

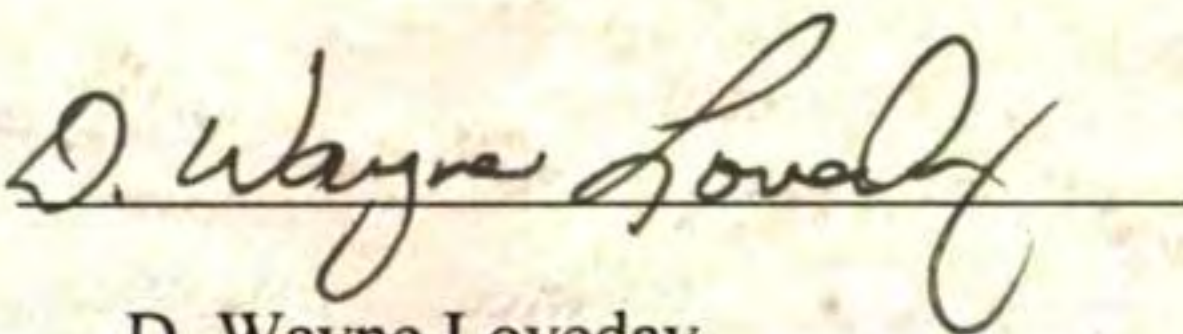
Quarterly Progress Report

Volume 7

Fourth Quarter Report
October 1 through December 31, 2006

Submitted to EPA on January 25, 2007

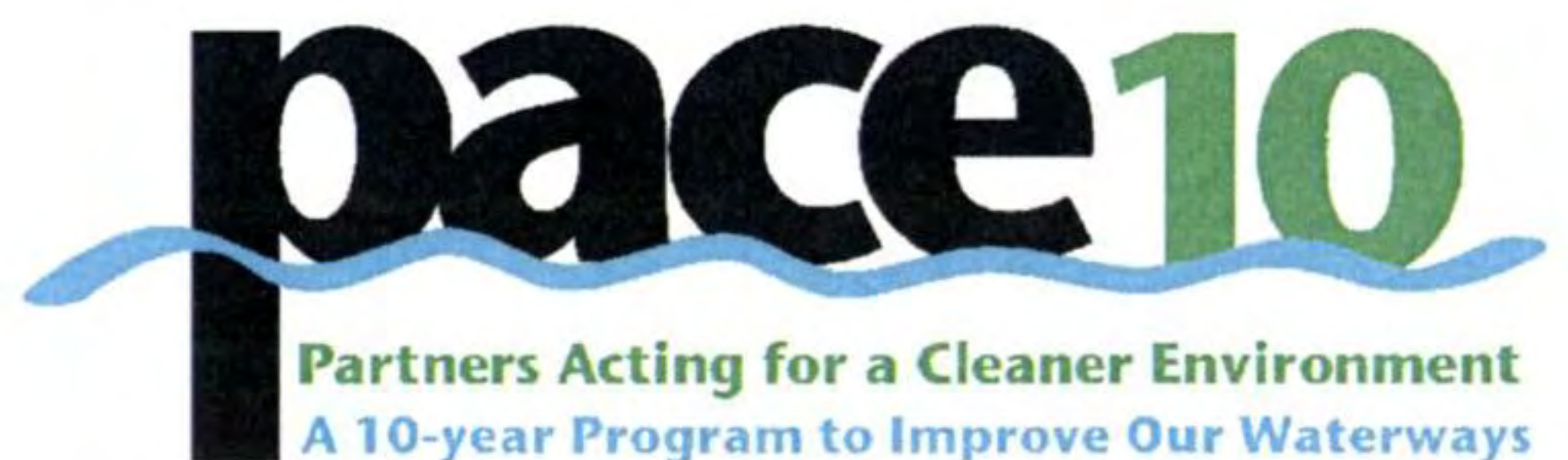
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D. Wayne Loveday

1.25.07

Date



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Executive Summary

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

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

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

KUB compiled this Quarterly Progress Report to detail the events that occurred during the fourth quarter of 2006 from October 1 through December 31. This is the seventh 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.

October 27, 2006

- Submitted to EPA – Quarterly Progress Report 3rd quarter 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), and FY 06/07 (July 1, 2006 to June 30, 2007). 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.
- 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.

3. **Lower First Creek Storage** - Design 5 MG wet-weather storage tank to control sewer overflows near North Hoitt Avenue during rain events. Construction of tank is substantially complete. Work has begun on trunkline that extends from the diversion structure to the overflow location at the intersection of Fourth and Hoitt. Trunkline work is expected to be complete by February 2007.
4. **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.
5. **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.

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 will begin in February 2007.
2. **Rickard and Wilson Collector Rehab (Mini-basin 10C1)** – Assess and rehabilitate, where needed, approximately 19,000 ft of collector pipe. Condition Assessment design and procurement is complete. Construction will begin in February 2007 and is expected to be complete in July 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. Construction accelerated to begin in FY 06/07.
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. Phases I and II construction began in summer 2006.
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.
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. Construction is scheduled to begin in February 2007.

Fourth Creek

1. **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. Phases I & III are complete, Phase II is underway. The entire project will be complete in February 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. Design is underway. The force main will be re-routed as well.
2. **Blount Avenue Trunkline** – 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. Design is underway and construction is estimated to begin in spring 2007.

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.

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.

