Quarterly Progress Report

Volume 8

First Quarter Report
January 1 through March 31, 2007

Submitted to EPA on April 26, 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 — 4·26·07

D. Wayne Loveday — Date

KUB

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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)."*

KUB compiled this Quarterly Progress Report to detail the events that occurred during the first quarter of 2007 from January 1 through March 31. This is the eighth quarterly report required of KUB under this Consent Decree. The Consent Decree requirements pertaining to the Phase 2 CAP/ER and Composite Correction Plan will not be fulfilled in this report since they have not become due; rather, a description of the status of development for those programs is given. The Consent Decree reporting requirements for those programs will be met after EPA has approved each of them.

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 status of the development 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>January 25, 2007</u>

- Submitted to EPA – Quarterly Progress Report 4th quarter 2006

- Submitted to EPA – SEP Periodic Report, 2nd period 2006

February 26, 2007
- Posted in PDR – Continuing Sewer System Assessment Program, First Revised
- Posted in PDR – Gravity Line Preventive Maintenance Program, First Revised
- Posted in PDR – Sewer Overflow Response Plan, Second Revised

February 27, 2007
- Submitted to EPA – Annual MOM Progress Report 2006

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.

Current Capital Improvement Plan for FY 04/05 - FY 06/07
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. Phase B was initiated to replace 1500 ft of trunkline not included in the scope of Phase A. Phase B design is underway and will be completed by the end of April. Construction is expected to commence in May and will be completed in fall 2007.

2. **Upper First Creek Storage** - Design 9 million gallon (MG) wet-weather storage tank to control sewer overflows near Old Broadway during rain events. Construction is underway and completion is expected in April 2007. Project is substantially complete.
3. **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.
4. **Sub-Basin 8B2** – Characterize the condition of 24,900 ft of pipe to determine rehabilitation needs. Preliminary design is complete and design is under way. Construction is scheduled to begin in April 2007. Project is on track to be complete in fall 2007.

Second Creek

1. **Dutch Valley Collector Rehab (Mini-basin 10B1)** – Assess and rehabilitate, where needed, approximately 16,400 ft of collector pipe. Condition Assessment design is complete. This project was combined with the Rickard and Wilson Collector Rehab project below. Construction is underway and is expected to be complete in August 2007.
2. **Rickard and Wilson Collector Rehab (Mini-basin 10C1)** – Assess and rehabilitate, where needed, approximately 19,000 ft of collector pipe. Project has been combined with Mini-basin 10B1 and is expected to be complete in August 2007.

Third Creek

1. **Third Creek Storage** - Design 4.5 MG wet-weather storage tank to control sewer overflows near Western Avenue and Third Creek Road during rain events. Preliminary design is complete. Site selection is complete; tank will be located at KUB's Hoskins Center. Construction is underway.
2. **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 construction is expected to begin in April 2007. Phase II design will begin in summer 2007.
3. **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 I is substantially complete and Phase II is expected to be complete in June 2007.
4. **Third Creek Road Trunk Sewer Replacement** – Project includes approximately 3100 lf 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 under construction at the KUB Hoskins Center. Project is underway and expected to be complete in December 2007.
5. **Upper McKamey Trunk Sewer Replacement** – Project will replace approximately 1600 ft of 12 inch and 15 inch trunk sewer. This project will further enhance improvements already made in Third Creek to address overflows along McKamey Road. Project is underway and is expected to be complete in May 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 on the pump station and force main is expected to commence in May 2007 and is expected to be complete by December 2007.
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. Construction on Phase I is expected to begin in April 2007. 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** - Design and build 5 MG wet-weather storage tank to control sewer overflows near North Hoitt Avenue 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.

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.

Fourth Creek

1. **Pinebrook Drive Sewer Replacement -** Replacement 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 occurring on September 24, 2006.
4. **Papermill Drive Phases I, II, and III -** Design and construct 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 -** Design and replacement 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 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 -** Design and replacement of approximately 5,000 ft of 16-inch ductile iron pipe force main that has severe structural problems.
2. **Williams Creek Trunk Line Replacement** – Design and replacement of approximately 3,700 ft of 24-inch sewer to correct structural problems.

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.

CDM is currently working on the CCP draft and continues to make site visits to Kuwahee and Fourth Creek wastewater treatment plants (WWTPs). CDM and KUB staff conducted a 3-day workshop from January 17 and January 19, 2007, to further develop the analysis of the WWTP alternatives and scenarios. A second single day workshop was held on March 8, 2007, to confirm specific site constraints and possibilities. The draft document will be reviewed by KUB in mid-May 2007 and submitted to EPA by July 24, 2007.

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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 will be submitted to EPA by September 30, 2007.

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.

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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.

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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 2006

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 25, 2007, KUB submitted to EPA and placed in the PDR the Quarterly Progress Report for the fourth quarter 2006. This deliverable was not subject to the Public Review Requirement of Section VI.A.2, but was available for public comment from January 25, 2007, until February 14, 2007. No comments were received during that period.

6.1.2 SEP Periodic Report Second Period 2006

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 January 25, 2007, KUB submitted the SEP Periodic Report for the second period 2006 to EPA. This deliverable was not subject to public review but was posted in the PDR at the time of submission.

