

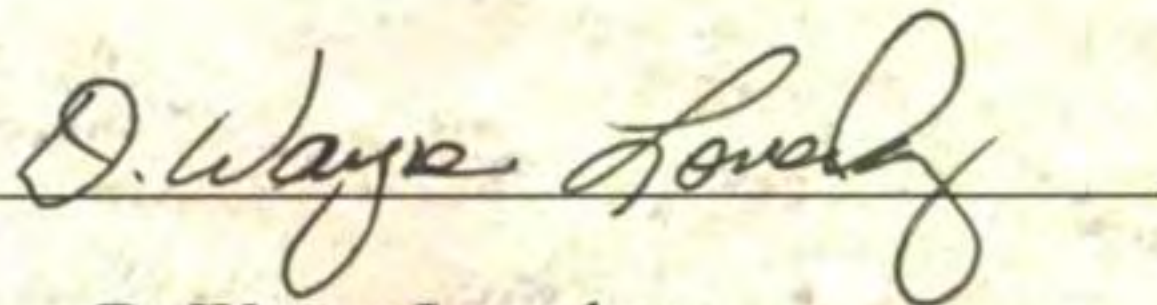
Quarterly Progress Report

Volume 12

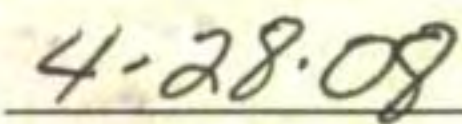
**First Quarter Report
January 1 through March 31, 2008**

Submitted to EPA on April 28, 2008

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



Date



0003127

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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 2008 from January 1 through March 31. This is the twelfth 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.

January 28, 2008

- Submitted to EPA – Quarterly Progress Report 4th quarter 2007

January 30, 2008

- Submitted to EPA – SEP Periodic Report 2nd period 2007

February 29, 2008

- Submitted to EPA – Annual MOM Progress Report 2007

March 21, 2008

- Submitted to EPA – Revised Composite Correction Plan

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

There were no requests for project extensions or changes during this reporting period.

EPA Approved Project Extensions and Changes

All previously approved project extensions and changes are listed below.

- **1-1 Upper First Creek Collector Project (Mini-basin 1A1, 2A2, and 3D1)** – 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 and was completed as scheduled.
- **2-5 Rickard and Wilson Collector Rehabilitation (Sewershed 10C1)** – End date was extended to September 2007 and was completed as scheduled.
- **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 08/09

The following is a list of facility improvement projects included in the Capital Improvement Plan for fiscal years 04/05 to 08/09. 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 is underway and is estimated to be complete in June 2008.
2. **Sub-Basin 8B2** – Characterize the condition of 24,900 ft of pipe to determine rehabilitation needs. Project is substantially complete.
3. **1-1 Upper First Creek Collector Project (Mini-basin 1A1, 2A2, and 3D1)** – Find and fix work to identify and address cause of overflow in the vicinity of 4811 Beverly Road, 4144 Oakland Drive, and 5511 Dogwood Road. Project scope was expanded to include comprehensive assessment of the entire sub-basin (approximately 105,000 ft). Assessment is complete and design is underway. Construction is scheduled to begin in July 2008. An extension for this project was approved in August 2006. Due to the expanded scope, an additional extension will be requested in the Phase I CAP/ER Annual Report 2008.

Second Creek

1. **Lower Second Creek Replacement/Rehabilitation at I40/I275 Junction** – Perform sewer system assessment and design rehabilitation and replacement of various trunk and collector lines located in sub-basin 23 near the intersection of interstates 40 and 275. Sewer assessment is underway. Design is underway. Construction is scheduled to begin immediately in FY 08/09.
2. **Lower Second Creek Replacement/Rehabilitation at Woodland** – Perform sewer system assessment and design rehabilitation and replacement of various trunk and collector lines located in sub-basin 23 near Woodland Avenue. Sewer assessment is underway. Design is underway. Construction is scheduled to begin immediately in FY 08/09.

Third Creek

1. **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 rehabilitation of 9A1, 9A2, 9A4, and 9D1 (CAP/ER Scope) is complete. Additional rehabilitation in the sub-basin (Phase II) is underway and will be completed in FY 08/09.

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 force main is complete, work on the pump station is scheduled to be complete in July 2008.
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 construction is complete. Phase II construction has been initiated and will be completed in FY 08/09.
3. **Neubert Springs Collector and West Ford Valley Trunk Rehabilitation** – The project to rehabilitate 10000 ft of 15- to 18-inch trunk sewer along West Ford Valley Road is complete. Find work in sub-basins 41C1, 41C2, and 41A2 is complete and detailed design is underway. Phase I rehabilitation has begun and construction of planned rehabilitation will be completed in FY 08/09.

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** – Rehabilitated 26,500 ft of line and replaced 10,500 ft. Project included CCTV, smoke testing, and manhole inspections.
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.
8. **Fountain City Trunkline Replacement** - Replaced and upgraded approximately 6000 ft of trunk sewer connecting lines in upper Fountain City to Upper First Creek storage tank. The project addressed SSOs along Broadway, Cedar Lane, and Fountain Road.

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*** - Investigated 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.
5. **Third Creek Basin 11** – Assessed and rehabilitated approximately 129,657 ft in sub-basin 11. Project included inspection (CCTV, smoke test, manhole inspections), design, and rehabilitation of lines requiring repair.
6. **Third Creek Road Trunk Sewer Replacement** – Project included approximately 3100 ft of 24-inch and 30-inch trunkline. The project replaced and upgraded the trunkline from Western Avenue along Third Creek to the Third Creek storage facility. It addressed overflows occurring at 5600 Western Avenue. Project was extended approximately 2000 ft to reach the new location of the Third Creek Storage Facility at the KUB Hoskins Center.

Fourth Creek

1. **Pinebrook Drive Sewer Replacement** – Replaced 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.
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 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 replaced 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.

On November 19, 2007, KUB received notice from EPA extending their review period of the CCP until December 22, 2007. On January 4, 2008, KUB received a letter from EPA disapproving the CCP. In a letter dated February 20, 2008, KUB requested to extend the deadline for responding to EPA's comments until March 25, 2008.

