



July 30, 2009

Acting Director of the Division of Enforcement  
Department for Environmental Protection  
300 Fair Oaks Lane  
Frankfort, KY 40601

Chief, Environmental Enforcement Section  
Environmental and Natural Resources Division  
U.S. Department of Justice  
601 D street NW  
Washington, DC 20005  
DOJ Case No. 90-5-1-1-08591

Chief, Water Program Enforcement Branch  
Water Management Division  
U.S. Environmental Protection Agency, Region 4  
Atlanta Federal Center  
61 Forsyth Street, S.W.  
Atlanta, Georgia 30303

Re: Consent Decree Case No. 2:05-cv-00199-WOB

Dear Gentlemen:

Pursuant to the above-referenced Consent Decree, Sanitation District No. 1 (SD1) is required to submit quarterly reports that demonstrate SD1's compliance with the Consent Decree:

**42. Quarterly Reports.** The District shall submit to the Cabinet/EPA a quarterly report that describes the District's progress in complying with this Consent Decree for the previous quarter no later than thirty days after the end of each calendar quarter. The first such report shall be submitted to the Cabinet/EPA no later than thirty days after the second full quarter after entry of this Consent Decree.

Information contained within the enclosed Quarterly Report describes SD1's compliance with Consent Decree Case No. 2:05-cv-00199-WOB for the period of April 1, 2009 through June 30, 2009. This report also contains an outlook for the upcoming calendar quarter period of July 1, 2009 through September 30, 2009.

Page 2  
July 30, 2009

A certification as required by the Consent Decree is also enclosed (Consent Decree paragraph 38).

I am confident in the integrity of the enclosed document, and I am certain that its content not only satisfies regulatory requirements, but also helps further the mission and vision of SD1 by demonstrating aggressive, proactive, achievable measures underway in Northern Kentucky to protect water resources and enhance the quality of life.

If you have any questions or concerns, do not hesitate to contact me at 859-578-7465 or by e-mail at [jeger@sd1.org](mailto:jeger@sd1.org).

Best regards,



Jeffery A. Eger  
General Manager

JAE/jh  
Enclosures

# Consent Decree Quarterly Report No. 07

(April 1, 2009 through June 30, 2009)

Sanitation District No. 1  
July 30, 2009



(This page intentionally left blank for double-sided printing.)



CERTIFICATION

Consent Decree Quarterly Report No. 07  
Consent Decree Case No. 2:05-cv-00199-WOB

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.

  
\_\_\_\_\_  
Jeffery A. Eger  
General Manager

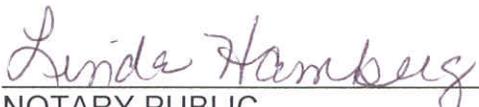
Date July 30, 2009

COMMONWEALTH OF KENTUCKY

COUNTY OF Kenton

)ss.

The foregoing instrument was acknowledged before me this 30 day of July, 2009 by Jeffery A. Eger, General Manager of Sanitation District No. 1.

  
\_\_\_\_\_  
NOTARY PUBLIC

State Range County, Kentucky

My commission expires: May 9, 2010

(This page intentionally left blank for double-sided printing.)

# CONSENT DECREE QUARTERLY REPORT NO. 07

July 30, 2009



**Sanitation District No. 1**  
1045 Eaton Drive  
Ft. Wright, KY 41017

## TABLE OF CONTENTS

<b>SECTION 1. INTRODUCTION.....</b>	<b>1</b>
1.1 Purpose .....	1
1.2 Report Period.....	1
1.3 Consent Decree Compliance Schedule .....	1
<b>SECTION 2. OVERFLOW DATA.....</b>	<b>1</b>
2.1 SSOs Due to Wet Weather Capacity Issues.....	5
2.2 SSOs Due to Operational Issues .....	7
2.3 Wet Weather CSOs .....	10
2.4 Dry Weather CSOs .....	10
2.5 Building Backups .....	12
<b>APPENDIX A:</b> Consent Decree Compliance Schedule	
<b>APPENDIX B:</b> Watershed Improvement Program	
<b>APPENDIX C:</b> Cumulative Overflow Data	
<b>APPENDIX D:</b> Recurring Wet Weather SSOs	
<b>APPENDIX E:</b> Wet Weather CSOs	

### **TABLES**

<b>Table 2.1</b>	Summary of Storm Events (April 1, 2009 – June 30, 2009)
<b>Table 2.2</b>	Discharges from Consent Decree Pump Stations Due to Lack of Capacity during Wet Weather (April 1, 2009 – June 30, 2009)
<b>Table 2.3</b>	Discharges from Pump Stations Not Listed in the Consent Decree Due to Lack of Capacity during Wet Weather (April 1, 2009 – June 30, 2009)
<b>Table 2.4</b>	Dry Weather CSOs (April 1, 2009 – June 30, 2009)

### **FIGURES**

<b>Figure 2.1</b>	Causes of Operational Issues Resulting in SSOs (April 1, 2009 – June 30, 2009)
<b>Figure 2.2</b>	Causes for Blockages in Pipes Resulting in SSOs (April 1, 2009 – June 30, 2009)
<b>Figure 2.3</b>	Building Backups: Public vs. Private (April 1, 2009 – June 30, 2009)
<b>Figure 2.4</b>	Causes of SD1-Responsible Building Backups (April 1, 2009 – June 30, 2009)
<b>Figure 2.5</b>	Causes for Blockages in Main Line Resulting in a Building Backup (April 1, 2009 – June 30, 2009)

## **LIST OF ACRONYMS AND ABBREVIATIONS**

Cabinet	Kentucky Energy and Environment Cabinet
CSO	Combined Sewer Overflow
EPA	U.S. Environmental Protection Agency
gbaMS	GBA Master Series (information tracking system)
SD1	Sanitation District No. 1
SSO	Sanitary Sewer Overflow

## SECTION 1. INTRODUCTION

### 1.1 Purpose

This Quarterly Report is submitted to fulfill the requirements of Sanitation District No. 1's (SD1) Consent Decree as entered on April 18, 2007. This Consent Decree is a legal agreement with the U.S. Environmental Protection Agency (EPA) and the Kentucky Energy and Environment Cabinet (Cabinet). The purpose of the Consent Decree is to address sanitary sewer overflows (SSOs) in SD1's sanitary sewer system and combined sewer overflows (CSOs) in the combined sewer system in an effort to improve water quality throughout SD1's service area. Specifically, Section V Reporting Requirements, states that:

**42. Quarterly Reports.** The District shall submit to the Cabinet/EPA a quarterly report that describes the District's progress in complying with this Consent Decree for the previous quarter no later than thirty days after the end of each calendar quarter.

### 1.2 Report Period

Information contained within this report describes SD1's compliance with Consent Decree Case No. 2:05-cv-00199-WOB for the period of April 1, 2009 through June 30, 2009. This report also contains an outlook for the upcoming calendar quarter period of July 1, 2009 through September 30, 2009.

### 1.3 Consent Decree Compliance Schedule

A comprehensive compliance schedule for meeting the requirements of the Consent Decree can be found in Appendix A. Additionally, a more detailed listing of the projects and activities conducted to comply with the requirements of the Consent Decree, including schedules, project updates for the current reporting period, and planned activity for the subsequent quarter can be found in Appendix B.

## SECTION 2. OVERFLOW DATA

This section of the Quarterly Report presents SD1's estimates of overflow activity in the collection systems. While SD1 has a long history of comprehensive data collection and inspection programs, our existing programs were implemented to meet pre-Consent Decree needs and must be realigned and optimized to fit into the framework of the quarterly reports. This realignment is taking place as part of SD1's wet-weather management activities, and future reports will continue to incorporate expanded overflow metrics based on more quantitative measures as they become available.

Over the last quarter, we have made further progress with developing standardized reports in SD1's computerized maintenance management system, GBA Master Series (gbaMS), to help support the specific reporting needs for these quarterly reports and to better utilize the collected data to track system performance. We are continuing to fine-tune and improve our tracking and reporting capabilities to increase efficiency in our work. SD1 has been using gbaMS since 1999 and has added several modules and applications in response to evolving needs over the years. As there are now new uses for this tool after entering into the Consent Decree, SD1 is undergoing adjustments to both the data input and output processes for gbaMS to generate more precise data for use in these quarterly reports. Because the refinement of gbaMS is ongoing to meet these evolving needs, several numbers generated from this software program will be reported as "approximate." As SD1 moves forward with structuring its reporting procedures, quality assurance and quality control issues regarding data input and output from gbaMS will continue to be addressed.

### Overflow Categories

For reporting and system performance measurement purposes, SD1 has categorized sewer overflows throughout the service area into five distinct categories:

- *SSOs Due to Wet Weather Capacity Issues* – Recurring and inactive overflows from SD1's sanitary sewer system due to a lack of capacity during wet weather. This category includes wet-weather discharges at pump stations that may or may not have a constructed bypass. Overflows are determined to be "recurring" if they have been observed to overflow twice in a running twelve month period. Overflows are determined to be "inactive" until they occur more than once in a running twelve month period. Inactive overflows are generally under investigation as suspected or predicted hydraulic model overflow points in the collection system.
- *SSOs Due to Operational Issues* – Overflows from SD1's sanitary sewer system, including pump stations that are not a result of wet weather capacity issues. Many of these are one-time, dry-weather occurrences caused by temporary system issues that are investigated and corrected as soon as practicable.
- *Wet Weather CSOs* – Wet-weather discharges from the combined sewer system.
- *Dry Weather CSOs* – Dry-weather discharges from the combined sewer system.
- *Building Backups* – The release of raw sewage from a service lateral into a building in SD1's service area. Building backups can be caused by several factors, such as constrained capacity during wet weather or a blockage or collapse in the service lateral or main line, and can be determined to be either SD1's responsibility or the building owner's responsibility.