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). A progress meeting was held on December 18, 2006, which consisted of the analysis of results thus far and also possible WWTP alternatives to treating peak flows. A workshop is scheduled for January 17-19, 2007, to complete the analysis and finalize the WWTP alternatives and scenarios. The draft document will be reviewed by KUB in mid-May 2007 and submitted to EPA by July 24, 2007.

Section 3 Process Controls Program

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

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

The Revised PCP 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.

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 Third 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 October 27, 2006, KUB submitted to EPA and placed in the PDR the Quarterly Progress Report for the third quarter 2006. This deliverable was not subject to the Public Review Requirement of Section VI.A.2, but was available for public comment from October 27, 2006, until November 16, 2006. No comments were received during that period.

6.2 Violations Subject to Stipulated Penalties

During this reporting period, KUB incurred 12 Unpermitted Discharges. Five of those events were due to heavy rainfall; four were due to blockages caused by grease, roots, or debris; two were due to construction failure; and one was due to mechanical 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	10/26/06	923 Biddle Street	Blockage
Unpermitted Discharge	10/26/06	713 South Central Avenue	Blockage
Unpermitted Discharge	10/27/06	1500 Hoitt Avenue	Heavy Rainfall
Unpermitted Discharge	11/1/06	1210 E. Moody Avenue	Heavy Rainfall

Unpermitted Discharge	11/1/06	1422 Hoitt Avenue	Heavy Rainfall
Unpermitted Discharge	11/7/06	1422 Hoitt Avenue	Heavy Rainfall
Unpermitted Discharge	11/15/06	1422 Hoitt Avenue	Heavy Rainfall
Unpermitted Discharge	11/17/06	1517 N. Fourth Avenue	Construction Failure
Unpermitted Discharge	11/28/06	3250 Mynatt Avenue	Blockage
Unpermitted Discharge	12/14/06	923 Biddle Street	Blockage
Unpermitted Discharge	12/19/06	6304 Roberts Road	Construction Failure
Unpermitted Discharge	12/31/06	2004 Neyland Drive	Mechanical Failure

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 36 SSO events. Of that number, 15 were due to blockages by either grease, debris, roots, or a combination thereof; 10 were due to heavy rainfall; five were due to construction failure; two were due to broken pipe; two were due to mechanical failure; and two were due to vandalism. Of the 36 SSO events, 15 were in the 0 – 1000 gallons volume range, 13 were in the 1001 – 10,000 range, and eight events totaled greater than 10,000 gallons. Durations for events during this period are as follows: 15 ranged from 0 – 2 hours, 12 ranged from 2.1 – 5 hours, and nine 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 12 Building Backups. Causes for these events are as follows: nine were due to blockage, two were due to flushing operations, and one was due to construction failure.

7.3 Bypasses

No Bypasses occurred during this reporting period.

7.4 Diversions

No Diversions occurred during this reporting period.

7.5 Effluent Limit Violations

Table 3 contains all effluent limit violations that occurred during this reporting period. The table contains the information as it is reported in KUB's Discharge Monitoring Reports. During this reporting period, three effluent limit violation occurred at Kuwahee WWTP. One was a violation of total suspended solids and two were violations of settleable solids. No effluent limit violations occurred at Fourth Creek, Loves Creek, or Eastbridge WWTPs during the reporting period.

Table 2: Bypasses and Diversions

WWTP	Did an event occur?	Type of Event	Date Diversion gate opened	Time Diversion gate opened	Date Diversion gate closed	Time Diversion gate closed	Date Diversion flow reported	Duration (hrs)	Volume (MG)	Total Event Duration (MG)	Total Event Volume (MG)	Reason for Event
Kuwahee	No											
Fourth Creek	No											
Loves Creek	No											
Eastbridge	No											

Table 3: Effluent Limit Violations

WWTP	Did an event occur?	Date	Parameter	Type	Limit	Value
Kuwahee	Yes	10/27/2006	TSS	Daily	45 mg/l	62 mg/l
Kuwahee	Yes	10/27/2006	SS	Daily	1.0 m/l	3.0 m/l
Kuwahee	Yes	11/08/2006	SS	Daily	1.0 m/l	1.5 m/l
Fourth Creek	No	-	-	-	-	-
Loves Creek	No	-	-	-	-	-
Eastbridge	No	-	-	-	-	-
Ritta	No	-	-	-	-	-
SS - Settleable Solids	mg/l - milligrams per liter					
TSS - Total Suspended Solids	cfu - Colony Forming Unit					
m/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 and Baker Creek during this quarter.

KUB successfully completed a Wet Weather Investigative Monitoring Event for Williams Creek in October 2006. During this event KUB personnel collected six sets of samples at five different locations along Williams Creek before, during, and after a rainfall of over one inch, which began on 10/16/06. Samples were collected prior to any rain (sample set 1), after rainfall began (sample set 2 and 3), at peak stream flow during rainfall (sample set 4), after peak stream flow during rainfall (sample set 5) and after the cessation of rainfall a day later (sample set 6).

All samples were analyzed for fecal coliform. Samples collected prior to the event (sample set 1), at the peak stream flow (sample set 4), and after the peak stream flow (sample set 5) 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.