KUB submitted the Revised CCP to EPA on March 21, 2008. In a letter received on March 24, 2008, EPA approved KUB's request to extend the deadline for resubmittal until March 25, 2008.

Section 3 Process Controls Program

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

The Process Controls Program (PCP) was implemented one time at Kuwahee WWTP during this reporting period. All checklists and flowcharts were followed and the diversion was based on PCP parameters.

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 Quarterly Progress Report Fourth 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 January 28, 2008, KUB submitted to EPA and placed in the PDR the Quarterly Progress Report for the fourth quarter 2007. This deliverable was not subject to the Public Review Requirement of Section VI.A.2, but was available for public comment from January 28, 2008, until February 15, 2008. No comments were received during that period.

6.1.2 SEP Periodic Report Second 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 January 30, 2008, KUB submitted the SEP Periodic Report for the second period 2007 to EPA. This deliverable was not subject to public review but was posted in the PDR at the time of submission.

6.1.3 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 29, 2008, KUB submitted to EPA and placed in the PDR the Annual MOM Progress Report for 2007. This deliverable was not subject to the Public Review Requirement of Section VI.A.2, but was available for public comment from

February 29, 2008, until March 20, 2008. One comment was received during that period.

6.1.4 Revised 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. On November 19, 2007, KUB received notice from EPA extending their review period until December 22, 2007.

KUB received a letter from EPA on January 4, 2008 disapproving the CCP. In a letter dated February 20, 2008, KUB requested to extend the deadline for responding to EPA's comments until March 25, 2008.

KUB submitted the Revised CCP to EPA on March 21, 2008. The Revised CCP was placed in the PDR on March 24, 2008. In a letter received on March 24, 2008, EPA approved KUB's request to extend the deadline for resubmittal until March 25, 2008.

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	1/7/2008	1530 Louisiana Avenue	Blockage
Unpermitted Discharge	2/4/2008	516 North Beaman Street	Blockage
Unpermitted Discharge	2/5/2008	1338 Oglesby Road	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 26 SSO events. Of that number, 12 were due to blockages by either grease, debris, roots, or a combination thereof; six were due to broken pipe; three were due to mechanical failure; two were due to construction failure; two were due to electrical failure; and one was due to vandalism. Of the 26 SSO events, 22 were in the 0 – 1000 gallons volume range, two were in the 1001 – 10,000 range, one event totaled greater than 10,000 gallons, and the volume was unknown for one event. Durations for events during this period are as follows: 19 ranged from 0 – 2 hours, three ranged from 2.1 - 5 hours, 2 were greater than 5 hours, and the duration was unknown for two events.

7.2 Building Backups

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

7.3 Bypasses

No Bypasses occurred during this reporting period.

7.4 Diversions

Table 2 contains all Diversion event information that occurred during this reporting period. During this reporting period, there was one Diversion at Kuwahee WWTP. No Diversions occurred at Fourth Creek, Loves Creek, or Eastbridge WWTPs.

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 Kuwahee. No effluent limit violations occurred at Fourth Creek, Loves Creek, or Eastbridge WWTPs.

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	Yes	Diversion	2/4/08	18:00			2/4/08	1.5	2.68	1.5	2.68	High flow event due to excess rainfall
Fourth Creek	No				2/4/08	19:30						
Loves Creek	No											
Eastbridge	No											

Table 3: Effluent Limit Violations

WWTP	Did an event occur?	Date	Parameter	Type	Limit	Value
Kuwahee	Yes	2/6/08	TSS	Daily max	45 mg/l	48 mg/l
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, and responding to Sanitary Sewer Overflows, KUB Water Quality Personnel conducted a Dry Weather Walking Survey on Goose Creek, Wet Weather Investigative Monitoring on Baker Creek and Location of Source Testing on Goose Creek.

On January 28, 2008, Water Quality personnel walked the entire 2.3 miles of the main stream of Goose Creek as well as portions of the creek's West Branch. Goose Creek also contains several significant tributaries, which are denoted "Tributary" in the data tables. During the survey, Water Quality personnel collected samples at least every quarter mile, at every sewer crossing (both upstream and downstream), at tributary points of entry, and where there was evidence of possible point sources. Fecal coliform analysis of the subsequent samples indicated elevated counts towards the mouth of the creek as well as two slightly elevated counts further upstream. Field observations indicated that a family of beavers had dammed the creek up in the most downstream region causing decreased water flow in the area. The combination of decreased flow and aquatic mammals living in the area may have contributed to the elevated fecal counts. Subsequent Location of Source testing was conducted at five areas on the creek that indicated elevated fecal coliform counts. The majority of the sampling was concentrated around the furthest downstream areas as well as investigating the West Branch of the creek as a possible source for fecal bacteria. In addition to fecal coliform and water quality measurements, samples were analyzed for *E. coli* and collected for possible RT-PCR source testing. The fecal coliform and *E. coli* counts of these samples were significantly decreased, below the water quality standard, and too low to provide reliable RT-PCR source testing information. The decrease in fecal coliform counts may be attributed to higher creek flows, and the possible absence of the beavers and their dam. Monitoring personnel will continue to monitor Goose Creek at the three routine monitoring sites as well as conduct additional Location of Source testing due to the elevation in fecal coliform counts around routine site 0.90 and the tributary located at stream mile 1.53.