6.1.3 First Revised Continuing Sewer System Assessment Program

Consent Decree language, page 19: *"The Parties recognize that KUB may need or want to revise certain Deliverables during the term of this Consent Decree. Such*

revisions shall not be considered modifications to the Consent Decree for purposes of Section XXI (Modification)...KUB may revise the form of any Deliverable without consulting EPA and shall place a copy of any such Deliverable in the PDR within seven (7) Days after making such revision."

On February 26, 2007, KUB placed in the PDR the First Revised Continuing Sewer System Assessment Program. As instructed by EPA, a list of revisions made to this deliverable was submitted with the Annual MOM Progress Report 2006. This revised deliverable was not subject to public review.

6.1.4 First Revised Gravity Line Preventive Maintenance Program

Consent Decree language, page 19: *"The Parties recognize that KUB may need or want to revise certain Deliverables during the term of this Consent Decree. Such revisions shall not be considered modifications to the Consent Decree for purposes of Section XXI (Modification)...KUB may revise the form of any Deliverable without consulting EPA and shall place a copy of any such Deliverable in the PDR within seven (7) Days after making such revision."*

On February 26, 2007, KUB placed in the PDR the First Revised Gravity Line Preventive Maintenance Program. As instructed by EPA, a list of revisions made to this deliverable was submitted with the Annual MOM Progress Report 2006. This revised deliverable was not subject to public review.

6.1.5 Second Revised Sewer Overflow Response Plan

Consent Decree language, page 19: *"The Parties recognize that KUB may need or want to revise certain Deliverables during the term of this Consent Decree. Such revisions shall not be considered modifications to the Consent Decree for purposes of Section XXI (Modification)...KUB may revise the form of any Deliverable without consulting EPA and shall place a copy of any such Deliverable in the PDR within seven (7) Days after making such revision."*

On February 26, 2007, KUB placed in the PDR the Second Revised Sewer Overflow Response Plan. As instructed by EPA, a list of revisions made to this deliverable was submitted with the Annual MOM Progress Report 2006. This revised deliverable was not subject to public review.

6.1.6 Annual MOM Progress Report 2006

Consent Decree language, page 84: *"Beginning on March 1, 2006, and every twelve (12) Months thereafter until termination of this Consent Decree, KUB shall submit to the Parties, and simultaneously place in the PDR, an Annual MOM Progress Report."*

On February 27, 2007, KUB submitted to EPA and placed in the PDR the Annual MOM Progress Report for 2006. This deliverable was not subject to the Public Review Requirement of Section VI.A.2, but was available for public comment from

February 27, 2007, until March 19, 2007. One comment was received during that period.

6.2 Violations Subject to Stipulated Penalties

During this reporting period, KUB incurred seven Unpermitted Discharges. Two of those events were due to broken pipe; two were due to blockage; and the others were either due to heavy rainfall, vandalism, or electrical failure. 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	1/8/07	302 Seventh Avenue	Heavy Rainfall
Unpermitted Discharge	2/1/07	300 Kingston Court	Blockage
Unpermitted Discharge	2/15/07	3022 Boright Avenue	Vandalism
Unpermitted Discharge	3/3/07	2004 Neyland Drive	Electrical Failure
Unpermitted Discharge	3/3/07	2015 Neyland Avenue	Broken Pipe
Unpermitted Discharge	3/22/07	4744 S. Middlebrook Pike	Blockage
Unpermitted Discharge	3/29/07	3804 W. Blount Avenue	Broken Pipe

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 24 SSO events. Of that number, 15 were due to blockages by either grease, debris, roots, or a combination thereof; three were due to heavy rainfall; two were due to construction failure; two were due to broken pipe; and two were due to vandalism. Of the 24 SSO events, 17 were in the 0 – 1000 gallons volume range, 5 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: 19 ranged from 0 – 2 hours, 4 ranged from 2.1 – 5 hours, and one lasted more than five hours.

7.2 Building Backups

Appendix C lists all Building Backups that occurred during this reporting period. During this period, there were eight Building Backups. Causes for these events are as follows: five were due to blockage, and three were due to flushing operations.

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

No effluent limit violations occurred at Kuwahee, Fourth Creek, Loves Creek, or Eastbridge WWTPs during this 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	No	-	-	-	-	-
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, KUB continued to focus its investigative efforts on Williams Creek during this quarter.

KUB successfully completed a second Wet Weather Investigative Monitoring Event for Williams Creek in March 2007. During this event KUB personnel collected four sets of samples at five different locations along Williams Creek before, during, and after a rainfall of approximately 1.0 inch, which began on 3/1/2007. Samples were collected prior to any rain (sample set 1), at peak stream flow during rainfall (sample set 2), after peak stream flow during rainfall (sample set 3) and after the cessation of rainfall a day later (sample set 4). All samples were analyzed for fecal coliform. Samples collected prior to (sample set 1) and after (sample set 4) the event were also analyzed for fecal streptococcus. As expected, fecal coliform counts increased as the rainfall event progressed and were the highest at peak stream flow for the majority of the locations monitored. Impacts from runoff are most significant during peak stream flows. This was evident at all but one of the sample sites. Fecal coliform to fecal streptococcus ratios once again indicated that the fecal contamination in the creek was largely due to runoff from the creek banks. This is evident when looking at the significant decrease in ratio from the pre-event samples to the post event samples. Visual inspection of the sewer mains surrounding the study area revealed that the sewers did not reach capacity and therefore were unlikely to surcharge. Impacts from any leaking surcharged sewer pipes generally result in increased counts just after peak stream flow (sample set 3). With the exception of one monitoring site, counts decreased after peak runoff and stream flow. However, it is important to note that the site with higher counts at peak flow was not the same during both Wet Weather Investigations (10/26/06 and 3/1/07). During this Wet Weather Investigation, fecal coliform counts were much lower that the first event conducted in October. Lower ambient temperature, higher creek flows and decreased wildlife activity may have contributed to lower fecal counts during this investigation. Based upon the data collected during the Dry Weather Investigation, the Location of Source Investigations, and the Wet Weather Investigations, it appears that the majority of fecal contamination in Williams Creek is a result of wildlife incursion, creek bank runoff or possible isolated leaking sewer laterals. Further review and investigation of the private laterals in the urban areas surrounding the Williams Creek watershed will occur later this year after mainline rehabilitation projects in the area are completed. The identification of any laterals needing repairs or replacement may lower some of the slightly elevated counts that periodically occur in Williams Creek in residential areas. KUB will continue to monitor Williams Creek at three sites along the basin on a monthly basis. Should elevated counts arise again once sewer rehabilitation begins, ambient temperature and wildlife activity increases; KUB will launch further investigations to help expose possible contamination sources.