### Quantitative Estimates

SD1 uses three general methods for developing quantitative estimates of overflow activity:

- Field inspections during, or shortly after, wet-weather events to identify activations. This inspection program has been in place since 2005 and will be expanded as warranted for ongoing reporting and sewer overflow response cleanup. SD1's wet weather crew continues to perform routine inspections before and after rain events at prioritized recurring, inactive and suspected SSO locations to understand and verify overflow activity and the need for sewer overflow response cleanup. This is part of SD1's ongoing effort to characterize and verify overflows throughout the collection systems and ensure they are categorized accurately and cleaned up after rain events. Proper characterization of overflows ensures that the hydraulic model that SD1 utilizes maintains and improves upon its accuracy and will help identify the most appropriate and effective solutions to be included in SD1's Watershed Plans.
- Simple hydraulic estimating using Manning's Gravity Flow and Pipe Calculation to report overflows from pump stations with constructed bypasses, and industry standard volume estimations techniques and calculations are used for spills or for any witnessed overflow from a manhole. The only exception to this calculation methodology is at the Lakeview Pump Station, which has a metered bypass pipe. This method has been used historically for reporting purposes, and its results are included in this Quarterly Report.
- Estimates developed from SD1's system-wide collection system models. SD1 completed a year-long flow monitoring program in 2008, consisting of more than 245 flow meters and 45 rain gauges installed throughout the combined and separate sewer systems, that was utilized to update the calibration and validation of the system-wide hydraulic models. This calibration was undertaken to provide a model network that could confidently be used as an accurate tool in preparing the Watershed Plans for June 2009. In addition to the use of the models for planning future capital improvements, the models are also being used to provide information about the current performance of SD1's system. Based on the results of the model calibration and verification, SD1 has developed a highly calibrated hydraulic model that provides an accurate representation of the sewer system. This tool allows SD1 to have confidence in the results of the overflow volumes from the sewer system and to provide estimates of the overflow locations within the system for quarterly reporting purposes. This approach is consistent with SD1's commitment to provide the best available information on overflow activity within these reports.

For this submittal, SD1 has collected rainfall data from a series of eight rain gauges located across the system and simulated the rainfall that occurred between April 1, 2009 and June 30, 2009 within the hydraulic models. The results of the model

simulations have been summarized and included as an estimate of the frequency and total volume of the overflow locations within SD1's system for this period. For the modeled locations, these results are not a summary of observed or confirmed activations but are a confident estimate of the overflow statistics based on the calibrated and verified model. As noted in earlier quarterly reports and the Sewer Overflow Response Plan, SD1 is actively realigning and optimizing their field activities to support the framework of Consent Decree requirements, and this process includes continually performing field inspections to verify the model results against actual field conditions through monitoring and observation. Over time, these field verifications will continue to improve the model as appropriate to better reflect any discrepancies found with observed conditions. It is an ongoing and continual process to refine the modeling tools in order to provide the most accurate information possible about overflow locations, including future model updates to incorporate system improvements.

#### Precipitation Data

Rainfall statistics are an important component of overflow reporting, as rainfall conditions represent an uncontrolled variable impacting SD1's wet weather CSO and SSO activity. Quarterly CSO and SSO activations and volumes will constantly vary over time, with or without system improvements, due to natural variations in rainfall patterns and the associated groundwater and antecedent moisture conditions. Over time, SD1 expects system improvements to show a clear trend in reduced overflow activity. However, reviewing overflow reports for any individual quarter relative to the previous quarter also requires careful review of the rainfall associated with each quarter, in order to understand the relative impact of rainfall patterns. For this reason, storm event summaries are included in all overflow reporting submittals. The data in Table 2.1 is from the Cincinnati-Northern Kentucky International Airport rain gauge maintained by the National Weather Service (CVG).

**Table 2.1 Summary of Storm Events**  
(April 1, 2009 through June 30, 2009)

Month	Approximate # of Storm Events	Rainfall (in)
April 2009	16	3.72
May 2009	14	3.74
June 2009	11	7.33
<b>Total</b>	<b>41</b>	<b>14.79</b>

The remainder of this section reports overflows that occurred throughout SD1's service area during the period of April 1, 2009 through June 30, 2009. A cumulative accounting of SD1's overflow activity from January 2008 through the current reporting period can be found in Appendix C.

## 2.1 SSOs Due to Wet Weather Capacity Issues

As previously described, this category includes recurring and inactive overflows from SD1's sanitary sewer system due to lack of capacity during wet weather. This includes wet-weather discharges at pump stations that may or may not have a constructed bypass. Overflows are determined to be "recurring" if they have been observed to overflow twice in a running twelve month period. Overflows are determined to be "inactive" until they have been observed to overflow more than once in a running twelve month period. Inactive overflows are generally under investigation as suspected or predicted hydraulic model overflow points in the collection system.

### Recurring Wet Weather SSOs

Modeled activation and volume statistics for SD1's 98 recurring wet weather SSO locations for the current reporting period can be found in Appendix D. Updates to the locations of SD1's recurring SSOs will be reported on an annual basis to include any revisions based upon the field inspection and hydraulic modeling programs. Appendix E of SD1's April 2009 Quarterly Report, titled "Wet Weather SSO Revisions Transaction Database," included revisions to the recurring SSO list. Therefore, any revisions to the SSO list documented after April 2009 will be published in the April 2010 Quarterly Report.

### Recurring Pump Station Overflows

In addition to the 98 recurring wet weather SSOs, there are also 14 pump stations identified in the Consent Decree that have historically documented recurring wet weather capacity issues. SD1 submitted a Pump Station Overflow Elimination Plan to the EPA and the Cabinet on September 18, 2007 that provides the plan to identify watershed projects to eliminate overflows at these stations. Table 2.2 lists each of the 14 pump stations identified in Exhibit E of the Consent Decree and demonstrates their wet weather SSO occurrences during the current reporting period.

The 14 pump stations listed in the Consent Decree discharged a total of 24 times due to lack of capacity during the current reporting period, with an estimated overflow volume of 3,817,500 gallons. As previously mentioned, SD1 uses Manning's Gravity Flow and Pipe Calculation to estimate discharge volume from pump stations. The only exception to this calculation methodology is at the Lakeview Pump Station, which has a metered bypass pipe.

**Table 2.2 Discharges from Consent Decree Pump Stations Due to Lack of Capacity during Wet Weather**  
(April 1, 2009 – June 30, 2009)

Name of Pump Station	Number of Discharge Occurrences	Total Estimated Volume (gallons)
Allen-Fork	0	0
Crestview	0	0
Highland Acres	1	1,500
Kentucky Aire	5	32,000
Lakeview	5	3,708,000
Riley Road	12	72,000
Ripple Creek	0	0
South Park	0	0
Sunset	1	4,000
Union	0	0
Alex-Licking	Overflows Eliminated	
Harrison Harbor		
South Hampton		
Taylorport		
<b>TOTAL</b>	<b>24</b>	<b>3,817,500</b>

In addition to tracking the recurring, wet weather SSOs at the pump stations listed in the Consent Decree, SD1 continuously monitors all pump stations throughout the service area for recurring wet weather capacity issues. During the current reporting period, there were three pump stations with documented recurring wet weather capacity issues that discharged. Table 2.3 provides detailed information for these occurrences. As SD1 moves forward with the watershed planning efforts required under the Consent Decree, priorities will be established based on severity and known wet weather issues will be addressed.

**Table 2.3 Discharges from Pump Stations Not Listed in the Consent Decree Due to Lack of Capacity during Wet Weather**  
(April 1, 2009 through June 30, 2009)

Name of Pump Station	Number of Wet-Weather Related Discharge Occurrences	Total Estimated Volume (gallons)
Gamon Calmet	1	250
Highland Heights	6	125,000
Mafred	1	1,000
<b>TOTAL</b>	<b>8</b>	<b>126,250</b>

Inactive Wet Weather SSOs

During the current reporting period, there were two inactive overflows observed with an estimated overflow volume of 13,000 gallons. One overflow occurred at the Overlook Pump Station and one occurred at a manhole location. Both overflows were due to extreme wet weather events where heavy and intense rainfall occurred in a short period of time. These structures have been added to SD1’s wet weather overflow inspection program and will be monitored to verify overflow activity and provide a sewer overflow response cleanup, if needed.

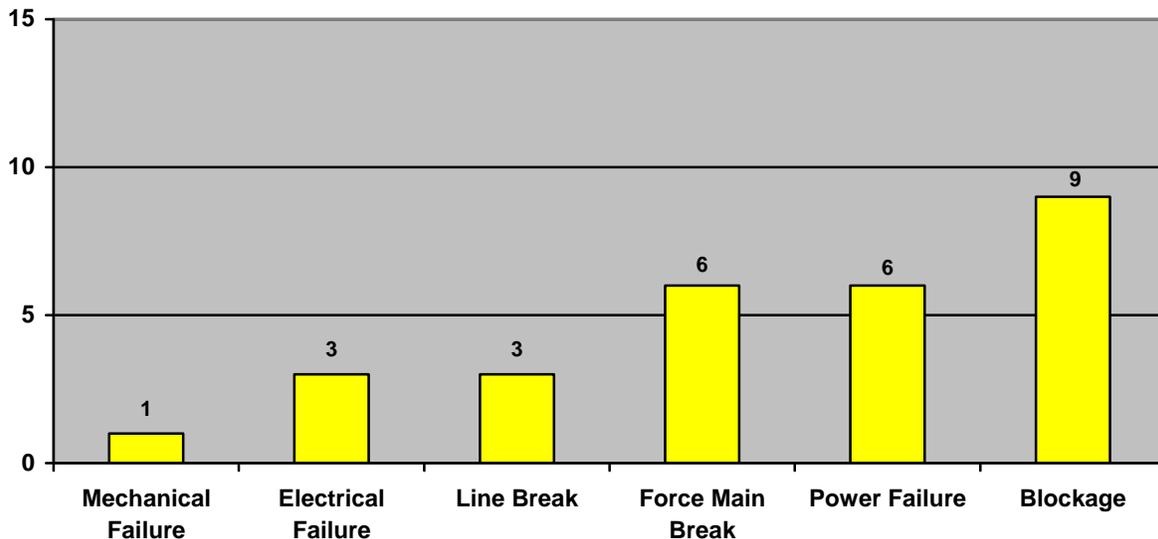
**2.2 SSOs Due to Operational Issues**

As previously mentioned, this category of overflows includes discharges from SD1’s sanitary sewer system that are not a result of wet weather capacity issues. Many of these are one-time, dry-weather occurrences caused by temporary system issues that are investigated and corrected as soon as practicable.

