SD1
Managing Northern Kentucky's
Wastewater and Storm Water

January 28, 2011

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

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

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

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

Dear Gentlemen:

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

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

Information contained within the enclosed Quarterly Report describes SD1's compliance with Consent Decree Case No. 2:05-cv-00199-WOB for the period of October 1, 2010 through December 31, 2010. This report also contains an outlook for the upcoming calendar quarter period of January 1, 2011 through March 31, 2011.

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

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

If you have any questions or concerns, do not hesitate to contact me at 859-578-6762 or by e-mail at mwurschmidt@sd1.org.

Best regards,

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

MWW/vf
Enclosures

Sanitation District No. 1
January 28, 2011

Consent Decree
Quarterly Report No. 13
(October 1, 2010 through December 31, 2010)

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SD1
Managing Northern Kentucky's
Wastewater and Storm Water

CERTIFICATION

Consent Decree Quarterly Report No. 13
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, P.E., BCEE
Interim Executive Director

1/25/11
Date

COMMONWEALTH OF KENTUCKY

)ss.

COUNTY OF Kenton

The foregoing instrument was acknowledged before me this 25 day of Jan., 2011 by Mark W. Wurschmidt, P.E., BCEE, Interim Executive Director of Sanitation District. No. 1.

Kathleen A. Jansch
NOTARY PUBLIC

Kenton County, Kentucky

My commission expires: 9-15-11

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CONSENT DECREE
QUARTERLY REPORT NO. 13

January 28, 2011

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

TABLE OF CONTENTS

FIGURES

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 October 1, 2010 through December 31, 2010. This report also contains an outlook for the upcoming calendar quarter period of January 1, 2011 through March 31, 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 the Watershed Plans for June 2009. In addition to the use of the models for planning future capital improvements, the models are also being used to provide information about the current performance of SD1's system. Based on the results of the model calibration and verification, SD1 has developed a highly calibrated hydraulic model that provides an accurate representation of the sewer system. This tool allows SD1 to have confidence in the results of the overflow volumes from the sewer system and to provide estimates of the overflow locations within the system for quarterly reporting purposes. This approach is consistent with SD1's commitment to provide the best available information on overflow activity within these reports.

For this submittal, SD1 has collected rainfall data from a series of 21 rain gauges located across the system and simulated the rainfall that occurred between October 1, 2010 and December 31, 2010 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
(October 1, 2010 through December 31, 2010)

Month	Approximate # of Storm Events[1]	Rainfall (in)
October	9	1.48
November	9	6.94
December	8	1.77
Total	**26**	**10.19**

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

The remainder of this section reports overflows that occurred throughout SD1's service area during the period of October 1, 2010 through December 31, 2010. 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 105 recurring wet weather SSO locations for the current reporting period can be found in Appendix D. Updates to the locations of SD1's recurring SSOs will be reported on an annual basis to include any revisions based upon the field inspection and hydraulic modeling programs. Appendix E of SD1's April 2010 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 2010 will be published in the April 2011 Quarterly Report.

Recurring Pump Station Overflows

In addition to the 105 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 9 times due to lack of capacity during the current reporting period, with an estimated overflow volume of 2,937,000 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.

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Table 2.2 Discharges from Consent Decree Pump Stations Due to Lack of Capacity during Wet Weather
(October 1, 2010 through December 31, 2010)

Name of Pump Station	Number of Wet-Weather Related Discharge Occurrences	Total Estimated Volume (gallons)
Allen-Fork	0	0
Crestview	1	7,000
Highland Acres[1]	1	48,000
Kentucky Aire	2	64,000
Lakeview	2	2,742,000
Ripple Creek[2]	2	29,000
South Hampton	1	47,000
Union	0	0
Alex-Licking	Overflows Eliminated	
Harrison Harbor		
Riley Road		
South Park		
Sunset		
Taylorsport		
TOTAL	**9**	**2,937,000**

[1] *This overflow occurred on 11/25/2010. The Highland Acres Pump Station was eliminated at the end of December 2010 in accordance with our Consent Decree deadline.*
[2] *These two overflows occurred on 11/25/2010 and 11/30/2010. The Ripple Creek Pump Station was eliminated at the end of December 2010 in accordance with our Consent Decree deadline.*

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 two pump stations with documented recurring wet weather capacity issues that discharged. Table 2.3 provides detailed information for these occurrences. As SD1 moves forward with the watershed planning efforts required under the Consent Decree, priorities will be established based on severity and known wet weather issues will be addressed.

Table 2.3 Discharges from Pump Stations Not Listed in the Consent Decree Due to Lack of Capacity during Wet Weather
(October 1, 2010 through December 31, 2010)

Name of Pump Station	Number of Wet-Weather Related Discharge Occurrences	Total Estimated Volume (gallons)
Gamon Calmet	2	16,000
Highland Heights	6	464,000
TOTAL	**8**	**480,000**

Inactive Wet Weather SSOs

During the current reporting period, there were no additional structures observed overflowing during wet weather due to lack of capacity, including pump stations and structures in the collection system under investigation as suspected or predicted hydraulic model overflow points.

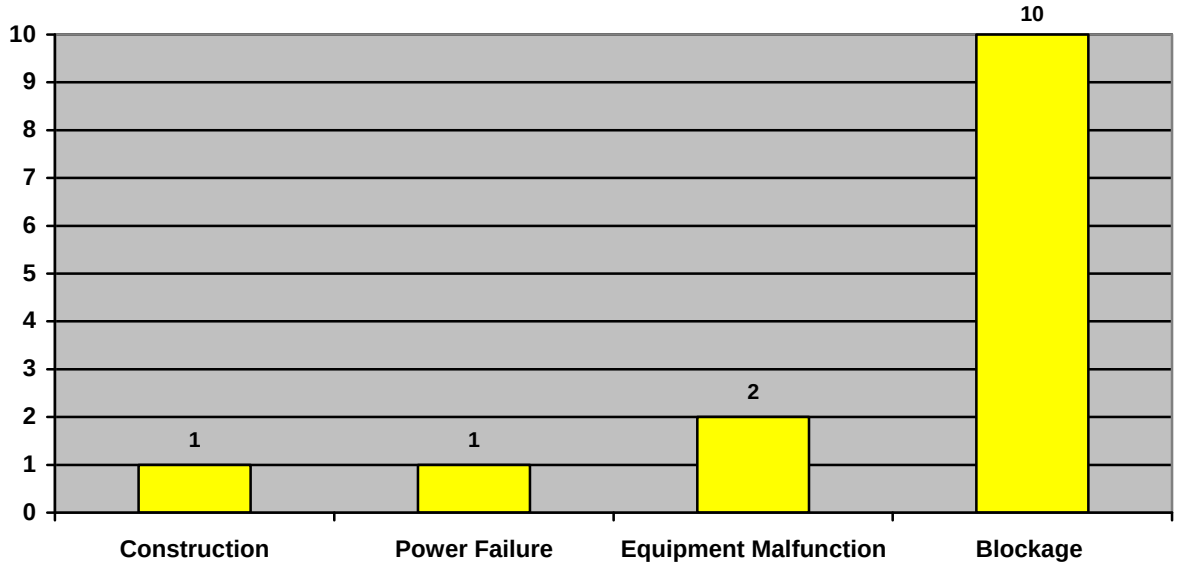
2.2 SSOs Due to Operational Issues

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 14 SSOs due to operational issues throughout SD1's service area with a total estimated overflow volume of 112,000 gallons.

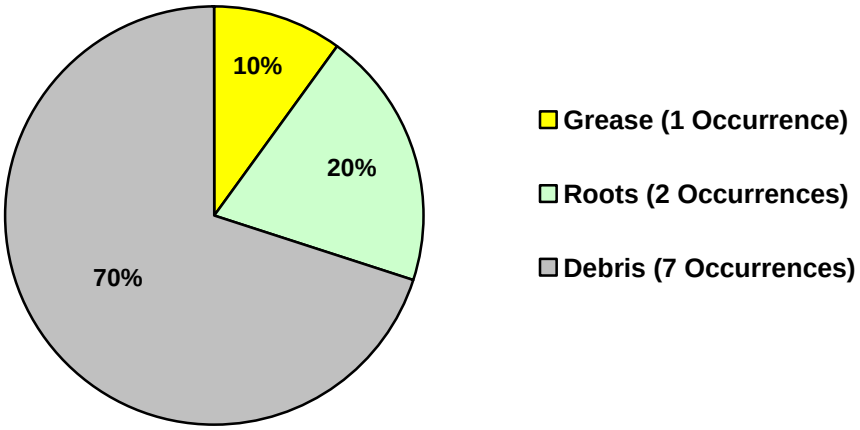
The 14 overflows reported in this category can be broken down by the primary causes demonstrated in Figure 2.1.

Figure 2.1 Causes of Operational Issues Resulting in SSOs
(October 1, 2010 through December 31, 2010)



The 10 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
(October 1, 2010 through December 31, 2010)



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

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

2.4 Dry Weather CSOs

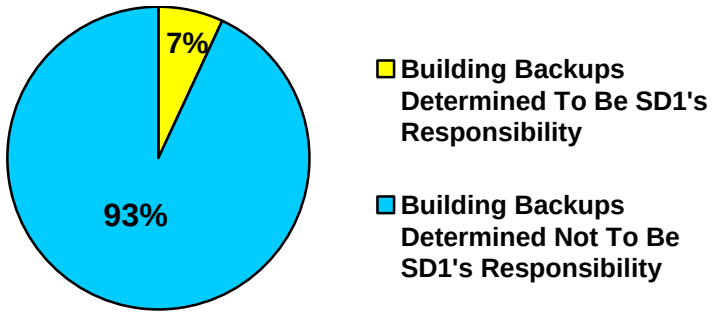
There were two CSOs during dry weather between October 1, 2010 and December 31, 2010. One dry weather CSO happened on November 1, 2010 at the McKinney Street CSO diversion (Structure ID# 0570011), with a total estimated discharge volume of 213,250 gallons. The overflow occurred due to the outlet gate on the Dayton Grit Pit inadvertently being left partially closed after the last cleaning blocking which blocked flow in the Ohio River interceptor. Debris built-up behind the gate causing a restriction in the line which that lead to the overflow. The problem was quickly identified and the gate was fully opened. SD1 has since modified the standard operating procedures for cleaning the grit pits to include a verification step to ensure that all inlet and outlet gates are fully opened before personnel leave the grit pit. This will ensure that future dry weather overflows do not occur due to this issue.

The second dry weather CSO happened on November 9, 2010 at the Adela Street CSO diversion (Structure ID# 1710003), with a total estimated discharge volume of 5,700 gallons. An inspection of the dry weather diversion pipe revealed a blockage of blacktop and rocks that had washed down from the upstream combined sewer during a recent rain event. The debris was removed from the line and re-inspected to ensure the blockage was completely removed. The upstream combined sewers were inspected and additional rocks and blacktop were found upstream. This debris was removed from the upstream sewers and several sections of upstream sewers were cleaned. The dry weather diversion pipe and upstream sewers will be re-inspected in six months (April 2011) as part of SD1's Continuous Sewer Assessment Program. In addition, the catch basins upstream of the diversion are currently being replaced and retrofitted with bells to trap solids and floatables. A design project is also underway to replace the diversion manhole with a baffle and weir wall structure along with replacing the dry weather diversion pipe to provide inline storage and additional solids & floatable control. These efforts will ensure that the overflow does not reoccur in accordance with the Nine Minimum Control No. 5 plan to reduce and eliminate dry weather CSOs.