KUB completed a Wet Weather Investigative Monitoring Event for Baker Creek in March 2008. During this event KUB personnel collected four sets of samples at four different locations along Baker Creek; before, during, and after a rainfall of approximately 1.0 inch, which began on 3/4/2008. 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). In addition, a fifth set of samples was collected two weeks after the rainfall event. All samples were analyzed for fecal coliform and *E. coli*. Samples were also collected for RT-PCR testing at each site, during each sampling event. As expected, fecal coliform counts increased as the rainfall event progressed. Although peak flow was reached at sample set 2, the majority of the sampling sites did not reach peak fecal coliform counts until sample sets 2 and 3. Impacts from runoff are most significant during peak stream flows. This was evident in all of the 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. Although impacts from any leaking or surcharging sewer pipes generally result in increased counts just after peak stream flow (sample set 3), the magnitude of the fecal coliform counts do

not definitively prove the presence or absence of sewer leaks. A second sampling event as well as RT-PCR results will provide additional data to determine the source of the fecal count elevations. All of the sampling areas had significantly elevated fecal coliform counts after the peak stream flow (sample set 3). Two of the four sampling sites on Baker Creek were below the water quality standard after the rainfall (sample set 4). Two weeks after the rainfall event, all but one of the sampling sites had fallen below water quality standards for *E. coli*. This sample was located at routine site 1.45, which has exhibited elevated fecal counts during routine monitoring. KUB personnel will continue with Location of Source testing to help determine possible sources of the elevation in that area. All twenty-five samples were submitted for RT-PCR source testing but that data is unavailable at the present time. The data, further explanation, and conclusions will be presented in the next quarter.

KUB Water Quality personnel also responded to a sanitary sewer overflow on Louisiana Avenue in January 2008. The overflow was discharged into a tributary, which flowed into Third Creek. The original samples taken on January 7, 2008 were collected in the no flow tributary. Additional sampling was conducted on January 8, 2008 to determine if the overflow had impacted the main stream of Third Creek.

During the *E. coli* analysis for Loves Creek on February 7, 2008, an equipment failure occurred, causing the analysis to be invalidated. The fecal coliform counts for the creek were considerably below the water quality standard, and therefore, KUB does not believe there were any *E. coli* count elevations in the creek at that time.

8.2 Projected Data Collection

During the second quarter of 2008, 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 2008:

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	0.45	1.19E	1.80E
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 Goose Creek based on the mileage information obtained during a dry weather walking survey in January of 2008. This more accurately represents the locations sampled and is reflected in the above table. The updated routine monitoring sites for Goose Creek will be utilized in future reports.

In the second quarter of 2008, KUB will conduct a second Wet Weather Monitoring event on Baker Creek, as well as conduct further Location of Source testing on Baker and Goose Creek.