During the current reporting period, there were a total of 28 SSOs due to operational issues throughout SD1’s service area with a total estimated overflow volume of 11,122,000 gallons, of which 95% (10,536,900 gallons) can be attributed to the Lakeview Pump Station.

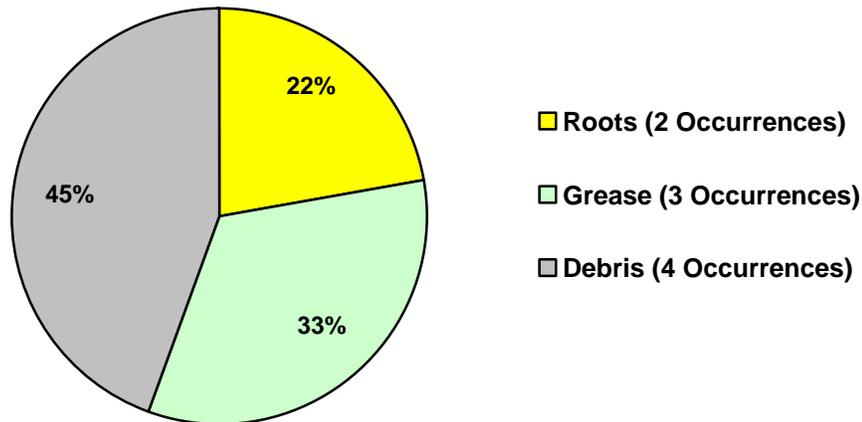
The 28 overflows reported in this category can be broken down by the primary causes demonstrated in Figure 2.1.

**Figure 2.1 Causes of Operational Issues Resulting in SSOs  
(April 1, 2009 – June 30, 2009)**



The 9 SSOs caused by blockages can further be broken down into 3 secondary causes, as demonstrated in Figure 2.2.

**Figure 2.2 Causes for Blockages in Pipes Resulting in SSOs**  
(April 1, 2009 through June 30, 2009)



All of these SSOs were immediately acted upon and the problems repaired. Where line breaks were found, the breaks were repaired and the sewers post-inspected to ensure all problems were addressed. Where blockages were found, the reasons for the blockages were identified and recorded in gbaMS. These sewers were then put into our cleaning program to be inspected and cleaned as-needed in the next six months as part of the Continuous Sewer Assessment Program.

#### Bypasses Occurring at Lakeview Pump Station

On May 26, 2009 the Lakeview Pump Station bypassed 11,700 gallons of overflow during a power outage. The pump station maintenance personnel providing the sewer overflow response discovered that a hydraulic surge event occurred in the piping at the station and damaged a flange on the station's surge relief valve which caused a leak in the discharge piping. The next day, a replacement surge relief valve was ordered and the damaged valve was taken out of service. The Lakeview pump station has backup power, but the time associated with switching from one power source to the next allowed for the hydraulic surge event to occur. Hydraulic surges occur instantaneously when the momentum of the fluid flow in the discharge piping and force main change as the pumps slow down and stop while the power is re-engaged. This change in momentum in the fluid flow creates very high pressures in the piping and can lead to piping failures.

On June 1, 2009, the Lakeview Pump Station experienced another hydraulic surge event during a second power outage, which caused a major failure at a gate valve in the discharge piping in the dry well. The dry well flooded and submerged the motors of all eight pumps. The station was off line at this time and began releasing to Banklick

Creek at 1:41 pm. SD1 maintenance personnel responded and isolated the station from further flows and drained the dry well. SD1 treatment plant and pump station maintenance crews began working to restore the station. One pump set was repaired and placed back in service at 6:30 pm, and a second pump set was placed back in service at 9:40 pm. The pump station stopped releasing at 9:50 pm. A total of 1,968,900 gallons of overflow was released to Banklick Creek during this event.

In order to control surge pressures at the Lakeview Pump Station, a surge relief tank project was designed last year to prevent these very types of failure events from occurring. This project was under construction at the Lakeview Pump Station at the time of these events. The project includes the installation of two 7,500-gallon surge tanks, including an underground tank vault and installation of four pump discharge check valves. The equipment is scheduled to be in-service by July 30, 2009. Once complete, the improvements will prevent future failures like the ones described above and achieve the following:

- Reduce surge pressures below the pressure rating of the existing force main
- Reduce vacuum conditions – eliminate damaging vapor cavity collapses
- Minimize potential for pump station and force main failure
- Minimize maintenance requirements

A third overflow event at the Lakeview Pump Station occurred June 7, 2009, when a small leak in the Lakeview Pump Station force main was discovered. SD1 believes the leak was a result of the surge events that occurred May 26, 2009 and June 1, 2009. The Lakeview Pump Station had to be taken out of service in order to repair the leak, at which time the station began releasing to Banklick Creek. Once the force main was repaired, the pump station resumed standard operation. A total of 8,556,300 gallons of overflow was released to Banklick Creek between June 7, 2009 and June 10, 2009 while repairs were made to the force main. SD1 is evaluating the targeted replacement/rehabilitation of the Lakeview force main to prevent future leaks as part of its Force Main and Air Release Valve Preventative Maintenance Program.

The broken gate valve at the Lakeview Pump Station was replaced on July 2, 2009, and all four pump sets were placed in service on July 6, 2009. A replacement surge relief valve has been ordered but will not be available until September 4, 2009. SD1 has entered into a contract with Allied Pumping to provide an emergency pumping response at Lakeview Pump Station in the event of another surge event occurs at the station before the surge relief tanks are placed into service. This will ensure that pumping is available to protect the station from long term damage if another power outage or surge event were to occur. Allied Pumping began installing equipment on July 7, 2009.

### **2.3 Wet Weather CSOs**

Included in Appendix E are the modeled activation and volume statistics for SD1's 92 CSOs. This data was generated from the hydraulic modeling program previously described in Section 2.1.

### **2.4 Dry Weather CSOs**

During the current reporting period, there were five dry weather CSOs, with a total estimated discharge volume of 42,700 gallons. These dry weather CSOs were evaluated for cause, and solutions were identified to ensure they do not reoccur in accordance with SD1's Nine Minimum Control No. 5 plan to reduce and eliminate dry weather CSOs. Table 2.5 summarizes the locations, causes of the overflows, estimated overflow volumes, and the actions taken to prevent these overflows from occurring in the future.

*(This space intentionally left blank.)*

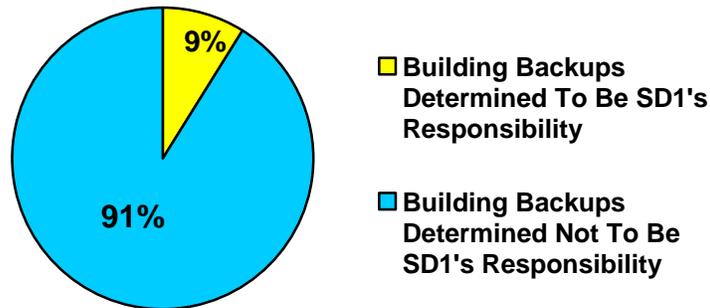
**Table 2.5 Dry Weather CSOs  
(April 1, 2009 – June 30, 2009)**

Structure ID#	Location	Overflow Cause	Estimated Volume	Corrective Action Taken
0600016	Ward Street, CSO Diversion	Debris	2,000	High flows from a wet weather event caused rocks to be moved down the influent sewer and settle in the dry weather flow diversion pipe. An inspection after the wet weather event of the dry weather diversion manhole revealed this blockage. The debris was removed from the line, which stopped the dry weather overflow. The sewers were then scheduled for CCTV inspection to identify any other problems.
		Line Defect	2,000	The day of the CCTV inspection, the crew identified the dry weather overflow was occurring again. The dry weather flow sewer was immediately cleaned to stop the dry weather overflow and the sewer was CCTV inspected. The inspection revealed defects in the dry weather flow pipe downstream of the diversion that was trapping debris. The pipe was repaired the next day to eliminate the defects.
1850150	Church Street, CSO Diversion	Debris	36,000	High flows from a wet weather event caused debris to be moved down the influent sewer and become trapped between a landing grating and the dry weather flow diversion weir. An inspection after the wet weather event of the diversion structure revealed this blockage. The debris was immediately removed to stop the dry weather overflow. The dry weather flow pipe was inspected later the same day to confirm no additional downstream problems. It was determined that the landing grating was the cause of the dry weather overflow and the grating was then removed.
0980002	12 <sup>th</sup> Street, CSO Diversion	Debris	500	High flows from a wet weather event caused a wood block to be moved down the influent sewer and settle in the dry weather flow diversion sump. An inspection after the wet weather event of the diversion manhole revealed this blockage and it was traced back to a nearby catch basin. The wood block was removed from the diversion to stop the dry weather overflow. The sewers were CCTV inspected and the only problem identified was the catch basin. The catch basin is in the process of being replaced in order to trap debris within the basin to prevent future occurrences.
1480012	3 <sup>rd</sup> Street, CSO Diversion	Debris	2,200	High flows from a wet weather event caused mud and gravel to be moved down the influent sewer and settle in the dry weather flow diversion pipe. An inspection after the wet weather event of the diversion manhole revealed this blockage. The mud and gravel was traced back to a nearby catch basin from a construction contractor. The debris was removed from the diversion to stop the dry weather overflow. The sewers were CCTV inspected and the only problem identified was the catch basin. The catch basin is in the process of being replaced in order to trap debris within the basin to prevent future occurrences.