2.5 Building Backups

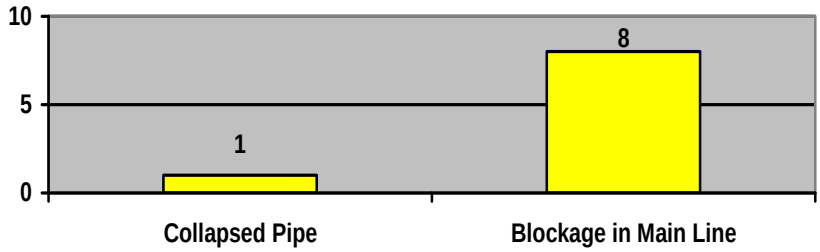
During the current reporting period, there were approximately 130 building backups throughout SD1's service area. Of these 130**,** approximately 9 were determined to be SD1's responsibility and 121 were determined not to be the responsibility of SD1, as shown in Figure 2.3. The backups determined not 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
(October 1, 2010 through December 31, 2010)



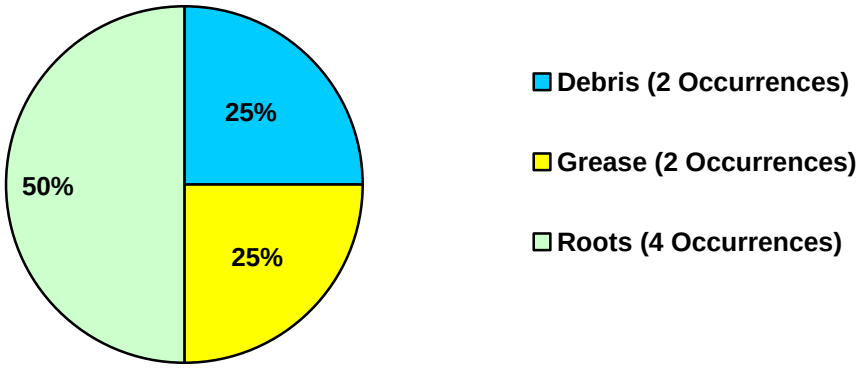
Causes for the approximate 9 building backups determined to be SD1's responsibility are detailed in Figure 2.4 below.

Figure 2.4 Causes of SD1-Responsible Building Backups
(October 1, 2010 through December 31, 2010)



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

Figure 2.5 Causes for Blockages in Main Line Resulting in a Building Backup
(October 1, 2010 through December 31, 2010)



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.

SECTION 3. ANNUAL REVIEW OF OVERFLOW DATA

The activities, programs and projects SD1 implements as part of the Consent Decree are intended to reduce the frequency and volume of SSOs and CSOs throughout SD1's service area. These efforts include Capacity, Management, Operations and Maintenance programs, implementation of the Nine Minimum Controls for CSOs, and various capital improvement projects. As a means to gauge the benefits of these efforts, this section accounts for the reductions or increases in annual overflow activity

from year to year and provides an analysis as to what has contributed to these changes. Rainfall and Ohio River stage level data considered in this analysis is also provided, as each represents an uncontrolled variable that significantly impacts SD1's wet weather CSO and SSO activity. In general, focus on 2009 and 2010 data is included for detailed comparison, while 2008 data is included as a historical reference. A summary comparison of SD1's 2008 through 2010 overflow data can be found in Appendix C.

3.1 Summary of Precipitation Data

As previously mentioned in Section 2, 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. Therefore, SD1 must take into consideration the influence of precipitation to determine the actual impact of system improvements.

Rainfall Conditions

The rainfall volume data in Table 3.1 is based on total rainfall data recorded at the Cincinnati Airport. The storm event data is based on an estimate of the number of events observed at the rain gauges within the SD1 system. An event is defined as a period of time where rainfall is bracketed by at least seven hours of no rainfall. Daily precipitation statistics in Figures 3.1 and 3.2 are derived from daily rainfall totals measured by the rain gauge at the Cincinnati Airport.

Table 3.1 Rain Events and Total Rainfall by Quarter (2008 through 2010)

	2008			2009			2010			Change from 2009 to 2010	
Qtr.	# of Storm Events	Rainfall (in)	Avg. Storm	# of Storm Events	Rainfall (in)	Avg. Storm	# of Storm Events	Rainfall (in)	Avg. Storm	# of Storm Events	Rainfall (in)
1st	42	17.21	0.51	34	7.09	0.21	33	7.82	0.24	-1	0.73
2nd	30	14.28	0.48	41	14.79	0.36	35	14.53	0.42	-6	-0.26
3rd	22	6.39	0.29	38	11.96	0.31	18	4.13	0.23	-20	-7.83
4th	24	7.78	0.32	28	9.27	0.33	26	10.19	0.39	-2	0.92
Total	118	45.66	0.42	141	43.11	0.31	112	36.67	0.33	-29	-6.44

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Figure 3.1 Daily Precipitation (2008 through 2010)

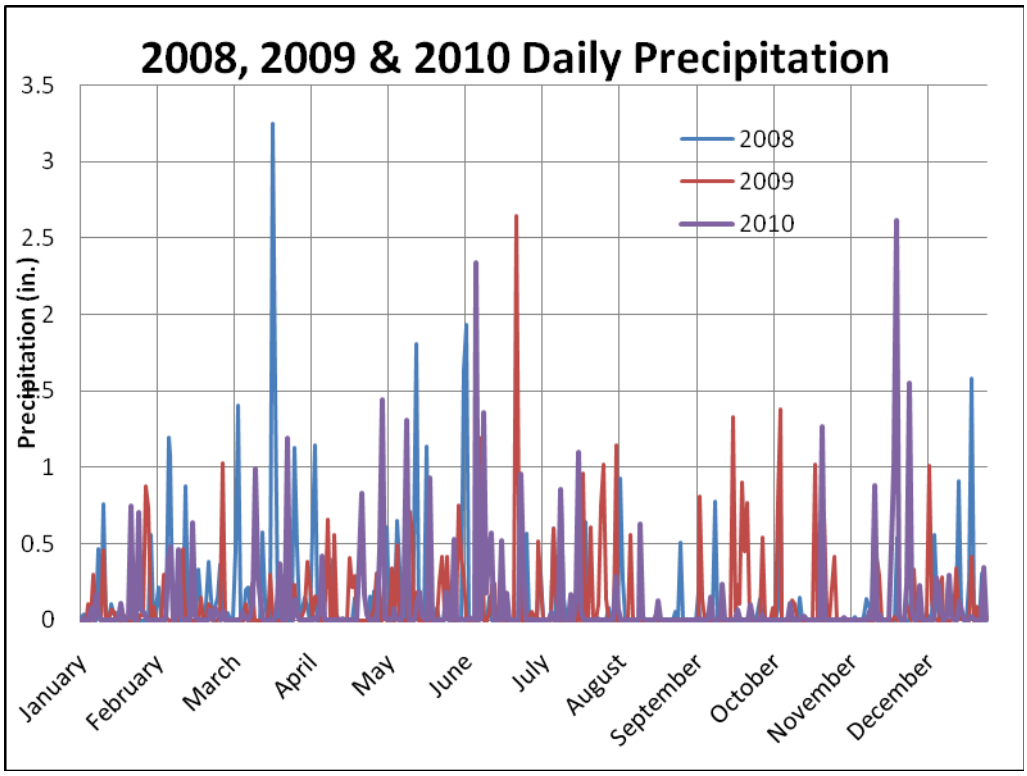
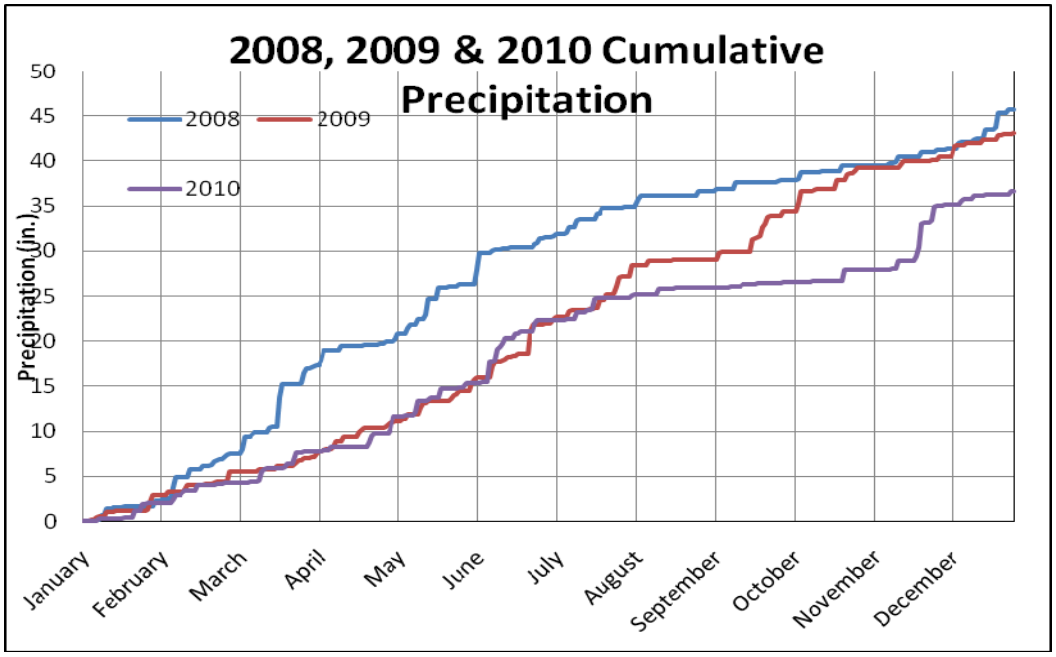


Figure 3.2 Cumulative Precipitation (2009 through 2010)



In reviewing the rainfall data, in 2008, the rainfall during the first quarter of the year was much greater than in 2009 and 2010. For 2009 and 2010, the general patterns in the first two quarters were similar; however, in 2010 there was less rainfall overall and significantly fewer rainfall events due to an extended dry period during late summer and early fall. The difference in the third quarter rainfall (July through September) accounts for the majority of the difference of the rainfall volume. A discussion and summary of the above presented information and how it relates to changes in overflow frequency and volume is included in Section 3.2 of this report.

River Water Intrusion

SD1's system is influenced in multiple ways by the local Ohio River stage level. In addition to increasing groundwater levels that cause additional infiltration to occur, SD1's system operation is also impacted when the river stage is above 41 feet, as shown in Figure 3.3. When the Ohio River reaches the Army Corps of Engineers' specified river stages during flood conditions, CSO outfall flood gates are closed to isolate the sewer system from high river water. Other sewer system flood gates are opened or closed to isolate portions of the interceptor and combined sewers to re-route sewer flows to the flood pumping stations. The flood pumping stations and gates were designed to operate by the Army Corps of Engineers to protect the cities from flooding internally due to elevated river levels or during rain events when the flows in the combined sewers could not flow out into the river due to the elevated river levels. SD1 is currently working on eliminating river water intrusion through a program to install duckbill-style check valves on outfalls to reduce the river water intrusion up to river level 47 feet. Details on the progress of the check valve installation can be found in SD1's Nine Minimum Controls Annual reports.

Table 3.2 shows the number of days each quarter that the river stage exceeded 41 feet in 2009 and 2010. Overall, the river stage was greater than 41 feet 10 days in 2009 and 17 days in 2010, as summarized in Table 3.2.