KUB also investigated a Water Quality concern in an area of Williams Creek on February 21, 2007. A local environmental group informed Water Quality personnel that odoriferous, colored water was discharging from a pipe into Williams Creek during dry weather conditions. The location of this discharge was further down the creek than our furthest downstream routine monitoring location. Samples were taken (during a rain event) to determine if the discharge was sewer in nature. Those samples resulted in elevated fecal coliform counts. Water Quality personnel sampled the area again and dye tested the bathrooms of the local business in close proximity of the discharge. It appears that the source of the fecal contamination was a sewer lateral connected to a storm drain that discharges into Williams Creek. Once the problem was identified, the local business took action and used temporary restroom facilities while acquiring a sewer connection from KUB. KUB will further test this area of Williams Creek in April to ensure the storm drain is no longer a contributing factor to elevated fecal counts.

8.2 Projected Data Collection

During the second 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 second quarter of 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

KUB has updated the creek mile # for all three monitoring locations along Williams Creek based on the mileage information obtained during a dry weather walking survey in 2006. This more accurately represents the locations sampled and is reflected in the above table.

KUB will continue to conduct dry weather Location of Source monitoring on seven sites along Baker Creek as well as begin Wet Weather Investigations on elevated areas. RT-PCR will be included on elevated Location of Source samples. The seven sites chosen had elevated fecal coliform counts during the previous Baker Creek Dry Investigative Monitoring event. Results indicate that further investigation is needed to determine the source of the elevated counts associated with four of the seven sites collected. Further investigation of these sites may include the addition of fecal streptococcus and RT-PCR analysis. This information will be examined in conjunction with field observations and other relevant data about stream conditions to determine where additional investigation will be targeted on Baker Creek during the second quarter of 2007.

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	vented manhole cover replacement (39D2)	Manhole Cover	South Knox / Knob Creek	Kuwahee	667	Project Complete
33	vented manhole cover replacement (39D4)	Manhole Cover	South Knox / Knob Creek	Kuwahee	667	Project Complete
34	vented manhole cover replacement (39D3)	Manhole Cover	South Knox / Knob Creek	Kuwahee	2,668	Project Complete
35	vented manhole cover replacement (20A6)	Manhole Cover	Loves Creek	Loves Creek	1,334	Project Complete
36	vented manhole cover replacement (20A7)	Manhole Cover	Loves Creek	Loves Creek	667	Project Complete
37	vented manhole cover replacement (13A2)	Manhole Cover	3rd Creek	Kuwahee	667	Project Complete
38	vented manhole cover replacement (13B1)	Manhole Cover	3rd Creek	Kuwahee	13,335	Project Complete
39	vented manhole cover replacement (28B1)	Manhole Cover	3rd Creek	Kuwahee	1,334	Project Complete
40	12" mainline replacement (44)	Find & Fix Gravity Main	South Knox / Knob Creek	Kuwahee	4,278	Project Complete
41	manhole frame seal repair (67)	Manhole Repair	Loves Creek	Loves Creek	2,304	Project Complete
42	Whites Creek Trunk Line Replacement (02)	Find & Fix Gravity Main	1st Creek	Kuwahee	50,106	Project Complete
43	Comprehensive Rehab 09D1	Comprehensive Rehabilitation	3rd Creek	Kuwahee	286,032	Under Construction - 75% Complete
44	Comprehensive Rehab 09A4	Comprehensive Rehabilitation	3rd Creek	Kuwahee	306,215	Under Construction - 75% Complete
45	Lower First Creek Storage Tank	Storage Tank	1st Creek	Kuwahee	5,000,000	Project Complete
46	vented manhole cover replacement (11B2)	Manhole Cover	3rd Creek	Kuwahee	13,333	Project Complete
47	vented manhole cover replacement (13C1)	Manhole Cover	3rd Creek	Kuwahee	2,667	Project Complete
48	vented manhole cover replacement (22A2)	Manhole Cover	3rd Creek	Kuwahee	667	Project Complete
49	vented manhole cover replacement (22B1)	Manhole Cover	3rd Creek	Kuwahee	667	Project Complete
50	Creek Head Drive sewer line replacement (32A4)	Find & Fix Gravity Main	4th Creek	Fourth Creek	875	Project Complete
51	Manhole replacement (19A3)	Find & Fix Gravity Main	Williams Creek	Kuwahee	207	Project Complete
52	Papermill drive sewer line replacement (33A2)	Find & Fix Gravity Main	4th Creek	Fourth Creek	5,436	Project Complete
53	Wells Rd sewer line replacement (39C2)	Find & Fix Gravity Main	South Knox / Knob Creek	Kuwahee	1,728	Project Complete
54	Power Park Manhole Rehab (45)	Find & Fix Gravity Main	Knob Creek	Kuwahee	3,596	Project Complete
55	Blount Ave abandoned lateral (39A1)	Disconnect abandoned lateral	South Knox / Knob Creek	Kuwahee	2,000	Project Complete
56	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

