SD1
Managing Northern Kentucky's
Wastewater and Storm Water

October 28, 2011

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

To Whom It May Concern:

Please find enclosed an Amendment to Sanitation District No. 1's (SD1) Quarterly Report No. 15, for the period of April 1, 2011 through June 30, 2011, which was a required component of SD1's Consent Decree. A redlined version of the report has been enclosed and the following is a description of the revisions that have been made:

- In Section 1.2 (Report Period), the report dates were edited to accurately reflect the timeframe for the report.

- Section 2.3 (Wet Weather CSOs), was edited to include the full description of the recently identified CSO location titled "diversion manhole 0660057 at 9th & Linden Street". A portion of this description was inadvertently omitted in the original submission.

A clean copy of this Amended Report has also been enclosed and is intended to supersede the original report submitted on July 29, 2011. In addition, a CD containing the amended report in its entirety is enclosed.

I apologize for any inconvenience this may have caused. If you have any questions or concerns, do not hesitate to contact me at 859-578-6762 or by email at mwurschmidt@sd1.org.

Best regards,

Mark W. Wurschmidt

Mark W. Wurschmidt, P.E., BCEE
Interim Executive Director

MWW/pc
Enclosures

Sanitation District No. 1
July 29, 2011

Consent Decree Quarterly Report No. 15

(April 1, 2011 through June 30, 2011)

Amended October 28, 2011

SD1
Managing Northern Kentucky's
Wastewater and Storm Water

CERTIFICATION

Ammendment-01 to Consent Decree Quarterly Report No. 15
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.

Mark W. Wurschmidt

Mark W. Wurschmidt, P.E., BCEE
Interim Executive Director

10/28/11
Date

COMMONWEALTH OF KENTUCKY

COUNTY OF Kenton)ss.

The foregoing instrument was acknowledged before me this 28 day of October, 2011 by Mark W. Wurschmidt, P.E., BCEE, Interim Executive Director of Sanitation District. No. 1.

Beth Willett

NOTARY PUBLIC

Kenton County, Kentucky

My commission expires: 6-20-15

BETH A. WILLETT
NOTARY ID# 445327
NOTARY PUBLIC
STATE OF KENTUCKY
MY COMM. EXP. 6-20-15

1045 Eaton Drive • Ft. Wright, KY 41017 • phone 859-578-7450 • fax 859-331-2436 • www.sd1.org

CONSENT DECREE
QUARTERLY REPORT NO. 15

July 29, 2011

As Amended on October 28, 2011

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

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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, 2011 through June 30, 2011. This report also contains an outlook for the upcoming calendar quarter period of July 1, 2011 through September 30, 2011.

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, we have been working over the last several years to realign and optimize our existing programs, originally implemented to meet pre-Consent Decree needs, to fit into the framework of the quarterly reports. This realignment continues to be improved and optimized 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, SD1 has made further progress with developing standardized reports in its 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. SD1 is continuing to fine-tune and optimize its tracking and reporting capabilities to increase efficiency in its 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." SD1 continues to move forward with structuring its reporting procedures, and enhancing and improving data input and output quality assurance and quality control processes.

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 is expanded as warranted for ongoing reporting and sewer overflow response cleanup. SD1's wet weather crew continues to perform routine inspections before, during 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 SD1's Watershed Plans. 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. In addition, the model is updated on a quarterly basis to incorporate the latest data gathered from ongoing targeted flow monitoring, sewer inspections, completed projects and SSO inspections and characterization. This process ensures that the model is kept up-to-date and accurately reflects the current state of the collection system. 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 21 rain gauges located across the system and simulated the rainfall that occurred between April 1, 2011 and June 30, 2011 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, 2011 through June 30, 2011)

Month	Approximate # of Storm Events[1]	Rainfall (in)
April	17	13.52
May	15	6.71
June	11	8.89
Total	**43**	**29.12**

[1] *A storm event is defined as at least 0.01" of rain with a minimum inter-event time of 7 hours.*

As the data in Table 2.1 indicates, SD1's service area experienced excessive and historic rainfall over the past reporting period, with a total of approximately 29.1 inches recorded at the Cincinnati-Northern Kentucky International Airport rain gauge. Based on a review of historical data, the average second quarter rainfall volume from 1951

through 2001 is approximately 12.4 inches. In comparison, SD1's service area received almost 17 inches more during the second quarter of 2011 than what would be expected for a typical April through June time period. In addition, the typical year used for system characterization (1970) includes approximately 14.3 inches of rainfall during the second quarter. This volume is less than 50% of the rainfall that occurred during the 2011 second quarter. This excessive rainfall occurred during the months that have a significant impact on the total overflow volume. Increased rainfall during the second quarter of the year has a much bigger impact on overflow volumes than increased rainfall during the third or fourth quarters, due to high groundwater conditions.

The remainder of this section reports overflows that occurred throughout SD1's service area during the period of April 1, 2011 through June 30, 2011. A cumulative accounting of SD1's overflow activity from January 2008 through the current reporting period and an annual comparison of the 2008 through 2010 overflow activity 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 the 153 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 are reported on an annual basis to include any revisions based upon the field inspection and hydraulic modeling programs. Appendix E of SD1's April 2011 Quarterly Report, titled "Recurring Wet Weather SSO Locations Revision Transactions," included revisions to the recurring SSO list. Therefore, any revisions to the SSO list documented after April 2011 will be published in the April 2012 Quarterly Report.

Recurring Pump Station Overflows

In addition to the 153 recurring wet weather SSOs, there are also 14 pump stations identified in the Consent Decree that have historically documented recurring wet weather capacity issues. 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 48 times due to lack of capacity during the current reporting period, with an estimated overflow volume of 10,959,000 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, 2011 through June 30, 2011)

Name of Pump Station	Number of Wet-Weather Related Discharge Occurrences	Total Estimated Volume (gallons)
Allen-Fork	0	0
Crestview	12	75,000
Kentucky Aire	13	693,000
Lakeview	14	10,074,000
South Hampton	4	85,000
Union	2	3,000
Alex-Licking	Overflows Eliminated	
Harrison Harbor		
Highland Acres		
Riley Road		
Ripple Creek		
South Park		
Sunset[1]	1	6,000
Taylorsport[2]	2	23,000
TOTAL	**48**	**10,959,000**

[1] *See explanation below for cause of the Sunset overflow.*
[2] *See explanation below for cause of the Taylorsport overflows.*

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 four 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.

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Table 2.3 Discharges from Pump Stations Not Listed in the Consent Decree Due to Lack of Capacity during Wet Weather
(April 1, 2011 through June 30, 2011)

Name of Pump Station	Number of Wet-Weather Related Discharge Occurrences	Total Estimated Volume (gallons)
Gamon Calmet	4	15,000
Highland Heights	10	4,374,000
Keavy	3	21,000
Meadow Lane	1	2,200
TOTAL	**18**	**4,412,200**

Sunset Pump Station Overflow

The overflow that occurred during the current reporting period at the Sunset Pump Station was caused by an extreme rainfall event that exceeded the typical year SSO elimination level of service for this particular pump station. The rainfall recorded at the Sunset Pump Station rain gauge during the event was nearly 1.2 inches of rain in a 30 minute period. The hydraulic model showed that this event produced a peak flow rate of 620 gallons per minute at the pump station. The peak pumping capacity of the pump station is 600 gallons per minute. The pump station was designed to handle the peak flow rate predicted in a typical year, which is approximately 460 gallons per minute. Therefore, the flow rate of this particular event significantly exceeded the typical year peak flow rate the pump station's peak pumping capacity, and the level of service that was used in the original sizing for the elimination of the overflow at the pump station.

Taylorsport Pump Station Overflow

The overflows that occurred during the current reporting period at the Taylorsport Pump Station are related to the construction of SD1's Western Regional Collection System – specifically the Frogtown Interceptor Sewer and South Fork Gunpowder Interceptor Sewer/Rosetta Sewer Initial Watershed Projects. For a full explanation of the cause of the overflows, refer to the Taylorsport Pump Station Overflow section of Quarterly Report No. 14.

Inactive Wet Weather SSOs

During the current reporting period, there were 20 inactive overflows observed with an estimated overflow volume of 382,000 gallons. Table 2.4 provides detailed information for these occurrences. These structures have been added to SD1's wet weather overflow inspection program and are monitored to verify overflow activity and provide a sewer overflow response cleanup, if needed. These locations are also being evaluated to be added to SD1's recurring SSO list. As previously mentioned, updates to the locations of SD1's recurring SSOs are reported on an annual basis to include any revisions based upon the field inspection and hydraulic modeling programs. Appendix E of SD1's April 2011 Quarterly Report, titled "Recurring Wet Weather SSO Locations Revision Transactions," included revisions to the recurring SSO list. Therefore, any

revisions to the SSO list documented after April 2011 will be published in the April 2012 Quarterly Report.

Table 2.4 Inactive Discharges Due to Lack of Capacity during Wet Weather
(April 1, 2011 through June 30, 2011)

Structure ID#	Number of Wet-Weather Related Discharge Occurrences	Total Estimated Volume (gallons)
2470043	1	1,800
2370PS1 Bullitsville PS	3	20,000
2210PS2 Enzweiler PS	1	4,600
2380001[1]	3	29,000
2380957[1]	2	17,000
2010PS4 Mafred PS	5	71,000
0150PS1 Overlook Circle PS	1	1,000
2400PS1 Sand Run PS	1	1,000
1920PS3 Winters Lane PS	1	1,000
TOTAL	**18**	**146,400**

[1]*The overflows that occurred during the current reporting period at these locations are related to the construction of SD1's Western Regional Collection System – specifically the Frogtown Interceptor Sewer and South Fork Gunpowder Interceptor Sewer/Rosetta Sewer Initial Watershed Projects. For a full explanation of the cause of the overflows, refer to the Taylorsport Pump Station Overflow section of Quarterly Report No. 14.*

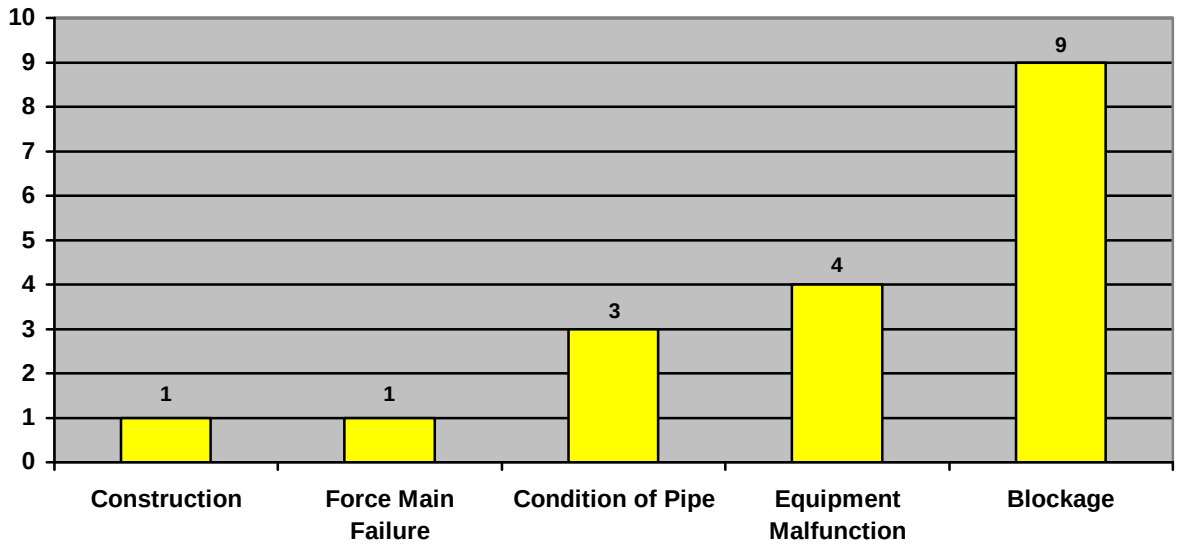
2.2 SSOs Due to Operational Issues

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 18 SSOs due to operational issues throughout SD1's service area with a total estimated overflow volume of 1,837,000 gallons.