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Figure 3.3 Daily River Stage (2008 through 2010)

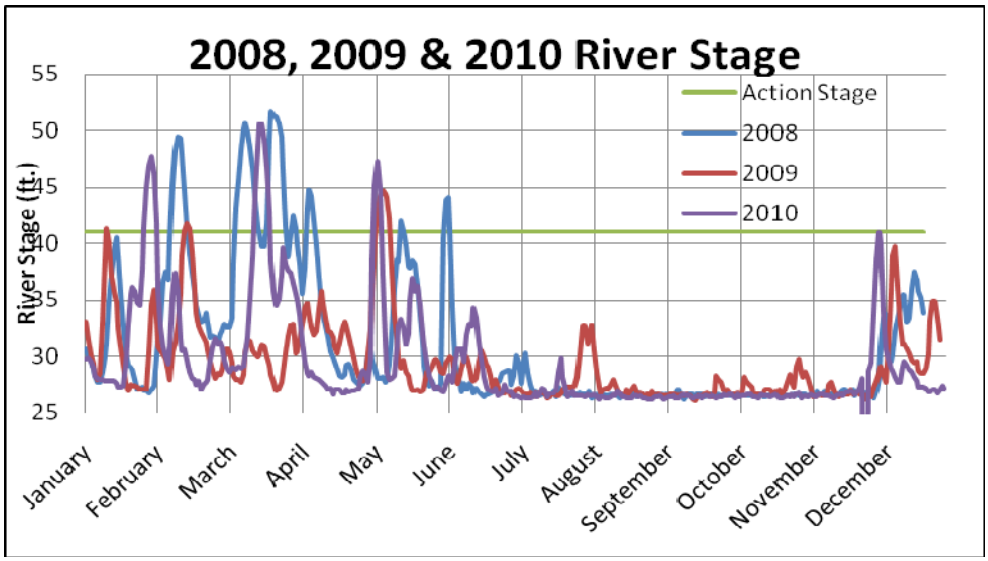

Table 3.2 Number of Days Ohio River Stage Level above 41 Feet (2008 through 2010)

Quarter	2008	2009	2010
1	28	4	13
2	9	6	3
3	0	0	0
4	0	0	1
Total	**37**	**10**	**17**

In 2010, the Ohio River stage level of 41 ft was exceeded more frequently than in 2009, causing slightly increased CSO volumes due to the additional days of river water intrusion. While 2009 and 2010 were more typical years for river water levels, 2008 was an outlier in terms of overall impact of the Ohio River on the SD1 system operation. The overflow volume for CSOs was significantly higher in 2008 than it was in 2009 and 2010 (approximately 2,800 MG in 2008 versus approximately 1,500 MG in 2009 and 2010), due largely to the elevated river levels observed in 2008. A further discussion and summary of the above presented information and how it relates to changes in CSO overflow frequency and volume is included in Section 3.4 of this report.

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3.2 Review of SSOs Due to Wet Weather Capacity Issues

3.2.1 Recurring Wet Weather SSOs

Table 3.3 provides a summary of the number of activations and corresponding volume of recurring wet weather SSOs occurring in 2008, 2009 and 2010, including recurring wet weather overflows at pump stations.

Table 3.3 Recurring Wet Weather SSOs by Quarter (2008 through 2010)

	2008		2009		2010		Change from 2009 to 2010	
Qtr.	Activations	Volume (MG)	Activations	Volume (MG)	Activations	Volume (MG)	Activations	Volume (MG)
1st	285	103	152	26	128	30	-24	4
2nd	211	39	175	24	351	55	176	31
3rd	24	2	147	20	123	14	-24	-6
4th	56	14	177	35	134	41	-43	6
Total	**576**	**158**	**651**	**105**	**736**	**140**	**85**	**35**

The recurring wet weather SSO number of activations and volume were slightly higher in 2010 than in 2009. Both years have lower overflow volumes than in 2008, which had much higher first quarter overflow volumes. For 2008, as noted earlier, the first quarter rainfall volumes were much higher than in 2009 and 2010, which accounts for a large amount of the difference in overflow volume. For 2009 and 2010, the quarters were fairly equal with the exception of the second quarter, which can be attributed to the increased volume per event in the second quarter of 2010.

As shown in Table 3.3, the SSO volumes for the second quarter were significantly higher in 2010 than in 2009. While the rainfall volume in both quarters was similar (approximately 15 inches), in 2010, this occurred in 7 fewer events. While the volumes were similar, the rainfall occurred in larger storm events. These larger storm events lead to increased SSO activations and, therefore, increased overflow volume as compared to 2009. A similar result with increased rainfall in fewer events also occurred in the fourth quarter of 2010 as compared to the fourth quarter of 2009. These events resulted in higher overall yearly activations and volume in 2010 as compared to 2009.

Elimination of Localized Wet Weather SSOs

Based on SD1's current watershed planning efforts, a substantial reduction to the volume of wet weather SSOs will occur across several basins once the Western Regional system related improvement projects are complete. These projects, including the reclamation facility and tunnel, are currently in-progress and are scheduled to be complete in 2013.

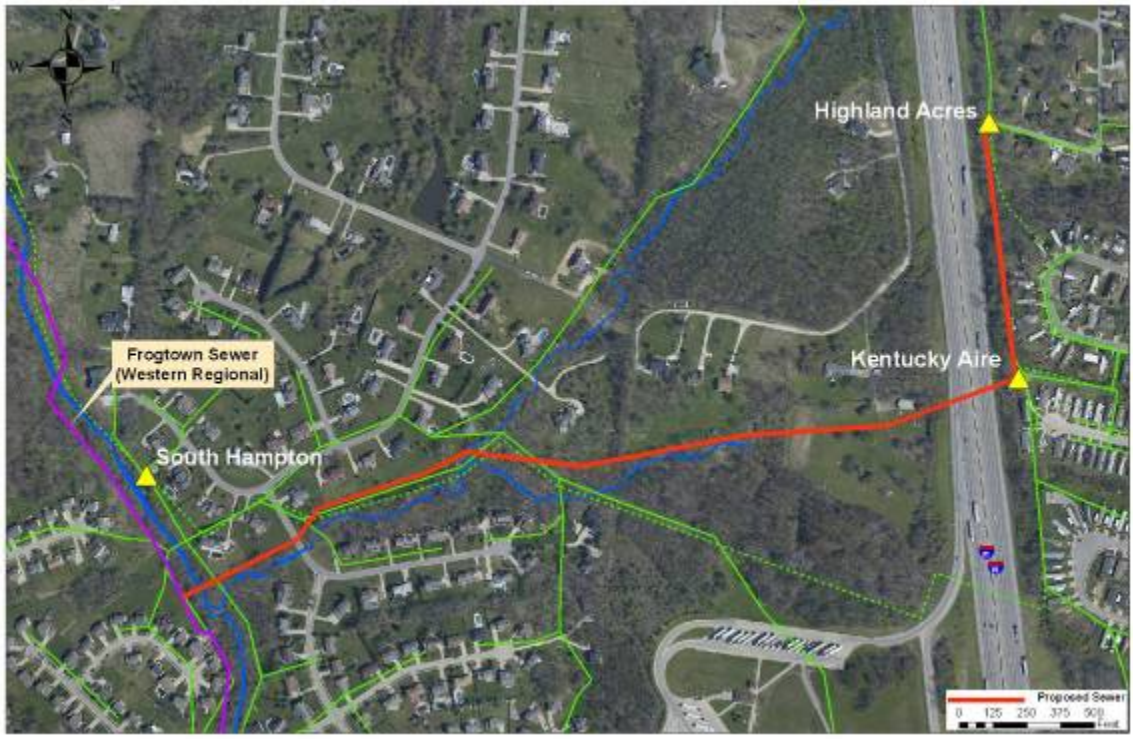
However, SD1 is also focusing on smaller higher priority wet weather SSO projects that address public health concerns in localized neighborhood areas. Although the SSO volume reductions for these projects are not projected to be as significant as the ongoing Western Regional program, the reduction in the number of wet weather SSOs through implementation of these projects is critical to improving both public health and water quality in Northern Kentucky. Throughout 2010, SD1 implemented several projects to address localized higher priority public health wet weather SSOs, both within the collection system and also at pump stations. These projects were successful in eliminating several high priority SSOs that previously caused public health concerns.

Highland Acres Pump Station Overflow Elimination

The Highland Acres Pump Station was projected to overflow 1 time in the typical year on average. In late 2010, SD1 eliminated the pump station and its bypass through the construction of a new gravity sewer that conveys flows to the Kentucky Aire Pump Station. The potential for capacity, power failure, or other operational related bypasses to occur at this location are also eliminated.

Figure 3.4 shows the alignment of the gravity sewer between Highland Acres PS and Kentucky Aire PS that was completed in 2010. Ultimately, Kentucky Aire PS is planned to be removed by 2013 and redirected to the new Frogtown Western Regional sewer to meet the Pump Station Overflow Elimination deadline of December 31, 2013. The new sewer completed to eliminate the Highland Acres PS and the preliminary alignment for the new sewer to eliminate the Kentucky Aire PS is shown in Figure 3.4 below.

Figure 3.4 Highland Acres and Kentucky Aire Gravity Alignments



Sunset PS Overflow Elimination
The Sunset Pump Station overflowed 10 times between 2007 and 2010 due to a lack of capacity. This overflow was eliminated in the fall of 2010 through the construction of a new 8-inch force main that allowed for increased capacity at the pump station. In addition, a diesel driven, self-priming pump was installed to provide additional pumping capacity during wet weather and serve as a backup power solution. This project will provide for a reduction in system-wide overflow volume for 2011.

Riley Road Pump Station Overflow Elimination
The existing Riley Road No. 2 Pump Station had significant capacity issues during wet weather and overflowed over 40 times between 2008 and 2009. In December 2009, the construction of a new Riley Road Pump Station was completed and put into service to eliminate the Riley Road No. 2 Pump Station and the associated wet weather overflows. A generator was also installed to serve as a backup power solution. This project provided for a reduction in system-wide overflow activations and volume for 2010.

Ripple Creek Pump Station Elimination
The Ripple Creek Pump Station has overflowed more than 35 times since January 2008. In December of 2010, SD1 completed the construction of a new gravity sewer which eliminated the pump station and its associated wet weather overflows. This project will provide for a reduction in system-wide overflow volume for 2011.

Van Deren Drive Project
SD1 completed both public and private rehabilitation of the sanitary and storm sewers in the Van Deren neighborhood located within the City of Lakeside Park (described in greater detail in Section 2.13.2 of SD1's FY 2010 CMOM Annual Report). This work consisted of public sanitary and storm sewer replacement and rehabilitation, removal of common storm and sanitary manholes and replacement of private sewer laterals. The goal of this project was to eliminate illicit connections and reduce inflow and infiltration.

SD1 installed a flow meter (FM043) downstream of the project area throughout 2009 and 2010 in order to obtain pre-construction and post-construction data. The volume of I/I predicted under the post-construction condition was found to be significantly less than under the pre-construction condition. In addition, predicted peak flows from this area were also found to be less. Table 3.4 shows the results of the two conditions. The improvements achieved approximately 50% reductions for both peak flow and I/I volume.