0002619

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
1/3/2007	5:44 PM	3021	RENNOC ROAD	KUW	First Creek	4	Lateral Cleanout	Ditch to Soil Saturation		The sewer main was flushed to remove the blockage caused by grease.	31	0	31	2	No
1/8/2007	1:30 AM	302	SEVENTH AVENUE	KUW	First Creek	18	MH 15	Ditchline to First Creek	First Creek	The sewer main was flushed to remove the blockage caused by roots and was influenced by heavy rainfall.	720	0	720	2	Yes
1/25/2007	1:00 PM	2862	LONDON CIRCLE	KUW	First Creek	18	MH 41-2	Soil Saturation		The sewer main was flushed to remove the blockage caused by grease.	240	0	240	1	No
1/27/2007	3:40 PM	4419	COSTER ROAD	KUW	First Creek	7	Cleanout	Soil Saturation		The sewer main was flushed to remove the blockage caused by roots and debris.	30	0	30	2	No
2/1/2007	3:30 PM	300	KINGSTON COURT	KUW	Third Creek	29	MH 8-50	Swale to Third Creek	Third Creek	The sewer main was flushed to remove the blockage caused by roots.	180	0	180	1	Yes
2/6/2007	2:15 PM	4421	ROYALVIEW ROAD	KUW	Thrid Creek	11	Cleanout	Soil Saturation		There was no apparent cause found. Contractor flushing and a missing cleanout cap is the probable scenario.	112	0	112	1	No
2/13/2007	2:14 PM	409	N BROADWAY	KUW	Second Creek	23	MH 19-187	Soil Saturation		The sewer main was flushed to remove the blockage caused by grease.	120	0	120	1	No
2/15/2007	10:36 AM	3022	BORIGHT AVENUE	KUW	First Creek	8	MH 35	Swale to Unnamed Tributary to First Creek	First Creek	The sewer main was physically cleaned and flushed to remove the blockage caused by debris and due to vandalism.	452,520	2,500	450,020	108	Yes
2/15/2007	2:43 PM	1611	LAUREL AVENUE	KUW	Second Creek	23	Private MH	Storm Drain to Soil Saturation		The sewer main was flushed to remove the blockage caused by grease.	480	0	480	2	No
2/16/2007	5:22 PM	100	S HALL OF FAME DRIVE	KUW	First Creek	30	MH 14-3	Soil Saturation		The sewer main was flushed to remove the blockage caused by debris.	400	0	400	3	No
2/17/2007	3:37 PM	2600	HOLBROOK DRIVE	KUW	First Creek	4	MH 18-24	Swale to Soil Saturation		The sewer main was physically cleaned and flushed to remove the blockage caused by debris and due to vandalism.	3,600	0	3,600	5	No
2/22/2007	11:15 AM	6213	ELLESMERE DRIVE	KUW	Third Creek	11	MH 48-25	Swale to Ditch with Recovery and Soil Saturation		The sewer main was flushed to remove the blockage caused by grease, roots and debris.	4,100	3,800	300	2	No
2/22/2007	11:45 AM	1110	WOODCREST DRIVE	KUW	First Creek	7	MH 29-22	Soil Saturation		The sewer main was flushed to remove the blockage caused by roots and debris.	240	0	240	1	No
2/26/2007	3:07 PM	6304	RUTLEDGE PIKE	LC	Loves Creek	105	Ruptured Force Main	Soil Saturation		A private contractor ruptured a 6" force main during an excavation.	16	0	16	1	No
2/28/2007	11:44 AM	3325	DEWINE DRIVE	KUW	Third Creek	11	MH 5-2	Swale to Ditchline to Soil Saturation		The sewer main was flushed to remove the blockage caused by roots.	240	0	240	2	No
3/3/2007	4:00 PM	2004	NEYLAND DRIVE	KUW	Third Creek	35B	MH 1	Tennessee River	Tennessee River	Widespread power outages due to high winds resulted in a total power loss to the plant for 130 minutes.	1,170,000	0	1,170,000	1.5	Yes
3/3/2007	5:09 PM	2015	NEYLAND DRIVE	KUW	Third Creek	35B	Ruptured Force Main	Ditchline to Third Creek	Third Creek	Upon restoration of electrical power, a sump pump force main ruptured and was discharged into the ditch by a groundwater sump pump.	10,600	9,600	1,000	1	Yes
3/3/2007	6:15 PM	2620	SCOTTISH PIKE	KUW	South Knoxville	39	Leaking Joint	Soil Saturation		There was a small leak at a pipe joint during a surcharge event caused by widespread power outages due to high winds.	15	0	15	1	No
3/5/2007	8:42 AM	1532	WILDER PLACE	KUW	Williams Creek	25	MH 4-56	Catch Basin to Storm Drain to Soil Saturation		The sewer main was flushed to remove the blockage caused by grease and debris.	108	0	108	1	No
3/22/2007	3:55 PM	4744	S. MIDDLEBROOK PIKE	KUW	Third Creek	21	Abandoned Lateral	Curb to Storm Drain to Unnamed Tributary to Third Creek	Third Creek	The sewer main was flushed to remove the blockage caused by roots and debris.	1,500	0	1,500	5	Yes
3/23/2007	10:30 PM	2437	KEITH AVENUE	KUW	Third Creek	22	Lateral	Soil Saturation		The sewer main was flushed to remove the blockage caused by grease and roots.	375	0	375	1	No
3/24/2007	6:24 PM	1325	WILLMANN LANE	FC	Fourth Creek	36	Lateral and BBU	Soil Saturation		The sewer main was flushed to remove the blockage caused by roots.	1,575	1,500	75	4	No
3/27/2007	1:27 PM	2856	JEFFERSON AVENUE	KUW	Williams Creek	19	MH 5-75	Pavement to Soil Saturation		The sewer main was flushed to remove the blockage caused by roots.	30	0	30	1	No
3/29/2007	1:14 PM	3804	W. BLOUNT AVENUE	KUW	South Knoxville	39	Abandoned Lateral	Ditch to Unnamed Tributary to Goose Creek	Goose Creek	An open, abandoned lateral was found in a wet-weather conveyance adjacent to the sewer main.	2,588	2,000	588	1	Yes