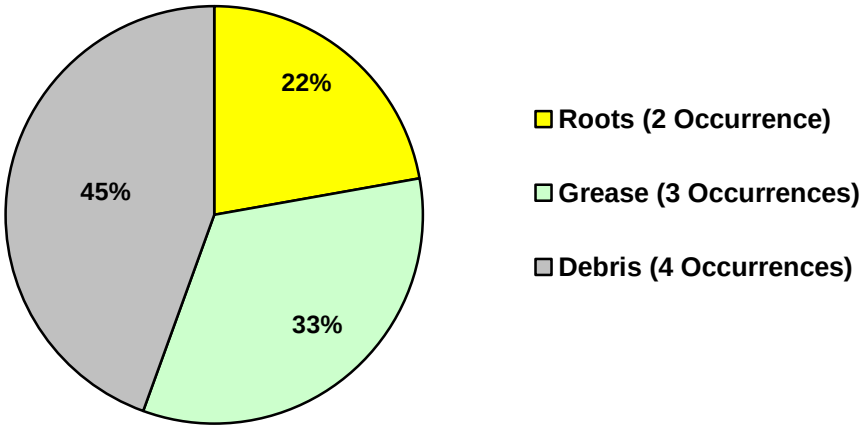
The 18 overflows reported in this category can be broken down by the primary causes demonstrated in Figure 2.1.

Figure 2.1 Causes of Operational Issues Resulting in SSOs
(April 1, 2011 through June 30, 2011)



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. 2011 through June 30, 2011)



All of these SSOs were immediately acted upon and the problems repaired. The sewers where blockages occurred were put into the cleaning program to be inspected and cleaned as-needed in the next six months as part of the Continuous Sewer Assessment Program, which also provides appropriate next actions to permanently address the cause of the blockages. All overflow events are recorded in gbaMS and are periodically reviewed to identify if any trends or localized problem areas (such as past overflows or proximity to recurring SSOs) exist that warrant the need for a larger-scale inspection or rehabilitation/ repair project. Overflows due to blockages of grease are further evaluated as part of our Fat, Oil, and Grease Program.

2.3 Wet Weather CSOs

SD1 recently identified two new CSO locations through its inspection efforts that will need to be permitted and put on a routine inspection schedule.

1. A bypass pipe at manhole 0890063 near 28th Street: The bypass pipe appears to have been installed to protect against basement backups along 28th Street. SD1's investigations and hydraulic models indicate that this bypass pipe has overflow activity during 2" rain events. SD1 is currently evaluating the appropriate solids & floatable control to implement.

2. A diversion manhole 0660057 at 9th & Linden Street: This manhole was constructed as part of the ACOE flood protection system. A sluice gate was installed over the normal dry weather flow pipe to be able to shut the gate and divert flow during elevated river levels away from the Washington Street Flood Pump Station and directly to Taylor Creek. The pipe that carries flow to Taylor Creek was installed about 2" above the invert of the normal dry weather flow pipe and inspectors have observed that flow enters the Taylor creek outfall pipe under normal river levels during 1" rain events. SD1 is currently evaluating the construction of a weir in this structure to prevent the overflow from occurring until at least the dry weather pipe is flowing full and is also determining the appropriate solids & floatable control to implement.

Included in Appendix E are the modeled activation and volume statistics for SD1's 94 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 no dry weather discharges from the combined sewer system.

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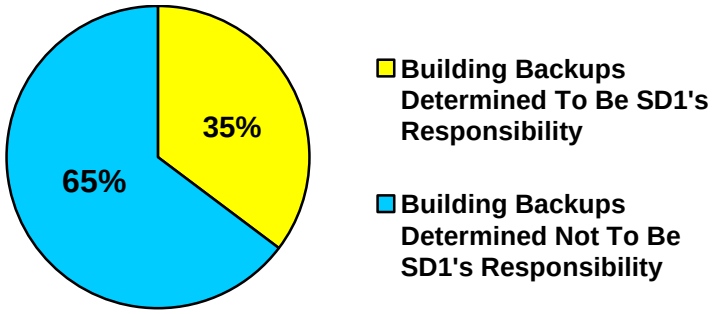
2.5 Building Backups

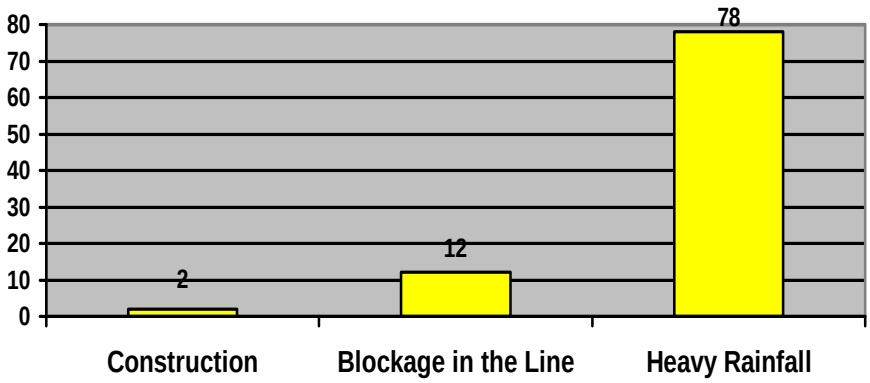
During the current reporting period, there were approximately 260 building backups throughout SD1's service area. Of these 260**,** approximately 92 were determined to be SD1's responsibility and 168 were determined not to be the responsibility of SD1, as shown in Figure 2.3. The backups determined not 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, 2011 through June 30, 2011)



Causes for the approximate 92 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, 2011 through June 30, 2011)



The 12 building backups caused by blockages can further be broken down into three secondary causes, as demonstrated in Figure 2.5.

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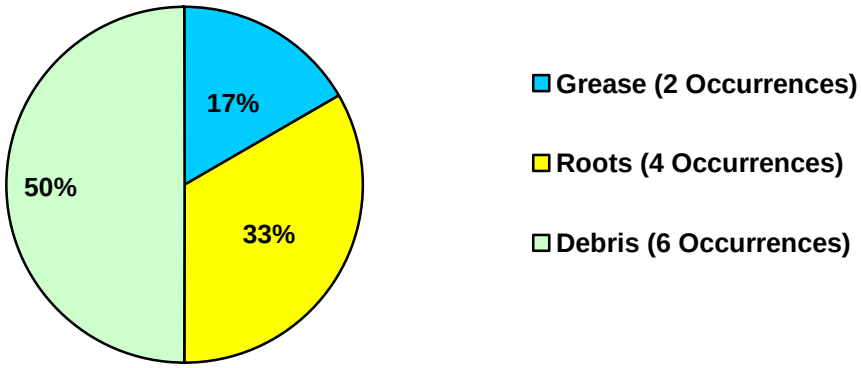
Figure 2.5 Causes for Blockages in Main Line Resulting in a Building Backup
(April 1, 2011 through June 30, 2011)



The sewers where blockages occurred were put into the cleaning program to be inspected and cleaned as-needed in the next six months as part of the Continuous Sewer Assessment Program, which also provides appropriate next actions to permanently address the cause of the blockages. All building backups are recorded in gbaMS and are periodically reviewed to identify if any trends or localized problem areas (such as past overflows or proximity to recurring SSOs) exist that warrant the need for a larger-scale inspection or rehabilitation/ repair project.

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APPENDIX A:

Consent Decree Schedule

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Consent Decree Compliance Schedule

	CONSENT DECREE ACTIVITY	PERCENT COMPLETE	DUE DATE	DATE OF COMPLETION
	ASSESSED STIPULATED PENALTY			
✓	$14,000 for 9 DWOs, between April 18, 2009 through June 30, 2010	100%	1/9/2011	12/21/2010
	CIVIL PENALTY			
✓	Pay Civil Penalties to EPPC and US EPA	100%	06/18/07	06/18/07
	CMOM PROGRAM REQUIREMENTS – 2007 through 2014			
✓	Submit CMOM Program Self-Assessment	100%	10/18/07	10/17/07
✓	Submit Grease Control Program	100%	10/18/07	09/17/07
✓	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
Submit CMOM Annual Report				
✓	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	100%	12/31/09	12/18/09
✓	CMOM Annual Report 4	100%	12/31/10	12/21/10
	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	
Phased Grease Control Implementation				
✓	Phase 1 Tasks	100%	01/08/09	01/08/09
✓	Phase 2 Tasks	100%	01/08/10	01/08/10
✓	Phase 3 Tasks	100%	01/08/11	01/08/11
	Phase 4 Tasks / Full Implementation	53%	01/08/12	
Complete Pump Station Backup Power Projects (110 Total)		63%	12/31/2015	
Complete SORP Annual Review				
✓	SORP Annual Review 1	100%	05/14/09	07/10/09
✓	SORP Annual Review 2	100%	11/10/10	10/01/10
	SORP Annual Review 3	0%	11/10/11	
	SORP Annual Review 4	0%	11/10/12	
	SORP Annual Review 5	0%	11/10/13	
	SORP Annual Review 6	0%	11/10/14	
	INITIAL WATERSHED PROJECTS			
	Complete Initial Watershed Projects (51 Total)	86%	12/31/14	
Submit Initial Watershed Projects Annual Report				
✓	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	100%	06/07/10	06/04/10
✓	Initial Watershed Projects Annual Report 4	100%	06/07/11	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	
	NMC PROGRAM REQUIREMENTS – 2007 through 2014			
✓	Submit NMC Documentation of Compliance	100%	04/18/08	03/12/08
✓	Complete Additional NMC Compliance Activities (51 Total)	100%	04/18/09	4/18/09[1]
Submit NMC Annual Report				
✓	NMC Annual Compliance Report 1	100%	09/04/09	05/11/09
✓	NMC Annual Compliance Report 2	100%	09/04/10	06/04/10
✓	NMC Annual Compliance Report 3	100%	09/04/11	06/21/11
	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	

Consent Decree Compliance Schedule

	CONSENT DECREE ACTIVITY	PERCENT COMPLETE	DUE DATE	DATE OF COMPLETION
	PUBLIC PARTICIPATION			
✓	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
✓	Watershed Community Council Meeting 7	100%	N/A	05/20/10
✓	Watershed Community Council Meeting 8	100%	N/A	11/03/10
	PUMP STATION OVERFLOW ELIMINATION PLAN (PSOEP) – 2007 through 2014			
✓	Submit PSOEP	100%	10/18/07	09/18/07
Submit PSOEP Annual Report				
✓	PSOEP Annual Report 1	100%	05/14/09	05/11/09
✓	PSOEP Annual Report 2	100%	05/14/10	05/14/10
✓	PSOEP Annual Report 3	100%	05/14/11	05/13/11
	PSOEP Annual Report 4	0%	05/14/12	
	PSOEP Annual Report 5	0%	05/14/13	
	PSOEP Annual Report 6	0%	05/14/14	
	REPORTING – 2007 through 2014			
Submit Quarterly Report				
✓	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	100%	10/30/09	10/30/09
✓	Submit Quarterly Report 9	100%	01/30/10	01/29/10
✓	Submit Quarterly Report 10	100%	04/30/10	04/30/10
✓	Submit Quarterly Report 11	100%	07/30/10	07/30/10
✓	Submit Quarterly Report 12	100%	10/30/10	10/29/10
✓	Submit Quarterly Report 13	100%	01/30/11	01/28/11
✓	Submit Quarterly Report 14	100%	04/30/11	04/29/11
✓	Submit Quarterly Report 15	100%	07/30/11	07/29/11
	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	

Consent Decree Compliance Schedule

	CONSENT DECREE ACTIVITY	PERCENT COMPLETE	DUE DATE	DATE OF COMPLETION
	STATE ENVIRONMENTAL PROJECTS			
✓	Setup 6 Separate Escrow Accounts	100%	10/18/07	10/18/07
	Conservancies	82%	04/18/12	
	Boone County	*80%*	04/18/12	
	Campbell County	*85%*	04/18/12	
	Kenton County	*80%*	04/18/12	
	Licking River Watershed Watch	90%	04/18/12	
	Split Rock	100%	04/18/12	12/18/08
	Education Programs	72%	04/18/12	
	State Environmental Project Completion Report	0%	06/17/12	
	SUPPLEMENTAL PROJECTS			
	Supplemental Environmental Projects	74%	04/18/12	
	SEP Completion Reports	0%	06/17/12	
	WATERSHED PLANS			
Framework for Developing Watershed Plans				
✓	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
First Round Watershed Plans				
✓	Obtain Public Input on First Round of Watershed Plans	100%	06/27/09	06/08/09
✓	*Public Comment Period (5/7/09-6/8/09)*	100%	06/08/09	06/08/09
✓	*Boone County Public Meeting*	100%	N/A	05/14/09
✓	*Campbell County Public Meeting*	100%	N/A	05/19/09
✓	*Kenton County Public Meeting*	100%	N/A	05/21/09
✓	Submit First Round of Watershed Plans	100%	06/30/09	06/30/09
✓	Resubmit First Round of Watershed Plans	100%	03/31/11	03/31/11
Second Round Watershed Plans				
	Obtain Public Input on Second Round of Watershed Plans	0%	Summer 2014[2]	
	Submit Second Round of Watershed Plans	0%	Summer 2014[2]	
Third Round Watershed Plans				
	Obtain Public Input on Third Round of Watershed Plans	0%	Summer 2019[2]	
	Submit Third Round of Watershed Plans	0%	Summer 2019[2]	
	Consent Decree Compliance			
	Complete all Consent Decree Compliance Measures	20%	12/31/25	

[1] Projects schedules for three of the 51 projects were extended beyond 4/18/2009, as described in the 2009 NMC Annual Report. The three projects were complete as of December 2009.