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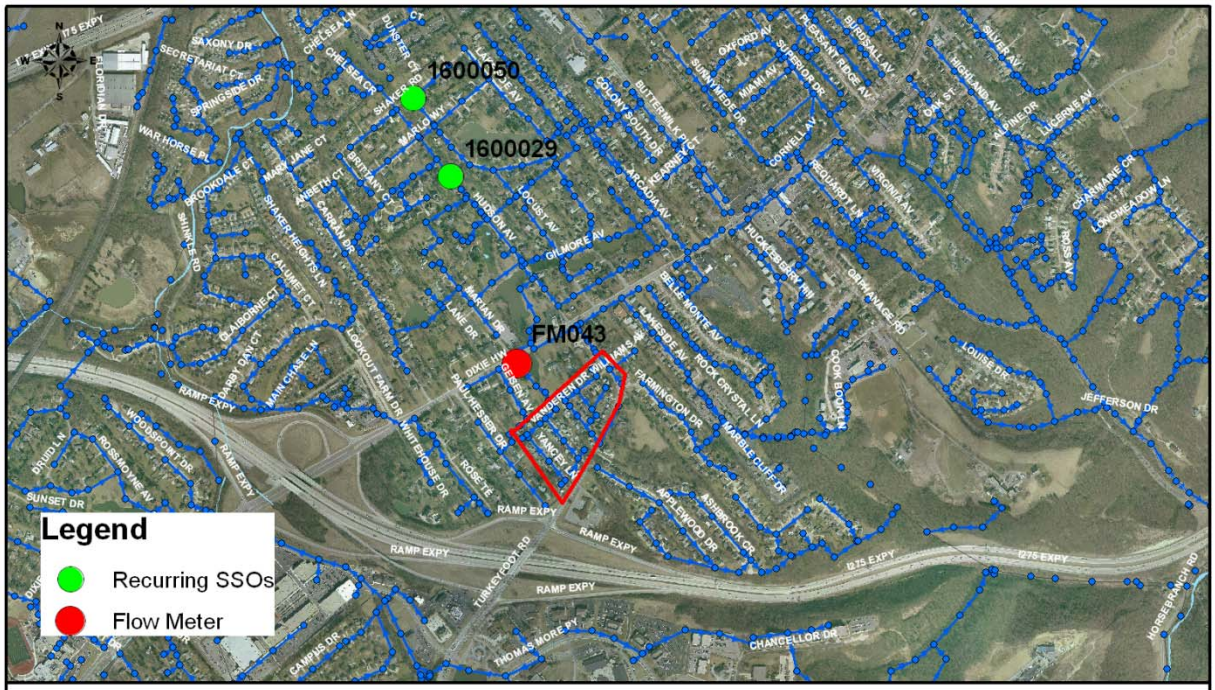
Table 3.4 Impact of Van Deren Improvements on Wet Weather Peak Flow & Volume

Meter	2009 Calibration (Pre Rehab)		2010 Calibration (Post Rehab)		Results	
	Peak Flow (MGD)	Inflow and Infiltration Volume (MG)	Peak Flow (MGD)	Inflow and Infiltration Volume (MG)	Peak Flow Reduction (%)	Inflow and Infiltration Volume Reduction (%)
FM043	0.79	2.08	0.45	1.04	43%	50%

In addition to reducing the total treated volume of water directed to the Dry Creek Waste Water Treatment Plant by over a million gallons, this local impact on volume reduction is predicted to have a positive influence on downstream SSOs, reducing SSO volume by approximately 20,000 gallons in the typical year at recurring SSOs 1600050 and 1600029, as noted in Figure 3.5.

Figure 3.5 Downstream Impacted Recurring SSOs



Donnemeyer Improvements/Newport Pavilion Improvements/Bellevue Relief Sewer/Wilson-Waterworks Rd.
During 2010, a number of improvements were made in this portion of the collection system to reduce SSO contributions within the Taylor Creek watershed. Approximately 1,900 feet of sewer was upsized from 21-inch to 30-inch as part of the Newport Pavilion Improvements to eliminate a local SSO due to capacity limitations.

In addition, Phase 1 of the Donnemeyer improvements was complete and Phase 2 is nearly complete. Approximately 1,200 feet of 12-inch sewer was upsized to 24-inch to eliminate one CSO, reduce two upstream CSOs, and consolidate flows downstream along Donnemeyer Avenue and Covert Run Pike.

The Bellevue Relief Sewer and Wilson-Waterworks Road project, which was also completed in 2010, includes approximately 330 feet of new 30-inch relief sewer and approximately 255 feet of new 24-inch relief sewer to eliminate localized basement backups along Waterworks Road and reduce upstream SSOs.

These improvements together helped to reduce localized SSO and CSO volume in 2010.

3.2.2 Inactive Wet Weather SSOs

SD1 has performed wet weather SSO investigations since 2005 but has only tracked inactive wet weather overflow occurrences for inclusion in the Quarterly Reports since the beginning of 2009. In 2009, SD1's wet weather investigations identified a total of 13 inactive overflows with an estimated overflow volume of 3,340,000 gallons. During 2010, a total of 11 inactive overflows were identified with an estimated overflow volume of 64,000 gallons.

SD1 anticipates that the number of activations and volumes for this category of overflows will vary year-to-year depending on the size of the rain events that occur and the activity of the structures being investigated. Unlike other overflow categories, inactive overflows are generally under investigation as suspected or predicted hydraulic model overflow points in the collection system that must be confirmed.

The wet weather investigation crew meets on a quarterly basis to compare the overflow field inspection data against the modeled results to understand any differences, improvements that may be needed to the hydraulic model, additional flow monitoring that may be required, the need for sewer inspection work in the area around overflows, and the need for sewer overflow response cleanup. This is part of SD1's ongoing effort to characterize and verify overflows throughout the collection system, ensure overflows are categorized accurately and cleaned up after rain events, and ensure that the model is updated quarterly with the latest field and flow monitoring information so that it is accurately predicting and reporting what is occurring in the collection system. Proper characterization of overflows ensures that the hydraulic model that SD1 utilizes is kept

up-to-date and improves upon its accuracy to aid in identifying the most appropriate and effective solutions for eliminating recurring SSOs.

3.3 Review of SSOs Due to Operational Issues

Table 3.5 provides a summary of the number of activations and corresponding volume of SSOs due to operational issues in 2008 through 2010.

Table 3.5 SSOs Due to Operational Issues (2008 through 2010)

Year	Total Number of Occurrences	Total Volume (Million Gallons)
2008	143	5
2009	108	31
2010	63	3
Change from 2009-2010	**-45**	**-28**

There were 45 less discharges from SD1's sanitary sewer system due to operational issues during 2010 compared to 2009. There were 35 less discharges during 2009 compared to 2008 and 80 less discharges in 2010 compared to 2008. SD1 uses a benchmark taken from American Water Works Association's 2007 Annual Survey Data & Analyses Report for determining how its annual SSOs due to operational issues compare to the rest of the wastewater utility industry. The industry benchmark is less than 8.75 overflows per 100 miles of collection system piping. SD1 has 1,700 miles of collection system piping which equates to a benchmark of 148 SSOs due to operational issues annually. As shown in Table 3.5, SD1 has consistently been below the industry benchmark and had 85 fewer SSOs due to operational issues in 2010 as compared to the industry benchmark.

This reduction can be attributed to regularly scheduled operation and maintenance (O&M) activities as implemented through SD1's formal CSAP that has been in place since January 2008. Implementation of the CSAP has enabled SD1 to more effectively and proactively prioritize and implement system inspection, cleaning, and rehabilitation/replacement needs in order to reduce overflows due to operational issues. The work completed by both internal and external crews during 2008 through 2010 has helped to maintain proper operation of the collection system is summarized in Table 3.6.

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Table 3.6 O&M Activities (2008 through 2010)

O&M Activity	2008	2009	2010	Total
Manholes Inspected	5,985	4,688	1,285	11,958
Manholes Repaired	485	332	315	1,132
Manholes Replaced	55	59	83	197
New Manholes Installed	26	53	37	116
Sewer Lines Cleaned - Feet	706,441	530,303	657,709	1,894,453
Sewer Lines Inspected (Initial Inspection and Follow-up) - Total Feet	1,414,803	1,411,818	1,076,042	3,902,663
Sewer Lines Rehabilitated (CIPP) - Feet	953	2,251	29,528	65,464
Sewer Lines Repaired - Feet	2,609	2,864	2,606	16,157
Sewer Lines Replaced - Feet	15,833	14,794	23,220	107,694
Misc. Sewer Line Repairs - Count	45	40	8	186

Ongoing Backup Power
In addition, SD1 has an ongoing program to provide backup power to its pump stations in order to prevent overflows from occurring during power outages. This program (see Appendix B) is ongoing and is on schedule to provide backup power to all of the SD1 pump stations by 2015.

3.4 Review of Wet Weather CSOs

Table 3.7 provides a summary of the number of activations and corresponding volume of CSOs occurring from 2008 through 2010.

Table 3.7 Recurring Wet Weather CSOs by Quarter (2008 through 2010)

	2008		2009		2010		Changes from 2009 to 2010	
Qtr.	Activations	Volume (MG)	Activations	Volume (MG)	Activations	Volume (MG)	Activations	Volume (MG)
1st	943	1,798	607	266	456	426	-151	160
2nd	899	685	1,244	436	971	435	-273	-1
3rd	542	119	828	397	461	279	-367	-100
4th	504	267	610	403	444	435	-166	32
Total	**2,888**	**2,869**	**3,289**	**1,502**	**2,332**	**1,575**	**-957**	**73**

The number of CSO activations was significantly lower in 2010 than in 2009 although the volume was essentially equal between the two years (both 2009 and 2010 were less in volume than 2008). In 2008, the CSO volume was much higher due to the larger rainfall events during the first quarter of the year and also the extended periods of high river level. Though there was slightly less rainfall in 2010 than in 2009, there were an

increased number of days where the river stage was above 41 ft. These two factors essentially resulted in similar volumes occurring in the two years. The shift in total number of activations can be attributed to the following reasons, which are discussed below in further detail:

- Rainfall events
- Nine Minimum Control Efforts
- Green Project Implementation

Rainfall Events in 2009 and 2010

In the combined sewer system, the number of rain events plays a factor in the number of overflow activations. As shown in Table 3.1, almost 30 more rain events occurred in 2009 as opposed to 2010. The additional 30 rain events contributed to the greater number of activations in 2009 when compared to 2010. Although the overflow volume is similar between 2009 and 2010, the 2009 volume is distributed over a larger set of storm events.

Nine Minimum Control Efforts

As part of its continued compliance with the Nine Minimum Controls for CSOs, SD1 has incorporated many small scale improvements in the combined sewer system. These improvements have resulted in small reductions in local activations at a number of CSO locations.

Nine Minimum Control #2: Maximum Use of Collection System for Storage

The inline storage projects that were completed in 2009 (see SD1's Nine Minimum Controls Annual Compliance Report dated May 11, 2009) had a significant impact on the reduction of activations in 2010 by capturing many small events that would have otherwise overflowed. In addition, the Rivers Edge inline storage project that was completed in 2010 is projected to eliminate approximately 56 MG in the typical year. This impact will be more evident at the end of 2011 as it will be online for the entire calendar year.

Nine Minimum Control #4: Maximization of Flow to POTW for Treatment

The targeted sewer cleaning program (TSCP) was continued in 2010 to further improve system performance. This cleaning program helps to lower the number of CSO activations by ensuring that the full interceptor capacity is available for wet weather conveyance. The phases of work completed in 2008 and 2009 were estimated to reduce typical year overflow volume by 20 million gallons, and the cleaning work completed in 2010 is anticipated to eliminate up to an additional 4 MG of overflow volume in the typical year.

Nine Minimum Control #6 - Control of Solid and Floatable Materials in CSOs

The purpose of SD1's solid and floatables control program is to reduce the amount of solid and floatable material discharged to water bodies through wet weather CSOs through the implementation of simple measures such as: baffles, screens, catch basin modifications and nets. The construction of small weirs and baffles also has the added benefit of reducing activations at individual CSO locations by raising the overflow weir

level. The completion of the engineered solids and floatables control baffle chambers at Main Street and McKinney Street in 2009 and Garrard Street in 2010, as well as the completion of the weir at the Oakland Avenue CSO diversion in 2009 has impacted the number of CSO activations at these CSOs during 2010.

Green Projects Implementation

As part of its watershed planning efforts, SD1 has also initiated several green projects within the combined sewer system with the goals of reducing CSO volume and improving water quality.

Green Project - St. Elizabeth's Detention Basin Retrofit and Terraced Reforestation

The St. Elizabeth project was complete during 2009 and involved the modification of an existing dry detention basin located on property owned by St. Elizabeth Medical Center. The project was designed to capture, infiltrate, and control storm water entering SD1's combined sewer system, which is projected to reduce CSO volume by approximately 4.5 MG in the typical year.