## 2.5 Building Backups

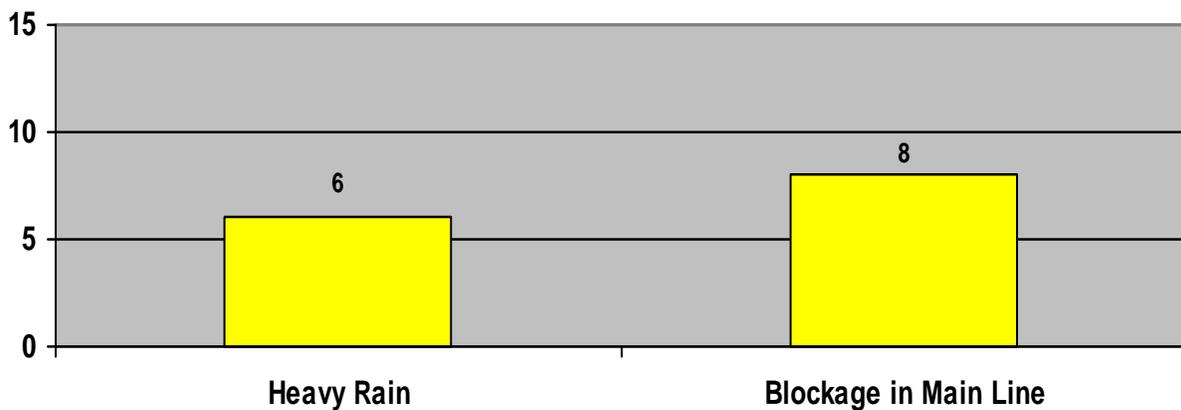
During the current reporting period, there were approximately 159 building backups throughout SD1’s service area. Of these 159, approximately 14 were determined to be SD1’s responsibility and 145 were determined not to be the responsibility of SD1, as shown in Figure 2.3. The backups determined not to be the responsibility of SD1 were due to causes such as breaks and blockages in private service laterals.

**Figure 2.3 Building Backups: Public vs. Private**  
(April 1, 2009 – June 30, 2009)



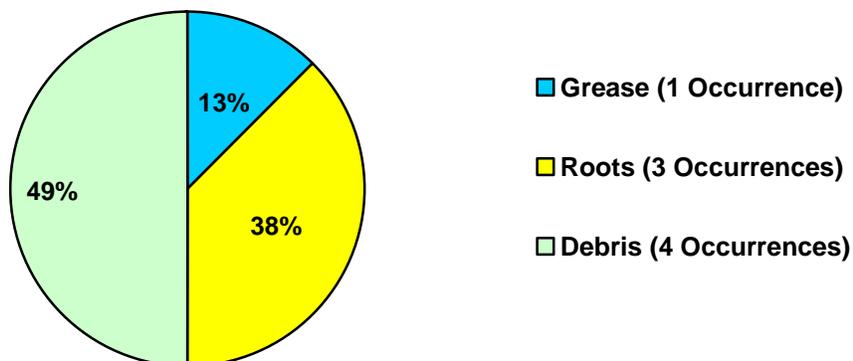
Causes for the approximate 14 building backups determined to be SD1’s responsibility are detailed in Figure 2.4 below.

**Figure 2.4 Causes of SD1-Responsible Building Backups**  
(April 1, 2009 – June 30, 2009)



The 8 building backups caused by blockages can further be broken down into three secondary causes, as demonstrated in Figure 2.5.

**Figure 2.5 Causes for Blockages in Main Line Resulting in a Building Backup  
(April 1, 2009 – June 30, 2009)**



All of these backups were immediately acted upon and the problems repaired. Where line breaks were found, the breaks were repaired and the sewers post-inspected to ensure all problems were addressed. Where blockages were found, the reasons for the blockages were identified and recorded in gbaMS. These sewers were then put into our Cleaning program to be inspected and cleaned as-needed in the next six months as part of our Continuous Sewer Assessment Program.

**APPENDIX A:**  
***Consent Decree Schedule***

---

(This page intentionally left blank for double-sided printing.)

### Consent Decree Compliance Schedule

	CONSENT DECREE ACTIVITY	PERCENT COMPLETE	DUE DATE	DATE OF COMPLETION
<b>CIVIL PENALTY</b>				
✓	Pay Civil Penalties to EPPC and US EPA	100%	06/18/07	06/18/07
<b>CMOM PROGRAM REQUIREMENTS – 2007 through 2014</b>				
✓	Submit CMOM Program Self-Assessment	100%	10/18/07	10/17/07
✓	Submit Grease Control Program	100%	10/18/07	09/18/07
✓	Submit Pump Station Backup Power Plan	100%	04/18/08	12/14/07
✓	Submit Sewer Overflow Response Plan (SORP)	100%	10/18/07	10/09/07
<b>Submit CMOM Annual Report</b>				
✓	CMOM Annual Report 1	100%	12/31/07	12/28/07
✓	CMOM Annual Report 2	100%	12/31/08	12/19/08
	CMOM Annual Report 3	0%	12/31/09	
	CMOM Annual Report 4	0%	12/31/10	
	CMOM Annual Report 5	0%	12/31/11	
	CMOM Annual Report 6	0%	12/31/12	
	CMOM Annual Report 7	0%	12/31/13	
	CMOM Annual Report 8	0%	12/31/14	
<b>Complete SORP Annual Review</b>				
✓	SORP Annual Review 1	100%	05/14/09	01/30/09
	SORP Annual Review 2	0%	12/31/10	
	SORP Annual Review 3	0%	12/31/11	
	SORP Annual Review 4	0%	12/31/12	
	SORP Annual Review 5	0%	12/31/13	
	SORP Annual Review 6	0%	12/31/14	
<b>INITIAL WATERSHED PROJECTS</b>				
	Complete Initial Watershed Projects (51 Total)	76%	12/31/14	
<b>Submit Initial Watershed Projects Annual Report</b>				
✓	Initial Watershed Projects Annual Report 1	100%	04/18/08	04/08/08
✓	Initial Watershed Projects Annual Report 2	100%	06/07/09	06/05/09
	Initial Watershed Projects Annual Report 3	0%	06/07/10	
	Initial Watershed Projects Annual Report 4	0%	06/07/11	
	Initial Watershed Projects Annual Report 5	0%	06/07/12	
	Initial Watershed Projects Annual Report 6	0%	06/07/13	
	Initial Watershed Projects Annual Report 7	0%	06/07/14	
<b>NMC PROGRAM REQUIREMENTS – 2007 through 2014</b>				
✓	Submit NMC Documentation of Compliance	100%	04/18/08	03/12/08
✓	Complete Additional NMC Compliance Activities (51 Total)	100%	04/18/09	04/18/09
<b>Submit NMC Annual Report</b>				
✓	NMC Annual Compliance Report 1	100%	09/04/09	05/11/09
	NMC Annual Compliance Report 2	0%	09/04/10	
	NMC Annual Compliance Report 3	0%	09/04/11	
	NMC Annual Compliance Report 4	0%	09/04/12	
	NMC Annual Compliance Report 5	0%	09/04/13	
	NMC Annual Compliance Report 6	0%	09/04/14	
<b>PUBLIC PARTICIPATION</b>				
✓	Watershed Summit	100%	N/A	08/30/07
✓	Watershed Community Council Meeting 1	100%	N/A	11/27/07
✓	Watershed Community Council Meeting 2	100%	N/A	02/26/08
✓	Watershed Community Council Meeting 3	100%	N/A	05/20/08
✓	Watershed Community Council Meeting 4	100%	N/A	08/19/08
✓	Watershed Community Council Meeting 5	100%	N/A	11/18/08
✓	Watershed Community Council Meeting 6	100%	N/A	02/17/09

### Consent Decree Compliance Schedule

CONSENT DECREE ACTIVITY		PERCENT COMPLETE	DUE DATE	DATE OF COMPLETION
<b>PUMP STATION OVERFLOW ELIMINATION PLAN (PSOEP) – 2007 through 2014</b>				
✓	Submit PSOEP	100%	10/18/07	09/18/07
<b>Submit PSOEP Annual Report</b>				
✓	PSOEP Annual Report 1	100%	05/14/09	05/11/09
	PSOEP Annual Report 2	0%	05/14/10	
	PSOEP Annual Report 3	0%	05/14/11	
	PSOEP Annual Report 4	0%	05/14/12	
	PSOEP Annual Report 5	0%	05/14/13	
	PSOEP Annual Report 6	0%	05/14/14	
<b>REPORTING – 2007 through 2014</b>				
<b>Submit Quarterly Report</b>				
✓	Submit Quarterly Report 1	100%	01/30/08	01/30/08
✓	Submit Quarterly Report 2	100%	04/30/08	04/30/08
✓	Submit Quarterly Report 3	100%	07/30/08	07/30/08
✓	Submit Quarterly Report 4	100%	10/30/08	10/30/08
✓	Submit Quarterly Report 5	100%	01/30/09	01/30/09
✓	Submit Quarterly Report 6	100%	04/30/09	04/30/09
✓	Submit Quarterly Report 7	100%	07/30/09	07/30/09
	Submit Quarterly Report 8	0%	10/30/09	
	Submit Quarterly Report 9	0%	01/30/10	
	Submit Quarterly Report 10	0%	04/30/10	
	Submit Quarterly Report 11	0%	07/30/10	
	Submit Quarterly Report 12	0%	10/30/10	
	Submit Quarterly Report 13	0%	01/30/11	
	Submit Quarterly Report 14	0%	04/30/11	
	Submit Quarterly Report 15	0%	07/30/11	
	Submit Quarterly Report 16	0%	10/30/11	
	Submit Quarterly Report 17	0%	01/30/12	
	Submit Quarterly Report 18	0%	04/30/12	
	Submit Quarterly Report 19	0%	07/30/12	
	Submit Quarterly Report 20	0%	10/30/12	
	Submit Quarterly Report 21	0%	01/30/13	
	Submit Quarterly Report 22	0%	04/30/13	
	Submit Quarterly Report 23	0%	07/30/13	
	Submit Quarterly Report 24	0%	10/30/13	
	Submit Quarterly Report 25	0%	01/30/14	
	Submit Quarterly Report 26	0%	04/30/14	
	Submit Quarterly Report 27	0%	07/30/14	
	Submit Quarterly Report 28	0%	10/30/14	
<b>STATE ENVIRONMENTAL PROJECTS</b>				
✓	Setup 6 Separate Escrow Accounts	100%	10/18/07	10/18/07
	Conservancies	40%	04/18/12	
	Licking River Watershed Watch	25%	04/18/12	
	Split Rock	99%	04/18/12	
	Education Programs	10%	04/18/12	
	State Environmental Project Completion Report	0%	06/17/12	
<b>SUPPLEMENTAL PROJECTS</b>				
	Supplemental Environmental Projects	40%	04/18/12	
	SEP Completion Reports	0%	06/17/12	