[2] Deadline is dependent on the approval date of each Watershed Plan.

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APPENDIX B:

Watershed Improvement Projects

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Grease Control Program: Phased Implementation Tasks

Cateogry	Task	Status/Activity
Grease Control Phase 1 Tasks / Completed January 2008 - January 2009		
Conduct Self Assessment	SD1 will acquire a list of FSEs within the service area that are permitted by the Kentucky Health Department. This will aid in determining the magnitude of FSEs that have the potential to discharge FOG to the SSS. This information will also help establish mailing addresses and points of contact for the FSEs.	Complete
	Field crew personnel currently determine when collection system problems are caused by FOG during a trouble call. This process will be evaluated to determine if the causes of trouble calls are being classified accurately.	Complete
	Field crew personnel enter trouble call evaluations into GBA. The process of entering information into GBA will be evaluated to ensure data is accurate, accessible and manageable.	Complete
	SD1 currently uses a geographical information mapping system called Arc Viewer. One of the primary functions of Arc Viewer is to show the locations of sanitary sewer lines in the service area. This system will be evaluated to find possible mapping capabilities for areas with FOG problems within the collection system.	Complete
Review Rules and Regulation / Enforcement Response Plan	A review of the SD1's Rules and Regulations and ERP is being conducted. This review will identify any deficiencies in the legal authority to control the discharge of grease into the SSS. It will also identify deficiencies in the enforcement program. If found, the deficiencies will indicate revisions to be made in Phase 2 of this program.	Complete
Design Criteria	SD1 will review the effectiveness of other publicly owned treatment works (POTWs) Rules and Regulations and ERPs (i.e. Cincinnati MSD, Louisville MSD, and Knoxville Utilities Board). This will provide insight into what is working for utilities in the surrounding area.	Complete
	SD1will seek the development of design criteria for grease reduction device standards by the Kentucky Division of Plumbing, Kentucky Health Department and Kentucky Environmental and Public Protection Cabinet.	Complete

Grease Control Program: Phased Implementation Tasks

Cateogry	Task	Status/Activity
Grease Control Phase 1 Tasks (Continued) / Completed January 2008 - January 2009		
FSE Education	Over the last year, SD1has created and distributed BMP posters to be displayed in permitted FSEs and will continue to distribute such posters. The FSEs are required to display these posters in areas where there is potential for FOG to be discharged to the SSS.	Complete
	SD1will create and send out BMP brochures to all FSEs. The brochure will focus on the harmful effects of FOG in sewer lines and proper grease handling techniques used to minimize the release of FOG into the collection system. These brochures can also be distributed during site visits.	Complete
	SD1will begin researching a compliance assistance workshop for FSEs. An evaluation of other FOG workshops will be conducted to determine content and effectiveness. This workshop will provide FSEs with a comprehensive overview of the Grease Control Program. The workshop will be initiated when all specifics of the program have been established.	Complete
FSE Education	SD1has met with members of the Kentucky Restaurant Association (KRA) and the Northern Kentucky Restaurant Association (NKRA) to open channels of communication with key stakeholders. SD1will continue to work to educate these key stakeholders. Their participation and cooperation is valuable. We will encourage the KRA and NKRA to include grease control program information in their newsletters.	Complete
Public Education	Over the last year, SD1has created and distributed door hangers to inform customers when there has been a blockage or obstruction due to FOG in their area. These informational pieces focus on the harmful effects of FOG in sewer lines and proper grease handling techniques used to minimize the release of FOG into the collection system. SD1will continue to distribute door hangers and letters to customers in areas impacted by FOG related overflows.	Complete
	SD1will create and send out additional bill inserts to all customers within the service area. The bill stuffers will spotlight the harmful effects of FOG in sewer lines and proper grease handling techniques used to minimize the release of FOG into the collection system.	Complete
	SD1will research the “Trap the Grease Program.” This program involves supplying residences with a container for grease rather than pouring it down the drain.	Complete

Grease Control Program: Phased Implementation Tasks

Cateogry	Task	Status/Activity
Grease Control Phase 2 Tasks / Completed January 2009 - January 2010		
Conduct Self Assessment	GBA will be modified and field crew personnel will be trained to ensure data is entered accurately and that the data is accessible and manageable.	Complete
	SD1will create a list of collection system areas experiencing problems with FOG in the sanitary sewers. This list will be created using the information established in GBA in Phase 1.	Complete
	SD1will create a list of FSEs that may be contributing to FOG problem areas. This list will be created using information provided from the Kentucky Health Department in Phase 1.	Complete
Revise Rules and Regulation / Enforcement Response Plan	If necessary, SD1will begin drafting revisions to the District's Rules and Regulations and ERP to ensure proper legal authority and enforcement.	Complete
Design Criteria	SD1will continue to coordinate with the Kentucky Division of Plumbing, Kentucky Health Department and Kentucky Environmental and Public Protection Cabinet on the development of design criteria for grease reduction device standards.	Complete
FSE Education	SD1will continue developing the compliance assistance workshop for FSEs and will maintain the distribution of the BMP posters to permitted FSEs.	Complete
		Complete
	SD1will distribute letters and other informational pieces to residential customers in areas impacted by FOG related overflows. These pieces will be evaluated and updated as needed on a regular basis.	Complete
Develop Inspection Protocol	SD1will begin developing an inspection protocol for plumbing plans, installation and final inspection. This will ensure the proper installation of appropriate grease control devices.	Complete
	Inspection frequency and inspection report forms will be developed to determine if the FSE is in compliance with the Grease Control Program.	Complete
Modify Food Service Discharge Permit	SD1 will revise the Food Service Discharge Permit to ensure the permit coincides with changes made to the Rules and Regulations and Emergency Response Plan. The permit will address grease control device management, operation and maintenance standards, onsite record keeping requirements, cleaning frequency, cleaning standards, additives and ultimate disposal.	Complete
	SD1 will evaluate and revise, if necessary, the Restraunt/Food Service Grease Questionnaire to ensure the proper information is supplied about grease handling procedures.	Complete

Grease Control Program: Phased Implementation Tasks

Cateogry	Task	Status/Activity
Grease Control Phase 3 Tasks / To be completed January 2010 - January 2011		
Revise Domestic Holding Tank Waste Hauler Manifest	SD1 will evaluate and revise, if necessary, the Domestic Holding Tank Waste Hauler Manifest to better monitor the method and disposal of grease.	Complete
Evaluate Staffing and Equipment Requirements	SD1 will evaluate staffing levels and employ additional personnel, if necessary, to ensure requirements of the FOG program are being met.	Complete
FSE Education	SD1 will continue developing the compliance assistance workshop for FSEs.	Complete
	SD1 will maintain the distribution of the BMP poster to permitted FSEs.	On-going - distributed during FSE inspections. Brochures and pamphlets are also distributed during monthly FSE compliance assistance workshops.
Approval for Rules and Regulations / Enforcement Response Plan	SD1 will read publicly the modifications to the Rules and Regulations on two separate occassions at SD1's board meetings. A public comment period will begin with the first reading. SD1 will then submit revisions to SD1's Board of Directors for approval, then to the Cabinet for approval.	Complete
Public Education	SD1 will expand the grease control section of its website. The expansion will contain additional information for th public, FSEs and sludge haulers. Documents and forms will be made available for viewing and printing.	Complete
	SD1 will distribute letters and other informational pieces to residential customers in areas impacted by FOG related overflows. These pieces will be evaluated and updated as needed on a regular basis.	On-going task - distributed to residents in areas that experience overflows or in areas where inspection data reveal a grease problem.
Cateogry	**Task**	**Status/Activity**
Grease Control Phase 4 Tasks / To be completed January 2011 - January 2012		
Public Readings of Rules and Regulations/Enforcement Response Plan	SD1 will publicly read the modifications on two separate occasions at SD1 board meetings. The revisions will be published when Phase 4 is complete.	Complete
Evaluate Staffing and Equipment Needs	The Industrial Monitoring Department will be responsible for all the activities associated with the Grease Control Program, and will be provided with necessary equipment. If the workload becomes too great for the current staff, SD1 will employ and additional Industrial Monitoring Specialist to ensure requirements of the program are being met.	Complete

Grease Control Program: Phased Implementation Tasks

Performance Indicators	GBA will be used to determine the number of trouble calls due to grease, number of lines being PM's and the number of SSOs due to FOG.	Complete
	Linko FOG will be used to track permits, inspections, violations and correspondence on all permitted FSEs.	Complete
Permitting	All previously permitted FSEs will undergo a re-evaluation using the modifications to the Grease Control Program conducted in the previous phases.	All previously permitted FSEs will be re-issued a permit in November 2011. All pertinent information will be on the permit, which has a new template
	Any FSEs in new grease problem areas will be evaluated using the modifications in the previous phases.	On-going - once the process is identified, any FSEs in new grease problem areas will be evaluated using the modifications in the previous phase.
	All new FSEs will be evaluated using the modifications from the previous phases.	On-going - once the process is identified, any new FSEs in will be evaluated using the modifications in the previous phase.
FSE/Public Education	SD1 will require all permitted FSEs to attend a compliance assitance workshop and will maintain the distribution of the BMP posters to permitted FSEs.	On-going - compliance workshop meetings are held on a monthly basis. FOG brochures and pamphlets are also distributed during monthly FSE compliance assistance workshops. BMP posters are provided during inspections. During April - June 2011 211 FSEs attended the workshop. SD1 had no need to distribute any BMP posters during the same time frame.
	SD1 will distribute letters and other informational pieces to residential customers in areas impacted by FOG related overflows. These pieces will be evaluated and updated as needed on a regular basis.	On-going task - approximately 5,965 pieces of literature have been sent since February 2009, of which 191 were mailed April - June. Letters will continue to go out July - September 2011 to any residence that experiences a backup due to FOG or where an overflow has occurred due to a blockage of FOG.

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Initial Watershed Projects

CIP Title	Basin	Scheduled Completion Date	Actual Completion Date		
Initial Watershed Projects					
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	
Eastern Regional - Contract 7--Riley Road #2 PS	East	2009	2009	Complete	
Eastern Regional - Contract 3--Riley Force Main and Gravity Sewer to the ERWRF	East	2009	2010	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	
Western Regional - Sunnybrook Sewer	West	2013	2010	Complete	
Western Regional - Gunpowder Interceptor Sewer	West	2013	2010	Complete	
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	

Updated: July 20, 2011

Initial Watershed Projects

CIP Title	Basin	Scheduled Completion Date	Actual Completion Date	Past Activity for 04/01/2011 to 6/30/2011	Planned Activity for 07/01/2011 to 09/30/2011
Initial Watershed Projects					
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	
Eastern Regional – Sunset Pump Station and Force Main Improvements	East	2010	2010	Complete	
Western Regional Conveyance System to Western Regional WRF	West	2006	n/a	Construction	Construction
Western Regional Water Reclamation Facility	West	2013	n/a	Construction	Construction
Western Regional - Frogtown Interceptor Sewer (from Sunnybrook Dr. to Frogtown Rd.)	West	2014	n/a	Construction	Construction
Western Regional - Narrows Road Diversion PS	West	2013	n/a	Construction	Construction
Western Regional - Richwood Sewer and Force Main	West	Requested Removal as Initial Action Project - Awaiting Approval (see Watershed Plans)			
Western Regional - South Fork Gunpowder Interceptor Sewer and Rosetta Sewer	West	2013	n/a	Construction	Construction
Western Regional - Turkeyfoot Industrial Road Force Main	West	2013	n/a	Force main Construction was split into 4 phases. Phases 1, 2 & 3 are complete. Phase 4 is under construction.	