Appendix C

Building Backups

0002622

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)
1/2/2007	11:00 AM	1919	LAUREL AVENUE	KUW	Third Creek	29	BBU	The sewer main was flushed to remove the blockage caused by rags and debris.	15	15	0	1
1/9/2007	8:20 AM	3933	BUFFAT MILL ROAD	LC	Loves Creek	6	BBU	Routine sewer main flushing by a private contractor resulted in a building backup at this residence.	3	3	0	0.05
1/27/2007	3:36 PM	4419	COSTER ROAD	KUW	First Creek	7	BBU	The sewer main was flushed to remove the blockage caused by roots and debris.	2	2	0	0.05
1/28/2007	10:15 AM	1313	GATEWOOD LANE	FC	Fourth Creek	36	BBU	The sewer main was flushed to remove the blockage caused by debris.	10	10	0	2
2/6/2007	2:45 PM	4101	VALLEY VIEW DRIVE	LC	Loves Creek	6	BBU	Routine sewer main flushing by a private contractor resulted in a building backup at this residence.	3	3	0	0.05
2/6/2007	2:45 PM	4021	VALLEY VIEW DRIVE	LC	Loves Creek	6	BBU	Routine sewer main flushing by a private contractor resulted in a building backup at this residence.	1	1	0	0.03
2/11/2007	5:55 PM	1835	LONAS ROAD	KUW	Third Creek	25	BBU	The sewer main was flushed to remove the blockage caused by grease.	400	25	375	2
3/6/2007	12:30 PM	3831	TALILUNA AVENUE	KUW	Third Creek	38	BBU	The sewer main was flushed to remove the blockage caused by roots.	3	3	0	0.5

Appendix D

Water Quality Monitoring Program
Sampling Results

Water Quality Monitoring Report

Routine Water Quality Monitoring Report

1/1/2007 Through 3/31/2007

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	1/25/2007	10:40	7.8	8	9.9	190	210	Wet	R
	2.57	1/25/2007	10:21	8.3	7	12	250	200	Wet	R
	6.33	1/25/2007	09:57	7.8	11	9.4	210	220	Wet	R
	0.45	2/26/2007	08:13	7.9	11	9.0	140	180	Wet	R
	2.57	2/26/2007	08:58	8.1	10	11	150	140	Wet	R
	6.33	2/26/2007	08:44	7.7	11	8.4	91	110	Wet	R
	0.45	3/20/2007	09:20	7.8	13	9.3	820	980	Wet	R
	2.57	3/20/2007	09:12	7.9	13	8.9	2800	1600	Wet	R
	6.33	3/20/2007	08:57	7.4	14	7.0	300	290	Wet	R
Second Creek										
	0.30	1/18/2007	10:17	8.1	9	11	480	1100	Wet	R
	1.54	1/18/2007	09:57	7.9	9	10	2400	2400	Wet	R
	5.76	1/18/2007	09:20	7.2	15	6.4	40	22	Wet	R
	0.30	2/20/2007	10:41	8.1	10	11	<10	24	Dry	R
	1.54	2/20/2007	10:27	7.9	10	11	75	120	Dry	R
	5.76	2/20/2007	10:05	7.3	15	6.4	40	4	Dry	R
	0.30	3/26/2007	09:25	8.1	17	9.5	120	110	Dry	R
	1.54	3/26/2007	09:12	7.9	16	8.4	82	82	Dry	R
	5.76	3/26/2007	08:52	7.3	16	6.2	80	82	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.