## Consent Decree Compliance Schedule

CONSENT DECREE ACTIVITY		PERCENT COMPLETE	DUE DATE	DATE OF COMPLETION
<b>WATERSHED PLANS</b>				
<b>Framework for Developing Watershed Plans</b>				
✓	Obtain Public Input on Framework for Watershed Plans	100%	04/09/08	04/09/09
✓	Submit Framework for Watershed Plans	100%	04/18/08	04/17/08
<b>First Round Watershed Plans</b>				
✓	Obtain Public Input on First Round of Watershed Plans	100%	06/27/09	06/08/09
✓	<i>Public Comment Period (5/7/09-6/8/09)</i>	100%	06/08/09	06/08/09
✓	<i>Boone County Public Meeting</i>	100%	N/A	05/14/09
✓	<i>Campbell County Public Meeting</i>	100%	N/A	05/19/09
✓	<i>Kenton County Public Meeting</i>	100%	N/A	05/21/09
✓	Submit First Round of Watershed Plans	100%	06/30/09	06/30/09
<b>Second Round Watershed Plans</b>				
	Obtain Public Input on Second Round of Watershed Plans	0%	Summer 2014 <sup>1</sup>	
	Submit Second Round of Watershed Plans	0%	Summer 2014 <sup>1</sup>	
<b>Third Round Watershed Plans</b>				
	Obtain Public Input on Third Round of Watershed Plans	0%	Summer 2019 <sup>1</sup>	
	Submit Third Round of Watershed Plans	0%	Summer 2019 <sup>1</sup>	
	<sup>1</sup> <i>Deadline is dependent on the approval date of each Watershed Plan.</i>			
<b>Consent Decree Compliance</b>				
	Complete all Consent Decree Compliance Measures	11%	12/31/25	

(This page intentionally left blank for double-sided printing.)

**APPENDIX B:**

***Watershed Improvement Program***

(This page intentionally left blank for double-sided printing.)

### Watershed Improvement Program (2007 through 2014)

CIP Title	Basin	Scheduled Completion Date	Actual Completion Date	Past Activity for 4/1/2009 to 6/30/2009	Planned Activity for 7/1/2009 to 9/30/2009
<b>Initial Watershed Projects</b>					
Strawberry PS Elimination	North	2006	2005	Complete	
Beechwood Outfall Sewer Replacement	North	2007	2007	Complete	
Eastern Regional - Contract 1--Pond Creek Force Main and Gravity Sewer to Eastern Regional WRF	East	2008	2007	Complete	
Eastern Regional - Contract 2--Kahn's Gravity Sewer and Gravity Sewer to the Pond Creek PS	East	2008	2007	Complete	
US 27 at Summit Assessment	East	2008	2006	Complete	
Eastern Regional - Contract 4--Alex-Licking Gravity Sewer & Force Main to Contract 1	East	2009	2008	Complete	
Eastern Regional - Contract 6--Pond Creek PS	East	2008	2007	Complete	
Eastern Regional - Contract 8A--Alex-Licking PS	East	2009	2009	Complete	
Parkside PS Relocation	East	2008	2007	Complete	
Eastern Regional Water Reclamation Facility	East	2008	2008	Complete	
Highland Heights PS Study	East	2006	2006	Complete	
Wilson/Waterworks Road Relief Sewer Study	East	2008	2007	Complete	
Pinehill/Skyview Terrace Sewer	East	2006	2005	Complete	
Western Regional - KDOT - Turkeyfoot Road Force Main	West	2006	2005	Complete	
Western Regional - Union Sewer (North and South)	West	2013	2008	Complete	
American Sign PS Rehabilitation	West	2008	2008	Complete	
Allen Fork Collection System - Phase I Improvements	West	2009	2007	Complete	
Duncan Drive Assessment Project	West	2007	2006	Complete	

### Watershed Improvement Program (2007 through 2014)

CIP Title	Basin	Scheduled Completion Date	Actual Completion Date	Past Activity for 4/1/2009 to 6/30/2009	Planned Activity for 7/1/2009 to 9/30/2009
<b>Initial Watershed Projects</b>					
Banklick PS Screening Facility	Central	2006	2005	Complete	
Stevenson Road Relief Sewer Project Phase II	Central	2006	2006	Complete	
Latonia Combined Sewer Separation	Central	2009	2007	Complete	
Licking River Sewer Crossing Study	Central	2007	2007	Complete	
McMillan PS Removal	Central	2006	2005	Complete	
Meyer Road PS Rehabilitation	Central	2008	2008	Complete	
Macke PS Rehabilitation	Central	2008	2008	Complete	
Richwood PS Improvements	Central	2006	2005	Complete	
Patton Street Sewer Study	Central	2006	2006	Complete	
South Hills Outfall	Central	2008	2007	Complete	
Grit Chamber Projects	Multiple	2010	2008	Complete	
Fort Wright Illicit Discharge Removal	Multiple	2007	2006	Complete	
Fort Wright Sanitary Sewer Rehabilitation Phase 1	Multiple	2007	2006	Complete	
Fort Wright Outfall Sewer - Phase II	Multiple	2006	2006	Complete	
Dry Creek Treatment Plant - Grit Removal Modifications	Multiple	2006	2005	Complete	
Large Diameter Sewer Assessment Program - Phase III	Multiple	2007	2006	Complete	
Brookwood Subdivision SSES Study	Multiple	2006	2006	Complete	
Southern Kenton Drainage Study	Multiple	2007	2006	Complete	
Wilson Road Sewer Assessment Project	Multiple	2006	2005	Complete	
Apple Drive Sewer Outfall	Multiple	2006	2006	Complete	
Bluegrass Swim Club Sewer Separation	Multiple	2008	2007	Complete	

### Watershed Improvement Program (2007 through 2014)

CIP Title	Basin	Scheduled Completion Date	Actual Completion Date	Past Activity for 4/1/2009 to 6/30/2009	Planned Activity for 7/1/2009 to 9/30/2009
<b>Initial Watershed Projects</b>					
Eastern Regional - Contract 3--Riley Force Main and Gravity Sewer to the ERWRF	East	2009	n/a	Construction	Finish Construction
Eastern Regional - Contract 7--Riley Road #2 PS	East	2009	n/a	Construction	Finish Construction
Western Regional - Turkeyfoot Industrial Road Force Main	West	2013	n/a	Construction on two sections are complete. Remaining sections are under design.	Final Design
Western Regional Conveyance System to Western Regional WRF	West	2013	n/a	Construction	Construction
Western Regional - Sunnybrook Sewer	West	2013	n/a	Construction	Construction
Western Regional - Gunpowder Interceptor Sewer	West	2013	n/a	Construction	Construction
Western Regional Water Reclamation Facility	West	2013	n/a	Construction	Construction
Eastern Regional - Contract 5--Sunset Force Main and Gravity Sewer	East	2010	n/a	Final Design	Final Design
Eastern Regional - Contract 8B - Sunset PS Relocation	East	2010	n/a	Final Design	Final Design
Western Regional - Frogtown Interceptor Sewer (from Sunnybrook Dr. to Frogtown Rd.)	West	2014	n/a	Final Design	Final Design
Western Regional - South Fork Gunpowder Interceptor Sewer and Rosetta Sewer	West	2013	n/a	Final Design	Final Design
Western Regional - Narrows Road Diversion PS	West	2013	n/a	Final Design	Final Design
<b>Initial Watershed Projects Total Costs (future and spent dollars)</b>					<b>\$415.4 Million</b>