Environmental impacts from runoff are the greatest during peak stream flow and this was evident at the majority of the sampling sites. Impacts from any leaking surcharged sewer pipes generally result in increased counts just after peak stream flow (sample set 5). With the exception of one monitoring site, counts decreased after peak runoff and stream flow. The ratio of fecal coliform to fecal streptococcus counts for sample set #4 and #5 for all sites also suggest that contamination was due largely to creek runoff and not to surcharging sewers. Feces from animals and birds are known to contain more streptococcus than those in humans. Thus, ratios of less than one can sometimes be an indicator that the source of the contamination is not human in nature.

A second Wet Weather event meeting the criteria outlined in the Water Quality Monitoring Program will be conducted in the first quarter of 2007. Real Time PCR testing will also be conducted on samples collected at that time to further assess if there are any impacts from leaking sewers during wet weather. Efforts to begin lateral rehabilitation in some areas of Williams Creek are also tentatively scheduled for April of 2007. This work may improve some of the slightly elevated counts that periodically occur in Williams Creek in residential areas during dry weather.

KUB also conducted dry weather Location of Source monitoring on seven sites along Baker Creek. The seven sites chosen had elevated fecal coliform counts during the previous Baker Creek Dry Investigative Monitoring event. Two of the areas investigated had

extremely high fecal coliform and E. coli counts and were subsequently re-sampled. 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 first quarter of 2007.

All available lab results on samples collected during this quarter are included in Appendix D.

8.2 Projected Data Collection

During the first 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:

Sample Locations by Creek Mile or Site Number

<i>Creek Name</i>	<i>Creek Mile #</i>	<i>Creek Mile #</i>	<i>Creek Mile #</i>
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	0.53	1.12	1.67

KUB will continue to implement the investigative monitoring component to determine whether pollution is related to sewer or non-sewer sources. Additional investigative sampling events (wet weather for Baker Creek and Williams Creek) and Location of Source events (Baker Creek) are planned for the first quarter of 2007.

Appendix A

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	184,356	Under Construction - 70% 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	247,854	Under Construction - 66% Complete
44	Comprehensive Rehab 09A4	Comprehensive Rehabilitation	3rd Creek	Kuwahee	269,542	Under Construction - 66% Complete
45	Lower First Creek Storage Tank	Storage Tank	1st Creek	Kuwahee	5,000,000	Project Complete