In May 2010, SD1 began a terraced reforestation project along I-71/75 that is directly upstream of the St. Elizabeth site. This project involves the construction of a series of vegetated, terraced berms within the right-of-way in the City of Covington. It too was designed to capture, infiltrate and control storm water entering SD1's combined sewer system, which is projected to reduce CSO volume by approximately 2.7 MG in the typical year. This project is anticipated to be complete during early 2011. The St. E's project is currently undergoing post-monitoring to confirm its benefits and the terraced reforestation will also be post-monitored to confirm its benefits.

Green Project - Prisoner's Lake Rainwater Harvesting

The Prisoner's Lake Rainwater Harvesting project was complete during 2010 and involved the construction of a small storm water pumping station and force main next to Prisoner's Lake. This allows for the transfer of water from the lake to a small irrigation pond located in the adjacent watershed and the elimination of the overflow from the Lake from entering the downstream combined sewer system. The pumped storm water runoff will be re-used for irrigation of a public golf course. Based on a 3-month, 6-hour design storm event, approximately 425,000 gallons of storm water runoff is captured and made available for reuse. As a result, this volume does not enter into the combined system and provides a reduction to CSO volume that is predicted to occur in the typical year. This project is currently undergoing post-monitoring to quantify its benefits to annual CSO reduction.

3.5 Review of Dry Weather CSOs

Table 3.8 provides a summary of the number of activations and corresponding volume of dry weather CSOs that occurred during 2008 through 2010.

Table 3.8 Dry Weather CSOs (2008 through 2010)

Year	Total Number of Occurrences	Total Volume (Million Gallons)
2008	15	9
2009	8	.104
2010	5	.264
Change from 2009-2010	**-3**	**.160**

The number of dry weather CSO activations was lower in 2010 in comparison to 2009 and overall shows a downward trend when compared to 2008. The total volume lost was greater in 2010 than in 2009, although it was not a substantial increase in volume. This downward shift in total number of activations can be attributed to the following reasons, which are discussed below in further detail:

- Routine CSO investigations
- Routine O&M Activities

Routine CSO Investigations

SD1's CSO investigation crew inspects each CSO outfall and its associated diversions once per week as well as after every rainfall event. During the weekly routine inspections and after rainfall events, the CSO investigation crew visually looks for debris and blockages that may trigger a dry weather overflow or would affect the ability of the diversion to maximize the flow entering the interceptor during rainfall.

Routine O&M Activities

SD1's CSAP prioritizes which sewers in the combined sewer system need inspection, cleaning and repair or rehabilitation. Regularly scheduled O&M activities for key assets in the combined sewer system ensure that sewers are kept clean and unobstructed to reduce overflows or downstream blockages at the diversion locations.

As part of SD1's Nine Minimum Control programs for solids & floatable control and the reduction of dry weather CSOs, SD1 has implemented an ongoing catch basin retrofit program to trap debris and an associated inspection and cleaning program. SD1 annually inspects each catch basin at least once and is continuing to gather debris amount data in order to develop a prioritized schedule for more frequent inspections and cleaning depending on the catch basin location. In addition, SD1 has constructed four grit pits along the Ohio River and Licking River interceptors to remove grit and other solids from the sewers. These grit pits continue to operate well to trap and remove debris from the interceptors and maximize flow to the treatment plant.

These activities, which are summarized in Table 3.9, ensure that the combined sewer system will perform as effectively as possible to maximize treatment of combined sewage and reduce the magnitude, frequency and duration of CSOs.

Table 3.9 Combined Sewer System O&M Activities (2008 through 2010)

O&M Activity	2008	2009	2010	Total
Catch Basins Cleaned	1211	888	786	2885
Catch Basin Cleaning (Yards of Debris Removed)	N/A	427	469	896
Catch Basins Inspected[1]	2057	3328	4075	9460
New Catch Basin Installation	0	5	2	7
Catch Basins Replaced	159	224	140	523
Catch Basins Repaired	128	65	78	271
Grit Pit Cleaning (Yards of Debris Removed)	358	439	355	1152

[1] *This includes inspections of private and Kentucky Transportation Cabinet owned catch basins located in SD1's service area.*

3.6 Review of Building Backups

Table 3.10 provides a summary of the building backups reported during 2008 through 2010.

Table 3.10 Building Backups: Public vs. Private (2008 through 2010)

Responsible Party	2008	2009	2010
Private Owner	402	482	644
SD1	39	36	36
Total	**441**	**518**	**680**

There were 162 more building backups reported during 2010 as compared to 2009; however, the number of building backups determined to be SD1's responsibility stayed the same. The increase in the 2010 total amount of building backups relates to the historical rain events that took place on July 13, 2010 and July 21, 2010. These rain events caused significant flooding throughout portions of SD1's service area. There were 246 reported building backups related to these events. The combined flow of storm water and wastewater exceeded the designed conveyance capacity of the combined sewers during each of those events. Rain gauge data collected from the July 13, 2010 event showed that between three and five inches of rain fell in approximately three hours, resulting in flash flooding throughout the City of Covington and other areas of Northern Kentucky. Statistics show that, on average, there is a 1% chance that this type of rainfall could occur or be exceeded in any given year (i.e. 100 year rain event). Rain gauge data collected from the July 21, 2010 rain event showed that over one inch of rain fell in approximately 10 to 15 minutes. This event also resulted in flash flooding throughout Covington, and in Latonia and other Northern Kentucky communities. Statistics show that, on average, there is a 2% chance that this type of rainfall could occur or be exceeded in any given year (i.e. 50 year rain event).

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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	0%	01/08/12	
Complete Pump Station Backup Power Projects (110 Total)		43%	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	0%	06/07/11	
	Initial Watershed Projects Annual Report 5	0%	06/07/12	
	Initial Watershed Projects Annual Report 6	0%	06/07/13	
	Initial Watershed Projects Annual Report 7	0%	06/07/14	
	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	0%	09/04/11	
	NMC Annual Compliance Report 4	0%	09/04/12	
	NMC Annual Compliance Report 5	0%	09/04/13	
	NMC Annual Compliance Report 6	0%	09/04/14	

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	0%	05/14/11	
	PSOEP Annual Report 4	0%	05/14/12	
	PSOEP Annual Report 5	0%	05/14/13	
	PSOEP Annual Report 6	0%	05/14/14	
	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	01/28/10
	Submit Quarterly Report 14	0%	04/30/11	
	Submit Quarterly Report 15	0%	07/30/11	
	Submit Quarterly Report 16	0%	10/30/11	
	Submit Quarterly Report 17	0%	01/30/12	
	Submit Quarterly Report 18	0%	04/30/12	
	Submit Quarterly Report 19	0%	07/30/12	
	Submit Quarterly Report 20	0%	10/30/12	
	Submit Quarterly Report 21	0%	01/30/13	
	Submit Quarterly Report 22	0%	04/30/13	
	Submit Quarterly Report 23	0%	07/30/13	
	Submit Quarterly Report 24	0%	10/30/13	
	Submit Quarterly Report 25	0%	01/30/14	
	Submit Quarterly Report 26	0%	04/30/14	
	Submit Quarterly Report 27	0%	07/30/14	
	Submit Quarterly Report 28	0%	10/30/14	

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	79%	04/18/12	
	Boone County	*75%*	04/18/12	
	Campbell County	*85%*	04/18/12	
	Kenton County	*78%*	04/18/12	
	Licking River Watershed Watch	78%	04/18/12	
	Split Rock	100%	04/18/12	12/18/08
	Education Programs	50%	04/18/12	
	State Environmental Project Completion Report	0%	06/17/12	
	SUPPLEMENTAL PROJECTS			
	Supplemental Environmental Projects	67%	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	0%	02/28/11	
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.	This process was completed during Phase 3. The revisions to the Rules and Regulations were published after they were approved by the Cabinet on 10/12/2010.The revisions to the ERP were published after they were approved by the Cabinet on 07/19/2010. Complete.
Permitting	All previously permitted FSEs will undergo a re-evaluation using the modifications to the Grease Control Program conducted in the previous phases.	SD1 employees will be conducting a meeting in February 2011 to identify the process that will be used to re-evaluate previously permitted FSE.
	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.

Grease Control Program: Phased Implementation Tasks

	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 October - December 2010 over 179 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 5,546 pieces of literature have been sent since February 2009, of which 750 were mailed October - December. Letters will continue to go out January - March 2011 to any residence that experiences a backup due to FOG or where an overflow has occurred due to a blockage of FOG.
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.	During Phase 3, SD1 hired a full-time employee to fullfil the staffing requirements needed to effectively implement the program. Complete.
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.	SD1 began using GBA during Phase 1 to track this data. Complete.
	Linko FOG will be used to track permits, inspections, violations and correspondence on all permitted FSEs.	SD1 began using GBA during Phase 1 to track this data. Complete.

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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: Janurary 19, 2011

Initial Watershed Projects

CIP Title	Basin	Scheduled Completion Date	Actual Completion Date	Past Activity for 10/01/2010 to 12/31/2010	Planned Activity for 01/01/2011 to 03/31/2011
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	Final Design	Construction
Western Regional - Narrows Road Diversion PS	West	2013	n/a	In-Progress	Construction
Western Regional - Richwood Sewer and Force Main	West	Requested Removal as Initial Action Project - Awaiting Approval (see Watershed Plans pg. 8-19)			
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: Janurary 19, 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		Project In-Progress
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

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)						
Lamphill	East	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
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

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	n/a	
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	2013	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	Backup Dry Prime Pump with a Diesel Engine	2008		Project In-Progress
Kees	East	Permanent Generator	Property owner issues; investigate the installation of back up dry pump system with diesel engine	2014		Project In-Progress
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
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	n/a	2009-2014	n/a	Initial Project Analysis
Arbortech	North	Permanent Generator	n/a	2009-2014	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	n/a	2009-2014	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	n/a	2009-2014	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	n/a	2009-2014	n/a	Initial Project Analysis
Darma Ct	East	Permanent Generator	Backup Dry Prime Pump with a Diesel Engine	2009-2014		Project In-Progress
Deer Creek No. 1	North	Permanent Generator	Backup Dry Prime Pump with a Diesel Engine	2009-2014		Project In-Progress
Deer Creek No. 2	North	Permanent Generator	Backup Dry Prime Pump with a Diesel Engine	2009-2014		Project In-Progress
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		Project In-Progress
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		Project In-Progress
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

Pump Station Backup Power Plan

Independence Station Rd	Central	Permanent Generator	Backup Dry Prime Pump with a Diesel Engine	2009-2014		Project In-Progress
Jefferson Ave	East	Permanent Generator	Portable Generator	2009-2014		Project In-Progress
Jericho Rd	Central	Permanent Generator	Property owner issues; permanent generator not feasible. Evaluating alternate backup power solution.	2009-2014	n/a	Evaluating Solutions

Pump Station Backup Power Plan

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		Project In-Progress
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	n/a	2009-2014	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 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 (As of 12/31/2010)
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	n/a	2012-2015	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 10/01/2010 to 12/31/2010	Planned Activity for 01/01/2011 to 03/31/2011
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	
Riley Road No.1	East	12/31/2010	2009	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	Initial Design	Final Design
Highland Acres	West	12/31/2010	n/a	Finish Construction	Complete
Kentucky Aire	West	12/31/2013	n/a	Initial Design	Initial Design
Lakeview	Central	Requested Delay - Awaiting Approval (see Watershed Plans)			
Ripple Creek	Central	12/31/2010	n/a	Finish Construction	Complete
South Hampton	West	3/31/2013	n/a	Initial Design	Initial Design
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: January 19, 2011

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APPENDIX C:

Cumulative and Annual Overflow Data

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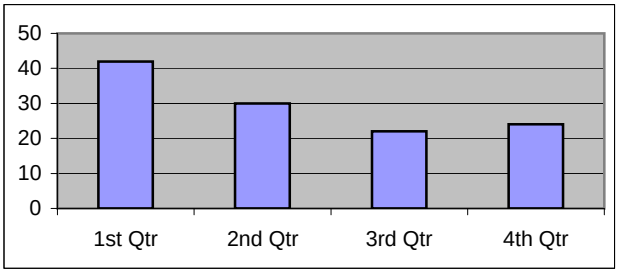
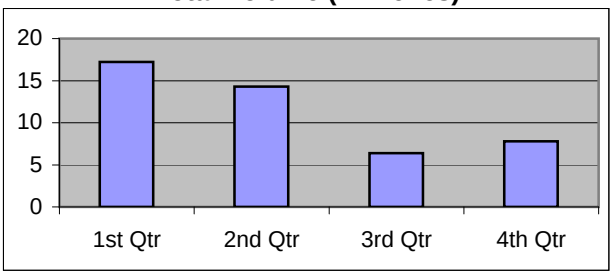
Cumulative Overflow Data
January 1, 2008 through December 31, 2008

Rainfall

Total Occurrences

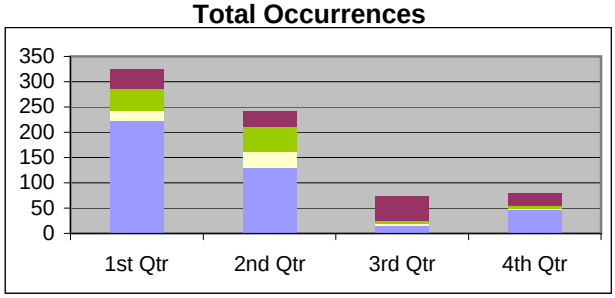


Total Volume (In Inches)

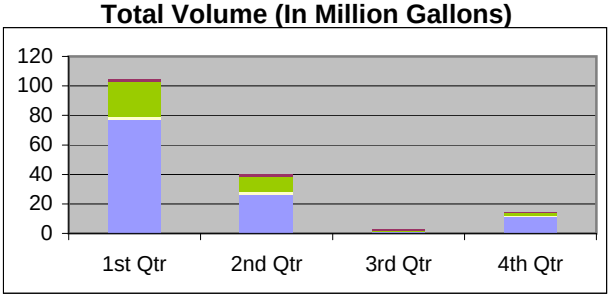


SSOs - Due to Wet Weather (WW) and Operational Issues

Total Occurrences



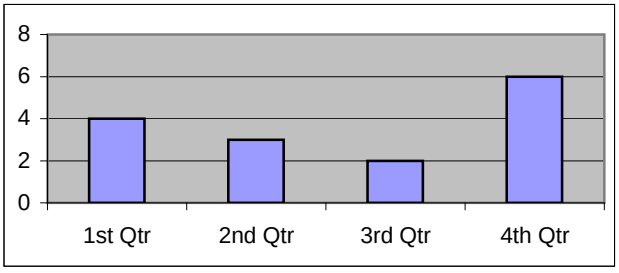
Total Volume (In Million Gallons)



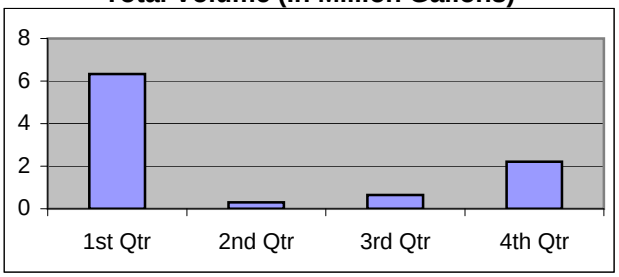
Recurring WW CD Pump Station Overflows
Recurring WW Other Pump Station Overflows
SSOs Due to Operational Issues
Recurring WW SSOs

Dry Weather CSOs

Total Occurrences

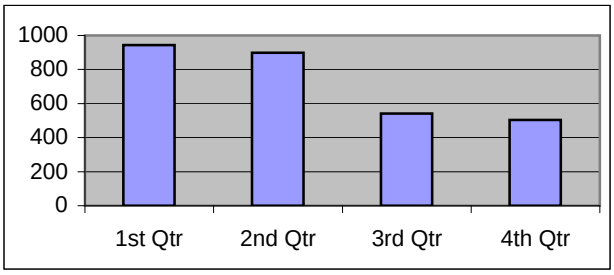


Total Volume (In Million Gallons)

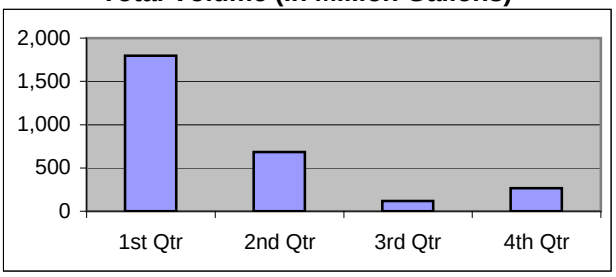


Wet Weather CSOs

Total Occurrences

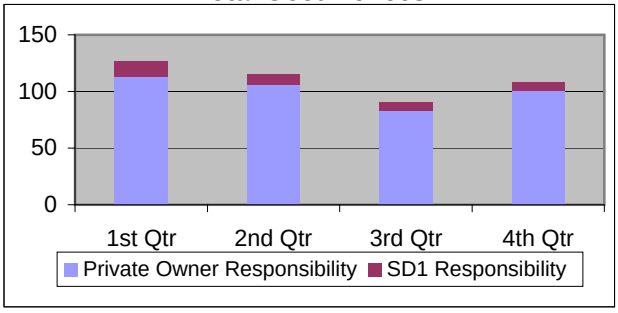


Total Volume (In Million Gallons)



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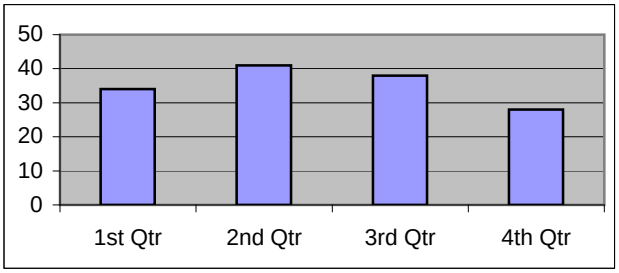
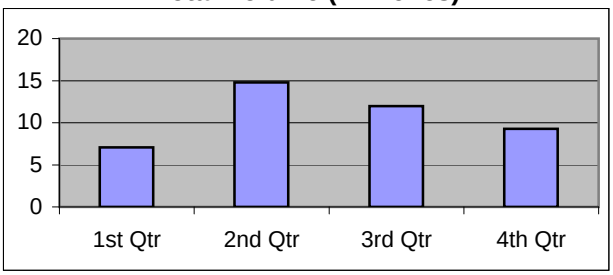
Cumulative Overflow Data
January 1, 2009 through December 31, 2009

Rainfall

Total Occurrences

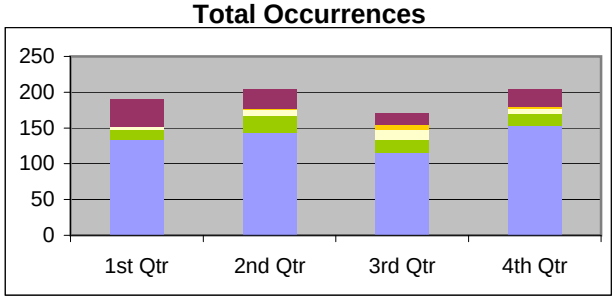


Total Volume (In Inches)

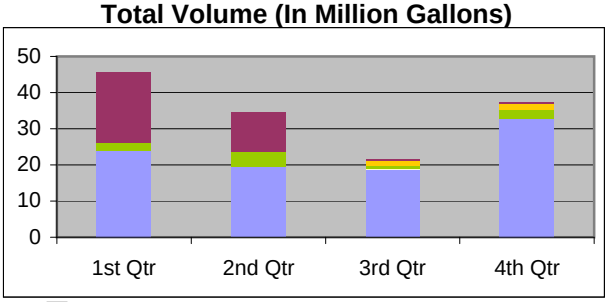


SSOs - Due to Wet Weather (WW) and Operational Issues

Total Occurrences



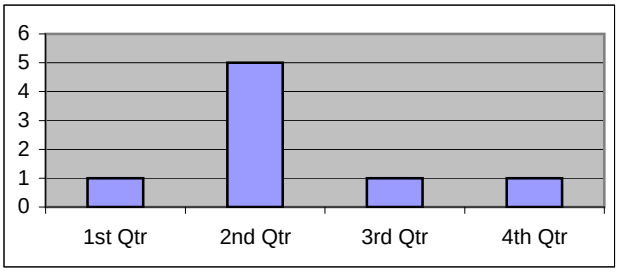
Total Volume (In Million Gallons)



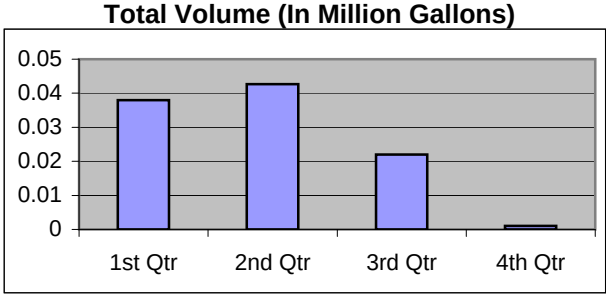
Recurring WW SSOs
Recurring WW CD Pump Station Overflows
Recurring WW Other Pump Station Overflows
Inactive WW Overflows
SSOs Due to Operational Issues

Dry Weather CSOs

Total Occurrences

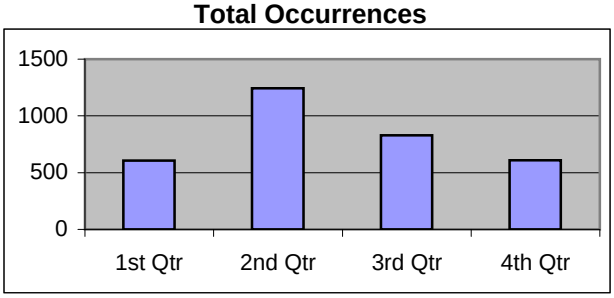


Total Volume (In Million Gallons)

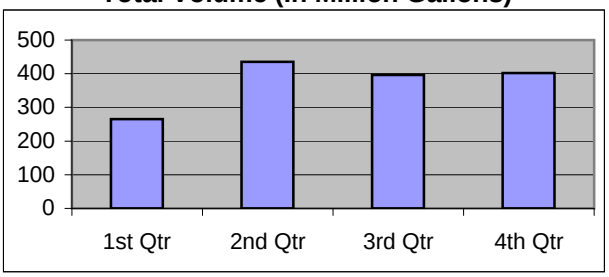


Wet Weather CSOs

Total Occurrences

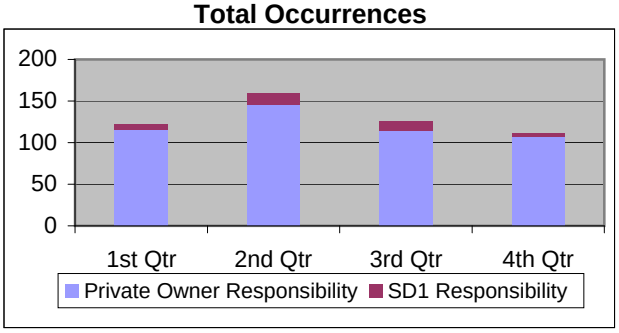


Total Volume (In Million Gallons)