Updated: July 20, 2011

Pump Station Backup Power Plan

CIP Title	Basin	Original Proposed Solution	Updated Proposed Solution	Scheduled Completion Date	Actual Completion Date	Status Description As of December 2010
Category 1 Projects (4 total projects)						
Alex Licking	East	Permanent Generator	n/a	2008	2008	Complete
American Sign	West	Permanent Generator	n/a	2008	2008	Complete
Riley Road	East	Permanent Generator	n/a	2009	2009	Complete
Sunset	East	Permanent Generator	Backup Dry Prime Pump with a Diesel Engine	2010	2010	Complete
Category 2 Projects (21 total projects)						
Kahns	East	PS Elimination	n/a	2007	2007	Complete
Meadow Hill	Central	PS Elimination Study	PS Elimination	Study - 2008	2008	Complete
				2012 - 2015	2010	
Riley Road No. 1	East	PS Elimination	n/a	2009	2009	Complete
Riley Road No. 2						
Riverwatch PS	North	PS Elimination Study	PS Elimination	Study - 2008	2008	Complete
				2012 - 2015	2008	Complete
South Park Industrial	North	PS Elimination Study	Backup Dry Prime Pump with a Diesel Engine	Study - 2008	2008	Complete
				2012 - 2015	2010	Complete
Wedgewood Dr	Central	PS Elimination Study	PS Elimination	Study - 2008	2008	Complete
				2012 - 2015		On-hold
Willow Bend No. 2	West	PS Elimination Study	PS Elimination	Study - 2008	2008	Complete
				2012 - 2015	n/a	Initial Project Analysis
Army Reserve	East	PS Elimination Study	Initial analysis indicated that this station can be eliminated by means of gravity sewer. Cost-effectiveness of solution to be further analyzed before final determination is made.	Study - 2008	2008	Complete
				2012 - 2015	n/a	Initial Project Analysis
Eagles Landing	West	PS Elimination Study	Initial analysis indicated that this station can be eliminated by means of gravity sewer. Cost-effectiveness of solution to be further analyzed before final determination is made.	Study - 2008	2008	Complete
				2012 - 2015	n/a	Initial Project Analysis
Evergreen	Central	PS Elimination Study	Initial analysis indicated that this station can be eliminated by means of gravity sewer. Cost-effectiveness of solution to be further analyzed before final determination is made.	Study - 2008	2008	Complete
				2012 - 2015	n/a	Initial Project Analysis
Lamphill	East	PS Elimination Study	Evaluation indicated that it is not feasible to eliminate this station by means of gravity sewer.	Study - 2008	2008	Complete
				2012 - 2015	n/a	Initial Project Analysis
Mill House Crossing	Central	PS Elimination Study	Evaluation indicated that it is not feasible to eliminate this station by means of gravity sewer. A backup power solution will be identified for this location.	Study - 2008	2008	Complete
				2012 - 2015	n/a	Initial Project Analysis
Ridgefield	North	PS Elimination Study	PS Elimination	Study - 2008	2008	Complete
				2012 - 2015	n/a	Initial Project Analysis

Pump Station Backup Power Plan

CIP Title	Basin	Original Proposed Solution	Updated Proposed Solution	Scheduled Completion Date	Actual Completion Date	Status Description As of December 2010
Category 2 Projects (continued)						
War Admiral	West	PS Elimination Study	PS Elimination	Study - 2008	2008	Complete
				2012 - 2015		Project In-Progress
Blackstone	West	PS Elimination Study	These stations will be eliminated after the Western Regional collection system is operational.	Study - 2008	2008	Complete
				2012 - 2015	n/a	
Dublin Green No. 1	West	PS Elimination Study		Study - 2008	2008	Complete
				2012 - 2015	n/a	
Fowler Creek	West	PS Elimination		2013	2011	Complete
Gammon Calmet	West	PS Elimination		2013	n/a	
Gunpowder	West	PS Elimination		2013	n/a	
Union	West	PS Elimination		2013	n/a	
CIP Title	**Basin**	**Original Proposed Solution**	**Updated Proposed Solution**	**Scheduled Completion Date**	**Actual Completion Date**	**Status Description As of December 2010**
Category 3 Projects (24 total projects)						
Airport Exchange Ind Park	North	Permanent Generator	n/a	2009	2009	Complete
Barrs Branch	East	Permanent Generator	Portable Generator	2009	2009	Complete
Cedar Point	East	Permanent Generator	n/a	2009	2009	Complete
Bullitsville	North	Permanent Generator	n/a	2008	2008	Complete
Catalpa	Central	Permanent Generator	n/a	2009	2009	Complete
Centerplex	East	Permanent Generator	n/a	2008	2008	Complete
Hempsteade	West	Permanent Generator	n/a	2009	2009	Complete
Highland Heights	East	Portable Generator	n/a	2009	2009	Complete
Dublin Green No. 2	West	Permanent Generator	n/a	2009	2009	Complete
Brookwood	East	Permanent Generator	n/a	2009	2009	Complete
Ky Aire	West	Permanent Generator	n/a	2008	2007	Complete
Levi	West	Permanent Generator	n/a	2008	2007	Complete
Maple Ave	Central	Permanent Generator	n/a	2009	2009	Complete
Sand Run	North	Permanent Generator	n/a	2008	2008	Complete
Saturn	West	Permanent Generator	n/a	2009	2009	Complete
Second Street	Central	Permanent Generator	n/a	2009	2009	Complete
Skyport	North	Permanent Generator	n/a	2008	2008	Complete
South Hampton	West	Permanent Generator	n/a	2008	2007	Complete
Thornwilde	North	Permanent Generator	n/a	2008	2008	Complete
Bunning Lane	East	Permanent Generator	Property owner issues; still evaluating solutions	2014	n/a	Evaluating Solutions
Kees	East	Permanent Generator	Back up dry pump system with diesel engine	2011	2011	Complete
Overlook	East	Permanent Generator	Property owner issues; permanent generator no feasible. Evaluating alternate backup power solution. The generator initially procured for this location will be moved to Newport Steel Pump Station.	2014	n/a	Evaluating Solutions
Riverview Farms	North	Permanent Generator	Property owner issues; permanent generator no feasible. Evaluating alternate backup power solution. The generator initially procured for this location will be moved to Enzweiller Pump Station.	2014	n/a	Evaluating Solutions
Stillwater	East	Permanent Generator	Property owner issues; permanent generator no feasible. Evaluating alternate backup power solution. The generator initially procured for this location will be moved to Cedar Pump Station.	2014	n/a	Evaluating Solutions

Pump Station Backup Power Plan

CIP Title	Basin	Original Proposed Solution	Updated Proposed Solution	Scheduled Completion Date	Actual Completion Date	Status Description As of December 2010
Category 4 Projects (50 total projects)						
Banklick	Central	Permanent Generator	n/a	2009-2014	2009	Complete
Cedar	Central	Permanent Generator	n/a	2009-2014	2009	Complete
Fowler Ridge	Central	Permanent Generator	Backup Dry Prime Pump with a Diesel Engine	2009-2014	2010	Complete
Lassing Green	West	Permanent Generator	n/a	2009-2014	2009	Complete
Leathers Rd	Central	Permanent Generator	Backup Dry Prime Pump with a Diesel Engine	2009-2014	2010	Complete
Marshall Rd	Central	Permanent Generator	n/a	2009-2014	2010	Complete
Mineola Pike	North	Permanent Generator	Backup Dry Prime Pump with a Diesel Engine	2009-2014	2010	Complete
Newport Steel Mill	East	Permanent Generator	n/a	2009-2014	2009	Complete
Paul Rd	East	Permanent Generator	Portable Generator	2009-2014	2010	Complete
Rosewood Lane	East	Permanent Generator	Backup Dry Prime Pump with a Diesel Engine	2009-2014	2010	Complete
Shadow Lake	East	Permanent Generator	Backup Dry Prime Pump with a Diesel Engine	2009-2014	2009	Complete
Wolf Rd	Central	Permanent Generator	Backup Dry Prime Pump with a Diesel Engine	2009-2014	2009	Complete
Air Park West	North	Permanent Generator	Backup Dry Prime Pump with a Diesel Engine	2009-2014	2011	Complete
Arbortech	North	Permanent Generator	Backup Dry Prime Pump with a Diesel Engine	2012	n/a	Initial Project Analysis
Arborwood	North	Permanent Generator	Property owner issues; permanent generator not feasible. Evaluating alternate backup power solution.	2009-2014	n/a	Evaluating Solutions
Brandtly Ridge	Central	Permanent Generator	Backup Dry Prime Pump with a Diesel Engine	2012	n/a	Initial Project Analysis
Brentwood	North	Permanent Generator	Property owner issues; permanent generator not feasible. Evaluating alternate backup power solution.	2009-2014	n/a	Evaluating Solutions
Brushup Lane	West	Permanent Generator	PS Elimination	2009-2014		Project In-Progress
Carlisle Ave	East	Permanent Generator	n/a	2009-2014	n/a	Evaluating Solutions
Cinnamon Ridge	West	Permanent Generator	Backup Dry Prime Pump with a Diesel Engine	2012	n/a	Initial Project Analysis
Cold Spring Crossing	East	Permanent Generator	n/a	2009-2014	n/a	Evaluating Solutions
Cold Spring Plaza	East	Permanent Generator	Backup Dry Prime Pump with a Diesel Engine	2012	n/a	Initial Project Analysis
Darma Ct	East	Permanent Generator	Property owner issues; permanent generator not	2009-2014	n/a	Evaluating Solutions
Deer Creek No. 1	North	Permanent Generator	Backup Dry Prime Pump with a Diesel Engine	2009-2014	2011	Complete
Deer Creek No. 2	North	Permanent Generator	Backup Dry Prime Pump with a Diesel Engine	2009-2014	2011	Complete
Eighth Street	Central	Connect to Grid Power	n/a	2009-2014	n/a	Initial Project Analysis
Gerrard Ave	East	Permanent Generator	Portable Generator	2009-2014	2011	Complete
Golf Course	Central	Permanent Generator	n/a	2009-2014	n/a	Initial Project Analysis
Hampton Ridge	West	Permanent Generator	Property owner issues; permanent generator not feasible. Evaluating alternate backup power solution.	2009-2014	n/a	Evaluating Solutions
Harrison Harbor	East	Permanent Generator	Portable Generator	2009-2014	2011	Complete

Pump Station Backup Power Plan

CIP Title	Basin	Original Proposed Solution	Updated Proposed Solution	Scheduled Completion Date	Actual Completion Date	Status Description As of December 2010
Category 4 Projects (continued)						
Harvest Hill	Central	Permanent Generator	PS Elimination Study	2009-2014	n/a	Under analysis to be eliminated by means of gravity sewer.
ICH	Central	Permanent Generator	Property owner issues; permanent generator not feasible. Evaluating alternate backup power solution.	2009-2014	n/a	Evaluating Solutions
IDI	North	Permanent Generator	n/a	2009-2014	n/a	Initial Project Analysis
Independence Station Rd	Central	Permanent Generator	Backup Dry Prime Pump with a Diesel Engine	2009-2014	2011	Complete
Jefferson Ave	East	Permanent Generator	Portable Generator	2009-2014	2011	Complete
Jericho Rd	Central	Permanent Generator	Property owner issues; permanent generator not feasible. Evaluating alternate backup power solution.	2009-2014	n/a	Evaluating Solutions
Jonathan	West	Permanent Generator	Property owner issues; permanent generator not feasible. Evaluating alternate backup power solution.	2009-2014	n/a	Evaluating Solutions
Litton	North	Permanent Generator	n/a	2009-2014	n/a	Initial Project Analysis
Ohio Ave	East	Permanent Generator	Portable Generator	2009-2014	2011	Complete
Orchard Estates	West	Permanent Generator	n/a	2009-2014	n/a	Evaluating Solutions
Parkside No. 2	East	Permanent Generator	n/a	2009-2014	n/a	Initial Project Analysis
Patton Street	Central	Dual Utility Power Feed	n/a	2009-2014	n/a	Initial Project Analysis
Ria Vista	North	Permanent Generator	n/a	2009-2014	n/a	Initial Project Analysis
Silver Grove	East	Permanent Generator	n/a	2009-2014	n/a	Initial Project Analysis
St Annes	East	Permanent Generator	n/a	2009-2014	n/a	Evaluating Solutions
Sycamore	West	Permanent Generator	Property owner issues; permanent generator not feasible. Evaluating alternate backup power solution.	2009-2014	n/a	Evaluating Solutions
Taylor Mill Rd	Central	Permanent Generator	Property owner issues; permanent generator not feasible. Evaluating alternate backup power solution.	2009-2014	n/a	Evaluating Solutions
Wilder	East	Permanent Generator	n/a	2009-2014	n/a	Evaluating Solutions
Wyndemere	North	Permanent Generator	Portable Generator	2009-2014	n/a	Evaluating Solutions
Youell Rd	West	Permanent Generator	Backup Dry Prime Pump with a Diesel Engine	2012	n/a	Initial Project Analysis