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
10/3/2008	5:51 PM	4312	WOODLAWN PIKE	KUW	South Knoxville	40	MH 47-19	Ditchline to Soil Saturation		The sewer main was flushed to remove the blockage caused by roots.	898	0	898	4	No
10/3/2008	10:30 PM	5912	WESTMERE DRIVE	FC	Fourth Creek	32A	Lateral Cleanout	Soil Saturation		The sewer main was flushed to remove the blockage caused by debris.	375	0	375	10	No
10/5/2008	11:09 AM	3236	HAGGARD ROAD	KUW	First Creek	18	Broken Sewer Main	Soil Removal		An excavation contractor ruptured and repaired a gravity sewer main.	561	561	0	1	No
10/9/2008	7:03 PM	3170	HAGGARD ROAD	KUW	First Creek	18	MH 66	Ditch to Soil Saturation		The sewer main was flushed to remove the blockage caused by debris.	17,257	0	17,257	48	No
10/17/2008	6:30 PM	131	INGERSOLL AVENUE	KUW	South Knoxville	39	Underground Flow	Ditchline to Soil Saturation		The sewer main was flushed to remove the blockage caused by grease and roots.	3,366	0	3,366	3	No
10/26/2008	10:42 AM	923	BIDDLE STREET	KUW	Williams Creek	25	MH 29	Swale to Williams Creek	Williams Creek	The sewer main was flushed to remove the blockage caused by grease.	62	0	62	6	Yes
10/28/2008	11:33 AM	713	SOUTH CENTRAL AVENUE	KUW	First Creek	30	Underground Flow	Underground Flow to Catch Basin to First Creek	First Creek	The sewer main was flushed to remove the blockage caused by debris and the sewer main was repaired.	1,528	0	1,528	24	Yes
10/27/2008	7:15 PM	1500	HOITT AVENUE	KUW	First Creek	17	MHs 4 & 4-9	Ditchline to First Creek	First Creek	Heavy rainfall in the area resulted in high flows in the collection system.	3,350	0	3,350	5	Yes
10/27/2008	10:26 PM	2706	MYNDERS AVENUE	KUW	Third Creek	22	MH 18-3	Ditch to Soil Saturation		Heavy rainfall in the area resulted in high flows in the collection system.	5,100	0	5,100	5	No
10/27/2008	10:36 PM	2724	WESTERN AVENUE	KUW	Third Creek	22	MH 18-86	Ditch to Soil Saturation		Heavy rainfall in the area resulted in high flows in the collection system.	900	0	900	5	No
11/1/2008	6:25 PM	1210	E MOODY AVENUE	KUW	South Knoxville	40	MH 39	Ditch to Baker Creek	Baker Creek	Heavy rainfall in the area resulted in high flows in the collection system.	720	0	720	4	Yes
11/1/2008	6:30 PM	1422	HOITT AVENUE	KUW	First Creek	17	MHS 4 & 3-7	Ditchline to First Creek	First Creek	Heavy rainfall in the area resulted in high flows in the collection system.	106,470	0	106,470	5	Yes
11/1/2008	10:00 PM	2724	WESTERN AVENUE	KUW	Third Creek	22	MH 18-86	Ditch to Soil Saturation		Heavy rainfall in the area resulted in high flows in the collection system.	62	0	62	1	No
11/1/2008	11:45 PM	304	SEVENTH AVENUE	KUW	First Creek	18	MH 15	Soil Saturation		Heavy rainfall in the area resulted in high flows in the collection system.	558	0	558	5	No
11/7/2008	6:25 PM	1422	HOITT AVENUE	KUW	First Creek	18	MH 4	Ditchline to First Creek	First Creek	Heavy rainfall in the area resulted in high flows in the collection system and was influenced by a bypass pump problem downstream.	5,810	0	5,810	5.5	Yes
11/9/2008	3:46 AM	6107	CHAPMAN HIGHWAY	KUW	South Knoxville	41	MH 66-13	Stormwater Conveyance to Soil Saturation		There was a mechanical failure at the Chapman Highway Pump Station.	4,500	0	4,500	1.5	No
11/9/2008	6:15 PM	8025	HAYDEN DRIVE	FC	Fourth Creek	32B	MHS 9-65 & 9-43	Ditch to Catch Basin to Soil Saturation		The sewer main was flushed to remove the blockage caused by grease.	1,246	0	1,246	1	No
11/15/2008	8:30 PM	1422	HOITT AVENUE	KUW	First Creek	17	MH 4	Ditchline to First Creek	First Creek	Heavy rainfall in the area resulted in high flows in the collection system.	40,320	0	40,320	3.5	Yes
11/15/2008	8:34 PM	2724	WESTERN AVENUE	KUW	Third Creek	22	MH 18-86	Soil Saturation		Heavy rainfall in the area resulted in high flows in the collection system.	1,078	0	1,078	3	No
11/17/2008	4:00 PM	1517	N FOURTH AVENUE	KUW	First Creek	17	MH 3-7	Swale to First Creek	First Creek	Bypass pump failure at the Lower First Creek Storage Tank construction site.	62	0	62	1	Yes
11/20/2008	1:15 PM	8040	KINGSTON PIKE	FC	Fourth Creek	32B	MH 9-35	Pavement to Storm Drain to Soil Saturation		The sewer main was flushed to remove the blockage caused by debris.	72	0	72	1	No
11/20/2008	7:30 PM	4218	MCCALLA AVENUE	KUW	Williams Creek	19	MH 41-3	Pavement to Soil Saturation		The sewer main was flushed to remove the blockage caused by debris.	24	0	24	2	No
11/28/2008	11:45 AM	1317	RUDDER OAKS WAY	FC	Fourth Creek	84	Low-Pressure Force Main	Soil Saturation		A private contractor damaged the low-pressure force main and caused a leak.	1,678	0	1,678	3	No
11/28/2008	12:06 PM	3250	MYNATT AVENUE	KUW	Third Creek	29	MH 8-60	Soil Saturation And Ditch to Culvert to Ditch to Third Creek	Third Creek	The sewer main was flushed to remove the blockage caused by debris.	11,220	0	11,220	12	Yes
11/28/2008	2:00 PM	735	BAGWELL ROAD	LC	Sinking Creek	63	Air Release Valve	Soil Saturation		There was a leak from an air release valve on a force main.	125	0	125	0.75	No
12/2/2008	10:00 AM	1808	HELMBOLT ROAD	FC	Fourth Creek	32A	MH 49-59	Soil Saturation		The sewer main was flushed to remove the blockage caused by grease, roots and debris.	360	0	360	2	No
12/2/2008	4:30 PM	8040	KINGSTON PIKE	FC	Fourth Creek	32B	MHS 9-35 & 9-65	Pavement to Storm Drain to Soil Saturation		The sewer main continues to be flushed to clear blockages caused by grease and debris until the fiber-optic cable is removed.	2,160	0	2,160	2	No
12/2/2008	4:21 PM	1731	PINEBROOK DRIVE	FC	Fourth Creek	32A	MH 49-9	Soil Saturation		The sewer main was flushed to remove the blockage caused by grease and debris.	1,620	0	1,620	3	No
12/5/2008	10:05 AM	1901	MURRAY ROAD	KUW	Third Creek	9	MH 17-279	Ditchline to Soil Saturation		A private contractor-installed sewer plug was removed from the sewer main.	1,250	0	1,250	17	No
12/5/2008	12:37 PM	2601	MISS ELLIE DRIVE	FC	Fourth Creek	32A	MH 71	Soil Saturation		Heavy debris was physically removed and flushed to clear the blockage caused by vandalism.	8,640	0	8,640	2	No
12/14/2008	1:45 PM	923	BIDDLE STREET	KUW	Williams Creek	25	MH 29	Unnamed Tributary to Williams Creek	Williams Creek	The sewer main was flushed to remove the blockage caused by grease.	153	0	153	1	Yes
12/18/2008	1:12 PM	8632	OLD RUTLEDGE PIKE	EB	Eastbridge	110	Leaking Force Main	Swale to Soil Saturation		A leak on a force main was repaired with a pipe clamp.	75	0	75	2	No
12/19/2008	10:40 AM	6304	ROBERTS ROAD	EB	Eastbridge	111	Undesignated MH	Swale to Mile Branch	Mile Branch	A sewer plug was not removed after the start-up of a new pump station.	47,250	0	47,250	264	Yes
12/19/2008	2:30 PM	4804	GWINFIELD DRIVE	KUW	South Knoxville	39	MH 86	Ditchline to Soil Saturation		The sewer main was flushed to remove the blockage caused by debris and was due to vandalism.	36,608	0	36,608	24	No
12/27/2008	2:26 PM	1021	YELLOWSTONE ROAD	LC	Loves Creek	26	MH 93	Soil Saturation		The sewer main was flushed to remove the blockage caused by roots.	12,240	0	12,240	1	No
12/31/2008	10:12 PM	2004	NEYLAND DRIVE	KUW	Third Creek	35A	MH 1	Tennessee River	Tennessee River	Partial closure of the influent gate due to a temporary mechanical failure of the influent barscreens.	160,000	0	160,000	0.33	Yes