Appendix A

Capital Projects and Rehabilitation Credits

Capital Projects and Rehabilitation Credits

	Project Name	Credit Type	Basin	WWTP	Credits Banked (gpd)	Status
1	Comprehensive Rehab 03B1a	Comprehensive Rehabilitation	1st Creek	Kuwahee	321,030	Project Complete
2	Comprehensive Rehab 03B2a	Comprehensive Rehabilitation	1st Creek	Kuwahee	302,366	Project Complete
3	Comprehensive Rehab 04B1a	Comprehensive Rehabilitation	1st Creek	Kuwahee	334,626	Project Complete
4	Comprehensive Rehab 08A1	Comprehensive Rehabilitation	1st Creek	Kuwahee	1,589,952	Project Complete
5	McC Campbell Lane Sewer Replacement	Find & Fix Gravity Main	1st Creek	Kuwahee	25,543	Project Complete
6	Knox Road Trunkline Replacement	Find & Fix Gravity Main	1st Creek	Kuwahee	36,728	Project Complete
7	vented manhole cover replacement (7A1)	Manhole Cover	1st Creek	Kuwahee	13,333	Project Complete
8	vented manhole cover replacement (7A1)	Manhole Cover	1st Creek	Kuwahee	13,333	Project Complete
9	vented manhole cover replacement (7A1)	Manhole Cover	1st Creek	Kuwahee	13,333	Project Complete
10	Comprehensive Rehab 15D2	Comprehensive Rehabilitation	2nd Creek	Kuwahee	1,450,008	Project Complete
11	Comprehensive Rehab 05A4 & 05A3	Comprehensive Rehabilitation	2nd Creek	Kuwahee	43,904	Project Complete
12	Comprehensive Rehab 09A2	Comprehensive Rehabilitation	3rd Creek	Kuwahee	296,664	Project Complete
13	Comprehensive Rehab 09A1	Comprehensive Rehabilitation	3rd Creek	Kuwahee	219,345	Project Complete
14	Walker Springs Storage Tank	Storage Tank	4th Creek	Fourth Creek	3,250,000	Project Complete
15	Comprehensive Rehab 40F1	Comprehensive Rehabilitation	South Knox / Knob Creek	Kuwahee	83,600	Project Complete
16	Comprehensive Rehab 41A4	Comprehensive Rehabilitation	South Knox / Knob Creek	Kuwahee	371,994	Project Complete
17	Comprehensive Rehab 41B1	Comprehensive Rehabilitation	South Knox / Knob Creek	Kuwahee	152,958	Project Complete
18	Wilson Ave, Chesnut St., Donnell St. (Asset Replacement)	Find & Fix Gravity Main	Williams Creek	Kuwahee	28	Project Complete
19	Williams Creek Trunkline Replacement	Find & Fix Gravity Main	Williams Creek	Kuwahee	168,667	Project Complete
20	Rushland Park Off Site Sewer Rehabilitation	Find & Fix Gravity Main	Loves Creek	Loves Creek	3,803	Project Complete
21	Emily Avenue Pump Station Abandonment	Find & Fix Gravity Main	Loves Creek	Loves Creek	141,600	Project Complete
22	Fair Drive - Phase I	Find & Fix Gravity Main	1st Creek	Kuwahee	130,928	Project Complete
23	Comprehensive Rehab 23E1	Comprehensive Rehabilitation	2nd Creek	Kuwahee	4,215,003	Project Complete
24	vented manhole cover replacements (08B2)	Manhole Cover	1st Creek	Kuwahee	4,669	Project Complete
25	vented manhole cover replacement (16B1)	Manhole Cover	1st Creek	Kuwahee	667	Project Complete
26	vented manhole cover replacements (28C1)	Manhole Cover	3rd Creek	Kuwahee	1,334	Project Complete
27	10" mainline replacement (33A2)	Find & Fix Gravity Main	4th Creek	Fourth Creek	5,409	Project Complete
28	vented manhole cover replacements (22C2)	Manhole Cover	3rd Creek	Kuwahee	16,002	Project Complete
29	vented manhole cover replacements (63)	Manhole Cover	Sinking Creek	Loves Creek	66,665	Project Complete
30	10" mainline replacement (6C1)	Find & Fix Gravity Main	Loves Creek	Loves Creek	24,620	Project Complete
31	Comprehensive Rehab 06A5	Comprehensive Rehabilitation	Loves Creek	Loves Creek	263,358	Project Complete
32	Comprehensive Rehab 06A4	Comprehensive Rehabilitation	Loves Creek	Loves Creek	386,304	Project Complete
33	vented manhole cover replacement (39D2)	Manhole Cover	South Knox / Knob Creek	Kuwahee	667	Project Complete
34	vented manhole cover replacement (39D4)	Manhole Cover	South Knox / Knob Creek	Kuwahee	667	Project Complete
35	vented manhole cover replacement (39D3)	Manhole Cover	South Knox / Knob Creek	Kuwahee	2,668	Project Complete
36	vented manhole cover replacement (20A6)	Manhole Cover	Loves Creek	Loves Creek	1,334	Project Complete
37	vented manhole cover replacement (20A7)	Manhole Cover	Loves Creek	Loves Creek	667	Project Complete
38	vented manhole cover replacement (13A2)	Manhole Cover	3rd Creek	Kuwahee	667	Project Complete
39	vented manhole cover replacement (13B1)	Manhole Cover	3rd Creek	Kuwahee	13,335	Project Complete
40	vented manhole cover replacement (28B1)	Manhole Cover	3rd Creek	Kuwahee	1,334	Project Complete
41	12" mainline replacement (44)	Find & Fix Gravity Main	South Knox / Knob Creek	Kuwahee	4,278	Project Complete
42	manhole frame seal repair (67)	Manhole Repair	Loves Creek	Loves Creek	2,304	Project Complete
43	Whites Creek Trunk Line Replacement (02)	Find & Fix Gravity Main	1st Creek	Kuwahee	50,106	Project Complete
44	Comprehensive Rehab 09D1	Comprehensive Rehabilitation	3rd Creek	Kuwahee	381,376	Project Complete
45	Comprehensive Rehab 09A4	Comprehensive Rehabilitation	3rd Creek	Kuwahee	408,317	Project Complete
46	Lower First Creek Storage Tank	Storage Tank	1st Creek	Kuwahee	5,000,000	Project Complete
47	vented manhole cover replacement (11B2)	Manhole Cover	3rd Creek	Kuwahee	13,333	Project Complete
48	vented manhole cover replacement (13C1)	Manhole Cover	3rd Creek	Kuwahee	2,667	Project Complete
49	vented manhole cover replacement (22A2)	Manhole Cover	3rd Creek	Kuwahee	667	Project Complete
50	vented manhole cover replacement (22B1)	Manhole Cover	3rd Creek	Kuwahee	667	Project Complete
51	Creek Head Drive sewer line replacement (32A4)	Find & Fix Gravity Main	4th Creek	Fourth Creek	11,132	Project Complete
52	Manhole replacement (19A3)	Find & Fix Gravity Main	Williams Creek	Kuwahee	207	Project Complete
53	Papernill 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	Papernill drive sewer line replacement (27A1)	Find & Fix Gravity Main	Fourth Creek	Fourth Creek	18,211	Project Complete
60	Wilson Rd Manhole Rehab (10C1)	Find & Fix Gravity Main	2nd Creek	Kuwahee	831	Project Complete
61	Maryville Pike Trunk Replacement (39C1)	Find & Fix Gravity Main	South Knox / Knob Creek	Kuwahee	72,880	Project Complete
62	Upper McKamey Trunk Replacement (11B1 11B2)	Find & Fix Gravity Main	3rd Creek	Kuwahee	64,324	Project Complete
63	Fox Manor Blvd sewer line replacement (32A4)	Find & Fix Gravity Main	4th Creek	Fourth Creek	31,510	Project Complete
64	Power Park Manhole Rehab (47)	Manhole Repair	South Knox / Knob Creek	Kuwahee	7,700	Project Complete
65	Sutherland Ave Sewer Line Replacement (28B1)	Find & Fix Gravity Main	3rd Creek	Kuwahee	20,383	Project Complete
66	Fountain City Trunkline Replacement (03B1 03B2)	Find & Fix Gravity Main	1st Creek	Kuwahee	72,512	Project Complete
67	vented manhole cover replacement (11B2)	Manhole Cover	4th Creek	Fourth Creek	13,333	Project Complete
68	vented manhole cover replacement (39D2)	Manhole Cover	South Knox / Knob Creek	Kuwahee	13,333	Project Complete
69	Comprehensive Rehabilitation 19A2	Comprehensive Rehabilitation	Williams Creek	Kuwahee	521,631	Project Complete

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Capital Projects and Rehabilitation Credits