Pump Station Backup Power Plan

CIP Title	Basin	Original Proposed Solution	Updated Proposed Solution	Scheduled Completion Date	Actual Completion Date	Status Description As of December 2010
Category 5 Projects (6 total projects)						
Keavy	Central	Permanent Generator	Backup Dry Prime Pump with a Diesel Engine	2010-2015	2010	Complete
Meadow Lane	Central	Permanent Generator	Backup Dry Prime Pump with a Diesel Engine	2010-2015	2009	Complete
Cardinal Cove	North	Permanent Generator	n/a	2010-2015	n/a	Initial Project Analysis
Crestview	East	PS Elimination Study	n/a	2010-2015	n/a	Evaluating Solutions
Ripple Creek	East	PS Elimination Study	PS Elimination	2010-2015	2010	Complete
Winters Lane No. 2	East	Permanent Generator	n/a	2010-2015	n/a	Initial Project Analysis
CIP Title	**Basin**	**Original Proposed Solution**	**Updated Proposed Solution**	**Scheduled Completion Date**	**Actual Completion Date**	**Status Description As of December 2010**
Category 6 Projects (5 total projects)						
Enzweiller	East	Permanent Generator	n/a	2012-2015	2009	Complete
Mafred	Central	Permanent Generator	Backup Dry Prime Pump with a Diesel Engine	2012-2015	2009	Complete
Ridgeway	Central	Permanent Generator	Backup Dry Prime Pump with a Diesel Engine	2012-2015	2009	Complete
Richwood	West	Permanent Generator	Backup Dry Prime Pump with a Diesel Engine	2012	n/a	Initial Project Analysis
Twin Lakes	Central	Permanent Generator	n/a	2012-2015	n/a	Initial Project Analysis

Progress Summary	Number
2007 Complete Projects	4
2008 Complete Projects	8
2009 Complete Projects	24
2010 Complete Projects	11
2011 Active/Complete Projects	13
Total Project Activity	**60**

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Pump Station Overflow Elimination Plan

CIP Title	Basin	Scheduled Completion Date	Actual Completion Date	Past Activity for 04/01/2011 to 06/30/2011	Planned Activity for 07/01/2011 to 09/30/2011
Pump Station Overflow Elimination Projects					
Alex-Licking	East	12/31/2010	2008	Complete	
Harrison Harbor	East	12/31/2010	*See PS Oveflow Elimination Annual Report May 11, 2009	Complete	
Highland Acres	West	12/31/2010	2010	Complete	
Riley Road No.1	East	12/31/2010	2009	Complete	
Ripple Creek	Central	12/31/2010	2010	Complete	
South Park	North	12/31/2010	2010	Complete	
Sunset	Central	12/31/2010	2010	Complete	
Taylorsport	North	12/31/2010	2004	Complete	
Allen Fork	North	12/31/2014	n/a	Initial Design	Initial Design
Crestview	East	12/13/2014	n/a	Phase 1 - Sewer and lateral rehab design is complete. Construction is underway.	
Kentucky Aire	West	12/31/2013	n/a	Initial Design	Final Design
Lakeview	Central	Requested Delay - Awaiting Approval (see Watershed Plans)			
South Hampton	West	3/31/2013	n/a	Construction has started. Overflow will be eliminated when Western Regional improvements are complete and in service in 2013.	
Union	West	3/31/2013	n/a	Construction is complete. Overflow will be eliminated when Western Regional improvements are complete and in service in 2013.	

Updated: July 14, 2011

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APPENDIX C:

Cumulative and Annual Overflow Data

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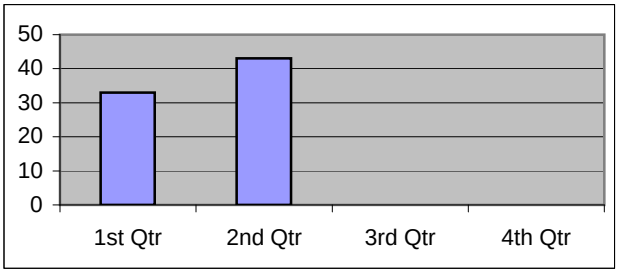
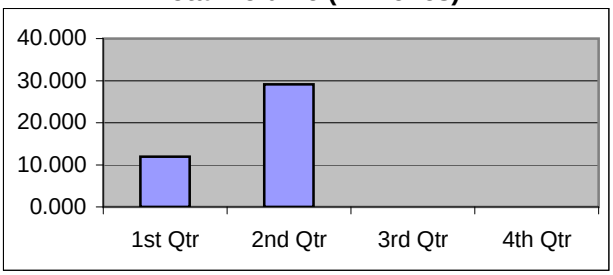
Cumulative Overflow Data
April 1, 2011 through June 30, 2011

Rainfall

Total Occurrences

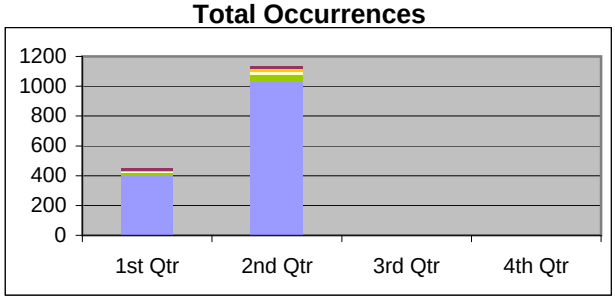


Total Volume (In Inches)

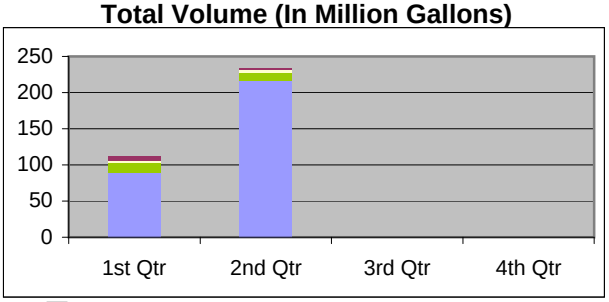


SSOs - Due to Wet Weather (WW) and Operational Issues

Total Occurrences



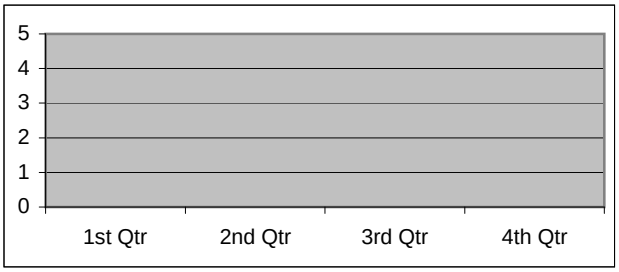
Total Volume (In Million Gallons)



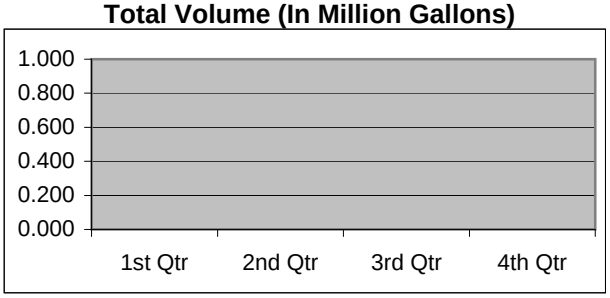
Recurring WW SSOs
Recurring WW CD Pump Station Overflows
Recurring WW Other Pump Station Overflows
Inactive WW Overflows
SSOs Due to Operational Issues

Dry Weather CSOs

Total Occurrences

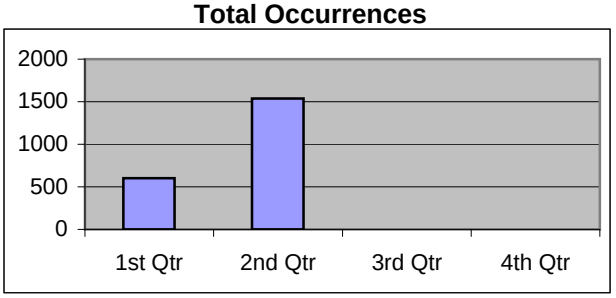


Total Volume (In Million Gallons)

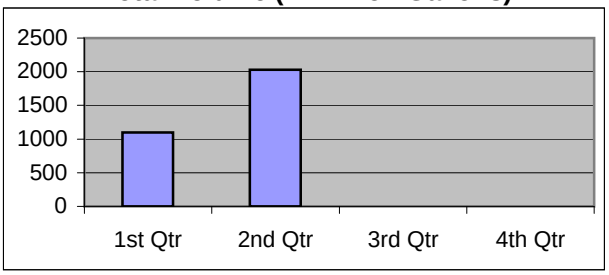


Wet Weather CSOs

Total Occurrences

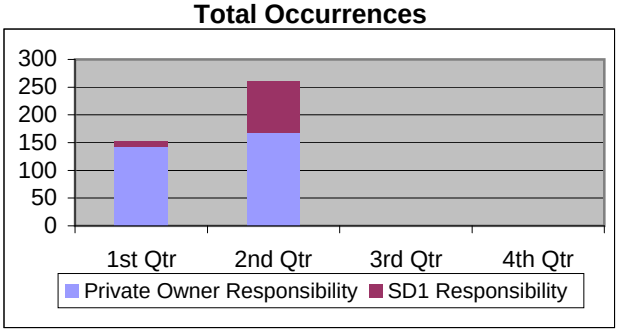


Total Volume (In Million Gallons)



Building Backups

Total Occurrences



2011 Overflow Summary			
	Occurrences	**Volume**	
Rainfall	76	41.040	inches
Recurring WW SSOs	1525	337.184	MG
Inactive WW SSOs	24	1.037	MG
Operational SSOs	35	7.733	MG
Dry Weather CSOs	0	0.000	MG
Wet Weather CSOs	2138	3125.410	MG
Building Backups (Private)		310	
Building Backups (SD1)		102	

Updated: July 20, 2011

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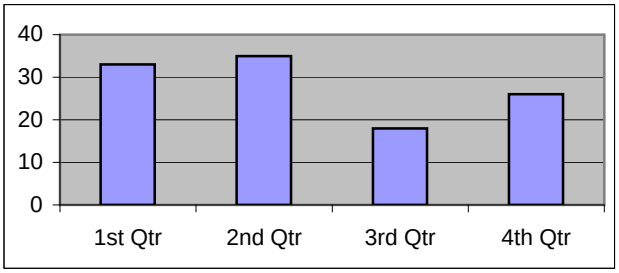
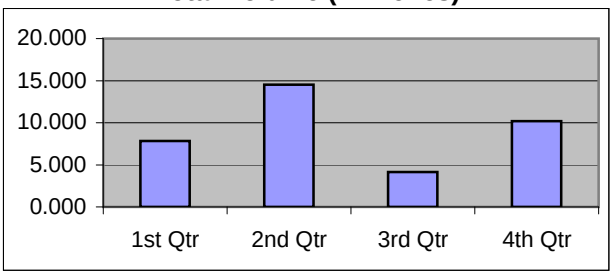
Cumulative Overflow Data
January 1, 2010 through December 31, 2010

Rainfall

Total Occurrences

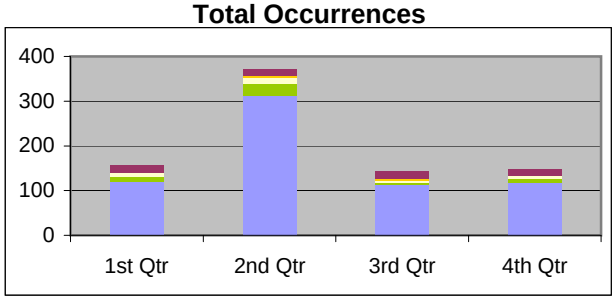


Total Volume (In Inches)

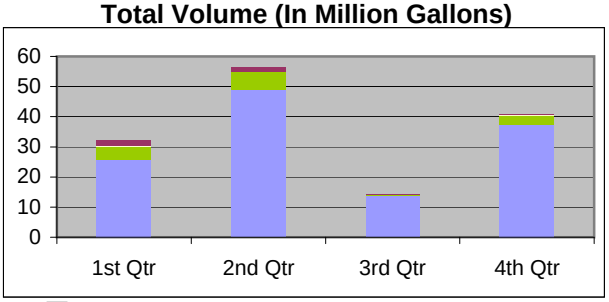


SSOs - Due to Wet Weather (WW) and Operational Issues

Total Occurrences



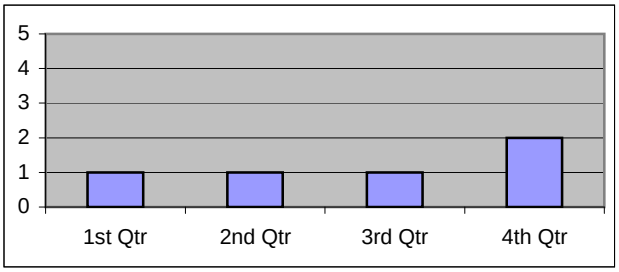
Total Volume (In Million Gallons)