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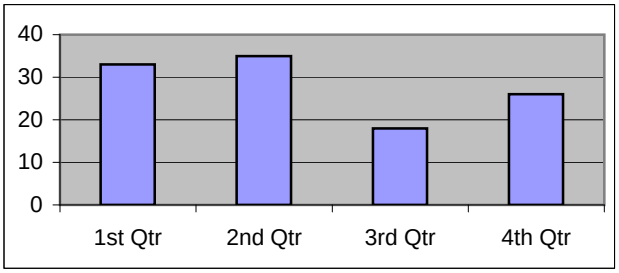
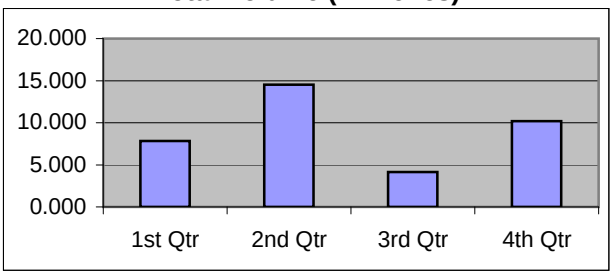
Cumulative Overflow Data
January 1, 2010 through December 31, 2010

Rainfall

Total Occurrences

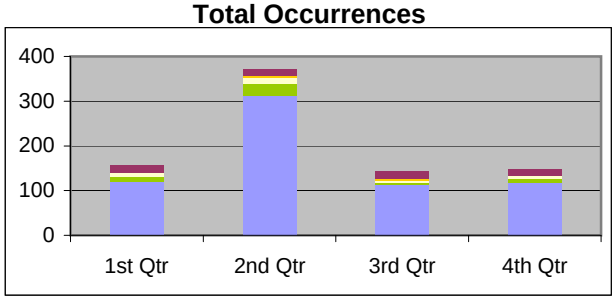


Total Volume (In Inches)

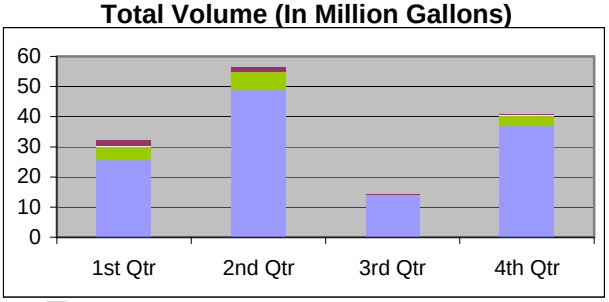


SSOs - Due to Wet Weather (WW) and Operational Issues

Total Occurrences



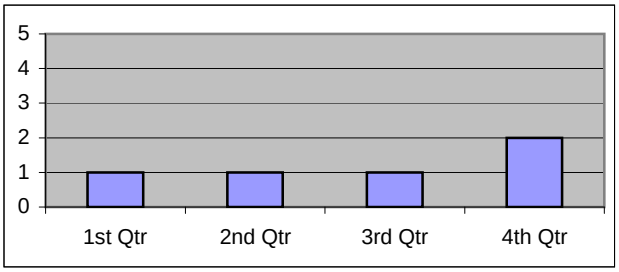
Total Volume (In Million Gallons)



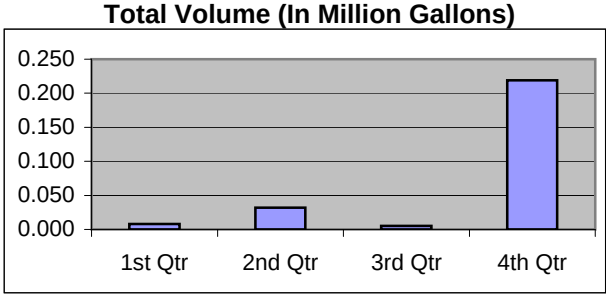
Recurring WW SSOs
Recurring WW CD Pump Station Overflows
Recurring WW Other Pump Station Overflows
Inactive WW Overflows
SSOs Due to Operational Issues

Dry Weather CSOs

Total Occurrences

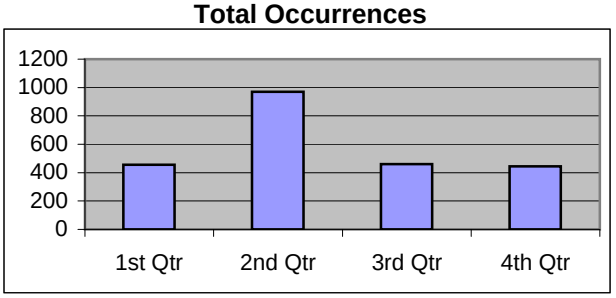


Total Volume (In Million Gallons)

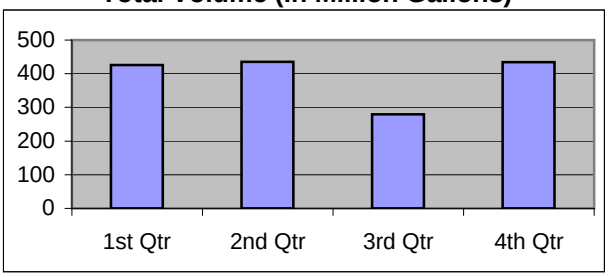


Wet Weather CSOs

Total Occurrences

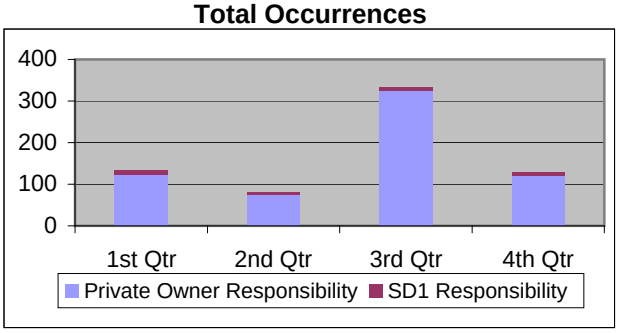


Total Volume (In Million Gallons)



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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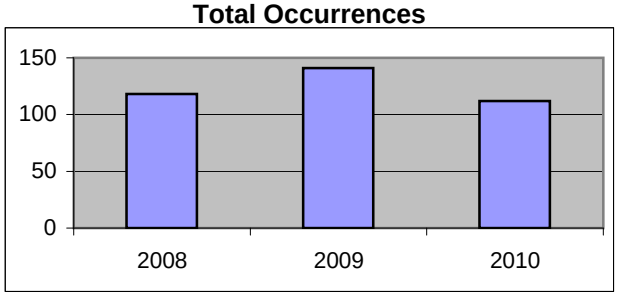
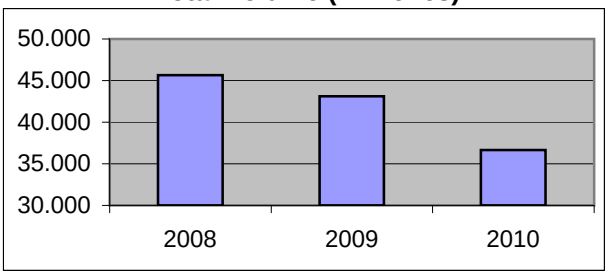
Annual Cumulative Overflow Data
2008 through 2010

Rainfall

Total Occurrences

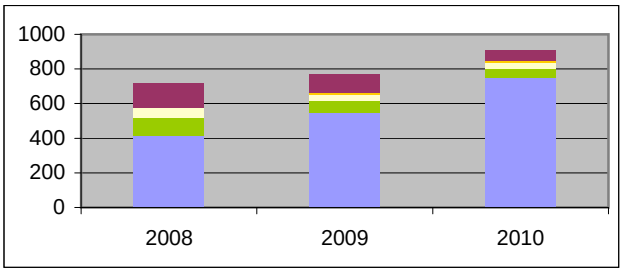


Total Volume (In Inches)

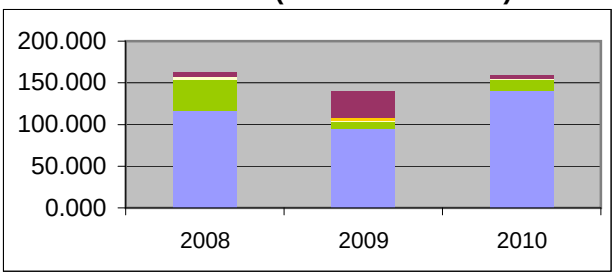


SSOs - Due to Wet Weather (WW) and Operational Issues

Total Occurrences



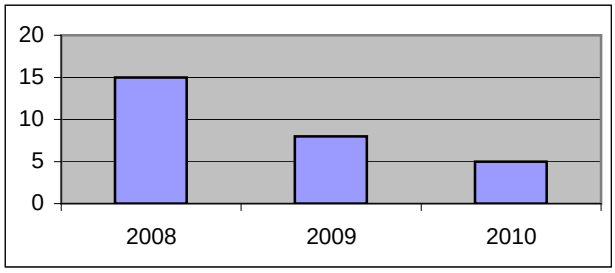
Total Volume (In Million Gallons)



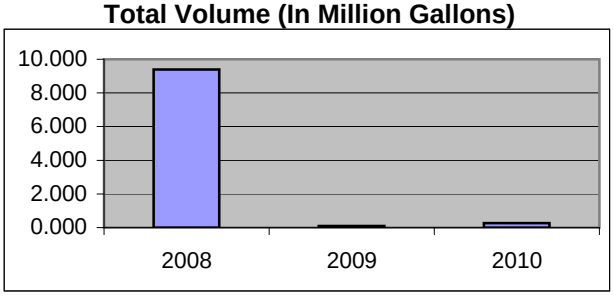
Recurring WW SSOs
Recurring WW CD Pump Station Overflows
Recurring WW Other Pump Station Overflows
Inactive WW Overflows
SSOs Due to Operational Issues

Dry Weather CSOs

Total Occurrences

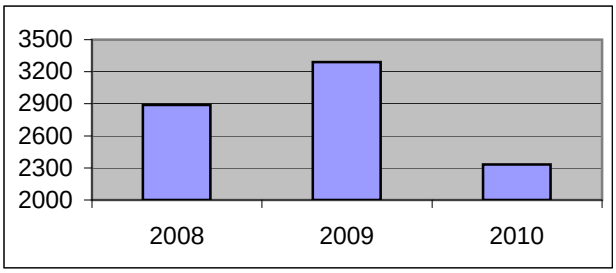


Total Volume (In Million Gallons)

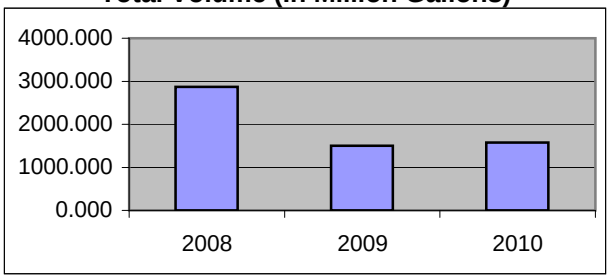


Wet Weather CSOs

Total Occurrences

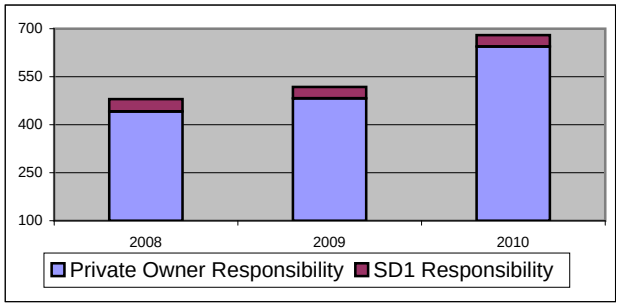


Total Volume (In Million Gallons)