	Project Name	Credit Type	Basin	WWTP	Credits Banked (gpd)	Status
70	17B1 Manhole Replacement	Find & Fix Gravity Main	1st Creek	Kuwahee	1,803	Project Complete
71	Vine Middle School sewerline Rehab (24D1)	Find & Fix Gravity Main	1st Creek	Kuwahee	23,491	Project Complete
72	Comprehensive Rehabilitation (08B2)	Comprehensive Rehabilitation	1st Creek	Kuwahee	841,370	Project Complete
73	Third Creek Storage Tank (21A1)	Storage Tank	3rd Creek	Kuwahee	4,000,000	Project Complete
74	Comprehensive Rehabilitation (19A1)	Comprehensive Rehabilitation	Williams Creek	Kuwahee	313,938	Project Complete
75	Comprehensive Rehabilitation (19B1)	Comprehensive Rehabilitation	Williams Creek	Kuwahee	328,300	Project Complete
76	Comprehensive Rehabilitation (10B1)	Comprehensive Rehabilitation	2nd Creek	Kuwahee	191,698	Project Complete
77	Comprehensive Rehabilitation (10C1)	Comprehensive Rehabilitation	2nd Creek	Kuwahee	67,840	Project Complete
78	Disconnected Stormwater Detention Pond Sevier Ave (40C1)	Disconnect Storm Sewer	South Knox / Knob Creek	Kuwahee	97,333	Project Complete
79	Sub Basin 63 Sinking Creek Drainage rehabilitation (63)	Comprehensive Rehabilitation	South Knox / Knob Creek	Loves Creek	72,110	Project Complete
80	West Ford Valley Trunkline replacement (41A1)	Find & Fix Gravity Main	South Knox / Knob Creek	Kuwahee	236,704	Project Complete
81	Blount Avenue Trunkline Replacement (39A1)	Find & Fix Gravity Main	South Knox / Knob Creek	Kuwahee	225,376	Project Complete
82	Brookvale Point Repairs (02A3)	Find & Fix Gravity Main	1st Creek	Kuwahee	52,079	Project Complete
83	Park Pump Point Repairs (45)	Find & Fix Gravity Main	South Knox / Knob Creek	Kuwahee	11,522	Project Complete
84	Wayland Road Storage Tank (67)	Storage Tank	Loves Creek	Loves Creek	20,000	Project Complete

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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
1/5/2008	12:45 PM	2513	SABLE POINT LANE	LC	Loves Creek	105	MH 48-3	Soil Saturation		A contractor did not removed a sewer plug during a construction project.	39,000	0	39,000	72	No
1/7/2008	2:29 PM	1530	LOUISIANA AVENUE	KUW	Third Creek	22	Abandoned Lateral	East Fork of Third Creek	Third Creek	The sewer main was manually-cleaned and flushed to remove the blockage caused by heavy debris.	6,800	3,400	3,400	4	Yes
1/8/2008	4:00 PM	7912	LIVINGSTON DRIVE	FC	Fourth Creek	42	MH 28-1	Soil Saturation		The sewer main was flushed to remove the blockage caused by roots and debris.	120	0	120	1	No
1/22/2008	5:20 PM	624	SOUTHBROOK DRIVE	KUW	Knob Creek	41	Lateral Cleanout	Swale to Wet-Weather Conveyance to Soil Saturation		Evidence indicates that the SSO occurred during the air test of a new main by a rehabilitation contractor.	249	0	249	1	No
1/28/2008	4:46 PM	501	NOELTON DRIVE	KUW	Third Creek	38	MH 50-7	Pavement to Storm Drain to Soil Saturation		The sewer main was flushed to remove the blockage caused by grease and debris.	180	0	180	1	No
1/29/2008	10:19 AM	509	TREHAVEN DRIVE	KUW	Second Creek	10	MH 24-48	Pavement to Soil Saturation		The sewer main was flushed to remove the blockage caused by roots and grease.	55	0	55	1	No
1/30/2008	12:10 PM	2101	LAUREL AVENUE	KUW	Third Creek	358	MH 23-17	Pavement to Storm Drain to Soil Saturation		The sewer main was flushed to remove the blockage caused by rags and debris.	180	0	180	0.5	No
2/4/2008	2:08 PM	516	NORTH BEAMAN STREET	LC	Loves Creek	20	MH 61-8	Swale to Chilhowee Park Lake	Chilhowee Park Lake	The sewer main was flushed to remove the blockage caused by roots and was influenced by heavy rainfall.	180	0	180	1	Yes
2/5/2008	3:41 PM	1338	OGLESBY ROAD	LC	Loves Creek	66	Leaking Force Main	Swalt to Ditch to Unnamed Tributary of Inman Branch	Inman Branch	The force main was repaired.	560	0	560	2	Yes
2/6/2008	4:28 PM	200	AVENUE C	KUW	South Knoxville	39	MH 40-27 & BBU	Pavement to Swale to Soil Saturation		The sewer main was flushed to remove the blockage caused by grease.	480	0	480	2	No
2/13/2008	2:15 PM	4315	RUTLEDGE PIKE	LC	Loves Creek	20	Wetwell	Soil Saturation		The electrical breaker on the commercial grinder pump station was turned back on.	100	0	100	Unknown	No
2/17/2008	3:44 PM	206	CREEK STONE LANE	EB	Eastbridge	72	Service Connection	Soil Saturation		The service connection on the low-pressure force main was repaired.	180	0	180	6	No
2/18/2008	11:12 AM	2015	NEYLAND DRIVE	KUW	Third Creek	358	Primary Sludge Pipe	Soil Saturation		The leak from a primary sludge pipe was repaired.	2,128	0	2,128	0.083	No
2/18/2008	12:13 PM	1483	EAST WEISGARBER ROAD	FC	Fourth Creek	27	Leaking Pipe Joint	Soil Saturation		The sewer main joint was repaired.	10	0	10	5	No
2/19/2008	2:40 PM	5364	NORTH BROADWAY	KUW	First Creek	3	MH 10-4	Pavement to Evaporation and Soil Saturation		The sewer main was flushed to remove the blockage caused by grease and debris.	5	0	5	0.5	No
2/18/2008	11:12 AM	2015	NEYLAND DRIVE	KUW	Third Creek	358	Primary Sludge Pipe	Soil Saturation		The sewer main was physically cleaned and flushed to remove the blockage caused by debris and due to vandalism.	5	0	5	0.5	No
2/21/2008	11:40 AM	4257	SKYLINE DRIVE	LC	Loves Creek	20	MH 47-15	Soil Saturation		The sewer main was flushed to remove the blockage caused by grease.	145	0	145	2	No
2/21/2008	7:32 PM	1105	PARK HILL CIRCLE	FC	Fourth Creek	27	MH 49-87	Swale to Soil Saturation		The mechanical failure of the residential grinder pump was repaired.	1	0	1	0.08	No
3/2/2008	10:48 AM	1720	POLKWRIGHT LANE	FC	Fourth Creek	37	Wetwell	Soil Saturation		The sewer main was flushed to remove the blockage caused by debris.	180	0	180	1	No
3/3/2008	10:54 AM	2108	BELCARO DRIVE	KUW	First Creek	4	MH 18-117	Soil Saturation		The sewer lateral was flushed to remove the blockage caused by debris.	1	0	1	0.25	No
3/11/2008	2:49 PM	4623	WEBB LANE	KUW	Third Creek	21	Lateral Cleanout	Soil Saturation		The sewer main was flushed to remove the blockage caused by debris.	180	0	180	1	No
3/17/2008	11:15 PM	5601	CEDAR HEIGHTS ROAD	KUW	Second Creek	5	MH 35-22	Soil Saturation		The sewer main was flushed to remove the blockage caused by debris.	360	0	360	1	No
3/24/2008	11:40 PM	5219	BENT RIVER BOULEVARD	FC	Fourth Creek	43	Wetwell & BBU	Soil Saturation		The mechanical failure of the residential grinder pump was repaired.	15	5	10	1	No
3/25/2008	12:00 PM	4710	MURPHY ROAD	KUW	First Creek	2	Wetwell	Swale and Pavement to Soil Saturation		The mechanical failure of the residential grinder pump was repaired.	14	0	14	2	No
3/26/2008	3:16 PM	3706	ROBERTS ROAD	EB	Eastbridge	113	Leaking Force Main	Soil Saturation		The force main was repaired.	810	0	810	2	No
3/28/2008	11:30 AM	1801	EAST FIFTH AVENUE	KUW	First Creek	24	Leaking Pipe	Soil Saturation		The leaking pipe was repaired.	Unknown	0	Unknown	Unknown	No
3/30/2008	5:45 PM	5315	BENT RIVER BOULEVARD	FC	Fourth Creek	43	Wetwell	Swale to Soil Saturation		The electrical breaker on the residential grinder pump station was turned back on.	50	0	50	4	No