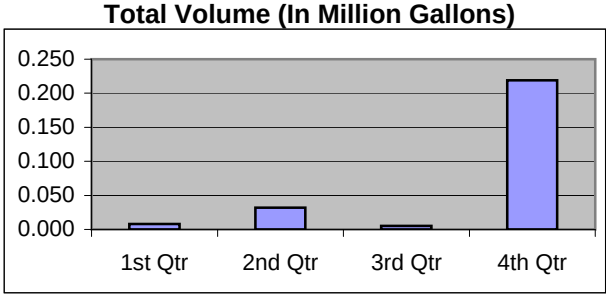
Recurring WW SSOs
Recurring WW CD Pump Station Overflows
Recurring WW Other Pump Station Overflows
Inactive WW Overflows
SSOs Due to Operational Issues

Dry Weather CSOs

Total Occurrences

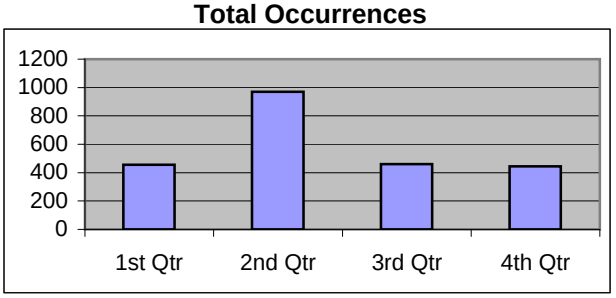


Total Volume (In Million Gallons)

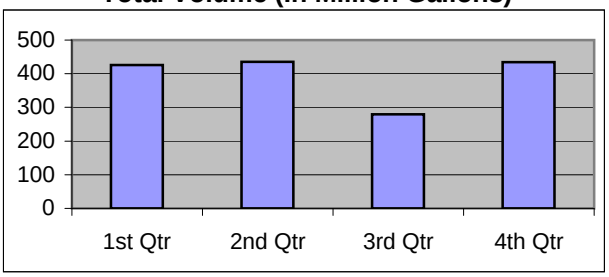


Wet Weather CSOs

Total Occurrences

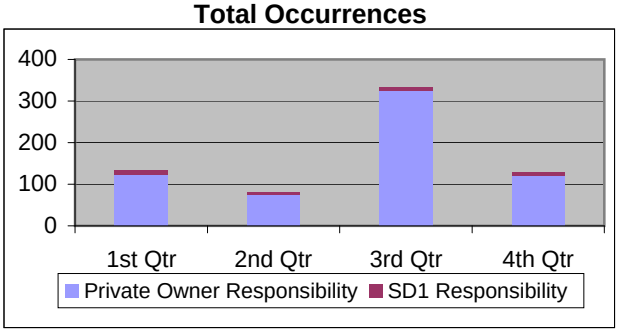


Total Volume (In Million Gallons)



Building Backups

Total Occurrences



2010 Overflow Summary			
	Occurrences	**Volume**	
Rainfall	112	36.670	inches
Recurring WW SSOs	748	140.280	MG
Inactive WW SSOs	11	0.064	MG
Operational SSOs	63	3.486	MG
Dry Weather CSOs	5	0.264	MG
Wet Weather CSOs	2332	1575.500	MG
Building Backups (Private)		644	
Building Backups (SD1)		36	

Updated: January 25, 2011

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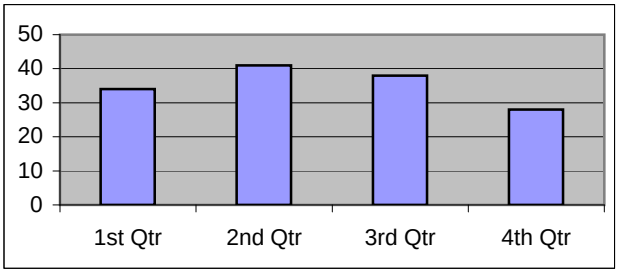
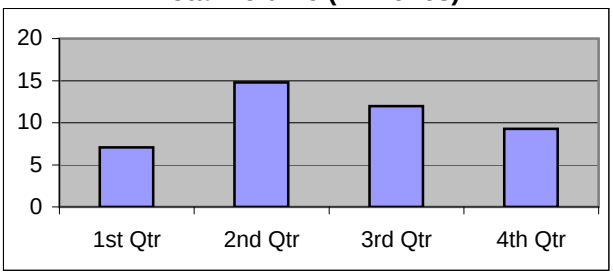
Cumulative Overflow Data
January 1, 2009 through December 31, 2009

Rainfall

Total Occurrences

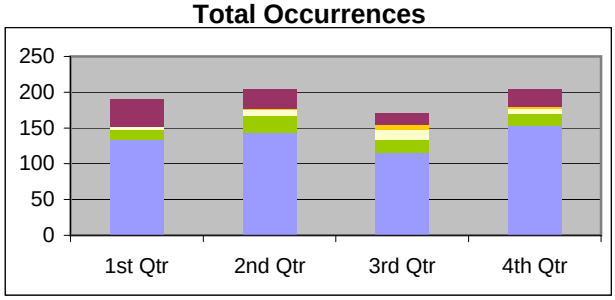


Total Volume (In Inches)

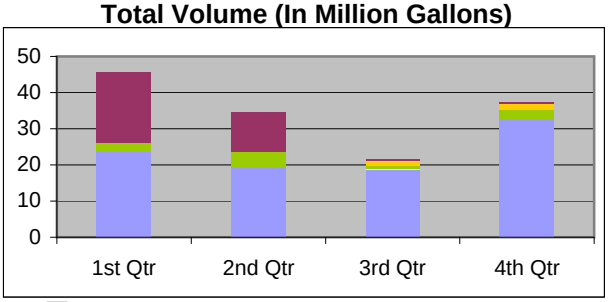


SSOs - Due to Wet Weather (WW) and Operational Issues

Total Occurrences



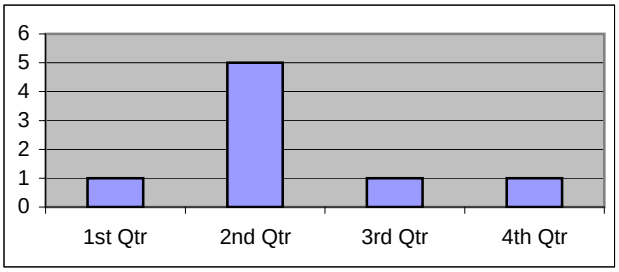
Total Volume (In Million Gallons)



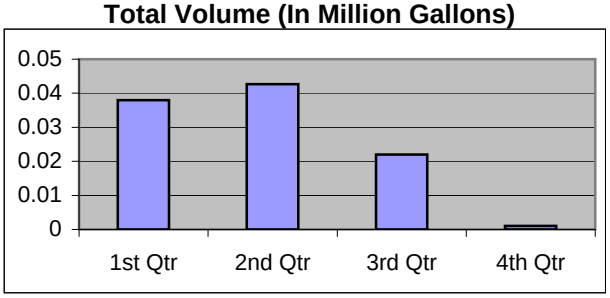
Recurring WW SSOs
Recurring WW CD Pump Station Overflows
Recurring WW Other Pump Station Overflows
Inactive WW Overflows
SSOs Due to Operational Issues

Dry Weather CSOs

Total Occurrences

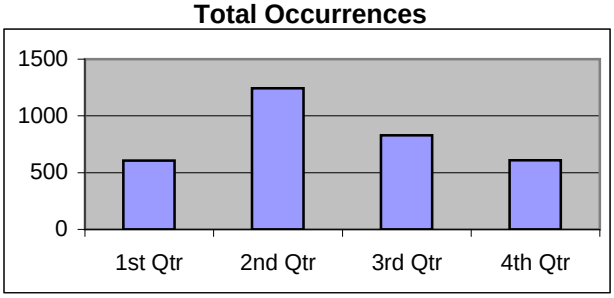


Total Volume (In Million Gallons)

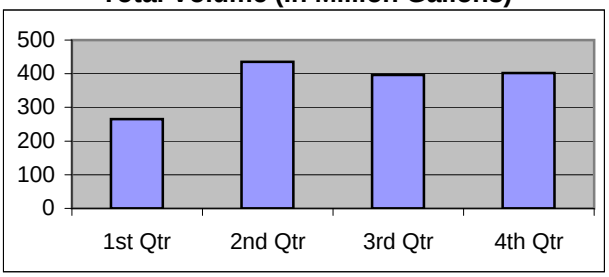


Wet Weather CSOs

Total Occurrences

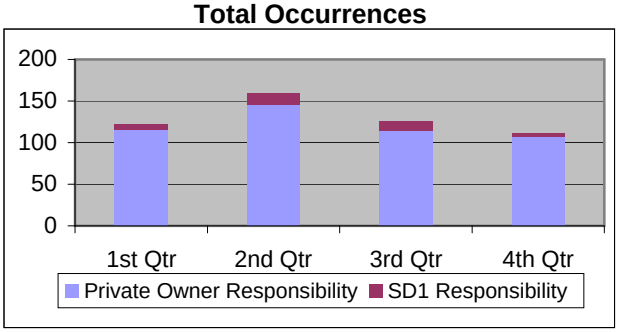


Total Volume (In Million Gallons)



Building Backups

Total Occurrences



2009 Overflow Summary			
	Occurrences	**Volume**	
Rainfall	141	43.11	inches
Recurring WW SSOs	651	105	MG
Inactive WW SSOs	13	3	MG
Operational SSOs	108	31	MG
Dry Weather CSOs	8	0.104	MG
Wet Weather CSOs	3289	1,502	MG
Building Backups (Private)		482	
Building Backups (SD1)		36	

Updated January 29, 2010

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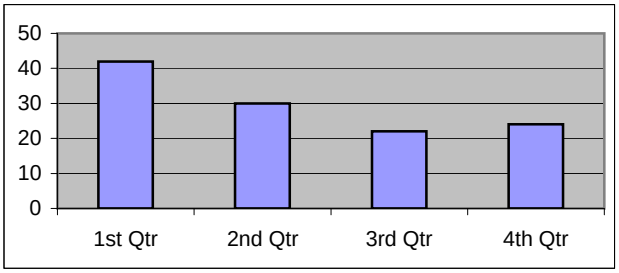
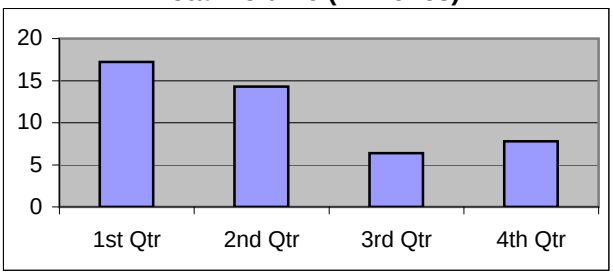
Cumulative Overflow Data
January 1, 2008 through December 31, 2008

Rainfall

Total Occurrences

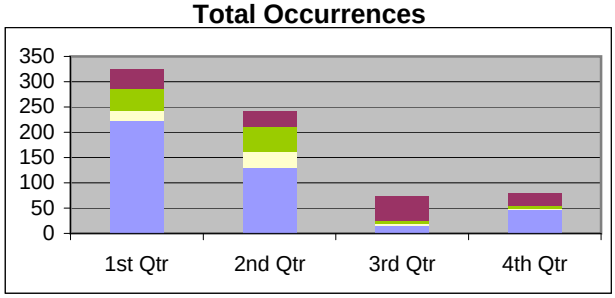


Total Volume (In Inches)

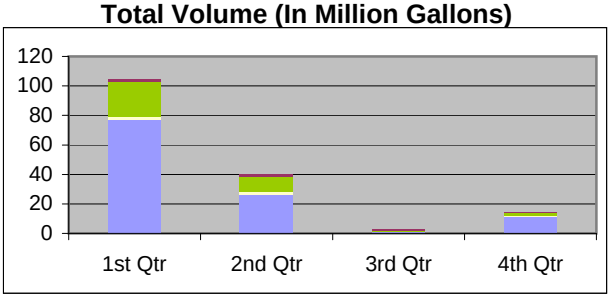


SSOs - Due to Wet Weather (WW) and Operational Issues

Total Occurrences



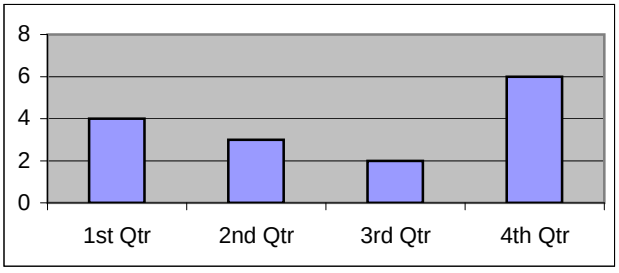
Total Volume (In Million Gallons)