Appendix C

Building Backups

1	2	3	4	5	6	7	8	9	10	11	12	13
Date	Time	Street #	Street	Plant	Watershed	Basin	Overflow Location	Cause of SSO/KUB Response	Total Volume (Gallons)	Recovered Volume (Gallons)	Non-Recovered Volume (Gallons)	Duration (Hours)
10/26/2006	4:45 PM	7556	PALMER LANE	LC	Sinking Creek	63	BBU	Routine sewer main flushing resulted in a building backup at this residence.	1	1	0	0.02
10/27/2006	4:00 PM	2015	PASCAL DRIVE	KUW	Third Creek	22	BBU	The sewer main was flushed to remove the blockage caused by construction debris.	80	80	0	1
10/27/2006	4:00 PM	2017	PASCAL DRIVE	KUW	Third Creek	22	BBU	The sewer main was flushed to remove the blockage caused by construction debris.	80	80	0	1
10/27/2006	4:00 PM	2019	PASCAL DRIVE	KUW	Third Creek	22	BBU	The sewer main was flushed to remove the blockage caused by construction debris.	80	80	0	1
10/27/2006	4:00 PM	2021	PASCAL DRIVE	KUW	Third Creek	22	BBU	The sewer main was flushed to remove the blockage caused by construction debris.	80	80	0	1
10/27/2006	4:00 PM	2023	PASCAL DRIVE	KUW	Third Creek	22	BBU	The sewer main was flushed to remove the blockage caused by construction debris.	80	80	0	1
10/27/2006	4:00 PM	2025	PASCAL DRIVE	KUW	Third Creek	22	BBU	The sewer main was flushed to remove the blockage caused by construction debris.	80	80	0	1
10/30/2006	1:57 PM	5315	SHANNONDALE ROAD	KUW	First Creek	1	BBU	Routine sewer main flushing resulted in a building backup at this residence.	1	0	1	0.08
11/6/2006	9:37 AM	8323	CORTELAND DRIVE	FC	Fourth Creek	32B	BBU	The sewer main was flushed to remove the blockage caused by roots.	80	80	0	72
11/8/2006	3:00 PM	1317	LOUISIANA AVENUE	KUW	Second Creek	15	BBU	The sewer main was flushed to remove the blockage caused by debris.	200	200	0	1.5
11/14/2006	8:56 AM	5109	INSKIP ROAD	KUW	First Creek	4	BBU	Rehabilitation contractor failed to reconnect the customer's service lateral.	2	2	0	0.25
12/15/2006	2:22 PM	203	W DEPOT AVENUE	KUW	First Creek	30	BBU	The sewer main was flushed to remove the blockage caused by grease.	1000	1000	0	120

Appendix D

Water Quality Monitoring Program Sampling Results



Creek Monitoring Report

Report Date: 1/16/2007

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	10/24/2006	09:37	8.7	17	11	1700	2400	Dry	I
2.57	10/24/2006	09:23	8.1	18	11	2300	>2400	Dry	I
6.33	10/24/2006	09:07	7.9	21	8.6	330	370	Dry	R
0.45	11/17/2006	09:00	7.8	12	10	2100	1600	Dry	I
2.57	11/17/2006	09:51	7.6	11	10	580	920	Dry	R
6.33	11/17/2006	09:22	7.5	12	7.7	340	340	Dry	R
0.45	12/19/2006	07:53	8.1	10	10	160	110	Dry	R
2.57	12/19/2006	08:52	8.0	10	11	91	60	Dry	R
6.33	12/19/2006	08:35	7.7	11	8.8	140	110	Dry	R
Second Creek									
0.30	10/25/2006	10:33	7.9	5	11	4700	> 2400	Dry	I
1.54	10/25/2006	10:10	7.6	4	10	220	86	Dry	R
5.76S	10/25/2006	09:52	7.0	10	6.2	36	36	Dry	R
0.30	11/16/2006	11:15	7.7	14	9.7	1900	2400	Dry	I
1.54	11/16/2006	10:56	7.6	13	9.0	2300	1600	Dry	I
5.76S	11/16/2006	10:33	7.1	15	6.0	290	180	Dry	R
0.30	12/27/2006	10:38	8.2	10	11	230	1200	Dry	I
1.54	12/27/2006	10:25	8.0	9	11	82	77	Dry	R
5.76S	12/27/2006	09:52	7.3	14	6.4	10	16	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.