Appendix C

Building Backups

BBUs

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)
1/25/2008	8:23 AM	2446	MARTIN L. KING JR. AVENUE	KUW	Williams Creek	19	BBU	The contractor did not re-establish the service connection after a rehabilitation project.	450	450	0	Unknown
2/4/2008	8:58 PM	3500	ARGYLE DRIVE	LC	Loves Creek	26	BBU	The sewer main was flushed to remove the blockage caused by roots.	2	2	0	0.5

Appendix D

Water Quality Monitoring Program Sampling Results



Routine Water Quality Monitoring Report

1/1/2008 Through 3/31/2008

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	1/30/2008	10:00	7.6	10	7.9	1900	1400	Wet	R
2.57	1/30/2008	09:17	7.8	10	8.0	420	490	Wet	R
6.33	1/30/2008	09:01	7.7	11	8.5	200	180	Wet	R
0.45	2/27/2008	09:49	8.0	10	11	2200	610	Wet	R
2.57	2/27/2008	09:12	8.1	8	10	180	200	Wet	R
6.33	2/27/2008	09:00	7.6	10	8.9	50	82	Wet	R
0.45	3/14/2008	09:20	7.8	13	11	110	150	Dry	R
2.57	3/14/2008	09:01	7.5	13	9.4	100	100	Dry	R
6.33	3/14/2008	08:45	7.3	14	8.1	73	89	Dry	R
Second Creek									
0.30	1/29/2008	09:27	8.0	10	10	< 10	1	Dry	R
1.54	1/29/2008	09:11	8.0	10	9.8	30	34	Dry	R
5.76	1/29/2008	08:55	7.3	15	6.5	< 10	3	Dry	R
0.30	2/14/2008	11:08	8.0	8	12	20	13	Wet	R
1.54	2/14/2008	10:53	7.7	8	12	110	68	Wet	R
5.76	2/14/2008	10:32	7.2	9	10	60	56	Wet	R
0.30	3/25/2008	08:00	7.3	12	9.0	120	100	Dry	R
1.54	3/25/2008	08:17	7.4	9	10	80	60	Dry	R
5.76	3/25/2008	08:27	8.0	9	11	99	48	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.



Routine Water Quality Monitoring Report

1/1/2008 Through 3/31/2008

Knoxville Utilities Board
 Water Quality Laboratory
 Debbie Alley, 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	1/24/2008	09:53	8.2	7	12	130	110	Wet	R
2.08E	1/24/2008	09:45	8.1	6	12	27	36	Wet	R
4.80W	1/24/2008	09:35	7.9	10	11	76	93	Wet	R
0.87	2/11/2008	09:57	7.8	7	11	120	96	Dry	R
2.08E	2/11/2008	09:48	7.8	6	11	60	88	Dry	R
4.80W	2/11/2008	09:35	7.5	10	10	70	54	Dry	R
0.87	3/11/2008	09:37	7.8	10	10	160	110	Wet	R
2.08E	3/11/2008	09:22	7.3	10	10	50	76	Wet	R
4.80W	3/11/2008	09:10	7.4	9	11	54	130	Wet	R
Fourth Creek									
0.55	1/25/2008	09:15	7.9	7	12	90	76	Wet	R
1.33	1/25/2008	09:27	8.0	8	11	10	55	Wet	R
1.78	1/25/2008	09:34	8.0	8	11	520	520	Wet	R
0.55	2/12/2008	09:11	7.7	11	10	280	290	Dry	R
1.33	2/12/2008	08:42	7.6	12	9.5	27	280	Dry	R
1.78	2/12/2008	08:55	7.8	12	9.9	73	120	Dry	R
0.55	3/10/2008	09:21	7.7	11	10	110	210	Wet	R
1.33	3/10/2008	08:56	7.5	11	9.8	70	310	Wet	R
1.78	3/10/2008	09:09	7.7	11	10	380	980	Wet	R

*Status: I = Site Under Investigation, R = Reportable for monitoring purposes
 Precipitation event = "Wet" if the total amount of rainfall for four days prior to the sample was greater than 0.1 inches.