### Watershed Improvement Program (2007 through 2014)

CIP Title	Basin	Scheduled Completion Date	Actual Completion Date	Past Activity for 4/1/2009 to 6/30/2009	Planned Activity for 7/1/2009 to 9/30/2009
<b>System-wide and Basin Projects (Schedules listed in this section are subject to change based on the approval of SD1's Watershed Plans.)</b>					
Alex-Licking PS Overflow Elimination	Central	2010	2009	Complete	
Harrison Harbor PS Overflow Elimination	East	2010	2009	Complete	
Riley Road PS Overflow Elimination	East	2010	2009	Complete	
Donnemeyer Improvements, Newport Pavilion Improvemtns, Bellevue Relief Sewer, Wilson/Waterworks Road	North	2010	2009	Complete	
Taylorport PS Overflow Elimination	North	2010	2004	Complete	
River Water Intrusion Mitigation	System-wide	Beyond 2014	n/a	Initial Design	Initial Design
Priority Inflow and Infiltration Source Identification & Removal Program	System-wide	Beyond 2014	n/a	Initial Design	Initial Design
Green Programs					
– Downspout Disconnection	System-wide	Beyond 2014	n/a	Initial Design	Initial Design
– Rain Barrels	System-wide	Beyond 2014	n/a	Initial Design	Initial Design
– Rain Gardens	System-wide	Beyond 2014	n/a	Initial Design	Initial Design
– Green Roof	System-wide	Beyond 2014	n/a	Initial Design	Initial Design
– Urban Reforestation	System-wide	Beyond 2014	n/a	Initial Design	Initial Design
Green Demonstration Projects					
– I-71/75 Reforestation	System-wide	Beyond 2014	n/a	Initial Design	Final Design
– Prisoner's Lake Water Harvest Project	System-wide	Beyond 2014	n/a	Initial Design	Final Design
– Green Street	System-wide	Beyond 2014	n/a	Initial Design	Initial Design
– Green School	System-wide	Beyond 2014	n/a	Initial Design	Initial Design
– Partnering on Developing	System-wide	Beyond 2014	n/a	Initial Design	Initial Design
– Innovative Technology Testing	System-wide	Beyond 2014	n/a	Initial Design	Initial Design
– Lakeview PS Pump Replacement	Central	2014	n/a	Initial Design	Initial Design
– Church Street (gray, green, & watershed controls)	Central	2013	n/a	Initial Design	Initial Design
– Vernon Lane (Public & Private Source I/I Removal)	Central	Beyond 2014	n/a	Initial Design	Initial Design
Watershed Controls Pilot Projects					
– Taylor Wetland	Central	Beyond 2014	n/a	Initial Design	Final Design
– Retention Basin #1	Central	Beyond 2014	n/a	Initial Design	Initial Design
– Retention Basin #2	Central	Beyond 2014	n/a	Initial Design	Initial Design

### Watershed Improvement Program (2007 through 2014)

CIP Title	Basin	Scheduled Completion Date	Actual Completion Date	Past Activity for 4/1/2009 to 6/30/2009	Planned Activity for 7/1/2009 to 9/30/2009
<b>System-wide and Basin Projects (Schedules listed in this section are subject to change based on the approval of SD1's Watershed Plans.)</b>					
Sunset PS Overflow Elimination	Central	2010	n/a	Status reported under initial watershed project above.	
Ripple Creek PS Removal	Central	2010	n/a	Initial Design	Initial Design
Ash Street PS and Forcemain	East	2014	n/a	Initial Design	Initial Design
Crestview PS Overflow Elimination	East	2014	n/a	Initial Design	Initial Design
Demonstration of Green Technologies – Taylor Creek Retention	East	2011	n/a	Final Design	Final Design
Bellevue Trunk Sewer Replacement	East	2012	n/a		Initial Design
Allen Fork PS Overflow Elimination	North	2014	n/a	Initial Design	Initial Design
Lakeside Park – Public Sewer Rehab and Private Source Removal	North	Beyond 2014	n/a	Initial Design	Initial Design
Van Deren Sanitary Sewer Improvements	North	2011	n/a	Final Design	Construction
Avon Drive Sanitary Sewer Improvements	North	2010	n/a	Final Design	Construction
Willow Run Dynamic Control Facility	North	2014	n/a	Initial Design	Initial Design
Willow Run Direct Entry Point Bar Racks	North	2009	n/a	Final Design	Final Design
KYTC Basin - Green Infrastructure Retrofit	North	2012	n/a	Initial Design	Final Design
South Park PS Overflow Elimination	North	2010	n/a	Initial Design	Final Design
Highland Acres PS Removal	West	2010	n/a	Initial Design	Initial Design
Kentucky Aire PS Removal	West	2013	n/a	Initial Design	Initial Design
South Hampton PS Removal	West	2013	n/a	Initial Design	Initial Design
Union PS Removal	West	2013	n/a	Initial Design	Initial Design
<b>System-wide and Basin Projects Total Costs (future and spent dollars)</b>					
					<b>\$78 Million</b>
<b>Committed Projects</b>					
SD1 has budgeted \$123.8 million over the next five years to rehabilitate and properly maintain its infrastructure in order to avoid failures that are costly to fix and pose a threat to public health and the environment. By nature, the work in this category is reflective of common daily operations, including activities such as: fixing failing pipes, maximizing existing dry and wet weather capacity, addressing loss of service and basement backups, reducing inflow and infiltration, and minimizing wet weather overflows. As typical and frequent tasks, a summary of SD1's progress will be provided in the next set of Watershed Plans and through updates provided in the annual CMOM and NMC reports.					
<b>Committed Projects Total Costs (future and spent dollars)</b>					
					<b>\$123.8 Million</b>
<b>2007 through 2014 Watershed Improvement Plan Total Costs (future and spent dollars)</b>					
					<b>\$617.2 Million</b>

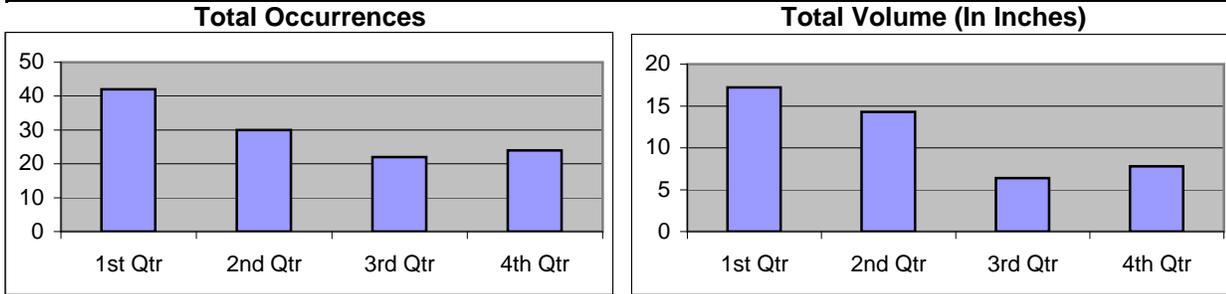
(This page intentionally left blank for double-sided printing.)

**APPENDIX C:**  
***Cumulative Overflow Data***

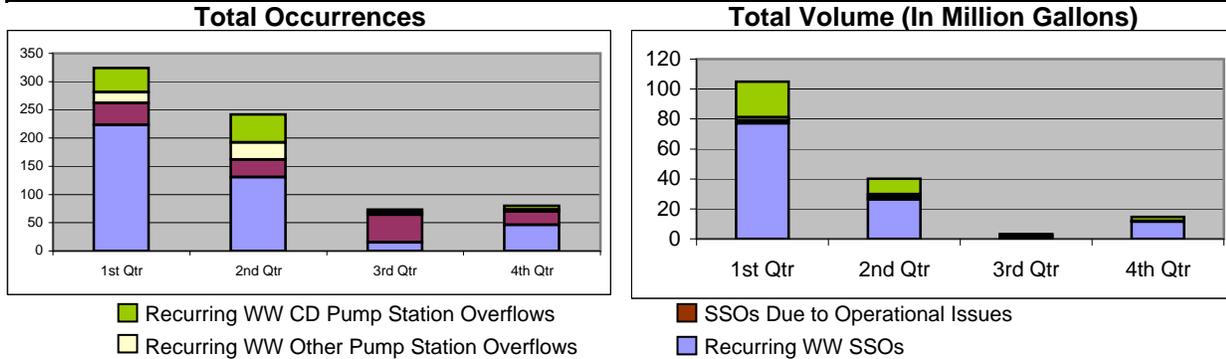
(This page intentionally left blank for double-sided printing.)

**Cumulative Overflow Data  
January 1, 2008 through December 31, 2008**

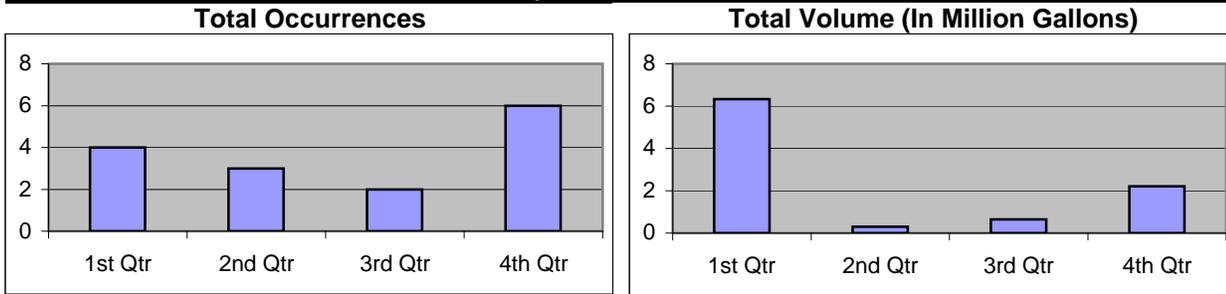
**Rainfall**



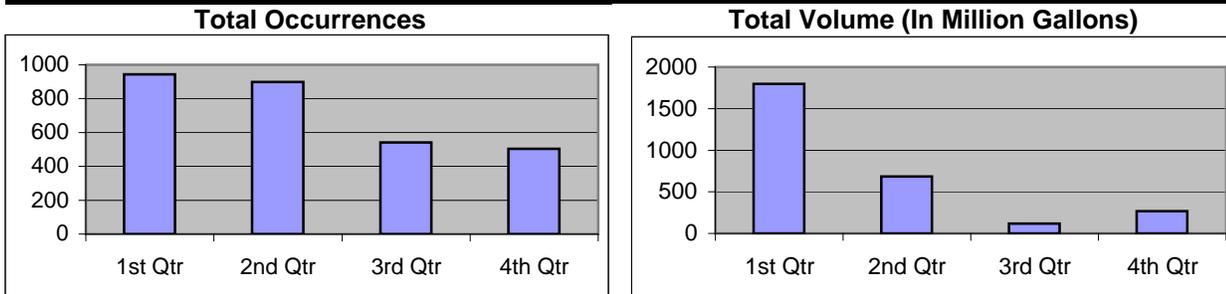
**SSOs - Due to Wet Weather (WW) and Operational Issues**