0002255



Creek Monitoring Report

Report Date: 1/16/2007

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	10/11/2006	08:58	7.7	21	7.9	290	260	Dry	R
2.08E	10/11/2006	08:46	7.6	21	6.8	320	260	Dry	R
4.80W	10/11/2006	08:30	7.9	20	7.8	180	100	Dry	R
0.87	11/10/2006	10:00	7.9	14	9.0	2300	2400	Dry	I
2.08E	11/10/2006	09:40	7.8	14	9.0	240	390	Dry	R
4.80W	11/10/2006	09:25	7.5	14	8.8	180	240	Dry	R
0.87	12/05/2006	08:57	8.1	6	12	210	170	Dry	R
2.08E	12/05/2006	08:42	8.0	5	11	20	100	Dry	R
4.80W	12/05/2006	08:29	7.7	9	10	54	100	Dry	R
Fourth Creek									
0.55	10/13/2006	08:50	7.9	17	9.2	5000	870	Dry	R
1.33	10/13/2006	09:03	7.4	17	9.1	4200	610	Dry	R
1.78	10/13/2006	09:14	7.6	16	10	90	65	Dry	R
0.55	11/14/2006	08:32	7.8	12	9.6	73	230	Dry	R
1.33	11/14/2006	08:10	7.8	13	9.3	180	330	Dry	R
1.78	11/14/2006	08:20	7.8	12	10	30	42	Dry	R
0.55	12/14/2006	08:52	7.8	12	9.5	360	410	Dry	R
1.33	12/14/2006	08:43	7.9	12	9.9	220	210	Dry	R
1.78	12/14/2006	08:33	7.9	12	10	220	190	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.

0002256



Creek Monitoring Report

Report Date: 1/16/2007

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	10/31/2006	08:35	7.4	7	7.6	1100	1000	Dry	I
0.32	10/31/2006	08:22	7.4	7	9.0	1200	650	Dry	R
0.36S	10/31/2006	08:12	7.5	7	8.6	420	770	Dry	R
0.15	11/15/2006	11:06	7.7	12	8.6	1400	2400	Dry	I
0.32	11/15/2006	10:54	7.6	10	9.0	3500	>2400	Dry	I
0.36S	11/15/2006	10:42	7.4	15	7.6	3200	>2400	Dry	I
0.15	12/18/2006	08:27	7.7	9	10	1200	2400	Dry	I
0.32	12/18/2006	08:15	7.9	6	11	820	1600	Dry	I
0.36S	12/18/2006	08:03	7.8	13	9.4	1100	2400	Dry	I
Goose Creek									
0.35	10/05/2006	12:19	7.4	22	6.8	410	490	Dry	R
0.90E	10/05/2006	11:56	7.9	21	7.3	2400	>2400	Dry	I
1.50E	10/05/2006	12:07	7.5	21	8.3	1600	250	Dry	R
0.35	11/09/2006	11:41	7.6	15	8.0	400	390	Dry	R
0.90	11/09/2006	11:49	6.8	16	8.4	220	290	Dry	R
1.50	11/09/2006	12:00	7.6	15	8.6	380	410	Dry	R
0.35	12/04/2006	12:35	7.7	8	10	440	690	Dry	R
0.90E	12/04/2006	12:25	7.8	8	11	450	730	Dry	R
1.50E	12/04/2006	12:14	7.8	9	11	95	240	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.

0002257



Creek Monitoring Report

Report Date: 1/16/2007

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

Creek Mile #	Sample Date	Sample Time	pH	Sample Temp (C)	Dissolved Oxygen (mg/l)	Fecal Coliform (CFU/100 ml)	E-Coli (MPN)	Precipitation Event	Status*
Loves Creek									
0.85	10/11/2006	09:41	7.4	22	7.4	180	170	Dry	R
1.89	10/11/2006	09:27	7.0	22	6.2	170	79	Dry	R
3.45	10/11/2006	09:17	7.4	23	7.4	100	150	Dry	R
0.85	11/14/2006	10:49	7.7	12	10	140	96	Dry	R
1.89	11/14/2006	11:01	7.3	12	8.7	20	44	Dry	R
3.45	11/14/2006	11:22	7.7	11	10	91	120	Dry	R
0.85	12/06/2006	09:06	7.9	9	10	330	550	Dry	R
1.89	12/06/2006	09:17	7.4	9	9	54	66	Dry	R
3.45	12/06/2006	09:31	7.7	7	11	64	100	Dry	R
Williams Creek									
0.53	10/11/2006	10:22	7.4	22	8.2	300	290	Dry	R
1.12	10/11/2006	10:12	7.1	23	6.1	2200	770	Dry	R
1.67	10/11/2006	10:01	7.4	23	6.7	1300	1200	Dry	I
0.53	11/13/2006	08:02	7.7	11	9.8	91	110	Dry	R
1.12	11/13/2006	08:21	7.4	12	8.0	400	610	Dry	R
1.67	11/13/2006	08:31	7.7	13	8.6	460	730	Dry	R
0.53	12/11/2006	08:02	7.9	9	11	900	1400	Dry	I
1.12	12/11/2006	08:14	7.7	11	9.6	64	98	Dry	R
1.67	12/11/2006	08:28	7.8	10	9.3	340	730	Dry	R

0002258

*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.

