75	0	1
8/19/2007	9:37 AM	3550	PLEASANT RIDGE ROAD	KUW	Third Creek	22	BBU	The sewer main was flushed to remove the blockage caused by grease and debris.	8,860	8,860	0	2
8/23/2007	1:00 PM	501	W. MAIN STREET	KUW	Second Creek	23	BBU	The sewer main was flushed to remove the blockage caused by debris.	100	100	0	1
8/23/2007	9:59 PM	6220	WESTERN AVENUE	KUW	Third Creek	11	BBU	The sewer main was flushed to remove the blockage caused by grease.	10	10	0	1
8/29/2007	6:52 PM	3428	LAKE VIEW DRIVE	KUW	Third Creek	38	BBU	The sewer main was flushed to remove the blockage caused by roots and debris.	1,870	1,870	0	1.5

Appendix D

Water Quality Monitoring Program
Sampling Results

Water Quality Monitoring Report

Routine Water Quality Monitoring Report

7/1/2007 Through 9/30/2007

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
First Creek										
	0.45	7/27/2007	08:25	8.0	19	7.8	400	250	Wet	R
	2.57	7/27/2007	10:40	7.9	23	7.3	420	160	Wet	R
	6.33	7/27/2007	09:00	7.5	21	6.3	340	260	Wet	R
	0.45	8/29/2007	13:37	7.9	25	7.8	910	150	Dry	R
	2.57	8/29/2007	13:25	8.1	26	7.5	560	190	Dry	R
	6.33	8/29/2007	13:10	7.2	28	6.6	260	46	Dry	R
	0.45	9/27/2007	10:36	7.8	21	8.0	2700	1700	Wet	R
	2.57	9/27/2007	10:19	8.1	21	7.6	250	250	Wet	R
	6.33	9/27/2007	10:03	7.7	21	6.2	270	250	Wet	R
Second Creek										
	0.30	7/26/2007	10:10	7.8	21	7.9	1200	490	Wet	R
	1.54	7/26/2007	09:47	7.7	20	6.9	1700	520	Wet	R
	5.76	7/26/2007	09:25	7.3	19	5.3	2200	980	Wet	R
	0.30	8/27/2007	09:53	7.8	23	6.5	1300	690	Dry	R
	1.54	8/27/2007	09:31	7.7	23	5.7	2500	1200	Dry	R
	5.76	8/27/2007	09:10	7.5	19	4.6	150	40	Dry	R
	0.30	9/19/2007	10:15	8.0	20	8.0	2400	110	Wet	R
	1.54	9/19/2007	09:45	8.0	19	7.9	1100	120	Wet	R
	5.76	9/19/2007	09:25	7.5	17	6.3	540	95	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.

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Water Quality Monitoring Report

Routine Water Quality Monitoring Report

7/1/2007 Through 9/30/2007

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
Third Creek										
	0.87	7/9/2007	09:50	7.7	24	6.6	330	190	Wet	R
	2.08E	7/9/2007	09:27	7.5	24	5.0	460	920	Wet	R
	4.80W	7/9/2007	09:15	7.9	20	7.6	210	180	Wet	R
	0.87	8/13/2007	13:21	8.1	25	8.8	130	55	Dry	R
	2.08E	8/13/2007	13:04	7.9	25	6.1	320	120	Dry	R
	4.80W	8/13/2007	12:52	8.2	21	9.3	600	690	Dry	R
	0.87	9/12/2007	09:21	7.8	21	5.4	3600	1100	Dry	R
	2.08E	9/12/2007	09:10	7.8	21	6.0	3600	2400	Dry	R
	4.80W	9/12/2007	09:00	8.1	18	7.9	370	490	Dry	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.

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Water Quality Monitoring Report

Routine Water Quality Monitoring Report

7/1/2007 Through 9/30/2007

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
Fourth Creek										
	0.55	7/11/2007	09:58	7.7	20	6.7	40000	2000	Wet	R
	1.33	7/11/2007	09:46	7.8	20	7.0	4000	820	Wet	R
	1.78	7/11/2007	09:35	7.9	20	8.0	1800	520	Wet	R
	0.55	8/8/2007	08:33	7.9	20	7.6	1100	690	Dry	R
	1.33	8/8/2007	08:45	7.9	19	7.7	400	460	Dry	R
	1.78	8/8/2007	08:55	8.1	18	9.1	420	340	Dry	R
	0.55	8/22/2007	10:35	8.0	21	8.5	1600	610	Dry	R
	1.33	8/22/2007	10:22	7.9	20	7.5	3200	2000	Dry	R
	1.78	8/22/2007	10:10	8.2	20	9.1	150	110	Dry	R
	0.55	9/11/2007	08:10	8.1	19	8.0	300	610	Dry	R
	1.33	9/11/2007	08:22	8.0	20	7.2	330	310	Dry	R
	1.78	9/11/2007	08:36	8.0	20	7.2	540	550	Dry	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.