Water Quality Monitoring
Report

Routine Water Quality Monitoring Report

1/1/2008 Through 3/31/2008

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
Baker Creek									
0.36	1/23/2008	09:35	7.7	10	11	1200	870	Wet	R
0.53	1/23/2008	09:22	7.8	9	10	420	610	Wet	R
1.45	1/23/2008	09:11	7.8	10	10	460	610	Wet	R
0.36	2/22/2008	09:29	7.5	10	9.2	450	610	Dry	R
0.53	2/22/2008	09:40	7.8	10	9.9	730	1200	Dry	R
1.45	2/22/2008	09:53	7.6	10	9.3	2900	1200	Dry	I
0.36	3/19/2008	08:31	7.5	15	8.6	220	290	Wet	R
0.53	3/19/2008	08:39	7.7	14	8.8	450	250	Wet	R
1.45	3/19/2008	08:19	7.6	14	8.6	1500	1400	Wet	I
Goose Creek									
0.35	1/9/2008	09:46	7.7	12	7.5	2500	> 2400	Dry	R
0.90E	1/9/2008	09:34	7.6	12	8.5	1500	> 2400	Dry	I
1.50E	1/9/2008	09:22	7.6	11	8.1	210	240	Dry	R
0.35	2/25/2008	09:13	7.5	10	8.1	600	690	Dry	R
0.90E	2/25/2008	09:05	7.7	11	9.8	910	1300	Dry	I
1.50E	2/25/2008	08:50	7.6	11	9.2	54	91	Dry	R
0.35	3/18/2008	08:51	7.4	12	8.4	450	580	Wet	R
0.90E	3/18/2008	08:40	7.6	12	9.2	410	980	Wet	I
1.50E	3/18/2008	08:30	7.6	11	9.8	91	120	Wet	R

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Routine Water Quality Monitoring Report

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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	1/7/2008	09:20	8.1	10	9.1	14	88	Dry	R
1.89	1/7/2008	09:42	7.6	10	8.2	4	16	Dry	R
3.45	1/7/2008	09:55	7.9	9	9.8	10	26	Dry	R
0.85	2/7/2008	09:02	7.4	11	9.4	400	N/A	Wet	R
1.89	2/7/2008	08:49	7.1	11	9.3	330	N/A	Wet	R
3.45	2/7/2008	08:40	7.3	10	9.4	210	N/A	Wet	R
0.85	3/12/2008	08:40	7.4	11	8.9	36	79	Wet	R
1.89	3/12/2008	08:51	7.4	11	8.3	10	16	Wet	R
3.45	3/12/2008	09:02	7.7	9	9.6	10	12	Wet	R
Williams Creek									
0.89	1/14/2008	10:33	8.0	8	11	1100	640	Wet	R
1.70	1/14/2008	10:51	7.5	10	9.6	420	440	Wet	R
2.02	1/14/2008	11:05	7.8	9	11	530	610	Wet	R
0.89	2/26/2008	08:25	7.5	11	9.3	1400	1600	Dry	R
1.70	2/26/2008	08:13	7.3	11	8.4	1700	2000	Dry	R
2.02	2/26/2008	08:05	7.2	12	8.3	1900	670	Dry	R
0.89	3/14/2008	09:40	7.7	12	11	80	91	Dry	R
1.70	3/14/2008	09:53	7.4	14	9.1	530	180	Dry	R
2.02	3/14/2008	10:01	7.8	13	10	800	960	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.



Creek Monitoring Report

Location of Source Water Quality Monitoring Report

1/1/2008 Through 3/31/2008

Knoxville Utilities Board
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Goose Creek

Location Description	Closest Stream Mile	Collection Date	Collection Time	Dissolved Oxygen (mg/L)	pH	Water Temperature (C)	Fecal Coliform (CFU/100mL)	E-Coli (MPN)
Mouth of the creek	0.11	3/27/2008	08:32	7.2	7.3	13	380	610
Redwine Ave.	0.13	3/27/2008	08:56	8.8	7.6	13	290	460
Routine site 0.45	0.39	3/27/2008	09:14	8.0	7.6	12	490	440
Downstream from West Branch	0.87	3/27/2008	09:27	10	7.7	12	200	190
West Branch	0.93	3/27/2008	09:40	9.8	7.8	12	140	100



Water Quality Monitoring
Report

Investigative Water Quality Monitoring Report

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Dry Weather Walking Survey

Goose Creek

<u>Stream Mile</u>	<u>Date</u>	<u>Time</u>	<u>Dissolved Oxygen (mg/l)</u>	<u>Fecal Coliform (CFU/100 ml)</u>	<u>pH</u>	<u>Water Temperature</u>
0.11	1/28/2008	8:52 AM	9.5	5800	7.8	8
0.13	1/28/2008	9:04 AM	11	4200	7.9	6
0.39	1/28/2008	9:30 AM	10	2300	7.9	6
0.64	1/28/2008	10:07 AM	9.7	1700	7.8	5
0.73	1/28/2008	10:36 AM	13	490	8.1	6
0.87	1/28/2008	10:50 AM	13	600	8.2	6
0.92	1/28/2008	11:10 AM	12	170	8.1	6
0.93 (West Branch)	1/28/2008	11:17 AM	12	1500	8.2	6
0.96	1/28/2008	11:25 AM	12	130	8.2	6
0.99 (Tributary)	1/28/2008	12:10 PM	12	140	7.9	5
1.01	1/28/2008	12:17 PM	12	140	8.1	7
1.19	1/28/2008	12:37 PM	12	160	8.0	8
1.20 (Major Tributary)	1/28/2008	12:43 PM	11	30	7.7	10
1.23	1/28/2008	12:55 PM	11	260	8.2	7

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Water Quality Monitoring
Report