Location of Source Water Quality Monitoring Report

10/1/2006 Through 12/31/2006

Baker Creek

Location Description	Collection Date	Collection Time	Dissolved Oxygen	pH	Water Temperature	Fecal Coliform	E-Coli	Closest Stream Mile
Island Home Blvd. (between Hillwood and Southhaven)	12/20/2006	11:40	12	7.9	11	2700	2400	0.30 (main stream)
South Haven and Eastfork Mayfair	12/20/2006	11:27	11	8.0	9	530	690	0.47 (tributary)
McClung and Middle Fork	12/20/2006	11:15	5.8	7.2	15	< 10	3	0.24 (tributary)
Sevier Avenue (by Firehouse #10)	12/20/2006	11:05	11	7.9	10	460	330	0.93 (main stream)
Sevierville Pike	12/20/2006	10:52	10	7.8	10	2000	770	1.47 (main stream)
Taylor Road (between Barclay and Cruze)	12/20/2006	10:35	8.6	7.6	13	> 600000	> 2400	2.08 (main stream)
Taylor Road (between Cruze and Tilson)	12/20/2006	10:17	7.6	7.7	12	120000	> 2400	1.93 (main stream)

0002259

Investigative Water Quality Monitoring Report

10/1/2006 Through 12/31/2006

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
Louise Ave. #1	10/16/2006	2:10 PM	2400	450	7.3	7.2	22
Louise Ave. #2	10/17/2006	5:31 AM	6400	N/A	6.2	8.4	22
Louise Ave. #3	10/17/2006	7:15 AM	32,000	N/A	7.2	8.5	25
Louise Ave. #4	10/17/2006	9:25 AM	43,000	290,000	6.3	8.9	25
Louise Ave. #5	10/17/2006	11:44 AM	22,000	45,000	6.6	8.4	26
Louise Ave. #6	10/18/2006	9:23 AM	3100	N/A	7.1	7.0	25

0002260

Investigative Water Quality Monitoring Report

10/1/2006 Through 12/31/2006

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
MBW #1	10/16/2006	2:57 PM	90	240	7.6	9.1	21
MBW #2	10/17/2006	6:00 AM	3500	N/A	7.3	7.6	22
MBW #3	10/17/2006	7:46 AM	3500	N/A	6.6	7.6	24
MBW #4	10/17/2006	10:12 AM	3600	5300	7.2	7.0	26
MBW #5	10/17/2006	12:17 PM	3800	25,000	6.4	8.1	27
MBW #6	10/18/2006	9:58 AM	1200	N/A	6.9	6.7	24

0002261

Investigative Water Quality Monitoring Report

10/1/2006 Through 12/31/2006

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
Parkview #1	10/16/2006	1:57 PM	2000	1400	7.6	7.8	21
Parkview #2	10/17/2006	5:26 AM	5600	N/A	6.8	8.6	19
Parkview #3	10/17/2006	7:08 AM	53,000	N/A	7.4	8.7	24
Parkview #4	10/17/2006	9:20 AM	50,000	59,000	6.5	9.3	23
Parkview #5	10/17/2006	11:40 AM	40,000	54,000	6.3	8.2	25
Parkview #6	10/18/2006	9:18 AM	3500	N/A	7.8	6.6	24

0002262

Investigative Water Quality Monitoring Report

10/1/2006 Through 12/31/2006

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
Riverside & Delrose #1	10/16/2006	2:36 PM	190	410	7.6	9.8	21
Riverside & Delrose #2	10/17/2006	5:50 AM	3500	N/A	7.1	9.0	22
Riverside & Delrose #3	10/17/2006	7:29 AM	2400	N/A	7.5	8.8	24
Riverside & Delrose #4	10/17/2006	9:47 AM	5900	23,000	6.8	8.6	25
Riverside & Delrose #5	10/17/2006	12:01 PM	22,000	42,000	6.7	8.6	27
Riverside & Delrose #6	10/18/2006	9:48 AM	480	N/A	7.2	8.8	24

0002263

Investigative Water Quality Monitoring Report

10/1/2006 Through 12/31/2006

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
S. Chestnut #1	10/16/2006	2:22 PM	3300	450	7.0	6.6	21
S. Chestnut #2	10/17/2006	5:45 AM	4300	N/A	7.4	8.3	22
S. Chestnut #3	10/17/2006	7:21 AM	4000	N/A	7.3	8.6	25
S. Chestnut #4	10/17/2006	9:35 AM	22,000	38,000	6.7	8.3	26
S. Chestnut #5	10/17/2006	11:53 AM	5500	26,000	6.1	7.8	27
S. Chestnut #6	10/18/2006	9:32 AM	1100	N/A	7.0	7.1	24

0002264

Water Quality Monitoring Program

Precipitation	Date	Total - Day of Event	Total - Prior 4 Days
(McGhee-Tyson	10/26/2006	0	0.02

0002265

Spill Impact Sampling Results

Water Quality Monitoring Program

Event Date: 10/26/2006
Street: 923 Biddle Street (originally reported as 800 Graves Street)
Description: SSO was caused by a partial grease blockage in the sewer main and discharged into a swale to Williams Creek.

Estimated unrecovered volume: 62 gallons

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

Precipitation (McGhee-Tyson)	Date	Total - Day of Event	Total - Prior 4 Days
	10/26/2006	0	0.02

Sample Location	Sample Date	Sample Time	Dissolved		Temperature	pH	Fecal Coliform	E-Coli (MPN)
			Oxygen					
Upstream of SSO Discharge	10/26/2006	14:50	7.8		12	7.5	140	170
Downstream of SSO Discharge	10/26/2006	14:55	7.7		11	7.3	54,000	>2400
Upstream of SSO Discharge	10/31/2006	13:12	7.5		12	7.4	180	310
Downstream of SSO Discharge	10/31/2006	13:07	6.9		14	7.4	290	380

0002266

Spill Impact Sampling Results

Water Quality Monitoring Program

Event Date: 11/9/2006
Street: 6107 Chapman Highway (previously reported as 209 Stratford Road)
Description: SSO was caused by a mechanical failure at the Chapman Highway Pump Station. SSO was not received by any waters of the state, but did flow into a nearby wetland. Samples were taken to assess any impact to the wetland.