0002625

Water Quality Monitoring Report

Routine Water Quality Monitoring Report

1/1/2007 Through 3/31/2007

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	1/16/2007	09:57	7.9	12	9.0	1100	1200	Wet	R
	2.08E	1/16/2007	10:15	7.8	11	8.7	700	770	Wet	R
	4.80W	1/16/2007	10:32	7.7	12	9.2	210	280	Wet	R
	0.87	2/9/2007	10:47	8.2	5	12	70	110	Dry	R
	2.08E	2/9/2007	09:57	7.6	3	12	310	230	Dry	R
	4.80W	2/9/2007	09:42	7.9	8	10	140	86	Dry	R
	0.87	3/19/2007	09:47	8.1	9	9.8	190	240	Wet	R
	2.08E	3/19/2007	09:35	7.9	8	10	100	74	Wet	R
	4.80W	3/19/2007	09:17	7.8	11	9.1	210	200	Wet	R
Fourth Creek										
	0.55	1/11/2007	08:51	7.7	9	10	75	93	Wet	R
	1.33	1/11/2007	08:36	7.4	10	10	400	460	Wet	R
	1.78	1/11/2007	08:21	7.8	10	10	160	170	Wet	R
	0.55	2/15/2007	09:48	7.9	7	11	260	440	Wet	R
	1.33	2/15/2007	09:32	7.8	7	11	220	460	Wet	R
	1.78	2/15/2007	09:22	8.0	8	11	1100	920	Wet	R
	0.55	3/27/2007	09:05	8.0	16	9.4	100	70	Dry	R
	1.33	3/27/2007	08:47	7.9	16	8.6	120	56	Dry	R
	1.78	3/27/2007	08:38	7.8	16	8.5	36	58	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.

0002626

Water Quality Monitoring Report

Routine Water Quality Monitoring Report

1/1/2007 Through 3/31/2007

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	1/17/2007	11:02	7.8	9	11	990	1000	Wet	R
	0.32	1/17/2007	11:15	8.0	6	12	820	980	Wet	R
	0.36S	1/17/2007	11:26	7.7	12	10	1400	1600	Wet	I
	0.15	2/16/2007	11:47	8.0	7	14	370	550	Wet	R
	0.32	2/16/2007	12:15	7.8	2	13	270	520	Wet	R
	0.36S	2/16/2007	12:00	7.9	12	10	2300	>2400	Wet	I
	0.15	3/21/2007	10:39	7.6	13	11	420	550	Dry	R
	0.32	3/21/2007	10:31	7.8	12	9.3	1500	1700	Dry	R
	0.36S	3/21/2007	10:19	7.4	15	8.6	560	1300	Dry	I
Goose Creek										
	0.35	1/9/2007	09:15	7.6	9	9.2	500	870	Wet	R
	0.90E	1/9/2007	09:24	7.8	9	9.8	2100	2400	Wet	R
	1.50E	1/9/2007	09:37	7.9	10	9.7	240	360	Wet	R
	0.35	2/6/2007	10:03	7.7	6	9.4	250	340	Wet	R
	0.90	2/6/2007	10:18	7.7	5	11	220	280	Wet	R
	1.50	2/6/2007	10:29	7.8	6	11	130	50	Wet	R
	0.35	3/12/2007	08:50	7.4	12	6.8	540	820	Dry	R
	0.90E	3/12/2007	09:05	7.5	10	9.1	240	460	Dry	R
	1.50E	3/12/2007	09:12	7.7	10	9.5	160	120	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.

0002627

Water Quality Monitoring Report

Routine Water Quality Monitoring Report

1/1/2007 Through 3/31/2007

Knoxville Utilities Board
Water Quality Laboratory
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	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	1/10/2007	11:04	7.8	9	11	130	190	Wet	R
	1.89	1/10/2007	11:20	7.4	10	9.7	50	78	Wet	R
	3.45	1/10/2007	11:33	7.7	8	11	200	260	Wet	R
	0.85	2/12/2007	10:07	7.7	8	12	300	320	Dry	R
	1.89	2/12/2007	09:52	7.5	9	9.8	45	42	Dry	R
	3.45	2/12/2007	09:40	7.7	8	10	35	57	Dry	R
	0.85	3/13/2007	12:10	8.0	15	11	82	86	Dry	R
	1.89	3/13/2007	12:26	7.5	14	9.8	20	20	Dry	R
	3.45	3/13/2007	12:37	7.8	15	9.7	<10	10	Dry	R
Williams Creek										
	0.53	1/12/2007	09:30	7.8	10	10	140	96	Dry	R
	1.12	1/12/2007	09:14	7.4	12	8.4	580	110	Dry	R
	1.67	1/12/2007	09:01	7.7	12	8.4	140	720	Dry	R
	0.53	2/13/2007	10:37	8.1	10	12	36	34	Dry	R
	1.12	2/13/2007	10:46	7.8	10	10	180	150	Dry	R
	1.67	2/13/2007	11:10	7.8	11	10	20	11	Dry	R
	0.53	3/9/2007	09:01	7.9	11	10	91	170	Dry	R
	1.12	3/9/2007	09:10	7.3	13	8.3	30	27	Dry	R
	1.67	3/9/2007	09:21	7.6	12	8.8	60	28	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.