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Water Quality Monitoring Report

Routine Water Quality Monitoring Report

7/1/2007 Through 9/30/2007

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
Baker Creek										
	0.15	7/25/2007	11:29	7.7	20	6.9	2600	2400	Wet	I
	0.32	7/25/2007	11:41	7.8	20	7.3	4600	2400	Wet	R
	0.36S	7/25/2007	11:15	7.7	19	7.8	500	320	Wet	R
	0.15	8/15/2007	08:50	7.7	20	7.0	5100	2000	Dry	I
	0.36S	8/15/2007	09:40	8.0	18	8.5	280	410	Dry	R
	0.15	9/26/2007	09:57	7.6	20	6.7	1600	1600	Wet	I
	0.36S	9/26/2007	09:47	8.0	20	7.7	1300	870	Wet	R
Goose Creek										
	0.35	7/13/2007	08:30	7.5	20	4.1	1300	820	Wet	R
	0.90E	7/13/2007	08:41	7.6	19	7.3	3600	1400	Wet	R
	1.50E	7/13/2007	08:55	7.8	18	8.0	2300	490	Wet	R
	0.35	8/6/2007	09:25	7.5	21	5.7	990	290	Wet	R
	0.90E	8/6/2007	09:40	7.7	22	7.2	990	580	Wet	R
	1.50E	8/6/2007	09:50	7.9	20	7.9	550	770	Wet	R
	0.35	9/7/2007	07:39	7.6	21	4.8	2000	610	Wet	R
	0.90E	9/7/2007	07:52	7.9	21	7.0	1400	170	Wet	R
	1.50E	9/7/2007	08:05	8.0	19	7.4	380	290	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.

00029688

Water Quality Monitoring Report

Routine Water Quality Monitoring Report

7/1/2007 Through 9/30/2007

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
Loves Creek										
	0.85	7/19/2007	12:10	7.3	23	5.5	18000	1600	Wet	R
	1.89	7/19/2007	11:43	7.3	24	6.9	2600	280	Wet	R
	3.45	7/19/2007	11:23	7.4	24	6.3	2200	320	Wet	R
	0.85	8/16/2007	12:18	8.0	24	7.2	480	410	Dry	R
	1.89	8/16/2007	12:39	7.6	22	8.2	280	190	Dry	R
	3.45	8/16/2007	12:48	7.7	25	6.9	2700	1300	Dry	I
	0.85	9/10/2007	08:57	8.0	22	6.7	930	820	Dry	R
	1.89	9/10/2007	09:11	7.6	20	6.3	410	220	Dry	R
	3.45	9/10/2007	09:22	7.7	22	4.9	2000	2400	Dry	I
Williams Creek										
	0.89	7/24/2007	08:15	7.8	18	7.9	310	150	Dry	R
	1.70	7/24/2007	08:25	7.5	17	7.1	1300	870	Dry	R
	2.02	7/24/2007	08:40	7.7	19	6.5	23000	> 2400	Dry	I
	0.89	8/20/2007	09:12	7.9	20	7.5	2300	1300	Dry	R
	1.70	8/20/2007	08:59	7.6	19	4.9	240000	>2400	Dry	R
	2.02	8/20/2007	08:42	8.1	21	6.9	1600	1300	Dry	I
	0.89	9/24/2007	09:45	7.8	19	7.9	480	220	Wet	R
	1.70	9/24/2007	09:57	7.6	19	6.9	1700	580	Wet	R
	2.02	9/24/2007	10:10	7.7	21	6.9	2100	>2400	Wet	I

*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.

00002969

Water Quality Monitoring Report

Investigative Water Quality Monitoring Report

7/1/2007 Through 9/30/2007

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Knoxville, Tennessee 37915
(865) 594-8286 Fax: (865)594-8245

Fourth Creek

Sample Location	Date	Time	Dissolved Oxygen (mg/l)	Fecal Coliform (CFU/100 ml)	E-Coli (MPNl)	pH	Silt level	Water Temperature
Fourth Creek Above Lateral	7/2/2007	1:20 PM	8.9	310	410	8.2	N/A	21
Fourth Creek Below Lateral	7/2/2007	1:30 PM	8.4	520	870	7.8	N/A	20