Investigative Water Quality Monitoring Report

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Dry Weather Walking Survey

Goose Creek

<u>Stream Mile</u>	<u>Date</u>	<u>Time</u>	<u>Dissolved Oxygen (mg/l)</u>	<u>Fecal Coliform (CFU/100 ml)</u>	<u>pH</u>	<u>Water Temperature</u>
1.29	1/28/2008	1:11 PM	11	220	8.1	8
1.37	1/28/2008	1:23 PM	10	1400	7.9	9
1.43	1/28/2008	1:39 PM	11	130	8.1	8
1.48	1/28/2008	1:50 PM	10	120	8.1	9
1.5 (Tributary)	1/28/2008	2:04 PM	7.1	1400	7.5	12
1.54	1/28/2008	2:15 PM	10	90	8.0	10
1.68	1/28/2008	2:25 PM	9.2	30	7.6	11
1.72	1/28/2008	2:36 PM	10	50	8.1	10
1.80	1/28/2008	2:45 PM	10	50	8.0	10
2.29	1/28/2008	1:55 PM	9.0	20	7.9	12
1.00 on West Branch	1/28/2008	3:21 PM	12	15	8.0	10

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Water Quality Monitoring
Report

Investigative Water Quality Monitoring Report

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Baker Creek

Wet Weather Investigative Monitoring

<u>Sample Location</u>	<u>Date</u>	<u>Time</u>	<u>Dissolved Oxygen (mg/l)</u>	<u>Fecal Coliform (CFU/100 ml)</u>	<u>E-Coli (MPNI)</u>	<u>pH</u>	<u>Silt level</u>	<u>Water Temperature</u>
Routine Site 0.36 Sample #1	3/3/2008	1:47 PM	13	130	280	7.7	0	16
Routine Site 0.36 Sample #2	3/4/2008	10:56 AM	8.7	5000	> 2400	7.3	3	14
Routine Site 0.36 Sample #3	3/4/2008	1:15 PM	8.8	4500	> 2400	7.4	3	14
Routine Site 0.36 Sample #4	3/5/2008	1:54 PM	10	2400	> 2400	7.6	0	13
Routine Site 0.36 Sample #5	3/19/2008	8:31 AM	8.6	220	290	7.5	N/A	15
Routine Site 0.53 Sample #1	3/3/2008	2:26 PM	12	82	230	7.9	0	15
Routine Site 0.53 Sample #2	3/4/2008	11:08 AM	9.0	1100	1700	7.7	3	13
Routine Site 0.53 Sample #3	3/4/2008	1:30 PM	9.1	5000	2400	7.6	3	14
Routine Site 0.53 Sample #4	3/5/2008	2:04 PM	10	140	250	7.6	0	12
Routine Site 0.53 Sample #5	3/19/2008	8:39 AM	8.8	450	250	7.7	N/A	14



Water Quality Monitoring
Report

Investigative Water Quality Monitoring Report

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Baker Creek

Wet Weather Investigative Monitoring

Sample Location	Date	Time	Dissolved Oxygen (mg/l)	Fecal Coliform (CFU/100 ml)	E-Coli (MPNI)	pH	Silt level	Water Temperature
Routine Site 1.45 Sample #1	3/3/2008	2:50 PM	8.8	1000	1600	7.5	0	16
Routine Site 1.45 Sample #2	3/4/2008	11:17 AM	9.1	3600	1600	7.5	3	13
Routine Site 1.45 Sample #3	3/4/2008	1:48 PM	8.5	3700	2000	7.3	3	14
Routine Site 1.45 Sample #4	3/5/2008	2:26 PM	9.5	1000	610	7.5	0	12
Routine Site 1.45 Sample #5	3/19/2008	8:19 AM	8.6	1500	1400	7.6	N/A	14
Taylor Rd. and Cruze Sample #1	3/3/2008	3:15 PM	8.5	200	250	7.6	0	16
Taylor Rd. and Cruze Sample #2	3/4/2008	11:29 AM	8.9	3400	1300	7.5	3	14
Taylor Rd. and Cruze Sample #3	3/4/2008	2:05 PM	8.0	7300	> 2400	7.5	1	15
Taylor Rd. and Cruze Sample#4	3/5/2008	2:36 PM	8.9	2200	> 2400	7.7	0	13
Taylor Rd. and Cruze Sample #5	3/19/2008	8:10 AM	8.4	220	200	7.8	N/A	15

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Water Quality Monitoring
Report

Spill Impact Sampling Results Water Quality Monitoring Program

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Event Date 1/7/2008

Street Address: 1530 Louisiana Avenue

Description: The SSO was caused by a partial blockage of the sewer main by metallic debris. The SSO flowed into the East Fork of Third Creek.

Estimated unrecovered volume 3,400 gallons

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

Precipitation (McGhee-Tyson Airport) Date 1/7/2008 Total - Day of Event 0 Total - Prior 4 Days 0.03

Sample Location	Sample Date	Sample Time	Dissolved Oxygen	Temperature (Celsius)	pH	Fecal Coliform	E-Coli (MPN)
Upstream of SSO Discharge	1/7/2008	14:18	1.2	9	7.3	5200	> 2400
Downstream of SSO Discharge	1/7/2008	14:35	2.3	12	8.0	730	960
Downstream of SSO Discharge	1/7/2008	14:38	9.8	14	7.7	350	330
Downstream of SSO Discharge	1/8/2008	14:20	6.7	15	6.9	1700	> 2400
Downstream of SSO Discharge	1/8/2008	14:40	13	15	8.0	500	730
Downstream of SSO Discharge	1/8/2008	14:45	9.8	15	7.5	290	770

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Water Quality Monitoring
Report

Spill Impact Sampling Results Water Quality Monitoring Program

Knoxville Utilities Board
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Event Date 2/5/2008

Street Address: 1338 Oglesby Road

Description: The SSO was caused by a leak from the force main. The SSO discharged from a swale to a ditch to an unnamed tributary of Inman Branch.

Estimated unrecovered
volume 560 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	Sample Date	Sample Time	Dissolved Oxygen	Temperature (Celsius)	pH	Fecal Coliform	E-Coli (MPN)
	2/5/2008	0	1.89							
Upstream of SSO Discharge	2/5/2008	21:15	7.8	12	7.2	6000	> 2400			
Downstream of SSO Discharge	2/5/2008	20:59	7.1	12	7.2	230000	> 2400			
Upstream of SSO Discharge	2/8/2008	10:42	9.0	11	7.2	18	37			
Downstream of SSO Discharge	2/8/2008	10:47	9.7	10	7.3	230	120			

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