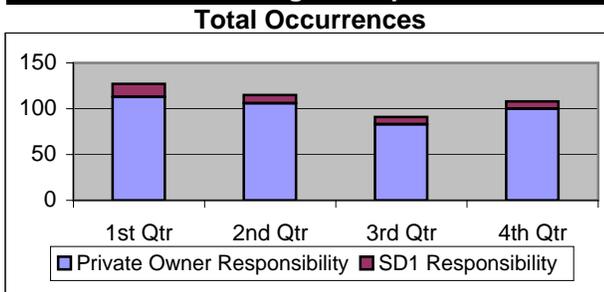
**Dry Weather CSOs**



**Wet Weather CSOs**



**Building Backups**



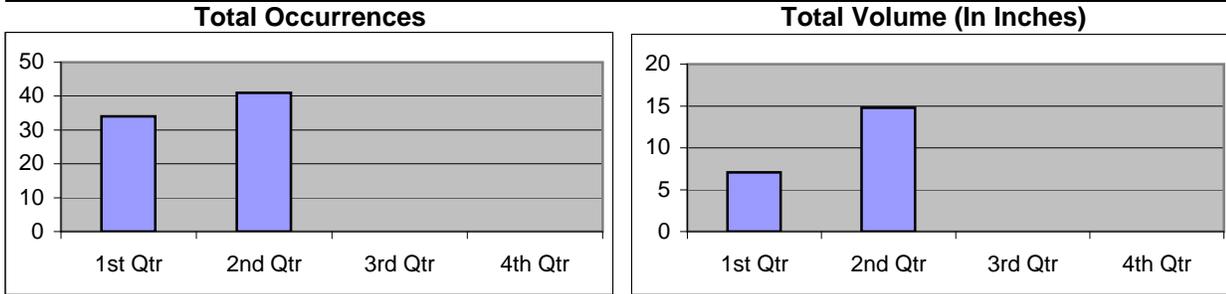
**2008 Overflow Summary**

	Occurrences	Volume
Rainfall	118	45.66 inches
SSOs	719	162.981 MG
Dry Weather CSOs	15	9.488 MG
Wet Weather CSOs	2888	2868.075 MG
<b>Building Backups (Private)</b>		402
<b>Building Backups (SD1)</b>		39

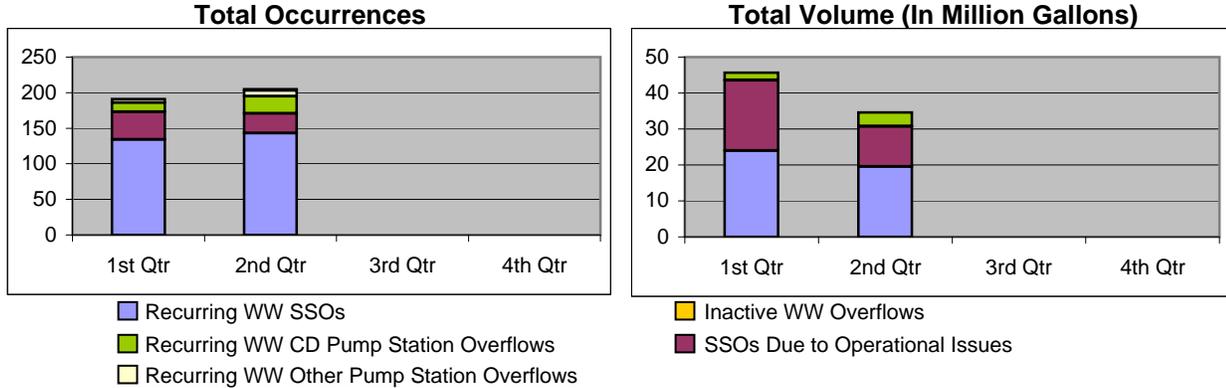
(This page intentionally left blank for double-sided printing.)

**Cumulative Overflow Data  
January 1, 2009 through December 31, 2009**

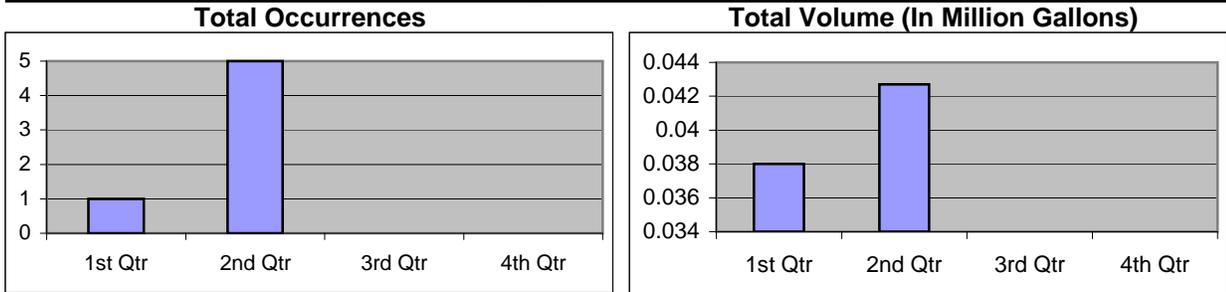
**Rainfall**



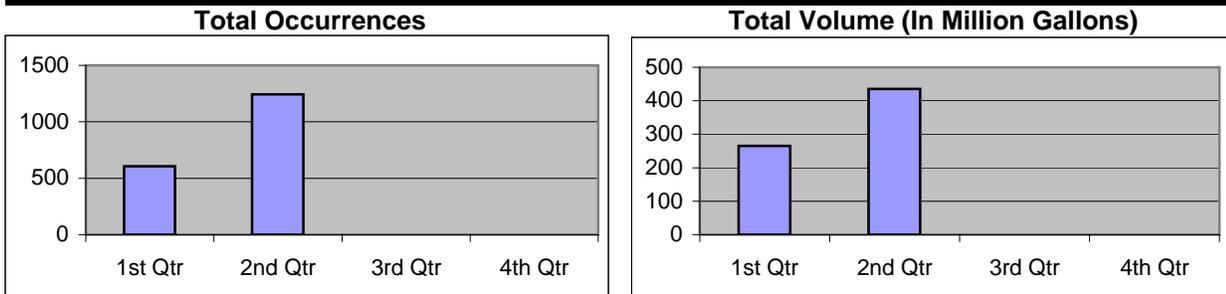
**SSOs - Due to Wet Weather (WW) and Operational Issues**



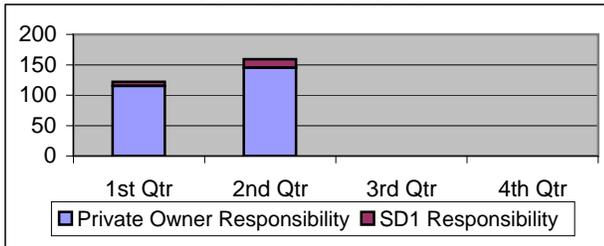
**Dry Weather CSOs**



**Wet Weather CSOs**



**Building Backups**



**2009 Overflow Summary**

	Occurrences	Volume
<b>Rainfall</b>	75	21.88 inches
<b>SSOs</b>	396	80.27975 MG
<b>Dry Weather CSOs</b>	6	0.0807 MG
<b>Wet Weather CSOs</b>	1851	701.332 MG
<b>Building Backups (Private)</b>		260
<b>Building Backups (SD1)</b>		21

(This page intentionally left blank for double-sided printing.)

**APPENDIX D:**

***Recurring Wet Weather SSOs***

(This page intentionally left blank for double-sided printing.)

## Recurring Wet Weather SSOs

No.	MHID	City	County	Predicted Overflow Activations	Model Predicted Overflow Volume (MG)
1	0020005	Silver Grove	Campbell	12	0.772
2	0020014	Silver Grove	Campbell	0	0.000
3	0050022	Fort Thomas	Campbell	2	0.044
4	0060001	Unincorp Campbell County	Campbell	0	0.000
5	0060002	Unincorp Campbell County	Campbell	0	0.000
6	0100001	Highland Heights	Campbell	0	0.000
7	0100002	Highland Heights	Campbell	1	0.020
8	0110010	Highland Heights	Campbell	2	0.071
9	0150058	Wilder	Campbell	3	0.212
10	0150063	Wilder	Campbell	0	0.000
11	0150064	Wilder	Campbell	0	0.000
12	0150065	Wilder	Campbell	1	0.008
13	0150085	Unincorp Campbell County	Campbell	0	0.000
14	0150086	Southgate	Campbell	2	0.048
15	0150356	Southgate	Campbell	0	0.000
16	0220044	Fort Thomas	Campbell	1	0.010
17	0220058	Fort Thomas	Campbell	0	0.000
18	0270062	Fort Thomas	Campbell	0	0.000
19	0300008	Fort Thomas	Campbell	1	0.003
20	0410010	Fort Thomas	Campbell	7	0.041
21	0410019	Fort Thomas	Campbell	6	0.054
22	0410036	Fort Thomas	Campbell	0	0.000
23	0440074	Fort Thomas	Campbell	1	0.001
24	0530083	Newport	Campbell	7	0.150
25	0860001	Wilder	Campbell	19	9.616
26	0860003	Wilder	Campbell	0	0.000
27	0860016	Wilder	Campbell	0	0.000
28	1040060	Independence	Kenton	2	0.067
29	1090069	Edgewood	Kenton	0	0.000
30	1110025	Erlanger	Kenton	2	0.114
31	1110051	Erlanger	Kenton	1	0.030
32	1110067	Erlanger	Kenton	2	0.198
33	1110161	Erlanger	Kenton	1	0.028
34	1110164	Erlanger	Kenton	1	0.016
35	1110174	Elsmere	Kenton	2	0.020
36	1110275	Elsmere	Kenton	0	0.000
37	1110294	Erlanger	Kenton	2	0.050
38	1220029	Erlanger	Kenton	0	0.000
39	1240008	Erlanger	Kenton	2	0.251
40	1240012	Erlanger	Kenton	1	0.010
41	1560016	Fort Mitchell	Kenton	0	0.000
42	1560019	Fort Mitchell	Kenton	0	0.000
43	1560074	Fort Mitchell	Kenton	0	0.000
44	1560092	Fort Mitchell	Kenton	0	0.000
45	1590006	Lakeside Park	Kenton	0	0.000
46	1600029	Lakeside Park	Kenton	0	0.000
47	1600050	Lakeside Park	Kenton	0	0.000
48	1610102	Fort Mitchell	Kenton	0	0.000
49	1610114	Fort Mitchell	Kenton	0	0.000
50	1610115	Fort Mitchell	Kenton	0	0.000
51	1690043	Fort Wright	Kenton	0	0.000
52	1690072	Fort Wright	Kenton	NA	NA
53	1700025	Park Hills	Kenton	0	0.000
54	1730104	Fort Mitchell	Kenton	0	0.000