00029970

Creek Monitoring Report

Location of Source Water Quality Monitoring Report

7/1/2007 Through 10/10/2007

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

Baker Creek

Location Description	Collection Date	Collection Time	Dissolved Oxygen (mg/L)	pH	Water Temperature (C)	Fecal Coliform (CFU/100mL)	E-Coli (MPN)	Closest Stream Mile
Taylor Rd. Between Cruze & Barclay	9/18/2007	09:25	8.1	8.0	16	59000	> 2400	2.08 (Main stream)
Taylor Rd. between Cruze and Tilson	9/18/2007	09:40	7.2	8.0	17	35000	> 2400	1.93 (Main stream)
Sevierville Pike	9/18/2007	09:52	8.3	8.2	17	2600	> 2400	1.47 (Main stream)
Sevier Ave. Fire Hall #10	9/18/2007	10:10	7.3	8.0	18	2400	1600	0.93 (Main stream)
Lenland Ave.	9/18/2007	10:20	8.1	8.2	18	1300	1100	

Baker Creek

Location Description	Collection Date	Collection Time	Dissolved Oxygen (mg/L)	pH	Water Temperature (C)	Fecal Coliform (CFU/100mL)	E-Coli (MPN)	Closest Stream Mile
Taylor Rd. between Barclay and Cruze	9/26/2007	09:37	8.7	7.9	17	1400	2400	2.08 (Main stream)

Baker Creek

Location Description	Collection Date	Collection Time	Dissolved Oxygen (mg/L)	pH	Water Temperature (C)	Fecal Coliform (CFU/100mL)	E-Coli (MPN)	Closest Stream Mile
Taylor Rd. between Barclay and Cruze	10/9/2007	11:05	8.6	7.7	16	760		2.08 (Main stream)

0002971

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 7/14/2007
Street Address 2021 Cold Creek Way
Description The SSO was caused by partial blockage in the sewer main due to debris. The SSO discharged to soil saturation and a swale to an unnamed tributary to First Creek.

Estimated unrecovered volume 7,967 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
	7/14/2007	0	0.67

Sample Location	Sample Date	Sample Time	Dissolved Oxygen	Temperature (Celsius)	pH	Fecal Coliform	E-Coli (MPN)
Upstream of SSO Discharge	7/14/2007	15:47	7.4	21	7.5	300	390
Downstream of SSO Discharge	7/14/2007	16:10	2.0	22	7.7	580000	>2400
Upstream of SSO Discharge	7/16/2007	09:58	7.9	17	7.4	300	170
Downstream of SSO Discharge	7/16/2007	10:10	7.8	17	7.8	3500	1300
Upstream of SSO Discharge	7/18/2007	10:41	7.9	17	7.2	230	260
Downstream of SSO Discharge	7/18/2007	10:48	7.8	15	7.4	1700	1700
Upstream of SSO Discharge	7/30/2007	10:52	8.3	18	7.4	170	200
Downstream of SSO Discharge	7/30/2007	10:40	7.7	20	7.9	1400	730

0002972

Water Quality Monitoring Report

Spill Impact Sampling Results
Water Quality Monitoring Program

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

Event Date 8/6/2007
Street Address 300 Kingston Court
Description The SSO was caused by a partial blockage in the sewer main by a broken pipe. The SSO discharged into a swale to Third Creek.

Estimated unrecovered volume 10 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
	8/6/2007	0	1.37

Sample Location	Sample Date	Sample Time	Dissolved Oxygen	Temperature (Celsius)	pH	Fecal Coliform	E-Coli (MPN)
Upstream of SSO Discharge	8/6/2007	13:20	10	25	7.9	360	34
Downstream of SSO Discharge	8/6/2007	13:32	9.9	24	8.0	14000	> 2400
Upstream of SSO Discharge	8/8/2007	12:42	9.6	24	8.1	380	240
Downstream of SSO Discharge	8/8/2007	12:54	9.3	24	8.1	370	460

0002973

Water Quality Monitoring Report

Spill Impact Sampling Results
Water Quality Monitoring Program

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Event Date 8/22/2007
Street Address 2701 Wilson Avenue
Description The SSO was caused by a grease blockage in the sewer main. The SSO discharged into a storm drain which flows into Williams Creek.

Estimated unrecovered volume 540 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**
	8/22/2007	0	0.01

Sample Location	Sample Date	Sample Time	Dissolved Oxygen	Temperature (Celsius)	pH	Fecal Coliform	E-Coli (MPN)
Upstream of SSO Discharge	8/23/2007	17:25	6.7	25	8.1	22000	1400
Downstream of SSO Discharge	8/23/2007	17:32	3.6	25	7.9	> 600000	> 2400
Upstream of SSO Discharge	8/27/2007	11:28	5.7	24	8.0	25000	980
Downstream of SSO Discharge	8/27/2007	11:32	5.7	24	8.0	23000	920
Upstream of SSO Discharge	9/17/2007	09:23	7.3	18	8.1	2600	>2400
Downstream of SSO Discharge	9/17/2007	09:15	7.4	18	8.2	3200	1600

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