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	6	1.01
2	0020006	Silver Grove	Campbell	6	0.19
3	0020007	Silver Grove	Campbell	6	0.04
4	0020008	Unicorp Campbell County	Campbell	7	0.08
5	0020012	Unicorp Campbell County	Campbell	0	0.00
6	0020031	Unicorp Campbell County	Campbell	0	0.00
7	0020032	Unicorp Campbell County	Campbell	0	0.00
8	0040003	Forth Thomas	Campbell	0	0.00
9	0050022	Fort Thomas	Campbell	1	0.05
10	0060001	Unincorp Campbell County	Campbell	0	0.00
11	0060002	Unincorp Campbell County	Campbell	0	0.00
12	0100002	Highland Heights	Campbell	1	0.25
13	0110010	Highland Heights	Campbell	1	0.12
14	0150058	Wilder	Campbell	2	0.55
15	0150063	Wilder	Campbell	0	0.00
16	0150064	Wilder	Campbell	0	0.00
17	0150065	Wilder	Campbell	1	0.09
18	0150085	Unincorp Campbell County	Campbell	0	0.00
19	0150086	Southgate	Campbell	1	0.26
20	0150356	Southgate	Campbell	0	0.00
21	0220035	Southgate	Campbell	0	0.00
22	0220044	Fort Thomas	Campbell	1	0.01
23	0220056	Fort Thomas	Campbell	0	0.00
24	0220058	Fort Thomas	Campbell	0	0.00
25	0230016	Fort Thomas	Campbell	0	0.00
26	0260001	Fort Thomas	Campbell	0	0.00
27	0270026	Fort Thomas	Campbell	0	0.00
28	0270062	Fort Thomas	Campbell	0	0.00
29	0300035	Fort Thomas	Campbell	0	0.00
30	0400002	Fort Thomas	Campbell	3	0.07
31	0400017	Fort Thomas	Campbell	0	0.00
32	0410010	Fort Thomas	Campbell	1	0.03
33	0410019	Fort Thomas	Campbell	1	0.03
34	0410036	Fort Thomas	Campbell	0	0.00
35	0440074	Fort Thomas	Campbell	0	0.00
36	0530083	Newport	Campbell	2	0.20
37	0860001	Wilder	Campbell	9	12.56

Recurring Wet Weather SSOs					
No.	**MHID**	**City**	**County**	**Model Predicted Overflow Activations**	**Model Predicted Overflow Volume (MG)**
38	0860003	Wilder	Campbell	0	0.00
39	0860016	Wilder	Campbell	0	0.00
40	1010025	Fort Thomas	Campbell	0	0.00
41	1040060	Independence	Kenton	0	0.00
42	1090069	Edgewood	Kenton	0	0.00
43	1110025	Erlanger	Kenton	1	0.04
44	1110051	Erlanger	Kenton	0	0.00
45	1110067	Erlanger	Kenton	1	0.09
46	1110161	Erlanger	Kenton	0	0.00
47	1110164	Erlanger	Kenton	0	0.00
48	1110174	Elsmere	Kenton	0	0.00
49	1110294	Erlanger	Kenton	1	0.03
50	1220016	Erlanger	Kenton	1	0.01
51	1220029	Erlanger	Kenton	1	0.03
52	1220054	Erlanger	Kenton	1	0.26
53	1240008	Erlanger	Kenton	2	0.23
54	1240012	Erlanger	Kenton	0	0.00
55	1550053	Fort Mitchell	Kenton	0	0.00
56	1560016	Fort Mitchell	Kenton	0	0.00
57	1560019	Fort Mitchell	Kenton	0	0.00
58	1560074	Fort Mitchell	Kenton	0	0.00
59	1560092	Fort Mitchell	Kenton	0	0.00
60	1600029	Lakeside Park	Kenton	1	0.01
61	1600050	Lakeside Park	Kenton	1	0.04
62	1610102	Fort Mitchell	Kenton	0	0.00
63	1690043	Fort Wright	Kenton	1	0.00
64	1690072	Fort Wright	Kenton	0	0.00
65	1700025	Park Hills	Kenton	0	0.00
66	1760047	Edgewood	Kenton	0	0.00
67	1760048	Edgewood	Kenton	0	0.00
68	1830020	Unincorp Boone County	Boone	0	0.00
69	1830067	Unincorp Boone County	Boone	0	0.00
70	1850140	Covington	Kenton	1	0.03
71	1850141	Covington	Kenton	5	0.10
72	1860108	Taylor Mill	Kenton	1	0.03
73	1940006	Fort Wright	Kenton	2	0.49
74	1950014	Fort Wright	Kenton	2	2.32
75	1990018	Covington	Kenton	0	0.00
76	1990028	Covington	Kenton	1	0.13
77	1990032	Unicorp Kenton County	Kenton	2	4.80
78	2040040	Edgewood	Kenton	1	0.00
79	2070019	Elsmere	Kenton	2	0.25

Recurring Wet Weather SSOs					
No.	**MHID**	**City**	**County**	**Model Predicted Overflow Activations**	**Model Predicted Overflow Volume (MG)**
80	2090008	Elsmere	Kenton	2	0.24
81	2100007	Elsmere	Kenton	0	0.00
82	2100036	Elsmere	Kenton	1	0.05
83	2100037	Elsmere	Kenton	1	0.05
84	2100106	Elsmere	Kenton	1	0.09
85	2100128	Elsmere	Kenton	0	0.00
86	2100129	Elsmere	Kenton	2	1.24
87	2110002	Elsmere	Kenton	2	0.23
88	2120001	Elsmere	Kenton	1	0.04
89	2120041	Elsmere	Kenton	1	0.00
90	2130022	Villa Hills	Kenton	2	0.16
91	2130027	Erlanger	Kenton	2	2.09
92	2130286	Erlanger	Kenton	2	0.05
93	2150050	Crestview	Kenton	0	0.00
94	2170006	Crestview Hills	Kenton	4	0.22
95	2280010	Unicorp Kenton County	Kenton	0	0.00
96	2280011	Unicorp Kenton County	Kenton	2	0.22
97	2280016	Unicorp Kenton County	Kenton	2	0.39
98	2300016	Erlanger	Kenton	0	0.00
99	2300019	Erlanger	Kenton	1	0.34
100	2300121	Independence	Kenton	6	2.06
101	2300123	Unicorp Kenton County	Kenton	4	1.77
102	2300523	Erlanger	Kenton	2	1.57
103	2301219	Erlanger	Kenton	2	2.04
104	2301274	Erlanger	Kenton	0	0.00
			TOTAL	**117**	**37.30**

Threshold for model activation is 0.01 MGD and 0.001 MG

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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	6	0.37
2	0030031	KY0021466 - Outfall 10	0	0.00
3	0200069	KY0021466 - Outfall 11	7	0.20
4	0330100	KY0021466 - Outfall 12	0	0.00
5	0340050	KY0021466 - Outfall 14	3	0.06
6	0340051	KY0021466 - Outfall 13	3	0.06
7	0360079	To Be Permitted	7	2.48
8	0540009	To Be Permitted	7	0.22
9	0540044	To Be Permitted	6	0.12
10	0550134	To Be Permitted	2	0.02
11	0570089	KY0021466 - Outfall 16	7	12.60
12	0570090	KY0021466 - Outfall 17	7	10.57
13	0600094	KY0021466 - Outfall 18	7	0.38
14	0600096	To Be Permitted	4	0.07
15	0600097	KY0021466 - Outfall 19	6	0.96
16	0600104	To Be Permitted	1	0.03
17	0610071	KY0021466 - Outfall 21	9	3.72
18	0610072	KY0021466 - Outfall 20	6	0.13
19	0620075	KY0021466 - Outfall 23	7	2.73
20	0620077	KY0021466 - Outfall 22	6	0.09
21	0630061	KY0021466 - Outfall 83	7	0.73
22	0640090	KY0021466 - Outfall 24	8	36.55
23	0650054	To Be Permitted	1	0.01
24	0650090	KY0021466 - Outfall 26	6	1.55
25	0650098	To Be Permitted	4	3.39
26	0650100	KY0021466 - Outfall 25	3	0.04
27	0690059	To Be Permitted	0	0.00
28	0690067		0	0.00
29	0730129	To Be Permitted	8	0.57
30	0770096	KY0021466 - Outfall 28	7	0.54
31	0790084	KY0021466 - Outfall 31	11	3.99
32	0790086	KY0021466 - Outfall 29	10	20.43
33	0840111	To Be Permitted	1	0.32
34	0840112	To Be Permitted	7	1.15
35	0840116	KY0021466 - Outfall 27	11	1.72
36	0870078	KY0021466 - Outfall 33	4	0.31
37	0870079	KY0021466 - Outfall 34	12	10.56
38	0880081	KY0021466 - Outfall 36	11	7.60
39	0880082	KY0021466 - Outfall 35	4	0.33
40	0910065	KY0021466 - Outfall 38	10	39.37
41	0910066	To Be Permitted	0	0.00
42	0910068	KY0021466 - Outfall 37	7	13.34
43	0910084	To Be Permitted	5	0.22
44	0930102	KY0021466 - Outfall 43	0	0.00
45	0930103	KY0021466 - Outfall 42	1	0.01
46	0930104	KY0021466 - Outfall 40	2	0.06
47	0930105	KY0021466 - Outfall 41	8	5.79
48	0930106	KY0021466 - Outfall 39	0	0.00
49	0960063	KY0021466 - Outfall 45	3	0.20
50	0960064	KY0021466 - Outfall 44	2	0.01

Wet Weather CSOs				
No.	CSO ID	KPDES Permit #	Model Predicted Activations	Model Predicted Overflow Volume (MG)
51	0980073	KY0021466 - Outfall 46	3	0.05
52	0980080	KY0021466 - Outfall 47	1	0.05
53	0980081	KY0021466 - Outfall 48	12	14.23
54	1310100	To Be Permitted	NA	NA
55	1320112	To Be Permitted	0	0.00
56	1350155	KY0021466 - Outfall 49	1	0.01
57	1380132	To Be Permitted	2	0.05
58	1380146	To Be Permitted	0	0.00
59	1420141	KY0021466 - Outfall 50	8	0.16
60	1420142	KY0021466 - Outfall 51	10	16.80
61	1420144	KY0021466 - Outfall 52	0	0.00
62	1420145	KY0021466 - Outfall 53	0	0.00
63	1420146	KY0021466 - Outfall 54	1	0.01
64	1420147	KY0021466 - Outfall 55	1	0.05
65	1440204	KY0021466 - Outfall 59	0	0.00
66	1440206	KY0021466 - Outfall 61	8	0.57
67	1440207	To Be Permitted	1	0.00
68	1440209	KY0021466 - Outfall 56	16	24.42
69	1440508	KY0021466 - Outfall 60	5	0.18
70	1470089	KY0021466 - Outfall 62	3	0.06
71	1470093	KY0021466 - Outfall 63	6	19.05
72	1480185	To Be Permitted	6	0.74
73	1480187	KY0021466 - Outfall 30	10	141.96
74	1490132	KY0021466 - Outfall 65	4	0.20
75	1490172	KY0021466 - Outfall 64	0	0.00
76	1500131	KY0021466 - Outfall 66	7	2.89
77	1510133	To Be Permitted	0	0.00
78	1710114	KY0021466 - Outfall 69	2	0.04
79	1710116	KY0021466 - Outfall 68	7	3.84
80	1710119	KY0021466 - Outfall 70	6	1.83
81	1710121	KY0021466 - Outfall 71	6	0.76
82	1710124	KY0021466 - Outfall 72	6	1.19
83	1720109	KY0021466 - Outfall 73	7	4.94
84	1730259	KY0021466 - Outfall 75	6	0.61
85	1730262	To Be Permitted	0	0.00
86	1730263	KY0021466 - Outfall 74	7	0.64
87	1840130	To Be Permitted	6	0.65
88	1850158	KY0021466 - Outfall 76	15	11.99
89	1870193	KY0021466 - Outfall 78	7	0.37
90	1870194	KY0021466 - Outfall 79	4	0.11
91	1880090	KY0021466 - Outfall 81	4	1.58
92	1880091	KY0021466 - Outfall 80	2	1.11
		TOTAL	**444**	**434.74**

Threshold for model activation is 0.01 MGD and 0.001 MG