### Recurring Wet Weather SSOs

No.	MHID	City	County	Predicted Overflow Activations	Model Predicted Overflow Volume (MG)
55	1760047	Edgewood	Kenton	0	0.000
56	1760048	Edgewood	Kenton	0	0.000
57	1830020	Unincorp Boone County	Boone	0	0.000
58	1830067	Unincorp Boone County	Boone	0	0.000
59	1850140	Covington	Kenton	2	0.012
60	1850141	Covington	Kenton	9	0.146
61	1860108	Taylor Mill	Kenton	0	0.000
62	1870013	Covington	Kenton	0	0.000
63	1890011	Lakeside Park	Kenton	0	0.000
64	1920163	Cold Spring	Campbell	NA	NA
65	1930007	Southgate	Campbell	0	0.000
66	1940006	Fort Wright	Kenton	2	0.053
67	1960002	Fort Wright	Kenton	1	0.010
68	1990018	Covington	Kenton	0	0.000
69	1990028	Covington	Kenton	2	0.179
70	2030097	Edgewood	Kenton	0	0.000
71	2070019	Elsmere	Kenton	0	0.000
72	2070020	Elsmere	Kenton	2	0.038
73	2090008	Elsmere	Kenton	5	0.273
74	2100007	Elsmere	Kenton	0	0.000
75	2100036	Elsmere	Kenton	2	0.062
76	2100037	Elsmere	Kenton	2	0.073
77	2100106	Elsmere	Kenton	2	0.183
78	2100128	Elsmere	Kenton	0	0.000
79	2100129	Elsmere	Kenton	3	1.114
80	2110002	Elsmere	Kenton	3	0.387
81	2120001	Elsmere	Kenton	2	0.092
82	2120041	Elsmere	Kenton	2	0.040
83	2130022	Villa Hills	Kenton	0	0.000
84	2150050	Crestview	Kenton	0	0.000
85	2160004	Fort Mitchell	Kenton	0	0.000
86	2160036	Fort Mitchell	Kenton	NA	NA
87	2280010	Unicorp Kenton County	Kenton	0	0.000
88	2280011	Unicorp Kenton County	Kenton	3	0.159
89	2280016	Unicorp Kenton County	Kenton	3	0.460
90	2290001	Crescent Springs	Kenton	0	0.000
91	2300019	Erlanger	Kenton	3	1.035
92	2300123	Unicorp Kenton County	Kenton	6	2.015
93	2300523	Erlanger	Kenton	5	1.358
94	2380001	Unincorp Boone County	Boone	1	0.031
95	2390002	Unincorp Boone County	Boone	1	0.007
96	2390006	Unincorp Boone County	Boone	1	0.001
97	2390008	Unincorp Boone County	Boone	0	0.000
98	2390762	Unincorp Boone County	Boone	0	0.000
<b>TOTAL</b>				143	19.56

**Threshold for model activation is 0.01 MGD and 0.001 MG**

**APPENDIX E:**  
***Wet Weather CSOs***

(This page intentionally left blank for double-sided printing.)

### Wet Weather CSOs

No.	CSO ID	KPDES Permit #	Model Predicted Activations	Model Predicted Overflow Volume (MG)
1	0010220	To Be Permitted	12	0.395
2	0010228	To Be Permitted	NA	NA
3	0030031	KY0021466 - Outfall 10	0	0.000
4	0200069	KY0021466 - Outfall 11	16	0.130
5	0330100	KY0021466 - Outfall 12	1	0.002
6	0340050	KY0021466 - Outfall 14	9	0.119
7	0340051	KY0021466 - Outfall 13	2	0.005
8	0360079	To Be Permitted	16	0.160
9	0540009	To Be Permitted	25	0.458
10	0540044	To Be Permitted	20	0.276
11	0550134	To Be Permitted	0	0.000
12	0570089	KY0021466 - Outfall 16	28	14.954
13	0570090	KY0021466 - Outfall 17	28	9.203
14	0600094	KY0021466 - Outfall 18	23	0.812
15	0600096	To Be Permitted	13	0.155
16	0600097	KY0021466 - Outfall 19	27	1.686
17	0600104	To Be Permitted	5	0.041
18	0610071	KY0021466 - Outfall 21	38	5.441
19	0610072	KY0021466 - Outfall 20	15	0.229
20	0620075	KY0021466 - Outfall 23	30	3.737
21	0620077	KY0021466 - Outfall 22	18	0.210
22	0630061	KY0021466 - Outfall 83	18	1.491
23	0640090	KY0021466 - Outfall 24	31	62.947
24	0650054	To Be Permitted	3	0.009
25	0650090	KY0021466 - Outfall 26	11	0.458
26	0650098	To Be Permitted	10	1.504
27	0650100	KY0021466 - Outfall 25	11	0.119
28	0690059	To Be Permitted	0	0.000
29	0730129	To Be Permitted	33	0.676
30	0770096	KY0021466 - Outfall 28	20	1.055
31	0790084	KY0021466 - Outfall 31	34	5.824
32	0790086	KY0021466 - Outfall 29	32	25.687
33	0840111	To Be Permitted	4	0.170
34	0840112	To Be Permitted	28	1.146
35	0840116	KY0021466 - Outfall 27	35	2.214
36	0870078	KY0021466 - Outfall 33	6	0.252
37	0870079	KY0021466 - Outfall 34	31	9.248
38	0880081	KY0021466 - Outfall 36	32	7.113
39	0880082	KY0021466 - Outfall 35	7	0.287
40	0910065	KY0021466 - Outfall 38	27	54.954
41	0910066	To Be Permitted	0	0.000
42	0910068	KY0021466 - Outfall 37	25	11.665
43	0930102	KY0021466 - Outfall 43	0	0.000
44	0930103	KY0021466 - Outfall 42	3	0.020
45	0930104	KY0021466 - Outfall 40	4	0.095
46	0930105	KY0021466 - Outfall 41	34	10.167
47	0930106	KY0021466 - Outfall 39	1	0.002
48	0960063	KY0021466 - Outfall 45	12	1.071
49	0960064	KY0021466 - Outfall 44	4	0.024
50	0980073	KY0021466 - Outfall 46	8	0.046

<b>Wet Weather CSOs</b>				
<b>No.</b>	<b>CSO ID</b>	<b>KPDES Permit #</b>	<b>Model Predicted Activations</b>	<b>Model Predicted Overflow Volume (MG)</b>
51	0980080	KY0021466 - Outfall 47	6	0.056
52	0980081	KY0021466 - Outfall 48	36	17.652
53	1310100	To Be Permitted	0	0.000
54	1320112	To Be Permitted	0	0.000
55	1350155	KY0021466 - Outfall 49	1	0.007
56	1380132	To Be Permitted	3	0.066
57	1380146	To Be Permitted	1	0.009
58	1420141	KY0021466 - Outfall 50	22	0.336
59	1420142	KY0021466 - Outfall 51	33	30.933
60	1420144	KY0021466 - Outfall 52	0	0.000
61	1420145	KY0021466 - Outfall 53	1	0.006
62	1420146	KY0021466 - Outfall 54	0	0.000
63	1420147	KY0021466 - Outfall 55	7	0.088
64	1440204	KY0021466 - Outfall 59	0	0.000
65	1440205	KY0021466 - Outfall 60	18	0.387
66	1440206	KY0021466 - Outfall 61	22	1.105
67	1440207	To Be Permitted	1	0.002
68	1440209	KY0021466 - Outfall 56	38	20.266
69	1470089	KY0021466 - Outfall 62	0	0.000
70	1470093	KY0021466 - Outfall 63	29	12.711
71	1480185	To Be Permitted	16	0.279
72	1480187	KY0021466 - Outfall 30	30	91.151
73	1490132	KY0021466 - Outfall 65	1	0.008
74	1490172	KY0021466 - Outfall 64	0	0.000
75	1500131	KY0021466 - Outfall 66	22	1.413
76	1510133	To Be Permitted	2	0.041
77	1510245	To Be Permitted	0	0.000
78	1710114	KY0021466 - Outfall 69	1	0.004
79	1710116	KY0021466 - Outfall 68	28	2.976
80	1710119	KY0021466 - Outfall 70	6	0.323
81	1710121	KY0021466 - Outfall 71	5	0.057
82	1710124	KY0021466 - Outfall 72	5	0.097
83	1720109	KY0021466 - Outfall 73	12	2.123
84	1730259	KY0021466 - Outfall 75	8	0.316
85	1730262	To Be Permitted	0	0.000
86	1730263	KY0021466 - Outfall 74	11	0.359
87	1840130	To Be Permitted	18	0.715
88	1850158	KY0021466 - Outfall 76	34	14.436
89	1870193	KY0021466 - Outfall 78	19	0.352
90	1870194	KY0021466 - Outfall 79	6	0.115
91	1880090	KY0021466 - Outfall 81	8	0.456
92	1880091	KY0021466 - Outfall 80	4	0.649
<b>TOTAL</b>			<b>1,244</b>	<b>435.75</b>

Threshold for model activation is 0.01 MGD and 0.001 MG