0002628

Investigative Water Quality Monitoring Report

1/1/2007 Through 3/31/2007

Dry Weather Investigation

Williams Creek

Sample Location	Date	Time	Fecal Coliform (CFU/100 ml)	E. Coli MPN	pH	Dissolved Oxygen (mg/l)	Water Temperature (C)
Above 10 inch pipe	2/21/2007	9:37 AM	440	2000	7.8	9.5	10
Below 10 inch pipe	2/21/2007	9:45 AM	600	1600	7.7	9.5	10
At 10 inch pipe	2/27/2007	10:45 AM	2000	> 2400	7.5	9.1	10

00026629

Investigative Water Quality Monitoring Report

1/1/2007 Through 3/31/2007

Wet Weather Investigative Monitoring

Williams Creek (Creek Mile ~2.0)

Sample Location	Date	Time	Fecal Coliform (CFU/100 ml)	Fecal Strep. (CFU / 100 ml)	pH	Dissolved Oxygen (mg/l)	Water Temperature (C)
Louise Ave. Sample#1	3/1/2007	7:58 AM	140	320	7.8	8.4	11
Louise Ave. Sample#2	3/1/2007	12:11 PM	3600	N/A	7.8	9.9	10
Louise Ave. Sample#3	3/1/2007	9:30 PM	2800	N/A	7.6	8.7	12
Louise Ave. Sample#4	3/2/2007	11:16 AM	1000	2600	7.7	9.0	12

0002630

Investigative Water Quality Monitoring Report

1/1/2007 Through 3/31/2007

Wet Weather Investigative Monitoring
Williams Creek (Creek mile ~0.2)

Sample Location	Date	Time	Fecal Coliform (CFU/100 ml)	Fecal Strep. (CFU / 100 ml)	pH	Dissolved Oxygen (mg/l)	Water Temperature (C)
M.B.W Sample#1	3/1/2007	7:25 AM	220	99	7.9	8.5	10
M.B.W Sample#2	3/1/2007	11:37 AM	3900	N/A	7.8	10	9
M.B.W Sample#3	3/1/2007	8:57 PM	730	N/A	7.8	8.5	12
M.B.W Sample#4	3/2/2007	11:39 AM	380	3600	7.8	9.8	11

0002631

Investigative Water Quality Monitoring Report

1/1/2007 Through 3/31/2007

Wet Weather Investigative Monitoring

Williams Creek (Creek Mile ~2.2)

Sample Location	Date	Time	Fecal Coliform (CFU/100 ml)	Fecal Strep. (CFU / 100 ml)	pH	Dissolved Oxygen (mg/l)	Water Temperature (C)
Parkview Sample#1	3/1/2007	8:08 AM	150	180	7.6	7.6	11
Parkview Sample#2	3/1/2007	12:23 PM	3200	N/A	7.7	10	10
Parkview Sample#3	3/1/2007	9:35 PM	3100	N/A	7.7	9.3	12
Parkview Sample#4	3/2/2007	11:10 AM	1600	4600	7.7	10	12

0002632

Investigative Water Quality Monitoring Report

1/1/2007 Through 3/31/2007

Wet Weather Investigative Monitoring

Williams Creek (Creek Mile ~0.8)

Sample Location	Date	Time	Fecal Coliform (CFU/100 ml)	Fecal Strep. (CFU / 100 ml)	pH	Dissolved Oxygen (mg/l)	Water Temperature (C)
Riverside & Delrose Sample#1	3/1/2007	7:39 AM	140	50	7.9	9.3	10
Riverside & Delrose Sample#2	3/1/2007	11:49 AM	7300	N/A	7.9	9.8	10
Riverside & Delrose Sample#3	3/1/2007	9:08 PM	1400	N/A	7.8	9.2	12
Riverside & Delrose Sample#4	3/2/2007	11:32 AM	350	1800	7.7	10	12

0002633

Investigative Water Quality Monitoring Report

1/1/2007 Through 3/31/2007

Wet Weather Investigative Monitoring
Williams Creek (Creek Mile~1.7)

Sample Location	Date	Time	Fecal Coliform (CFU/100 ml)	Fecal Strep. (CFU / 100 ml)	pH	Dissolved Oxygen (mg/l)	Water Temperature (C)
S. Chestnut Sample#1	3/1/2007	7:52 AM	82	140	7.6	8.0	12
S. Chestnut Sample#2	3/1/2007	12:01 PM	2200	N/A	7.8	9.8	10
S. Chestnut Sample#3	3/1/2007	9:20 PM	3200	N/A	7.5	8.0	12
S. Chestnut Sample#4	3/2/2007	11:24 AM	460	2300	8.7	7.5	13

00026634

Water Quality Monitoring Report

Spill Impact Sampling Results
Water Quality Monitoring Program

Knoxville Utilities Board
Water Quality Laboratory
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Event Date 2/1/2007
Street Address 300 Kingston Court
Description SSO was caused by a partial blockage in the sewer main due to roots. The SSO discharged into a swale to Third Creek.

Estimated unrecovered volume 180 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**
	2/1/2007	0.35	0.01

Sample Location	Sample Date	Sample Time	Dissolved Oxygen	Temperature (Celsius)	pH	Fecal Coliform	E-Coli (MPN)
Upstream of SSO Discharge	2/1/2007	18:17	10	9	7.8	1300	2000
Downstream of SSO Discharge	2/1/2007	18:03	9.7	11	7.8	1500	2400

0002635

Water Quality Monitoring Report

Spill Impact Sampling Results
Water Quality Monitoring Program

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Event Date 2/15/2007
Street Address 3022 Boright Avenue
Description SSO was caused by a partial blockage in the sewer main due to debris caused by vandalism. The SSO discharged into a swale to an unnamed tributarty of First Creek.