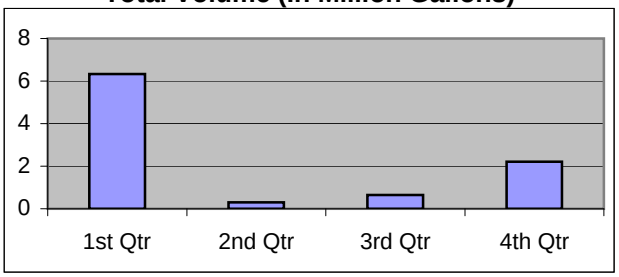
Recurring WW CD Pump Station Overflows
Recurring WW Other Pump Station Overflows
SSOs Due to Operational Issues
Recurring WW SSOs

Dry Weather CSOs

Total Occurrences

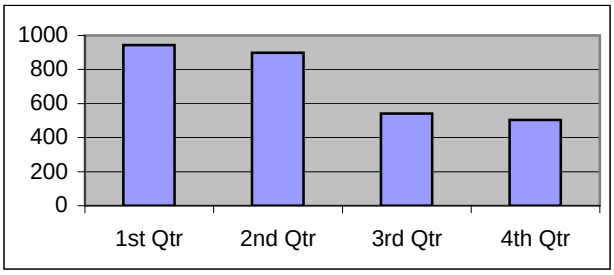


Total Volume (In Million Gallons)

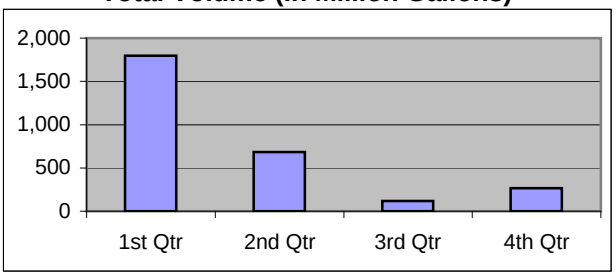


Wet Weather CSOs

Total Occurrences

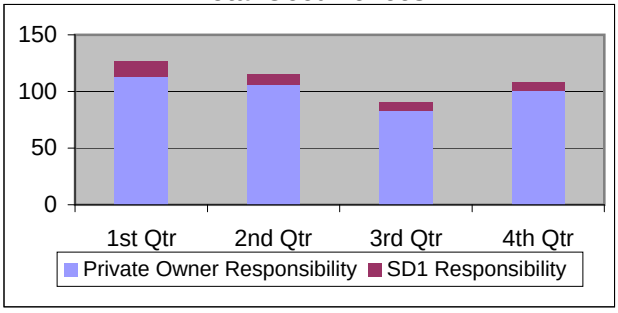


Total Volume (In Million Gallons)



Building Backups

Total Occurrences



2008 Overflow Summary

	Occurrences	Volume	
Rainfall	118	45.66	inches
Recurring WW SSOs	576	158	MG
Inactive WW SSOs	N/A	N/A	
Operational SSOs	143	5	MG
Dry Weather CSOs	15	9	MG
Wet Weather CSOs	2888	2,869	MG
Building Backups (Private)		402	
Building Backups (SD1)		39	

Updated January 29, 2010

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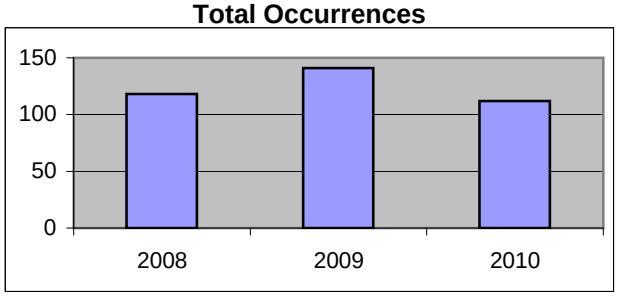
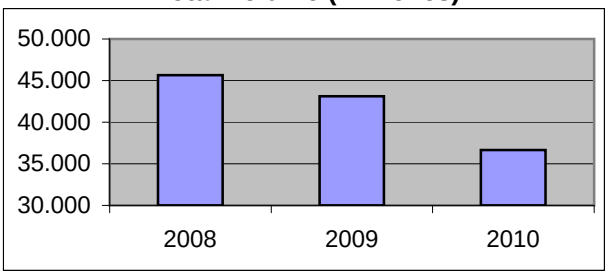
Annual Cumulative Overflow Data
2008 through 2010

Rainfall

Total Occurrences

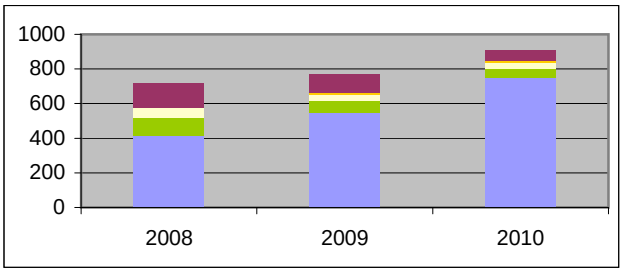


Total Volume (In Inches)

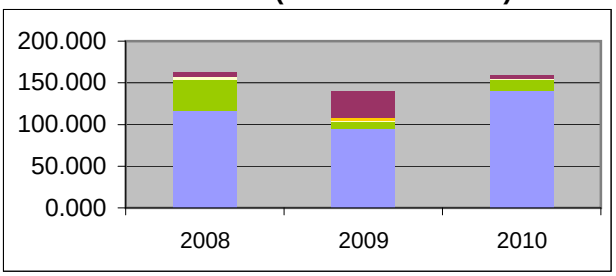


SSOs - Due to Wet Weather (WW) and Operational Issues

Total Occurrences



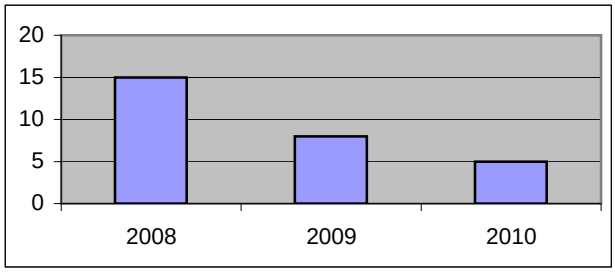
Total Volume (In Million Gallons)



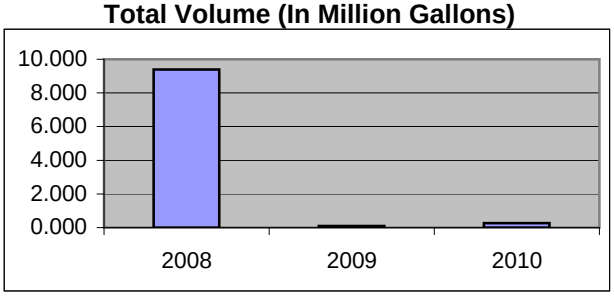
Recurring WW SSOs
Recurring WW CD Pump Station Overflows
Recurring WW Other Pump Station Overflows
Inactive WW Overflows
SSOs Due to Operational Issues

Dry Weather CSOs

Total Occurrences

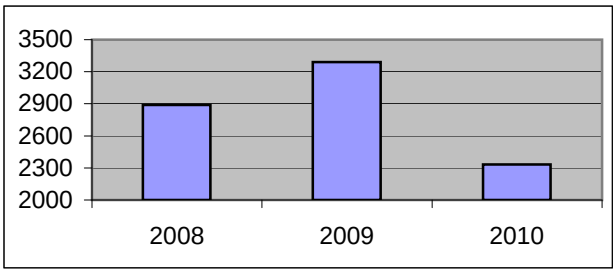


Total Volume (In Million Gallons)

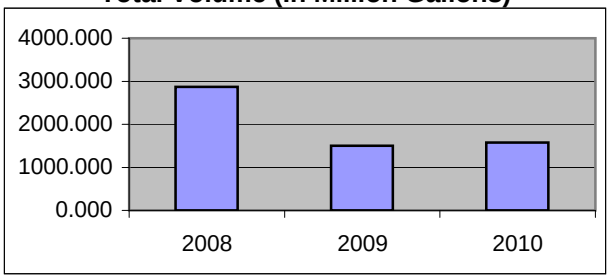


Wet Weather CSOs

Total Occurrences

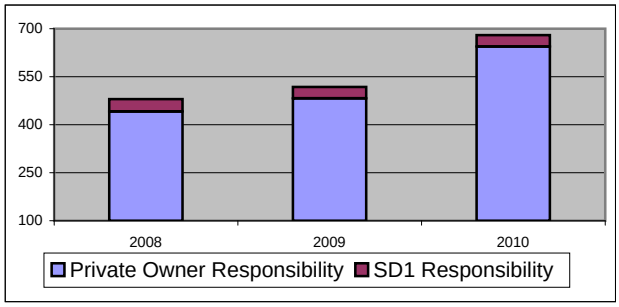


Total Volume (In Million Gallons)



Building Backups

Total Occurrences



Change from 2009 to 2010			
	Occurrences	**Volume**	
Rainfall	29	6.440	inches
Recurring WW SSOs	-184	-50.269	MG
Inactive WW SSOs	2	3.279	MG
Operational SSOs	45	27.952	MG
Dry Weather CSOs	3	-0.160	MG
Wet Weather CSOs	957	-74.885	MG
Building Backups (Private)		-162	
Building Backups (SD1)		0	

Updated: January 25, 2011

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APPENDIX D:

Recurring Wet Weather SSOs

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Recurring Wet Weather SSOs					
No.	**MHID**	**City**	**County**	**Model Predicted Overflow Activations**	**Model Predicted Overflow Volume (MG)**
1	0020005	Silver Grove	Campbell	17	5.12
2	0020006	Silver Grove	Campbell	17	0.63
3	0020007	Silver Grove	Campbell	15	0.12
4	0020008	Unicorp Campbell County	Campbell	15	0.20
5	0020012	Unicorp Campbell County	Campbell	1	0.00
6	0020031	Unicorp Campbell County	Campbell	3	0.02
7	0020032	Unicorp Campbell County	Campbell	3	0.03
8	0040003	Fort Thomas	Campbell	6	0.36
9	0050022	Fort Thomas	Campbell	10	0.63
10	0060001	Unicorp Campbell County	Campbell	7	0.52
11	0060002	Unicorp Campbell County	Campbell	4	0.06
12	0060004	Unicorp Campbell County	Campbell	4	0.30
13	0070044	Highland Heights	Campbell	4	0.04
14	0100002	Highland Heights	Campbell	13	1.01
15	0100003	Highland Heights	Campbell	5	0.42
16	0110002	Fort Thomas	Campbell	6	0.13
17	0110010	Highland Heights	Campbell	14	0.78
18	0120019	Highland Heights	Campbell	NA	NA
19	0150009	Wilder	Campbell	16	5.38
20	0150024	Southgate	Campbell	3	0.06
21	0150058	Wilder	Campbell	16	2.55
22	0150063	Wilder	Campbell	0	0.00
23	0150064	Wilder	Campbell	0	0.00
24	0150065	Wilder	Campbell	0	0.00
25	0150085	Fort Thomas	Campbell	0	0.00
26	0150086	Fort Thomas	Campbell	15	2.76
27	0150087	Fort Thomas	Campbell	5	0.10
28	0150356	Southgate	Campbell	0	0.00
29	0200003	Fort Thomas	Campbell	0	0.00
30	0220035	Southgate	Campbell	3	0.03
31	0220044	Fort Thomas	Campbell	8	0.36
32	0220056	Fort Thomas	Campbell	0	0.00
33	0220058	Fort Thomas	Campbell	3	0.05
34	0220086	Southgate	Campbell	3	0.04
35	0230011	Fort Thomas	Campbell	0	0.00
36	0230016	Fort Thomas	Campbell	0	0.00
37	0250002	Fort Thomas	Campbell	0	0.00
38	0260001	Fort Thomas	Campbell	2	0.02
39	0270026	Fort Thomas	Campbell	4	0.02
40	0270062	Fort Thomas	Campbell	0	0.00
41	0270103	Fort Thomas	Campbell	8	0.11
42	0280001	Fort Thomas	Campbell	4	0.05
43	0280073	Fort Thomas	Campbell	0	0.00