Estimated unrecovered volume: 4500 gallons

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

Precipitation (McGhee-Tyson) **Date** 11/9/2006 **Total - Day of Event** 0 **Total - Prior 4 Days** 1.09

Sample Location	Sample Date	Sample Time	Dissolved		Temperature	pH	Fecal Coliform	E-Coli (MPN)
			Oxygen					
Upstream of SSO Discharge	11/9/2006	10:27	6.0		16	7.4	500	650
Downstream of SSO Discharge	11/9/2006	10:22	6.1		16	7.2	44,000	>2400
Downstream of SSO Discharge	11/9/2006	10:35	2.5		13	7.1	520,000	>2400
Upstream of SSO Discharge	11/13/2006	10:50	6.5		12	7.3	60	99
Downstream of SSO Discharge	11/13/2006	10:40	6.3		12	7.2	470	980
Downstream of SSO Discharge	11/13/2006	10:30	.29		8	7.2	2000	1700

0002267

Spill Impact Sampling Results

Water Quality Monitoring Program

Event Date: 11/17/2006
Street 1517 N. Fourth Avenue
Description SSO was caused by a break in the suction line of the bypass pumping arrangement at storage tank construction site. SSO discharged into a swale to First Creek.

Estimated unrecovered volume: 62 gallons

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

Precipitation (McGhee-Tyson) **Date** 11/17/2006 **Total - Day of Event** 0.01 **Total - Prior 4 Days** 1.16

Sample Location	Sample Date	Sample Time	Dissolved		Temperature	pH	Fecal Coliform	E-Coli (MPN)
			Oxygen					
Upstream of SSO Discharge	11/17/2006	17:45	10		13	8.0	410	770
Downstream of SSO Discharge	11/17/2006	17:51	10		13	8.0	450	610

0002268

Spill Impact Sampling Results

Water Quality Monitoring Program

Event Date: 11/28/2006
Street 3250 Mynatt Avenue
Description SSO was caused by a partial debris blockage in the sewer main. SSO discharged to soil saturation and a ditch to a culvert to a ditch to Third Creek.

Estimated unrecovered volume: 11220 gallons

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

Precipitation (McGhee-Tyson) **Date** 11/28/2006 **Total - Day of Event** 0 **Total - Prior 4 Days** 0

Sample Location	Sample Date	Sample Time	Dissolved		Temperature	pH	Fecal Coliform	E-Coli (MPN)
			Oxygen					
Upstream of SSO Discharge	11/28/2006	12:18	10		12	8.0	110	130
Downstream of SSO Discharge	11/28/2006	12:25	11		13	8.0	130	160

0002269

Spill Impact Sampling Results

Water Quality Monitoring Program

Event Date: 12/14/2006
Street 923 Biddle Street (previously reported as 800 Graves Street)
Description SSO was caused by a partial grease blockage in the sewer main and discharged to an unnamed tributary to Williams Creek.

Estimated unrecovered volume: 153 gallons

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

Precipitation (McGhee-Tyson) **Date** 12/14/2006 **Total - Day of Event** 0 **Total - Prior 4 Days** 0.14

Sample Location	Sample Date	Sample Time	Dissolved Oxygen	Temperature	pH	Fecal Coliform	E-Coli (MPN)
Upstream of SSO Discharge	12/14/2006	15:46	3.7	12	7.4	> 600,000	> 2400
Upstream of SSO Discharge*	12/14/2006	15:52	9.8	14	7.8	140	270
Downstream of SSO Discharge	12/14/2006	15:35	3.9	14	7.4	> 600,000	> 2400
Downstream of SSO Discharge**	12/14/2006	16:00	9.6	14	7.8	> 600,000	> 2400
Upstream of SSO Discharge	12/18/2006	12:59	10	9	7.7	1300	580
Upstream of SSO Discharge*	12/18/2006	12:52	11	14	7.9	120	93
Downstream of SSO Discharge	12/18/2006	12:43	10	10	7.7	1800	820
Downstream of SSO Discharge**	12/18/2006	12:47	12	14	7.9	250	180

* Sample taken on Williams creek, upstream from tributary

** Sample taken on Williams creek, downstream from tributary

0002270

Spill Impact Sampling Results

Water Quality Monitoring Program

Event Date: 12/19/2006
Street: 6304 Roberts Road
Description: SSO was caused by a sewer plug blocking a gravity main following the start-up of a new pump station. SSO discharged into swale to Mite Branch.

Estimated unrecovered volume: 47250 gallons

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

Precipitation (McGhee-Tyson) **Date** 12/19/2006 **Total - Day of Event** 0 **Total - Prior 4 Days** 0

Sample Location	Sample Date	Sample Time	Dissolved		Temperature	pH	Fecal Coliform	E-Coli (MPN)
			Oxygen					
Upstream of SSO Discharge	12/19/2006	12:57	14		10	8.1	480	770
Downstream of SSO Discharge	12/19/2006	12:51	15		11	8.0	320,000	>2400
Upstream of SSO Discharge	12/26/2006	09:38	9.0		8	7.8	360	460
Downstream of SSO Discharge	12/26/2006	09:27	8.6		9	7.7	330	360

0002271