Estimated unrecovered volume 450,020 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**
	2/15/2007	0	0.25

Sample Location	Sample Date	Sample Time	Dissolved Oxygen	Temperature (Celsius)	pH	Fecal Coliform	E-Coli (MPN)
Upstream of SSO Discharge	2/15/2007	14:08	12	8	12	170	310
Downstream of SSO Discharge	2/15/2007	14:13	11	8	12	50000	>2400
Upstream of SSO Discharge	2/19/2007	09:40	12	11	7.6	290	260
Downstream of SSO Discharge	2/19/2007	09:44	12	10	8.0	450	1000
Upstream of SSO Discharge	2/22/2007	09:50	11	13	8.0	220	390
Downstream of SSO Discharge	2/22/2007	09:53	10	13	8.0	320	460

0002636

Water Quality Monitoring Report

Spill Impact Sampling Results
Water Quality Monitoring Program

Knoxville Utilities Board
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Event Date 3/3/2007

Street Address 2004 Neyland Drive

Description SSO was caused when the influent gates to the Kuwahee Wastewater Treatment plant were closed to prevent long term damage to the plant during an extended power outage. SSO discharged into the Tennessee River.
Riverbank samples were collected to confirm that posting along the river downstream was not necessary.

Estimated unrecovered volume 1,170,000 gallons

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

Precipitation (McGhee-Tyson Airport)	Date	Total - Day of Event	Total - Prior 4 Days
	3/3/2007	0	0.97

Sample Location		Sample Date	Sample Time	Dissolved Oxygen	Temperature (Celsius)	pH	Fecal Coliform	E-Coli (MPN)
Downstream of SSO Discharge	~3000 feet from SSO	3/3/2007	19:42	N/A	N/A	N/A	400	300
Downstream of SSO Discharge	~ 5 miles from SSO	3/3/2007	19:53	N/A	N/A	N/A	240	410

0002637

Water Quality Monitoring Report

Spill Impact Sampling Results
Water Quality Monitoring Program

Knoxville Utilities Board
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Event Date 3/3/2007
Street Address 2015 Neyland Drive
Description SSO occurred when a sump pump force main ruptured causing sewage backflow into a basement at the Kuwahee Waterwater Treatment Plant during a power outage. When power was restored a groundwater sump pump pumped the water into a ditchline to Third Creek.

Estimated unrecovered volume 1,000 gallons

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

Precipitation (McGhee-Tyson Airport)	**Date**	**Total - Day of Event**	**Total - Prior 4 Days**
	3/3/2007	0	0.97

Sample Location	Sample Date	Sample Time	Dissolved Oxygen	Temperature (Celsius)	pH	Fecal Coliform	E-Coli (MPN)
Upstream of SSO Discharge	3/3/2007	19:20	9.9	11	7.7	110	190
Downstream of SSO Discharge	3/3/2007	19:30	10	11	8.0	110000	>2400
Upstream of SSO Discharge	3/6/2007	10:37	9.4	11	7.4	45	110
Downstream of SSO Discharge	3/6/2007	10:42	9.8	10	7.8	50	120

0002638

Water Quality Monitoring Report

Spill Impact Sampling Results
Water Quality Monitoring Program

Knoxville Utilities Board
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Event Date 3/22/2007
Street Address 4744 South Middlebrook Pike
Description SSO was caused by a partial blockage in the sewer main caused by roots and debris. The SSO discharged from a storm drain into an unnamed tributary to Third Creek.

Estimated unrecovered volume 1,500 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**
	3/22/2007	0	0.06

Sample Location	Sample Date	Sample Time	Dissolved Oxygen	Temperature (Celsius)	pH	Fecal Coliform	E-Coli (MPN)
Upstream of SSO Discharge	3/22/2007	20:00	7.1	16	7.8	91	110
Downstream of SSO Discharge	3/22/2007	20:15	4.2	15	7.8	> 600000	> 2400
Upstream of SSO Discharge	3/26/2007	08:28	4.1	16	7.9	1500	1200
Downstream of SSO Discharge	3/26/2007	08:37	2.2	15	7.7	140	130

0002639

Water Quality Monitoring Report

Spill Impact Sampling Results
Water Quality Monitoring Program

Knoxville Utilities Board
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Event Date 3/29/2007
Street Address 3804 West Blount Avenue
Description SSO originated from an open, abandoned lateral in a wet-weather conveyance adjacent to the sewer main. The SSO discharged into a ditch to an unnamed tributary of Goose Creek.

Estimated unrecovered volume 588 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**
	3/29/2007	0.19	0

Sample Location	Sample Date	Sample Time	Dissolved Oxygen	Temperature (Celsius)	pH	Fecal Coliform	E-Coli (MPN)
Upstream of SSO Discharge	3/29/2007	18:05	8.3	19	7.7	270	280
Downstream of SSO Discharge	3/29/2007	18:10	7.8	19	7.6	2100	1300
Upstream of SSO Discharge	4/2/2007	14:00	8.7	18	7.9	800	1000
Downstream of SSO Discharge	4/2/2007	13:50	7.8	19	7.7	1200	1600
Upstream of SSO Discharge	4/5/2007	13:29	9.6	13	7.9	1200	690
Downstream of SSO Discharge	4/5/2007	13:22	9.2	13	7.8	1400	980
Upstream of SSO Discharge	4/10/2007	14:22	10	12	8.0	240	440
Downstream of SSO Discharge	4/10/2007	14:17	9.9	12	7.9	640	1000

0002640