Recurring Wet Weather SSOs					
No.	**MHID**	**City**	**County**	**Model Predicted Overflow Activations**	**Model Predicted Overflow Volume (MG)**
44	0300035	Fort Thomas	Campbell	9	0.19
45	0330005	Fort Thomas	Campbell	5	0.08
46	0360004	Dayton	Campbell	6	0.19
47	0380005	Fort Thomas	Campbell	5	0.12
48	0390007	Fort Thomas	Campbell	7	0.12
49	0400002	Fort Thomas	Campbell	15	1.05
50	0400017	Fort Thomas	Campbell	3	0.03
51	0410010	Fort Thomas	Campbell	15	0.29
52	0410019	Fort Thomas	Campbell	14	0.36
53	0410036	Fort Thomas	Campbell	2	0.00
54	0430011	Newport	Campbell	NA	NA
55	0440074	Fort Thomas	Campbell	5	0.08
56	0530083	Newport	Campbell	4	0.17
57	0540064	Bellevue	Campbell	NA	NA
58	0860001	Wilder	Campbell	34	63.41
59	0860003	Wilder	Campbell	0	0.00
60	0860016	Wilder	Campbell	0	0.00
61	1010002	Fort Thomas	Campbell	0	0.00
62	1010025	Fort Thomas	Campbell	6	0.31
63	1010027	Fort Thomas	Campbell	3	0.03
64	1040060	Independence	Kenton	2	0.21
65	1090069	Edgewood	Kenton	4	0.05
66	1110025	Erlanger	Kenton	5	0.22
67	1110051	Erlanger	Kenton	10	0.76
68	1110067	Erlanger	Kenton	12	1.44
69	1110161	Erlanger	Kenton	7	0.50
70	1110164	Erlanger	Kenton	8	0.13
71	1110174	Elsmere	Kenton	5	0.13
72	1110275	Elsmere	Kenton	2	0.02
73	1110294	Erlanger	Kenton	7	0.11
74	1190012	Erlanger	Kenton	11	1.51
75	1220016	Erlanger	Kenton	9	0.09
76	1220029	Erlanger	Kenton	9	0.16
77	1220054	Erlanger	Kenton	9	1.01
78	1240008	Erlanger	Kenton	13	0.94
79	1240012	Erlanger	Kenton	5	0.15
80	1550053	Fort Mitchell	Kenton	1	0.01
81	1560016	Fort Mitchell	Kenton	0	0.00
82	1560019	Fort Mitchell	Kenton	0	0.00
83	1560074	Fort Mitchell	Kenton	0	0.00
84	1560092	Fort Mitchell	Kenton	0	0.00
85	1570025	Fort Mitchell	Kenton	6	0.23
86	1600029	Lakeside Park	Kenton	7	0.50
87	1600050	Lakeside Park	Kenton	9	0.42
88	1610102	Fort Mitchell	Kenton	3	0.02
89	1690043	Fort Wright	Kenton	8	0.22
90	1690072	Fort Wright	Kenton	5	0.15
91	1700008	Covington	Kenton	1	0.01
92	1700025	Park Hills	Kenton	4	0.15
93	1730103	Fort Mitchell	Kenton	5	0.52

Recurring Wet Weather SSOs					
No.	**MHID**	**City**	**County**	**Model Predicted Overflow Activations**	**Model Predicted Overflow Volume (MG)**
94	1750076	Independence	Kenton	NA	NA
95	1760047	Edgewood	Kenton	10	0.81
96	1760048	Edgewood	Kenton	9	0.63
97	1790003	Crescent Springs	Kenton	5	0.20
98	1830020	Unicorp Boone County	Boone	0	0.00
99	1830067	Unicorp Boone County	Boone	0	0.00
100	1850140	Covington	Kenton	16	0.51
101	1850141	Covington	Kenton	21	3.01
102	1860108	Taylor Mill	Kenton	2	0.03
103	1870013	Covington	Kenton	0	0.00
104	1870014	Covington	Kenton	0	0.00
105	1920086	Cold Spring	Campbell	2	0.00
106	1920097	Cold Spring	Campbell	2	0.01
107	1940006	Fort Wright	Kenton	11	1.23
108	1950014	Fort Wright	Kenton	16	11.48
109	1950232	Fort Wright	Kenton	0	0.00
110	1960002	Fort Wright	Kenton	11	2.12
111	1990018	Covington	Kenton	0	0.00
112	1990028	Covington	Kenton	7	1.24
113	1990032	Unicorp Kenton County	Kenton	18	19.46
114	2040040	Edgewood	Kenton	7	2.20
115	2070019	Elsmere	Kenton	17	1.24
116	2090008	Elsmere	Kenton	25	2.68
117	2100002	Elsmere	Kenton	5	0.18
118	2100007	Elsmere	Kenton	1	0.00
119	2100036	Elsmere	Kenton	6	0.11
120	2100037	Elsmere	Kenton	4	0.02
121	2100057	Elsmere	Kenton	7	0.24
122	2100106	Elsmere	Kenton	12	1.32
123	2100126	Elsmere	Kenton	NA	NA
124	2100128	Elsmere	Kenton	0	0.00
125	2100129	Elsmere	Kenton	17	8.14
126	2110001	Elsmere	Kenton	18	1.35
127	2110002	Elsmere	Kenton	10	1.05
128	2110006	Elsmere	Kenton	4	0.09
129	2120001	Elsmere	Kenton	8	0.19
130	2120041	Elsmere	Kenton	5	0.14
131	2130022	Villa Hills	Kenton	9	0.79
132	2130027	Erlanger	Kenton	11	14.03
133	2130286	Erlanger	Kenton	9	0.24
134	2150050	Crestview Hills	Kenton	5	0.08
135	2160004	Fort Mitchell	Kenton	6	0.05
136	2160005	Fort Mitchell	Kenton	6	0.06
137	2170006	Crestview Hills	Kenton	10	0.43
138	2170008	Crestview Hills	Kenton	6	0.13
139	2170013	Lakeside Park	Kenton	5	0.10
140	2170097	Crestview Hills	Kenton	8	0.04
141	2280010	Unicorp Kenton County	Kenton	0	0.00
142	2280011	Unicorp Kenton County	Kenton	19	1.09
143	2280016	Independence	Kenton	14	0.94

Recurring Wet Weather SSOs					
No.	**MHID**	**City**	**County**	**Model Predicted Overflow Activations**	**Model Predicted Overflow Volume (MG)**
144	2290001	Crescent Springs	Kenton	5	0.31
145	2300016	Erlanger	Kenton	0	0.00
146	2300019	Erlanger	Kenton	6	0.64
147	2300121	Independence	Kenton	41	15.08
148	2300123	Unicorp Kenton County	Kenton	17	11.16
149	2300523	Erlanger	Kenton	15	5.95
150	2301219	Erlanger	Kenton	14	6.53
151	2301274	Erlanger	Kenton	0	0.00
152	2360024	Unicorp Boone County	Boone	2	0.14
153	2410387	Unicorp Boone County	Boone	13	0.68
			TOTAL	**1031**	**216.10**

Threshold for model activation is 0.01 MGD and 0.001 MG
NA: Not Modeled

APPENDIX E:

Wet Weather CSOs

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Wet Weather CSOs				
No.	CSO ID	KPDES Permit #	Model Predicted Activations	Model Predicted Overflow Volume (MG)
1	0010220	To Be Permitted	17	1.54
2	0030031	KY0021466 - Outfall 10	0	0.00
3	0200069	KY0021466 - Outfall 11	20	0.82
4	0330100	KY0021466 - Outfall 12	6	0.03
5	0340050	KY0021466 - Outfall 14	17	0.66
6	0340051	KY0021466 - Outfall 13	17	0.25
7	0360079	To Be Permitted	23	8.63
8	0540009	To Be Permitted	34	1.13
9	0540044	To Be Permitted	24	0.72
10	0550134	To Be Permitted	12	0.20
11	0570089	KY0021466 - Outfall 16	30	43.26
12	0570090	KY0021466 - Outfall 17	29	32.78
13	0600094	KY0021466 - Outfall 18	29	2.07
14	0600096	To Be Permitted	18	0.40
15	0600097	KY0021466 - Outfall 19	33	4.78
16	0600104	To Be Permitted	7	0.14
17	0610071	KY0021466 - Outfall 21	40	13.44
18	0610072	KY0021466 - Outfall 20	24	0.88
19	0620075	KY0021466 - Outfall 23	34	10.43
20	0620077	KY0021466 - Outfall 22	24	0.63
21	0630061	KY0021466 - Outfall 83	26	4.10
22	0640090	KY0021466 - Outfall 24	17	322.86
23	0650054	To Be Permitted	4	0.03
24	0650090	KY0021466 - Outfall 26	23	14.65
25	0650098	To Be Permitted	18	18.50
26	0650100	KY0021466 - Outfall 25	12	0.35
27	0660085	To Be Permitted	1	0.00
28	0690059	To Be Permitted	5	0.17
29	0690067	To Be Permitted	1	0.00
30	0730129	To Be Permitted	32	2.23
31	0770096	KY0021466 - Outfall 28	29	3.30
32	0790084	KY0021466 - Outfall 31	20	20.58
33	0790086	KY0021466 - Outfall 29	26	164.68
34	0840111	To Be Permitted	6	2.02
35	0840112	To Be Permitted	33	3.64
36	0840116	KY0021466 - Outfall 27	32	7.15
37	0870078	KY0021466 - Outfall 33	10	1.25
38	0870079	KY0021466 - Outfall 34	33	24.27
39	0880081	KY0021466 - Outfall 36	30	25.34
40	0880082	KY0021466 - Outfall 35	15	1.77
41	0890081	To Be Permitted	0	0.00
42	0910065	KY0021466 - Outfall 38	19	256.01
43	0910066	To Be Permitted	0	0.00
44	0910068	KY0021466 - Outfall 37	24	46.02
45	0910084	To Be Permitted	14	0.73
46	0930102	KY0021466 - Outfall 43	0	0.00
47	0930103	KY0021466 - Outfall 42	10	0.40
48	0930104	KY0021466 - Outfall 40	7	0.12
49	0930105	KY0021466 - Outfall 41	26	36.21
50	0930106	KY0021466 - Outfall 39	6	0.16

Wet Weather CSOs				
No.	CSO ID	KPDES Permit #	Model Predicted Activations	Model Predicted Overflow Volume (MG)
51	0960063	KY0021466 - Outfall 45	18	17.33
52	0960064	KY0021466 - Outfall 44	6	0.03
53	0980073	KY0021466 - Outfall 46	15	0.12
54	0980080	KY0021466 - Outfall 47	5	0.02
55	0980081	KY0021466 - Outfall 48	33	39.61
56	1310100	To Be Permitted	NA	NA
57	1320112	To Be Permitted	0	0.00
58	1350155	KY0021466 - Outfall 49	4	0.11
59	1380132	To Be Permitted	11	0.54
60	1380146	To Be Permitted	3	0.04
61	1420141	KY0021466 - Outfall 50	30	0.68
62	1420142	KY0021466 - Outfall 51	20	123.51
63	1420144	KY0021466 - Outfall 52	0	0.00
64	1420145	KY0021466 - Outfall 53	0	0.00
65	1420146	KY0021466 - Outfall 54	0	0.00
66	1420147	KY0021466 - Outfall 55	7	0.04
67	1440204	KY0021466 - Outfall 59	0	0.00
68	1440206	KY0021466 - Outfall 61	17	5.74
69	1440207	To Be Permitted	1	0.01
70	1440209	KY0021466 - Outfall 56	35	36.61
71	1440508	KY0021466 - Outfall 60	24	1.06
72	1470089	KY0021466 - Outfall 62	6	0.40
73	1470093	KY0021466 - Outfall 63	36	25.84
74	1480185	To Be Permitted	24	3.71
75	1480187	KY0021466 - Outfall 30	29	445.81
76	1490132	KY0021466 - Outfall 65	16	5.89
77	1490172	KY0021466 - Outfall 64	1	0.02
78	1500131	KY0021466 - Outfall 66	19	20.21
79	1510133	To Be Permitted	0	0.00
80	1710114	KY0021466 - Outfall 69	18	1.86
81	1710116	KY0021466 - Outfall 68	22	33.18
82	1710119	KY0021466 - Outfall 70	17	19.92
83	1710121	KY0021466 - Outfall 71	16	16.78
84	1710124	KY0021466 - Outfall 72	17	19.69
85	1720109	KY0021466 - Outfall 73	18	31.78
86	1730259	KY0021466 - Outfall 75	21	6.44
87	1730262	To Be Permitted	0	0.00
88	1730263	KY0021466 - Outfall 74	26	4.05
89	1840130	To Be Permitted	25	1.93
90	1850158	KY0021466 - Outfall 76	22	77.06
91	1870193	KY0021466 - Outfall 78	28	1.80
92	1870194	KY0021466 - Outfall 79	9	0.37
93	1880090	KY0021466 - Outfall 81	12	2.95
94	1880091	KY0021466 - Outfall 80	10	4.37
		TOTAL	**1538**	**2028.84**

Threshold for model activation is 0.01 MGD and 0.001 MG